

Mitsubishi Programmable Controller

Transition from MELSEC-AnS/QnAS (Small Type) Series to L Series Handbook

(Intelligent Function Modules)



December 2013 Edition

SAFETY PRECAUTIONS

(Read these precautions before using this product.)

Before using this product, please read this handbook and the relevant manuals introduced in this handbook carefully and pay full attention to safety to handle the product correctly.



Under some circumstances, failure to observe the precautions given under "ACAUTION" may lead to serious consequences.

Observe the precautions of both levels because they are important for personal and system safety.

[Design Precautions]

- Configure safety circuits external to the programmable controller to ensure that the entire system operates safely even when a fault occurs in the external power supply or the programmable controller. Failure to do so may result in an accident due to an incorrect output or malfunction.
 - (1) Emergency stop circuits, protection circuits, and protective interlock circuits for conflicting operations (such as forward/reverse rotations or upper/lower limit positioning) must be configured external to the programmable controller.
 - (2) Machine OPR (Original Point Return) of the positioning function is controlled by two kinds of data: an OPR direction and an OPR speed. Deceleration starts when the near-point watchdog signal turns on. If an incorrect OPR direction is set, motion control may continue without deceleration. To prevent machine damage caused by this, configure an interlock circuit external to the programmable controller.
 - (3) When the CPU module detects an error during control by the positioning function, the motion slows down and stops.
 - (4) When the programmable controller detects an abnormal condition, it stops the operation and all outputs are:
 - Turned off if the overcurrent or overvoltage protection of the power supply module is activated.
 - Held or turned off according to the parameter setting if the self-diagnostic function of the CPU module detects an error such as a watchdog timer error.

Also, all outputs may be turned on if an error occurs in a part, such as an I/O control part, where the CPU module cannot detect any error. To ensure safety operation in such a case, provide a safety mechanism or a fail-safe circuit external to the programmable controller. For a fail-safe circuit example, refer to the MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection).

- (5) Outputs may remain on or off due to a failure of a component such as a transistor in an output circuit. Configure an external circuit for monitoring output signals that could cause a serious accident.
- In an output circuit, when a load current exceeding the rated current or an overcurrent caused by a load short-circuit flows for a long time, it may cause smoke and fire. To prevent this, configure an external safety circuit, such as a fuse.
- Configure a circuit so that the programmable controller is turned on first and then the external power supply. If the external power supply is turned on first, an accident may occur due to an incorrect output or malfunction.
- Configure a circuit so that the external power supply is turned off first and then the programmable controller. If the programmable controller is turned off first, an accident may occur due to an incorrect output or malfunction.
- For the operating status of each station after a communication failure, refer to relevant manuals for each network. Incorrect output or malfunction due to a communication failure may result in an accident.

[Design Precautions]

When changing data from a peripheral device connected to the CPU module to the running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure. To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.

• An absolute position restoration by the positioning function may turn off the servo-on signal (servo off) for approximately 20ms, and the motor may run unexpectedly. If this causes a problem, provide an electromagnetic brake to lock the motor during absolute position restoration.

[Design Precautions]

- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
- During control of an inductive load such as a lamp, heater, or solenoid valve, a large current (approximately ten times greater than normal) may flow when the output is turned from off to on. Therefore, use a module that has a sufficient current rating.
- After the CPU module is powered on or is reset, the time taken to enter the RUN status varies depending on the system configuration, parameter settings, and/or program size. Design circuits so that the entire system will always operate safely, regardless of the time.

[Installation Precautions]

• Shut off the external power supply (all phases) used in the system before mounting or removing a module. Failure to do so may result in electric shock or cause the module to fail or malfunction.

- Use the programmable controller in an environment that meets the general specifications in this manual. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- To interconnect modules, engage the respective connectors and securely lock the module joint levers. Incorrect interconnection may cause malfunction, failure, or drop of the module.
- Do not directly touch any conductive parts and electronic components of the module. Doing so can cause malfunction or failure of the module.
- Securely connect an extension cable to the connectors of a branch module and an extension module. After connections, check that the cable is inserted completely. Poor contact may cause malfunction.

[Wiring Precautions]

- Shut off the external power supply (all phases) used in the system before wiring. Failure to do so may result in electric shock or cause the module to fail or malfunction.
- After installation and wiring, attach the included terminal cover to the module before turning it on for operation. Failure to do so may result in electric shock.

[Wiring Precautions]

- Individually ground the FG and LG terminals of the programmable controller with a ground resistance of 100Ω or less. Failure to do so may result in electric shock or malfunction.
- Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when a terminal block screw comes loose, resulting in failure.
- Check the rated voltage and terminal layout before wiring to the module, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure.
- Connectors for external devices must be crimped or pressed with the tool specified by the manufacturer, or must be correctly soldered. Incomplete connections may cause short circuit, fire, or malfunction.
- Securely connect the connector to the module.
- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
- Place the cables in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- Check the interface type and correctly connect the cable. Incorrect wiring (connecting the cable to an incorrect interface) may cause failure of the module and external device.
- Tighten the terminal block screws within the specified torque range. Undertightening can cause short circuit, fire, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, fire, or malfunction.
- When disconnecting the cable from the module, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. For the cable connected to the terminal block, loosen the terminal screw. Pulling the cable connected to the module may result in malfunction or damage to the module or cable.
- Prevent foreign matter such as dust or wire chips from entering the module. Such foreign matter can cause a fire, failure, or malfunction.
- A protective film is attached to the top of the module to prevent foreign matter, such as wire chips, from entering the module during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.
- To use the high-speed counter function, ground the shield cable on the encoder side (relay box) with a ground resistance of 100Ω or less. Failure to do so may cause malfunction.
- Mitsubishi programmable controllers must be installed in control panels. Connect the main power supply to the power supply module in the control panel through a relay terminal block.
 Wiring and replacement of a power supply module must be performed by qualified maintenance personnel with knowledge of protection against electric shock. For wiring methods, refer to the MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection).

[Startup and Maintenance Precautions]

- Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.
- Correctly connect the battery connector. Do not charge, disassemble, heat, short-circuit, solder, or throw the battery into the fire. Also, do not expose it to liquid or strong shock.
 Doing so will cause the battery to produce heat, explode, ignite, or leak, resulting in injury and fire.
- Shut off the external power supply (all phases) used in the system before cleaning the module or retightening the terminal block screws or the connector screws. Failure to do so may result in electric shock.

- Before performing online operations (especially, program modification, forced output, and operating status change) for the running CPU module from the peripheral device connected, read relevant manuals carefully and ensure the safety. Improper operation may damage machines or cause accidents.
- Do not disassemble or modify the modules. Doing so may cause failure, malfunction, injury, or a fire.
- Use any radio communication device such as a cellular phone or PHS (Personal Handy-phone System) more than 25cm away in all directions from the programmable controller. Failure to do so may cause malfunction.
- Shut off the external power supply (all phases) used in the system before mounting or removing a module. Failure to do so may cause the module to fail or malfunction.
- Tighten the terminal block screws and the connector screws within the specified torque range.
 Undertightening can cause drop of the component or wire, short circuit, or malfunction.
 Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- After the first use of the product (module, display unit, and terminal block), the number of connections/disconnections is limited to 50 times (in accordance with IEC 61131-2). Exceeding the limit may cause malfunction.
- After the first use of the SD memory card, the number of insertions/removals is limited to 500 times. Exceeding the limit may cause malfunction.
- Do not drop or apply shock to the battery to be installed in the module. Doing so may damage the battery, causing the battery fluid to leak inside the battery. If the battery is dropped or any shock is applied to it, dispose of it without using.
- Before handling the module, touch a conducting object such as a grounded metal to discharge the static electricity from the human body. Failure to do so may cause the module to fail or malfunction.
- Before testing the operation by the positioning function, set a low speed value for the speed limit parameter so that the operation can be stopped immediately upon occurrence of a hazardous condition.

[Disposal Precautions]

When disposing of this product, treat it as industrial waste. When disposing of batteries, separate them from other wastes according to the local regulations. For details on battery regulations in EU member states, refer to the MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection).

[Transportation Precautions]

 When transporting lithium batteries, follow the transportation regulations. For details on the regulated models, refer to the MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection).

CONDITIONS OF USE FOR THE PRODUCT

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;

i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and

ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.

MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT. ("Prohibited Application")

Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions Mitsubishi may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTs are required. For details, please contact the Mitsubishi representative in your region.

* The handbook number is given on the bottom left of the back cover.

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October, 2012	L(NA)08259ENG-A	First edition	
December, 2013	L(NA)08259ENG-B	Addition of LCPU models	
		Addition of the L series analog input/output module and review of alternative	
		models	
		Model addition	
		L02SCPU, L02SCPU-P, L06CPU, L06CPU-P, L26CPU, L26CPU-P,	
		LH42C4NT1P, L60AD2DA2	
		Addition	
		Insert Chapter 4 and modify the Chapter 5 or later	

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• For the products shown in handbooks for transition, catalogues, and transition examples, refer to the manuals for the relevant products and check the detailed specifications, precautions for use, and restrictions before replacement.

For the products manufactured by Mitsubishi Electric Engineering Co., Ltd., Mitsubishi Electric System & Service Co., Ltd., and other companies, refer to the catalogue for each product and check the detailed specifications, precautions for use, and restrictions before use.

The manuals and catalogues for our products, products manufactured by Mitsubishi Electric Engineering Co., Ltd., and Mitsubishi Electric System & Service Co., Ltd. are shown in Appendix of each handbook for transition.

- Details of models certified by each standard are available at the following Mitsubishi Electric FA site: http://www.mitsubishielectric.com/fa/worldwide/index.html
- Products shown in this handbook are subject to change without notice.

GENERIC TERMS AND ABBREVIATIONS

Unless otherwise specified, this handbook uses the following generic terms and abbreviations.

Generic term/abbreviation	Description					
■Series						
Aporios	The abbreviation for large types of Mitsubishi MELSEC-A series programmable					
A series	controllers					
Ang agrico	The abbreviation for compact types of Mitsubishi MELSEC-A series programmable					
Allo selles	controllers					
A/AnS series	A generic term for A series and AnS series					
	The abbreviation for large types of Mitsubishi MELSEC-QnA series programmable					
QIA selles	controllers					
	The abbreviation for compact types of Mitsubishi MELSEC-QnA series programmable					
QIAS selles	controllers					
QnA/QnAS series	A generic term for QnA series and QnAS series					
A/AnS/QnA/QnAS series	A generic term for A series, AnS series, QnA series, and QnAS series					
Q series	The abbreviation for Mitsubishi MELSEC-Q series programmable controllers					
L series	The abbreviation for Mitsubishi MELSEC-L series programmable controllers					
■CPU module type						
CPU module	A generic term for A series, AnS series, QnA series, QnAS series, Q series, and L					
	series CPU modules					
Basic model QCPU	A generic term for the Q00JCPU, Q00CPU, and Q01CPU					
High Performance model QCPU	A generic term for the Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, and Q25HCPU					
Process CPU	A generic term for the Q02PHCPU, Q06PHCPU, Q12PHCPU, and Q25PHCPU					
Redundant CPU	A generic term for the Q12PRHCPU and Q25PRHCPU					
	A generic term for the Q00U(J)CPU, Q01UCPU, Q02UCPU, Q03UD(E)CPU,					
	Q03UDVCPU, Q04UD(E)HCPU, Q04UDVCPU, Q04UDPVCPU, Q06UD(E)HCPU,					
Universal model QCPU	Q06UDVCPU, Q06UDPVCPU, Q10UD(E)HCPU, Q13UD(E)HCPU, Q13UDVCPU,					
	Q13UDPVCPU, Q20UD(E)HCPU, Q26UD(E)HCPU, Q26UDVCPU, Q26UDPVCPU,					
	Q50UDEHCPU, and Q100UDEHCPU					
■CPU module model						
ACPU	A generic term for MELSEC-A series CPU modules					
AnSCPU	A generic term for MELSEC-AnS series CPU modules					
	A generic term for the A1NCPU, A1NCPUP21/R21, A1NCPUP21-S3, A2NCPU,					
AnNCPU	A2NCPU-S1, A2NCPUP21/R21, A2NCPUP21/R21-S1, A2NCPUP21-S3(S4),					
	A3NCPU, A3NCPUP21/R21, and A3NCPUP21-S3					
	A generic term for the A2ACPU, A2ACPU-S1, A3ACPU, A2ACPUP21/R21,					
ANACPU	A2ACPUP21/R21-S1, and A3ACPUP21/R21					
AnUCPU	A generic term for the A2UCPU, A2UCPU-S1, A3UCPU, and A4UCPU					
AnUS(H)CPU	A generic term for the A2USCPU, A2USCPU-S1, A2USHCPU-S1					
A/AnSCPU	A generic term for MELSEC-A series and MELSEC-AnS series CPU modules					
AnN/AnACPU	A generic term for the AnNCPU and AnACPU					
AnN/AnA/AnSCPU	A generic term for the AnNCPU, AnACPU, and AnSCPU					
QnACPU	A generic term for MELSEC-QnA series CPU modules					
QnASCPU	A generic term for MELSEC-QnAS series CPU modules					
QnA/QnASCPU	A generic term for MELSEC-QnA series and MELSEC-QnAS series CPU modules					
A/AnS/QnA/QnASCPU	A generic term for A series, AnS series, QnA series, and QnAS series CPU modules					
QCPU	A generic term for MELSEC-Q series CPU modules					
LCPU	A generic term for MELSEC-L series CPU modules					

INTRODUCTION

1.1 Advantages of Transition to L Series

Advantage 1) Advanced performance of equipments (shortened takt time)

In addition to the processing performance improvement for L series CPU, the processing speed for L series intelligent function module is also increased, so that the equipment capability to improve is possible.

Advantage 2) Baseless, flexible composition

The L series does not require a main base unit and can be installed in a minimum space without restrictions of the base unit size.

Even when a module is added, the number of modules is not constrained by the number of base slots, therefore the system cost such as addition of an extension base unit can be suppressed.

Advantage 3) Improved operating efficiency for programming and monitoring

The intelligent function module operation of GX Works2 can be used on the L series intelligent function module.

Though using the intelligent function module operation of GX Works2 is not required, the use enables the following and can reduce sequence programs.

- Initial setting is possible without a program.
- The auto refresh setting allows to read/write buffer memory data of intelligent function module automatically from/to the CPU device memory.
- Checking of the setting status or operating status of intelligent function module is simplified.

1.2 Precautions for Transition

- (1) When replacing the AnS/QnAS series with the L series, be sure to read the manuals of each L series module and confirm the functions, specifications, and how to use before using the L series.
- (2) After the AnS/QnAS series is replaced with the L series, be sure to verify the operation of the entire system before the start of operations.

Memo

2 ANALOG INPUT MODULE REPLACEMENT

2.1 List of Analog Input Module Alternative Models for Replacement

AnS/QnAS	series	Transition to L series			
Product	Model	Model	Remarks (Restrictions)		
			 External wiring: Cable size is changed. 		
			Number of slots: Not changed		
	A1964AD		3) Program: The number of occupied I/O points, I/O		
	AIGUAAD	LUUAD4	signals, and buffer memory addresses are changed.		
			Performance specifications: Not changed		
			5) Functional specifications: Not changed		
Analog input module			1) External wiring: Cable size is changed.		
			2) Number of slots: Changed (Two modules are		
		L60AD4	required.)		
	A1S68AD		3) Program: The number of occupied I/O points, I/O		
			signals, and buffer memory addresses are changed.		
			Performance specifications: Not changed		
			5) Functional specifications: Not changed		

2.2 A1S64AD

2.2.1 Performance specifications comparison

Item		A1S64AD						
Analog input	Voltage	-10 to 0 to +10VDC (Input resistance value: 1MΩ)						
7 thatog input	Current	-20 to 0 to +20mADC (Input resistance value: 250Ω)						
		16-bit signed binary						
Digital output		When 1/4000 is set: -4096 to +4095						
Digital output		When 1/8000 is set: -8192 to +8191						
		When 1/12000 is set: -12288 to +12287						
I/O characteristi	25	-1						
Resolution								
Overall accuracy (Accuracy in res digital output val	/ pect to maximum ue)	±1% When 1/4000 is set: ±40 When 1/8000 is set: ±80 When 1/12000 is set: ±120						

*1 I/O characteristics and maximum resolutions of the A1S64AD are shown below.

Item	Specifications					
	Analog input	Digital output va	alue (when gain 5V/20mA,	offset 0V/0mA)		
		1/4000	1/8000	1/12000		
	+10V	+4000	+8000	+12000		
I/O characteristics	+5V or +20mA	+2000	+4000	+6000		
	0V or 0mA	0	0	0		
	-5V or -20mA	-2000	-4000	-6000		
	-10V	-4000	-8000	-12000		
		1/4000	1/8000	1/12000		
Resolution	Voltage input	2.5mV	1.25mV	0.83mV		
	Current input	10µA	5μΑ	3.33µA		

O · Compatible	∧ · Partial	change	required	×۰	Incompatible
C. Compatible,		unange	requireu,	~.	incompatible

	L6	60AD4		C	Compatibility	Precautions for replacement
	-10 to 10VDC (Input	resistance value: $1M\Omega$)			0	
	0 to 20mADC (Input	resistance value: 250Ω)			0	
	16-bit signed bina When the scaling function	ary (-20480 to 20479, on is used: -32768 to 3276	7)		Δ	
	Analog input range	L60AD4 Co -10 to 10VDC (Input resistance value: 1MΩ) 0 to 20mADC (Input resistance value: 250Ω) 16-bit signed binary (-20480 to 20479, When the scaling function is used: -32768 to 32767) 16-bit signed binary (-20480 to 20479, When the scaling function is used: -32768 to 32767) 1alog input range Digital output Resolution 0 to 10V 500µV 0 to 5V 0 to 20000 250µV 1 to 5V -10 to 10V -20000 to 20000 -10 to 10V -20000 to 20000 1 to 5V 200µV User range setting -20000 to 22500 0 to 20mA 0 to 20000 4 to 20mA 0 to 20000 0 so0nA 0 to 20000 0 to 20000 1230nA				
	0 to 10V		500µV			
	0 to 5V	0 to 20000	250µV			Since the resolution differs between AnS
Valtaga	1 to 5V		200µV			
voltage	-10 to 10V	-20000 to 20000	500µV	Δ	series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function (refer	
	1 to 5V (Extended mode)	-5000 to 22500	200µV			
	User range setting	-20000 to 20000	307µV			
	0 to 20mA	0 to 20000	1000nA			to Appendix 3).
Current	4 to 20mA	01020000	800nA			
Guilent	4 to 20mA (Extended mode)	-5000 to 22500	800nA			
	User range setting	-20000 to 20000	1230nA			
					0	
	Ambient temperature with Ambient temperature with	nin 25±5°C: ±0.1% (±20 dig in 0 to 55°C: ±0.2% (±40 d	git) igit)		0	

ltem	A1S64AD	
Maximum conversion speed	20ms/channel	
Absolute maximum input	Voltage: ±15V Current: ±30mA	
Number of analog input points	4 channels/module	
Number of offset/gain settings	-	
Insulation method	Between the input terminal and programmable controller power supply: Photocoupler Between channels: Not insulated	
Withstand voltage	Between the input terminal and programmable controller power supply: 500VAC, for 1 minute	
Insulation resistance	Between the input terminal and programmable controller power supply: 500VDC, 5M Ω or higher	
Number of occupied I/O points	32 points (I/O assignment: special 32 points)	
External connection system	20-point terminal block	
Applicable wire size	0.75 to 1.5mm ² (Applicable tightening torque: 39 to 59N•cm)	
Applicable solderless terminal	1.25-3, 1.25-YS3, V1.25-3, V1.25-YS3A	
Internal current consumption (5VDC)	0.40A	
Weight	0.25kg	

2 ANALOG INPUT MODULE REPLACEMENT

L60AD4 Compatibility Precautions for replacement High speed: 20µs/channel (default) Medium speed: 80µs/channel Low speed: 1ms/channel The conversion speed of L60AD4 is faster than A1S64AD. Therefore, noise which were not imported to A1S64AD can be imported as analog signals. In this case, use the averaging processing function to remove the effect of noise. Voltage: ±15V Current: ±30mA O Up to 50000 times O Between the I/O terminal and programmable controller power supply: Photocoupler Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute O Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute O Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute O If points Δ (I/O assignment: intelligent 16 points) Δ 18-point terminal block × 0.3 to 0.75mm ² × Niring needs to be changed. Recalculation of internal current consumption (SVDC) is required. 0.52A Δ 0.19kg O		O: Compatible	e, \triangle : Partial change required, ×: Incompatible
High speed: 20µs/channel (default) Medium speed: 80µs/channel The conversion speed of L60AD4 is faster than A1S84AD. Therefore, noise which were not imported to A1S64AD. an be imported as analog signals. In this case, use the averaging processing function to remove the effect of noise. Voltage: ±15V Current: ±30mA O Hewen the I/O terminal and programmable controller power supply: Photocoupler Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute (I/O assignment: intelligent 16 points) O Between the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Between the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: Control in the insulation sleeve cannot be used.) × R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) × R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) × R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) ×	L60AD4	Compatibility	Precautions for replacement
Voltage: ±15V Current: ±30mA O Image: Ima	High speed: 20µs/channel (default) Medium speed: 80µs/channel Low speed: 1ms/channel	0	The conversion speed of L60AD4 is faster than A1S64AD. Therefore, noise which were not imported to A1S64AD can be imported as analog signals. In this case, use the averaging processing function to remove the effect of noise.
4 channels/module 0 Up to 50000 times 0 Between the I/O terminal and programmable controller power supply: Photocoupler Between channels: Not insulated 0 Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute 0 Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute 0 Between the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher 0 Image: Detween the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher 0 Image: Detween the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher 0 Image: Detween the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher 0 Image: Detween the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher 0 Image: Detween the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher 0 Image: Detween the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher 0 Image: Detween the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher 0 Image: Detween the I/O terminal block × × Image: Detween the I/O terminal swith an insulation sleeve cannot be used.) × Image: Detween the	Voltage: ±15V Current: ±30mA	0	
Up to 50000 times O Between the I/O terminal and programmable controller power supply: Photocoupler Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute O Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute O Between the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Between the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher M Image: the I/O terminal current control terminal block × Image: the I/O terminal current 0.52A <	4 channels/module	0	
Between the I/O terminal and programmable controller power supply: Photocoupler Between channels: Not insulated O Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute O Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute O Between the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: Control in the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: Control in the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: Control in the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: Control in the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: Control in the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: Control in terminal block × The number of occupied I/O points is changed to 16 points. Image: Control in terminal block × Wiring needs to be changed. Image: Control in terminal with an insulation sleeve cannot be used.) × Wiring needs to be changed. Image: Control in termal current consumption (5VDC) is required. O O Consumption (5VDC) is required.	Up to 50000 times	0	
Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute O Between the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O Image: Control in the image: Control	Between the I/O terminal and programmable controller power supply: Photocoupler Between channels: Not insulated	0	
Between the I/O terminal and programmable controller power supply: 500VDC, 10MΩ or higher O 16 points (I/O assignment: intelligent 16 points) Δ The number of occupied I/O points is changed to 16 points. 10 18-point terminal block × Multiple 10 0.3 to 0.75mm² × Multiple 11 R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) × Multiple 11 0.52A Δ Recalculation of internal current consumption (5VDC) is required. 11 0.19kg Ο Ο	Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute	0	
16 points (I/O assignment: intelligent 16 points) Δ The number of occupied I/O points is changed to 16 points. 18-point terminal block × 0.3 to 0.75mm ² × R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) × 1 0.52A 0.19kg O	Between the I/O terminal and programmable controller power supply: 500VDC, 10M $\!\Omega$ or higher	0	
18-point terminal block × 0.3 to 0.75mm ² × R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) × 0.3 to 0.75mm ² × R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) × 0.3 to 0.75mm ² × 0.52A △ 0.19kg ○	16 points (I/O assignment: intelligent 16 points)	Δ	The number of occupied I/O points is changed to 16 points.
0.3 to 0.75mm ² × Wiring needs to be changed. R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) × 0.52A △ Recalculation of internal current consumption (5VDC) is required. 0.19kg ○	18-point terminal block	×	
R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.) × Recalculation of internal current consumption (5VDC) is required. 1 0.19kg O O	0.3 to 0.75mm ²	×	Wiring needs to be changed.
0.52A Recalculation of internal current consumption (5VDC) is required. 0.19kg O	R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.)	×	
0.19kg O	0.52A	Δ	Recalculation of internal current consumption (5VDC) is required.
	0.19kg	0	

2.2.2 Functional comparison

					O: Supported, -: Not supported
lte	em	Description	A1S64AD	L60AD4	Precautions for replacement
	nable/diaable	Sets whether to enable or disable the A/D conversion for each			
A/D conversion e	enable/ disable	channel. By disabling the conversion for the channels that are	0	0	
TUTICUOTI		not used, the sampling time can be shortened.			
		Performs the A/D conversion for analog input values			
Sampling proces	sing	successively for each channel, and outputs digital output values	0	0	
		upon each conversion.			
	T	For each channel, averages A/D conversion values by the	-	-	The setting range of average
	Time average	amount of time, and outputs the average value as a digital value.	0	0	time and count differ.
		For each channel, averages A/D conversion values by the			Refer to the MELSEC-L Analog-
Averaging	Count average	number of times, and outputs the average value as a digital	0	0	Digital Converter Module Users
processing	-	value.	-	-	Manual, and check the
		For each channel, averages A/D conversion values by the			
	Moving average	number of times on a moving of each sampling processing, and	-	0	
		outputs the average value as a digital value.		0	
Range switching	function	Sets the input range to be used	_	0	
			-	0	
Onset/gain settin	ig function	Compensates for errors in digital output values.	0	0	
Conversion spee	ed switch function	Sets the conversion speed.	-	0	
Input range exte	nded mode	Extends the input range. By combining this function with the			
function	nueu moue	input signal error detection function, simple disconnection	-	0	
Turretion		detection can be executed.			
Maximum value/	minimum value	Stores the maximum and minimum values of the digital output	-	0	
hold function					
Input signal error detection function		Detects the analog input value which exceeds the setting range.	-	0	
		Extends the detection method of the input signal error detection			
Input signal error detection		function. Use this function to detect the input signal error only in		~	
extension function	n	the lower limit or upper limit, or to execute the disconnection		0	
		detection.			
Warning output function		Outputs an alarm when a digital output value is within the range	_	0	
(process alarm)		set in advance.		0	
Resolution mode	`	Sets the resolution according to the application. The resolution	0	_	
Resolution mode	•	mode setting is applicable to all channels.*1	0		
					By setting the same scaling
		Scale-converts the output digital value to the set range of the			upper limits and scaling lower
Scaling function		scaling upper limit value and scaling lower limit value. This omits	_	0	limits as the resolution mode of
Scaling function		the programming of the scale conversion	_	0	A1S64AD, the same digital
			O O - O vith the - ction - tal output - - O tal output - - O tting range. - or detection - or detection - or detection - resolution - O - ge of the - . This omits - - O to the - value in the - asily when -	output values as A1S64AD can	
					be used.
		Adds the set shifting amount of the conversion value to the			
Shift function		scaling value (digital operation value) and stores the value in the	-	0	
		buffer memory. Fine adjustment can be performed easily when		0	
		the system starts.			
		Sets the maximum value of the scaling value (digital operation			
Digital clipping fu	inction	value) to 20000 and the minimum value to 0 or -20000 when the	-	0	
		Input voltage or current exceeds the input range.			
5.0		Subtracts the difference conversion reference value from the		_	
Difference conve	ersion function	scaling value (digital operation value) and stores the acquired	-	0	
Lessing for sting		Logs the digital output value or scaling value (digital operation			
Logging function		value). The data of 10000 points can be logged for each	-	0	
		Deforms the A/D conversion of angles input value (veltage as			
Elow amount inte	arction function	Perioritis the A/D conversion of analog input value (voltage of		0	
now amount inte	gradon function	digital output value	_	0	
		Stores the errors and alarms occurred in the A/D convertor			<u> </u>
Error log function		module to the buffer memory as a history. Up to 16 errors and	-	0	
		alarms can be stored.	_	0	
		Collects the errors and alarms occurred in the A/D converter			
Module error col	lection function	module and stores them in the CPU module.	-	0	

O: Supported, -: Not supported

				- · · · · · · · · · · · · · · · · · · ·
Item	Description	A1S64AD	L60AD4	Precautions for replacement
Error clear function	Clears the error from the system monitor window of the		0	This function can be used on GX
	programming tool.	e error from the system monitor window of theO This full works2O the works2O the system monitor window of theO the works2O the system monitor window of theO the system monitor window of the system monitor win	Works2.	
Saving and restoring offset/gain	Saves and restores the offset/gain values in the user setting		0	
values	range.	-	0	

*1 For the A1S64AD, the resolution setting can be selected from 1/4000, 1/8000, and 1/12000 for both voltage and current inputs.

The L60AD4, however, does not support the resolution mode. To use the same digital value that is used for the A1S64AD, set the scaling upper and lower limit values that match the resolution of the A1S64AD using the scaling function.

2.2.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L Analog-Digital Converter Module User's Manual.

A1S64AD					L60/	AD4	
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name
X0	Watchdog timer error flag	Y0		X0	Module READY	Y0	
X1	A/D conversion READY	Y1		X1		Y1	
X2	Error flag	Y2		X2		Y2	
X3		Y3		X3		Y3	
X4		Y4		X4	Use prohibited	Y4	Use prohibited
X5		Y5		X5		Y5	
X6		Y6		X6		Y6	
X7		Y7		X7		Y7	
X8		Y8		X8	Warming output signal	Y8	
X9		Y9		X9	Operating condition setting completed flag	Y9	Operating condition setting request
XA		YA	Use prohibited	ХА	Offset/gain setting mode flag	YA	User range write request
XB		YB		ХВ	Channel change completed flag	YB	Channel change request
XC		YC		хс	Input signal error detection signal	YC	Use prohibited
XD		YD		XD	Maximum value/minimum value reset completed flag	YD	Maximum value/minimum value reset request
XE	Use prohibited	YE		XE	A/D conversion completed flag	YE	Use prohibited
XF	· · · · · · · · · · · · · · · · · · ·	YF		XF	Error flag	YF	Error clear request
X10		Y10					
X11		Y11					
X12		Y12	Error reset				
X13		Y13					
X14		Y14					
X15		Y15					
X16		Y16					
X17		Y17					
X18		Y18					
X19		Y19	Use prohibited				
X1A		Y1A					
X1B		Y1B					
XIC		Y1C					
XID		Y1D					
XIE V1E		V1E					
A IF		TIF					

2.2.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L Analog-Digital Converter Module User's Manual.

2 ANALOG INPUT MODULE REPLACEMENT

MELSEC

	A1S64AD		L60AD4			
Address (decimal)	Name	Read/write	Address (decimal)	Name	Read/write	
0	A/D conversion enable/disable setting		0	A/D conversion enable/disable setting		
1	Average processing specification	Read/write (decimal) 0 A/ 1 A/ 2 Ch 2 Ch 2 Ch 2 Ch 3 Ch 3 Ch 4 Ch 4 Ch 4 Ch 5 6 7 Sy 6 Sy 7 Sy 7 Sy 7 Sy 7 Sy 7 Sy 7 Sy 11 Ch 12 Ch 13 Ch 14 Ch 15 15 16 Sy 17 Sy 22 Oh 23 Oh 24 Av 25 Sy 26 Cc 27 In 30 Ch	CH1 Time Average/ Count Average/Moving Average			
2	CH1 Average time, count	P/M	2	CH2 Time Average/ Count Average/Moving Average	R/W	
3	CH2 Average time, count	1000	3	CH3 Time Average/ Count Average/Moving Average		
4	CH3 Average time, count	Read/write	4	CH4 Time Average/ Count Average/Moving Average		
5	CH4 Average time, count		5			
6			6	System area (Use prohibited)	_	
7	System area (Use prohibited)	_	7			
8			8	Averaging process setting	D/M/	
9 10	CH1 Digital output value		9 10	A/D conversion completed flag	R/W	
10	CH2 Digital output value	-	10	CH1 Digital output value		
12	CH3 Digital output value	R	12	CH2 Digital output value		
13	CH4 Digital output value	-	13	CH3 Digital output value		
14			14	CH4 Digital output value	_	
15	System area (Lies prohibited)		15			
16	System area (Use prohibited)	_	16	System area (Lise prohibited)	_	
17			17		_	
18	Write data error code	R	18			
19	A/D conversion completed flag		19	Latest error code	R	
20	Resolution setting	R/W	20	Setting range	_	
			21	System area (Use prohibited)	-	
			22	Offset/gain setting mode Offset specification	R/W	
			23		P/M/	
			25	System area (Lise prohibited)		
			26	Conversion speed setting	R/W	
			27	Input signal error detection extension setting	R/W	
			28	System area (Use prohibited)	_	
			29	Digital clipping enable/disable setting	R/W	
			30	CH1 Maximum value		
			31	CH1 Minimum value		
			32	CH2 Maximum value		
			33	CH2 Minimum value	R	
			34	CH3 Maximum value		
			35	CH3 Minimum value		
			36	CH4 Maximum value	_	
			37	CH4 Minimum value		
			38 to	System area (Lise prohibited)		
			10	System area (Use promoteu)	-	
			40	Input signal error detection setting	R/W	
			48	Warning output setting	R/W	
			49	Input signal error detection flag	R	
			50	Warning output flag (Process alarm)	R	
			51			
			52	System area (Use pronibited)	_	
			53	Scaling enable/disable setting	R/W	
			54	CH1 Scaling value (digital operation value)	R	
			55	CH2 Scaling value (digital operation value)	R	
			56	CH3 Scaling value (digital operation value)	R	
			57	CH4 Scaling value (digital operation value)	R	
			58			
			to	System area (Use prohibited)	-	
			61		DAK	
			62		R/W	
			64	CH2 Scaling lower limit value	R/W	

L60AD4				
Address	Name	Read/write		
	CH2 Scaling upper limit value	R/M/		
66	CH3 Scaling lower limit value	R/W		
67	CH3 Scaling upper limit value	R/W		
68	CH4 Scaling lower limit value	R/W		
69	CH4 Scaling upper limit value	R/W		
70				
to	System area (Use prohibited)	-		
85				
86	CH1 Process alarm lower lower limit value	R/W		
87	CH1 Process alarm lower upper limit value	R/W		
88	CH1 Process alarm upper lower limit value	R/W		
90	CH2 Process alarm lower lower limit value	R/W		
91	CH2 Process alarm lower upper limit value	R/W		
92	CH2 Process alarm upper lower limit value	R/W		
93	CH2 Process alarm upper upper limit value	R/W		
94	CH3 Process alarm lower lower limit value	R/W		
95	CH3 Process alarm lower upper limit value	R/W		
96	CH3 Process alarm upper lower limit value	R/W		
97	CH3 Process alarm upper upper limit value	R/W		
98	CH4 Process alarm lower lower limit value	R/W		
99	CH4 Process alarm lower upper limit value	R/W		
100	CH4 Process alarm upper lower limit value	R/W		
101	CH4 Process alarm upper upper limit value	R/W		
102				
to	System area (Use prohibited)	-		
141				
142	CH1 Input signal error detection setting value	R/W		
143	CH2 Input signal error detection setting value	R/W		
144	CH3 Input signal error detection setting value	R/W		
145	CH4 Input signal error detection setting value	R/W		
146	Cystem area (Lice prohibited)			
140	System area (Ose prohibited)	-		
149	CH1 Shifting amount to conversion value	RW		
151	CH2 Shifting amount to conversion value	R/W		
152	CH3 Shifting amount to conversion value	R/W		
153	CH4 Shifting amount to conversion value	R/W		
154				
to	System area (Use prohibited)	-		
157				
158	Made switching setting	D/M/		
159		K/W		
160				
to	System area (Use prohibited)	-		
171				
172	CH1 Difference conversion trigger	R/W		
173	CH2 Difference conversion trigger	R/W		
174	CH3 Difference conversion trigger	R/W		
175	CH4 Difference conversion trigger	R/W		
1/6				
t0	System area (Use prohibited)	-		
179	CH1 Difference conversion reference value	P		
100		ĸ		
101		R D		
182		R		
184		<u>Б</u>		
to	System area (Use prohibited)	_		
189				
190	CH1 Difference conversion status flag	R		
191	CH2 Difference conversion status flag	R		
192	CH3 Difference conversion status flag	R		

L60AD4						
Address	Name	Read/write				
(decimal)						
193	CH4 Difference conversion status flag	R				
194	System area (Llos probibilised)					
t0 100	System area (Use prohibited)	-				
199	Pass data classification setting R/V					
200	Pass data classification setting	R/W				
201	CH1 Industrial shipmont settings offset value (L)					
202	CH1 Industrial shipment settings offset value (L)					
203	CH1 Industrial shipment settings gain value (I)	R/W				
204	CH1 Industrial shipment settings gain value (E)	R/W				
206	CH2 Industrial shipment settings offset value (L)	R/W				
207	CH2 Industrial shipment settings offset value (H)	R/W				
208	CH2 Industrial shipment settings gain value (L)	R/W				
209	CH2 Industrial shipment settings gain value (H)	R/W				
210	CH3 Industrial shipment settings offset value (L)	R/W				
211	CH3 Industrial shipment settings offset value (H)	R/W				
212	CH3 Industrial shipment settings gain value (L)	R/W				
213	CH3 Industrial shipment settings gain value (H)	R/W				
214	CH4 Industrial shipment settings offset value (L)	R/W				
215	CH4 Industrial shipment settings offset value (H)	R/W				
216	CH4 Industrial shipment settings gain value (L)	R/W				
217	CH4 Industrial shipment settings gain value (H)	R/W				
218	CH1 User range settings offset value (L)	R/W				
219	CH1 User range settings offset value (H)	R/W				
220	CH1 User range settings gain value (L)	R/W				
221	CH1 User range settings gain value (H)	R/W				
222	CH2 User range settings offset value (L)	R/W				
223	CH2 User range settings offset value (H)	R/W				
224	CH2 User range settings gain value (L)	R/W				
225	CH2 User range settings gain value (H)	R/W				
226	CH3 User range settings offset value (L)	R/W				
227	CH3 User range settings offset value (H)	R/W				
228	CH3 User range settings gain value (L)	R/W				
229	CH3 User range settings gain value (H)	R/W				
230	CH4 User range settings offset value (L)	R/W				
231	CH4 User range settings offset value (H)	R/W				
232	CH4 User range settings gain value (L)	R/W				
233	CH4 User range settings gain value (H)	R/W				
234						
to	System area (Use prohibited)	-				
999						
1000	CH1 Logging enable/disable setting	R/W				
1001		R/W				
1002		R/W				
1003	CH4 Logging enable/disable setting	K/W				
1004	System area (Use prohibited)					
1007	oystem alea (Ose prohibited)	_				
1007	CH1 Logging hold request	P۸۸/				
1000	CH2 Logging hold request	R/W				
1010	CH3 Logging hold request	R/W				
1011	CH4 Logging hold request	R/W				
1012						
to	System area (Use prohibited)	_				
1015						
1016	CH1 Logging hold flag	R				
1017	CH2 Logging hold flag	R				
1018	CH3 Logging hold flag	R				
1019	CH4 Logging hold flag	R				
1020		····				
to	System area (Use prohibited)	_				
1023	· · · · · · · · · · · · · · · · · · ·					
1024	CH1 Logging data setting	R/W				

	L60AD4	1	
Address	Name	Read/write	
(decimal)	CH2 Logging data setting	R/W	
1025	CH3 Logging data setting	R/W	
1027	CH4 Logging data setting	R/W	
1028			
to	System area (Use prohibited)	-	
1031			
1032	CH1 Logging cycle setting value	R/W	
1033	CH2 Logging cycle setting value	R/W	
1034	CH3 Logging cycle setting value	R/W	
1035	CH4 Logging cycle setting value	R/W	
1036			
to	System area (Use prohibited)	-	
1039	CH1 Logging ovelo unit actting	DAM/	
1040	CH1 Logging cycle unit setting	R/W	
1041	CH3 Logging cycle unit setting		
1042	CH4 Logging cycle unit setting	R/W	
1043		10,00	
to	System area (Lise prohibited)	_	
1047			
1048	CH1 Logging points after trigger	R/W	
1049	CH2 Logging points after trigger	R/W	
1050	CH3 Logging points after trigger	R/W	
1051	CH4 Logging points after trigger	R/W	
1052			
to	System area (Use prohibited)	-	
1055			
1056	CH1 Level trigger condition setting	R/W	
1057	CH2 Level trigger condition setting	R/W	
1058	CH3 Level trigger condition setting	R/W	
1059	CH4 Level trigger condition setting	R/W	
1060			
to	System area (Use prohibited)	-	
1063			
1064	CH1 Trigger data	R/W	
1065	CH2 Trigger data	R/W	
1065	CH3 Trigger data	R/W	
1067	CH4 Trigger data	R/W	
1000 to	System area (Lise prohibited)		
1071	System area (Ose prohibited)	_	
1071	l evel data 0	R/W	
1072	Level data 1	R/W	
1074	Level data 2	R/W	
1075	Level data 3	R/W	
1076	Level data 4	R/W	
1077	Level data 5	R/W	
1078	Level data 6	R/W	
1079	Level data 7	R/W	
1080	Level data 8	R/W	
1081	Level data 9	R/W	
1082	CH1 Trigger setting value	R/W	
1083	CH2 Trigger setting value	R/W	
1084	CH3 Trigger setting value	R/W	
1085	CH4 Trigger setting value	R/W	
1086			
to	System area (Use prohibited)		
1089			
1090	CH1 Head pointer	R	
1091	CH2 Head pointer	R	
1092	CH3 Head pointer	R	
1093	Un4 Head pointer	к	

	L60AD4		
Address	Name	Read/write	
(decimal)			
1094			
1007	System area (Use prohibited)	-	
1097	CH1 Latest pointer		
1090		R	
1100	CH3 Latest pointer	R P	
1100		R P	
1107			
to	System area (Lise prohibited)	_	
1105			
1106	CH1 Number of logging data	R	
1107	CH2 Number of logging data	R	
1108	CH3 Number of logging data	R	
1109	CH4 Number of logging data	R	
1110			
to	System area (Use prohibited)	_	
1113	· · · · · · · · · · · · · · · · · · ·		
1114	CH1 Trigger pointer	R	
1115	CH2 Trigger pointer	R	
1116	CH3 Trigger pointer	R	
1117	CH4 Trigger pointer	R	
1118			
to	System area (Use prohibited)	-	
1121			
1122	CH1 Logging cycle monitor value (s)	R	
1123	CH1 Logging cycle monitor value (ms)	R	
1124	CH1 Logging cycle monitor value (µs)	R	
1125	CH2 Logging cycle monitor value (s)	R	
1126	CH2 Logging cycle monitor value (ms)	R	
1127	CH2 Logging cycle monitor value (µs)	R	
1128	CH3 Logging cycle monitor value (s)	R	
1129	CH3 Logging cycle monitor value (ms)	R	
1130	CH3 Logging cycle monitor value (µs)	R	
1131	CH4 Logging cycle monitor value (s)	R	
1132	CH4 Logging cycle monitor value (ms)	R	
1133	CH4 Logging cycle monitor value (µs)	R	
1134			
to	System area (Use prohibited)	-	
1153			
1154	CH1 Trigger detection time (First two digits of the	R	
1155	CH1 Trigger detection time (Month/ Dou)	D	
1155	CH1 Trigger detection time (Month/ Day)		
1100	CH1 Trigger detection time (Frodi/ Millide)	n.	
1157	week)	R	
	CH2 Trigger detection time (First two digits of the	<u> </u>	
1158	year/ Last two digits of the year)	R	
1159	CH2 Trigger detection time (Month/ Day)	R	
1160	CH2 Trigger detection time (Hour/ Minute)	R	
1161	CH2 Trigger detection time (Second/ Day of the	R	
1101	week)		
1162	CH3 Trigger detection time (First two digits of the	R	
	year/Last two digits of the year)		
1163	CH3 Trigger detection time (Month/ Day)	R -	
1164	CH3 Trigger detection time (Hour/ Minute)	R	
1165	CH3 Trigger detection time (Second/ Day of the	R	
	CH4 Trigger detection time (First two digits of the	<u> </u>	
1166	vear/ Last two digits of the year)	R	
1167	CH4 Trigger detection time (Month/ Day)	R	
1168	CH4 Trigger detection time (Hour/ Minute)	R	
.100	CH4 Trigger detection time (Second/ Day of the		
1169	week)	R	

L60AD4				
Address	Name	Read/write		
(decimal)				
1170 to	System area (Lise prohibited)			
1299		_		
1200	CH1 Flow amount integration enable/disable			
1300	setting	R/W		
1301	CH2 Flow amount integration enable/disable	R/M/		
1301	setting	17/11		
1302	CH3 Flow amount integration enable/disable	R/W		
	Setting			
1303	setting	R/W		
1304	5			
to	System area (Use prohibited)	_		
1307				
1308	CH1 Integration cycle setting	R/W		
1309	CH2 Integration cycle setting	R/W		
1310	CH3 Integration cycle setting	R/W		
1311	CH4 Integration cycle setting	R/W		
to	System area (Use prohibited)	_		
1315		_		
1316	CH1 Flow amount time unit setting	R/W		
1317	CH2 Flow amount time unit setting	R/W		
1318	CH3 Flow amount time unit setting	R/W		
1319	CH4 Flow amount time unit setting	R/W		
1320				
to	System area (Use prohibited)	-		
1323		5.44		
1324	CH1 Unit scaling setting	R/W		
1325	CH2 Unit scaling setting	R/W		
1320	CH4 Unit scaling setting	R/W		
1328				
to	System area (Use prohibited)	_		
1331				
1332	CH1 Integrated flow amount (L)	R		
1333	CH1 Integrated flow amount (H)	R		
1334	CH2 Integrated flow amount (L)	R		
1335	CH2 Integrated flow amount (H)	R		
1336	CH3 Integrated flow amount (L)	R		
1337		R P		
1339	CH4 Integrated flow amount (H)	R		
1340				
to	System area (Use prohibited)	_		
1347				
1348	CH1 Integration cycle monitor value	R		
1349	CH2 Integration cycle monitor value	R		
1350	CH3 Integration cycle monitor value	R		
1351	CH4 Integration cycle monitor value	R		
1352				
t0 1355	System area (Use prohibited)	-		
1355	CH1 Flow amount integration temporary stop	<u> </u>		
1356	request	R/W		
1357	CH2 Flow amount integration temporary stop request	R/W		
1358	CH3 Flow amount integration temporary stop request	R/W		
1359	CH4 Flow amount integration temporary stop request	R/W		
1360		<u> </u>		
to	System area (Use prohibited)	-		
1363				

L60AD4				
Address	Name	Read/write		
(decimal) 1364	CH1 Flow amount integration temporary stop flag	R		
1365	CH2 Flow amount integration temporary stop flag	R		
1366	CH3 Flow amount integration temporary stop flag	R		
1367	CH4 Flow amount integration temporary stop flag	R		
1368				
to	System area (Use prohibited)	_		
1371				
1372	CH1 Integrated flow amount clear request	R/W		
1373	CH2 Integrated flow amount clear request	R/W		
1374	CH3 Integrated flow amount clear request	R/W		
1375	CH4 Integrated flow amount clear request	R/W		
1376				
to	System area (Use prohibited)	-		
1379				
1380	CH1 Integrated flow amount clear flag	R		
1381	CH2 Integrated flow amount clear flag	R		
1382	CH3 Integrated flow amount clear flag	R		
1383	CH4 Integrated flow amount clear flag	R		
1384				
to	System area (Use prohibited)	-		
1799				

Memo

2.3 A1S68AD

2.3.1 Performance specifications comparison

Ite	em		A1S	68AD			
Analog input	Voltage	-10 to 0 to +10VDC (Input resistance value: 1MΩ)					
	Current		0 to +20mADC (Input resistance value: 250Ω)				
Digital output		16-bit signed binary					
		I/O characteristics					
			Analog input	Digital output	7		
			0 to +10V	0 to +4000]		
			-10 to +10V	-2000 to +2000			
			0 to 5V or	0 to +4000			
			0 to 20mA		_		
			1 to 5V or	0 to +4000			
I/O characteristic	s and		4 to 2011A				
			Maximum resolution				
			Analog input	Digital output	7		
			0 to +10V	2.5mV	1		
			-10 to +10V	5mV	1		
			0 to +5V	1.25mV	1		
			1 to 5V	1mV]		
			0 to 20mA	5μΑ			
			4 to 20mA	4µA			
		Within +1% at full coole					
Overall accuracy		(Digital output value: ±40)					
Maximum conver	sion speed	0.5ms/channel (The speed is 1ms/channel on all channels if averaging processing is set even for one channel.)					
Absolute maximu	im input	Voltage: ±35V Current: ±30mA					
Analog input poir	its		8 chann	els/module			
Number of offset	gain settings			-			
Insulation method	t	Between the input terminal and programmable controller power supply : Photocoupler Between channels: Not insulated					
Withstand voltage	e	-					
Insulation resista	nce	-					
Number of occup	ied I/O points	32 points (I/O assignment: special 32 points)					
External connect	ion system	20-point terminal block					
Applicable wire s	ize	0.75 to 1.5mm ²					
Applicable solder	less terminal	R1.25-3, 1.25-YS3, RAV1.25-3, V1.25-YS3A					
Internal current c (5VDC)	onsumption	0.40A					
Weight	0.27kg						
		•				<i></i>	
	L	60AD4	Compatibility	Precautions for replacement			
---	-----------------------------------	-----------------------------	-----------------------	---	--	--	--
	-10	o 10VDC					
	(Input resista	ance value: $1M\Omega$)					
	0 to	20mADC	0				
	(Input resista	ince value: 250Ω)					
	16-bit s	igned binary					
	(-2048	0 to 20479,		\bigtriangleup			
	When the scaling function	on is used: -32768 to 23276	67)				
	Analog input range						
	Analog input range	Digital output value	Resolution				
	0 to 10V		500µV				
	0 to 5V	0 to 20000	250µV				
Valtaga	1 to 5V		200µV				
voltage	-10 to 10V	-20000 to 20000	500µV		Since the resolution differs between AnS series		
	1 to 5V (Extended mode)	-5000 to 22500	200µV	Δ	and L series modules, it needs to be matched		
-	User range setting	-20000 to 20000	307µV		or the scaling function (refer to Appendix 3)		
	0 to 20mA		1000nA		or the sealing function (refer to Appendix o).		
-	4 to 20mA	0 to 20000	800nA				
Current	4 to 20mA	5000 to 00500	000 4				
	(Extended mode)	-5000 to 22500	800NA				
	User range setting	-20000 to 20000	1230nA				
Ambient temperature within 25±5°C: ±0.1% (±20 digit)				_			
Ambient temperature within 0 to 55°C: ±0.2% (±40 digit)				0			
	High apod: 20	us/shappel (default)			A1S68AD Therefore, point which were not		
	Medium spe	ed: 80us/channel		0	imported to A1S68AD can be imported as analog signals. In this case, use the averaging		
	Low spee	d: 1ms/channel					
	2011 0000				processing function to remove the effect of noise.		
	Volta	ige: ±15V		0			
	Culle	ent. ±30mA			Consider of replacing with soveral L60AD4		
	4 chan	nels/module		\bigtriangleup	modules		
	l In to I	0000 times		<u> </u>	modules.		
	Up to :	Subuu times		0			
Betwe	en the I/O terminal and program	mable controller power sup	oply: Photocoupler				
	Between cha	nnels: Not insulated		0			
Botwoon	the I/O terminal and programma	ble controller power supply		-			
Delween	rile i/O terminai anu programma	ninute	y. 500VACIIIIS, IOF T	0			
Between	the I/Ω terminal and programma	hle controller power supply	r 500VDC 10MO or				
Detween	line no terrimar and programma	nigher		0			
	16	points		The number of occupied I/O points is changed to			
	(I/O assignment	intelligent 16 points)	Δ	16 points.			
	18-point	terminal block		×			
	0.01	0.75mm ²		,			
 	0.3 to	0.75mm-		~	Wiring needs to be changed.		
R	1.25-3 (Solderless terminals with	n an insulation sleeve cann	ot be used.)	×			
).52A		Δ	Recalculation of internal current consumption		
		401-		-			
	C	лэкд	0				

O : Compatible, \bigtriangleup : Partial change required, ×: Incompatible

2.3.2 Functional comparison

					O: Supported, -: Not supported
lte	em	Description	A1S68AD	L60AD4	Precautions for replacement
	nabla/ diaabla	Sets whether to enable or disable the A/D conversion for each			
function		channel. By disabling the conversion for the channels that are	0	0	
		not used, the sampling time can be shortened.			
		Performs the A/D conversion for analog input values			
Sampling proces	sing	successively for each channel, and outputs digital output values	0	0	
		upon each conversion.			
	Time average	For each channel, averages A/D conversion values by the	0	0	The setting range of average
		amount of time, and outputs the average value as a digital value.			time and count differ.
		For each channel, averages A/D conversion values by the			Digital Converter Module User's
Averaging	Count average	number of times, and outputs the average value as a digital	0	0	Manual and check the
processing		value.			specifications.
		For each channel, averages A/D conversion values by the			· ·
	Moving average	number of times on a moving of each sampling processing, and	-	0	
		outputs the average value as a digital value.			
Range switching	function	Sets the input range to be used.	-	0	
Offset/gain settin	a function	Compensates for errors in digital output values.	_	0	
Conversion ener		Sate the conversion around		0	
Conversion spee	a switch function	Sets the conversion speed.	-	0	
Input range exte	nded mode	Extends the input range. By combining this function with the			
function		Input signal error detection function, simple disconnection	-	0	
Maximum value/		Stores the maximum and minimum values of the digital output			
hold function		values in the module	-	0	
Input signal error	detection				
function	uotootion	Detects the analog input value which exceeds the setting range.	-	0	
		Extends the detection method of the input signal error detection			
Input signal error	detection	function. Use this function to detect the input signal error only in		_	
extension function	n	the lower limit or upper limit, or to execute the disconnection		0	
		detection.			
Warning output f	unction	Outputs an alarm when a digital output value is within the range	_	0	
(process alarm)		set in advance.	_	0	
Resolution mode		Sets the resolution according to the application. The resolution	_	_	
Resolution mode	,	mode setting is applicable to all channels.*1	_	-	
		Scale-converts the output digital value to the set range of the			
Scaling function		scaling upper limit value and scaling lower limit value. This omits	-	0	
		the programming of the scale conversion.			
		Adds the set shifting amount of the conversion value to the			
Shift function		scaling value (digital operation value) and stores the value in the	_	0	
		buffer memory. Fine adjustment can be performed easily when	Ű		
					By sotting the same scaling
					by setting the same scaling
		Sets the maximum value of the scaling value (digital operation			limits as the resolution of
Digital clipping fu	Inction	value) to 20000 and the minimum value to 0 or -20000 when the	-	0	A1S68AD, the same digital
		input voltage or current exceeds the input range.			output values as A1S68AD can
					be used.
		Subtracts the difference conversion reference value from the			
Difference conversion function		scaling value (digital operation value) and stores the acquired	-	0	
		value in the buffer memory.			
		Logs the digital output value or scaling value (digital operation			
Logging function		value). The data of 10000 points can be logged for each	-	0	
		channel.			
		Performs the A/D conversion of analog input value (voltage or		<u> </u>	
now amount inte	syration runction	digital output value	-	0	
		Stores the errors and alarms occurred in the Δ/D converter			
Error log function	1	module to the buffer memory as a history. Up to 16 errors and	_	0	
		alarms can be stored.		0	
		Collects the errors and alarms occurred in the A/D converter		-	
wodule error col	lection function	module and stores them in the CPU module.	-	0	

O: Supported, -: Not supported

				• · • • • • • • • • • • • • • • • • • •
Item	Description	A1S68AD	L60AD4	Precautions for replacement
Error clear function	Clears the error from the system monitor window of the programming tool.	-	0	This function can be used on GX Works2.
Saving and restoring offset/gain values	Saves and restores the offset/gain values in the user setting range.	-	0	

*1 For the A1S68AD, the resolution is 1/4000 (fixed).

For the L60AD4, the resolution is 1/20000 (fixed). To use the same digital value that is used for the A1S68AD, set the scaling upper and lower limit values that match the resolution of the A1S68AD using the scaling function.

2.3.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L Analog-Digital Converter Module User's Manual.

Obvice No. Signal name Oevice No. Signal name Oevice No. Signal name Oevice No. Signal name No. Signal name Signal name Signal name No. Signal name Signal name Signal name No. Signal name Signal name No. Signal name Signal name Signal name No.	A1S68AD			L60AD4					
Watchdog timer ering Y0 X1 ADD conversion READY Y1 X2 Error flag Y2 X3 Y3 X4 Y4 X5 Y4 Y4 Y5 Y6 Y6 Y7 Y8 Y9 Y9 Y8 Y9 Y9 Y9 Y4 X5 X6 Y6 Y7 X8 Y9 Y9 Y8 Y9 YA Use prohibited Y8 Y8 Y0 Setting condition setting completed flag Y9 X0 Y0 X1 Y1 X1 Y1 X1 Y1 X1 Y1 X1 Y1 X2 Y1 X1 Y1 X2 Y1 X3 Y1 X4 Y2 Y1 Y2	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	
X1 XD conversion READY Y1 X2 Error flag Y2 X3 Y3 X4 Y4 X5 Y4 X6 Y6 Y7 Y8 Y8 Y6 Y7 Y8 Y8 Y9 Y8 Y9 Y8 Y9 Y8 Y8 Y8 Channel change Y8 Y9 Y9 V2 Y8 Chanel change Y8 Y10 Y10 </td <td>X0</td> <td>Watchdog timer error flag</td> <td>Y0</td> <td></td> <td>X0</td> <td>Module READY</td> <td>Y0</td> <td></td>	X0	Watchdog timer error flag	Y0		X0	Module READY	Y0		
X2 Know 1 Y2 Y2 X3 Y3 X4 Y3 Y3 X4 Y4 Y4 Y4 Y4 X5 Y6 Y7 Y4 Y6 Y7 Y6 Y6 Y7 Y8 Y8 Y7 X8 Y8 Y8 Y8 Y9 Y9 Operating condition setting request Y8 YA Use prohibited Y8 Y8 Y8 Y8 Y8 Operating condition setting request X8 Y8 Y8 Channel change completed flag Y9 XA Y8 Channel change completed flag Y8 Channel change completed flag Y8 X0 Y8 Y8 Channel change completed flag Y9 Waximum value/minimum val	X1	A/D conversion READY	Y1		X1		Y1		
X3 Y3 X4 Y3 Use prohibited Y4 X5 Y4 Y5 Y4 Y5 X6 Y6 Y6 Y6 X7 Y6 Y7 Vertice X8 Y8 Y8 Y8 Y9 Setting request X9 Y9 Vertice Y8 Y8 Y8 Channel change Y9 Setting request XA Y8 Y8 Y8 Y8 Channel change Y8 Channel change Y8 Setting request XA Y0 Y9 Setting request X8 X8 Channel change Y8 Channel change Y8 X9 Setting request X6 Y0 Vertexterage Y8 Y1 X8 X8 Channel change Y8 X9 V1 Vertexterage Y1	X2	Error flag	Y2		X2		Y2		
X4 Y4 Y5 Y6 Y6 Y6 Y6 Y6 Y6 Y6 Y6 Y6 Y7 Y7 Y8 Y9 Y7 Y8 Y9 Use prohibited Y8 Y9 Operating condition setting combleted flag combleted flag combleted flag Y9 Operating condition setting mode flag combleted flag comblete	X3		Y3		X3		Y3	Use prohibited	
X6 Y6 Y6 X7 X8 X6 Y6 X7 X8 Y7 X8 Y7 X8 Y8 Y9 Y8 Y9 XA Y8 Y9 Y9 X8 Warming output signal Y8 X9 Y9 Y9 X8 Warming output signal Y9 Operating condition XA Y9 Y4 Use prohibited Y9 Operating condition Setting request XA Y8 Y9 XA Offset/gain setting setting mode finding setting request XA Offset/gain setting setting mode finding setting request XD YB Y0 Y8 Channel change request XC Input signal error detection signal YC Use prohibited XE YF Y10 Y11 XE XE A/D conversion completed flag YE Use prohibited X11 Y13 Y14 Y14 Y14 Y14 Y14 Y14 Y14 Y14 Y14 Y16 Y16	X4		Y4		X4	Use prohibited	Y4	p	
X0 Y0 Y0 Y7 Y7 X8 Y3 Y4 Y4 </td <td>X5</td> <td></td> <td>Y5</td> <td></td> <td>X5</td> <td></td> <td>Y5</td> <td></td>	X5		Y5		X5		Y5		
Xi Yi Yi Yi Xi Yi Yi Yi Xi Yi Yi Yi Xi Yi Yi Yi Yi Xi Yi Yi Yi Yi Yi Xi Yi Yi Yi Yi Yi Yi Xi Yi Yi Yi Yi Yi Yi Yi Xi Yi	X6		Y6		X6		Y6		
X8 X8 X8 VA Operating condition setting request Y9 Operating condition setting request XA YA VB VA Use prohibited XA Offeetergian setting mode field YA Use range write request XB YB YB YB Channel change completed flag YB Channel change completed flag YB Channel change request XD YD YB YB YB YB YB YB YD YD YB YB YB YB YB YD YD YB YB YB YB YD YB YB YB YB YB YD YB YB YB YB YB Y11 Y12 Error reset YB YB YB Y13 Y14 Y15 Y16 Y16 YB YB Y18 Y16 Y16 Y16 Y16 Y16 Y16 X16 Y16 Y16 Y16 <td>X/</td> <td></td> <td>¥7</td> <td></td> <td>X/</td> <td>Warming output signal</td> <td>¥7</td> <td></td>	X/		¥7		X/	Warming output signal	¥7		
X9 Y9 V9 Setting completed flag Y4 Use prohibited X8 YA YA Use prohibited XA Offset/gain setting mode flag YA Use range write request X0 YB YA YB Channel change completed flag YB Channel change request X0 YD YD YA YE YC Use prohibited YD YD YD YA YE YC Use prohibited YE YD YE YD Maximum value/minimum value reset completed flag YD Maximum value/minimum value reset request XD YE YE YE Error reset YE YE Use prohibited X10 Y10 Y12 Error reset YE YF Error clear request X11 Y14 Y14 Y14 Y14 Y14 X16 Y16 Y16 Y16 Y16 X17 Y18 Y16 Y16 Y16 Y16 X10 Y16 Y16 Y16 Y16 Y16 X11 Y16 Y16 Y16 Y16 Y16 X16 Y16 Y16 Y16 Y16 Y16 X16 <	84		۲ð		79	Operating condition	۲ð	Operating condition	
XA VA Use prohibited XA Offset/gain setting mode flag VA User range write request XB YB YB XB Channel change completed flag YB Channel change request XD YC YC Use prohibited YC Use prohibited YC Use prohibited XD YC YB YB YC VC Use prohibited YC Use prohibited XD YC YC YC YC Use prohibited YC Use prohibited XE YC YF YC YC Use prohibited YC Use prohibited XE YE YF YC YF Use prohibited YF YF X10 Y10 Y12 Error reset YF Error clear request X113 Y14 Y15 Y16 Y16 YF YF YF X18 Y18 Y18 Y18 Y18 Y16 YF YF YF X16 Y16 Y16 Y16 Y16 YF YF YF YF	X9		Y9		X9	setting completed flag	Y9	setting request	
XB YB XB Channel change completed flag YB Channel change completed flag YB Channel change request XD YC YC Use prohibited YC Use prohibited XE YD Maximum value/minimum value reset completed flag YD Maximum value/minimum value reset request XF YF YF YF Use prohibited XF YF YF Error clear request Y10 Y10 YF Error clear request Y11 Y12 Error reset YF Error clear request Y13 Y13 Y13 Y14 Y15 Y15 Y13 Y16 Y16 Y16 Y16 Y16 Y17 Y18 Y18 Y16 Y16 Y16 Y11 Y18 Y16 Y16 Y16 Y16 Y18 Y16 Y16 Y16 Y16 Y16 Y16 Y16	XA		YA	Use prohibited	XA	Offset/gain setting mode flag	YA	User range write request	
XC Input signal error detection signal YC Use prohibited XD YD Maximum value/minimum value reset completed flag YD Maximum value/minimum value reset request XE YF YF YF Use prohibited XF YF YF YF Use prohibited X10 YF YF YF Input signal error detection signal YF YF XF YF YF YF YF YF YF X10 Y11 Y11 YF YF YF YF X11 Y11 Y11 YF YF YF YF X11 Y13 Y14 Y14 YF YF YF YF X11 Y14 Y14 YF YF YF YF YF X11 Y14 Y14 YF YF YF YF YF X11 Y14 YF YF YF YF	ХВ	-	YB			ХВ	Channel change completed flag	YB	Channel change request
XD YD XD Maximum value/minimum value reset completed flag YD Maximum value/minimum value reset request XF YE YE XE A/D conversion completed flag YE Use prohibited X10 Y1 Y10 XE Fror flag YF Error clear request X11 Y12 Error reset Y13 Y14 Y14 Y14 Y14 X16 Y16 Y16 Y17 Y18 Y18 Y18 Y18 X18 Y18 Y18 Y18 Y16 Y16 Y16 X11 Y18 Y18 Y18 Y18 Y18 Y18 X16 Y10 Y16 Y16 Y16 Y16 X17 Y18 Y19 Use prohibited Y16 Y16 X14 Y18 Y19 Y16 Y16 Y16 X16 Y16 Y16 Y16 Y16 Y16 X16 Y16 Y16 Y16 Y16 Y16 X16 Y16 Y16 Y16 Y16 Y16	XC		YC		XC	Input signal error detection signal	YC	Use prohibited	
XE A/D conversion completed flag YE Use prohibited XF YF Incompleted flag YE Use prohibited X10 Y10 XF Error flag YF Error clear request X11 Y11 Y11 Fror reset YF Error clear request X13 Y13 Y14 Y13 YF YF YF X14 Y13 Y14 YF YF YF YF X16 Y16 Y16 YF YF YF YF X17 Y16 Y16 YF YF YF YF X17 Y16 Y16 YF YF YF YF X18 Y19 Y16 YF YF YF YF X17 Y18 Y18 Y18 YF YF YF YF X18 Y18 Y18 Y18 YF YF YF YF YF X16 Y16 Y18 YF YF YF YF YF X17 Y18 YF YF YF YF YF X16 Y18 YF YF YF YF YF X16 Y	XD		YD		XD	Maximum value/minimum value reset completed flag	YD	Maximum value/minimum value reset request	
XF YF Error flag YF Error clear request X10 Y10 Y10 Y11 Y11 Y11 X12 Y11 Y12 Error reset Y13 Y13 Y14 Y14 Y14 Y15 Y15 Y16 Y16 Y16 Y17 Y18 Y14 Y14 Y14 Y15 Y16 Y17 Y18 Y18 Y18 Y18 Y18 Y18 Y18 Y18 Y14 Y14 Y14 Y14 Y14 Y14 Y14 Y16 Y18 Y18 Y18 Y18 Y18 Y16 Y16<	XE	Use prohibited	YE		XE	A/D conversion completed flag	YE	Use prohibited	
X10 Y10 X11 Y11 X12 Y12 X13 Y12 X13 Y13 X14 Y14 X15 Y15 X16 Y16 X17 Y17 X18 Y18 X19 Y18 X10 Y10 X11 Y11 X12 Y14 X13 Y14 X16 Y16 X17 Y17 X18 Y18 X10 Y10 X11 Y11 X12 Y11	XF		YF		XF	Error flag	YF	Error clear request	
X11 Y11 X12 Y12 X13 Y12 X13 Y13 X14 Y13 X14 Y14 X15 Y15 X16 Y16 X17 Y17 X18 Y18 X19 Y18 X11 Y18 X11 Y11 X18 Y18 X19 Y18 X11 Y11	X10		Y10						
X12 Y12 Error reset X13 Y13 X14 Y13 X14 Y14 X15 Y15 X16 Y16 X17 Y17 X18 Y18 X19 Y14 X1A Y18 X1B Y18 X1C Y10 X1D Y10 X1E Y1F	X11		Y11						
X13 Y13 X14 Y14 X15 Y15 X16 Y16 X17 Y17 X18 Y18 X19 Y19 X1A Y1A X1B Y1B X1C Y1C X1D Y1E X1F Y1F	X12		Y12	Error reset					
X14 Y14 X15 Y15 X16 Y16 X17 Y17 X18 Y18 X19 Y19 X1A Y1A X1B Y1B X1C Y1C X1D Y1E X1F Y1F	X13		Y13						
X13 Y13 X16 Y16 X17 Y17 X18 Y18 X19 Y19 X1A Y1A X1B Y1B X1C Y1C X1D Y1E X1F Y1F	X14		¥14						
X10 Y10 X17 Y17 X18 Y18 X19 Y19 X1A Y1A X1B Y1B X1C Y1C X1D Y1D X1E Y1F	X 15 X 16		115 V16						
X18Y18X19Y19X1AY1AX1BY1BX1CY1CX1DY1DX1EY1F	X10 X17		Y17						
X10Y19Use prohibitedX1AY1AX1BY1BX1CY1CX1DY1DX1EY1EX1FY1F	X18		Y18						
X1AY1AX1BY1BX1CY1CX1DY1DX1EY1EX1FY1F	X19		Y19	Use prohibited					
X1BY1BX1CY1CX1DY1DX1EY1EX1FY1F	X1A		Y1A						
X1CY1CX1DY1DX1EY1EX1FY1F	X1B		Y1B						
X1DY1DX1EY1EX1FY1F	X1C		Y1C						
X1E Y1E X1F Y1F	X1D		Y1D						
X1F Y1F	X1E		Y1E						
	X1F		Y1F						

2.3.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L Analog-Digital Converter Module User's Manual.

A1S68AD				L60AD4	
Address (decimal)	Name	Read/write	Address (decimal)	Name	Read/write
0	A-D conversion enable/disable	R/W	0	A/D conversion enable/disable setting	
1	Write data error code	R	1	CH1 Time Average/ Count Average/Moving Average	
2	Average processing specification	R/W	2	CH2 Time Average/ Count Average/Moving Average	R/W
3			3	CH3 Time Average/ Count Average/Moving Average	
to	System area (Use prohibited)	_	4	CH4 Time Average/ Count Average/Moving Average	
8	•		5		
9			6		
10	CH1 Average time, count		7	System area (Use prohibited)	-
11	CH2 Average time, count		8		
to		K/W	9	Averaging process setting	R/W
17	CH8 Average time, count		10	A/D conversion completed flag	
18	System area (Lise prohibited)	_	11	CH1 Digital output value	
19			12	CH2 Digital output value	R
20	CH1 Digital output value		13	CH3 Digital output value	
21	CH2 Digital output value		14	CH4 Digital output value	
22	CH3 Digital output value		15		
23	CH4 Digital output value	R	16	System area (Use prohibited)	_
24	CH5 Digital output value		17		
25	CH6 Digital output value		18		
26	CH7 Digital output value		19	Latest error code	R
27	CH8 Digital output value		20	Setting range	
28	A/D conversion completed flag	R/W	21	System area (Use prohibited)	-
29	System area (Use prohibited)	_	22	Offset/gain setting mode Offset specification	RM
			23	Offset/gain setting mode Gain specification	10,00
			24	Averaging process setting	R/W
			25	System area (Use prohibited)	-
			26	Conversion speed setting	R/W
			27	Input signal error detection extension setting	R/W
			28	System area (Use prohibited)	_
			29	Digital clipping enable/disable setting	R/W
			30	CH1 Maximum value	
			31	CH1 Minimum value	
			32	CH2 Maximum value	
			33	CH2 Minimum value	R
			34	CH3 Maximum value	
			35	CH3 Minimum value	
			36	CH4 Maximum value	
			37	CH4 Minimum value	
			38		
			to 46	System area (Use prohibited)	-
			47	Input signal error detection setting	R/W
			48	Warning output setting	R/W
			49	Input signal error detection flag	R
			50	Warning output flag (Process alarm)	R
			51	System area (Use prohibited)	
			52		
			53	Scaling enable/disable setting	R/W

	L60AD4	
Address	Name	Read/write
54	CH1 Scaling value (digital operation value)	R
55	CH2 Scaling value (digital operation value)	R
56	CH3 Scaling value (digital operation value)	R
57	CH4 Scaling value (digital operation value)	R
58		
to	System area (Use prohibited)	-
61		_
62	CH1 Scaling lower limit value	R/W
63	CH1 Scaling upper limit value	R/W
65	CH2 Scaling upper limit value	R/W
66	CH3 Scaling lower limit value	R/W
67	CH3 Scaling upper limit value	R/W
68	CH4 Scaling lower limit value	R/W
69	CH4 Scaling upper limit value	R/W
70		-
to	System area (Use prohibited)	-
85		
86	CH1 Process alarm lower lower limit value	R/W
87	CH1 Process alarm lower upper limit value	R/W
88	CH1 Process alarm upper lower limit value	R/W
89	CH1 Process alarm upper upper limit value	R/W
90	CH2 Process alarm lower lower limit value	R/W
91	CH2 Process alarm lower upper limit value	R/W
92	CH2 Process alarm upper lower limit value	R/W
93	CH2 Process alarm upper upper limit value	R/W
94	CH3 Process alarm lower lower limit value	R/W
95	CH3 Process alarm lower upper limit value	R/W
96	CH3 Process alarm upper lower limit value	R/W
97		R/W
90		R/W
100	CH4 Process alarm upper lower limit value	R/W
100	CH4 Process alarm upper upper limit value	R/W
102		
to	System area (Use prohibited)	-
141		
142	CH1 Input signal error detection setting value	R/W
143	CH2 Input signal error detection setting value	R/W
144	CH3 Input signal error detection setting value	R/W
145	CH4 Input signal error detection setting value	R/W
146		
to	System area (Use prohibited)	-
149		
150	CH1 Shifting amount to conversion value	R/W
151	CH2 Shifting amount to conversion value	R/W
152	CH3 Shifting amount to conversion value	R/W
153	CH4 Shifting amount to conversion value	R/W
154		
167	System area (Use prohibited)	-
157		
150	Mode switching setting	R/W
160		
to	System area (Use prohibited)	_
171		
172	CH1 Difference conversion triaaer	R/W
173	CH2 Difference conversion trigger	R/W
174	CH3 Difference conversion trigger	R/W
175	CH4 Difference conversion trigger	R/W
176		
to	System area (Use prohibited)	-
179	t	

L60AD4				
Address	Name	Read/write		
(decimal)				
180	CH1 Difference conversion reference value	R		
181	CH2 Difference conversion reference value	R		
182	CH3 Difference conversion reference value	R		
183	CH4 Difference conversion reference value	к		
184				
to	System area (Use prohibited)	-		
189		_		
190	CH1 Difference conversion status flag	R		
191	CH2 Difference conversion status flag	R		
192	CH3 Difference conversion status flag	R		
193	CH4 Difference conversion status flag	R		
194				
to	System area (Use prohibited)	_		
199	-			
200	Pass data classification setting	R/W		
201	System area (Use prohibited)	-		
202	CH1 Industrial shipment settings offset value (L)	R/W		
203	CH1 Industrial shipment settings offset value (H)	R/W		
204	CH1 Industrial shipment settings gain value (L)	R/W		
205	CH1 Industrial shipment settings gain value (H)	R/W		
206	CH2 Industrial shipment settings offset value (L)	R/W		
207	CH2 Industrial shipment settings offset value (H)	R/W		
208	CH2 Industrial shipment settings gain value (L)	R/W		
209	CH2 Industrial shipment settings gain value (H)	R/W		
210	CH3 Industrial shipment settings offset value (L)	R/W		
211	CH3 Industrial shipment settings offset value (H)	R/W		
212	CH3 Industrial shipment settings gain value (L)	R/W		
213	CH3 Industrial shipment settings gain value (H)	R/W		
214	CH4 Industrial shipment settings offset value (L)	R/W		
215	CH4 Industrial shipment settings offset value (H)	R/W		
216	CH4 Industrial shipment settings gain value (L)	R/W		
217	CH4 Industrial shipment settings gain value (H)	R/W		
218	CH1 User range settings offset value (L)	R/W		
219	CH1 User range settings offset value (H)	R/W		
220	CH1 User range settings gain value (L)	R/W		
221	CH1 User range settings gain value (H)	R/W		
222	CH2 User range settings offset value (L)	R/W		
223	CH2 User range settings offset value (H)	R/W		
224	CH2 User range settings gain value (L)	R/W		
225	CH2 User range settings gain value (H)	R/W		
226	CH3 User range settings offset value (L)	R/W		
227	CH3 User range settings offset value (H)	R/W		
228	CH3 User range settings gain value (L)	R/W		
229	CH3 User range settings gain value (H)	R/W		
230	CH4 User range settings offset value (L)	R/W		
231	CH4 User range settings offset value (H)	R/W		
232	CH4 User range settings gain value (L)	R/W		
233	CH4 User range settings gain value (H)	R/W		
234	1			
to	System area (Use prohibited)	-		
999				
1000	CH1 Logging enable/disable setting	R/W		
1001	CH2 Logging enable/disable setting	R/W		
1002	CH3 Logging enable/disable setting	R/W		
1003	CH4 Logging enable/disable setting	R/W		
1004				
to	System area (Use prohibited)	-		
1007				
1008	CH1 Logging hold request	R/W		
1009	CH2 Logging hold request	R/W		
1010	CH3 Logging hold request	R/W		
1011	CH4 Logging hold request	R/W		

	L60AD4	
Address	Name	Read/write
(decimal)	Hunic	Redu/Write
1012		
to	System area (Use prohibited)	-
1015		
1016	CH1 Logging hold flag	R
1017	CH2 Logging hold flag	R
1018	CH3 Logging hold flag	R
1019	CH4 Logging hold flag	R
1020		
to	System area (Use prohibited)	-
1023		
1024	CH1 Logging data setting	R/W
1025	CH2 Logging data setting	R/W
1026	CH3 Logging data setting	R/W
1027	CH4 Logging data setting	R/W
1028		
to	System area (Use prohibited)	-
1031		<u> </u>
1032	CH1 Logging cycle setting value	R/W
1033	CH2 Logging cycle setting value	R/W
1034	CH3 Logging cycle setting value	R/W
1035	CH4 Logging cycle setting value	R/W
1036		
to	System area (Use prohibited)	-
1039		
1040	CH1 Logging cycle unit setting	R/W
1041	CH2 Logging cycle unit setting	R/W
1042	CH3 Logging cycle unit setting	R/W
1043	CH4 Logging cycle unit setting	R/W
1044		
to	System area (Use prohibited)	-
1047		
1048	CH1 Logging points after trigger	R/W
1049	CH2 Logging points after trigger	R/W
1050	CH3 Logging points after trigger	R/W
1051	CH4 Logging points after trigger	R/W
1052		
to	System area (Use prohibited)	-
1055		
1056	CH1 Level trigger condition setting	R/W
1057	CH2 Level trigger condition setting	R/W
1058	CH3 Level trigger condition setting	R/W
1059	CH4 Level trigger condition setting	R/W
1060		
to	System area (Use prohibited)	-
1063		
1064	CH1 Trigger data	R/W
1065	CH2 Trigger data	R/W
1066	CH3 Trigger data	R/W
1067	CH4 Trigger data	R/W
1068		
to	System area (Use prohibited)	-
1071		
1072	Level data 0	R/W
1073	Level data 1	R/W
1074	Level data 2	R/W
1075	Level data 3	R/W
1076	Level data 4	R/W
1077	Level data 5	R/W
1078	Level data 6	R/W
1079	Level data 7	R/W
1080	Level data 8	R/W
1081	Level data 9	R/W
1082	CH1 Trigger setting value	R/W

	L60AD4	
Address	Name	Read/write
(decimal)	CH2 Trigger setting value	P/M
1083	CH3 Trigger setting value	R/W
1085	CH4 Triager setting value	R/W
1086		
to	System area (Use prohibited)	_
1089		
1090	CH1 Head pointer	R
1091	CH2 Head pointer	R
1092	CH3 Head pointer	R
1093	CH4 Head pointer	R
1094		
to	System area (Use prohibited)	-
1097		
1098	CH1 Latest pointer	R
1099	CH2 Latest pointer	R
1100	CH3 Latest pointer	R
1101	CH4 Latest pointer	R
1102	System area (Lise prohibited)	
1105	oystem area (Ose prohibited)	_
1106	CH1 Number of logging data	R
1107	CH2 Number of logging data	R
1107	CH3 Number of logging data	R
1109	CH4 Number of logging data	R
1110		
to	System area (Use prohibited)	_
1113		
1114	CH1 Trigger pointer	R
1115	CH2 Trigger pointer	R
1116	CH3 Trigger pointer	R
1117	CH4 Trigger pointer	R
1118		
to	System area (Use prohibited)	-
1121		
1122	CH1 Logging cycle monitor value (s)	R
1123	CH1 Logging cycle monitor value (ms)	R
1124	CH1 Logging cycle monitor value (µs)	R
1120	CH2 Logging cycle monitor value (s)	R
1120		R
1127	CH3 Logging cycle monitor value (ps)	R P
1120	CH3 Logging cycle monitor value (s)	R
1120	CH3 Logging cycle monitor value (us)	R
1131	CH4 Logging cycle monitor value (s)	R
1132	CH4 Logging cycle monitor value (ms)	R
1133	CH4 Logging cycle monitor value (µs)	R
1134	N /	
to	System area (Use prohibited)	-
1153		
1154	CH1 Trigger detection time (First two digits of the	R
110-	year/ Last two digits of the year)	
1155	CH1 Trigger detection time (Month/ Day)	R
1156	CH1 Trigger detection time (Hour/ Minute)	R
1157	CH1 Trigger detection time (Second/ Day of the week)	R
1158	CH2 Trigger detection time (First two digits of the year/ Last two digits of the year)	R
1159	CH2 Trigger detection time (Month/ Day)	R
1160	CH2 Trigger detection time (Hour/ Minute)	R
1161	CH2 Trigger detection time (Second/ Day of the week)	R
1162	CH3 Trigger detection time (First two digits of the	R
1102	year/ Last two digits of the year)	

	L60AD4	
Address	Name	Read/write
1163	CH3 Trigger detection time (Month/ Day)	R
1164	CH3 Trigger detection time (Hour/ Minute)	R
4405	CH3 Trigger detection time (Second/ Day of the	
1165	week)	R
1166	CH4 Trigger detection time (First two digits of the	R
1100	year/ Last two digits of the year)	
1167	CH4 Trigger detection time (Month/ Day)	R
1168	CH4 Trigger detection time (Hour/ Minute)	R
1169	CH4 Ingger detection time (Second/ Day of the week)	R
1170		
to	System area (Use prohibited)	_
1299		
1300	CH1 Flow amount integration enable/disable	R/W/
1000	setting	
1301	CH2 Flow amount integration enable/disable	R/W
	setting	
1302	setting	R/W
	CH4 Flow amount integration enable/disable	
1303	setting	R/W
1304		
to	System area (Use prohibited)	-
1307		
1308	CH1 Integration cycle setting	R/W
1309	CH2 Integration cycle setting	R/W
1310	CH3 Integration cycle setting	R/W
1311	CH4 Integration cycle setting	R/W
1312 to	System area (Lise prohibited)	_
1315	System area (Use prohibited)	_
1316	CH1 Flow amount time unit setting	R/W
1317	CH2 Flow amount time unit setting	R/W
1318	CH3 Flow amount time unit setting	R/W
1319	CH4 Flow amount time unit setting	R/W
1320		
to	System area (Use prohibited)	-
1323		
1324	CH1 Unit scaling setting	R/W
1325	CH2 Unit scaling setting	R/W
1326	CH3 Unit scaling setting	R/W
1327	CH4 Unit scaling setting	R/W
1328 to	System area (Lise prohibited)	_
1331		_
1332	CH1 Integrated flow amount (L)	R
1333	CH1 Integrated flow amount (H)	R
1334	CH2 Integrated flow amount (L)	R
1335	CH2 Integrated flow amount (H)	R
1336	CH3 Integrated flow amount (L)	R
1337	CH3 Integrated flow amount (H)	R
1338	CH4 Integrated flow amount (L)	R
1339	CH4 Integrated flow amount (H)	R
1340		
to	System area (Use prohibited)	-
1347		<u> </u>
1348	CH1 Integration cycle monitor value	R
1349	CH2 Integration cycle monitor value	R
1350	CH3 Integration cycle monitor value	R
1351	CH4 Integration cycle monitor value	R
1352	System area (Lise prohibited)	
1355	System area (Use prompted)	-
1355	1	

L60AD4				
Address (decimal)	Name	Read/write		
1356	CH1 Flow amount integration temporary stop	R/W		
	request			
1357	CH2 Flow amount integration temporary stop	R/W		
	request			
1358	CH3 Flow amount integration temporary stop request	R/W		
1359	CH4 Flow amount integration temporary stop	R/W		
4000	request			
1360				
to	System area (Use prohibited)	-		
1363				
1364	CH1 Flow amount integration temporary stop flag	R		
1365	CH2 Flow amount integration temporary stop flag	R		
1366	CH3 Flow amount integration temporary stop flag	R		
1367	CH4 Flow amount integration temporary stop flag	R		
1368				
to	System area (Use prohibited)	-		
1371				
1372	CH1 Integrated flow amount clear request	R/W		
1373	CH2 Integrated flow amount clear request	R/W		
1374	CH3 Integrated flow amount clear request	R/W		
1375	CH4 Integrated flow amount clear request	R/W		
1376				
to	System area (Use prohibited)	-		
1379				
1380	CH1 Integrated flow amount clear flag	R		
1381	CH2 Integrated flow amount clear flag	R		
1382	CH3 Integrated flow amount clear flag	R		
1383	CH4 Integrated flow amount clear flag	R		
1384				
to	System area (Use prohibited)	_		
1799				

3 ANALOG OUTPUT MODULE REPLACEMENT

3.1 List of Analog Output Module Alternative Models for Replacement

AnS/QnAS series		Transition to L series		
Product	Model	Model	Remarks (Restrictions)	
			1) External wiring: Cable size is changed.	
			2) Number of slots: Not changed	
			3) Program: The number of occupied I/O points, I/O signals, and	
	A1S62DA	L60DA4	buffer memory addresses are changed.	
			4) Performance specifications: Changed. Four channels per	
			module and an external power supply (24VDC) are required.	
			5) Functional specifications: Not changed	
			1) External wiring: Cable size is changed.	
	A1S68DAI	L60DA4	2) Number of slots: Changed (Two modules are required.)	
			3) Program: The number of occupied I/O points, I/O signals, and	
Analog output module			buffer memory addresses are changed.	
			4) Performance specifications: Changed. An external power	
			supply (24VDC) is required.	
			5) Functional specifications: Not changed	
			1) External wiring: Cable size is changed.	
			2) Number of slots: Changed (Two modules are required.)	
			3) Program: The number of occupied I/O points, I/O signals, and	
	A1S68DAV	L60DA4	buffer memory addresses are changed.	
			4) Performance specifications: Changed. An external power	
			supply (24VDC) is required.	
			5) Functional specifications: Not changed	

Memo

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3.2 A1S62DA

3.2.1 Performance specifications comparison

Item	A1S62DA						
Digital input	1/4000 setting: voltage: -4000 to 4000, current: 0 to 4000 1/8000 setting: voltage: -8000 to 8000, current: 0 to 8000 1/12000 setting: voltage: -12000 to 12000, current: 0 to 12000						
Analog output		Voltage: -10 to 0 to +10VDC (External load resistance value: 2KΩ to 1MΩ) Current: 0 to 20mADC (External load resistance value: 0 to 600Ω)					
I/O characteristics	Digital input value *1 The offset valu *2 The offset valu	1/4000 4000 2000 -2000 -4000 ue is set to 0V a ue is set to 4mA	Resolution 1/8000 8000 4000 0 -4000 -8000	1/12000 12000 6000 0 -6000 -12000 e is set to 10V lue is set to 20r	Voltage output value ^{*1} 10V 5V 0 -5V -10V (factory default se nA.	Current output value ^{*2} 20mA 12mA 4mA - -	
Maximum resolution	1/4000 2.5mV (10V) 5μA (20mA) 1/8000 1.25mV (10V) 2.5μA (20mA) 1/12000 0.83mV (10V) 1.7μA (20mA)						
Overall accuracy (Accuracy for the maximum analog output value)	±1% (voltage: ±100mV, current: ±200µA)						
Maximum conversion speed			Within 25m (same for	s/2 channels			
Absolute maximum output	Voltage: ±12V Current: +28mA						
Number of analog output points	2 channels/module						
Number of offset/gain settings				-			
Output short protection			Ava	ilable			

O : Compatible, \bigtriangleup : Partial change required, ×: Incompatible

L60DA4	Compatibility	Precautions for replacement
16-bit signed binary (-20480 to 20479, When the scaling function is used: -32768 to 32767)	0	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function. (Refer to Appendix 3.)
Voltage: -10 to 10VDC (External load resistance value: 1KΩ to 1MΩ) Current: 0 to 20mADC (External load resistance value: 0 to 600Ω)	0	
Analog output rangeDigital valueMaximum resolutionVoltage0 to 5V0 to 20000250µV1 to 5V-20000 to 20000200µV-10 to 10V-20000 to 20000333µVUser range settings0 to 20mA0 to 20000Current4 to 20mA0 to 20000800nAUser range settings-20000 to 20000700nA	Δ	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function. (Refer to Appendix 3.)
Ambient temperature 25±5°C: within ±0.1% (voltage: ±10mV, current: ±20μA) Ambient temperature 0 to 55°C: within ±0.3% (voltage: ±30mV, current: ±60μA)	0	
20µs/channel	0	
_	0	
4 channels/module	0	
Up to 50000 times	0	
Available	0	

lte	em	A1S62DA	
Insulation method		Between the output terminal and programmable controller power supply: Photocoupler Between channels: Not insulated	
Dielectric withsta	nd voltage	_	
Insulation resista	nce	_	
Number of occup	ied I/O points	32 points (I/O assignment: special 32 points)	
Connection termi	nal	20-point terminal block	
Applicable wire s	ze	0.75 to 1.5mm ²	
Applicable solder	less terminal	1.25-3, 1.25-YS3A, V1.25-3, V1.25-YS3A	
Internal current c (5VDC)	onsumption	0.80A	
	Voltage		
External power supply	Current consumption	_	
	Inrush current		
Weight		0.32kg	

L60DA4	Compatibility	Precautions for replacement
Between the I/O terminal and programmable controller power supply: Photocoupler Between output channels: Not insulated Between external power supply and analog output: Transformer	0	
Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute Between external power supply and analog output: 500VACrms, for 1 minute	0	
Between the I/O terminal and programmable controller power supply: 500VDC, 10M Ω or higher	0	
16 points (I/O assignment: intelligent 16 points)	Δ	The number of occupied I/O points is changed to 16 points.
18-point terminal block	×	
0.3 to 0.75mm ²	×	Wiring change is required.
R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.)	×	
0.16A	0	
24VDC +20%, -15% Ripple, spike 500mV _{P-P} or lower	×	
0.18A	×	is required.
4.3A, 1000µs or less	×	
0.20kg	0	

O: Compatible, \triangle : Partial change required, ×: Incompatible

3.2.2 Functional comparison

				O : Available, –: Not available
ltem	Description	A1S62DA	L60DA4	Precautions for replacement
D/A conversion enable/ disable function	Sets whether to enable or disable D/A conversion for each channel.	0	0	With the L60DA4, disabling the D/A conversion for an unused channel reduces the conversion cycles.
D/A sutsut such ls/dischls	Sets whether to output the D/A conversion value or the offset value			
function	The conversion speed is constant, regardless of the output enable/ disable status.	0	0	
Range switching function	Sets the output range to be used.	_	0	
Offset/gain setting function	Corrects errors in analog output values.	0	0	
Analog output HOLD/ CLEAR function	Sets the status of analog output values (HOLD or CLEAR), according to the CPU module operating status (RUN, STOP, or stop error).	0	0	The A1S62DA is set the status for all channels at once using the HLD/ CLR terminal on the front of the module. With the L60DA4, the status can be set for each channel on the Switch Setting window of GX Developer.
	Outputs the converted analog values when CH□ Output enable/ disable flag is forcibly turned on while the CPU module is in the STOP status.			· · · · · · · · · · · · · · · · · · ·
Analog output test when CPU module is in STOP status	Setting combi- enable/disable D/A conversion enable/disable Disable Disable	_	0	
	nation CHI Output enable/ disable flag Enable Disable Enable Disable			
	Analog output test Allowed allowed Not allowed			
Resolution mode	Sets the resolution according to the application.*1	0	-	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function. (Refer to Appendix 3.)
Scaling function	Scale-converts the input digital value to the set range of the scaling upper limit value and scaling lower limit value. This omits the programming of the scale conversion.	_	0	By setting the same scaling upper limits and scaling lower limits as the resolution of A1S62DA, the same digital output values as A1S62DA can be used.
Alarm output function	Outputs an alarm when the digital value is out of the preset range.	-	0	
External power supply READY flag	Turns on when the external power supply (24VDC) is supplied. When this flag is off, the analog output value becomes 0V/0mA regardless of other settings.	-	0	
Error log function	Stores the errors and alarms occurred in the D/A converter module to the buffer memory as a history. Up to 16 errors and alarms can be stored.	-	0	
Module error collection	Collects the errors and alarms occurred in the D/A converter module	_	0	
Error clear function	Clears the error from the system monitor window of the programming tool.	_	0	This function can be used on the GX Works2.
Saving and restoring offset/ gain values	Saves and restores the offset/gain values in the user setting range.	-	0	

*1 For the A1S62DA, the resolution setting can be selected from 1/4000, 1/8000, and 1/12000 for both voltage and current inputs.

The L60DA4, however, does not support the resolution mode. To use the same digital value that is used for the A1S62DA, set the scaling upper and lower limit values that match the resolution of the A1S62DA using the scaling function.

3.2.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L Digital-Analog Converter Module User's Manual.

	A1S62DA			L60DA4			
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name
X0	WDT error flag (A1S62DA detection)	Y0		X0	Module ready	Y0	Use prohibited
X1	D-A conversion READY	Y1		X1		Y1	CH1 Output enable/ disable flag
X2	Error flag	Y2		X2		Y2	CH2 Output enable/ disable flag
Х3		Y3		Х3	Use prohibited	Y3	CH3 Output enable/
X4		Y4		X4		Y4	CH4 Output enable/
¥5		¥5		¥5		¥5	
X6		10 V6		X6		10 V6	
X7		Y7	Liss prohibitod	X7	External power supply	Y7	Use prohibited
			Use prohibited	Vo	NEADT lidy		
 X9		Y9		ло Х9	Operating condition	Y9	Operating condition
XA		YA		ХА	Offset/gain setting mode	YA	User range writing
ХВ		YB		ХВ	flag Channel change completed flag	YB	request Channel change request
XC		YC		ХС	Set value change	YC	Set value change
ХD		ΥD		ХD	Lise prohibited	ΥD	Lise prohibited
XE	Use prohibited	YE		XE	Warning output signal	YE	Warning output clear
XF		YF		XF	Error flag	YF	Error clear request
X10		Y10	CH1 D-A conversion				
X11		Y11	CH2 D-A conversion				
X12		Y12					
X13		Y13					
X14		Y14					
X15		Y15	Use prohibited				
X16		Y16					
X17		Y17					
X18		Y18	Error reset				
X19		Y19					
X1A		Y1A					
X1B		Y1B					
X1C		Y1C	Use prohibited				
X1D		Y1D					
X1E	1	Y1E					
X1F		Y1F					

3.2.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L Digital-Analog Converter Module User's Manual.

	A1S62DA		L60DA4			
Address (decimal)	Name	Read/write	Address (decimal)	Name	Read/write	
0	Analog output enable/disable channel		0	D/A conversion enable/disable setting		
1	CH1 digital value	R/W	1	CH1 Digital value	-	
2	CH2 digital value		2	CH2 Digital value	R/W	
3			3	CH3 Digital value	-	
4			4	CH4 Digital value		
5	System area (Lise prohibited)	_	5			
6			to	System area (Use prohibited)	-	
7			10			
8			11	CH1 Set value check code	-	
9	Resolution of digital value		12	CH2 Set value check code	R	
10	CH1 set value check code	R/W	13	CH3 Set value check code		
11	CH2 set value check code		14	CH4 Set value check code		
12			15			
13			to	System area (Use prohibited)	-	
14	System area (Lise prohibited)	_	18			
15			19	Latest error code	R	
16			20	Setting range	IX I	
17			21	System area (Use prohibited)	_	
			22	Offset/gain setting mode		
				Offset specification		
			23	Offset/gain setting mode	R/W	
			20	Gain specification		
			24	Offset/gain adjustment value specification		
			25	System area (Use prohibited)	-	
			26	HOLD/CLEAR function setting	R	
			27			
			to	System area (Use prohibited)	-	
			46			
			47	Warning output setting	R/W	
			48	Warning output flag	R	
			49			
			to	System area (Use prohibited)	-	
			52			
			53	Scaling enable/disable setting	R/W	
			54	CH1 Scaling lower limit value	R/W	
			55	CH1 Scaling upper limit value	R/W	
			56	CH2 Scaling lower limit value	R/W	
			57	CH2 Scaling upper limit value	R/W	
			58	CH3 Scaling lower limit value	R/W	
			59	CH3 Scaling upper limit value	R/W	
			60	CH4 Scaling lower limit value	R/W	
			61	CH4 Scaling upper limit value	R/W	
			62	ļ		
			to	System area (Use prohibited)	-	
			85			
			86	CH1 Warning output upper limit value	R/W	
			87	CH1 Warning output lower limit value	R/W	
			88	CH2 Warning output upper limit value	R/W	
			89	CH2 Warning output lower limit value	R/W	

L60DA4					
Address	Name	Read/write			
(decimal)		neua/write			
90	CH3 Warning output upper limit value	R/W			
91	CH3 Warning output lower limit value	R/W			
92	CH4 Warning output upper limit value	R/W			
93	CH4 Warning output lower limit value	R/W			
94					
to	System area (Use prohibited)	-			
157					
158	Mode switching setting	R/W			
159	mode switching setting	R/W			
160					
to	System area (Use prohibited)	-			
199					
200	Pass data classification setting	R/W			
201	System area (Use prohibited)	-			
202	CH1 Industrial shipment settings offset				
value		17/10			
203	CH1 Industrial shipment settings gain value	R/W			
204	CH2 Industrial shipment settings offset				
204	value	r/w			
205	CH2 Industrial shipment settings gain value	R/W			
206	CH3 Industrial shipment settings offset				
200	value	17/10			
207	CH3 Industrial shipment settings gain value	R/W			
208	CH4 Industrial shipment settings offset				
200	value	17/10			
209	CH4 Industrial shipment settings gain value	R/W			
210	CH1 User range settings offset value	R/W			
211	CH1 User range settings gain value	R/W			
212	CH2 User range settings offset value	R/W			
213	CH2 User range settings gain value	R/W			
214	CH3 User range settings offset value	R/W			
215	CH3 User range settings gain value	R/W			
216	CH4 User range settings offset value	R/W			
217	CH4 User range settings gain value	R/W			
218					
to	System area (Use prohibited)	-			
1799					

3.3 A1S68DAI

3.3.1 Performance specifications comparison

Item		A1S	68DAI		
Digital input	16-bit signed binary Setting range: 0 to 4096				
Analog output		4 to 20mADC (External load	d resistance value: 0 to 600	ΩΩ)	
I/O characteristics		Digital input value 4000 2000 0	Analog output 20mA 12mA 4mA		
Maximum resolution of analog value		4	μΑ		
Overall accuracy (accuracy at maximum analog output value)	±1.0% (±200µA)				
Maximum conversion speed	Within 4ms/8 channels If the access from the CPU module using the FROM/TO instructions is frequent, the speed may be increased for 6ms.				
Number of analog output points		8 channe	els/module		
Number of offset/gain settings			-		
Output short protection		Ava	ilable		

O : Compatible, \triangle : Partial change required, ×: Incompatible

		L60DA4			Compatibility	Precautions for replacement
16-bit signed binary (-20480 to 20479, When the scaling function is used: -32768 to 32767)					0	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function. (Refer to Appendix 3.)
Voltage Curre	: -10 to 10VDC (Extern nt: 0 to 20mADC (Exter	al load resistance valu nal load resistance val	ie: 1KΩ to 1MΩ) ue: 0 to 600Ω)		0	
Analo Voltage Current	og output range 0 to 5V 1 to 5V -10 to 10V User range settings 0 to 20mA 4 to 20mA User range settings	Digital value 0 to 20000 -20000 to 20000 0 to 20000 -20000 to 20000 -20000 to 20000	Maximum resolution 250μV 200μV 500μV 333μV 1000nA 800nA 700nA		0	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function. (Refer to Appendix 3.)
Ambient temperature 25±5°C: within ±0.1% (voltage: ±10mV, current: ±20μA) Ambient temperature 0 to 55°C: within ±0.3% (voltage: ±30mV, current: ±60μA)					0	
20µs/channel					0	
4 channels/module					Δ	Consider replacement with several L60DA4 modules.
	Up to	50000 times Available			0 0	

lte	em	A1S68DAI			
Insulation method		Between the output terminal and programmable controller power supply: Photocoupler Between channels: Not insulated			
Dielectric withsta	nd voltage	_			
Insulation resista	nce	_			
Number of occup	ied I/O points	32 points (I/O assignment: special 32 points)			
Connected terminal		20-point terminal block (M3.5×7 screws)			
Applicable wire si	ize	0.75 to 1.5mm ²			
Applicable solder	less terminal	R1.25-3, 1.25-YS3, RAV1.25-3, V1.25-YS3A			
Internal current c (5VDC)	onsumption	0.85A			
E.t.	Voltage				
External power supply	Current consumption	_			
	Inrush current				
Weight		0.22kg			

L60DA4	Compatibility	Precautions for replacement
Between the I/O terminal and programmable controller power supply: Photocoupler Between output channels: Not insulated Between external power supply and analog output: Transformer		
Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute Between external power supply and analog output: 500VACrms, for 1 minute	0	
Between the I/O terminal and programmable controller power supply: 500VDC, 10M Ω or higher	0	
16 points (I/O assignment: intelligent 16 points)	Δ	The number of occupied I/O points is changed to 16 points.
18-point terminal block	×	
0.3 to 0.75mm ²	×	
FG terminal: R1.25-3, 1.25-YS3, RAV1.25-3, V1.25-YS3A Terminals other than FG: R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.)	×	Wiring change is required.
0.16A	0	
24VDC +20%, -15% Ripple, spike 500mV _{p-p} or lower		
0.18A	×	External power supply is required.
 4.3A, 1000µs or less		
0.20kg	0	

O : Compatible, \bigtriangleup : Partial change required, ×: Incompatible

3.3.2 Functional comparison

				O : Available, –: Not available
Item	Description	A1S68DAI	L60DA4	Precautions for replacement
D/A conversion enable/ disable function	Sets whether to enable or disable D/A conversion for each channel.	0	0	With the L60DA4, disabling the D/A conversion for an unused channel reduces the conversion cycles.
D/A output enable/disable function	Sets whether to output the D/A conversion value or the offset value for each channel. The conversion speed is constant, regardless of the output enable/ disable status.	0	0	
Range switching function	Sets the output range to be used.	-	0	
Offset/gain setting function	Corrects errors in analog output values.	-	0	
Analog output HOLD/ CLEAR function	Sets the status of analog output values (HOLD or CLEAR), according to the CPU module operating status (RUN, STOP, or stop error).	0	0	The A1S68DAI is set the status for all channels at once using the HLD/ CLR terminal on the front of the module. With L60DA4, HOLD/CLEAR is set for each channel.
	Outputs the converted analog values when CH□ Output enable/ disable flag is forcibly turned on while the CPU module is in the STOP status.			
Analog output test when CPU module is in STOP status	Setting combi- nation D/A conversion enable/disable Enable Disable CH□ Output enable/ disable flag Enable Disable Disable	-	0	
	Analog output test Allowed Allowed Not allowed			
Resolution mode	Sets the resolution according to the application.*1	-	_	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function. (Refer to Appendix 3.)
Scaling function	Scale-converts the input digital value to the set range of the scaling upper limit value and scaling lower limit value. This omits the programming of the scale conversion.	_	0	By setting the same scaling upper limits and scaling lower limits as the resolution of A1S68DAI, the same digital output values as A1S68DAI can be used.
Alarm output function	Outputs an alarm when the digital value is out of the preset range.	-	0	
External power supply READY flag	Turns on when the external power supply (24VDC) is supplied. When this flag is off, the analog output value becomes 0V/0mA regardless of other settings.	-	0	
Error log function	Stores the errors and alarms occurred in the D/A converter module to the buffer memory as a history. Up to 16 errors and alarms can be stored.	_	0	
Module error collection	Collects the errors and alarms occurred in the D/A converter module	_	0	
function	and stores them in the CPU module.		~	This function can be used as the
Error clear function	tool.	-	0	GX Works2.
saving and restoring offset/ gain values	Saves and restores the offset/gain values in the user setting range.	-	0	

*1 For the A1S68DAI, the resolution is 1/4000 (fixed).

For the L60DA4, the resolution is 1/20000 (fixed). To use the same digital value that is used for the A1S68DAI, set the scaling upper and lower limit values that match the resolution of the A1S68DAI using the scaling function.

3.3.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L Digital-Analog Converter Module User's Manual.

	A1S6	68DAI		L60DA4				
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	
X0	WDT error flag (A1S68DAI detection)	Y0		X0	Module READY	Y0	Use prohibited	
X1	D/A conversion READY	Y1	-	X1	X1		CH1 Output enable/ disable flag	
X2	Error flag	Y2		X2		Y2	CH2 Output enable/ disable flag	
X3		Y3		X3	Use prohibited	Y3	CH3 Output enable/ disable flag	
X4		Y4		X4		Y4	CH4 Output enable/ disable flag	
X5		Y5		X5		Y5		
X6		Y6		X6		Y6		
X7		Y7	Use prohibited	X7	External power supply READY flag	Y7	Use prohibited	
X8		Y8		X8	Use prohibited	Y8		
X9		Y9		Y9	X9	Operating condition setting completed flag	Y9	Operating condition setting request
XA	AY	YA		XA	Offset/gain setting mode flag	YA	User range writing request	
XB		YB		XB	Channel change completed flag	YB	Channel change request	
XC		YC		XC Set value change completed flag		YC	Set value change request	
XD		YD		XD	Use prohibited	YD	Use prohibited	
XE	Use prohibited	YE		XE	Warning output signal	YE	Warning output clear request	
XF		YF		XF	Error flag	YF	Error clear request	
X10		Y10						
X11		Y11						
X12		Y12						
X13		¥13	D/A conversion output					
×14 ×15		Y15	enable liag					
X16		Y16						
X17		Y17						
X18		Y18	Error reset flag					
X19		Y19						
X1A]	Y1A						
X1B		Y1B						
X1C		Y1C	Use prohibited					
X1D		Y1D						
X1E		Y1E						
X1F		Y1F						

3.3.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L Digital-Analog Converter Module User's Manual.

	A1S68DAI		L60DA4		
Address (decimal)	Name	Read/write	Address (decimal)	Name	Read/write
0	Analog output enable/disable channel		0	D/A conversion enable/disable setting	
1	CH.1 digital value		1	CH1 Digital value	
2	CH.2 digital value		2	CH2 Digital value	R/W
3	CH.3 digital value		3	CH3 Digital value	
4	CH.4 digital value	R/W	4	CH4 Digital value	
5	CH.5 digital value		5		
6	CH.6 digital value		to	System area (Use prohibited)	-
7	CH.7 digital value	10			
8	CH.8 digital value		11	CH1 Set value check code	
9	System area (Use prohibited)	-	12	CH2 Set value check code	D
10	CH.1 set value check code		13	CH3 Set value check code	ĸ
11	CH.2 set value check code		14	CH4 Set value check code	
12	CH.3 set value check code		15		
13	CH.4 set value check code	P	to	System area (Use prohibited)	-
14	CH.5 set value check code	ĸ	18	1	
15	CH.6 set value check code		19	Latest error code	_
16	CH.7 set value check code		20	Setting range	R
17	CH.8 set value check code		21	System area (Use prohibited)	-
			00	Offset/gain setting mode	
			22	Offset specification	
			23	Offset/gain setting mode	R/W
			25	Gain specification	
			24	Offset/gain adjustment value specification	
			25	System area (Use prohibited)	-
			26	HOLD/CLEAR function setting	R
			27		
			to	System area (Use prohibited)	-
			46		
			47	Warning output setting	R/W
			48	Warning output flag	R
			49		
			to	System area (Use prohibited)	-
			52		
			53	Scaling enable/disable setting	R/W
			54	CH1 Scaling lower limit value	R/W
			55	CH1 Scaling upper limit value	R/W
			56	CH2 Scaling lower limit value	R/W
			57	CH2 Scaling upper limit value	R/W
			58	CH3 Scaling lower limit value	R/W
			59	CH3 Scaling upper limit value	R/W
			60	CH4 Scaling lower limit value	R/W
			61	CH4 Scaling upper limit value	R/W
			62		
			to	System area (Use prohibited)	-
			85	1	
			86	CH1 Warning output upper limit value	R/W
			87	CH1 Warning output lower limit value	R/W
			88	CH2 Warning output upper limit value	R/W
			89	CH2 Warning output lower limit value	R/W
			90	CH3 Warning output upper limit value	R/W
			91	CH3 Warning output lower limit value	R/W
			92	CH4 Warning output upper limit value	R/W
			93	CH4 Warning output lower limit value	R/W

L60DA4							
Address (decimal)	Name	Read/write					
94							
to	System area (Use prohibited)	-					
157							
158	Mode switching setting	R/W					
159	mode switching setting	R/W					
160							
to	System area (Use prohibited)	-					
199							
200	Pass data classification setting	R/W					
201	System area (Use prohibited)	-					
202	CH1 Industrial shipment settings offset value	R/W					
203	CH1 Industrial shipment settings gain value	R/W					
204	CH2 Industrial shipment settings offset value	R/W					
205	CH2 Industrial shipment settings gain value	R/W					
206	CH3 Industrial shipment settings offset value	R/W					
207	CH3 Industrial shipment settings gain value	R/W					
208	CH4 Industrial shipment settings offset value	R/W					
209	CH4 Industrial shipment settings gain value	R/W					
210	CH1 User range settings offset value	R/W					
211	CH1 User range settings gain value	R/W					
212	CH2 User range settings offset value	R/W					
213	CH2 User range settings gain value	R/W					
214	CH3 User range settings offset value	R/W					
215	CH3 User range settings gain value	R/W					
216	CH4 User range settings offset value	R/W					
217	CH4 User range settings gain value	R/W					
218							
to	System area (Use prohibited)	-					
1799							

3.4 A1S68DAV

3.4.1 Performance specifications comparison

Item		A1S	68DAV			
Digital input	16-bit signed binary Setting range: -2048 to 2047					
Analog output		-10 to 0 (External load resista	to 10VDC nce value: $2K\Omega$ to $1M\Omega$)			
I/O characteristics		Digital input value 2000 1000 0 -1000 -2000	Analog output value 10V 5V 0V -5V -10V			
value						
Overall accuracy (accuracy at maximum analog output value)		±1.0% (±100mV)				
Maximum conversion speed	Within 4ms/8 channels If the access from the CPU module using the FROM/TO instructions is frequent, the speed may be increased for 6ms.					
Number of analog output points		8 chann	els/module			
Number of offset/gain settings			-			
Output short protection		Ava	ailable			

O: Compatible, \triangle : Partial change required, ×: Incompatible

		L60DA4			Compatibility	Precautions for replacement
16-bit signed binary (-20480 to 20479, When the scaling function is used: -32768 to 32767)					0	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function. (Refer to Appendix 3.)
Voltag Curre	e: -10 to 10VDC (Externent: 0 to 20mADC (Externent: 0	nal load resistance val rnal load resistance va	ue: 1KΩ to 1MΩ) alue: 0 to 600Ω)		0	
Voltage	g output range 0 to 5V 1 to 5V -10 to 10V User range settings 0 to 20mA	Digital value 0 to 20000 -20000 to 20000 0 to 20000	Maximum resolution 250μV 200μV 500μV 333μV 1000nA		0	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling
Current	User range settings	-20000 to 20000	700nA			function. (Refer to Appendix 3.)
 Ambient temperature 25±5°C: within ±0.1% (voltage: ±10mV, current: ±20µA) Ambient temperature 0 to 55°C: within ±0.3% (voltage: ±30mV, current: ±60µA)					0	
20µs/channel					0	
	4 cha	annels/module			0	
	Up to	50000 times			0	
		Available			0	

lte	em	A1S68DAV				
Insulation method		Between the output terminal and programmable controller power supply: Photocoupler Between output channels: Not insulated				
Dielectric withstar	nd voltage	_				
Insulation resistar	nce	-				
Number of occupied I/O points		32 points (I/O assignment: special 32 points)				
Connected terminal		20-point terminal block (M3.5×7 screws)				
Applicable wire size		0.75 to 1.5mm ²				
Applicable solderless terminal		R1.25-3, 1.25-YS3, RAV1.25-3, V1.25-YS3A				
Internal current co (5VDC)	onsumption	0.65A				
E to a to a to a	Voltage					
External power supply	Current consumption	_				
	Inrush current					
Weight		0.22kg				

	-	
L60DA4	Compatibility	Precautions for replacement
Between the I/O terminal and programmable controller power supply: Photocoupler		
Between output channels: Not insulated	0	
Between external power supply and analog output: Transformer		
Between the I/O terminal and programmable controller power supply: 500VACrms, for 1 minute	0	
Between external power supply and analog output: 500VACrms, for 1 minute	0	
Between the I/O terminal and programmable controller power supply: 500VDC, 10M Ω or higher	0	
16 points		The number of occupied I/O points
(I/O assignment: intelligent 16 points)	Δ	is changed to 16 points.
18-point terminal block	×	
0.3 to 0.75mm ²	×	
FG terminal: R1.25-3, 1.25-YS3, RAV1.25-3,		Wiring change is required.
V1.25-YS3A		
Terminals other than FG: R1.25-3	×	
(Solderless terminals with an insulation sleeve cannot be used.)		
0.16A	0	
	0	
24VDC +20%, -15%		
Ripple, spike 500mV _{p-p} or lower		
0 184	×	External power supply is required.
 4.3A, 1000µs or less		
0.20kg	0	

O : Compatible, \bigtriangleup : Partial change required, ×: Incompatible

3.4.2 Functional comparison

					O : Available, –: Not available
Item	Description	A1S	68DAV	L60DA4	Precautions for replacement
D/A conversion enable/ disable function	Sets whether to enable or disable D/A conversion for each chann	əl.	0	0	With the L60DA4, disabling the D/A conversion for an unused channel reduces the conversion cycles.
D/A output enable/disable function	Sets whether to output the D/A conversion value or the offset valu for each channel. The conversion speed is constant, regardless of the output enabl disable status.	e e/	0	0	
Range switching function	Sets the output range to be used.		-	0	
Offset/gain setting function	Corrects errors in analog output values.		-	0	
Analog output HOLD/ CLEAR function	Sets the status of analog output values (HOLD or CLEAR), accord to the CPU module operating status (RUN, STOP, or stop error).	ing	0	0	The A1S68DAV is set the status for all channels at once using the HLD/ CLR terminal on the front of the module. With L60DA4, HOLD/CLEAR is set for each channel.
	Outputs the converted analog values when CH□ Output enable/ disable flag is forcibly turned on while the CPU module is in the ST status.	OP			
Analog output test when CPU module is in STOP	Setting D/A conversion Enable Disable Disable		_	0	
status	nation CH□ Output enable/ disable flag Enable Disable Enable Disa	ble			
	Analog output test Allowed allowed Not allowed				
Resolution mode	Sets the resolution according to the application.*1		_	_	Since the resolution differs between AnS series and L series modules, it needs to be matched using a sequence program, user range settings, or the scaling function. (Refer to Appendix 3.)
Scaling function	Scale-converts the input digital value to the set range of the scalin upper limit value and scaling lower limit value. This omits the programming of the scale conversion.	g	_	0	By setting the same scaling upper limits and scaling lower limits as the resolution of A1S68DAV, the same digital output values as A1S68DAV can be used.
Alarm output function	Outputs an alarm when the digital value is out of the preset range		-	0	
External power supply READY flag	Turns on when the external power supply (24VDC) is supplied. W this flag is off, the analog output value becomes 0V/0mA regardle of other settings.	nen SS	-	0	
Error log function	Stores the errors and alarms occurred in the D/A converter modul the buffer memory as a history. Up to 16 errors and alarms can be stored.	e to	_	0	
Module error collection	Collects the errors and alarms occurred in the D/A converter mod	ule	_	0	
Tunction Error clear function	and stores them in the CPU module. Clears the error from the system monitor window of the programm	ing	_	0	This function can be used on the
Saving and restoring offset/ gain values	Saves and restores the offset/gain values in the user setting rang	e.	_	0	UN WUINSZ.

*1 For the A1S68DAV, the mode is fixed at 1/4000 (-2000 to 2000).

For the L60DA4, the resolution is 1/20000 (fixed). To use the same digital value that is used for the A1S68DAV, set the scaling upper and lower limit values that match the resolution of the A1S68DAV using the scaling function.

3.4.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L Digital-Analog Converter Module User's Manual.

	A1S68DAV			L60DA4				
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	
X0	WDT error flag (A1S68DAV detection)	Y0		X0	Module READY	Y0	Use prohibited	
X1	D/A conversion READY	Y1	/1 /2	X1		Y1	CH1 Output enable/ disable flag	
X2	Error flag	Y2		X2		Y2	CH2 Output enable/ disable flag	
X3		Y3		X3	Use prohibited	Y3	CH3 Output enable/ disable flag	
X4		Y4		X4		Y4	CH4 Output enable/ disable flag	
X5		Y5		X5		Y5		
X6		Y6		X6		Y6		
X7		Y7	Use prohibited	X7	External power supply READY flag	Y7	Use prohibited	
X8		Y8		X8	Use prohibited	Y8		
X9		Y9		Y9	X9	Operating condition setting completed flag	Y9	Operating condition setting request
XA		YA		XA	Offset/gain setting mode flag	YA	User range writing request	
XB		YB		XB	Channel change completed flag	YB	Channel change request	
XC		YC		XC	XC Set value change completed flag		Set value change request	
XD		YD		XD	Use prohibited	YD	Use prohibited	
XE	Use prohibited	YE		XE	Warning output signal	YE	Warning output clear request	
XF		YF		XF	Error flag	YF	Error clear request	
X10		Y10						
X11		Y11						
X12		Y12						
X13		Y13	D/A conversion output					
X14		Y14	enable flag					
X15		Y15						
×10 ×17		110 V17						
X18		Y18	Error reset flag					
X19		Y19	Enter recording					
X1A		Y1A						
X1B		Y1B						
X1C		Y1C	Use prohibited					
X1D		Y1D						
X1E		Y1E						
X1F		Y1F						

3.4.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L Digital-Analog Converter Module User's Manual.

	A1S68DAV		L60DA4				
Address (decimal)	Name	Read/write	Address (decimal)	Name	Read/write		
0	Analog output enable/disable channel		0	D/A conversion enable/disable setting			
1	CH.1 digital value		1	CH1 digital value]		
2	CH.2 digital value		2	CH2 digital value	R/W		
3	CH3 Digital value		3	CH3 Digital value			
4	CH4 Digital value	R/W	4	CH4 Digital value			
5	CH5 Digital value	5 to System area (Lise prohibited)					
6	CH6 Digital value		to System area (Use prohibited)		-		
7	CH7 Digital value		10				
8	CH8 Digital value		11	CH1 Set value check code			
9	System area (Use prohibited)	-	12	CH2 Set value check code	R		
10	CH1 Set value check code		13	CH3 Set value check code			
11	CH2 Set value check code		14	CH4 Set value check code			
12	CH3 Set value check code		15				
13	CH4 Set value check code	R	to	System area (Use prohibited)	-		
14	CH5 Set value check code		18				
15	CH6 Set value check code		19	Latest error code	R		
16	CH7 Set value check code		20	Setting range			
17	CH8 Set value check code		21	System area (Use prohibited)	-		
			22	Offset/gain setting mode Offset specification	-		
			23	Offset/gain setting mode Gain specification	R/W		
			24	Offset/gain adjustment value specification			
			25	System area (Use prohibited)	-		
			26	HOLD/CLEAR function setting	R		
			27	4			
			to	System area (Use prohibited)	-		
			46				
			47	Warning output setting	R/W		
			48	Warning output flag	R		
			49				
			to	System area (Use prohibited)	-		
			52				
			53	Scaling enable/disable setting	R/W		
			54	CH1 Scaling lower limit value	R/W		
			55	CH1 Scaling upper limit value	R/W		
			56	CH2 Scaling lower limit value	R/W		
			57	CH2 Scaling upper limit value	R/W		
			58	CH3 Scaling lower limit value	R/W		
			59	CH3 Scaling upper limit value	R/W		
			60	CH4 Scaling lower limit value	R/W		
			61	CH4 Scaling upper limit value	R/W		
			62				
			to	System area (Use prohibited)	-		
	85						
			86	CH1 Warning output upper limit value	R/W		
			87	CH1 Warning output lower limit value	R/W		
			88	CH2 Warning output upper limit value	R/W		
			89	CH2 Warning output lower limit value	R/W		
L60DA4							
----------------------	---	------------	--	--	--	--	--
Address (decimal)	Name	Read/write					
90	CH3 Warning output upper limit value	R/W					
91	CH3 Warning output lower limit value	R/W					
92	CH4 Warning output upper limit value	R/W					
93	CH4 Warning output lower limit value	R/W					
94							
to	System area (Use prohibited)	-					
157							
158	Made switching setting	R/W					
159	Mode switching setting	R/W					
160							
to	System area (Use prohibited)	-					
199							
200	Pass data classification setting	R/W					
201	System area (Use prohibited)	-					
202	CH1 Industrial shipment settings offset value	R/W					
203	CH1 Industrial shipment settings gain value	R/W					
204	CH2 Industrial shipment settings offset value	R/W					
205	CH2 Industrial shipment settings gain value	R/W					
206	CH3 Industrial shipment settings offset value	R/W					
207	CH3 Industrial shipment settings gain value	R/W					
208	CH4 Industrial shipment settings offset value	R/W					
209	CH4 Industrial shipment settings gain value	R/W					
210	CH1 User range settings offset value	R/W					
211	CH1 User range settings gain value	R/W					
212	CH2 User range settings offset value	R/W					
213	CH2 User range settings gain value	R/W					
214	CH3 User range settings offset value	R/W					
215	CH3 User range settings gain value	R/W					
216	CH4 User range settings offset value	R/W					
217	CH4 User range settings gain value	R/W					
218							
to	System area (Use prohibited)	-					
1799							

ANALOG I/O MODULE REPLACEMENT

4.1 List of Analog I/O Module Alternative Models for Replacement

AnS/QnAS	series	Transition to L series			
Product	Model	Model	Remarks (Restrictions)		
Analog I/O module	A1S63ADA	L60AD2DA2	 External wiring: Cable size is changed. Number of slots: Not changed Program: The number of occupied I/O points, I/O signals, and buffer memory addresses are changed. Performance specifications: An external power supply (24VDC) is required. Functional specifications: Simple loop control (function expression) function available → Not available 		
	A1S66ADA	L60AD2DA2	 External wiring: Cable size is changed. Number of slots: Not changed Program: The number of occupied I/O points, I/O signals, and buffer memory addresses are changed. Performance specifications: Analog input 4CH → 2CH Functional specifications: Not changed 		

⊠Point -

Replacement module L60AD2DA2 does not have the simple loop control (function expression) function. When the simple loop control (function expression) function is used with A1S63ADA, the sequence program needs to be addressed.

· Processing of the simple loop control (function expression) of A1S63ADA



Processing when it is replaced with L60AD2DA2

CPU module		L60AD2DA2	1
Sequence program			
•	Reading CH1 Digital value	CH1 Digital output value	Analog (voltage/current) input
A program executing the same processing	Reading CH2 Digital value	CH2 Digital output value	Analog (voltage/current) input
as the function	Writing CH3 Digital value	► CH3 Digital input value —	→Analog (voltage/current) output

4.2 A1S63ADA

4.2.1 Performance specifications comparison

lt	em			A1S63ADA				
Number of analo	g input points		2	channels/modu	le			
	Voltage		-10 to 0 to 10VE	DC (Input resista	nce value: 1MΩ))		T
Analog input Current			-20 to 0 to 20mAl	DC (Input resista	ance value: 250	2)		1
			1	6-bit signed bina	ary	,		+
Digital output			1/4000	setting: -4096	to 4095			
Digital output			1/8000	setting: -8192	to 8191			
			1/12000	setting: -12288	to 12287			
			1	D.				
			Analog input	(when cain	5\//20mA offset	(1)/(0mA)		
				1/4000	1/8000	1/12000		
			10V	4000	8000	12000		
			5V 20mA	2000	4000	6000		
		I/O						
I/O characteristic	S	characteristics	4mA	0	0	0		
			-5V	-2000	_4000	_6000		
			-12mA	-2000	-4000	-0000		
			-10V	-4000	-8000	-12000		
		Resolution	Voltage input	2.5mV	1.25mV	0.83mV		
			Current input	10µA	5µA	3.33µA		
Resolution								
Overall accuracy (Accuracy for the output value)	e maximum digital		±1% 1/4000 setting: ±40 1/8000 setting: ±80 1/12000 setting: ±120					
Maximum conver	1/4000 setting: 1ms/channel 1/8000 setting: 2ms/channel 1/12000 setting: 3ms/channel							
Absolute maximu	um input			Voltage: ±15V				T
				Current: ±28mA	A Contraction of the second se			

_				
O: Compatible,	\triangle : Partial	change req	uired, ×: I	ncompatible

		L60A	Compatibility	Precautions for replacement		
		2 channe	0			
		-10 to 10VDC (Input	0			
		0 to 20mADC (Input i	resistance value: 250Ω))	Δ	
		х Р				
		16-bit signed bina	ry (-16384 to 16383,		~	
	V	When the scaling function	n is used: -32768 to 32	767)		
	Analo	og input range	Digital output value	Resolution		
	/ indic	0 to 10V	0 to 16000	625uV		
		0 to 5V		416µV		
		1 to 5V	0 to 12000	333µV		
		-10 to 10V	-16000 to 16000	625µV		
	Voltage	1 to 5V	10000 10 10000	020µ v		Since the resolution differs
		(Extended mode)	-3000 to 13500	333µV		between AnS series and L series
		User range settings			Δ	modules, it needs to be matched
		(voltage)	-12000 to 12000	321µV	_	using a sequence program, user
		0 to 20mA		1666nA		range settings, or the scaling
		4 to 20mA	0 to 12000	1333nA		iunction. (Relef to Appendix 5.)
	^	4 to 20mA	+ +			
	Current	(Extended mode)	-3000 to 13500	1333nA		
		User range settings	JS 12000 to 12000	1007.4		
		(current)	-12000 to 12000	1287NA		
					0	
	Analog	uinput range				
	Andiog	, input range	25±5°C	0 to 55°C		
		0 to 10V	Within ±0.2%	Within ±0.3%		
		-10 to 10V	(±32 digit)	(±48 digit)		
	Voltage	0 to 5V				
		1 to 5V			0	
		1 to 5V				
		(Extended mode)	Within ±0.2%	Within ±0.3%		
		0 to 20mA	(±24 digit)	(±36 digit)		
	Current	4 to 20mA				
		4 to 20mA				
		(Extended mode)				
						The conversion speed of
				L60AD2DAQ2 is faster than		
				A1S63ADA. Therefore, noise		
		80us/	0	which were not imported to		
		00µ3/	0	A1S63ADA can be imported as		
						analog signals. In this case, use
						the averaging processing function
[Voltar	ue: +15V			
		Currer	nt: 30mA		0	

Item		A1S63ADA							
Number of analog	g output points				1 channe	ls/module			
Digital input		1/4000 setting: voltage: -4000 to 4000, current: 0 to 4000 1/8000 setting:							
				voltag	1/12000 e: -12000 to 120) setting: 00. current: 0 to 12000			
					-10 to 0 t	o 10VDC			
Analog output	voltage			(Exter	nal load resistan	ce value: $2K\Omega$ to $1M\Omega$)			
7 malog output	Current			-	0 to 20	MADC			
				(Exte	ernal load resista	nce value: 0 to 600Ω)			
				Digital input value	e	Analog	g output]	
			1/4000	1/8000	1/12000	Voltage output value *1	Current output value		
			4000	8000	12000	10V	20mA		
I/O characteristic	s		2000	4000	6000	5V	12mA		
	-		0	0	0	0	4mA		
			-2000	-4000	-6000	-5V	_		
			-4000	-8000	-12000	-10V		J	
			*1 The offset val *2 The offset val	lue is set to 0V a lue is set to 4mA	nd the gain value and the gain val	e is set to 10V (factory o ue is set to 20mA (facto	default setting). ory default setting).		
Maximum resolut	ion		1/4000 2.5mV (10V) 5μA (20mA) 1/8000 1.25mV (10V) 2.5μA (20mA) 1/12000 0.83mV (10V) 1.7μA (20mA)						
Overall accuracy (Accuracy for the output value)	maximum analog	±1% (voltage: ±100mV, current: ±200μA)							
Absolute maximu	im output				Voltage Curren	e: ±12V t: 28mA			
Conversion speed	d				1/4000 setting 1/8000 setting 1/12000 setting	: 1ms/channel g: 2ms/channel g: 3ms/channel			
Output short prote	ection				Avai	lable			
Insulation method	t	Between the Between ch	e input terminal a annels: Not insu	and programmab ulated	le controller pow	er supply: Photocouple	er		
Dielectric withstar	nd voltage	b voltage Between the input terminal and programmable controller power supply: 500VACrms, for 1 minute							
Insulation resistar	nce	Between the	e input terminal a	and programmab	le controller pow	er supply: 500VDC, 5N	I Ω or higher		
Conversion speed during simple 1/4000 setting: 4ms									
loop control	loop control 1/8000 setting: 7ms								
Number of occup	ied I/O points			(32 p I/O assignment:	oints special 32 points)			
Connection termi	nal				20-point ter	minal block			
					0.75 to	1.5mm ²			
Applicable wire si	ize			(Appli	icable tightening	torque: 39 to 59N•cm)			
Applicable solder	less terminal			V1.2	25-M3, V1.25-YS	3A, V2-S3, V2-YS3A,			

4 ANALOG I/O MODULE REPLACEMENT

		60402042		0:0	Compatible, Δ : Par	Procautions for replacement
2 channels/module						recautions for replacement
	2 01	0				
	-16		~			
	When the scaling fur	nction is used: -32768 to	32767		0	
	(External load res	sistance value: 1KO to 1	ΜΩ)			
	0	to 20mADC			0	
	(External load re	esistance value: 0 to 600	0Ω)			
Analog	output range	Digital input value	Resolution			
	0 to 5V	0 to 12000	416µV			
	1 to 5V		333µV			
Voltage	-10 to 10V	-16000 to 16000	625µV			
	User range settings	-12000 to 12000	319µV		Δ	Since the resolution differs
	(voitage)		1000-1			modules it needs to be matched
		0 to 12000	1000NA			using a sequence program. user
Current	4 to 20mA		1333NA			range settings, or the scaling
	(current)	-12000 to 12000	696nA			function. (Refer to Appendix 3.)
┨ └─────	(ourient)					
					0	
		1				
Analog	g output range	Ambient te	emperature	4		
,		25±5°C	0 to 55°C	4		
	0 to 5V	Within ±0.2%	Within ±0.4%			
Voltage	1 to 5V	(±10mV)	(±20mV)	-	_	
	-10 to 10V	Within $\pm 0.2\%$	Within ±0.4%		0	
	0 to 20mA	(±20MV)	(±40mV)	-		
Current	4 to 20mA	vviuiiii ±0.2% (±40⊔A)	(±80µA)			
		(=.047.1)	(J		
		-			0	
	8	0µs/channel			0	
					Ŭ	
		Available			0	
Between the I/O termin	al and programmable co	ontroller power supply: F	Photocoupler		-	
Between I/O channels:	Not insulated				0	
 Between external powe	er supply and analog I/C	channel: Transformer			_	
Between the I/O termin	al and programmable co	ontroller power supply:	500VACrms, for 1 min	ute	0	
Between external powe	er supply and analog I/O	: 500VACrms, for 1 min	ute		0	
 Between the I/O termin	al and programmable co	ontroller power supply:	500VDC, 10M Ω or high	ner	0	
		-			×	
	(1/0	16 points			Δ	The number of occupied I/O points
	(I/O assignme)			is changed to To points.
	18-ро	int terminal block			×	
	0 :	3 to 0.75mm ²			×	Wiring obongo in required
	0					winning change is required.
R1.25-3	3 (Solderless terminals	with an insulation sleeve	e cannot be used.)		×	
1						

Item		A1S63ADA	
External power	Voltage		
	Current	_	
Supply	consumption		
	Inrush current		
Internal current co (5VDC)	onsumption	0.8A	
Weight		0.3kg	

0.00		iai change required, ^. incompatible
L60AD2DA2	Compatibility	Precautions for replacement
24VDC +20%, -15% Ripple, spike 500mVp-p or lower	×	
0.12A	×	An external power supply (24VDC) is required.
3.5A, 1000µs or less	×	
0.17A	0	
0.22kg	0	

O: Compatible, \triangle : Partial change required, ×: Incompatible

4 ANALOG I/O MODULE REPLACEMENT

4.2.2 Functional comparison

(1) A/D conversion functions

					O: Available, -: Not available
Item		Description	A1S63ADA	L60AD2DA2	Precautions for replacement
A/D conversion e function	enable/disable	Sets whether to enable or disable A/D conversion for each channel. By disabling the conversion for the channels that are not used, the sampling time can be shortened.	0	0	
Sampling proces	sing	Performs the A/D conversion for analog input values successively for each channel, and outputs digital output values upon each conversion.	0	0	
	Time average	For each channel, averages A/D conversion values by the amount of time, and outputs the average value as a digital value.	0	0	The setting range of average time and count differ. Refer to the MELSEC-L
Averaging processing	Count average	For each channel, averages A/D conversion values by the number of times, and outputs the average value as a digital value.	0	0	Analog I/O Module User's Manual, and check the specifications.
	Moving average	For each channel, averages A/D conversion values by the number of times on a moving of each sampling processing, and outputs the average value as a digital value.	_	0	
Range switching	function	Sets the input range to be used.	0	0	
Input range exte	nded function	Extends the input range. By combining this function with the input signal error detection function, simple disconnection detection can be executed.	-	0	
Maximum value/ hold function	minimum value	Stores the maximum and minimum values of the digital output values in the module.	-	0	
Input signal error function	r detection	Detects the analog input value which exceeds the setting range.	-	0	
Scaling function		Scale-converts the digital output value to the set range of the A/ D conversion scaling upper limit value and A/D conversion scaling lower limit value. This omits the programming of the scale conversion.	_	0	To use the same digital output value that is used for the A1S63ADA, set the scaling upper and lower limit values that match the resolution of the A1S63ADA using the scaling function.
Logging function		Logs the digital output value or scaling value (digital operation value). The data of 10000 points can be logged for each channel.	-	0	

(2) D/A conversion functions

				O: Available, -: Not available
Item	Description	A1S63ADA	L60DA4	Precautions for replacement
D/A conversion enable/disable function	Sets whether to enable or disable D/A conversion for each channel.	0	0	With the L60AD2DA2, disabling the D/A conversion for an unused channel reduces the conversion cycles.
D/A output enable/disable function	Sets whether to output the D/A conversion value or the offset value for each channel. The conversion speed is constant, regardless of the output enable/disable status.	0	0	
Range switching function	Sets the output range to be used.	0	0	
Analog output HOLD/CLEAR function	Sets the status of analog output values (HOLD or CLEAR), according to the CPU module operating status (RUN, STOP, or stop error).	0	0	The A1S63ADA is set the status for all channels at once using the HLD/CLR terminal on the front of the module. With the L60AD2DA2, the status can be set for each channel on the Switch Setting window of GX Works2.
Analog output test when CPU module is in STOP status	Outputs the D/A converted analog values when CH□ Output enable/disable flag is forcibly turned on while the CPU module is in the STOP status.	-	0	

				O: Available, –: Not available
Item	Description	A1S63ADA	L60DA4	Precautions for replacement
Scaling function	Scale-converts the digital input value to the set range of the D/A conversion scaling upper limit value and D/A conversion scaling lower limit value. This omits the programming of the scale conversion.	Π	0	To use the same digital input value that is used for the A1S63ADA, set the scaling upper and lower limit values that match the resolution of the A1S63ADA using the scaling function.
Alarm output function	Outputs an alarm when the digital value is out of the preset range.	-	0	
Wave output function	Reads the wave data (digital input values) prepared in advance and outputs analog data at the preset conversion cycle.	_	0	

(3) Common functions

				O: Available, -: Not available
Item	Description	A1S63ADA	L60AD2DA2	Precautions for replacement
Resolution mode	Sets the resolution according to the application. The resolution	0	_	
Resolution mode	mode setting is applicable to all channels. *1	0	_	
	Converts the analog values input through CH1 and CH2 to			
Simple loop control (function	digital values and calculates the converted values with the	0	_	
expression)	function expression. The calculation result is converted to the	0		
	analog value and output through CH3.			
External power supply READY	Turns on when the external power supply (24VDC) is supplied.			
flag	When the external power supply READY flag (X7) is off, A/D	-	0	
	and D/A conversion processing is not performed.			
	Stores the errors and alarms occurred in the L60AD2DA2 to the			
Error log function	buffer memory as a history. Up to 16 errors and alarms can be	-	0	
	stored.			
Module error collection function	Collects the errors and alarms occurred in the L60AD2DA2 and	_	0	
	stores them in the CPU module.)	
Error clear function	Clears the error from the system monitor window of the	_	0	This function can be used on
	programming tool.		0	the GX Works2.
Saving and restoring offset/gain	Saves and restores the offset/gain values in the user setting	_	0	
values	range.		0	
Offset/gain setting function	Corrects errors in the analog and digital output values.	0	0	

For the A1S63ADA, the resolution setting can be selected from 1/4000, 1/8000, and 1/12000 for both voltage and current *1 inputs.

The L60AD2DA2, however, does not support the resolution mode. To use the same digital value that is used for the A1S63ADA, set the scaling upper and lower limit values that match the resolution of the A1S63ADA using the scaling function.

⊠Point -

Replacement module L60AD2DA2 does not have the simple loop control (function expression) function. When the simple loop control (function expression) function is used with A1S63ADA, the sequence program needs to be addressed. (Refer to Section 4.1)

4.2.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L Analog I/O Module User's Manual.

	A1S63ADA			L60AD2DA2			
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name
X0	WDT error	Y0		X0	Module READY	Y0	
X1	Conversion READY	Y1		X1		Y1	Use prohibited
X2	Error detection	Y2		X2		Y2	
Х3	CH3 output upper limit value hold	Y3		X3	Lico prohibitod	Y3	CH3 Output enable/ disable flag
X4	CH3 output lower limit value hold	Y4		X4		Y4	CH4 Output enable/ disable flag
X5	Simple loop control in execution	Y5		X5		Y5	Use prohibited
X6	Lise prohibited	Y6		X6	Set value change completed flag	Y6	Set value change request
X7		Y7		X7	External power supply READY flag	Y7	Use prohibited
X8		Y8	Use prohibited	X8	Warning output signal	Y8	Warning output clear request
X9		Y9		X9	Operating condition setting completed flag	Y9	Operation condition setting request
XA	Offset/gain selection	YA		XA	Offset/gain setting mode flag	YA	User range write request
ХВ		YB		XB	Channel change completed flag	YB	Channel change request
XC	YC	YC		XC	Input signal error detection signal	YC	Use prohibited
XD		YD		XD	Maximum value/minimum value reset completed flag	YD	Maximum value/minimum value reset request
XE		YE		XE	A/D conversion completion flag	YE	Use prohibited
XF		YF		XF	Error flag	YF	Error clear request
X10		Y10	CH3 D-A conversion value output enable				
X11		Y11	Simple loop control execution enable				
X12		Y12	Error reset				
X13		Y13	CH3 upper/lower limits cancel				
X14	Use prohibited	Y14					
X15		Y15	Use prohibited				
X16		Y16					
X17		Y17					
X18	ļ	Y18					
X19	ļ	Y19					
X1A	ł	Y1A	Ottset/gain selection				
X1B	4	Y1B					
X1C	ł	Y1C	011 11 11				
X1D	4	Y1D	Ottset/gain setting				
X1E	4	Y1E	Use prohibited				
X1F		Y1F					

4.2.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L Analog I/O Module User's Manual.

	A1S	A1S63ADA			L60AD2DA2		
Address (decimal)	Na	ime	Read/write	Address (decimal)	Name	Read/write	
0	A-D/D-A conversion ena	able/disable setting		0	A/D conversion enable/disable setting		
1	A-D conversion averagir	ng setting		1	CH1 Time Average/Count Average/Moving Average	R/W	
2	CH1 averaging time/cou	aging time/count setting		2	CH2 Time Average/Count Average/Moving Average		
3	CH2 averaging time/cou	nt setting		3			
4	CH3 output upper limit v	alue setting	R/W	4			
5	CH3 output lower limit va	alue setting		5			
6	Simple loop control type	setting		6	System area (Use prohibited)	-	
7	Constant A setting			7			
8	Constant B setting			8			
9	Constant C setting			9			
10	CH3 digital value setting			10	A/D conversion completed flag		
11	CH1 A-D conversion dig	ital value		11	CH1 Digital output value	R	
12	CH2 A-D conversion dig	ital value		12	CH2 Digital output value		
13	Simple loop control outp	ut calculation value	R	13			
14	Resolution setting			14			
15	A-D conversion complet	ion flag		15	System area (Lise prohibited)	_	
16	Error code			16	System area (Use promoted)	_	
17	Coordinate points setting	9		17			
18	Point 0	CH1 coordinates		18			
19		CH3 coordinates		19	Latest error code		
20	Point1	CH1 coordinates		20	Setting range	R	
21		CH3 coordinates		21	Function selection monitor		
22	Point2	CH1 coordinates		22	Offset/gain setting mode Offset specification		
23		CH3 coordinates		23	Offset/gain setting mode Gain specification	R/W	
24	Point3	CH1 coordinates		24	Averaging process setting		
25		CH3 coordinates		25	System area (Lise prohibited)		
26	Point4	CH1 coordinates	R/M	26			
27		CH3 coordinates		27	Input signal error detection setting	R/W	
28	Point5	CH1 coordinates		28	System area (Use prohibited)	_	
29		CH3 coordinates		29			
30	Point6	CH1 coordinates		30	CH1 Maximum value		
31		CH3 coordinates		31	CH1 Minimum value	R	
32	Point7	CH1 coordinates		32	CH2 Maximum value		
33		CH3 coordinates		33	CH2 Minimum value		
34	Point8	CH1 coordinates		34			
35		CH3 coordinates		35			
36	Point9	CH1 coordinates		36			
37		CH3 coordinates		37	System area (Use prohibited)	-	
				38	_		
				to	_		
				48			
				49	Input signal error detection flag	R	
				50			
				to	System area (Use prohibited)	-	
				52		<u> </u>	
				53	A/D conversion scaling enable/disable setting	R/W	
				54	CH1 Scaling value	R	
				55	CH2 Scaling value		

56 to

61

System area (Use prohibited)

_

L60AD2DA2			
Address	Name	Read/write	
(decimal)			
62	CH1 A/D conversion scaling lower limit value	_	
63	CH1 A/D conversion scaling upper limit value	R/W	
64	CH2 A/D conversion scaling lower limit value	_	
65	CH2 A/D conversion scaling upper limit value		
66			
to	System area (Use prohibited)	-	
141			
142	CH1 Input signal error detection setting value	R/W	
143	CH2 Input signal error detection setting value		
144			
to	System area (Use prohibited)	-	
157			
158	Mode switching setting	R/W	
159			
160			
to	System area (Use prohibited)	-	
199			
200	Pass data classification setting	R/W	
201	System area (Use prohibited)	-	
202	CH1 Industrial shipment settings offset value		
203	CH1 Industrial shipment settings gain value	1	
204	CH2 Industrial shipment settings offset value	1	
205	CH2 Industrial shipment settings gain value	1	
206	CH3 Industrial shipment settings offset value		
207	CH3 Industrial shipment settings gain value	_	
208	CH4 Industrial shipment settings offset value	_	
209	CH4 Industrial shipment settings gain value	_	
210	CH1 User range settings offset value	R/W	
210	CH1 User range settings gain value	_	
211	CH2 User range settings offset value	_	
212		_	
213		_	
214		_	
215		_	
216	CH4 User range settings offset value	_	
217	CH4 User range settings gain value		
218			
to	System area (Use prohibited)	-	
999		_	
1000	CH1 Logging enable/disable setting	R/W	
1001	CH2 Logging enable/disable setting		
1002			
to	System area (Use prohibited)	-	
1007			
1008	CH1 Logging hold request	R/M/	
1009	CH2 Logging hold request	11/11	
1010			
to	System area (Use prohibited)	-	
1015			
1016	CH1 Logging hold flag	5	
1017	CH2 Logging hold flag		
1018		1	
to	System area (Use prohibited)	-	
1023			
1024	CH1 Logging data setting	1	
1025	CH2 Logging data setting	R/W	
1026		+	
to	System area (Use prohibited)	_	
1031			
1037	CH1 Logging cycle setting value	+	
1032	CH2 Logging cycle setting value	R/W	
1000	on - Logging oyor setting value	1	

	L60AD2DA2	
Address	Name	Read/write
(decimal)		
1034 to	System area (Lise prohibited)	_
1039		
1040	CH1 Logging cycle unit setting	
1041	CH2 Logging cycle unit setting	R/W
1042		
to	System area (Use prohibited)	_
1047		
1048	CH1 Logging points after trigger	5444
1049	CH2 Logging points after trigger	R/W
1050		
to	System area (Use prohibited)	-
1055		
1056	CH1 Level trigger condition setting	D/M/
1057	CH2 Level trigger condition setting	12/00
1058		
to	System area (Use prohibited)	-
1063		
1064	CH1 Trigger data	R/W
1065	CH2 Trigger data	1.0.11
1066		
to	System area (Use prohibited)	-
1071		
1072	Level data 0	
1073	Level data 1	
1074	Level data 2	
1075	Level data 3	
1076	Level data 4	
1077	Level data 5	R/W
1070	Level data o	
1079		
1081		
1082	CH1 Trigger setting value	
1083	CH2 Trigger setting value	
1084		
to	System area (Use prohibited)	_
1089		
1090	CH1 Head pointer	
1091	CH2 Head pointer	R
1092		
to	System area (Use prohibited)	_
1097		
1098	CH1 Latest pointer	5
1099	CH2 Latest pointer	к
1100		
to	System area (Use prohibited)	-
1105		
1106	CH1 Number of logging data	P
1107	CH2 Number of logging data	
1108		
to	System area (Use prohibited)	-
1113		
1114	CH1 Trigger pointer	R
1115	CH2 Trigger pointer	
1116		
to	System area (Use prohibited)	-
1121		ļ
1122	CH1 Logging cycle monitor value (s)	
1123	CH1 Logging cycle monitor value (ms)	
1124	CH1 Logging cycle monitor value (µs)	R
1125	CH2 Logging cycle monitor value (s)	
1126	CH2 Logging cycle monitor value (ms)	

	L60AD2DA2	
Address	Name	Read/write
(decimal)		
1127	CH2 Logging cycle monitor value (µs)	R
1128		
1145	System area (Use pronibited)	-
1140	CH1 Logging status monitor value	
1140	CH1 Logging status monitor value	R
1147		
to	System area (I ise prohibited)	_
1153	System area (Ose prohibited)	_
1155	CH1 Trigger detection time (First two digits of the	
1154	vear/Last two digits of the vear)	
1155	CH1 Trigger detection time (Month/Day)	
1156	CH1 Trigger detection time (Hour/Minute)	
	CH1 Trigger detection time (Second/Day of the	
1157	week)	5
4450	CH2 Trigger detection time (First two digits of the	R
0011	year/Last two digits of the year)	
1159	CH2 Trigger detection time (Month/Day)	
1160	CH2 Trigger detection time (Hour/Minute)	
1161	CH2 Trigger detection time (Second/Day of the	
101	week)	
1162		
to	System area (Use prohibited)	-
1999		
2000	D/A conversion enable/disable setting	R/W
2001	System area (Lise prohibited)	_
2002		
2003	CH3 Digital input value	R/W/
2004	CH4 Digital input value	1011
2005		
to	System area (Use prohibited)	-
2012		
2013	CH3 Set value check code	R
2014	CH4 Set value check code	IX
2015		
to	System area (Use prohibited)	-
2023		
2024	Offset/gain adjustment value specification	R/W
2025	System area (Use prohibited)	-
2026	HOLD/CLEAR function setting	R
2027		
to	System area (Use prohibited)	-
2046		
2047	Warning output setting	R/W
2048	Warning output flag	R
2049		
to	System area (Use prohibited)	-
2052		
2053	D/A conversion scaling enable/disable setting	R/W
2054		
to	System area (Use prohibited)	-
2057		
2058	CH3 D/A conversion scaling lower limit value	
2059	CH3 D/A conversion scaling upper limit value	P/M/
2060	CH4 D/A conversion scaling lower limit value	NV V7
2061	CH4 D/A conversion scaling upper limit value	
2062		
to	System area (Use prohibited)	-
2089		
2090	CH3 Warning output upper limit value	
2091	CH3 Warning output lower limit value	
2092	CH4 Warning output upper limit value	R/W
2093	CH4 Warning output lower limit value	

	L60AD2DA2	
Address	Name	Read/write
(decimal)		
2094	System area (Line probibilited)	
2004	System area (Use pronibited)	_
3007	CH3 Wave output start/stop request	D/M/
3002		R/W R/W
3003	Crist Wave output startstop request	17/10
to	System area (Lise prohibited)	_
3009		
3010	CH3 Output setting during wave output stop	
3011	CH4 Output setting during wave output stop	R/W
3012		
to	System area (Use prohibited)	_
3017		
3018	CH3 Output value during wave output stop	
3019	CH4 Output value during wave output stop	R/W
3020		
to	System area (Use prohibited)	-
3027		
3028	CH3 Wave pattern start address setting (L)	
3029	CH3 Wave pattern start address setting (H)	D ///
3030	CH4 Wave pattern start address setting (L)	R/W
3031	CH4 Wave pattern start address setting (H)	1
3032		
to	System area (Use prohibited)	-
3043		
3044	CH3 Wave pattern data points setting (L)	
3045	CH3 Wave pattern data points setting (H)	
3046	CH4 Wave pattern data points setting (L)	R/W
3047	CH4 Wave pattern data points setting (H)	
3048		
to	System area (Use prohibited)	-
3057		
3058	CH3 Wave pattern output repetition setting	P/M
3059	CH4 Wave pattern output repetition setting	10/00
3060		
to	System area (Use prohibited)	-
3065		
3066	CH3 Constant for wave output conversion cycle	R/W
3067	CH4 Constant for wave output conversion cycle	
3068		
to	System area (Use prohibited)	-
3071		.
3072	Step action wave output request	R/W
3073		
10	System area (Use pronibited)	-
3081		
3082	CH4 Wave output step action movement amount	R/W
3003	on a wave output step action movement amount	
5004	System area (Lise prohibited)	_
3101		_
3102	CH3 Wave output status monitor	
3103	CH4 Wave output status monitor	R
3104		
to	System area (Use prohibited)	_
3111		
3112	CH3 Wave output conversion cycle monitor (L)	
3113	CH3 Wave output conversion cycle monitor (H)	
3114	CH4 Wave output conversion cycle monitor (L)	R
3115	CH4 Wave output conversion cycle monitor (H)	
3116		<u> </u>
to	System area (Use prohibited)	_
3125		

	L60AD2DA2	
Address	Name	Read/write
(decimal)		
3126	CH3 Wave output count monitor	R
3127		
3128	System area (Las prohibited)	
2125	System area (Ose prohibited)	-
3136	CH3 Wave output current address monitor (L)	
3137	CH3 Wave output current address monitor (E)	
3138	CH4 Wave output current address monitor (1)	R
3139	CH4 Wave output current address monitor (E)	
3140		
to	System area (Use prohibited)	_
3149		
3150	CH3 Wave output current digital value monitor	_
3151	CH4 Wave output current digital value monitor	R
3152		
to	System area (Use prohibited)	-
3159		
2160	CH3 Wave output digital value outside the range	
3100	Address monitor (L)	
3161	CH3 Wave output digital value outside the range	
5101	Address monitor (H)	R
3162	CH4 Wave output digital value outside the range	
	Address monitor (L)	
3163	CH4 Wave output digital value outside the range	
2164	Address monitor (H)	
3104	System area (Las prohibitad)	
3175	System area (Ose prohibited)	-
3176	CH3 Wave output warning Address monitor (L)	
3177	CH3 Wave output warning Address monitor (E)	
3178	CH4 Wave output warning Address monitor (1)	R
3179	CH4 Wave output warning Address monitor (E)	
3180		
to	System area (Use prohibited)	_
4699		
4700	CH1 A/D conversion status	_
4701	CH2 A/D conversion status	R
4702		
to	System area (Use prohibited)	-
4709		
4710	CH1 Analog input monitor	
4711	CH1 Analog input monitor unit	Б
4712	CH2 Analog input monitor	n.
4713	CH2 Analog input monitor unit	
4714		
to	System area (Use prohibited)	-
4749		
4750	CH3 D/A conversion status	R
4751	CH4 D/A conversion status	
4752		
to	System area (Use prohibited)	-
4759		
4760	CH3 Analog output command value	
4761	CH3 Analog output command value unit	R
4762	CH4 Analog output command value	
4763	CH4 Analog output command value unit	ļ
4764		
10	System area (Use pronibited)	-
4799		
4800	Latest address of effor history	ĸ
4801	System area (I lea arabibited)	
4800	System area (Use promoteu)	_
-009	1	1

	L60AD2DA2	
Address	Name	Read/write
(decimal)		
4810	No.1 Error code	
4811	No.1 Error time (First two digits of the year/Last two digits of the year)	Б
4812	No.1 Error time (Month/Day)	ĸ
4813	No.1 Error time (Hour/Minute)	
4814	No.1 Error time (Second/Day of the week)	
4815		
to	No.1 System area (Use prohibited)	-
4819		
4820		
to	No.2 (Same as No.1)	
4829		
4830		
to	No.3 (Same as No.1)	
4839		
4840		
to	No.4 (Same as No.1)	
4849		
4850		
to	No.5 (Same as No.1)	
4859		
4860		
to	No.6 (Same as No.1)	
4869		
4870		
to	No.7 (Same as No.1)	
4879		
4880		
to	No.8 (Same as No.1)	
4889		
4890		
to	No.9 (Same as No.1)	
4899		
4900		
to	No.10 (Same as No.1)	
4909		
4910		
to	No.11 (Same as No.1)	
4919		
4920		
to	No.12 (Same as No.1)	
4929		
4930		
to	No.13 (Same as No.1)	
4939		
4940		
to	No.14 (Same as No.1)	
4949		
4950		
to	No.15 (Same as No.1)	
4959		
4960		
to	No.16 (Same as No.1)	
4969		
4970		
to	System area (Use prohibited)	-
4999		
5000		
to	CH1 Logging data (When the logging function is	
14999	usea)	_
15000		R
to	CH2 Logging data (When the logging function is	
24999	usea)	

L60AD2DA2				
Address (decimal)	Name	Read/write		
25000	System area (Lise prohibited)			
to	(When the logging function is used)	-		
54999				
5000	Mayo data registry area (M/ban the wayo output	R/W		
to	function is used)			
54999				
55000				
to	System area (Use prohibited)	-		
61439				

Memo

4.3 A1S66ADA

4.3.1 Performance specifications comparison

11	em			Α	1S66ADA				
Number of analog input points		4 channels/module							
		-10 to 0 to 10VDC							
Analog input	Voltage	(Input resistance value: $1M\Omega$)							
		0 to 20mADC							
	Current	(Input resistance value: 250Ω)							
				12-h	it hinary value				
Digital output				12.5	0 to 4095				
			Analog input	t range	Digital output value	Resolution]		
				0 to 10V		2.5mV			
		Volta	ADA	0 to 5V		1.25mV	l		
		Voite	ige	1 to 5V	0 to 4000	1.0mV			
				-10 to 10V	0104000	5.0mV			
		Curr	ent	0 to 20mA		5μΑ]		
I/O characteristic	s	Odin	Cint	4 to 20mA		4µA			
Resolution									
Overall accuracy	,								
(Accuracy for the	e maximum digital	Within ±1% (±40)							
output value)									
								l	
Maximum convo	rsion speed			400µs c	or less/4 channels				
	ision speeu			(Sampling p	period: 80µs/channel)			l	
Absolute maximum input		Voltage: ±15V						1	
		Current: 30mA					1		

	L60	0AD2DA2			Compatibility	Precautions for replacement	
2 channels/module							
-10 to 10VDC					0		
(Input resistance value: 1MΩ)					0		
DC 0 to 20mA				0			
	(Input resist	ance value: 250Ω)			0		
16-bit signed binary							
	(-16384 to 16383,				Δ		
	When the scaling funct	tion is used: -32768 to 32	2767)				
			5	7			
Analog	input range	Digital output value	Resolution	_			
	0 to 10V	0 to 16000	625µV	-			
	0 to 5V	0 to 12000	416µV	_			
	1 to 5V		333µV	_		Since the resolution differs	
Voltage	-10 to 10V	-16000 to 16000	625µV	-		between AnS series and L series	
	1 to 5V (Extended mode)	-3000 to 13500	333µV		Δ	modules, it needs to be matched	
	User range settings	-12000 to 12000	321µV		rai	range settings, or the scaling	
	0 to 20mA	0 to 12000	1666nA			function. (Refer to	function. (Refer to Appendix 3.)
	4 to 20mA	0 10 12000	1333nA				
Current	4 to 20mA (Extended mode)	-3000 to 13500	1333nA				
	User range settings	-12000 to 12000	1287nA				
		I I		1			
					0		
A ! .	Ambient temperature						
Analog	g input range	25±5°C	0±55°C				
	0 to 10V	Within ±0.2%	Within ±0.3%				
	-10 to 10V	(±32 digit)	(±48 digit)				
	0 to 5V						
Voltage	1 to 5V				0		
	1 to 5V				0		
	(Extended mode)	Within ±0.2%	Within ±0.3%				
	0 to 20mA	(±24 digit)	(±36 digit)				
	4 to 20mA						
Current	4 to 20mA						
	(Extended mode)						
	1 · · · · ·	11		-1			
	80µ	ıs/channel			0		
	Volt	age: ±15V			0		
	Curr	rent: 30mA			0		

O : Compatible, \bigtriangleup : Partial change required, ×: Incompatible

Item		A1S66ADA						
Number of analog output points		2 channels/module						
Digital input		12-bit binary value 0 to 4000						
	Voltage	-10 to 10VDC						
Analog output				(External load resi	stance value: $2K\Omega$ to $1M\Omega$	Ω)		
	Current			0 t External load res	sistance value: 0 to 600Ω)		
I/O characteristic	s							
			Analog	g output range	Digital input value	Resolution		
				0 to 10V		2.5mV		
			Voltage	1 to 5V		1.0mV		
Maximum resolut	tion			-10 to 10V	0 to 4000	5.0mV		
Maximum resolut	lion		Ourseat	0 to 20mA		5µA		
			Current	4 to 20mA		4μΑ		
Overall accuracy (Accuracy for the output value)	maximum analog	±1% (voltage: ±100mV, current: ±200μA)						
Conversion spee	d	240µs or less/2 channels (Sampling period: 80µs/channel)						
Absolute maximu	ım output	Voltage: ±12V Current: 28mA						
Output short prot	ection	Available						
Insulation method	d	Between the input terminal and programmable controller power supply: Photocoupler Between channels: Not insulated						
Dielectric withsta	nd voltage	Between the input terminal and programmable controller power supply: 500VACrms, for 1 minute						
Insulation resista	nce	Between the input terminal and programmable controller power supply: 500VDC, 5M Ω or higher						
Number of occup	ied I/O points	64 points (Input 64 points, output 64 points) (I/O assignment: output 64 points)						
Connection termi	nal			20-poir	nt terminal block			
Applicable wire s	ize			0.75 (Applicable tighter	5 to 1.25mm ² ning torque: 39 to 59N•cm	1)		
				1.25-3, 1.25	-YS3, 2-3.5, 2-YS3A,	.,		
Applicable solder	less terminal			V1.25-M3, V1.25	5-YS3A, V2-S3, V2-YS3A			
External power	Voltage			21.6	6 to 26.4VDC			
supply	Current consumption				0.16A			
	Inrush current				-			
Internal current c (5VDC)	onsumption				0.21A			
Weight					0.33kg			

	L60A	Compatibility	Precautions for replacement		
	2 channe	0			
V	-16384 When the scaling function	0			
	-10 to				
	(External load resistar	ice value: $1K\Omega$ to $1M\Omega$)		
	DC 0 t	o 20mA		0	
	(External load resista	ance value: 0 to 600Ω)			
Analog		Digital input value	Pesolution	0	
Analog	0 to 5V	Digital input value	416uV		
	1 to 5V	0 to 12000	333µV		
Voltage	-10 to 10V	-16000 to 16000	625µV		Since the resolution differs
	User range settings	-12000 to 12000	319µV		modules it needs to be matched
	0 to 20mA	0.4- 40000	1666nA	\bigtriangleup	using a sequence program, user
Current	4 to 20mA	0 to 12000	1333nA		range settings, or the scaling
	User range settings	-12000 to 12000	696nA		function. (Refer to Appendix 3.)
		Amhient te	mperature		
Analog	output range	25±5°C	0 to 55°C		
	0 to 5V	Within ±0.2%	Within ±0.4%		
	1 to 5V	(±10mV)	(±20mV)		
Voltage	10 10 10 1	Within ±0.2%	Within ±0.4%	0	
	-10 to 10V	(±20mV)	(±40mV)	0	
Current	0 to 20mA	Within ±0.2%	Within ±0.4%		
Current	4 to 20mA	(±40µA)	(±80µA)		
80µs/channel					
		_		0	
	Ava	ilable		0	
Between the I/O terminal ar	nd programmable contro	ller power supply: Phot	ocoupler		
Between I/O channels: Not	insulated			0	
Between external power su	pply and analog I/O cha	nnel: Transformer			
Between the I/O terminal ar Between external power su	nd programmable contro	ller power supply: 500	VACrms, for 1 minute	0	
Between the I/O terminal ar	nd programmable contro	ller power supply: 500	VDC, 10M Ω or higher	0	
	16 r	points	_,		The number of occupied I/O points
	(I/O assignment: i	ntelligent 16 points)		\bigtriangleup	is changed to 16 points.
	18-point te	rminal block		×	Wiring change is required.
	0.3 to 0).75mm ²		×	
R1.25-3 (Solderless terminals with an insulation sleeve cannot be used.)					
24VDC +20%15%					
Ripple, spike 500mVp-p or lower				0	
0.12A					
	3.5A, 100	0µs or less		Δ	Inrush current is greater.
	0.1	17A		0	
	0.2	22kg		0	

O : Compatible, \bigtriangleup : Partial change required, ×: Incompatible

4 ANALOG I/O MODULE REPLACEMENT

4.3.2 Functional comparison

(1) A/D conversion functions

					O: Available, -: Not available
lte	em	Description	A1S66ADA	L60AD2DA2	Precautions for replacement
A/D conversion e function	enable/disable	Sets whether to enable or disable A/D conversion for each channel. By disabling the conversion for the channels that are not used, the sampling time can be shortened.	-	0	
Sampling proces	sing	Performs the A/D conversion for analog input values successively for each channel, and outputs digital output values upon each conversion.	-	0	
	Time average	For each channel, averages A/D conversion values by the amount of time, and outputs the average value as a digital value.	_	0	
Averaging processing	Count average	For each channel, averages A/D conversion values by the number of times, and outputs the average value as a digital value.	-	0	
	Moving average	For each channel, averages A/D conversion values by the number of times on a moving of each sampling processing, and outputs the average value as a digital value.	_	0	
Range switching	function	Sets the input range to be used.	0	0	
Input range exte	nded function	Extends the input range. By combining this function with the input signal error detection function, simple disconnection detection can be executed.	-	0	
Maximum value/ hold function	minimum value	Stores the maximum and minimum values of the digital output values in the module.	-	0	
Input signal error function	r detection	Detects the analog input value which exceeds the setting range.	-	0	
Scaling function		Scale-converts the digital output value to the set range of the A/ D conversion scaling upper limit value and A/D conversion scaling lower limit value. This omits the programming of the scale conversion.	_	0	To use the same digital output value that is used for the A1S66ADA, set the scaling upper and lower limit values that match the resolution of the A1S66ADA using the scaling function.
Logging function		Logs the digital output value or scaling value (digital operation value). The data of 10000 points can be logged for each channel.	-	0	

(2) D/A conversion functions

				O: Available, -: Not available	
Item	Description	A1S66ADA	L60AD2DA2	Precautions for replacement	
D/A conversion enable/disable function	Sets whether to enable or disable D/A conversion for each channel. With the L60AD2DA2, disabling the D/A conversion for an unused channel reduces the conversion cycles.	_	0		
D/A output enable/disable	Sets whether to output the D/A conversion value or 0V/0mA for each channel. The conversion speed is constant, regardless of the output enable/disable status.	0	_	Output varies when D/A output	
function	Sets whether to output the D/A conversion value or the offset value for each channel. The conversion speed is constant, regardless of the output enable/disable status.	_	0	is disabled.	
Range switching function	Sets the output range to be used.	0	0		
Analog output HOLD/CLEAR function	Sets the status of analog output values (HOLD or CLEAR), according to the CPU module operating status (RUN, STOP, or stop error).	-	0		
Analog output test when CPU module is in STOP status	Outputs the D/A converted analog values when CH. Output enable/disable flag is forcibly turned on while the CPU module is in the STOP status.	-	0		

				O: Available, -: Not available
Item	Description	A1S66ADA	L60AD2DA2	Precautions for replacement
Scaling function	Scale-converts the digital input value to the set range of the D/A conversion scaling upper limit value and D/A conversion scaling lower limit value. This omits the programming of the scale conversion.	_	0	To use the same digital input value that is used for the A1S66ADA, set the scaling upper and lower limit values that match the resolution of the A1S66ADA using the scaling function.
Alarm output function	Outputs an alarm when the digital value is out of the preset range.	-	0	
Wave output function	Reads the wave data (digital input values) prepared in advance and outputs analog data at the preset conversion cycle.	-	0	

(3) Common functions

				O: Available, -: Not available
Item	Description	A1S66ADA	L60AD2DA2	Precautions for replacement
External power supply READY flag	Turns on when the external power supply (24VDC) is supplied. When the external power supply READY flag (X7) is off, A/D and D/A conversion processing is not performed.	-	0	
Error log function	Stores the errors and alarms occurred in the L60AD2DA2 to the buffer memory as a history. Up to 16 errors and alarms can be stored.	-	0	
Module error collection function	Collects the errors and alarms occurred in the L60AD2DA2 and stores them in the CPU module.	-	0	
Error clear function	Clears the error from the system monitor window of the programming tool.	-	0	This function can be used on the GX Works2.
Saving and restoring offset/gain values	Saves and restores the offset/gain values in the user setting range.	_	0	
Offset/gain setting	Corrects errors in the analog and digital output values.	0	0	

4.3.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L Analog I/O Module User's Manual.

	A1S66ADA			L60AD2DA2			
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name
X0		Y0		X0	Module ready	Y0	
X1		Y1		X1		Y1	Use prohibited
X2		Y2		X2		Y2	
X3		Y3		X3	Use prohibited	Y3	CH3 Output enable/ disable flag
X4		Y4		X4		Y4	CH4 Output enable/ disable flag
X5		Y5		X5		Y5	Use prohibited
X6	CH3 Digital output value	Y6	CH1 Digital value setting	X6	Set value change completed flag	Y6	Set value change request
X7	or to Digital output value	Y7		X7	External power supply READY flag	Y7	Use prohibited
X8		Y8		X8	Warning output signal	Y8	Warning output clear request
X9		Y9		X9	Operating condition setting completed flag	Y9	Operation condition setting request
XA		YA		XA Offset/gain setting mode flag		YA	User range write request
XB		YB		ХВ	Channel change completed flag	YB	Channel change request
XC		YC		XC	Input signal error detection signal	YC	Use prohibited
XD	Line prohibited	YD	Use prohibited	XD	Maximum value/minimum value reset completed flag	YD	Maximum value/minimum value reset request
XE	Use prohibited	YE		XE	A/D conversion completion flag	YE	Use prohibited
XF		YF	CH1 D/A conversion value output enable flag	XF	Error flag	YF	Error clear request
X10		Y10					
X11		Y11					
X12		Y12					
X13		Y13					
X14		Y14					
X15	CH4 Digital output value	Y15	CH2 Digital value setting				
X16		Y16					
X17		Y17					
X18							
×19		¥19					
XIA V1D		T IA					
X1D X1C		V1C					
X10		Y1D	Lise prohibited				
X1E	Use prohibited	Y1E					
			CH2 D/A conversion value				
X1F		Y1F	output enable flag				

A1S66ADA									
Device	Signal name	Device	Signal name						
No.	Signal name	No.	Signarhame						
X20		Y20							
X21		Y21							
X22	-	Y22							
X23		Y23							
X24		Y24							
X25	CH5 Digital output value	Y25							
X26		Y26							
X27		Y27							
X28		Y28							
X29		Y29							
X2A		Y2A							
X2B		Y2B							
X2C	Use prohibited	Y2C							
X2D		Y2D							
X2E	Use prohibited	Y2E							
X2F		Y2F	Lico prohibitod						
X30		Y30	Use promoted						
X31		Y31							
X32		Y32							
X33		Y33							
X34		Y34							
X35	CH6 Digital output value	Y35							
X36		Y36							
X37		Y37							
X38		Y38							
X39		Y39							
X3A		Y3A							
X3B		Y3B							
X3C		Y3C							
X3D	Lise prohibited	Y3D							
X3E		Y3E							
X3F		Y3F							

4.3.4 Buffer memory address comparison

A1S66ADA uses I/O signals to exchange data with the CPU module. L60AD2DA2 uses the buffer memory to exchange data with the CPU module. The sequence program to exchange data needs to be modified.

For details of the buffer memory areas and sequence programs, refer to the MELSEC-L Analog I/O Module User's Manual.

L60AD2DA2								
Address (decimal)	Name	Read/write						
0	A/D conversion enable/disable setting							
1	CH1 Time Average/Count Average/Moving							
	Average	R/W						
2	CH2 Time Average/Count Average/Moving Average							
3								
4								
5								
6	System area (Use prohibited)	-						
7								
8								
9								
10	A/D conversion completed flag							
11	CH1 Digital output value	R						
12	CH2 Digital output value							
13								
14	Ţ							
15								
16	System area (Use prohibited)	-						
17	1							
18	1							
19	Latest Error code							
20	Setting range	R						
21	Function selection monitor							
22	Offset/gain setting mode Offset specification							
23	Offset/gain setting mode Gain specification	R/W						
24	Averaging process setting							
25								
26	System area (Use prohibited)	-						
27	Input signal error detection setting	R/W						
28								
29	System area (Use prohibited)	-						
30	CH1 Maximum value							
31	CH1 Minimum value	-						
32	CH2 Maximum value	R						
33	CH2 Minimum value	1						
34		1						
35	1							
36	1							
37	System area (Use prohibited)	_						
38								
to	ł							
48	ł							
49	Input signal error detection flag	R						
50								
to	System area (Use prohibited)	_						
52								
53	A/D conversion scaling enable/disable setting	R/\//						
54	CH1 scaling value	1.7 44						
55	CH2 scaling value	R						
00		1						

L60AD2DA2							
Address	Name	Read/write					
(decimal)	Nanc						
56							
to	System area (Use prohibited)	-					
61							
62	CH1 A/D conversion scaling lower limit value	-					
63	CH1 A/D conversion scaling upper limit value	R/W					
64	CH2 A/D conversion scaling lower limit value	-					
65	CH2 A/D conversion scaling upper limit value						
66							
to	System area (Use prohibited)	-					
141							
142	CH1 Input signal error detection setting value	R/W					
143	CH2 Input signal error detection setting value						
144							
to	System area (Use prohibited)	-					
157							
158	Mode switching setting	R/W					
159							
160							
to	System area (Use prohibited)	-					
199							
200	Pass data classification setting	R/W					
201	System area (Use prohibited)	-					
202	CH1 Industrial shipment settings offset value	-					
203	CH1 Industrial shipment settings gain value	-					
204	CH2 Industrial shipment settings offset value	-					
205	CH2 Industrial shipment settings gain value	-					
206	CH3 Industrial shipment settings offset value	-					
207	CH3 Industrial shipment settings gain value	-					
208	CH4 Industrial shipment settings offset value	-					
209	CH4 Industrial shipment settings gain value	R/W					
210	CH1 User range settings offset value	-					
211	CH1 User range settings gain value	-					
212	CH2 User range settings offset value	-					
213	CH2 User range settings gain value	-					
214	CH3 User range settings offset value						
215	CH3 User range settings gain value	-					
216	CH4 User range settings offset value	-					
217	CH4 User range settings gain value						
218							
to	System area (Use prohibited)	-					
999							
1000	CH1 Logging enable/disable setting	R/W					
1001	CH2 Logging enable/disable setting	· · · · · · · · · · · · · · · · · · ·					
1002							
to	System area (Use prohibited)	-					
1007							
1008	CH1 Logging hold request	R/W					
1009	CH2 Logging hold request						
1010							
to	System area (Use prohibited)	-					
1015							
1016	CH1 Logging hold flag	R					
1017	CH2 Logging hold flag						
1018							
to	System area (Use prohibited)	-					
1023							
1024	CH1 Logging data setting	R/W					
1025	CH2 Logging data setting						
1026							
to	System area (Use prohibited)	-					
1031		1					

L60AD2DA2			
Address	Name	Read/write	
(decimal)			
1032	CH1 Logging cycle setting value	R/W	
1033	CH2 Logging cycle setting value		
1034			
to	System area (Use prohibited)	-	
1039			
1040	CH1 Logging cycle unit setting	R/W/	
1041	CH2 Logging cycle unit setting		
1042			
to	System area (Use prohibited)	-	
1047			
1048	CH1 Logging points after trigger	R/M	
1049	CH2 Logging points after trigger	1000	
1050			
to	System area (Use prohibited)	-	
1055			
1056	CH1 Level trigger condition setting	DAM	
1057	CH2 Level trigger condition setting	FK/ VV	
1058			
to	System area (Use prohibited)	-	
1063			
1064	CH1 Trigger data		
1065	CH2 Trigger data	R/W	
1066			
to	System area (Use prohibited)	_	
1071			
1072	Level data 0		
1073	Level data 1		
1074	Level data 2		
1075	Level data 3		
1076	Level data 4		
1077	Level data 5		
1078	Level data 6	R/W	
1070	Level data 7		
1070			
1081			
1082	CH1 Trigger setting value		
1002	CH2 Trigger setting value		
1003			
1004 to	System area (Lise prohibited)		
1090	System area (Ose prohibited)	-	
1009	CH1 Hoad pointer	<u> </u>	
1090	CH2 Head pointer	R	
1091		<u> </u>	
1092	System area (Lise prohibited)		
1007	System area (Use prohibited)	_	
1097	CI14 Latest pointer	<u> </u>	
1098		R	
1099	Unz Latest pointer		
1100			
to	System area (Use prohibited)	-	
1105		 	
1106	CH1 Number of logging data	R	
1107	CH2 Number of logging data	ļ	
1108	•		
to	System area (Use prohibited)	-	
1113		ļ	
1114	CH1 Trigger pointer	R	
1115	CH2 Trigger pointer		
1116	•		
to	System area (Use prohibited)	-	
1121	1		

	L60AD2DA2	
Address	Name	Read/write
(decimal)		
1122	CH1 Logging cycle monitor value (s)	
1123	CH1 Logging cycle monitor value (IIIS)	
1124	CH2 Logging cycle monitor value (ps)	ĸ
1126	CH2 Logging cycle monitor value (s)	
1123	CH2 Logging cycle monitor value (iiic)	R
1128		
to	System area (Use prohibited)	_
1145		
1146	CH1 Logging status monitor value	
1147	CH2 Logging status monitor value	R
1148		
to	System area (Use prohibited)	-
1153		
1154	CH1 Trigger detection time (First two digits of the vear/Last two digits of the vear)	
1155	CH1 Trigger detection time (Month/Day)	
1156	CH1 Trigger detection time (Hour/Minute)	
4457	CH1 Trigger detection time (Second/Day of the	
1157	week)	Р
1158	CH2 Trigger detection time (First two digits of the	ĸ
1150	year/Last two digits of the year)	
1159	CH2 Trigger detection time (Month/Day)	
1160	CH2 Trigger detection time (Hour/Minute)	
1161	CH2 Trigger detection time (Second/Day of the week)	
1162		
to	System area (Use prohibited)	-
1999		
2000	D/A conversion enable/disable setting	R/W
2001	System area (Use prohibited)	_
2002		
2003	CH3 Digital input value	R/W
2004	CH4 Digital input value	
2005		
10	System area (Use prohibited)	_
2012	CH3 Satualua chack codo	
2013	CH4 Set value check code	R
2014		
to	System area (Use prohibited)	_
2023		
2024	Offset/gain adjustment value specification	R/W
2025	System area (Use prohibited)	_
2026	HOLD/CLEAR function setting	R
2027		
to	System area (Use prohibited)	-
2046		
2047	Warning output setting	R/W
2048	Warning output flag	R
2049		
to	System area (Use prohibited)	-
2052		
2053	D/A conversion scaling enable/disable setting	R/W
2054		
to	System area (Use prohibited)	-
2057	CH2 D/A conversion cooling lower limit where	
2058	CH3 D/A conversion scaling lower limit value	
2009	CH4 D/A conversion scaling lower limit value	R/W
2000	CH4 D/A conversion scaling lower limit value	
2001	S Shi somersion sounny upper innit value	L

L60AD2DA2		
Address	Name	Read/write
(decimal)		
2062	System area (Liss prohibited)	
2080	System area (Ose prohibited)	-
2009	CH3 Warning output upper limit value	
2030	CH3 Warning output lower limit value	
2091	CH4 Warning output upper limit value	R/W
2092	CH4 Warning output lower limit value	
2094		
to	System area (Use prohibited)	_
3001		
3002	CH3 Wave output start/stop request	R/W
3003	CH4 Wave output start/stop request	R/W
3004		
to	System area (Use prohibited)	-
3009		
3010	CH3 Output setting during wave output stop	DAA
3011	CH4 Output setting during wave output stop	K/W
3012		
to	System area (Use prohibited)	-
3017		
3018	CH3 Output value during wave output stop	R/W
3019	CH4 Output value during wave output stop	12/00
3020		
to	System area (Use prohibited)	-
3027		
3028	CH3 Wave pattern start address setting (L)	
3029	CH3 Wave pattern start address setting (H)	R/W
3030	CH4 Wave pattern start address setting (L)	
3031	CH4 Wave pattern start address setting (H)	
3032		
to	System area (Use prohibited)	-
3043		
3044	CH3 Wave pattern data points setting (L)	
3045	CH3 Wave pattern data points setting (H)	R/W
2040	CH4 Wave pattern data points setting (L)	
2047	CH4 Wave pattern data points setting (H)	
to	System area (Lise prohibited)	_
3057	System area (Ose prombled)	_
3058	CH3 Wave pattern output repetition setting	
3059	CH4 Wave pattern output repetition setting	R/W
3060		
to	System area (Use prohibited)	_
3065	· · · · · · · · · · · · · · · · · · ·	
3066	CH3 Constant for wave output conversion cvcle	
3067	CH4 Constant for wave output conversion cycle	R/W
3068		
to	System area (Use prohibited)	-
3071		
3072	Step action wave output request	R/W
3073		
to	System area (Use prohibited)	-
3081		
3082	CH3 Wave output step action movement amount	D/M
3083	CH4 Wave output step action movement amount	
3084		
to	System area (Use prohibited)	-
3101		
3102	CH3 Wave output status monitor	P
3103	CH4 Wave output status monitor	ĸ
3104		
to	System area (Use prohibited)	-
3111		

L60AD2DA2		
Address	Name	Read/write
(decimal)		
3112	CH3 Wave output conversion cycle monitor (L)	
2114	CH3 Wave output conversion cycle monitor (H)	R
3114	CH4 Wave output conversion cycle monitor (L)	
3116		
to	System area (Lise prohibited)	_
3125	System area (Ose prohibited)	_
3126	CH3 Wave output count monitor	
3127	CH4 Wave output count monitor	R
3128		
to	System area (Use prohibited)	_
3135		
3136	CH3 Wave output current address monitor (L)	
3137	CH3 Wave output current address monitor (H)	
3138	CH4 Wave output current address monitor (L)	R
3139	CH4 Wave output current address monitor (H)	
3140		
to	System area (Use prohibited)	-
3149		
3150	CH3 Wave output current digital value monitor	
3151	CH4 Wave output current digital value monitor	R
3152		
to	System area (Use prohibited)	_
3159		
	CH3 Wave output digital value outside the range	
3160	Address monitor (L)	
0404	CH3 Wave output digital value outside the range	
3101	Address monitor (H)	в
3162	CH4 Wave output digital value outside the range	ĸ
5102	Address monitor (L)	
3163	CH4 Wave output digital value outside the range	
	Address monitor (H)	
3164		-
to	System area (Use prohibited)	
3175		
3176	CH3 Wave output warning Address monitor (L)	
3177	CH3 wave output warning Address monitor (H)	R
3178	CH4 wave output warning Address monitor (L)	
3179	CH4 wave output warning Address monitor (H)	
3160 to	System area (Lies prohibited)	
1600	System area (Ose prohibited)	-
4099		
4700	CH2 A/D conversion status	R
4701		<u> </u>
+/02	System area (Lise prohibited)	_
4709		_
4710	CH1 Analog input monitor	
4710	CH1 Analog input monitor unit	
4712	CH2 Analog input monitor	R
4713	CH2 Analog input monitor unit	
4714		<u> </u>
to	System area (Use prohibited)	_
4749	· · · · · · · · · · · · · · · · · · ·	
4750	CH3 D/A conversion status	_
4751	CH4 D/A conversion status	R
4752		<u> </u>
to	System area (Use prohibited)	_
4759	· · · · · · · · · · · · · · · · · · ·	
4760	CH3 Analog output command value	<u> </u>
4761	CH3 Analog output command value unit	_
4762	CH4 Analog output command value	R
4763	CH4 Analog output command value unit	

L60AD2DA2					
Address	Name	Read/write			
(decimal)	Name	neau/write			
4764					
to	System area (Use prohibited)	-			
4799					
4800	Latest address of error history	R			
4801					
to	System area (Use prohibited)	-			
4809					
4810	No.1 Error code				
4011	No.1 Error time (First two digits of the year/Last				
4011	two digits of the year)	Б			
4812	No.1 Error time (Month/Day)	ĸ			
4813	No.1 Error time (Time/Minute)				
4814	No.1 Error time (Second/Day of the week)				
4815					
to	No.1 System area (Use prohibited)	-			
4819					
4820					
to	No.2 (Same as No.1)				
4829					
4830					
to	No.3 (Same as No.1)				
4839					
4840					
to	No.4 (Same as No.1)				
4849					
4850					
to	No.5 (Same as No.1)				
4859					
4860					
to	No.6 (Same as No.1)				
4869					
4870					
to	No.7 (Same as No.1)				
4879					
4880					
to	No.8 (Same as No.1)				
4889					
4890					
to	No.9 (Same as No.1)				
4899					
4900					
to	No.10 (Same as No.1)				
4909					
4910					
to	No.11 (Same as No.1)				
4919					
4920					
to	No.12 (Same as No.1)				
4929					
4930					
to	No.13 (Same as No.1)				
4939					
4940					
to	No.14 (Same as No.1)				
4949					
4950					
to	No.15 (Same as No.1)				
4959					
4960					
to	No.16 (Same as No.1)				
4969					
	L60AD2DA2				
----------------------	---	------------	--	--	--
Address (decimal)	Name	Read/write			
4970					
to	System area (Use prohibited)	-			
4999					
5000	CH1 Logging data (When the logging function is				
to		R			
14999	used)				
15000	CI12 Logging data (When the logging function is				
to					
24999	used)				
25000	System area (Lea prohibited)				
to	(When the logging function is used)	-			
54999					
5000	Move dete registry area (M/bap the wave autout				
to	function is used)	R/W			
54999					
55000					
to	System area (Use prohibited)	-			
61439					

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/TEMPERATURE CONTROL MODULE REPLACEMENT

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5.1 List of Heating-cooling Temperature Control Module/Temperature Control Module Alternative Models for Replacement

AnS/QnAS series		Transition to L series		
Product	Model	Model ^{*1}	Remarks (Restrictions)	
			1) External wiring: Cable size is changed.	
	AISSATCTOT		2) Number of slots: Not changed	
	Thormocouplo		3) Program: The number of occupied I/O points, I/O signals, and	
	connection	20010114	buffer memory addresses are changed.	
	connection		Performance specifications: Not changed	
			5) Functional specifications: Changed (Refer to Section 5.3.)	
	A1S64TCTRT		1) External wiring: Cable size is changed.	
	Platinum		2) Number of slots: Not changed	
	resistance		3) Program: The number of occupied I/O points, I/O signals, and	
	thermometer connection		buffer memory addresses are changed.	
Heating cooling			Performance specifications: Not changed	
temperature control			5) Functional specifications: Changed (Refer to Section 5.3.)	
modulo			1) External wiring: Cable size is changed.	
Tomporaturo control		L60TCTT4BW	2) Number of slots: Changed (2 modules occupied, 16 intelligent	
modulo	A1S64TCTRTBW		points)	
module	Thermocouple		3) Program: The number of occupied I/O points, I/O signals, and	
	connection		buffer memory addresses are changed.	
			Performance specifications: Not changed	
			5) Functional specifications: Changed (Refer to Section 5.3.)	
			1) External wiring: Cable size is changed.	
	A1S64TCTRTBW		2) Number of slots: Changed (2 modules occupied, 16 intelligent	
	Platinum		points)	
	resistance	L60TCRT4BW	3) Program: The number of occupied I/O points, I/O signals, and	
	thermometer		buffer memory addresses are changed.	
	connection		 Performance specifications: Not changed 	
			5) Functional specifications: Changed (Refer to Section 5.3.)	

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/

AnS/QnAS	series		Transition to L series
Product	Model	Model ^{*1}	Remarks (Restrictions)
			1) External wiring: Cable size is changed.
			2) Number of slots: Not changed
	A1064TOTT 04		3) Program: The number of occupied I/O points, I/O signals, and
	A15641C11-S1	LOUICI14	buffer memory addresses are changed.
			4) Performance specifications: Not changed
			5) Functional specifications: Changed (Refer to Section 5.3.)
			1) External wiring: Cable size is changed.
			2) Number of slots: Changed (2 modules occupied, 16 intelligent
			points)
	A1S64TCTTBW-S1	L60TCTT4BW	3) Program: The number of occupied I/O points, I/O signals, and
			buffer memory addresses are changed.
			4) Performance specifications: Not changed
			5) Functional specifications: Changed (Refer to Section 5.3.)
			 External wiring: Cable size is changed. Number of all the block are used.
			2) Number of slots: Not changed
	A1S64TCRT-S1	L60TCRT4	3) Program: The number of occupied I/O points, I/O signals, and
			A) Derfermence apositionational Net changed.
			 Fenomance specifications: Not changed Eunotional specifications: Changed (Pefer to Section 5.3.)
			1) External wiring: Cable size is changed
			2) Number of slots: Changed (2 modules occupied 16 intelligent
		L60TCRT4BW	points for the second half)
	A1S64TCRTBW-S1		3) Program: The number of occupied I/O points I/O signals and
			buffer memory addresses are changed
			4) Performance specifications: Not changed
			5) Functional specifications: Changed (Refer to Section 5.3.)
Heating-cooling			1) External wiring: Cable size is changed.
temperature control		L60TCTT4	2) Number of slots: Not changed
module			3) Program: The number of occupied I/O points, I/O signals, and
remperature control	A1S62TCTT-S2		buffer memory addresses are changed.
module			4) Performance specifications: Changed (2 channels/module \rightarrow 4
			channels/ module)
			5) Functional specifications: Changed (Refer to Section 5.3.)
			1) External wiring: Cable size is changed.
			2) Number of slots: Changed (2 modules occupied, 16 intelligent
			points)
	A1S62TCTTBW-S2	L60TCTT4BW	3) Program: The number of occupied I/O points, I/O signals, and
			buffer memory addresses are changed.
			(4) Performance specifications: Changed (2 channels/module \rightarrow 4
			cnannels/ module)
			 Functional specifications: Unanged (Refer to Section 5.3.) External wiring: Cable size is changed
			 Literrial winning. Cable Size IS Changed. Number of clote: Not changed
			 Renarram: The number of occupied I/O points. I/O signals, and
	A1S62TCRT-S2	160TCRT4	huffer memory addresses are changed
			4) Performance specifications: Changed (2 channels/module $\rightarrow 4$
			channels/ module)
			5) Functional specifications: Changed (Refer to Section 5.3)
			1) External wiring: Cable size is changed.
			2) Number of slots: Changed (2 modules occupied, 16 intelligent
			points)
			3) Program: The number of occupied I/O points, I/O signals, and
	A1S621CRTBW-S2	L601CR14BW	buffer memory addresses are changed.
			4) Performance specifications: Changed (2 channels/module \rightarrow 4
			channels/ module)
			5) Functional specifications: Changed (Refer to Section 5.3.)

5.2 Performance Specifications Comparison

5.2.1 A1S64TCTRT(BW) (thermocouple connection)

140.00			Specifications	
		lem	A1S64TCTRT A1S64TCTRTBW	
Control ou	Itput		Transistor output	
Number of	f temperature inp	out points	Standard control: 4 channels/module Heating-cooling control: 2 channels/module	
Applicable	temperature se	nsor	(Refer to Section 5.2.1 (1).)	
			(Ambient temperature: 25°C±5°C) Full scale × (±0.3%)±1 digit	
	Indication accui	acy	(Ambient temperature: 0°C to 55°C) Full scale × (±0.7%)±1 digit	
Cold junction temperature	Cold junction temperature	Temperature process value (PV): -100°C or more	Within ±1.0°C	
Accuracy	compensation accuracy (ambient	Temperature process value (PV): -150°C to -100°C	Within ±2.0°C	
temperature: 0°C to 55°C)	temperature: 0°C to 55°C)	Temperature process value (PV): -200°C to -150°C	Within ±3.0°C	
Sampling cycle			0.5s (Constant regardless of the number of channels used)	
Control output cycle			1 to 100s	
Input impedance			1ΜΩ	
Input filter			0 to 100s	
Sensor co	rrection value se	tting	-50.00 to 50.00%	
Operation	at sensor input of	lisconnection	Upscale processing	
Temperatu	ire control metho	od	Standard control: PID ON/OFF pulse or two-position control Heating-cooling control: PID ON/OFF pulse	
		PID constants setting	Standard control: Can be set by auto tuning or self-tuning. Heating-cooling control: Can be set by auto tuning.	
PID consta	ants range	Proportional band (P)	Standard control: 0.0 to 1000.0% Heating-cooling control: 0.1 to 1000.0%	
		Integral time (I)	1 to 3600s	
		Derivative time (D)	0 to 3600s	
Set value	(SV) setting rang	le	Within the temperature range set for the temperature sensor to be used	
		Output signal	ON/OFF pulse	
		Rated load voltage	10.2 to 30VDC (peak voltage 30.0V)	
		Maximum load current	0.1A/point, 0.4A/common	
Transistor	output	Maximum inrush current	0.4A, 10ms	
Transistor	output	Leakage current at OFF	0.1mA or lower	
		Maximum voltage drop at ON	1.0VDC (TYP) at 0.1A 2.5VDC (MAX) at 0.1A	
		Response time	OFF→ON: 2ms or less, ON→OFF: 2ms or less	1
Number of	f writes to E ² PR	M	Maximum 10 ¹² times (number of read/write from/to the FeRAM)	

O: Compatible, \triangle : Partial change required, ×: Incompatible

Specifications		Compatibility	Precautions for replacement	
L60TCTT4	L60TCTT4BW	sectionity		
 Transistor	⁻ output	0		
 Standard control: 4 Heating-cooling control	channels/module : 2 channels/module	0	The standard control and heating- cooling control can be combined in the L series module.	
 (Refer to Section	0			
 (Ambient temperature: 25°C±	5°C) Full scale × $(\pm 0.3\%)^{*1}$			
 (Ambient temperature: 0°C to t	55°C) Full scale × (±0.7%) ^{*1}			
Within ±1	.0°C*1			
Within ±2	1.0°C*1	0		
 Within ±3	1.0°C*1			
250ms/4 channels, 500ms/4 channels (channels	Constant regardless of the number of used)	0	The sampling cycle can be selected in the L series module.	
 0.5s to 1	00.0s	0		
 1Ms	С	0		
 0 to 10	00s	0		
 -50.00 to t	50.00%	0		
 Upscale pro	ocessing	0		
 PID ON/OFF pulse or	two-position control	0		
 Standard control: Can be set t Heating-cooling control: Ca	by auto tuning or self-tuning.	0		
 0.0 to 10	00.0%	0		
 0 to 36	300s	0		
 0 to 36	300s	0		
 Within the temperature range set for	the temperature sensor to be used	0		
 ON/OFF	pulse	0		
 10 to 30	IVDC	0		
 0.1A/point, 0.4	1A/common	0		
 0.4A, 1	0ms	0		
 0.1mA or	r lower	0		
 1.0VDC (TY)	P) at 0.1A	0		
 IVIAXIMUM 1014 times (number of read/	write from/to a non-volatile memory)	0		

*1 Calculate the accuracy in the following method.

(Accuracy) = (Indication accuracy) + (Cold junction temperature compensation accuracy)

(Example) Accuracy at the input range of 38, the operating ambient temperature of 35°C, and the temperature process value (PV) of 300°C

 $\{400.0-(-200.0)\}$ [Full scale] × (±0.007)[±0.7%] + (±1.0°C) [Cold junction temperature compensation accuracy] = ±5.2°C

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/TEMPERATURE

Itom		Specifications			
nem		A1S64TCTRT	A1S64TCTRTBW		
Insulation method		Between the input terminal and programmable controller power supply: Transformer			
		Between input char	nnels: Transformer		
		Between the input terminal and programmable	controller power supply: 500VAC, for 1 minute		
Dielectric withstand volta	age	Between input channels	Between input channels: 500VAC, for 1 minute		
		Between the input terminal a	nd programmable controller		
Insulation resistance		power supply: 500V	DC, 10M Ω or more		
		Between input channels:	500VDC, 10M Ω or more		
	Current sensor		U.R.D. Co., LTD.		
			CTL-12-S36-8		
Heater disconnection		_	CTL-6-P(-H)		
detection specifications					
	Input accuracy		Full scale × (±1.0%)		
	Number of alert		3 to 255		
	delay				
Number of occupied I/O	points	32 points (I/O assignment: special 32 points)			
Connection terminal		20-point terr	ninal block		
Applicable wire size		0.75 to 1.5mm ²			
Applicable solderless terminal		R1.25-3, 1.25-YS3, RA	V1.25-3, V1.25-YS3A		
Internal current consumption		0.33A (0.19A) ^{*2}	0.39A (0.25A) ^{*2}		
Weight		0.26kg	0.28kg		
External dimensions		34.5(W) × 130(F	I) × 93.6(D)mm		

*2 A current value when the temperature conversion function is not used in an unused channel under heating-cooling control.

(1) List of thermocouple type, temperature measurement range, and resolution

	0	C	°F		
Thermocouple type	Temperature	Pesolution	Temperature	Pesolution	
	measurement range	Resolution	measurement range	Resolution	
R	0 to 1700	1	0 to 3000	1	
	0 to 500		0 to 1000		
	0 to 800	1	0 to 2400	1	
	0 to 1300		0 10 2400		
K	-200.0 to 400.0				
	0.0 to 400.0	0.1	0.0 to 1000.0	0.1	
	0.0 to 500.0	0.1	0.0 10 1000.0		
	0.0 to 800.0				
	0 to 500		0 to 1000		
	0 to 800	1	0 to 1600	1	
	0 to 1200		0 to 2100		
J	0.0 to 400.0				
	0.0 to 500.0	0.1	0.0 to 1000.0	0.1	
	0.0 to 800.0				
	-200 to 400				
т	-200 to 200	1	0 to 700	1	
	0 to 200	I	-300 to 400	1	
	0 to 400				
	-200.0 to 400.0	0.1	0.0 to 700.0	0.1	
	0.0 to 400.0	U. I	0.0 10 700.0	0.1	

(To the next page)

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Specifi	Compatibility	Processions for replacement	
L60TCTT4	L60TCTT4BW	compatibility	Precautions for replacement
Between the input terminal and programm	able controller power supply: Transformer	0	
Between input cha	nnels: Transformer	0	
Between the input terminal and programma	able controller power supply: 500VAC, for 1		
min	nute	0	
Between input channels	s: 500VAC, for 1 minute		
Between the input terminal and program	mable controller power supply: 500VDC,		
20MΩ c	or more	0	
Between input channels:	500VDC, 20MΩ or more		
	U.R.D. Co., LTD.		
	CTL-12-S36-8		
	CTL-12-S36-10		
_	CTL-12-S56-10	0	
_	CTL-6-P(-H)	0	
	Full scale × (±1.0%)		
	3 to 255		
16 points/slot	16 points/2 slots		The number of occupied I/O points
(I/O assignment: intelligent 16 points)	(I/O assignment: intelligent 16 points)		and slots are different.
18-point terminal block	Two 18-point terminal blocks		
22 to 18 AWG		×	Wiring change is required.
R1.25-3			
0.304	0.334	^	Recalculation of internal current
0.30A	0.33A	Δ	consumption (5VDC) is required.
0.18kg	0.33kg	0	
28.5(W) × 90(H) × 117(D)mm	57.0(W) × 90(H) × 117(D)mm	-	

O: Compatible, $\bigtriangleup:$ Partial change required, <code>x:</code> Incompatible

Thormocouplo	°	3	°F		
type	Temperature	Resolution	Temperature	Resolution	
type	measurement range	Resolution	measurement range	Resolution	
S	0 to 1700	1	0 to 3000	1	
В	400 to 1800	1	800 to 3000	1	
	0 to 400	1	0 to 1800	1	
E	0 to 1000	I	0101000	I	
	0.0 to 700.0	0.1	-	-	
Ν	0 to 1300	1	0 to 2300	1	
	0 to 400	4	0 to 700	1	
U	-200 to 200	I	-300 to 400	I	
	0.0 to 600.0	0.1	-	-	
	0 to 400	1	0 to 800	1	
	0 to 900	I	0 to 1600	I	
L	0.0 to 400.0	0.1			
	0.0 to 900.0	0.1	-	-	
PL II	0 to 1200	1	0 to 2300	1	
W5Re/W26Re	0 to 2300	1	0 to 3000	1	

(From the previous page)

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ltom		Specifications	
ne		A1S64TCTRT A1S64TCTRTBW	Í
Control output		Transistor output	
Number of temperature input points		Standard control: 4 channels/module Heating-cooling control: 2 channels/module	
Applicable temperatur	e sensor	(Refer to Section 5.2.2 (1).)	
		(Ambient temperature: 25°C±5°C) Full scale × (±0.3%)±1 digit	
Indication accuracy		(Ambient temperature: 0°C to 55°C) Full scale × (±0.7%)±1 digit	
Sampling cycle		0.5s (Constant regardless of the number of channels used)	
Control output cycle		1 to 100s	
Input impedance		1MΩ	1
Input filter		0 to 100s	
Sensor correction value	ue setting	-50.00 to 50.00%	
Operation at sensor input disconnection		Upscale processing	
Temperature control method		Standard control: PID ON/OFF pulse or two-position control	-
		Heating-cooling control: PID ON/OFF pulse	
	PID constants	Standard control: Can be set by auto tuning or self-tuning.	
	setting	Heating-cooling control: Can be set by auto tuning.	
	Proportional band	Standard control: 0.0 to 1000.0%	
PID constants range	(P)	Heating-cooling control: 0.1 to 1000.0%	
	Integral time (I)	1 to 3600s	
	Derivative time (D)	0 to 3600s	
Set value (SV) setting	range	Within the temperature range set for the temperature sensor to be used	
	Output signal	ON/OFF pulse	
	Rated load voltage	10.2 to 30VDC (peak voltage 30.0V)	
	Maximum load	0.1A/maint 0.4A/common	
	current	U. TA/point, U.4A/common	
	Maximum inrush	0.4A 10ms	
Transistor output	current	0.17, 10113	
	Leakage current at OFF	0.1mA or lower	
	Maximum voltage	1.0VDC (TYP) at 0.1A	
	drop at ON	2.5VDC (MAX) at 0.1A	
	Response time	OFF \rightarrow ON: 2ms or less, ON \rightarrow OFF: 2ms or less	
Number of writes to E	² PROM	Maximum 10 ¹² times (number of read/write from/to the FeRAM)	

Specifications

L60TCRT4 L60TCRT4BW	Compatibility	Precautions for replacement
Transistor output	0	
Standard control: 4 channels/module Heating-cooling control: 2 channels/module	0	The standard control and heating- cooling control can be combined in the L series module.
(Refer to Section 5.2.2 (1).)	0	
(Ambient temperature: 25°C±5°C) Full scale × (±0.3%) ^{*1}		
(Ambient temperature: 0°C to 55°C) Full scale × (±0.7%) ^{*1}		
250ms/4 channels, 500ms/4 channels (Constant regardless of the number of channels used)	0	The sampling cycle can be selected in the L series module.
0.5s to 100.0s	0	
 1ΜΩ	0	
 0 to 100s	0	
 -50.00 to 50.00%	0	
Upscale processing	0	
PID ON/OFF pulse or two-position control	0	
Standard control: Can be set by auto tuning or self-tuning. Heating-cooling control: Can be set by auto tuning.	0	
0.0 to 1000.0%	0	
0 to 3600s	0	
0 to 3600s	0	
Within the temperature range set for the temperature sensor to be used	0	
 ON/OFF pulse	0	
 10 to 30VDC	0	
0.1A/point, 0.4A/common	0	
0.4A, 10ms	0	
 0.1mA or lower	0	
 1.0VDC (TYP) at 0.1A 2.5VDC (MAX) at 0.1A	0	
OFF→ON: 2ms or less, ON→OFF: 2ms or less	0	
 Maximum 10 ¹² times (number of read/write from/to a non-volatile memory)	0	

O: Compatible, $\bigtriangleup:$ Partial change required, $\times:$ Incompatible

*1 Calculate the accuracy in the following method.

(Accuracy) = (Indication accuracy) + (Cold junction temperature compensation accuracy)

(Example) Accuracy at the input range of 38, the operating ambient temperature of 35°C, and the temperature process value (PV) of 300°C

400.0-(-200.0) [Full scale] × (±0.007)[±0.7%] + (±1.0°C) [Cold junction temperature compensation accuracy] = ±5.2°C

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/TEMPERATURE

Itom		Specific	cations	
liem		A1S64TCTRT	A1S64TCTRTBW	
Insulation method		Between the input terminal and programmable controller power supply: Transformer Between input channels: Transformer		
Dielectric withstand voltage		Between the input terminal and programmable controller power supply: 500VAC, for 1 minute Between input channels: 500VAC, for 1 minute		
Insulation resistance		Between the input terminal and programmable controller power supply: 500VDC, 10M Ω or more Between input channels: 500VDC, 10M Ω or more		
Heater disconnection detection specifications	Current sensor	_	U.R.D. Co., LTD. CTL-12-S36-8 CTL-6-P(-H)	
	Input accuracy		Full scale × (±1.0%)	
	Number of alert delay		3 to 255	
Number of occupied I/O	points	32 points (I/O assignment: special 32 points)		
Connection terminal		20-point terminal block		
Applicable wire size		0.75 to 1	.5mm ²	
Applicable solderless terminal		R1.25-3, 1.25-YS3, RA	V1.25-3, V1.25-YS3A	
Internal current consumption		0.33A (0.19A) ^{*2}	0.39A (0.25A) ^{*2}	
Weight		0.26kg	0.28kg	
External dimensions		34.5(W)×130(H)×93.6(D)mm		

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*2 A current value when the temperature conversion function is not used in an unused channel under heating-cooling control.

(1) List of usable platinum resistance thermometer, temperature measurement range, and resolution

Platinum resistance thermometer type	0	C	°F		
	Temperature		Temperature	Resolution	
	measurement range	Resolution	measurement range	Resolution	
Pt100	-200.0 to 600.0	0.1	-300 to 1100	1	
	-200.0 to 200.0	0.1	-300.0 to 300.0	0.1	
ID+100	-200.0 to 500.0	0.1	-300 to 900	1	
JPTIOU	-200.0 to 200.0	0.1	-300.0 to 300.0	0.1	

	Specifi	Compatibility	Brocoutions for replacement	
	L60TCRT4	L60TCRT4BW	compatibility	Precautions for replacement
	Between the input terminal and programm	able controller power supply: Transformer	0	
	Between input cha	nnels: Transformer	0	
	Between the input terminal and programma	ble controller power supply: 500VAC, for 1		
	min	ute	0	
	Between input channels	s: 500VAC, for 1 minute		
	Between the input terminal and program	mable controller power supply: 500VDC,	ļ	
	20M Ω α	or more	0	
	Between input channels:	500VDC, 20M Ω or more	ļ	
		U.R.D. Co., LTD.		
		CTL-12-S36-8		
		CTL-12-S36-10		
		CTL-12-S56-10		
	-	CTL-6-P(-H)	0	
		Full scale × (±1.0%)		
		3 to 255		
	16 points/slot	16 points/2 slots	^	The number of occupied I/O points
	(I/O assignment: intelligent 16 points)	(I/O assignment: intelligent 16 points)		and slots are different.
	18-point terminal block	Two 18-point terminal blocks		
	22 to 18 AWG R1.25-3		×	Wiring change is required.
	0.31A	0.35A	^	Recalculation of internal current
	0.0 // (0.007 (consumption (5VDC) is required.
	0.18kg	0.33kg	0	
	28.5(W) × 90(H) × 117(D)mm	57.0(W) × 90(H) × 117(D)mm	_	

O: Compatible, $\bigtriangleup:$ Partial change required, <code>x:</code> Incompatible

MELSEC

140.000			Specifications	
	Item		A1S64TCTT-S1 A1S64TCTTBW-S1	
Control out	iput		Transistor output	
Number of temperature input points		ut points	4 channels/module	
Applicable	temperature sen	sor	(Refer to Section 5.2.3 (1).)	
	1		(Ambient temperature: 25°C±5°C) Full scale × (±0.3%)±1 digit	
	Indication accur	асу	(Ambient temperature: 0°C to 55°C) Full scale × (±0.7%)±1 digit	
Accuracy	Cold junction temperature	Temperature process value (PV):	Within ±1.0°C	
Accuracy	accuracy (ambient	Temperature process value (PV):	Within ±2.0°C	
	temperature: 0°C to 55°C)	Temperature process value (PV):	Within ±3.0°C	
Sampling of	cycle		0.5s (Constant regardless of the number of channels used)	
Control out	put cycle		1 to 100s	
Input impe	dance		1ΜΩ	
Input filter			0 to 100s	
Sensor correction value setting		ting	-50.00 to 50.00%	
Operation a	at sensor input di	sconnection	Upscale processing	
Temperature control method		1	PID ON/OFF pulse or two-position control	
		PID constants setting	Can be set by auto tuning or self-tuning.	
PID consta	ints range	Proportional band (P)	0.0 to 1000.0%	
		Integral time (I)	1 to 3600s	
		Derivative time (D)	0 to 3600s	
Set value (SV) setting range	; ;	Within the temperature range set for the temperature sensor to be used	
		Output signal	ON/OFF pulse	
		Rated load voltage	10.2 to 30.0VDC	
		Maximum load current	0.1A/point, 0.4A/common	
Transistor	output	Maximum inrush current	0.4A, 10ms	
		Leakage current at OFF	0.1mA or lower	
		Maximum voltage	1.0VDC (TYP) at 0.1A	
		drop at ON	2.5VDC (MAX) at 0.1A	
		Response time	$OFF \rightarrow ON: 2ms \text{ or less}, ON \rightarrow OFF: 2ms \text{ or less}$	
Number of	writes to E ² PRO	M	Maximum 100000 times	
Insulation method			Between the input terminal and programmable controller power supply: Transformer Between input channels: Transformer	
Dielectric v	vithstand voltage		Between the input terminal and programmable controller power supply: 500VAC, for 1 minute Between input channels: 500VAC, for 1 minute	
Insulation r	esistance		Between the input terminal and programmable controller power supply: 500VDC, 10MΩ or more	
			Between input channels: 500VDC, 10M Ω or more	

Specifications	Competibility	Processione for real-
L60TCTT4 L60TCTT4BW	compatibility	Precautions for replacement
Transistor output	0	
Standard control: 4 channels/module Heating-cooling control: 2 channels/module		The standard control and heating- cooling control can be combined in the L series module.
(Refer to Section 5.2.3 (1).)	0	
(Ambient temperature: 25°C±5°C) Full scale × (±0.3%) ^{*1}		
(Ambient temperature: 0°C to 55°C) Full scale × (±0.7%)*1	0	
Within ±1.0°C ^{*1}		
Within ±2.0°C ^{*1}	0	
Within ±3.0°C ^{*1}		
250ms/4 channels, 500ms/4 channels (Constant regardless of the number of channels used)	0	The sampling cycle can be selected in the L series module.
0.5s to 100.0s	0	
1ΜΩ	0	
0 to 100s	0	
-50.00 to 50.00%	0	
Upscale processing	0	
PID ON/OFF pulse or two-position control	0	
Can be set by auto tuning or self-tuning.	0	
0.0 to 1000.0%	0	
0 to 3600s	00	
0 to 3600s	0	
Within the temperature range set for the temperature sensor to be used	0	
ON/OFF pulse	0	
10 to 30VDC	0	
0.1A/point, 0.4A/common	0	
0.4A, 10ms	0	
0.1mA or lowers	0	
1.0VDC (TYP) at 0.1A 2.5VDC (MAX) at 0.1A	0	
OFF→ON: 2ms or less, ON→OFF: 2ms or less	0	
Maximum 10 ¹² times (number of read/write from/to a non-volatile memory)	0	
Between the input terminal and programmable controller power supply: Transformer insulation Between input channels: Transformer insulation	0	
Between the input terminal and programmable controller power supply: 500VAC, for 1 minute Between input channels: 500VAC, for 1 minute	0	
Between the input terminal and programmable controller power supply: 500VDC, $20M\Omega$ or more Between input channels: 500VDC, $20M\Omega$ or more	0	

O: Compatible, $\bigtriangleup:$ Partial change required, *: Incompatible

Calculate the accuracy in the following method. (Accuracy) = (Indication accuracy) + (Cold junction temperature compensation accuracy) (Example) Accuracy at the input range of 38, the operating ambient temperature of 35°C, and the temperature process value (PV) of 300°C (400.0.4 (200.0.4) [Full coeld in (40.007)] + (40.007)[Fold impeties temperature compensation compensation compensation compensation compensation compensation accuracy)

 $\label{eq:condition} $$ \{400.0-(-200.0)\} [Full scale] \times (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 0.007)[\pm 0.007)[\pm 0.007)[\pm 0.007)[\pm 0.007] + (\pm 0.007)[\pm 0$

*1

Memo

Itom		Specifications		
nem		A1S64TCTT-S1	A1S64TCTTBW-S1	
Heater disconnection detection specifications	Current sensor	_	U.R.D. Co., LTD. CTL-12-S36-8 CTL-6-P(-H)	
	Input accuracy		Full scale × (±1.0%)	
	Number of alert delay		3 to 255	
Number of occupied I/O points		32 points (I/O assignment: special 32 points)		
Connection terminal		20-point terminal block		
Applicable wire size		0.75 to 1.5mm ²		
Applicable solderless terminal		R1.25-3, 1.25-YS3, RAV1.25-3, V1.25-YS3A		
Internal current consumption		0.33A	0.42A	
Weight		0.27kg	0.30kg	
External dimensions		34.5(W) × 130(H	l) × 93.6(D)mm	

(1) List of thermocouple type, temperature measurement range, and resolution

Thormocouple	°C		°F		
type	Temperature	Resolution	Temperature	Resolution	
type	measurement range	Resolution	measurement range	Resolution	
R	0 to 1700	1	0 to 3000	1	
	0 to 500		0 to 1000		
	0 to 800	1	0 to 1000	1	
	0 to 1300		0 10 2400		
K	-200.0 to 400.0				
	0.0 to 400.0	0.1	0.0 to 1000.0	0.1	
	0.0 to 500.0		0.0 10 1000.0	0.1	
	0.0 to 800.0				
	0 to 500		0 to 1000		
	0 to 800	1	0 to 1600	1	
	0 to 1200		0 to 2100		
J	0.0 to 400.0				
	0.0 to 500.0	0.1	0.0 to 1000.0	0.1	
	0.0 to 800.0				
	-200 to 400				
т	-200 to 200	1	0 to 700	1	
	0 to 200	1	-300 to 400	Ι	
	0 to 400				
	-200.0 to 400.0	0.1	0.0 to 700.0	0.1	
	0.0 to 400.0	0.1	0.0 10 700.0	0.1	

(To the next page)

Specifications		Compatibility	Proputions for replacement
L60TCTT4	L60TCTT4BW	Compatibility	Precautions for replacement
	U.R.D. Co., LTD.		
	CTL-12-S36-8		
	CTL-12-S36-10		
	CTL-12-S56-10	0	
_	CTL-6-P(-H)	0	
	Full scale × (±1.0%)		
	3 to 255		
16 points/slot	16 points/2 slots		The number of occupied I/O points
(I/O assignment: intelligent 16 points)	(I/O assignment: intelligent 16 points)		and slots are different.
18-point terminal block	Two 18-point terminal blocks		
22 to 1	8 AWG	×	Wiring change is required.
R1.2	25-3		
0.004	0.004		Recalculation of internal current
0.29A	0.33A		consumption (5VDC) is required.
0.17kg	0.28kg	0	
 28.5(W) × 90(H) × 117(D)mm	57.0(W) × 90(H) × 117(D)mm	_	

O: Compatible, $\bigtriangleup:$ Partial change required, <code>x:</code> Incompatible

(From the previous page)

Thermocouple	°C		°F		
type	Temperature measurement range	Resolution	Temperature measurement range	Resolution	
S	0 to 1700	1	0 to 3000	1	
В	400 to 1800	1	800 to 3000	1	
	0 to 400	1	0 to 1800	1	
E	0 to 1000	I	0 10 1800	1	
	0.0 to 700.0	0.1	-	-	
N	0 to 1300	1	0 to 2300	1	
	0 to 400	1	0 to 700	1	
U	-200 to 200	I	-300 to 400	I	
	0.0 to 600.0	0.1	-	-	
	0 to 400	1	0 to 800	1	
L	0 to 900	I	0 to 1600	I	
	0.0 to 400.0	0.1			
	0.0 to 900.0	0.1	_	-	
PL II	0 to 1200	1	0 to 2300	1	
W5Re/W26Re	0 to 2300	1	0 to 3000	1	

MELSEC

	tom	Specifi	cations	
		A1S64TCRT-S1 A1S64TCRTBW-S1		
Control output		Transistor output		
Number of temperature input points		4 channels/module		
Applicable temperature	re sensor	(Refer to Sec	tion 5.2.4 (1).)	
		(Ambient temperature: 25°C±5	°C) Full scale × (±0.3%)±1 digit	
Indication accuracy		(Ambient temperature: 0°C to 5	5°C) Full scale × (±0.7%)±1 digit	
Sampling cycle		0.5s (Constant regardless of t	he number of channels used)	
Control output cycle		1 to	100s	
Input impedance		11	1Ω	
Input filter		0 to	100s	
Sensor correction val	ue setting	-50.00 tc	50.00%	
Operation at sensor in	nput disconnection	Upscale p	rocessing	
Temperature control r	nethod	PID ON/OFF pulse o	r two-position control	
	PID constants setting	Can be set by auto	tuning or self-tuning.	
	Proportional band (P)	0.0 to 1	000.0%	
PID constants range	Integral time (I)	1 to 3600s		
Derivative time (D)		0 to 3600s		
Set value (SV) setting	range	Within the temperature range set for the temperature sensor to be used		
Output signal		ON/OF	F pulse	
	Rated load voltage	10.2 to 30.0VDC		
	Maximum load current	0.1A/point, 0.4A/common		
Transistor output	Maximum inrush current	0.4A, 10ms		
	Leakage current at OFF	0.1mA or lower		
	Maximum voltage drop	1.0VDC (TYP) at 0.1A		
	at ON	2.5VDC (MAX) at 0.1A		
	Response time	OFF \rightarrow ON: 2ms or less, ON \rightarrow OFF: 2ms or less		
Number of writes to E	² PROM	Maximum 1	00000 times	
Insulation method		Between the input terminal and programmable controller power supply: Transformer		
		Between input channels: Transformer		
Dielectric withstand v	oltage	Between the input terminal and programmable controller power supply: 500VAC, for 1		
Dielectric withstand voltage		Between input channels: 500VAC. for 1 minute		
		Between the input terminal and programmable controller power supply: 500VDC, 10M Ω or		
Insulation resistance		ma	pre	
		Between input channels:	500VDC, 10MΩ or more	
Heaterdisconnection	Current sensor		CTI -12-S36-8	
detection		_	CTL-6-P(-H)	
specifications				
	Input accuracy		Full scale × (±1.0%)	
	Number of alert delay		3 to 255	

Specifications

Transistor output

L60TCRT4

Standard control: 4 Heating-cooling contro	l channels/module bl: 2 channels/module	0	The standard control and heating- cooling control can be combined in the L series module.
(Refer to Sect	ion 5.2.4 (1).)	0	
(Ambient temperature: 25°C	±5°C) Full scale × (±0.3%) ^{*1}	0	
(Ambient temperature: 0°C to	55°C) Full scale × (±0.7%) ^{*1}	0	
250ms/4 channels, 500ms/4 channels	(Constant regardless of the number of	0	The sampling cycle can be selected
channel	s used)	0	in the L series module.
0.5s to	100.0s	0	
11	Ω	0	
0 to 1	100s	0	
-50.00 to	50.00%	0	
Upscale p	rocessing	0	
PID ON/OFF pulse o	r two-position control	0	
Can be set by auto t	uning or self-tuning.	0	
0.0 to 1	000.0%	0	
0 to 3	600s	0	
0 to 3	600s	0	
Within the temperature range set for	the temperature sensor to be used	0	
ON/OF	F pulse	0	
10 to 3	60VDC	0	
0.1A/point, 0	.4A/common	0	
0.4A,	10ms	0	
0.1mA o	or lower	0	
1.0VDC (T 2.5VDC (M	YP) at 0.1A AX) at 0.1A	0	
OFF \rightarrow ON: 2ms or less,	ON→OFF: 2ms or less	0	
Maximum 10 ¹² times (number of read	l/write from/to a non-volatile memory)	0	
Between the input terminal and programm Between input cha	able controller power supply: Transformer nnels: Transformer	0	
Between the input terminal and programma	ble controller power supply: 500VAC, for 1		
min	ute	0	
Between input channels	s: 500VAC, for 1 minute		
Between the input terminal and program	mable controller power supply: 500VDC,		
20M92 (Rotwoon input channels:	500VDC 20MO or more	0	
	U.R.D. Co ITD		
	CTL-12-S36-8		
	CTL-12-S36-10		
_	CTL-12-S56-10	0	

L60TCRT4BW

O: Compatible, \triangle : Partial change required, ×: Incompatible

Precautions for replacement

Compatibility

Ο

*1 Calculate the accuracy in the following method.

(Accuracy) = (Indication accuracy) + (Cold junction temperature compensation accuracy)

CTL-6-P(-H) Full scale × (±1.0%) 3 to 255

(Example) Accuracy at the input range of 38, the operating ambient temperature of 35°C, and the temperature process value (PV) of 300°C

400.0-(-200.0) [Full scale] × (±0.007)[±0.7%] + (±1.0°C) [Cold junction temperature compensation accuracy] = ±5.2°C

ltom	Specifications				
item	A1S64TCRT-S1	A1S64TCRTBW-S1			
Number of occupied I/O points	32 points (I/O assignment: special 32 points)				
Connection terminal	20-point terminal block				
Applicable wire size	0.75 to 1.5mm ²				
Applicable solderless terminal	R1.25-3, 1.25-YS3, RAV1.25-3, V1.25-YS3A				
Internal current consumption	0.33A	0.42A			
Weight	0.27kg	0.30kg			
External dimensions	34.5(W) × 130(H) × 93.6(D)mm				

(1) List of usable platinum resistance thermometer, temperature measurement range, and resolution

Platinum resistance thermometer type	0	°C		F
	Temperature	Posolution	Temperature	Posolution
	measurement range	Resolution	measurement range	Resolution
Pt100	-200.0 to 600.0	0.1	-300 to 1100	1
	-200.0 to 200.0	0.1	-300.0 to 300.0	0.1
JPt100	-200.0 to 500.0	0.1	-300 to 900	1
	-200.0 to 200.0	0.1	-300.0 to 300.0	0.1

Specifications Compatibility **Precautions for replacement** L60TCRT4 L60TCRT4BW 16 points/slot 16 points/2 slots The number of occupied I/O points Δ and slots are different. (I/O assignment: intelligent 16 points) (I/O assignment: intelligent 16 points) 18-point terminal block Two 18-point terminal blocks 22 to 18 AWG Wiring change is required. × R1.25-3 Recalculation of internal current 0.31A 0.35A Δ consumption (5VDC) is required. 0.18kg 0.33kg 0 $28.5(W) \times 90(H) \times 117(D)mm$ 57.0(W) × 90(H) × 117(D)mm _

O: Compatible, $\bigtriangleup:$ Partial change required, $\times:$ Incompatible

MELSEC

ltem		Itom	Specifications	
		item	A1S62TCTT-S2 A1S62TCTTBW-S2	
Contr	ol output		Transistor output	
Numb	per of temperatu	ire input points	2 channels/module	
Appli	cable temperatu	ire sensor	(Refer to Section 5.2.5 (1).)	
			(Ambient temperature: 25°C±5°C) Full scale × (±0.3%)±1 digit	
	Indication accu	iracy	(Ambient temperature: 0°C to 55°C) Full scale × (±0.7%)±1 digit	
Accu	Cold junction temperature	Temperature process value: -100°C or more	Within ±1.0°C	
racy	compensation accuracy	Temperature process value: -150°C to -100°C	Within ±2.0°C	
	(ambient temperature: 0°C to 55°C)	Temperature process value: -200°C to -150°C	Within ±3.0°C	
Samp	ling cycle		0.5s (Constant regardless of the number of channels used)	
Contr	ol output cycle		1 to 100s	
Input	impedance		1ΜΩ	
Input	filter		0 to 100s	
Sens	or correction va	lue setting	-50.00 to 50.00%	
Opera	ation at sensor i	nput disconnection	Upscale processing	
Temp	erature control	method	PID ON/OFF pulse or two-position control	
		PID constants setting	Can be set by auto tuning or self-tuning.	
		Proportional band (P)	0.0 to 1000.0%	
PID c	onstants range	Integral time (I)	1 to 3600s	
		Derivative time (D)	0 to 3600s	
Set v	alue (SV) setting	g range	Within the temperature range set for the temperature sensor to be used	
		Output signal	ON/OFF pulse	[
		Rated load voltage	10.2 to 30.0VDC	
		Maximum load current	0.1A/point, 0.4A/common	
Trana	istor sutput	Maximum inrush current	0.4A, 10ms	
Trails		Leakage current at OFF	0.1mA or lower	
		Maximum voltage drop at ON	1.0VDC (TYP) at 0.1A 2.5VDC (MAX) at 0.1A	
Response time		Response time	OFF→ON: 2ms or less, ON→OFF: 2ms or less	
Numb	per of writes to E	E ² PROM	Maximum 100000 times	
			Between the input terminal and programmable controller power supply: Transformer	
Insula	ation method		Between input channels: Transformer	
			Between the input terminal and programmable controller power supply: 500VAC, for	
Diele	ctric withstand v	oltage	1 minute	
			Between input channels: 500VAC, for 1 minute	
Insula	ation resistance		10MO or more	
mould			Between input channels: 500VDC, 10M Ω or more	

L60TCTT4 L60TCTT4BW	Compatibility	Precautions for replacement
Transistor output	0	
 Standard control: 4 channels/module Heating-cooling control: 2 channels/module	0	The standard control and heating- cooling control can be combined in the L series module.
(Refer to Section 5.2.5 (1).)	0	
(Ambient temperature: 25°C±5°C) Full scale × (±0.3%) ^{*1}	0	
(Ambient temperature: 0°C to 55°C) Full scale × (±0.7%) ^{*1}	0	
Within ±1.0°C ^{*1}	0	
Within ±2.0°C ^{*1}	0	
Within ±3.0°C ^{*1}	0	
(Refer to Section 5.2.5 (1).)	0	
1 to 100s	0	
1ΜΩ	0	
0 to 100s	0	
-50.00 to 50.00%	0	
Upscale processing	0	
PID ON/OFF pulse or two-position control	0	
Can be set by auto tuning or self-tuning.	0	
0.0 to 1000.0%	0	
0 to 3600s	0	
0 to 3600s	0	
Within the temperature range set for the temperature sensor to be used	0	
ON/OFF pulse	0	
10 to 30VDC	0	
0.1A/point, 0.4A/common	0	
0.4A 10ms	0	
0.1mA or lower	0	
1.0VDC (TYP) at 0.1A 2.5VDC (MAX) at 0.1A	0	
OFF→ON: 2ms or less, ON→OFF: 2ms or less	0	
Maximum 10 ¹² times (number of read/write from/to a non-volatile memorv)	0	
Between the input terminal and programmable controller power supply: Transformer Between input channels: Transformer	0	
Between the input terminal and programmable controller power supply: 500VAC, for 1 minute Between input channels: 500VAC, for 1 minute	0	
Between the input terminal and programmable controller power supply: 500VDC, $20M\Omega$ or more Between input channels: 500VDC, 20M Ω or more	0	

O: Compatible, $\bigtriangleup:$ Partial change required, *: Incompatible

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/TEMPERATURE

16		Specifications		
	nem	A1S62TCTT-S2	A1S62TCTTBW-S2	
Heater disconnection detection	Current sensor	_	U.R.D. Co., LTD. CTL-12-S36-8 CTL-6-P(-H)	
specifications	Input accuracy		Full scale × (±1.0%)	
	Number of alert delay		3 to 255	

Spe	ecifications	Compatibility	Precautions for replacement	
L60TCTT4	L60TCTT4BW	Compatibility		
	U.R.D. Co., LTD.			
	CTL-12-S36-8			
	CTL-12-S36-10			
_	CTL-12-S56-10	0		
	CTL-6-P(-H)			
	Full scale × (±1.0%)			
	3 to 255			

O: Compatible, △: Partial change required, ×: Incompatible

*1 Calculate the accuracy in the following method.

(Accuracy) = (Indication accuracy) + (Cold junction temperature compensation accuracy)

(Example) Accuracy at the input range of 38, the operating ambient temperature of 35°C, and the temperature process value (PV) of 300°C

 $\label{eq:condition} $$ \{400.0-(-200.0)\} \ [Full scale] \times (\pm 0.007) \ [\pm 0.7\%] + (\pm 1.0^{\circ} C) \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ} C \ [Cold junction temperature compen$

Itom	Specifications			
ntem	A1S62TCTT-S2	A1S62TCTTBW-S2		
Number of occupied I/O points	32 points (I/O assignment: special 32 points)			
Connection terminal	20-point terminal block			
Applicable wire size	0.75 to 1.5mm ²			
Applicable solderless terminal	R1.25-3, 1.25-YS3, RAV1.25-3, V1.25-YS3A			
Internal current consumption	0.19A	0.28A		
Weight	0.25kg	0.28kg		
External dimensions	34.5(W) × 130(H) × 93.6(D)mm			

(1) List of thermocouple type, temperature measurement range, and resolution

Thormosounia	°C		°F	
tupo	Temperature measure-	Pasalution	Temperature measure-	Posolution
type	ment range	Resolution	ment range	Resolution
R	0 to 1700	1	0 to 3000	1
	0 to 500	1	0 to 1000	
	0 to 800		0 to 1000	1
	0 to 1300		0 10 2400	
К	-200.0 to 400.0			
	0.0 to 400.0	0.1	0.0 to 1000.0	0.1
	0.0 to 500.0	0.1	0.0 18 1000.0	0.1
	0.0 to 800.0			
	0 to 500		0 to 1000	
	0 to 800	1	0 to 1600	1
	0 to 1200		0 to 2100	
J	0.0 to 400.0			
	0.0 to 500.0	0.1	0.0 to 1000.0	0.1
	0.0 to 800.0			
	-200 to 400	1		
	-200 to 200		0 to 700	
-	0 to 200		-300 to 400	1
I	0 to 400			
	-200.0 to 400.0	0.4	0.0.1- 700.0	0.4
	0.0 to 400.0	0.1	0.0 to 700.0	0.1
S	0 to 1700	1	0 to 3000	1
В	400 to 1800	1	800 to 3000	1
	0 to 400		0.1	
E	0 to 1000	1	0 to 1800	1
	0.0 to 700.0	0.1	-	_
N	0 to 1300	1	0 to 2300	1
	0 to 400	4	0 to 700	4
U	-200 to 200	1	-300 to 400	1
	0.0 to 600.0	0.1	-	_
	0 to 400	4	0 to 800	4
	0 to 900	1	0 to 1600	1
L	0.0 to 400.0	0.4		
	0.0 to 900.0	0.1	-	-
PL II	0 to 1200	1	0 to 2300	1
W5Re/W26Re	0 to 2300	1	0 to 3000	1

Specifications Compatibility **Precautions for replacement** L60TCTT4 L60TCTT4BW 16 points/slot 16 points/2 slots The number of occupied I/O points Δ and slots are different. (I/O assignment: intelligent 16 points) (I/O assignment: intelligent 16 points) Two 18-point terminal blocks 18-point terminal block 22 to 18 AWG Wiring change is required. × R1.25-3 Recalculation of internal current 0.31A 0.35A Δ consumption (5VDC) is required. 0.18kg 0.33kg 0 $28.5(W) \times 90(H) \times 117(D)mm$ 57.0(W) × 90(H) × 117(D)mm _

O: Compatible, \triangle : Partial change required, ×: Incompatible

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Itom		Specifications		
ite		A1S62TCRT-S2	A1S62TCRTBW-S2	
Control output		Transist	or output	
Number of temperature input points		2 channels/module		
Applicable temperature	e sensor	(Refer to Sec	tion 5.2.6 (1).)	
		(Ambient temperature: 25°C±5	°C) Full scale × (±0.3%)±1 digit	
Indication accuracy		(Ambient temperature: 0°C to 5	5°C) Full scale × (±0.7%)±1 digit	
Sampling cycle		0.5s (Constant regardless of	the number of channels used)	
Control output cycle		1 to	100s	
Input impedance		11	lΩ	
Input filter		0 to	100s	
Sensor correction value	e setting	-50.00 to	50.00%	
Operation at sensor inp	out disconnection	Upscale p	rocessing	
Temperature control me	ethod	PID ON/OFF pulse o	r two-position control	
	PID constants	Can be set by auto t	uning or self-tuning	
	setting			
PID constants range	Proportional band (P)	0.0 to 1	0.0 to 1000.0%	
	Integral time (I)	1 to 3600s		
	Derivative time (D)	0 to 3600s		
Set value (SV) setting	range	Within the temperature range set for the temperature sensor to be used		
	Output signal	ON/OFF pulse		
	Rated load voltage	10.2 to 30.0VDC		
	Maximum load	0.1A/point, 0.4A/common		
Transistor output	Maximum inrush current	0.4A, 10ms		
	Leakage current at OFF	0.1mA or lower		
	Maximum voltage	1.0VDC (TYP) at 0.1A		
	drop at ON	2.5VDC (MAX) at 0.1A		
	Response time	OFF→ON: 2ms or less,	ON→OFF: 2ms or less	
Number of writes to E ²	PROM	Maximum 1	00000 times	
Insulation method		Between the input terminal and programmable controller power supply: Transformer Between input channels: Transformer		
Dielectric withstand voltage		Between the input terminal and programmable controller power supply: 500VAC, for 1 minute Between input channels: 500VAC, for 1 minute		
		Between the input terminal and programmab	e controller power supply: 500VDC, 10M Ω or	
Insulation resistance		ma	bre	
	1	Between input channels:	500VDC, 10MΩ or more	ļ
Heater disconnection detection	Current sensor	_	U.R.D. Co., LTD. CTL-12-S36-8 CTL-6-P(-H)	
specifications	Input accuracy	1	Full scale × (±1.0%)	
	Number of alert	1	3 to 255	
	delay		3 10 200	1

Specifications

L60TCRT4	L60TCRT4BW	Compatibility	Precautions for replacement
Transisto	or output	0	
Standard control: /	l channels/module		The standard control and heating-
Heating-cooling control: 2 channels/module		0	cooling control can be combined in
			the L series module.
(Refer to Sect	ion 5.2.6 (1).)	0	
(Ambient temperature: 25°C	±5°C) Full scale × (±0.3%) ^{*1}	0	
(Ambient temperature: 0°C to	955°C) Full scale × (±0.7%) ^{*1}	0	
250ms/4 channels, 500ms/4 channels	(Constant regardless of the number of	0	The sampling cycle can be selected
channel	s used)		in the L series module.
0.5s to	100.0s	0	
11	1Ω	0	
0 to ⁻	100s	0	
-50.00 to	50.00%	0	
Upscale p	rocessing	0	
PID ON/OFF pulse o	r two-position control	0	
Can be set by auto t	uning or self-tuning.	0	
0.0 to 1	000.0%	0	
0 to 3	600s	0	
0 to 3	600s	0	
Within the temperature range set for the temperature sensor to be used		0	
		0	
		0	
10103		0	
0.1A/point, 0.4A/common		0	
0.4A, 10ms		0	
0.1mA or lower		0	
1.0VDC (T`	YP) at 0.1A	0	
2.5VDC (M/	AX) at 0.1A	0	
OFF→ON: 2ms or less,	ON→OFF: 2ms or less	0	
Maximum 10 ¹² times (number of read	l/write from/to a non-volatile memory)	0	
Between the input terminal and programm Between input cha	able controller power supply: Transformer nnels: Transformer	0	
Between the input terminal and programma	ble controller power supply: 500VAC, for 1		
min	ute	0	
Between input channels: 500VAC, for 1 minute			
Between the input terminal and program	mable controller power supply: 500VDC,	0	
Between input channels:	500VDC 20MQ or more	0	
	U.R.D. Co., LTD.		
	CTL-12-S36-8		
	CTL-12-S36-10		
	CTL-12-S56-10	0	
	CTL-6-P(-H)	U	
	⊢ull scale × (±1.0%)		
	3 to 255		

O: Compatible, $\bigtriangleup:$ Partial change required, *: Incompatible

Precautions for replacement

Compatibility

Calculate the accuracy in the following method. (Accuracy) = (Indication accuracy) + (Cold junction temperature compensation accuracy) (Example) Accuracy at the input range of 38, the operating ambient temperature of 35°C, and the temperature process value (PV) of 300°C (400.0.4 (200.0.4) [Full coeld in (40.007)] + (40.007)[Fold impeties temperature compensation compensation compensation compensation compensation compensation accuracy)

 $\label{eq:condition} $$ \{400.0-(-200.0)\} [Full scale] \times (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 1.0^{\circ}C) [Cold junction temperature compensation accuracy] = \pm 5.2^{\circ}C $$ (\pm 0.007)[\pm 0.7\%] + (\pm 0.007)[\pm 0.007)[\pm 0.007)[\pm 0.007)[\pm 0.007] + (\pm 0.007)[\pm 0$

*1

Memo

Itom	Specifications			
nem	A1S62TCRT-S2	A1S62TCRTBW-S2		
Number of occupied I/O points	32 points (I/O assignment: special 32 points)			
Connection terminal	20-point terminal block			
Applicable wire size	0.75 to 1.5mm ²			
Applicable solderless terminal	R1.25-3, 1.25-YS3, RAV1.25-3, V1.25-YS3A			
Internal current consumption	0.19A	0.28A		
Weight	0.25kg	0.28kg		
External dimensions	34.5(W) × 130(H) × 93.6(D)mm			

(1) List of usable platinum resistance thermometer, temperature measurement range, and resolution

Platinum resistance	°C		°F		
thermometer	Temperature	Posolution	Temperature	Posolution	
type	measurement range	Resolution	measurement range	Resolution	
Pt100	-200.0 to 600.0	0.1	-300 to 1100	1	
	-200.0 to 200.0	0.1	-300.0 to 300.0	0.1	
IP+100	-200.0 to 500.0	0.1	-300 to 900	1	
JPLIUU	-200.0 to 200.0	0.1	-300.0 to 300.0	0.1	

Specifications Compatibility **Precautions for replacement** L60TCRT4 L60TCRT4BW The number of occupied I/O points 16 points/slot 16 points/2 slots Δ (I/O assignment: intelligent 16 points) and slots are different. (I/O assignment: intelligent 16 points) 18-point terminal block Two 18-point terminal blocks 22 to 18 AWG × Wiring change is required. R1.25-3 Recalculation of internal current 0.31A 0.35A Δ consumption (5VDC) is required. 0.18kg 0.33kg 0 28.5(W) × 90(H) × 117(D)mm 57.0(W) × 90(H) × 117(D)mm _

O: Compatible, \triangle : Partial change required, ×: Incompatible

5.3 Functional Comparison

	ltem	Description			
Auto tuning function		The temperature control module automatically sets the optimal PID constants.			
Self-tuning function		The temperature control module constantly monitors the control status. If the control is affected by disturbance, the module automatically changes or sets PID constants for the optimum control.			
Forward action/	reverse action selection function	Selects and controls the heating control (reverse action) or cooling control (forward action).			
RFB limiter function		Suppresses the manipulated value overshoot which frequently occurs when the set value (SV) or the control target is changed.			
Sensor correction function		Corrects the difference between the temperature process value (PV) and actual temperature caused due to the measurement status.			
Unused channe	I setting	Specifies to not execute the PID operation in a channel that do not perform temperature control.			
PID control forc	ed stop	Forcibly stops the PID operation in a channel that temperature control is in process.			
Heater disconne	ection detection function	Measures the current that flows in the heater main circuit and detects the disconnection.			
Output off-time current error detection function		Measures the current that is flowing in the heater main circuit when the transistor output is off, and detects the output off-time current error			
Loop disconnection detection function		Detects errors in the control system (control loop) caused by a load (heater) disconnection, external operation devices (such as magnet relay) error, or sensor disconnection.			
Data storage in E ² PROM		By backing up data in the buffer memory to E ² PROM, the load of sequence program can be reduced.			
Alert function		Monitors the process value (PV) and issues a warning.			
Output setting at CPU stop error		Whether to hold or stop the temperature control output when a CPU stop error occurs can be selected.			
Control function		Specifies a control status by setting output signals and buffer memory areas.			
Simultaneous te	emperature rise function	Coordinates the time when several loops reach the set value (SV) at the same time.			
Peak current suppression function		Suppresses the peak current by changing automatically the upper limit output limiter value of each channel and dividing the timing of transistor output			
Temperature conversion function (using unused channels)		Performs only the temperature measurement using unused temperature input terminals in the heating-cooling control (normal mode) and mix control (normal mode).			
Temperature process value (PV) scaling function		Converts the temperature process value (PV) to the set width and stores this value into the buffer memory areas.			
Error history function		Stores the errors and alarms occurred in the module to the buffer memory as a history. Up to 16 errors and alarms can be stored.			
Module error history collection function		Notifies the CPU module of the error detail when errors and alarms occur on the module. Error information is stored to the memory in the CPU module as the module error history.			
Error clear function ^{*2}		Clears the error from the system monitor window of the programming tool.			
Heating- cooling control	Cooling method setting function	Specifies a auto tuning operation formula according to the selected cooling system (water-cooling or air-cooling).			
	Overlap/dead band function	 Specifies a temperature area near the temperature where heating output and cooling output is switched from the following: Overlap area where both are output Dead band area where neither is output 			
	Temperature conversion function	Performs the temperature conversion in input channels that are not used for the control			
	(using unused channels)	(monitor channel 1, 2)			

Temperature control module/Heating-cooling temperature control module ^{*1}							
A1S64TCTRT A1S64TCTRTBW	A1S64TCTT-S1 A1S64TCTTBW-S1	A1S64TCRT-S1 A1S64TCRTBW-S1	A1S62TCTT-S2 A1S62TCTTBW-S2	A1S62TCRT-S2 A1S62TCRTBW-S2	L60TCTT4 L60TCTT4BW L60TCRT4 L60TCRT4BW		
0	0	0	0	0	0		
0	-	-	-	-	0		
0	0	0	_	_	0		
0	0	0	0	0	0		
0	0	0	0	0	0		
0	0	0	0	0	0		
0	0	0	0	0	0		
O(BW only)	O(BW only)	O(BW only)	O(BW only)	O(BW only)	O(BW only)		
O(BW only)	O(BW only)	O(BW only)	O(BW only)	O(BW only)	O(BW only)		
0	0	0	-	-	0		
O(FeRAM)	0	0	0	0	0		
 0	0	0	0	0	0		
 _	_	_	_	_	0		
0	0	0	0	0	0		
-	-	-	-	-	0		
-	-	-	-	-	0		
-	-	-	-	-	0		
-	-	-	-	-	0		
-	-	-	-	-	0		
_	-	_	-	-	0		
-	-	-	-	-	0		
0	-	-	0	0	0		
0	-	-	0	0	0		
0	_	-	-	-	0		

O: Available, -: Not available

*1 When an L series module is used for the temperature control/heating-cooling temperature control, the control mode setting (standard control mode or heating-cooling control mode) using the switch setting is required.

*2 This function can be used on GX Works2. Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the user' manual for each module.

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5.4.1 A1S64TCTRT(BW) and L series modules (standard control)

A1S64TCTRT(BW)				L60TCTT4, L60TCRT4 ^{*1} L60TCTT4BW, L60TCRT4BW			
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name
X0	Watchdog timer error flag	Y0		X0	Module READY flag	Y0	N/A
X1	Temperature control module READY flag	Y1		X1	Setting/operation mode status	Y1	Setting/operation mode instruction
X2	Write error flag	Y2		X2	Error occurrence flag	Y2	Error reset instruction
X3	Hardware error flag	Y3		X3	Hardware error flag	Y3	N/A
X4	CH1 tuning status flag	Y4		X4	CH1 Auto tuning status	Y4	CH1 Auto tuning instruction
X5	CH2 tuning status flag	Y5		X5	CH2 Auto tuning status	Y5	CH2 Auto tuning instruction
X6	CH3 tuning status flag	Y6		X6	CH3 Auto tuning status	Y6	CH3 Auto tuning instruction
X7	CH4 tuning status flag	Y7		X7	CH4 Auto tuning status	Y7	CH4 Auto tuning instruction
X8	FeRAM write complete flag	Y8	Use prohibited	X8	Back-up of the set value completion flag	Y8	Set value backup instruction
X9	Default value write complete flag	Y9		X9	Default value write completion flag	Y9	Default setting registration instruction
XA	FeRAM write incomplete flag	YA		ХА	Back-up of the set value fail flag	YA	N/A
XB	Use prohibited	YB		ХВ	Setting change completion flag	YB	Setting change instruction
XC	CH1 Alert occurrence flag	YC		хс	CH1 Alert occurrence flag	YC	CH1 PID control forced stop instruction
XD	CH2 Alert occurrence	YD		XD	CH2 Alert occurrence	YD	CH2 PID control forced stop instruction
XE	CH3 Alert occurrence	YE		XE	CH3 Alert occurrence flag	YE	CH3 PID control forced stop instruction
XF	CH4 Alert occurrence	YF		XF	CH4 Alert occurrence	YF	CH4 PID control forced stop instruction
X10		Y10					<u> </u>
X11		Y11	Setting/operation mode command				
X12		Y12	Error reset command				
X13		Y13	Use prohibited				
X14	Use prohibited	Y14	CH1 Auto tuning command				
X15		Y15	CH2 Auto tuning command				
X16		Y16	CH3 Auto tuning command				
	A1S64T0	TRT(BV	V)				
--------	-----------------	--------	------------------------				
Device	Signal name	Device	Signal namo				
No.	Signal name	No.	Signal name				
¥17		V17	CH4 Auto tuning				
~		117	command				
¥18		V18	FeRAM backup				
XIU		110	command				
X10		V10	Default setting				
XIU		115	registration command				
X1Δ		V1A	CH1 Forced PID control				
	Lise prohibited		stop command				
X1B	Use promoted	Y1B	CH2 Forced PID control				
X ID			stop command				
X1C		Y1C	CH3 Forced PID control				
710		110	stop command				
X1D		V1D	CH4 Forced PID control				
XID		TID	stop command				
X1E		Y1E	Lise prohibited				
X1F		Y1F	Ose prohibited				

*1 Depending on the control mode of the L series module, some of the input/output signals listed in the above table become "use prohibited" signals. For details, refer to the MELSEC-L Temperature Control Module User's Manual.

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5.4.2 A1S64TCTRT(BW) and L series modules (heating-cooling control)

	A1S64TC	TRT(BW)			L60TCTT4,	L60TCR	T4 ^{*1}
					L60TCTT4BW,	L60TCF	RT4BW
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name
X0	Watchdog timer error flag	Y0		X0	Module READY flag	Y0	N/A
	Temperature control				Setting/operation mode		Setting/operation mode
X1	module READY flag	Y1		X1	status	Y1	instruction
X2	Write error flag	Y2		X2	Error occurrence flag	Y2	Error reset instruction
X3	Hardware error flag	Y3		X3	Hardware error flag	Y3	N/A
X4	CH1 tuning status flag	Y4		X4	CH1 Auto tuning status	Y4	CH1 Auto tuning instruction
X5	CH2 tuning status flag	Y5		X5	CH2 Auto tuning status	Y5	CH2 Auto tuning instruction
X6		Y6		X6	CH3 Auto tuning status ^{*2}	Y6	CH3 Auto tuning instruction ^{*2}
X7	Use prohibited	Y7		X7	CH4 Auto tuning status ^{*2}	Y7	CH4 Auto tuning instruction ^{*2}
X8	FeRAM write complete flag	Y8		X8	Back-up of the set value completion flag	Y8	Set value backup instruction
X9	Default value write complete flag	Y9	Use prohibited	X9	Default value write completion flag	Y9	Default setting registration instruction
XA	FeRAM write incomplete flag	YA		XA	Back-up of the set value fail flag	YA	N/A
ХВ	Use prohibited	ΥB		XB	Setting change completion flag	ΥB	Setting change instruction
XC	CH1 Alert occurrence flag	YC		XC	CH1 Alert occurrence flag	YC	CH1 PID control forced stop instruction
XD	CH2 Alert occurrence flag	YD		XD	CH2 Alert occurrence flag	YD	CH2 PID control forced stop instruction
XE		YE		XE	CH3 Alert occurrence flag	YE	CH3 PID control forced stop instruction ^{*2}
XF		YF		XF	CH4 Alert occurrence flag	YF	CH4 PID control forced stop instruction ^{*2}
X10		Y10			L		1 ·
X11		Y11	Setting/operation mode command				
X12		Y12	Error reset command				
X13		Y13	Use prohibited				
X14	Use prohibited	Y14	CH1 Auto tuning command				
X15		Y15	CH2 Auto tuning command				
X16 X17		Y16 Y17	Use prohibited				
X18		Y18	FeRAM backup command				
X19		Y19	Default setting registration command				

	A1S64TC	TRT(BW)
Device No.	Signal name	Device No.	Signal name
¥1A		V1A	CH1 Forced PID control
AIA		110	stop command
V1D		V1D	CH2 Forced PID control
VID	Lloo prohibitod	TID	stop command
X1C	Use prohibited	Y1C	
X1D		Y1D	Lico prohibitod
X1E		Y1E	use promoted
X1F		Y1F	

*1 Depending on the control mode of the L series module, some of the input/output signals listed in the above table become "use prohibited" signals. For details, refer to the MELSEC-L Temperature Control Module User's Manual.

*2 These signals are enabled only when heating-cooling control (extended mode) is selected. For details, refer to the user's manual for the module used.

5.4.3 A1S64TCTT(BW)-S1/A1S64TCRT(BW)-S1 and L series modules

	A1S64TCTT(BW)-S1,	A1S64T	CRT(BW)-S1		L60TCTT4,	L60TCR	T4 ^{*1}
	, , , , , , , , , , , , , , , , , , ,		· ·		L60TCTT4BW,	L60TCF	RT4BW
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name
X0	Watchdog timer error flag	Y0		X0	Module READY flag	Y0	N/A
X1	Temperature control module READY flag	Y1		X1	Setting/operation mode status	Y1	Setting/operation mode instruction
X2	Write error flag	Y2		X2	Error occurrence flag	Y2	Error reset instruction
X3	Hardware error flag	Y3		X3	Hardware error flag	Y3	N/A
X4	CH1 Auto tuning status	Y4		X4	CH1 Auto tuning status	Y4	CH1 Auto tuning instruction
X5	CH2 Auto tuning status	Y5		X5	CH2 Auto tuning status	Y5	CH2 Auto tuning instruction
X6	CH3 Auto tuning status	Y6		X6	CH3 Auto tuning status	Y6	CH3 Auto tuning instruction
Х7	CH4 Auto tuning status	Y7		X7	CH4 Auto tuning status	Y7	CH4 Auto tuning instruction
X8	E ² PROM write	Y8		X8	Back-up of the set value completion flag	Y8	Set value backup instruction
X9	Default value write	Y9	Use prohibited	X9	Default value write	Y9	Default setting
XA	E ² PROM write incomplete flag	YA		XA	Back-up of the set value fail flag	YA	N/A
ХВ	Use prohibited	YB		XB	Setting change completion flag	YB	Setting change instruction
XC	CH1 Alert occurrence flag	YC		хс	CH1 Alert occurrence flag	YC	CH1 PID control forced stop instruction
XD	CH2 Alert occurrence flag	YD		XD	CH2 Alert occurrence flag	YD	CH2 PID control forced stop instruction
XE	CH3 Alert occurrence flag	YE		XE	CH3 Alert occurrence flag	YE	CH3 PID control forced stop instruction
XF	CH4 Alert occurrence flag	YF		XF	CH4 Alert occurrence flag	YF	CH4 PID control forced stop instruction
X10		Y10					•
X11		Y11	Setting/operation mode command				
X12		Y12	Error reset command				
X13		Y13	Use prohibited				
X14		Y14	CH1 Auto tuning command				
X15		Y15	CH2 Auto tuning command				
X16	Use prohibited	Y16	CH3 Auto tuning command				
X17		Y17	CH4 Auto tuning command				
X18		Y18	E ² PROM backup	1			
X19		Y19	Default setting registration command				
X1A		Y1A	CH1 Forced PID control stop command				

	A1S64TCTT(BW)-S1,	A1S64T	CRT(BW)-S1
Device No.	Signal name	Device No.	Signal name
X1B		V1B	CH2 Forced PID control
хір			stop command
X1C		V1C	CH3 PID control forced
XIC	Lico probibitod	110	stop command
V1D	Use prohibited	V1D	CH4 Forced PID control
XID		TID	stop command
X1E		Y1E	Lico prohibitod
X1F		Y1F	Use promibiled

*1 Depending on the control mode of the L series module, some of the input/output signals listed in the above table become "use prohibited" signals. For details, refer to the MELSEC-L Temperature Control Module User's Manual.

5.4.4 A1S62TCTT(BW)-S2/A1S62TCRT(BW)-S2 and L series modules

A1S62TCTT(BW)-S2, A1S62TCRT(BW)-S2			CRT(BW)-S2					
					L60TCTT4BW,	L60TCR	T4BW	
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	
X0	Watchdog timer error flag	Y0		X0	Module READY flag	Y0	N/A	
X1	Temperature control module READY flag	Y1		X1	Setting/operation mode status	Y1	Setting/operation mode instruction	
X2	Write error flag	Y2		X2	Error occurrence flag	Y2	Error reset instruction	
X3	Hardware error flag	Y3		X3	Hardware error flag	Y3	N/A	
X4	CH1 Auto tuning status	Y4		X4	CH1 Auto tuning status	Y4	CH1 Auto tuning instruction	
X5	CH2 Auto tuning status	Y5		X5	CH2 Auto tuning status	Y5	CH2 Auto tuning instruction	
X6	Lise prohibited	Y6		X6	CH3 Auto tuning status ^{*2}	Y6	CH3 Auto tuning instruction ^{*2}	
X7	Use promoted	Y7		X7	CH4 Auto tuning status ^{*2}	Y7	CH4 Auto tuning instruction ^{*2}	
X8	E ² PROM write completion flag	Y8		X8	Back-up of the set value completion flag	Y8	Set value backup instruction	
X9	Default value write complete flag	Y9	Use prohibited	X9	Default value write completion flag	Y9	Default setting registration instruction	
XA	E ² PROM write incomplete flag	YA		ХА	Back-up of the set value fail flag	YA	N/A	
ХВ	Use prohibited	YB		ХВ	Setting change completion flag	YB	Setting change instruction	
XC	CH1 Alert occurrence flag	YC		хс	CH1 Alert occurrence flag	YC	CH1 PID control forced stop instruction	
XD	CH2 Alert occurrence flag	YD		XD	CH2 Alert occurrence flag	YD	CH2 PID control forced stop instruction	
XE		YE		XE	CH3 Alert occurrence flag	YE	CH3 PID control forced stop instruction ^{*2}	
XF		YF		XF	CH4 Alert occurrence flag	YF	CH4 PID control forced stop instruction ^{*2}	
X10		Y10			L		. ·	
X11		Y11	Setting/operation mode command					
X12		Y12	Error reset command					
X13		Y13	Use prohibited					
X14	Use prohibited	Y14	CH1 Auto tuning command					
X15		Y15	CH2 Auto tuning command					
X16 X17		Y16 Y17	Use prohibited					
X18		Y18	E ² PROM backup command					
X19		Y19	Default setting registration command					
X1A		Y1A	CH1 Forced PID control stop command					

	A1S62TCTT(BW)-S2,	A1S62T	CRT(BW)-S2
Device No.	Signal name	Device No.	Signal name
Y1B		V1B	CH2 Forced PID control
AID		TID	stop command
X1C	Liso prohibitod	Y1C	
X1D	Use profibiled	Y1D	Liso prohibitod
X1E		Y1E	Ose promblied
X1F		Y1F	

*1 Depending on the control mode of the L series module, some of the input/output signals listed in the above table become "use prohibited" signals. For details, refer to the MELSEC-L Temperature Control Module User's Manual.

*2 These signals are enabled only when heating-cooling control (extended mode) is selected. For details, refer to the user's manual for the module used.

5.5 Buffer Memory Address Comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the user's manual for each module.

5.5.1 A1S64TCTRT(BW) and L series modules (standard control)

Address (hoxadocima) Name Read/write CH1 CH2 CH3 CH4 Error code 1 2 3 4 Decimal point position					A1S64TCTRT(BW)		
CH1 CH2 CH4 CH4 <th></th> <th>Address (h</th> <th>exadecimal</th> <th>)</th> <th>Name</th> <th>Read/write</th> <th></th>		Address (h	exadecimal)	Name	Read/write	
Image: Constraint of the second sec	CH1	CH2	CH3	CH4	, , , , , , , , , , , , , , , , , , ,	Roudininto	
1 2 3 4 Decimal point position 5 6 7 8 Alert detail 9 A B C Temperature process value (PV) D E F 10 Manipulated value (MV) 11 12 13 14 Temperature rise judgment flag 15 16 17 18 Transitor output flag 19 1A 1B 1C Messured heater current value 0 Cold junction temperature process value Cold junction temperature process value 11 12 Starm area (Use prohibited) - 20 40 60 80 Input range 21 41 61 81 Stop mode setting 22 42 62 82 Setting of Alert alarm 23 43 63 83 Proportional Bard (P) setting 24 44 64 84 Integrat Imme (I) setting 25 45 65 85 Derivativ		(0		Error code		
5 6 7 8 A left detail 9 A B C Temperature process value (PV) D E F 10 Manipulated value (MV) 11 12 13 14 Temperature nise judgment flag 15 16 17 18 Transistor output flag 19 1A 18 1C Messured heater current value - Cold junction temperature process value - 10 Cold junction temperature process value - 21 41 61 81 Stop mode setting 22 42 62 82 Set value (SV) setting 23 43 63 83 Proportional band (P) setting 24 44 64 B4 Integral time (I) setting 25 45 65 85 Derivative time (D) setting 26 46 66 88 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 4	1	2	3	4	Decimal point position		
9 A B C Temperature process value (PV) D E F 10 Manipulated value (MV) 11 12 13 14 Temperature rise judgment flag 15 16 17 18 Transistor output flag 19 1A 1B 1C Measured heater current value 10 Cold junction temperature process value - 20 40 60 80 Input range 21 41 61 81 Stop mode setting 22 42 62 82 Set value (SV) setting 23 43 63 83 Proportional band (P) setting 24 44 64 84 Integral time (I) setting 25 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 4 24 44 64 84 upper limit output limiter 27 47 67 87 Set	5	6	7	8	Alert detail		
D E F 10 Manipulated value (MV) R 11 12 13 14 Temperature rise judgment flag	9	A	В	С	Temperature process value (PV)		
11 12 13 14 Temperature rise judgment flag 15 16 17 18 Transistor output flag 19 1A 1B 1C Measured heater current value 10 Cold junction temperature process value	D	E	F	10	Manipulated value (MV)	P	
15 16 17 18 Transistor output flag 19 1A 1B 1C Measured heater current value 10 Cold junction temperature process value - 1E MAN mode shift completion flag - 20 40 60 80 Input range - 21 41 61 81 Stop mode setting - 23 43 63 83 Proportional band (P) setting - 24 44 64 84 Integral time (I) setting - 26 45 65 85 Derivative time (D) setting - 27 47 67 87 Setting of Alert alarm 1 - 27 47 67 87 Setting of Alert alarm 4 - 28 48 68 88 Lower limit output limiter - 20 40 60 80 Sensor correction value setting - 21 42 64 68 <td< td=""><td>11</td><td>12</td><td>13</td><td>14</td><td>Temperature rise judgment flag</td><td></td><td></td></td<>	11	12	13	14	Temperature rise judgment flag		
19 1A 1B 1C Measured heater current value 1D Cold junction temperature process value MAN mode shift completion flag 1F System area (Use prohibited) - 20 40 60 80 Input range 21 41 61 81 Stop mode setting 22 42 62 82 Set value (SV) setting 23 43 63 83 Proportional band (P) setting 24 44 64 84 Integrat time (I) setting 25 45 65 85 Derivative time (D) setting 26 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 4 24 44 6A 8A upper limit output limiter 20 49 69 89 Setting of Alert alarm 4 20 40 6D 8D	15	16	17	18	Transistor output flag		
1D Cold junction temperature process value 1E MAN mode shift completion flag	19	1A	1B	1C	Measured heater current value		
IE MAN mode shift completion flag 20 40 60 80 Input range - 21 41 61 81 Stop mode setting - 22 42 62 82 Set value (SV) setting - 23 43 63 83 Proportional band (P) setting - 24 44 64 84 Integral time (I) setting - 24 44 64 84 Integral time (I) setting - 26 46 66 86 Setting of Alert alarm 1 - 27 47 67 87 Setting of Alert alarm 2 - 28 48 68 88 Setting of Alert alarm 4 - 20 49 69 89 Setting of Alert alarm 4 - 20 40 60 80 Sensor correction value setting - 21 42 48 68 88 Lower limit output limiter 20		1	D		Cold junction temperature process value		
IF System area (Use prohibited) 20 40 60 80 Input range 21 41 61 81 Stop mode setting 22 42 62 82 Set value (SV) setting 23 43 63 83 Proportional band (P) setting 24 44 64 84 Integral time (I) setting 25 45 65 85 Derivative time (D) setting 26 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 2 28 48 68 88 Setting of Alert alarm 4 2A 4A 6A 8A upper limit output limiter 2B 4B 6B 8B Lower limit output limiter 2C 4C 6C 8C Output variation limiter 2D 40 6D 8D Sensor correction value setting 31 51 71 91 Control		1	E		MAN mode shift completion flag		
20 40 60 80 Input range 21 41 61 81 Stop mode setting 22 42 62 82 Set value (SV) setting 23 43 63 83 Proportional band (P) setting 24 44 64 84 Integral time (I) setting 25 45 65 85 Derivative time (D) setting 26 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 4 20 40 6A 8A upper limit output limiter 20 40 6D 8B Lower limit output limiter 20 4D 6D 8B Lower limit output limiter 21 4E 6E 8E Adjustment sensitivity (dead band) setting 31 51 71 91 Control output period setting 32 52		1	F		System area (Use prohibited)	-	
21 41 61 81 Stop mode setting 22 42 62 82 Set value (SV) setting 23 43 63 83 Proportional band (P) setting 24 44 64 84 Integral time (I) setting 25 45 65 85 Derivative time (D) setting 26 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 3 29 49 69 88 Setting of Alert alarm 4 2A 4A 6A 8A upper limit output limiter 2B 4B 6B 8B Lower limit output limiter 2C 4C 6C 8C Output variation limiter 2D 4D 6D 8D Sensor correction value setting 31 51 71 91 Control output period setting 32 52 72 92 AUTO/MAN mode switching 33 53 <td< td=""><td>20</td><td>40</td><td>60</td><td>80</td><td>Input range</td><td></td><td></td></td<>	20	40	60	80	Input range		
22 42 62 82 Set value (SV) setting 23 43 63 83 Proportional band (P) setting 24 44 64 84 Integral time (I) setting 25 45 65 85 Derivative time (D) setting 26 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 2 28 48 68 88 Setting of Alert alarm 4 29 49 69 89 Setting of Alert alarm 4 20 4A 6A 8A upper limit output limiter 21 24 6C 8C Output variation limiter 22 44 6A 8A upper limit output limiter 22 4D 6D 8D Sensor correction value setting 21 4F 6F 8F Control output period setting 32 52 72 92 AUTO/MAN mode switching 33 53	21	41	61	81	Stop mode setting		
23 43 63 83 Proportional band (P) setting 24 44 64 84 Integral time (I) setting 25 45 65 85 Derivative time (D) setting 26 46 66 85 Derivative time (D) setting 27 47 67 87 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 4 2A 4A 6A 8A upper limit output limiter 2B 4B 6B 8B Lower limit output limiter 2C 4C 6C 8C Output variation limiter 2D 4D 6D 8D Sensor correction value setting 31 51 71 91 Control output period setting 32 52 72 92 AUTO/MAN mode switching 33 53 73 93 MAN output setting 34 54	22	42	62	82	Set value (SV) setting		
24 44 64 84 Integral time (I) setting 25 45 65 85 Derivative time (D) setting 26 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 4 2A 4A 6A 8A upper limit output limiter 2B 48 6B 8B Lower limit output limiter 2D 4D 6D 8D Sensor correction value setting 2E 4E 6E 8E Adjustment sensitivity (dead band) setting 30 50 70 90 Primary delay digital filter setting 31 51 71 91 Control response parameter 32 52 72 92 AUTO/MAN mode switching 33 53 73 93 MAN output setting 34 54 74 94 Setting change rate limiter 35 <td>23</td> <td>43</td> <td>63</td> <td>83</td> <td>Proportional band (P) setting</td> <td></td> <td></td>	23	43	63	83	Proportional band (P) setting		
25 45 65 85 Derivative time (D) setting 26 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 2 28 48 68 88 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 4 2A 4A 6A 8A upper limit output limiter 2B 4B 6B 8B Lower limit output limiter 2C 4C 6C 8C Output variation limiter 2D 4D 6D 8D Sensor correction value setting 2E 4E 6E 8E Adjustment sensitivity (dead band) setting 30 50 70 90 Primary delay digital filter setting 31 51 71 91 Control output period setting 33 53 73 93 MAN output setting 34 54 74 94 Setting change rate limiter 35<	24	44	64	84	Integral time (I) setting		
26 46 66 86 Setting of Alert alarm 1 27 47 67 87 Setting of Alert alarm 2 28 48 68 88 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 4 2A 4A 6A 8A upper limit output limiter 2B 4B 6B 8B Lower limit output limiter 2C 4C 6C 8C Output variation limiter 2D 4D 6D 8D Sensor correction value setting 2E 4E 6E 8E Adjustment sensitivity (dead band) setting 30 50 70 90 Primary delay digital filter setting 31 51 71 91 Control response parameter 32 52 72 92 AUTO/MAN mode switching 34 54 74 94 Setting change rate limiter 35 55 75 95 AT bias 36 5	25	45	65	85	Derivative time (D) setting		
27 47 67 87 Setting of Alert alarm 2 28 48 68 88 Setting of Alert alarm 3 29 49 69 89 Setting of Alert alarm 4 2A 4A 6A 8A upper limit output limiter 2B 4B 6B 8B Lower limit output limiter 2C 4C 6C 8C Output variation limiter 2D 4D 6D 8D Sensor correction value setting 2E 4E 6E 8E Adjustment sensitivity (dead band) setting 2F 4F 6F 8F Control output period setting 30 50 70 90 Primary delay digital filter setting 31 51 71 91 Control response parameter 32 52 72 92 AUTO/MAN mode switching 33 53 73 93 MAN output setting 34 54 74 94 Setting consection setting 36 56 76 96 Forward/reverse action setting 3	26	46	66	86	Setting of Alert alarm 1		
28486888Setting of Alert alarm 329496989Setting of Alert alarm 42A4A6A8Aupper limit output limiter2B4B6B8BLower limit output limiter2C4C6C8COutput variation limiter2D4D6D8DSensor correction value setting2F4F6F8FControl output period setting2F4F6F8FControl output period setting30507090Primary delay digital filter setting31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection345A7A9AHeater disconnection alert setting38587898Loop disconnection detection judgment time36507090Heater disconnection deta band37577797003858789839597990395970903959	27	47	67	87	Setting of Alert alarm 2		
29496989Setting of Alert alarm 42A4A6A8Aupper limit output limiter2B4B6B8BLower limit output limiter2C4C6C8COutput variation limiter2D4D6D8DSensor correction value setting2E4E6E8EAdjustment sensitivity (dead band) setting2F4F6F8FControl output period setting30507090Primary delay digital filter setting31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting38587898Loop disconnection alert setting38587898Loop disconnection dead band30507090Lowed isconnection dead band38587898Loop disconnection dead band3959799790345474943555759536567637779738 <td>28</td> <td>48</td> <td>68</td> <td>88</td> <td>Setting of Alert alarm 3</td> <td></td> <td></td>	28	48	68	88	Setting of Alert alarm 3		
2A4A6A8Aupper limit output limiter2B4B6B8BLower limit output limiter2C4C6C8COutput variation limiter2D4D6D8DSensor correction value setting2E4E6E8EAdjustment sensitivity (dead band) setting2F4F6F8FControl output period setting30507090Primary delay digital filter setting31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B587898Loop disconnection deet do hand3C5C7C9CLoop disconnection deet do hand3D5D7D9DLoup depared setting	29	49	69	89	Setting of Alert alarm 4		
2B4B6B8BLower limit output limiter2C4C6C8COutput variation limiter2D4D6D8DSensor correction value setting2E4E6E8EAdjustment sensitivity (dead band) setting2F4F6F8FControl output period setting30507090Primary delay digital filter setting31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band3D5D7D9DUnweid changel setting	2A	4A	6A	8A	upper limit output limiter		
2C4C6C8COutput variation limiter2D4D6D8DSensor correction value setting2E4E6E8EAdjustment sensitivity (dead band) setting2F4F6F8FControl output period setting30507090Primary delay digital filter setting31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoup disconnection detection method band3D5D7D9DLinue debageal certing	2B	4B	6B	8B	Lower limit output limiter		
2D4D6D8DSensor correction value setting2E4E6E8EAdjustment sensitivity (dead band) setting2F4F6F8FControl output period settingR/W30507090Primary delay digital filter settingR/W31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection ded band3D5D7D0DLuwed charge setting	2C	4C	6C	8C	Output variation limiter		
2E4E6E8EAdjustment sensitivity (dead band) setting2F4F6F8FControl output period settingR/W30507090Primary delay digital filter setting31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoup disconnection detection dead band3D5D7D9DLinued changel setting	2D	4D	6D	8D	Sensor correction value setting		
2F4F6F8FControl output period settingR/W30507090Primary delay digital filter setting31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection deta band3D5D7D9DLinurod changel acting	2E	4E	6E	8E	Adjustment sensitivity (dead band) setting		
30507090Primary delay digital filter setting31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band	2F	4F	6F	8F	Control output period setting	R/W	
31517191Control response parameter32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection dead band3D5D7C9CLoop disconnection dead band	30	50	70	90	Primary delay digital filter setting		
32527292AUTO/MAN mode switching33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9DUnused channel setting	31	51	71	91	Control response parameter		
33537393MAN output setting34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band	32	52	72	92	AUTO/MAN mode switching		
34547494Setting change rate limiter35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band	33	53	73	93	MAN output setting		
35557595AT bias36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band	34	54	74	94	Setting change rate limiter		
36567696Forward/reverse action setting37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band	35	55	75	95	AT bias		
37577797Upper limit setting limiter38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band	36	56	76	96	Forward/reverse action setting		
38587898Lower limit setting limiter39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band3D5D7D9DLinused channel setting	37	57	77	97	Upper limit setting limiter		
39597999CT selection3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band3D5D7D9DUnused channel setting	38	58	78	98	Lower limit setting limiter		
3A5A7A9AHeater disconnection alert setting3B5B7B9BLoop disconnection detection judgment time3C5C7C9CLoop disconnection detection dead band3D5D7D9DUnused channel setting	39	59	79	99	CT selection		
3B 5B 7B 9B Loop disconnection detection judgment time 3C 5C 7C 9C Loop disconnection detection dead band 3D 5D 7D 9D Unused channel setting	ЗA	5A	7A	9A	Heater disconnection alert setting		
3C 5C 7C 9C Loop disconnection detection dead band 3D 5D 7D 9D Unused channel setting	3B	5B	7B	9B	Loop disconnection detection judgment time		
3D 5D 7D 0D Unused channel setting	3C	5C	7C	9C	Loop disconnection detection dead band		
3D 3D 7D 9D Onused channel setting	3D	5D	7D	9D	Unused channel setting		

				L60TCT	T4, L60TCRT4, L60TCTT4BW, L60TCRT4BW	
		Address (h	exadecimal)		Name	Read/write
	CH1	CH2	CH3	CH4		
-		1	0		Error code	
	1	2	3	4	Decimal point position	_
	5	6	7	8	Alert definition	_
-	9	A	В	С	Temperature process value (PV)	
-	D	E	F	10	Manipulated value (MV)	R
	11	12	13	14	Temperature rise judgment flag	
	15	16	17	18	Transistor output flag	
	19	1A	1B	1C	Set value (SV) monitor	
		1	ID		Cold junction temperature process value ^{*1}	
		1	IE		MAN mode shift completion flag	
		1	IF		Memory of PID constants read/Write completion flag	R
	20	40	60	80	Input range	
	21	41	61	81	Stop mode setting	
	22	42	62	82	Set value (SV) setting	
	23	43	63	83	Proportional band (P) setting	
	24	44	64	84	Integral time (I) setting	
	25	45	65	85	Derivative time (D) setting	
	26	46	66	86	Alert set value 1	
	27	47	67	87	Alert set value 2	
	28	48	68	88	Alert set value 3	
	29	49	69	89	Alert set value 4	
	2A	4A	6A	8A	Upper limit output limiter	
	2B	4B	6B	8B	Lower limit output limiter	
	2C	4C	6C	8C	Output variation limiter setting	P/M
	2D	4D	6D	8D	Sensor correction value setting	10/00
	2E	4E	6E	8E	Adjustment sensitivity (dead band) setting	
	2F	4F	6F	8F	Control output cycle setting	
	30	50	70	90	Primary delay digital filter setting	
	31	51	71	91	Control response parameters	
	32	52	72	92	AUTO/MAN mode shift	
	33	53	73	93	MAN output setting	
	34	54	74	0/	Setting change rate limiter/Setting change rate limiter	
	54	54	74	34	(temperature rise)	
	35	55	75	95	AT bias	
	36	56	76	96	Forward/reverse action setting	
	37	57	77	97	Upper limit setting limiter	
	38	58	78	98	Lower limit setting limiter	
	39	59	79	99	System area (Use prohibited)	-
	3A	5A	7A	9A	Heater disconnection alert setting	
	3B	5B	7B	9B	Loop disconnection detection judgment time	
	3C	5C	7C	9C	Loop disconnection detection dead band	1 \(/ \ V \)
	3D	5D	7D	9D	Unused channel setting	

*1 For the L60TCRT4(BW), this area is prohibited to use.

				A1S64TCTRT(BW)			
	Address (he	exadecimal		Name	Read/write		
CH1	CH2	CH3	CH4	Name	Nedd/write		
3E	5E	7E	9E	Self-tuning setting	R/W		
3F	5F	7F	9F	Self-tuning flag	R		
	A	.0		Mode setting for Alert alarm 1			
	A	.1		Mode setting for Alert alarm 2			
	A	2		Mode setting for Alert alarm 3			
	A	3		Mode setting for Alert alarm 4			
	A	4		Alert dead band setting			
	A	5		Number of alert delay	telay ction/output off-time current error ount R/W		
	۵	6		Heater disconnection/output off-time current error			
	A	.0		detection delay count			
	A	.7		Temperature rise completion range setting			
	A	.8		Temperature rise completion soak time setting			
	A	9		PID continuation flag			
	A	A		Heater voltage correction setting			
AB	AC	AD	AE	Reference heater current value			
	A	F		Transistor output monitor ON delay time setting			
	В	0		CT monitor method switching			
B1	B2	B3	B4	Control output monitor	R		
	В	5		System area (Use prohibited)	-		
	В	6		Cold junction temperature correction selection	R/W		
	В	7		Control switching monitor	R		

⊠Point -

Default values for the A series modules and L series modules may be different.

To apply an A series program using a default value to an L series module, review the program.

For details, refer to the user's manual for the L series module used.

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/

MELSEC

			L60TC	CTT4, L60TCRT4, L60TCTT4B, L60TCRT4BW	
	Address (h	exadecimal)		Nemo	Deed/write
CH1	CH2	CH3	CH4	Name	Read/write
3E	5E	7E	9E	Memory of PID constants read instruction	
ЗE	5E	7F	QF	Automatic backup setting after auto tuning of PID constants	R/W
51	51		51		
	A	0			
	A	.1		System area (Use prohibited)	_
	Ą	2			
	Ą	.3			
	A	4		Alert dead band setting	
	A	5		Number of alert delay	
	٨	6		Heater disconnection/output off-time current error detection	
	P	10		delay count	R/W
	Ą	7		Temperature rise completion range setting	
	A	\8		Temperature rise completion soak time setting	
	A	/9		PID continuation flag	
	A	A		Heater disconnection correction function selection	
AB	AC	AD	AE	System area (Use prohibited)	_
	A	۶.		Transistor output monitor ON delay time setting	R/W
	B	0		CT monitor method switching	1 1/ 4 4
B1	B2	B3	B4	Manipulated value (MV) for output with another analog module	R
	F	5		Resolution of the manipulated value for output with another	R/W
		-		analog module	
	E	6		Cold junction temperature compensation selection	R/W
	B	37		Control switching monitor	-
B8	B9	BA	BB	Auto tuning mode selection	R/W
	BC t	o BF		System area (Use prohibited)	-
C0	D0	E0	F0	Alert 1 mode setting	
C1	D1	E1	F1	Alert 2 mode setting	R/W
C2	D2	E2	F2	Alert 3 mode setting	
C3	D3	E3	F3	Alert 4 mode setting	
C4	D4	E4	F4		
		:	:	System area (Use prohibited)	-
CF	DF	EF	FF		
	100 t	0 107		Heater current measurement value	R
	108 t	0 10F		CT input channel assignment setting	544
	110 t	0 117		C1 selection	R/W
	118 t	0 11F		Reference neater current value	DAM
	120 t	0 127		C Fratio setting	R/W
220	128 t	021F	200	System area (Use prohibited)	-
220	240	260	280	2-point sensor compensation offset value (measured value)	K/VV
221	241	261	281	2-point sensor compensation onset value (compensation	R/W
222	242	262	202	Value)	D/\\/
222	242	202	202	2-point sensor compensation gain value (measured value)	R/W
223	243	203	203	2-point sensor compensation offect lateb request	
224	244	204	204	2-point sensor compensation offect latch completion	D
220	240	205	200	2-point sensor compensation gain latch request	D/M/
220	240	200	200	2-point sensor compensation gain latch completion	R
227	247	268	207	2 point sensor compensation gain laten completion	IX.
:	:	:	:	System area (Use prohibited)	_
233	253	273	293		—
234	254	274	293	Setting change rate limiter (temperature drop)	R/M/
235	255	275	295		17/44
200	200	:	235	-	
•	•	•	•	System area (Use prohibited)	-
23C	25C	27C	29C		
230	25D	27D	200	AT simultaneous temperature rise parameter calculation floo	R
200	200	210	200	ra sinularious temperature rise parameter calculation llag	13

dress (h	exadecimal)			
CH2	CH3	CH4	Name	Read/write
25E	27E	29E	Self-tuning setting	R/W
25F	27F	29F	Self-tuning flag	R
2/	40			
	:		System area (Use prohibited)	_
21	30			
2B2	2B3	2B4	Temperature process value (PV) for input with another analog module	R/W
21	35			
	:			
20	CF		Custom and (Lies mathibited)	
2E0	E0 2F0 300		System area (Use prohibited)	_
:	:	:		
2E3	2F3	303		
2E4	2F4	304	Manual reset amount setting	R/W
2E5	2F5	305	Process value (PV) scaling function enable/disable setting	R/W
2E6	2F6	306	Process value (PV) scaling lower limit value	R/W
2E7	2F7	307	Process value (PV) scaling upper limit value	R/W
2E8	2F8	308	Process value (PV) scaling value	R
2E9	2F9	309	Derivative action selection	R/W
2EA	2FA	30A	Simultaneous temperature rise group setting	R/W
2EB	2FB	30B	Simultaneous temperature rise gradient data	R/W
2EC	2FC	30C	Simultaneous temperature rise dead time	R/W
2ED	2FD	30D	Simultaneous temperature rise AT mode selection	R/W
2EE	2FE	30E	Simultaneous temperature rise status	R
2EF	2FF	30F	Setting change rate limiter unit time setting	R/W

Peak current suppression control group setting

Sensor compensation function selection Temperature conversion completion flag

Function extension bit monitor

System area (Use prohibited)

Buffer memory for error history

System area (Use prohibited)

Sampling cycle monitor

MELSEC

R/W

R/W

R

R

R

_

R

_

Ad

310

311

312

313

314

315 :

4FE 4FF **:**

FFF 1000 **:**

CFFF

CH1 23E 23F

2B1

2D0 2D3 2D4 2D5 2D6 2D7 2D8 2D9 2DA 2DB 2DC 2DD 2DE 2DF

Memo

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MELSEC

5.5.2 A1S64TCTRT(BW) and L series modules (heating-cooling control)

Address (hexadecimal)NameRead/writeCH1CH2Error code12Decimal point position56Alert detail9ATemperature process value (PV)DEManipulated value for heating (MVh)1112Temperature rise judgment flag1516Heating transistor output flag191AMeasured heater current value1DCold junction temperature process value1ESystem area (Use prohibited)2040Input range
CH1CH2NameRead/write0Error code12Decimal point position56Alert detail9ATemperature process value (PV)DEManipulated value for heating (MVh)1112Temperature rise judgment flag1516Heating transistor output flag191AMeasured heater current value1ESystem area (Use prohibited)-2040Input range
0Error code12Decimal point position56Alert detail9ATemperature process value (PV)DEManipulated value for heating (MVh)1112Temperature rise judgment flag1516Heating transistor output flag191AMeasured heater current value1ECold junction temperature process value1FSystem area (Use prohibited)2040
12Decimal point position56Alert detail9ATemperature process value (PV)DEManipulated value for heating (MVh)1112Temperature rise judgment flag1516Heating transistor output flag191AMeasured heater current value1ESystem area (Use prohibited)-2040Input range
56Alert detail9ATemperature process value (PV)DEManipulated value for heating (MVh)1112Temperature rise judgment flag1516Heating transistor output flag191AMeasured heater current value1DCold junction temperature process value1ESystem area (Use prohibited)2040Input range
9ATemperature process value (PV)DEManipulated value for heating (MVh)R1112Temperature rise judgment flag1516Heating transistor output flag191AMeasured heater current value1DCold junction temperature process value1ESystem area (Use prohibited)2040
DEManipulated value for heating (MVh)R1112Temperature rise judgment flag1516Heating transistor output flag191AMeasured heater current value1DCold junction temperature process value1ESystem area (Use prohibited)2040
1112Temperature rise judgment flag1516Heating transistor output flag191AMeasured heater current value1DCold junction temperature process value1ESystem area (Use prohibited)2040Input range
15 16 Heating transistor output flag 19 1A Measured heater current value 1D Cold junction temperature process value 1E System area (Use prohibited) 20 40
19 1A Measured heater current value 1D Cold junction temperature process value 1E System area (Use prohibited) 1F Input range
1D Cold junction temperature process value 1E System area (Use prohibited) 1F Input range
IE System area (Use prohibited) - 20 40 Input range
IF System area (Use prohibited) - 20 40 Input range
20 40 Input range
21 41 Stop mode setting
22 42 Set value (SV) setting
23 43 Heating proportional band (Ph) setting
24 44 Integral time (I) setting
25 45 Derivative time (D) setting R/W
26 46 Setting of Alert alarm 1
27 47 Setting of Alert alarm 2
28 48 Setting of Alert alarm 3
29 49 Setting of Alert alarm 4
2A 4A Heating upper limit output limiter
2B 4B
2C 4C System area (Use prohibited) –
2D 4D Sensor correction value setting
2E 4E Adjustment sensitivity (dead band) setting
2F 4F Heating control output period setting R/W
30 50 Primary delay digital filter setting
31 51 Control response parameter
32 52 52
33 53 System area (Use prohibited) –
34 54 Setting change rate limiter R/W
35 55
36 System area (Use prohibited) –
37 57 Upper limit setting limiter
38 58 Lower limit setting limiter
39 59 CT selection R/W
3A 5A Heater disconnection alert setting
3B 5B
3C 5C System area (Use prohibited) –
3D 5D Unused channel setting R/W

Address (L601	CTT4, L60TCRT4, L60TCTT4BW, L60TCRT4BW	
CH1	CH2	Name	Read/write
	0	Error code	
1	2	Decimal point position	
5	6	Alert definition	
9	A	Temperature process value (PV)	
D	E	Manipulated value for heating (MVh)	R
11	12	Temperature rise judgment flag	
15	16	Heating transistor output flag	
19	1A	Set value (SV) monitor	
	1D	Cold junction temperature process value	
1E		MAN mode shift completion flag	R
	1F	Memory of PID constants read/Write completion flag	R
20	40	Input range	
21	41	Stop mode setting	
22	42	Set value (SV) setting	
23	43	Heating proportional band (Ph) setting	
24	44	Integral time (I) setting	
25	45	Derivative time (D) setting	R/W
26	46	Alert set value 1	
27	47	Alert set value 2	
28	48	Alert set value 3	
29	49	Alert set value 4	_
2A	4A	Heating upper limit output limiter	
2B	4B	System area (Use prohibited)	
2C	4C	Output variation limiter setting	_
2D	4D	Sensor correction value setting	R/W
2E	4E	Adjustment sensitivity (dead band) setting	-
2F	4F	Heating control output cycle setting	
30	50	Primary delay digital filter setting	R/W
31	51	Control response parameters	
32	52	AUTO/MAN mode shift	R/W
33	53	MAN output setting	R/W
34	54	Setting change rate limiter/Setting change rate limiter	R/W
54		(temperature rise)	1 \/ V V
35	55	AT bias	R/W
36	56	System area (Use prohibited)	
37	57	Upper limit setting limiter	R/W
38	58	Lower limit setting limiter	1\/ VV
39	59	System area (Use prohibited)	_
3A	5A	Heater disconnection alert setting	R/W
3B	5B	System area (Lise prohibited)	
3C	5C		
3D	5D	Unused channel setting	R/W

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/TEMPERATURE

		A1S64TCTRT(BW)		
Address (hexadecimal)		Nama	Bood/write	
CH1	CH2	Name	Read/write	
3E	5E	System area (Line prohibited)		
3F	5F	System area (Ose prombled)	-	
	A0	Mode setting for Alert alarm 1		
	A1	Mode setting for Alert alarm 2		
	A2	Mode setting for Alert alarm 3		
	A3	Mode setting for Alert alarm 4		
	A4	Alert dead band setting		
	A5	Number of alert delay		
A6		Heater disconnection/output off-time current error		
		detection delay count	R/W	
	A7	Temperature rise completion range setting		
	A8	Temperature rise completion soak time setting		
	A9	PID continuation flag		
AA		Heater voltage correction setting		
AB	AC	Reference heater current value		
	AF	Transistor output monitor ON delay time setting		
	B0	CT monitor method switching		
B1	B2	Heating control output monitor	R	
	:			
	B6	Cold junction temperature correction selection	R/W	
	B7	Control switching monitor	R	
B8	B9	Temperature conversion setting	R/W	
	:			
	C0	Manipulated value for easing (M)()		
	C1			
C2		Cooling control output monitor	R	
C3				
C4	C5	Cooling transistor output flag		
	:			
	CF	Cooling type setting		
D0	E0	Cooling proportional band (Pc) setting]	
D1	E1	Cooling upper limit output limiter	R/W	
D2	E2	Cooling control output period setting]	
D3	E3	Overlap/dead band		

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⊠Point

Default values for the A series modules and L series modules may be different. To apply an A series program using a default value to an L series module, review the program. For details, refer to the user's manual for the L series module used.

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/

	L60TCTT4, L60TCRT4, L60TCTT4BW, L60TCRT4BW						
	Address (h	exadecimal)	Name	Read/write			
	CH1	CH2					
	3E	5E	Memory of PID constants read instruction	R/W			
	3F	5F	Automatic backup setting after auto tuning of PID constants	R/W			
	/	AU A 1					
	/	A1 A2	System area (Use prohibited)	-			
	F	4Z					
	F	43	Alart dood hand actting				
	, F	λ4 Λ Ε	Alert dead band setting				
	/	45	Number of alert delay				
	1	46	delay acust				
		۸7	Temperature rise completion range setting	R/W			
	/	47 N 0	Temperature rise completion range setting				
	/	NO	PID continuation flag				
	/	49 N A	Heater disconnection correction function selection				
	<u>۸</u>		System area (Lise prohibited)				
	AD		Transistor output monitor ON delay time sotting				
	/ 	30	CT monitor method switching	R/W			
			Maninulated value of heating (MVh) for output with another				
	B1	B2	analog module	R			
			Resolution of the manipulated value for output with another				
	E	35	analog module	R/W			
		36	Cold junction temperature compensation selection	R/M			
		37	Control switching monitor	P			
	B8	B0	Auto tuning mode selection	P/W			
	Бо			10/00			
	(• ^0	Alert 1 mode setting				
	(20 C1	Alert 2 mode setting				
	63		Alert 3 mode setting	R/W			
·	(.3	Alert 4 mode setting				
·							
		:					
		•					
	D0	F0	Alert 1 mode setting				
	 D1	E1	Alert 2 mode setting				
	D2	F2	Alert 3 mode setting	R/W			
	D3	E3	Alert 4 mode setting				
	100	to 107	Heater current measurement value	R			
	108	to 10F	CT input channel assignment setting				
	110	to 117	CT selection	R/W			
	118	to 11F	Reference heater current value				
		•					
	220	240	2-point sensor compensation offset value (measured value)	R/W			
			2-point sensor compensation offset value (compensation				
	221	241	value)	R/W			
	222	242	2-point sensor compensation gain value (measured value)	R/W			
	223	243	2-point sensor compensation gain value (compensation value)	R/W			
	224	244	2-point sensor compensation offset latch request	R/W			
	225	245	2-point sensor compensation offset latch completion	R			
	226	246	2-point sensor compensation gain latch request	R/W			
	227	247	2-point sensor compensation gain latch completion	R			
	234	254	Setting change rate limiter (temperature drop)	R/W			
	2B8	289	Temperature conversion setting	R/W			
			,				
		•					

MELSEC

L60TCTT4, L60TCRT4, L60TCTT4BW, L60TCRT4BW							
Address (h	exadecimal)	Nomo	Deed/write				
CH1	CH2	Name	Read/write				
2C0	2C1	Manipulated value for cooling (MVc)	R				
	:						
204	205	Manipulated value of cooling (MVc) for output with another	D				
204 205		analog module	ĸ				
	:						
2C8	2C9	Cooling transistor output flag	R				
	:						
2	CF	Cooling method setting					
2D0	2E0	Cooling proportional band (Pc) setting					
2D1	2E1	Cooling upper limit output limiter	R/W				
2D2	2E2	Cooling control output cycle setting					
2D3	2E3	Overlap/dead band setting					
2D4	2E4	Manual reset amount setting	R/W				
2D5	2E5	Process value (PV) scaling function enable/disable setting	R/W				
2D6	2E6	Process value (PV) scaling lower limit value	R/W				
2D7	2E7	Process value (PV) scaling upper limit value	R/W				
2D8	2E8	Process value (PV) scaling value	R				
2D9 2E9		Derivative action selection	R/W				
	:						
2DF	2EF	Setting change rate limiter unit time setting	R/W				
	:						
3	11	Sensor compensation function selection	R/W				
3	12	Temperature conversion completion flag	R				
3	13	Function extension bit monitor	R				
3	14	Sampling cycle monitor	R				
3	15						
	:	System area (Use prohibited)	-				
4	FE						
4	FF						
•		Buffer memory for error history	R				
F	FF						
1	000						
	:	System area (Use prohibited)	-				
C	FFF						

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5.5.3 A1S64TCTT(BW)-S1/A1S64TCRT(BW)-S1 and L series modules

A1S64TCTT(BW)-S1, A1S64TCRT(BW)-S1						
	Address (he	exadecimal		Nome	Bood/write	
CH1	CH2	CH3	CH4	Name	Keau/write	
	(0		Write data error code	R/W	
1	2	3	4	Decimal point position		
5	6	7	8	Alert detail		
9	А	В	С	Temperature process value (PV)		
D	E	F	10	Manipulated value (MV)		
11	12	13	14	Temperature rise judgment flag	R	
15	16	17	18	Transistor output flag		
19	1A	1B	1C	Measured heater current value		
	1	D		Cooling contact temperature process value*1		
	1	E		MAN mode shift completion flag		
	1	F		System area (Use prohibited)	-	
20	40	60	80	Input range		
21	41	61	81	Stop mode setting		
22	42	62	82	Set value (SV) setting		
23	43	63	83	Proportional band (P) setting		
24	44	64	84	Integral time (I) setting		
25	45	65	85	Derivative time (D) setting		
26	46	66	86	Alert alarm 1 set value		
27	47	67	87	Alert alarm 2 set value		
28	48	68	88	Alert alarm 3 set value		
29	49	69	89	Alert alarm 4 set value		
2A	4A	6A	8A	Upper limit output limiter		
2B	4B	6B	8B	Lower limit output limiter		
2C	4C	6C	8C	Output variation limiter		
2D	4D	6D	8D	Sensor correction value setting		
2E	4E	6E	8E	Adjustment sensitivity (dead band) setting		
2F	4F	6F	8F	Control output period setting	R/W	
30	50	70	90	Primary delay digital filter setting		
31	51	71	91	Control response parameter		
32	52	72	92	AUTO/MAN mode switch		
33	53	73	93	Manual output setting		
34	54	74	94	Setting change rate limiter		
35	55	75	95	AT bias		
36	56	76	96	Forward/reverse action setting		
37	57	77	97	Upper setting limiter		
38	58	78	98	Lower setting limiter		
39	59	79	99	CT selection	7	
3A	5A	7A	9A	Heater disconnection alert setting	7	
3B	5B	7B	9B	Open-loop detection time	7	
3C	5C	7C	9C	Open-loop detection dead band	7	
3D	5D	7D	9D	Unused channel setting	7	

*1 For the A1S64TCRT(BW)-S1, this area is prohibited to use.

*2 For the L60TCRT4 and L60TCRT4(BW), this area is prohibited to use.

	Address (b		L60TC	IT4, L60TCRT4, L60TCTT4BW, L60TCRT4BW		
CH1	CH2	CH3	CH4	– Name	Read/write	
		0		Error code		
1	2	3	4	Decimal point position		
5	6	7	8	Alert definition		
9	A	В	С	Temperature process value (PV)		
D	E	F	10	Manipulated value (MV)		
11	12	13	14	Temperature rise judgment flag	R	
15	16	17	18	Transistor output flag		
19	1A	1B	1C	Set value (SV) monitor		
	1	D		Cold junction temperature process value*2		
	1	E		MAN mode shift completion flag		
	1	F		Memory of PID constants read/Write completion flag	R	
20	40	60	80	Input range		
21	41	61	81	Stop mode setting		
22	42	62	82	Set value (SV) setting		
23	43	63	83	Proportional band (P) setting		
24	44	64	84	Integral time (I) setting		
25	45	65	85	Derivative time (D) setting		
26	46	66	86	Alert set value 1		
27	47	67	87	Alert set value 2		
28	48	68	88	Alert set value 3		
29	49	69	89	Alert set value 4		
2A	4A	6A	8A	Upper limit output limiter		
2B	4B	6B	8B	Lower limit output limiter		
2C	4C	6C	8C	Output variation limiter setting	R/M/	
2D	4D	6D	8D	Sensor correction value setting	10.00	
2E	4E	6E	8E	Adjustment sensitivity (dead band) setting		
2F	4F	6F	8F	Control output cycle setting		
30	50	70	90	Primary delay digital filter setting		
31	51	71	91	Control response parameters		
32	52	72	92	AUTO/MAN mode shift		
33	53	73	93	MAN output setting		
34	54	74	94	Setting change rate limiter/Setting change rate limiter		
				(temperature rise)	_	
35	55	75	95	AT bias		
36	56	76	96	Forward/reverse action setting		
37	57	77	97	Upper limit setting limiter	_	
38	58	78	98			
39	59	79	99	System area (Use pronibited)	-	
3A	5A	7A 7D	9A	Heater disconnection alert setting	_	
3B	5B	7B 70	9B	Loop disconnection detection judgment time	R/W	
30	50	70	90			
зD	5D	70	9D	Unused channel setting		

A1S64TCTT(BW)-S1, A1S64TCRT(BW)-S1							
	Address (he	exadecimal)	Namo	Boad/write		
CH1	CH2	CH3	CH4	Name	Reau/write		
3E	5E	7E	9E	System area (Use prohibited)			
3F	5F	7F	9F	System area (Ose prombled)	_		
	A	.0		Alert alarm 1 mode setting			
	A	.1		Alert alarm 2 mode setting			
	A	.2		Alert alarm 3 mode setting			
	A	.3		Alert alarm 4 mode setting			
	A	.4		Alert dead band setting			
	A	.5		Number of alert delays			
16				Number of delays for heater disconnection/current			
AU			error detection when output is turned off	R/W			
A7			Temperature increase complete range setting				
	A8			Temperature increase complete soak time setting			
	A	.9		PID continue flag			
	A	A		Heater voltage correction function setting			
AB	AC	AD	AE	Standard heater current value			
	A	F		Transistor output monitor ON delay time setting			
	B0		B0 CT monitor me		CT monitor method switch		
B1	B2	B3	B4	Manipulation value (MV) (0 to 4000)	R		
	В	5		System area (Use prohibited)	-		
	В	6		Cold junction temperature correction selection ^{*1} (This area can be used with the software version F or later.)	R/W		

*1 For the A1S64TCRT(BW)-S1, this area is prohibited to use.

⊠Point -

Default values for the A series modules and L series modules may be different.

To apply an A series program using a default value to an L series module, review the program. For details, refer to the user's manual for the L series module used.

5 HEATING-COOLING TEMPERATURE CONTROL MODULE/

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	L60TCTT4, L60TCRT4, L60TCTT4BW, L60TCRT4BW							
		Address (he	exadecimal)		Nomo	Bood/write		
	CH1	CH2	CH3	CH4	Name	Read/write		
	3E	5E	7E	9E	Memory of PID constants read instruction			
	3F	5F	7F	9F	Automatic backup setting after auto tuning of PID constants	R/ W		
		A	0					
		A	.1		System area (Lise prohibited)			
		A	2		System area (Ose promoted)	-		
	A3							
		A	4		Alert dead band setting			
		A	\5		Number of alert delay			
		٨	6		Heater disconnection/output off-time current error detection			
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	10		delay count			
		A	7		Temperature rise completion range setting	R/ W		
		A	.8		Temperature rise completion soak time setting			
		A	.9		PID continuation flag			
		А	A		Heater disconnection correction function selection			
	AB	AC	AD	AE	System area (Use prohibited)	-		
		A	F		Transistor output monitor ON delay time setting			
		В	80		CT monitor method switching	R/W		
	B1	B2	B3	B4	Manipulated value (MV) for output with another analog module	R		
					Resolution of the manipulated value for output with another			
		В	5		analog module	-		
					, , , , , , , , , , , , , , , , , , ,			
	B6				Cold junction temperature compensation selection	R/W		
	P7				Or a first har the binst area if an			
					ĸ			
			50					
	00	DU	EU	FU	Alert 1 mode setting			
	C1	D1	E1	F1	Alert 2 mode setting	R/W		
	C2	D2	E2	F2	Alert 3 mode setting			
	C3	D3	E3	+3	Alert 4 mode setting			
		400.4						
		100 t	0 107		Heater current measurement value	R		
		108 t	0 10F			D 444		
		110 t	0 117			R/W		
		118 t	0 11F		Reference heater current value	<b>D</b> 44/		
		120 t	0 127			R/W		
		128 t	0 21F		System area (Use prohibited)	-		
	220	240	260	280	2-point sensor compensation offset value (measured value)	R/W		
	221	241	261	281	2-point sensor compensation offset value (compensation value)	R/W		
	222	242	262	282	2-point sensor compensation gain value (measured value)	R/W		
	223	243	263	283	2-point sensor compensation gain value (compensation value)	R/W		
	224	244	264	284	2-point sensor compensation offset latch request	R/W		
	225	245	265	285	2-point sensor compensation offset latch completion	R		
	226	246	266	286	2-point sensor compensation gain latch request	R/W		
	227	247	267	287	2-point sensor compensation gain latch completion	R		
	228	248	268	288				
	:	:	:	:	System area (Use prohibited)	_		
	233	253	273	293				
	234	254	274	294	Setting change rate limiter (temperature drop)	R/W		
	235	255	275	295				
	:	:		:				
	•	•	•	•	System area (Use prohibited)	-		
	23C	25C	27C	29C				
	23D	25D	27D	29D	AT simultaneous temperature rise parameter calculation flag	R		
	23E	25E	27E	29E	Self-tuning setting	R/W		
	23F	25F	27F	29F	Self-tuning flag	R		

EMPE	fure ME	LSEC	
L60TCT	T4, L60TCRT4, L60TCTT4BW, L60TCRT4BW		
0114	Name	Read/write	

	Address (he	exadecimal)		Name	Read/write	
CH1 CH2 CH3 CH4			CH4	- Nulle	Reddiwitte	
	2/	40				
		:		System area (Use prohibited)	-	
	21	30				
2B1	2B2	2B3	2R4	Temperature process value (PV) for input with another analog	R/W	
201		200	204	module		
2B5						
		:				
	20	CF		System area (Lise prohibited)	_	
2D0	2E0	2F0	300			
:	:	:	:			
2D3	2E3	2F3	303			
2D4	2E4	2F4	304	Manual reset amount setting	R/W	
2D5	2E5	2F5	305	Process value (PV) scaling function enable/disable setting	R/W	
2D6	2E6	2F6	306	Process value (PV) scaling lower limit value	R/W	
2D7	2E7	2F7	307	Process value (PV) scaling upper limit value	R/W	
2D8	2E8	2F8	308	Process value (PV) scaling value	R	
2D9	2E9	2F9	309	Derivative action selection	R/W	
2DA	2EA	2FA	30A	Simultaneous temperature rise group setting	R/W	
2DB	2EB	2FB	30B	Simultaneous temperature rise gradient data	R/W	
2DC	2EC	2FC	30C	Simultaneous temperature rise dead time	R/W	
2DD	2ED	2FD	30D	Simultaneous temperature rise AT mode selection	R/W	
2DE	2EE	2FE	30E	Simultaneous temperature rise status	R	
2DF	2EF	2FF	30F	Setting change rate limiter unit time setting	R/W	
	3	10		Peak current suppression control group setting	R/W	
	3	11		Sensor compensation function selection	R/W	
	3	12		Temperature conversion completion flag	R	
	3	13		Function extension bit monitor	R	
	3	14		Sampling cycle monitor	R	
	3	15				
:				System area (Use prohibited)	-	
4FE						
4FF						
•				Buffer memory for error history	R	
FFF						
	10	00				
		:		System area (Use prohibited) –		
CFFF						

### Memo

-

#### 5.5.4 A1S62TCTT(BW)-S2/A1S62TCRT(BW)-S2 and L series modules

A1S62TCTT(BW)-S2, A1S62TCRT(BW)-S2							
Address (h	nexadecimal)	Namo	Read/write				
CH1	CH2	Name	iteau/write				
	0	Write data error code	R/W				
1	2	Decimal point position					
5	6	Alert occurrence details					
9	А	Temperature process value (PV)					
D	E	Heating manipulation value (MV)	P				
11	12	Increased temperature determination flag	R				
15	16	Heating transistor output flag					
19	1A	Heater current process value					
	1D	Cooling contact temperature process value ^{*1}					
	1E						
	1F	System area (Use prohibited)	-				
20	40	Input range					
21	41	Stop mode setting					
22	42	Set value (SV) setting					
23	43	Heating proportional band (Ph) setting					
24	44	Integral time (I) setting					
25	45	Derivative time (D) setting					
26	46	Alert set value 1					
27	47	Alert set value 2					
28	48	Alert set value 3					
29	49	Alert set value 4					
2A	4A	Heating-cooling upper limit output limiter					
2B	4B						
2C	4C	System area (Use prohibited)					
2D	4D	Sensor correction value setting					
2E	4E	System area (Use prohibited)					
2F	4F	Heating control output period setting	R/W				
30	50	Primary delay digital filter setting					
31	51	Control response parameter					
32	52						
33	53	System area (Use prohibited)					
34	54	Setting change rate limiter					
35	55						
36	56	System area (Use prohibited)					
37	57	Upper limit setting limiter					
38	58	Lower limit setting limiter					
39	59	CT selection					
3A	5A	Heater wire breakage alert setting					
3B	5B						
3C	5C	System area (Use prohibited)					
3D	5D	Not used channel setting					
		5					

*1 For the A1S62TCRT(BW), this area is prohibited to use.

*2 For the L60TCRT(BW), this area is prohibited to use.

Address	(hexadecimal)		Desallarrita	
CH1	CH2	Name	Read/write	
	0	Error code		
1	2	Decimal point position		
5	6	Alert definition		
9	A	Temperature process value (PV)		
D	E	Manipulated value for heating (MVh)	R	
11	12	Temperature rise judgment flag		
15	16	Heating transistor output flag		
19	1A	Set value (SV) monitor		
	1D	Cold junction temperature process value ^{*2}		
	1E	MAN mode shift completion flag	R	
	1F	Memory of PID constants read/Write completion flag	R	
20	40	Input range		
21	41	Stop mode setting		
22	42	Set value (SV) setting		
23	43	Heating proportional band (Ph) setting		
24	44	Integral time (I) setting		
25	45	Derivative time (D) setting	R/W	
26	46	Alert set value 1		
27	47	Alert set value 2		
28	48	Alert set value 3		
29	49	Alert set value 4		
2A	4A	Heating upper limit output limiter		
2B	4B	System area (Use prohibited)		
2C	4C	Output variation limiter setting		
2D	4D	Sensor correction value setting	R/W	
2E	4E	Adjustment sensitivity (dead band) setting	-	
2F	4F	Heating control output cycle setting		
30	50	Primary delay digital filter setting	R/W	
31	51	Control response parameters		
32	52	AUTO/MAN mode shift	R/W	
33	53	MAN output setting	R/W	
34	54	Setting change rate limiter/Setting change rate limiter	P/M	
54	54	(temperature rise)	EV/ W	
35	55	AT bias	R/W	
36	56	System area (Use prohibited)	R/W	
37	57	Upper limit setting limiter	D/M	
38	58	Lower limit setting limiter	1\/ VV	
39	59	System area (Use prohibited)	-	
3A	5A	Heater disconnection alert setting	R/W	
3B	5B	System area (Lise prohibited)	_	
3C	5C	Gystem area (Ose promoted)	-	
3D	5D	Unused channel setting	R/W	

	A1S	62TCTT(BW)-S2, A1S62TCRT(BW)-S2			
Address (hexadecima	)	Nome	Bood/write		
CH1 C	H2	Name	Reau/write		
3E 5E		System area (Use prohibited)			
3F 5	5F	System area (Ose prombled)	-		
A0		Setting of Alert alarm 1			
A1		Setting of Alert alarm 2			
A2		Setting of Alert alarm 3			
A3		Setting of Alert alarm 4			
A4		Alert dead band setting			
A5		Number of alert delay			
46		Heater disconnection/output off-time current error			
A0		detection delay count	R/W		
A7		Temperature rise completion range setting			
A8		Temperature rise completion soak time setting			
A9		PID continuation flag			
AA		Heater voltage correction setting			
AB AC		Heater current reference value			
AF		Transistor output monitor ON delay time setting			
В0		CT monitor method switching			
B1 B2		Heating manipulation value (MV) (0 to 4000)	R		
B5					
B6		System area (Lies prohibited)			
B7		System area (Ose prombled)	-		
B8 E	39	1			
:					
C0 (	21	Cooling manipulated value (MV)			
C2 C3		Cooling manipulated value (MV) (0 to 4000)	R		
C4 C5		Cooling transistor output flag			
CF		Cooling type setting			
D0 E0		Cooling proportional band (Pc) setting	]		
D1 E	E1	Cooling upper limit output limiter	R/W		
D2 E	2	Cooling control output period setting	]		
D3 E	3	Overlap/dead band			

### ⊠Point -

Default values for the A series modules and L series modules may be different.

To apply an A series program using a default value to an L series module, review the program.

For details, refer to the user's manual for the L series module used.

# 5 HEATING-COOLING TEMPERATURE CONTROL MODULE/

	L60TO	CT14, L601CR14, L601CT14BW, L601CRT4BW		
Address (he	exadecimal)	Name	Read/write	
	CH2	Momeny of DID constants road instruction		
3E 2E	5E	Automatic backup softing after auto turing of PID constants	R/W	
3F	16	Automatic backup setting after auto tuning of PID constants	K/W	
A	1	_		
A	2	System area (Use prohibited)	-	
A	3	-		
A	4	Alert dead band setting	<u> </u>	
A	5	Number of alert delay		
	·	Heater disconnection/output off-time current error detection		
А	6	delay count		
A	7	Temperature rise completion range setting	R/W	
A	8	Temperature rise completion soak time setting		
A	9	PID continuation flag		
A	A	Heater disconnection correction function selection		
AB	AC	System area (Use prohibited)	-	
A	F	Transistor output monitor ON delay time setting	D/11/	
В	0	CT monitor method switching	R/W	
D1	DO	Manipulated value of heating (MVh) for output with another	D	
BJ	BZ	analog module	к	
D	5	Resolution of the manipulated value for output with another		
В	5	analog module	K/W	
В	6	Cold junction temperature compensation selection	R/W	
В	7	Control switching monitor	R	
B8	B9	Auto tuning mode selection	R/W	
С	0	Alert 1 mode setting		
C	1	Alert 2 mode setting	R/W	
C	2	Alert 3 mode setting		
C	C3 Alert 4 mode setting			
DO	EO	Alort 1 mode setting		
D0	E0 E1	Alert 2 mode setting		
D1	E1	Alert 3 mode setting	R/W	
D3	F3	Alert 4 mode setting		
100 t	o 107	Heater current measurement value	R	
108 t	o 10F	CT input channel assignment setting		
110 t	o 117	CT selection	R/W	
118 te	o 11F	Reference heater current value		
220	240	2-point sensor compensation offset value (measured value)	R/W	
004	044	2-point sensor compensation offset value (compensation		
221	241	value)	K/W	
222	242	2-point sensor compensation gain value (measured value)	R/W	
223	243	2-point sensor compensation gain value (compensation value)	R/W	
224	244	2-point sensor compensation offset latch request	R/W	
225	245	2-point sensor compensation offset latch completion	R	
226	246	2-point sensor compensation gain latch request	R/W	
227	247	2-point sensor compensation gain latch completion	R	
234	254	Setting change rate limiter (temperature drop)	R/W	

# 5 HEATING-COOLING TEMPERATURE CONTROL MODULE/TEMPERATURE

MELSEC

L60TCTT4, L60TCRT4, L60TCTT4BW, L60TCRT4BW									
Address (he	Address (hexadecimal)NameRead/writeCH1CH2								
CH1	CH2	Name	Read/write						
2B8	2B9	Temperature conversion setting	R/W						
	•								
2C0	2C1	Manipulated value for cooling (MVc)	R						
	•								
201	205	Manipulated value of cooling (MVc) for output with another	D						
204	205	analog module	ĸ						
2C8	2C9	Cooling transistor output flag	R						
	•								
20	CF	Cooling method setting							
2D0	2E0	Cooling proportional band (Pc) setting							
2D1 2E1		Cooling upper limit output limiter	R/W						
2D2	2E2	Cooling control output cycle setting							
2D3	2E3	Overlap/dead band setting							
2D4	2E4	Manual reset amount setting	R/W						
2D5	2E5	Process value (PV) scaling function enable/disable setting	R/W						
2D6	2E6	Process value (PV) scaling lower limit value	R/W						
2D7	2E7	Process value (PV) scaling upper limit value	R/W						
2D8	2E8	Process value (PV) scaling value	R						
2D9	2E9	Derivative action selection	R/W						
	•								
2DF	2EF	Setting change rate limiter unit time setting	R/W						
	:								
3.	11	Sensor compensation function selection	R/W						
3.	12	Temperature conversion completion flag	R						
3.	13	Function extension bit monitor	R						
31	14	Sampling cycle monitor	R						
31	15								
	:	System area (Use prohibited)	-						
4F	E								
46	F								
	•	Buffer memory for error history	R						
Ff	=F								
10	00								
	•	System area (Use prohibited)	-						
CF	FF								

### HIGH-SPEED COUNTER MODULE REPLACEMENT

### 6.1 List of High-Speed Counter Module Alternative Models for Replacement

AnS/QnAS s	eries	Transition to L series			
Product	Model	Model	Remarks (Restrictions)		
		LD62	<ol> <li>External wiring: Terminal block wiring → Connector wiring Cable size is changed.</li> <li>Number of slots: Not changed</li> <li>Counting speed: 200K, 100K, or 10KPPS</li> <li>Counting range: 32-bit signed binary (-2147483648 to 2147483647) Program does not need to be reviewed.</li> <li>Program: The number of occupied I/O points, I/O signals, and buffer memory addresses are changed.</li> <li>Performance specifications: Number of channels is 2. The input terminal filter characteristics are different.</li> </ol>		
High-speed counter	counter 7) Function specifications: Limit switch output function function (Two coincidence detection output points)	<ul> <li>7) Function specifications: Limit switch output function → Coincidence output function (Two coincidence detection output points can be set.)</li> </ul>			
module	A1SD61	L02SCPU L02CPU L06CPU L26CPU L26CPU-BT	<ol> <li>External wiring: Terminal block wiring → Connector wiring Cable size is changed.</li> <li>Number of slots: Changed. 0 module (I/O function built in CPU)</li> <li>Counting speed: 200K, 100K, 50K, or 10KPPS</li> <li>Counting range: 32-bit signed binary (-2147483648 to 2147483647)</li> <li>Program does not need to be reviewed.</li> <li>Program: Incompatible, Need to be created.</li> <li>Performance specifications: Number of channels is 2. External input voltage 24V only The input terminal filter characteristics are different.</li> <li>Function specifications: Limit switch output function → Coincidence output function (Two coincidence detection output points can be set.)</li> </ol>		

# 6 HIGH-SPEED COUNTER MODULE REPLACEMENT

AnS/QnAS s	Transition to L series						
Product	Model	Model		Remarks (Restrictions)			
			1)	External wiring: Terminal block wiring $\rightarrow$ Connector wiring			
				Cable size is changed.			
			2)	Number of slots: Not changed			
			3)	Counting speed: 200K, 100K, or 10KPPS			
			4)	Counting range: 32-bit signed binary			
				(-2147483648 to 2147483647)			
		LD62		Program does not need to be reviewed.			
			5)	Program: The number of occupied I/O points, I/O signals, and buffer			
				memory addresses are changed.			
			6)	Performance specifications: The input terminal filter characteristics are			
			7)	Considered autout			
			(')	Function specifications. Limit switch output function $\rightarrow$ Concluence output function (Two coincidence detection output points can be set.)			
	A1SD62		1)	External wiring: Terminal block wiring $\rightarrow$ Connector wiring			
			l''	Cable size is changed			
			2)	Number of slots: Changed, 0 module (I/O function built in CPLI)			
			3)	Counting speed: 200K 100K 50K or 10KPPS			
		L02SCPU	4)	Counting range: 32-bit signed binary			
		1 02CPU	.,	(-2147483648 to 2147483647)			
		L06CPU		Program does not need to be reviewed.			
	L26CPU 5) Program: Incompatible Need to be created	Program: Incompatible. Need to be created.					
		L26CPU-BT	6)	Performance specifications: External input voltage 24V only			
<ul> <li>L26CPU-BT</li> <li>6) Performance specifications: External input voltage 24 The input terminal filter characteristics are different.</li> <li>7) Function specifications: Limit switch output function –</li> </ul>	The input terminal filter characteristics are different.						
			7)	Function specifications: Limit switch output function $\rightarrow$ Coincidence output			
			Ĺ	function (Two coincidence detection output points can be set.)			
High-speed counter				No periodic pulse counter function			
module			1)	External wiring: Terminal block wiring $\rightarrow$ Connector wiring			
				Cable size is changed.			
			2)	Number of slots: Not changed			
			3)	3) Counting speed: 200K, 100K, or 10KPPS			
			<ul> <li>Cable size is changed.</li> <li>2) Number of slots: Not changed</li> <li>3) Counting speed: 200K, 100K, or 10KPPS</li> <li>4) Counting range: 32-bit signed binary (-2147483648 to 2147483647)</li> </ul>				
				2147483648 to 2147483647)			
		LDOZ		Program does not need to be reviewed.			
			5)	Program: The number of occupied I/O points, I/O signals, and buffer			
				memory addresses are changed.			
			6)	Performance specifications: Output terminal type: sink output			
				The input terminal filter characteristics are different.			
			7)	Functional specifications: Not changed			
	A1SD62E		1)	External wiring: Terminal block wiring $\rightarrow$ Connector wiring			
				Cable size is changed.			
			2)	Number of slots: Changed. 0 module (I/O function built in CPU)			
			3)	Counting speed: 200K, 100K, 50K, or 10KPPS			
			4)	Counting range: 32-bit signed binary			
				(-2.14) 403040 (U 2.14/403047)			
			E)	Program: Incompatible. Need to be reviewed.			
			5)	Performance specifications: The input terminal filter characteristics are			
			0)	different			
			7)	Function specifications: Limit switch output function $\rightarrow$ Coincidence output			
			[ <i>'</i>	function (Two coincidence detection output random $\rightarrow$ coincidence output			
				No periodic pulse counter function			

AnS/QnAS s	eries	Transition to L series		
Product	Model	Model	Remarks (Restrictions)	
			1) External wiring: Terminal block wiring $\rightarrow$ Connector wiring	
			Cable size is changed.	
			2) Number of slots: Not changed	
			3) Counting speed: 500K, 200K, or 100KPPS	
			4) Counting range: 32-bit signed binary	
		LD62D	(-2147483648 to 2147483647)	
			Program does not need to be reviewed.	
			5) Program: The number of occupied I/O points, I/O signals, and buffer	
	<ul><li>memory addresses are changed.</li><li>6) Performance specifications: Number of channels is 2.</li><li>7) Functional specifications: Not changed</li></ul>	memory addresses are changed.		
			6) Performance specifications: Number of channels is 2.	
			7) Functional specifications: Not changed	
High-speed counter	A1SD62D		1) External wiring: Terminal block wiring $\rightarrow$ Connector wiring	
module	A1SD62D-S1		Cable size is changed.	
			2) Number of slots: Changed. 0 module (I/O function built in CPU)	
			3) Counting speed: 200K, 100K, 50K, or 10KPPS	
		L02SCPU	<ol> <li>Counting range: 32-bit signed binary</li> </ol>	
		L02CPU	(-2147483648 to 2147483647)	
		L06CPU	Program does not need to be reviewed.	
		L26CPU	5) Program: Incompatible, Need to be created.	
		L26CPU-BT	6) Performance specifications: External input voltage 24V only	
			The input terminal filter characteristics are different.	
			7) Function specifications: Limit switch output function $\rightarrow$ Coincidence output	
			function (Two coincidence detection output points can be set.)	
			No periodic pulse counter function	

### ⊠Point -

binary)

3) Wiring

An external wiring method differs between AnS series modules and L series modules.

A1SD61, A1SD62 (E/D/D-S1): Wiring using a terminal block

LD62(D), LCPU (built-in I/O function): Wiring using a connector

When using an I/O signal wire with a solderless terminal of an AnS series module for the purpose of module replacement, take the appropriate action such as using a connector/terminal block converter module.

(When replacing A1SD61 with LD62)



For wiring to the connector/terminal block converter module, refer to the following manual: MELSEC-L High-speed Counter Module User's Manual SH-080912

### 6.2 A1SD61

#### 6.2.1 Performance specifications comparison

#### (1) Comparison between A1SD61 and LD62

								C	: Compatible	e, ∆∶Partia	I change required, ×: Incompatible
	iter	n			A1SD61			LD62		Compati- bility	Precautions for replacement
Number of occupied I/O points		32 points (I/O assignment: special 32 points)			(I/O assignn	16 points (I/O assignment: intelligent 16 points)		Δ	*1		
Nur	nber of channel	s			1 channel			2 channels		0	
Counting speed switch setting		50	Ж	10K	200K (100K to 200KPPS)	100K (10K to 100KPPS)	10K (10KPPS or less)	0	Set the counting speed of the LD62 with the switch setting		
Count input Signal level		2-phase inp	ut		0						
	Item       A1SD1       LD62       Compatible Number of accupied I/O points       Precaution of the points         imber of occupied I/O points       (I/O assignment: special 32 points)       (I/O assignment: special 32 points)       (I/O assignment: special 32 points)       0       1         unting speed switch setting       50K       10K       200K       100K       10K       0       Set the column of the points       0         Count input signal       Phase       1-phase input. 2-phase input.       0       12 b 5mA       0       126 2 with or 126	Si (¢	gnal level A, ∳B)		5VDC 12VDC 24VDC 2 to 5mA					0	*2
		С	ounting speed	1-phase input	50KPPS	10KPPS	200KPPS	100KPPS	10KPPS	0	
		С	ounting range		32-bit signed	l binary (-214	7483648 to 2	2147483647)		0	
Performance specifications of 1 channel		Туре		UP/DOWN preset counter + ring counter function						0	
		Minimum count p		ulse width, duty ratio: 50%						-	
			(200KPPS)		-		(Minimu 2-phase	5 5 2.5 (Ur m phase diffe input 1.25 µs	iit∶μs) erence in )	0	
	Counter		(100KPPS)		_		(Minimur 2-phase	10 5 (Un n phase diffe input 2.5 $\mu$ s)	it : μs) rence in	0	
			(50KPPS)	$\begin{array}{c} & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\$	Δ	Set the counting speed of the LD62 to "100K".					

* 1 A program used before replacement can be utilized by setting the start I/O signal numbers of the modules connected to the right of the LD62 so that they can be the same as that of the module before replacement. (Set the start number at "Start XY" of the I/O assignment tab. The number of occupied points of the LD62 cannot be changed.)

* 2 The rise/fall time of a pulse affects the counting speed. Countable counting speeds are as follows. Counting a pulse greater than t = 50µs may result in a miscount. (For the LD62)

Rise/fall time	Common to 1-phase input and 2-phase input				
Counter speed switch setting	200K	100K	10K		
t = 1.25µs or less	200KPPS	100KPPS	10KPPS		
t = 2.5µs or less	100KPPS	100KPPS	10KPPS		
t = 25µs or less	-	10KPPS	10KPPS		
t = 500µs	_	_	500KPPS		

→ t
# 6 HIGH-SPEED COUNTER MODULE REPLACEMENT

O : Compatible,  $\bigtriangleup$  : Partial change required, ×: Incompatible

	Iten	n	A1SD61		LD62			Precautions for replacement	
(Co	unter speed swi	itch setting)	50K	10K	200K	100K	10K	-	
		Minimum count p	oulse width, duty ratio: 50%	6				-	
erformance specifications of 1 channel	Counter	(10KPPS) 1-phase input	100 50 50 (Unit : μs) (1-phase input)					0	
		(10KPPS) 2-phase input		: μs)	(Minimur 2-phase	) 50 n phase diffe input 25µs)	iit : μs) erence in		
	Magnitude comparison	Comparison range		32-bit sigr	ned binary			0	
	between CPU module and high-speed counter module	Comparison result	a contact: Dog ON addre value ≤ Dog OFF ad b contact: Dog OFF addre value ≤ Dog ON ac	ess ≤ Count ddress ess ≤ Count dress	Set v Set v Set v	Set value < count value Set value = count value Set value > count value			Two points need to be set.
	External input	Preset Function start	5/12/24VDC, 2 to 5mA				Δ	Confirm the specifications of an external device because the guaranteed input voltage and guaranteed operating current of the external input are different.	
	External	Coincidence output	_		Trar outpu 12/24VDC,	isistor (sink t it 2 points/ch 0.5A/point, 2	ype) annel 2A/common		Output currents differ
	output	Limit switch output	Transistor (open collector) output – 12/24VDC, 0.1A/point, 0.8A/common						
Inte	rnal current con	sumption(5VDC)	C) 0.35A 0.31A		0.31A		0		
Wei	ght		0.27kg			0.13kg		0	

### (2) Comparison between A1SD61 and LCPU (built-in I/O function)

							O: Compatible	e, $\triangle$ : Partia	I change required, ×: Incompatible
	Iter	n		A1SD61		L025 L02 L06 L26	SCPU CPU CPU CPU	Compati- bility	Precautions for replacement
				32 points		L26CI	PU-BT		
Nu	mber of occupie	d I/O points	(I/O assign	ment: special	32 points)	0 pc	pints	Δ	*1
Nu	mber of channel	s			2 chan	nels		0	
Co	unter speed swit	ch setting	50KPPS 10KPPS 200K/100K/50K/10H				50K/10KPPS	0	Set the counter speed in parameter.
		Phase		1-	phase input, 2	2-phase input		0	
	Count input signal	Signal level (∳A, ∳B)	5VDC 12VDC 24VDC 24VDC				0		
		Counting speed (maximum) 24VD 24VD 1-phase 50KPPS 10KPPS 10KPPS		10KPPS	1-phase input	200K/100K/50K/ 10KPPS 200K/100K/50K/	0		
			input 50KPPS 7KPPS 2-phase input				10KPPS		
		Counting range		32-bit signed	binary (-2147	3647)	0		
		Туре		UP/DOWN p	reset counter	ction	0		
	Counter	Counting range 32-bit signed binary (-2147483648 Type UP/DOWN preset counter + ring Minimum count pulse width, duty ratio: 50%	1		-				
ins of 1 channel	Counter	Minimum count pulse width	$\begin{array}{c c} 20 \\ \hline 10 \\ 10 \\ \hline 10$			1-phas 2-phas	se: 5µs e: 10µs	0	
cificati		Comparison range			32-bit signe	ed binary		0	
Performance spe	Magnitude comparison between CPU module and A1SD61/ LCPU (built-in I/O function)	Comparison result	a contact: [ value : b contact: D value	Dog ON addre ≤ Dog OFF ad Pog OFF addr ≤ Dog ON ac	ess ≤ Count ddress ess ≤ Count ldress	Set value < Set value = Set value >	count value count value count value	0	
		Preset Function start	5/12	/24VDC, 2 to	5mA	-	_		Since the external input
	External input	External command signal		-		24VDC	, 4.1mA	Δ	specifications of an external device.
	External	Coincidence output		-		Tran: (open colle output 2 po 5 to 24VDC	sistor ctor) output ints/channel c, 0.1A/point	Δ	Output currents differ.
		Limit switch output	(ope 12/24VDC,	Transistor n collector) or 0.1A/point, 0.	utput 8A/common	-	-		
Inte (5V	ernal current con DC)	sumption		0.35A		-	-	0	
We	ight			0.27kg		-	-	0	

* 1 Programs are incompatible and need to be created.

## 6.2.2 Functional comparison

					O: Supported, -: Not supported
ltem	Description	A1SD61	L02SCPU L02CPU L06CPU L26CPU L26CPU-BT	LD62	Precautions for replacement
Preset function	Changes the counter present value to a specified value.	0	0	0	
Disable function	Terminates counting.	0	0	0	
Ring counter function	Repeatedly executes counting between user's setting values.	0	0	0	For the L series modules, values are set with the intelligent function module switch setting.
Linear counter function	Detects an overflow if the count exceeds the range.	-	0	0	
Coincidence output function	Outputs a signal when the counter present value matches the preset value.	-	0	0	No.1 and No.2 coincidence output points can be set for each channel.
Limit switch output function	Outputs the ON/OFF signal when the present value of the limit switch output command counter matches the output status preset to a channel.	0	-	-	Use the coincidence output function instead. Note that the specifications (such as set point) are different.
Coincidence detection interrupt function	Generates an interrupt signal to the CPU module when coincidence is detected.	-	0	0	
Latch counter function	Latches the present value at the time a signal is input.	0	0	0	
Sampling counter function	Counts the pulse that was input during the sampling time set.	0	0	0	
Periodic pulse counter function	Stores the present value to Periodic pulse count present value and the previous value to Periodic pulse count previous value for each set cycle.	0	_	0	

#### 6.2.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs.

For details of the I/O signals and sequence programs, refer to the MELSEC-L High-Speed Counter Module User's Manual.

When the built-in I/O functions of the LCPU are used, the special relay is used. For details, refer to the MELSEC-L CPU Module User's Manual (Built-in I/O Function).

	A1S	D61		L62D					
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name		
X0	Watchdog timer error flag	Y0		X0	Module READY	Y0	CH1 Coincidence signal No.1 reset command		
X1	CH1 limit switch output status flag	Y1		X1	CH1 Counter value large (point No.1)	Y1	CH1 Preset command		
X2	CH2 limit switch output status flag	Y2		X2	CH1 Counter value coincidence (point No.1)	Y2	CH1 Coincidence signal enable command		
Х3	CH3 limit switch output status flag	Y3		X3	CH1 Counter value small (point No.1)	Y3	CH1 Down count command		
X4	CH4 limit switch output status flag	Y4		X4	CH1 External preset request detection	Y4	CH1 Count enable command		
X5	CH5 limit switch output status flag	Y5		X5	CH1 Counter value large (point No.2)	Y5	CH1 External preset detection reset command		
X6	CH6 limit switch output status flag	Y6		X6	CH1 Counter value coincidence (point No.2)	Y6	CH1 Counter function selection start command		
X7	CH7 limit switch output status flag	Y7		X7	CH1 Counter value small (point No.2)	Y7	CH1 Coincidence signal No.2 reset command		
X8	CH8 limit switch output status flag	Y8	Use prohibited	X8	CH2 Counter value large (point No.1)	Y8	CH2 Coincidence signal No.1 reset command		
X9	Limit switch output enable flag	Y9		X9	CH2 Counter value coincidence (point No.1)	Y9	CH2 Preset command		
XA	External preset command detection flag	YA		ХА	CH2 Counter value small (point No.1)	YA	CH2 Coincidence signal enable command		
ХВ	Error flag	YB		XB	CH2 External preset request detection	YB	CH2 Down count command		
XC	Fuse/external power cutoff detection flag	YC		ХС	CH2 Counter value large (point No.2)	YC	CH2 Count enable command		
XD	Sampling/periodic counter flag	YD		XD	CH2 Counter value coincidence (point No.2)	YD	CH2 External preset detection reset command		
XE		YE		XE	CH2 Counter value small (point No.2)	YE	CH2 Counter function selection start command		
XF		YF		XF	Use prohibited	YF	CH2 Coincidence signal No.2 reset command		
X10		Y10	Count enable command						
X11		Y11	Decrement count command						
X12		Y12	Preset command						
X13		Y13	Ring counter command						
X14		Y14	Counter function selection start command						
X15		Y15	Limit switch output command						
X16	Use prohibited	Y16	External preset command						
¥17		V17	Error reset command						
×19		V19	Enorreset command						
×10		V10							
X19		¥19							
X1A		Y1A							
X1B		Y1B	Use prohibited						
X1C		Y1C							
X1D		Y1D							
X1E		Y1E							
X1F		Y1F							

#### 6.2.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L High-Speed Counter Module User's Manual.

When the built-in I/O functions of the LCPU are used, the special register is used. For details, refer to the MELSEC-L CPU Module User's Manual (Built-in I/O Function).

	A1SD61		LD62						
Address			Add	ress					
(decimal)	Name	Read/write	(dec	imal)	Name		Read/write		
(*******			CH1	CH2					
0	Present value (L)	-	0	32 33	Preset value	(L) (H)	R/W		
2	Counter function selection count value	- R	2	34	Present value	(L)	R		
3	(H)		3	35		(H)			
4	Pulse input mode setting	_	4	36	Coincidence output point No.1	(L)			
5	Counter function selection setting	_	5	37		(H)	R/W		
6 7	Preset value setting (L) (H)	_	6 7	38 39	Coincidence output point No.2	(L) (H)			
8	(L)	R/W	8	40	Overflow detection	,	R		
9	Ring counter value setting (H)		9	41	Counter function selection				
10	Sampling/periodic time setting		10	42	Sampling/periodic time setting		- R/W		
11	Write data error code	_	11	43	Sampling/periodic counter flag				
12			12	44		(L)			
:	CH1 limit switch output data setting		13	45	Latch count value	(H)	R		
28			14	46	Compling count value	(L)			
29		_	15	47	Sampling count value	(H)			
:	CH2 limit switch output data setting		16	48	Derindia pulsa count, provinuo valuo	(L)			
45			17	17 49 Periodic pulse count, previous vait	Periodic pulse count, previous value	(H)			
46			1	-	18	50		(L)	
	CH3 limit switch output data setting		19	51	Periodic pulse count, present value	(H)			
62			20	52	Ping counter lower limit	(L)			
63			21	53		(H)	D AA/		
:	CH4 limit switch output data setting		22	54	Ring counter upper limit	(L)	FX/ V V		
79		DAA/	23	55		(H)			
80		1.7.4.4	24	56					
:	CH5 limit switch output data setting		:	:	System area (Use prohibited)		-		
96			31	63					
97									
:	CH6 limit switch output data setting								
113									
114									
:	CH7 limit switch output data setting								
130									
131		-							
:	CH8 limit switch output data setting								
147									

## 6.3 A1SD62(E/D/D-S1)

### 6.3.1 Performance specifications comparison

#### (1) Comparison between A1SD62(E) and LD62

							O : Compatible	e, ∆∶Partia	I change required, ×: Incompatible	
	Ite	m			A1SD62(E)		LD62	Compati- bility	Precautions for replacement	
Nur	nber of occupie	ed I/	O points	(I/O assign	32 points iment: specia	l 32 points)	16 points (I/O assignment: intelligent 16 points)	Δ	The number of occupied I/O points is changed to 16 points.	
Nur	nber of channe	ls				2 cha	0			
Со	unting speed sv	vitch	n setting	100K 10K 200K/100			200K/100K/50K/10KPPS	0	Set the counter speed in parameter.	
		Pł	hase		1	-phase input,	2-phase input	0		
	Count input signal	Si (¢	ignal level A,			5VDC 12VDC 24VDC	0			
		С	ounting speed	1-phase input	100KPPS	10KPPS	200K/100K/50K/10KPPS	0		
	(maxi Coun Type	naximum)	2-phase input	100KPPS	7KPPS	200K/100K/50K/10KPPS	0			
		C	ounting range	24-b ((	it unsigned b ) to 1677721	inary 5)	32-bit signed binary (-2147483648 to 2147483647)	Δ	Since the LD62 uses 32-bit signed binary values, sequence program needs to be changed.	
		Ту	/pe		UP/DOWN	preset counte	er + ring counter function	0		
ons of 1 channel		Counting range (0 to 16777215) (2147483648 to 2147483647) $\triangle$ Type UP/DOWN preset counter + ring counter function O Minimum count pulse width, duty ratio: 50% - (200KPPS) - (200KPPS) - (200KPPS) - (200KPPS) - (200KPPS) - (200KPPS) - (200KPPS) - (100KPPS) - (100KPPS) - (100KPPS) - (10KPPS) - (10FPS) - (								
			(200KPPS)	_			$2.5$ (Unit : $\mu$ s) (Minimum phase difference in 2-phase input 1.25 $\mu$ s)			
Performance specifica	Counter			(100KPPS)		(M 2-	10 5 5 5 1inimum phas phase input 2	(Unit : μs) e difference in .5μs)	0	
			(10KPPS) 1-phase input	(1-pha	100 100 50 (Un ase input) 42	it : μs)				
			(10KPPS) 2-phase input	(2-pha:	71 (Unit se input)	: µs)	(Minimum phase difference in 2-phase input 25µs)			

O : Compatible,  $\bigtriangleup$  : Partial change required, ×: Incompatible

	Iten	n	A1SD62(E)	LD62	Compati- bility	Precautions for replacement		
	Magnitude comparison	Comparison range	24-bit unsigned binary	24-bit unsigned binary 32-bit signed binary				
of 1 channel	between the CPU module and high- speed counter module	Comparison result	Set value < Set value = Set value >	0				
ons	External input	Preset	5/12/24/0	0				
formance specificatio	External input	Function start	5/12/24 000	0				
	External output	Coincidence	Transistor output A1S62: sink type 12/24VDC, 0.5A/point, 2A/common A1S62E: source type 12/24VDC, 0.1A/point, 0.4A/common	Transistor (sink type) output 12/24VDC, 0.5A/point, 2A/common	Δ	Since the external output specifications differ, check the specifications of an external device. When the A1S62E is replaced,		
Ре		σαιραι	1 point/channel 2 points/channel			the output type differs. Therefore, consider changing external devices and wiring as well.		
Inte (5V	nternal current consumption (5VDC)		0.1A	0.31A	Δ	Recalculation of internal current consumption (5VDC) is required.		
Wei	ght		0.25kg	0.13kg	0			

### (2) Comparison between A1SD62(E) and LCPU (built-in I/O function)

	Iter	n		A1SD62(E)		L02SCPU, L02SCPU-P L02CPU, L02CPU-P L06CPU, L06CPU-P L26CPU, L26CPU-P L26CPU-BT, L26CPU-PBT			Compati- bility	Precautions for replacement
Nur	nber of occupie	d I/O points		32 points	132 points)	(I/O assignm	16 points	at 16 points)	Δ	The number of occupied I/O
Nur	nber of channel	s	(ino assignment, special 32 points)			Innels	ient. inteilige		0	points is changed to 10 points.
Cou	unting speed sw	itch setting	100К 10К		200K (100K to 200KPPS)	100K (10K to 100KPPS)	10K (10KPPS or less)	0		
		Phase		1-phase input, 2-phase input					0	
	Count input signal	Signal level (¢A, ¢B)	5VDC 12VDC 24VDC	}2 to 5mA	L02SCPU, L02SCPU-P           L02CPU, L02CPU-P           L06CPU, L06CPU-P           L26CPU, L26CPU-P           L26CPU, L26CPU-PBT           16 points           32 points)           (I/O assignment: intelligent 16 points)           2 channels           10K           2 channels           10K           10K           2 channels           0C input: 24V, 6.0mA           Differential input: The EIA Standar           RS-422-A differential line driver ca           be connected.           10KPPS           200KPPS           100KPPS           10KPPS           200KPPS           100KPPS           10KPP           reset counter + ring counter function           1-phase: 5µs           2-phase: 10µs           1:µs)	A Standard driver can	Δ	Since the external input specifications differ, check the specifications of an external device.		
nel		Counting speed (maximum)	5VDC 12VDC 24VDC       2 to 5mA       DC input: 24V, 6.0mA Differential input: The EIA Standard RS-422-A differential line driver can be connected.         ad       1-phase input       100KPPS       10KPPS       200KPPS       10KPPS       10KPPS         2-phase input       100KPPS       10KPPS       200KPPS       100KPPS       10KPPS       0         2-phase input       100KPPS       7KPPS       200KPPS       100KPPS       10KPPS       0         ge       24-bit unsigned binary (0 to 16777215)       32-bit signed binary (-2147483648 to 2147483647)       △         UP/DOWN preset counter + ring counter function       O         0       -       -	0	200KPPS (1-phase multiple of 2, 2-phase multiple of 4)					
	-	Counting range	24-bit unsigned binary (0 to 16777215)			32- (-214748	32-bit signed binary (-2147483648 to 2147483647)			Since the LCPU (built-in I/O function) uses 32-bit signed binary values, sequence program needs to be changed.
		Туре	UP/DOWN preset counter + ring counter function							
hanr		Minimum count	pulse width, c	uty ratio: 50%	%	1			-	
ormance specifications of 1 channel	Counter	(100KPPS)	(Minimur 2-phase	10 10 5 (Un n phase diffe input 2.5µs)	it : μs) rence in					
Pe		(10KPPS) 1-phase input		100 100 100 100 100 100 100 100	it : μs)	2	1-phase: 5μs 2-phase: 10μα	5	0	
		(10KPPS) 2-phase input	(2-pha	42 71 (Unit se input)	:: μs)					

O : Compatible,  $\bigtriangleup$  : Partial change required, ×: Incompatible

ltem			A1SD62(E)	L02SCPU, L02SCPU-P L02CPU, L02CPU-P L06CPU, L06CPU-P L26CPU, L26CPU-P L26CPU-BT, L26CPU-PBT	Compati- bility	Precautions for replace- ment
	Magnitude comparison	Comparison range	24-bit unsigned binary	32-bit signed binary	0	
1 channel	CPU module and high- speed counter module	Comparison result	Set value < Set value = Set value >	0		
ions of	External input	Preset Function start	5/12/24VDC, 2 to 5mA	_		Since the external input specifications differ, check the specifications of an external device.
specificat		External command signal	-	24VDC, 4.1mA	Δ	
Performance s	External Coincidence output output		Transistor output A1S62: sink type 12/24VDC, 0.5A/point, 2A/common A1S62E: source type 12/24VDC, 0.1A/point, 0.4A/common 1 point/channel	Transistor output (L02SCPU, L02CPU, L06CPU, L26CPU, L26CPU-BT: sink type) L02SCPU-P, L02CPU-P, L06CPU-P, L26CPU-P, L26CPU-PBT: source type) 5 to 24VDC, 0.1 A/point, 8 points/common 2 points/channel	Δ	Since the external output specifications differ, check the specifications of an external device.
Inte (5V	rnal current con DC)	sumption	0.10A	-	Δ	Recalculation of internal current consumption (5VDC) is required.
We	ight		0.25kg	_	0	

tible

## (3) Comparison between A1SD62D(-S1) and LD62D

	lte	m	Δ	150620(-5)	1)		I D(	62D		Compati-	Precautions for
Nur	mber of occupi	ed I/O points	(I/O ass	32 points signment: sp points)	ecial 32	(I/O a	16 p ssignment: ir	oints itelligent 16 p	oints)	bility	replacement The number of occupied I/O points is changed to 16 points.
Nur	mber of chann	els		pointo)		2 channels	6			0	
Counting speed switch setting			200K 10K 500K 200K 100K 10K 200K 10K (200K to (100K to (10K to (10KPPS) 500KPPS) 200KPPS) 100KPPS) or less)					0	Set the counting speed of the LD62D with the switch setting.		
	Count	Phase			1-phas	se input, 2-ph	ase input			0	
	input signal	Signal level		EIA S	tandard RS	-422-A differe	ential line driv	rer level		0	
		(φΑ, φΒ)	1-nhase	(AM26LS31	[manufactu	red by Texas	Instruments	or equivalen	t)	-	
		Counting speed (maximum)	input 2-phase input	200KPPS 200KPPS	10KPPS 7KPPS	500KPPS	200KPPS	5 100KPPS 10KPPS		0	
		Counting range	24-bi (C	it unsigned b ) to 1677721	binary 5)	(-2	32-bit sigr 2147483648 t	ned binary to 214748364	7)	Δ	Since the LD62D uses 32-bit signed binary values, sequence program needs to be changed.
		Туре		UP/E	OOWN prese	et counter + r	ing counter fu	unction		0	
		Minimum count	pulse width	, duty ratio: {	50%					-	
annel		(500KPPS)		-							
nance specifications of 1 ch	Counter	(200KPPS)			(Minim 2-phas	5 2.5 2.5 (L um phase dif re input 1.25µ	Jnit : µs) ference in ⁄s)				
Perform		(100KPPS)		_		(N 2-	tinimum phase input 2	(Unit : μs) se difference 2.5μs)	in	0	
		(10KPPS) 1-phase input	50 (1-pha	100 50 50 (Ur ase input)	it∶μs)	(M	100 50 50 tinimum phase	(Unit : μs) se difference	in		
		(10KPPS) 2-phase input	71 (2-phas	42 71 (Uni se input)	t : µs)	2-	priase iriput 2	-048)			

natible

0.00

A . Dortial change required vy lace

**6** - 16

O : Compatible,  $\bigtriangleup$  : Partial change required, ×: Incompatible

	lterr	1	A1SD62D(-S1)	LD62D	Compati- bility	Precautions for replacement
Inel	Magnitude comparison	Comparison range	24-bit unsigned binary	0		
ations of 1 char	between CPU module and high-speed counter module	Comparison result	Set value Set value Set value	0		
rmance specifica	External input	Preset Function start	A1SD62D: 5/12/24VDC, 2 to 5mA A1SD62D-S1: Differential input (The EIA Standard RS-422-A differential line driver can be connected.) 5/12/24VDC, 2 to 5mA	DC input: 5/12/24VDC, 2 to 5mA Differential input: The EIA Standard RS-422-A differential line driver can be connected.	0	The LD62D supports both DC input and differential input.
Perf	External output	Coincidence output	0			
Inte (5V	rnal current con DC)	sumption	0.25A	0.36A	Δ	Recalculation of internal current consumption (5VDC) is required.
Wei	ght		0.25kg	0.13kg	0	

### (4) Comparison between A1SD62D(-S1) and LCPU(Built-in I/O function)

	Iter	n		A	\1SD62D(-S1	1)	L02SCPU L02CPU L06CPU L26CPU L26CPU-BT			Compati- bility	Precautions for replacement			
Nur	nber of occupie	d I/	O points		32 points	122 nainta)		16 points	at 16 painta)	Δ	The number of occupied I/O			
Nur	nber of channel	\$		(I/O assign	ment: specia	1 32 points) 2 cha	(I/O assignin	ient: inteiligei	nt 16 points)	0	points is changed to 16 points.			
Сог	unting speed sw	ritch	n setting	200K 10K (			200K (100K to 200KPPS)	100K (10K to 100KPPS)	10K (10KPPS or less)	0				
		Р	hase		1	-phase input,	2-phase inpu	ıt		0				
	Count input signal	Si (¢	ignal level A, ∳B)	EIA Standa li (AM26LS31 Instrum	nd RS-422-A ne driver leve [manufactur nents] or equi	$\begin{array}{c c} & LO2SCPU \\ LO2SCPU \\ LO2CPU \\ LO6CPU \\ L26CPU-BT \\ \hline 16 points \\ \hline 32 points) & (I/O assignment: intelligent 16 p) \\ \hline 2 channels \\\hline\hline 10K & 200K & 100K & 10 \\ \hline 10K & (100K to & (10K to & (10K to \\ 200KPPS) & 100KPPS) & or le \\ \hline phase input, 2-phase input \\\hline\hline differential & DC input: 24V, 6.0mA \\\hline Differential input: The EIA Stan RS-422-A differential line driver be connected. \\\hline\hline 10KPPS & 200KPPS & 100KPPS & 10KF \\\hline\hline 7KPPS & 200KPPS & 100KPPS & 10KF \\\hline 7KPPS & 200KPPS & 100KPPS & 10KF \\\hline nary & 32-bit signed binary \\\hline (-2147483648 to 214748364 \\\hline oreset counter + ring counter function \\\hline\hline \\\hline \\\hline$	0mA A Standard e driver can	0						
nel		C (n	ounting speed naximum)	1-phase input 2-phase input	A1SD62D(-S1)L02CPU L03CPU L26CPU-BTCompatibility32 points32 points16 points $\Delta$ 0 assignment: special 32 points)(I/O assignment: intelligent 16 points) $\Delta$ The numl points is of2 channels $\bigcirc$ 2200K10K10K10K0200K10K10K10K0200K10K10K010KPPS200K10K10K010KPPS1-phase input.200KPPS10KPPS01-phase input.DC input: 24V, 6.0mA0Instruments] or equivalent)DC input: 24V, 6.0mA0phase200KPPS10KPPS10KPPSphase200KPPS10KPPS10KPPSinput200KPPS100KPPS10KPPSphase200KPPS10KPPS10KPPS010KPPS10KPPS024-bit unsigned binary (0 to 16777215)32-bit signed binary (-2147483648 to 2147483647) $\triangle$ UP/DOWN preset counter + ring counter function $\bigcirc$ $2$ -phase input1-phase: 5µs 2-phase: 10µs $ 1$ $\frac{5}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{1}$ $\frac{1}{2}$ <td< td=""><td>200KPPS (1-phase multiple of 2, 2-phase multiple of 4)</td></td<>	200KPPS (1-phase multiple of 2, 2-phase multiple of 4)								
	-	с	ounting range	24-bit unsigned binary (0 to 16777215)			32-bit signed binary (-2147483648 to 2147483647)			Δ	Since the LCPU (built-in I/O function) uses 32-bit signed binary values, sequence program needs to be changed.			
		Ty	уре		UP/DOWN	preset counter	er + ring cour	ter function		0				
han		Μ	inimum count p	ulse width, duty ratio: 50%						-				
Performance specifications of 1 channel	Counter		(200KPPS)		nit : μs) erence in )									
			(10KPPS) 1-phase input	50 (1-pha	100 50 (Un ase input)	it : μs)	2	1-phase: 5μs -phase: 10μs	3	0				
							(10KPPS) 2-phase input	71 (2-phas	(1-phase input) 142 71 71 71 (Unit : $\mu$ s) (2-phase input)					

O : Compatible,  $\bigtriangleup$  : Partial change required, ×: Incompatible

Item		n	A1SD62D(-S1)	L02SCPU L02CPU L06CPU L26CPU L26CPU-BT	Compati- bility	Precautions for replacement
	Magnitude comparison	Comparison range	24-bit unsigned binary	32-bit signed binary	0	
Performance specifications of 1 channel out add source specifications of 1 channel transmitted add source add	between the CPU module and high- speed counter module	Comparison result	Set value < Set value = Set value >	0		
	External input	Preset	A1SD62D: 5/12/24VDC, 2 to 5mA A1SD62D-S1: Differential input: The EIA Standard RS-422-A differential line driver can be connected.	_		Since the external input specifications differ, check the specifications of an external device.
	External input	Function start External command signal	5/12/24VDC, 2 to 5mA -	24VDC, 4.1mA		
	External output	Coincidence output	Transistor (sink type) output 12/24VDC, 0.5A/point, 2A/common	Transistor (sink type) output 5 to 24VDC, 0.1A/point, 8 points/common	Δ	Since the external output specifications differ, check the specifications of an external device
Internal current consumption (5VDC)		sumption	0.25A		Δ	Recalculation of internal current consumption (5VDC) is required.
Weight			0.25kg	_	0	

## 6.3.2 Functional comparison

ltem	Description	A1SD62 (E/D/D-S1)	L02SCP L02SCPU-P L02CPU-P L02CPU-P L06CPU-P L26CPU-P L26CPU-BT L26CPU-BT	LD62(D)	Precautions for replacement
Preset function	Changes the counter present value to a specified value.	0	0	0	
Disable function	Terminates counting.	0	0	0	
Ring counter function	Repeatedly executes counting between user's setting values.	0	0	0	For the LD62 (D), values are set with the switch setting.
Linear counter function	Detects an overflow if the count exceeds the range.	-	0	0	
Coincidence output function	Outputs a signal when the counter present value matches the preset value.	0	0	0	No.1 and No.2 coincidence output points can be set for each channel.
Coincidence detection interrupt function	Generates an interrupt signal to the CPU module when coincidence is detected.	Ι	0	0	
Latch counter function	Latches the present value at the time a signal is input.	0	0	0	
Sampling counter function	Counts the pulse that was input during the sampling time set.	0	0	0	
Periodic pulse counter function	Stores the present value to Periodic pulse count present value and the previous value to Periodic pulse count previous value for each set cycle.	0	_	0	

### 6.3.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L High-Speed Counter Module User's Manual.

When the built-in I/O functions of the LCPU are used, the special relay is used. For details, refer to the MELSEC-L CPU Module User's Manual (Built-in I/O Function)

A1SD62(E/D/D-S1)					LD62(D)				
Device No.	Signal name	Device No.	Signal name	Device No.	Signal name	Device No.	Signal name		
X0	CH1 Counter value large (point No.1)	Y0		X0	Module READY	Y0	CH1 Coincidence signal No.1 reset command		
X1	CH1 Counter value coincidence (point No.1)	Y1		X1	CH1 Counter value large (point No.1)	Y1	CH1 Preset command		
X2	CH1 Counter value small (point No.1)	Y2		X2	CH1 Counter value coincidence (point No.1)	Y2	CH1 Coincidence signal enable command		
Х3	CH1 External preset request detection	Y3		X3	CH1 Counter value small (point No.1)	Y3	CH1 Down count command		
X4	CH2 Counter value large (point No.1)	Y4		X4	CH1 External preset request detection	Y4	CH1 Count enable command		
X5	CH2 Counter value coincidence (point No.1)	Y5		X5	CH1 Counter value large (point No.2)	Y5	CH1 External preset detection reset command		
X6	CH2 Counter value small (point No.1)	Y6		X6	CH1 Counter value coincidence (point No.2)	Y6	CH1 Counter function selection start command		
X7	CH2 External preset request detection	Y7		X7	CH1 Counter value small (point No.2)	Y7	CH1 Coincidence signal No.2 reset command		
X8 *1	CH1 Counter value large (point No.2)	Y8	Use prohibited	X8	CH2 Counter value large (point No.1)	Y8	CH2 Coincidence signal No.1 reset command		
X9 *1	CH1 Counter value coincidence (point No.2)	Y9		X9	CH2 Counter value coincidence (point No.1)	Y9	CH2 Preset command		
XA *1	CH1 Counter value small (point No.2)	YA		XA	CH2 Counter value small (point No.1)	YA	CH2 Coincidence signal enable command		
XB *1	CH2 Counter value large (point No.2)	YB		XB	CH2 External preset request detection	YB	CH2 Down count command		
XC *1	CH2 Counter value coincidence (point No.2)	YC		XC	CH2 Counter value large (point No.2)	YC	CH2 Count enable command		
XD *1	CH2 Counter value small (point No.2)	YD		XD	CH2 Counter value coincidence (point No.2)	YD	CH2 External preset detection reset command		
XE	Fuse/external power cutoff detection flag	YE		XE	CH2 Counter value small (point No.2)	YE	CH2 Counter function selection start command		
XF		YF		XF	Use prohibited	YF	CH2 Coincidence signal No.2 reset command		
X10		Y10	CH1 Coincidence signal reset command						
X11		Y11	CH1 Preset command						
X12		Y12	CH1 Coincidence signal enable command						
X13		Y13	CH1 Down count command						
X14		Y14	CH1 Count enable command						
X15		Y15	CH1 Count value read request						
X16		Y16	CH1 Counter function selection start command						
X17	Use pronibited	Y17	CH2 Coincidence signal reset command						
X18		Y18	CH2 Preset command						
X19		Y19	CH2 Coincidence signal enable command						
X1A		Y1A	CH2 Down count command						
X1B		Y1B	CH2 Count enable command						
X1C		Y1C	CH2 Count value read request						
X1D		Y1D	CH2 Counter function selection start command						
X1E	1	Y1E	Line markik 2003						
X1F	1	Y1F	Use prohibited						

*1 These signals are use-prohibited in the A1SD62D-S1.

#### 6.3.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L High-Speed Counter Module User's Manual.

When the built-in I/O functions of the LCPU are used, the special register is used. For details, refer to the MELSEC-L CPU Module User's Manual (Built-in I/O Function).

		A1SD62(E/D/D-S1)			LD62(D)					
Add	ress				Add	ress				
(dec	imal)	Name		Read/write	(decimal)		Name		Read/write	
CH1	CH2				CH1	CH2				
1	33	Proport value potting	(L)		0	32	Broactivelue	(L)		
2	34	Freset value setting	(H)	R/W	1	33	Fleset value	(H)	FX/ V V	
3	35	Pulse input mode setting			2	34	Propert value	(L)	в	
4	36	Prosent value	(L)	P	3	35		(H)	ĸ	
5	37		(H)	ĸ	4	36	Coincidence output point No 1			
6	38	Coincidence output point setting No.1	(L)		5	37	Concidence output point No. 1	(H)	P/M	
7	39	Concidence output point setting No. 1	(H)	P/M	6	38	Coincidence output point No 2	(L)	R/W	
8	40	Counter function selection setting		10.00	7	39	Confedence output point No.2	(H)		
9	41	Sampling/periodic time setting			8	40	Overflow detection	w detection		
10	42	External preset detection reset command		10/	9	41	Counter function selection			
11 ^{*1}	43 ^{*1}	Point No.2 coincidence signal reset command		vv	10	42	Sampling/periodic time setting		17/10	
12 ^{*1}	44 ^{*1}	Coincidence output point act No 2	(L)	DAA	11	43	Sampling/periodic counter flag			
13 ^{*1}	45 ^{*1}	Concidence output point set No.2	(H)	r./ v v	12	44	Latch count value			
14	46		(L)		13	45		(H)	-	
15	47		(H)		14	46	Compling count value	(L)		
16	48	Sampling count value	(L)		15	47	Sampling count value	(H)	R	
17	49		(H)		16	48	Periodia pulsa count, providua valua	(L)		
18	50	Periodia pulso count provinue value	(L)	R	17	49	Feriodic pulse count, previous value	(H)		
19	51	Periodic pulse count previous value	(H)		18	50	Periodia pulsa count, properti valua	(L)		
20	52	Derindia pulsa sount present value	(L)		19	51	Fendule puise count, present value	(H)		
21	53	Periodic pulse count present value	(H)		20	52	Ping counter lower limit	(L)		
2	2	Sampling/periodic counter flag			21	53		(H)		
					22	54	Ping counter upper limit	(L)	rs/ VV	
					23	55	Ring counter upper limit	(H)		
					24	56				
					to	to	System area (Use prohibited)		_	
					31	63				

*1 These addresses are use-prohibited in the A1SD62D-S1.

# 7.1 List of Positioning Module Alternative Models for Replacement

AnS s	eries		Transition to L series				
Product	Model	Model	Remarks (Restrictions)				
Product Positioning module	Model A1SD70 A1SD75P1-S3	Model None L02SCPU (built-in function of the CPU module) L02CPU (built-in function of the CPU module) L06CPU (built-in function of the CPU module) L26CPU (built-in function of the CPU module) (when an open collector is connected) L26CPU-BT (built-in function of the CPU module) (when an open collector is connected) LD75P4 (when an open collector is connected)	Remarks (Restrictions)         There are no alternative models.         Consider replacing with the LCPU (built-in I/O function), LD75□, or         LD77MH system including external devices.         1) External wiring: Connector and wiring are changed.         2) Number of slots: Changed. 0 module (built-in function of the CPU module)         3) Program: Need to be created (Incompatible)         4) Performance specifications: Changed, such as 2 axes, locus control disabled, and 200KPPS         5) Function specifications: Changed. Positioning pattern: 10 data/axis No Manual pulse generator input, no backlash compensation function, no electronic gear function, no torque limit function, and position unit: pulse, only         1) External wiring: Connector and wiring are changed.         2) Number of slots: Not changed         3) Program: I/O signals and buffer memory assignment are changed.				
		LD75D4 (when a differential driver is connected)	<ul> <li>The entire program is reviewed according to the specifications change.</li> <li>4) Performance specifications: 4 axes</li> <li>5) Function specifications: Partly changed (Example: Manual pulse generator 1/axis → 1/module)</li> </ul>				

AnS s	eries		Transition to L series		
	A1SD75P2-S3	L02SCPU (built-in function of the CPU module) L02CPU (built-in function of the CPU module) L06CPU (built-in function of the CPU module) L26CPU (built-in function of the CPU module) (when an open collector is connected) L26CPU-BT (built-in function of the CPU module) (when an open collector is connected)	<ol> <li>External wiring: Connector and wiring are changed.</li> <li>Number of slots: Changed. 0 module (built-in function of the CPU module)</li> <li>Program: Need to be created (Incompatible)</li> <li>Performance specifications: Changed, such as locus control disabled and 200KPPS</li> <li>Function specifications: Changed. Positioning pattern: 10 data/axis No Manual pulse generator input, no backlash compensation function, no electronic gear function, no torque limit function, and position unit: pulse, only</li> </ol>		
Positioning module		LD75P4 (when an open collector is connected) LD75D4 (when a differential driver is connected)	<ol> <li>External wiring: Connector and wiring are changed.</li> <li>Number of slots: Not changed</li> <li>Program: I/O signals and buffer memory assignment are changed. The entire program is reviewed according to the specifications change.</li> <li>Performance specifications: 4 axes</li> <li>Function specifications: Partly changed (Example: Manual pulse generator 1/axis → 1/module)</li> </ol>		
	A1SD75P3-S3	LD75P4 (when an open collector is connected) LD75D4 (when a differential driver is connected)	<ol> <li>External wiring: Connector and wiring are changed.</li> <li>Number of slots: Not changed</li> <li>Program: I/O signals and buffer memory assignment are changed. The entire program is reviewed according to the specifications change.</li> <li>Performance specifications: 4 axes</li> <li>Function specifications: Partly changed (Example: Manual pulse generator 1/axis → 1/module)</li> </ol>		
	A1SD75M1 A1SD75M2 A1SD75M3	None	There are no alternative models. Consider replacement to simple motion module LD77MH4. Note that the entire system needs to be replaced because the existing servo amplifier, servomotor, and SSCNET cable cannot be used.		

## 7.2 A1SD75P1-S3/P2-S3/P3-S3

## 7.2.1 Performance specifications comparison

Item	Model	A1SD75P1- S3	A1SD75P2- S3	A1SD75P3- S3	L02SCPU L02CPU L06CPU L26CPU L26CPU-BT (built-in I/O function)	LD75P4 LD75D4	Compati- bility	Precautions for replacement
Number of con	trol axes	1	2	3	2	4	0	
Number of pos items	itioning data		600/axis ^{*1}	·	10/axis	600/axis	0	
	2-axis linear interpolation	_	Available	Available	Available	Available		Interpolation control of the built-in I/O function
Position control interpolation function	2-axis circular interpolation	-	Available	Available	Not available	Available	0	is pseudo interpolation control. For details, refer to the MELSEC- L CPU Module User's Manual (Built-in I/O Function).
	Position control		Available		Available	Available		
Positioning	Speed control		Available		Available	Available	_	
system	Speed- position switching control		Available		Available	Available	0	
Positioning range*2		<absolute sys<br="">-214748364.8 /-13421772.8 -21474.83648 /-1342.17728 0 to 359.9999 /0 to 359.9999 /0 to 359.9999 -2147483648 /-134217728 t <incremental -2147483648 /-134217728 -21474.83648 /-1342.17728 to 21474.83648 /-1342.17728 to 2147483648 /-134217728 t <in pos<br="" speed="">0 to 21474836 /0 to 1342.177 0 to 21474.83 /0 to 1342.177 0 to 21474.83 /0 to 1342.177 0 to 21474.83 /0 to 1342.177 0 to 21474.83 /0 to 1342.177</in></incremental </absolute>	tem> to 214748364 to 13421772.7 to 21474.8364 to 1342.17727 9 (degree) 99 (degree) to 2147483647 o 134217727 ( system> to 214748364 to 13421772.7 to 21474.8364 to 1342.17727 to 21474.83647 to 21474.83647 o 134217727 ( ition switching) i4.7 (µm) 2.7 (µm) 347 (inch) '27 (inch) 347 (degree) '27 (degree) i47 (pulse) 27 (pulse)	.7 (μm) (μm) 47 (inch) (inch) (inch) 7 (pulse) pulse) .7 (μm) (μm) 47 (inch) (inch) 47 (degree) (degree) 7 (pulse) pulse) control>	<incremental system&gt; -2147483648 to 2147483647 (pulse)</incremental 	<absolute system=""> -214748364.8 to 214748364.7 (μm) -21474.83648 to 21474.83647 (inch) 0 to 359.99999 (degree) -2147483648 to 2147483647 (pulse) <incremental system=""> -214748364.8 to 214748364.7 (μm) -21474.83647 (inch) -21474.83647 (degree) -2147483648 to 2147483647 (pulse) <in position="" speed="" switching<br="">control&gt; 0 to 21474.8364.7 (μm) 0 to 21474.83647 (inch) 0 to 21474.83647 (degree) 0 to 21474.83647 (degree) 0 to 21474.83647 (pulse)</in></incremental></absolute>	0	
Speed command range ^{*2}		0.01 to 600000.00 (mm/min) /0.01 to 37500.00 (mm/min) 0.001 to 37500.00 (mm/min) /0.001 to 37500.000 (inch/min) /0.001 to 37500.000 (inch/min) 0.001 to 600000.000 (degree/min) /0.001 to 37500.000 (degree/min) 1 to 1000000 (pulse/s) /1 to 62500 (pulse/s)		0 to 200000 (pulse/s)	0.01 to 2000000.00 (mm/ min) 0.001 to 2000000.000 (inch/ min) 0.001 to 2000000.000 (degree/min) 1 to 4000000 (pulse/s)	0		
Machine OPR (OPR method)	function	Availa	ble (6 OPR me	thods)	Available (6 OPR methods)	Available (6 OPR methods)	0	

# MELSEC

Item	Model	A1SD75P1- S3	A1SD75P2- S3	A1SD75P3- S3	L02SCPU L02CPU L06CPU L26CPU L26CPU-BT (built-in I/O function)	LD75P4 LD75D4	Compati- bility	Precautions for replacement
JOG operation			Available		Available	Available	0	
Manual pulse generator function 1/axis		Not available	1/module	Δ	<ul> <li>The LD75P4/D4 does not support the manual pulse generator with each axis which is independent. When connecting the manual pulse generator for each axis is required, use the module which has one axis.</li> <li>The manual pulse generator itself can use the same one.</li> <li>The operation for inputting one pulse differs. Set the parameter so that movement amount will be same.</li> </ul>			
Acceleration/ deceleration	Automatic trapezoidal acceleration/ deceleration	Available			Available	Available	0	
process	S-curve acceleration/ deceleration	Available			Available	Available		
Acceleration/ deceleration time		Acceleration can b (4	time and dece set independ 4 patterns each	d deceleration time ependently. s each) Acceleration / deceleration deceleration time and deceleration time can be set deceleration independently. stop time (4 patterns each)		0		
	Setting range	1 to 65535m	s or 1 to 83886 switched.	08ms can be	0 to 32767ms	1 to 8388608ms		
Compensation		Electronic gea	ars, backlash c near pass ^{*3}	compensation,	Not available	Electronic gears, backlash compensation, near pass ^{*3}	Δ	Refer to *3.
Error display		1	7-segment LE	D	Not available	Error LED	×	To check the details of diagnostic result, use the programming tool or a display unit.
History data storage (Start, error, warning)		Provided (4	4 types, 16 iter	ns/module)	Not provided	Provided (3 types, 16 items/ axis)	0	The start history at error is integrated into the start history.
Data storage d	lestination	(ba	Flash ROM ttery-less back	sup)	Flash ROM in the CPU module (battery-less backup)	Flash ROM (battery-less backup)	0	

# MELSEC

Model Item	A1SD75P1- S3	A1SD75P2- S3	A1SD75P3- S3	L02SCPU L02CPU L06CPU L26CPU L26CPU-BT (built-in I/O function)	LD75P4 LD75D4	Compati- bility	Precautions for replacement	
	(Solde	10136-3000VE ering type, acce	essory)	A6CON1 (Soldering type, straight-out type, sold separately)	A6CON1 (Soldering type, straight-out type, sold separately)			
Connector				(Crimping type, straight-out type, sold separately)	(Crimping type, straight-out type, sold separately)	×		
	(IDC t	10136-6000EL ype, sold sepa	rately)	A6CON4 (Soldering type, both for straight out and 45- degree types, sold separately)	A6CON4 (Soldering type, both for straight out and 45-degree types, sold separately)		differ, wiring needs to be changed. Connectors are sold separately.	
Applicable wire size	10136-3000VE: 24 to 30 AWG (approx. 0.05 to 0.2SQ) 10136-6000EL			A6CON1, A6CON4: 0.3mm ² (22 AWG) or less	A6CON1, A6CON4: 0.3mm ² (22 AWG) or less	Δ		
	28 AV	10136-6000EL VG (approx. 0.0	: 08SQ)	A6CON2: 24 AWG	A6CON2: 24 AWG			
Command pulse output type	Differential driver/open collector			Open collector	LD75P4: Open collector LD75D4: Differential driver	Δ	A differential driver and an open collector are separate module. In the default configuration, A1SD75P⊡-S3 outputs the pulse with positive logic, and the LD75P4/D4 outputs with negative logic.	
Maximum output pulse	When an op When a diffe	oen collector is 200KPPS erential driver is 400KPPS	connected: s connected:	200KPPS	When an open collector is connected: 200KPPS When a differential driver is connected: 4MPPS	0		
Maximum connection distance between servos	When an ope When a diffe	en collector is c erential driver is 10m	onnected: 2m s connected:	2m	When an open collector is connected: 2m When a differential driver is connected: 10m	0		
Internal current consumption (A) (5VDC)	(When a diff	0.7A or lower erential driver i 0.78A) ^{*4}	s connected:	– (Included in the internal current consumption in the CPU module)	LD75P4: 0.55A LD75D4: 0.76A	Δ	After the module is replaced, recalculation of 5VDC current is required.	
Flash ROM write count	Maximum 100000 times			Maximum 100000 times	Maximum 100000 times	0	When the LD75P4/D4 executes the flash write 26 times from the sequence program, an error occurs. Reset the error to enable the flash write.	
Number of occupied I/O points	(I/O assig	32 points nment: special	32 points)	-	32 points (I/O assignment: intelligent 32 points)	0	For the assignment of the built-in I/O functions of the LCPU, refer to the MELSEC- L CPU Module User's Manual (Built-in I/O Function).	
Number of module occupied slots		1		-	2 (modules)	0		
Weight	-	0.35kg	· · ·	_	0.18kg	0		

Item	Model	A1SD75P1- S3	A1SD75P2- S3	A1SD75P3- S3	L02SCPU L02CPU L06CPU L26CPU L26CPU-BT (built-in I/O function)	LD75P4 LD75D4	Compati- bility	Precautions for replacement
	STRT signal	Availabl	e (External sta	rt signal)	Not available	Not available (integrated into CHG signal)	Δ	When both the speed/ position switching control and the external start are used, input the external start signal to an interrupt module, and start then using the direct output.
I/O signal for external devices	CHG signal	Speed/p	osition switchir	ng signal	External command signal	External command signal (Can be selected in parameter, external start signal or speed/position switching signal.)	0	
	In-position (INP)	Available (for monitoring)			Not available	Not available	Δ	No INP signal. When the signal is required for monitor, monitor using an input module.
	Signal logic switching	Available (Command pulse output signal only)			Available (External command signal only)	Available	0	The default logic of the pulse output differs.
Peripheral	Connection with peripherals	Direct connection		CPU module	Via a CPU module, L- compatible serial communication module, or L- compatible network module	0	The connection type differs.	
(for data setting)	AD75TU Connectable		Not connectable	Not connectable	×	AD75TU cannot be used. Use GX Works2.		
	GX Configurator	G>	Configurator-	AP	GX Works2	GX Works2	Δ	The software that can be used differs.

*1 With the A1SD75PD-S3, No.1 to 100 data/axis of positioning data can be set using the buffer memory. No.1 to 600 data/ axis can be set with the LD75P4/D4.

The positioning data in the buffer memory areas are not backed up.

*2 This range indicates the standard mode/stepping motor mode for the A1SD75PD-S3.

*3 The near pass function is enabled only during the continuous path control. (A1SD75PD-S3: Selected with parameters, LD75P4/D4: Standard function)

The LD75P4/D4 does not support the address pass mode. When passing the positioning address is required, connect the LD75P4/D4 with continuous running.

(However, it will stop once.)

*4 This is the internal current consumption when the A1SD75P3-S3 is connected to a differential driver.

**_SEC** 

### 7.2.2 Functional comparison

#### (1) Functions deleted from the A1SD75P1-S3/P2-S3/P3-S3

When the following functions are used with the A1SD75PD-S3, change the program. When the built-in I/O functions of the LCPU are used, refer to the MELSEC-L CPU Module User's Manual (Built-in I/O Function).

<b>Deleted function</b>	Precautions for replacement						
Stepping motor mode	Requires no setting of when the stepping motor is used to improve its performance.						
Fast machine OPR	With the LD75P4/D4, there is no possible function for replacement.						
Special start (stop)	Execute it separately for the start two times.						
Indiract designation	In the LD75P4/D4, the start block area in the buffer memory is expanded to five blocks (0 to 4).						
	ach start block can be directly specified with Positioning start No. 7000 to 7004.						
Block transfer	With the A1SD75PD-S3, this interface is used to set Positioning data No. 101 to 600 that do						
	not exist in the buffer memory.						
Positioning data I/F	Since all positioning data can be set in the buffer memory with the LD75P4/D4, this function is						
	deleted.						
Otent history during arrays	The contents are the same as the start history. Therefore, the LD75P4/D4 stores only the start						
Start history during errors	history.						
System monitor data	These data were deleted because they can be displayed in system monitor "Module's detailed						
(Module name, OS type, OS	information" of GX Works2.						
version)	(For details, refer to the GX Works2 Operating Manual.)						

#### (2) Functions changed from the A1SD75P1-S3/P2-S3/P3-S3

When the following functions are used with the A1SD75PD-S3, check that there is no problem after the module is replaced with the LD75P4/D4.

When the built-in I/O functions of the LCPU are used, refer to the MELSEC-L CPU Module User's Manual (Built-in I/O Function).

Changed function		Description							
onanged function	1 The software stroke limit check of	f arc address is carried out only when	a sub point is specified						
	The check is not carried out whe	n a center point is specified							
	2 The software stroke limit check d	luring the speed control is carried out	in the following:						
	- When the software stroke limit i	s applied to the current feed value wit	th Pr 14 and the current feed value						
	is undated with Dr 21								
	When the software strake limit								
O a flow and a start bas line it	- when the software stroke limit i	drace is out of the coffuere strake							
Software stroke limit	3. When the current value is change	ed, all error occurs if the specified ad	aress is out of the software stroke						
function	Infinitrange. Therefore, the current     Error code change.	4. Error code change							
	There are 3 types of errors for early the state of the st	ach software stroke upper limit and lov	ver limit						
	(error code: 509 to 512)								
	D75P4/D4 ⁻								
	Errors for the software stroke up	per limit are integrated into one (error	code: 507). Errors for the software						
	stroke lower limit are integrated into one (error code: 508). Error codes 509 to 512 are deleted.								
Current value changing M	1. An error occurs when the specific	ed new current value is out of the soft	ware stroke limit range.						
code function	2. The M code set value is enabled	during the positioning data current va	alue changing instruction.						
	1. An error occurs when the comma	and frequency value converted from the	ne speed limit value exceeds the						
Acceleration/deceleration	maximum command frequency o	f the positioning module being used.							
speed control	2. Only two-word type (1 to 838860	8ms) can be used as the setting value	e for the acceleration/deceleration						
time. (Switching between one-word type and two-word type has been stopped.)									
	1. "Peripheral side (emergency) sto	p" is deleted from the stop causes of	Stop group 2 "sudden stop						
	selection".								
Stop process and restart	"Test mode fault" in the stop caus	ses of Stop group 3 "sudden stop sele	ection" is changed into the stop						
after stop positioning	causes of Stop group 2 "sudden	stop selection".							
operation stop	2. "Stop (LD75 peripheral)" is addee	d to the stop causes of Stop group 3 "	sudden stop selection".						
	<ul> <li>Browner of the stop and the sto</li></ul>								
	4. CPU module error occurrence		oup 2 Sudden stop selection .						
READY signal (X0)	OFF	Normal (READY)							
	ON	Not READY/WDT error	Normal (READY)						
Manual pulse generator			Normal (NE/1017)						
operation	The number of connected manual pu	ulse generators is changed from 1/axi	s to 1/module.						
Axis operation status	"Step stopped" is changed to "Stopp	ed" and "Step error occurring" is chan	ged to "Error occurring".						
	• A1SD75Pロ-S3:								
	If the reference axis operates in re	everse direction, the control is internal	ly changed into the continuous						
Continuous nath control	positioning control (restart after de	celeration stop).							
Continuous patri control	• LD75P4/D4□:								
	Even if the reference axis operate	s in reverse direction with interpolation	n, the control remains as the						
	continuous path control. (In single	-axis operation, the operation is the sa	ame as that of the A1SD75P□-S3.)						
Near pass	For the continuous path control, only	the near pass function is available.							
	Positioning address pass is not avail	able.							
2-axis interpolation									
2-axis linear interpolation	The interpolation target axis can be	voluntarily set with a positioning identi	fier.						
2-axis fixed-feed									
Gircular Interpolation	1 "Ctop atoppod" is abapted to "Ot	annod" and "Stan array appuring" is a	hongod to "Error occurring" in the						
	avis operations status	opped and Step error occurring" is c							
Step function	2 The restart command (02) fodr	sten start information is deleted							
	2. The stan operation is restarted $\cdots$	with the restart command							
	<ol> <li>The step operation is restarted w</li> </ol>	nur une restart command.							

Changed function		Description					
Command in position	The command in-position width is expanded.						
function	• A1SD75P□-S3: 1 to 32767000						
luncion	• LD75P4/D4: 1 to 2147483647						
Positioning start No.	7004 to 7010 (block start designation	n) and 8000 to 8049 (indirect designa	tion) are deleted.				
block start data	With the LD75P4/D4, the number of	blocks has been changed to 5 (7000	to 7004).				
DIOCK Start Uata	(With the A1SD75PD-S3, this data is called "Positioning start information".)						
Start history	The configuration of "start informatio	n" and "start No." is changed so that	the start No. can be directly checked.				
Basic parameter1	When the CPU module is powered o	on or reset, the valid value is only the	first value after PLC READY (Y0)				
"Pr.5 Pulse output mode"	turns off to on.						
		A1SD75PD-S3	LD75P4/D4				
Detailed parameters	0	Software stroke limit is disabled at	Software stroke limit is enabled at				
"Pr.15 Software stroke	(Factory default setting)	the manual operation.	the manual operation.				
limit valid/invalid setting"	1	Software stroke limit is enabled at	Software stroke limit is enabled at				
	I	the manual operation.	the manual operation.				

### 7.2.3 I/O signal comparison

Sequence programs need to be changed because the I/O signal assignment differs. For details of the I/O signals and sequence programs, refer to the MELSEC-L LD75P/LD75D Positioning Module User's Manual.

When the built-in I/O functions of the LCPU are used, the special relay is used. For details, refer to the MELSEC-L CPU Module User's Manual (Built-in I/O Function).

	Input (X)		Output (Y)				
Signal name	A1SD75P□-S3	LD75P4/D4	Signal name	A1SD75P□-S3	LD75P4/D4		
Module READY	X00 [*]	X00 [*]	Axis 1 Positioning start	Y10	Y10		
Axis 1 Start complete	X01	X10	Axis 2 Positioning start	Y11	Y11		
Axis 2 Start complete	X02	X11	Axis 3 Positioning start	Y12	Y12		
Axis 3 Start complete	X03	X12	Axis 4 Positioning start	-	Y13		
Axis 4 Start complete	-	X13	Axis 1 Stop	Y13	Y04		
Axis 1 BUSY	X04	X0C	Axis 2 Stop	Y14	Y05		
Axis 2 BUSY	X05	X0D	Axis 3 Stop	Y1C	Y06		
Axis 3 BUSY	X06	X0E	Axis 4 Stop	-	Y07		
Axis 4 BUSY	-	X0F	Axis 1 Forward run JOG start	Y16	Y08		
Axis 1 Positioning complete	X07	X14	Axis 1 Reverse run JOG start	Y17	Y09		
Axis 2 Positioning complete	X08	X15	Axis 2 Forward run JOG start	Y18	Y0A		
Axis 3 Positioning complete	X09	X16	Axis 2 Reverse run JOG start	Y19	Y0B		
Axis 4 Positioning complete	-	X17	Axis 3 Forward run JOG start	Y1A	Y0C		
Axis 1 Error detection	X0A	X08	Axis 3 Reverse run JOG start	Y1B	Y0D		
Axis 2 Error detection	X0B	X09	Axis 4 Forward run JOG start	-	Y0E		
Axis 3 Error detection	X0C	X0A	Axis 4 Reverse run JOG start	-	Y0F		
Axis 4 Error detection	-	X0B	PLC READY	Y1D	Y00		
Axis 1 M code ON	X0D	X04	Axis 1 Execution prohibition flag	-	Y14		
Axis 2 M code ON	X0E	X05	Axis 2 Execution prohibition flag	-	Y15		
Axis 3 M code ON	X0F	X06	Axis 3 Execution prohibition flag	-	Y16		
Axis 4 M code ON	-	X07	Axis 4 Execution prohibition flag	-	Y17		
Synchronization flag	-	X01		V00 to V0E	V01 to V03		
Use prohibited	X10 to X1F	X02, X03 X18 to X1F	Use prohibited	Y1E to Y1F	Y18 to Y1F		

* The on/off status of Module READY differs between the LD75P4/D4 and A1SD75P□-S3.

	Not READY/WDT error	READY
LD75P4/D4	OFF	ON
A1SD75PD-S3	ON	OFF

#### 7.2.4 Buffer memory address comparison

Sequence programs need to be changed because the buffer memory address assignment differs. For details of the buffer memory areas and sequence programs, refer to the MELSEC-L LD75P/LD75D Positioning Module User's Manual.

area shows the differences between the A1SD75PD-S3 and LD75P4/D4.

When the built-in I/O functions of the LCPU are used, the special register is used. For details, refer to the MELSEC-L CPU Module User's Manual (Built-in I/O Function).

	Buffer memory address							
Item of A1SD75P⊡-S3	A	1SD75P□-S	3		LD75P4/D4	4		
	Axis 1	Axis 2	Axis 3	Axis 1	Axis 2	Axis 3		
Pr.1 Unit setting	0	150	300	0	150	300		
Pr.2 1 No. of pulses per rotation (Ap)	1	151	301	1	151	301		
Pr.3 1 Movement amount per rotation (AI)	2	152	302	2	152	302		
Pr.4 Unit magnification (Am)	3	153	303	3	153	303		
Pr.5 Pulse output mode	4	154	304	4	154	304		
Pr.6 Rotation direction setting	5	155	305	5	155	305		
Pr.7 Speed limit value	6	156	306	10	160	310		
	/	157	307	11	161	311		
Pr.8 Acceleration time 0	8	158	308	12	162	312		
	9 10	160	310	13	164	314		
Pr.9 Deceleration time 0	10	161	311	15	165	315		
	12	162	312	6	156	306		
Pr.10 Bias speed at start	13	163	313	7	157	307		
Pr.11 Stepping motor mode selection	14	164	314	-	-	-		
Pr.12 Backlash compensation amount	15	165	315	17	167	317		
D to 0 there a table limit and a limit and	16	166	316	18	168	318		
	17	167	317	19	169	319		
Dr 11 Software stroke limit lower limit value	18	168	318	20	170	320		
	19	169	319	21	171	321		
Pr.15 Software stroke limit selection	20	170	320	22	172	322		
Pr.16 Software stroke limit valid/invalid setting	21	171	321	23	173	323		
Pr 17 Command in-position width	22	172	322	24	174	324		
	23	173	323	25	175	325		
Pr.18 Torque limit setting value	24	174	324	26	176	326		
Pr.19 M code ON signal output timing	25	175	325	27	177	327		
Pr.20 Speed switching mode	26	176	326	28	178	328		
Pr.21 Interpolation speed designation method	27	177	327	29	179	329		
Pr.22 Current feed value during speed control	28	178	328	30	180	330		
Pr.23 Manual pulse generator selection	29	179	329	-	-	-		
Pr.24 Logic selection for pulse output to the drive unit	30	180	330	-	-	-		
Pr.25 Size selection for acceleration/deceleration time	31	181	331	-	-	-		
Pr 26 Acceleration time 1	36	186	336	36	186	336		
	37	187	337	37	187	337		
Pr.27 Acceleration time 2	38	188	338	38	188	338		
	39	109	339 340	39	109	339		
Pr.28 Acceleration time 3	40	190	340	40	190	341		

	Buffer memory address							
Item of A1SD75P⊡-S3	A	1SD75P□-S	3	LD75P4/D4				
	Axis 1	Axis 2	Axis 3	Axis 1	Axis 2	Axis 3		
Pr.29 Deceleration time 1	42 43	192 193	342 343	42 43	192 193	342 343		
	44	194	344	44	194	344		
Pr.30 Deceleration time 2	45	195	345	45	195	345		
Pr.31 Deceleration time 3	46 47	196 197	346 347	46 47	196 197	346 347		
Pr.32 JOG Speed limit value	48 49	198 199	348 349	48 49	198 199	348 349		
Pr.33 JOG operation acceleration time selection	50	200	350	50	200	350		
Pr.34 JOG operation deceleration time selection	51	201	351	51	201	351		
Pr.35 Acceleration/deceleration process selection	52	202	352	52	202	352		
Pr.36 S-curve ratio	53	203	353	53	203	353		
Pr.37 Sudden stop deceleration time	54 55	204 205	354 355	54 55	204 205	354 355		
Pr.38 Stop group 1 sudden stop selection	56	206	356	56	206	356		
Pr.39 Stop group 2 sudden stop selection	57	207	357	57	207	357		
Pr.40 Stop group 3 sudden stop selection	58	208	358	58	208	358		
Pr.41 Positioning complete signal output time	59	209	359	59	209	359		
Pr.42 Allowable circular interpolation error width	60 61	210 211	360 361	60 61	210 211	360 361		
Pr.43 External start function selection	62	212	362	62	212	362		
(LD75P4/D4: Pr.42 External command function selection)	02	212	502	02	212	302		
Pr.44 Near pass mode selection for path control	66	216	366	-	-	-		
Pr.45 OPR method	70	220	370	70	220	370		
Pr.46 OPR direction	71	221	371	71	221	371		
Pr.47 OP address	72	222	372	72	222	372		
	73	223	373	73	223	373		
Pr.48 OPR speed	75	225	375	75	225	375		
Pr.49 Creep speed	76	226	376	76	226	376		
	77	227	377	77	227	377		
	70	220	370	70	220	370		
	10	229	200	13	223	200		
Pr.52 Setting for the movement amount after near-point dog ON	80 81	230 231	380 381	80 81	230 231	380 381		
Pr.53 OPR acceleration time selection	82	232	382	82	232	382		
Pr.54 OPR deceleration time selection	83	233	383	83	233	383		
Pr.55 OP shift amount	84 85	234 235	384 385	84 85	234 235	384 385		
Pr.56 OPR torque limit value	86	236	386	86	236	386		
Pr.57 Speed designation during OP shift	88	238	388	88	238	388		
Pr.58 Dwell time during OPR retry	89	239	389	89	239	389		

		Buffer memory address					
Item of A1SD75P□-S3		A1SD75P□-S3	LD75P4/D4				
		Common for axis 1, 2, 3	Common for axis 1, 2, 3, 4				
Md.1 In test mode flag		450	1200				
Md.2 Module name		451	-				
Md.3 OS type		452 453 454 455	-				
Md.4 OS version		456	-				
Md 5 Clock data (Hour: minute)		460	_				
Md Clock data (Second: 100ms)		461					
(Pointer number)		(0) to	(15)				
Md 7 Start axis		(0)					
(I D75P4/D4: Md 3 Start information)		462 to 537	1212 to 1287				
(LD75P4/D4: Md 4 Start No.)	Ŋ	463 to 538	1213 to 1288				
Md.9 Start time (Hour: minute)	histo						
(LD75P4/D4: Md.5 Start (Day:hour))	Start	464 to 539	1214 to 1289				
Md.10 Start time (Second: 100ms)		465 to 540	1215 to 1290				
(LD75P4/D4: Md.6 Start (Minute: second))							
Md.11 Error judgment	466 to 541		1216 to 1291				
Md.12 Start history pointer		542	1292				
(Pointer number)		(0) to (15)	-				
Md.13 Start axis	rror	543 to 618	-				
Md.14 Operation type	at ei	544 to 619	-				
Md.15 Start time (Hour: minute)	ory	545 to 620	-				
Md.16 Start time (Second: 100ms)	: hist	546 to 621	-				
Md.17 Error judgment	Start	547 to 622	-				
Md.18 Start history pointer at error		623	_				
(Pointer number)		(0) to	p (15)				
Md.19 Axis in which the error occurred		624 to 684	1293 to 1353				
Md.20 Axis error No.		625 to 685	1294 to 1354				
Md 21 Axis error occurrence time (Hour: minute)	٨						
(LD75P4/D4:	stor	626 to 686	1295 to 1355				
Md.11 Axis error occurrence (Day:hour))	ror hi						
Md.22 Axis error occurrence time (Second: 100ms)	En						
(LD75P4/D4:		627 to 687	1296 to 1356				
Md.12 Axis error occurrence (Minute:second))							
Md.23 Error history pointer		688	1357				
(Pointer number)		(0) to	o (15)				
Md.24 Axis in which the warning occurred		689 to 749	1358 to 1418				
Md.25 Axis warning No.		690 to 750	1359 to 1419				
Md.26     Axis warning occurrence time (Hour: minute)     boosting       (LD75P4/D4:     ig							
		691 to 751	1360 to 1420				
Md.16 Axis warning occurrence (Day:hour))	ning						
Md.27 Axis warning occurrence time (Second: 100ms)	Warı						
(LD75P4/D4:		692 to 752	1361 to 1421				
Md.17 Axis warning occurrence (Minute:second))							
Md.28 Warning history pointer		753	1422				

	Buffer memory address							
Item of A1SD75P□-S3	A	1SD75P□-S	3	LD75P4/D4				
	Axis 1	Axis 2	Axis 3	Axis 1	Axis 2	Axis 3		
Md.29 Current feed value	800 801	900 901	1000	800 801	900	1000 1001		
	802	902	1002	802	902	1002		
Md.30 Machine feed value	803	903	1003	803	903	1003		
Md 31 Feedrate	804	904	1004	804	904	1004		
	805	905	1005	805	905	1005		
Md.32 Valid M code	806	906	1006	808	908	1008		
Md.33 Axis error No.	807	907	1007	806	906	1006		
Md.34 Axis warning No.	808	908	1008	807	907	1007		
Md.35 Axis operation status	809	909	1009	809	909	1009		
Md 36 Current speed	810	910	1010	810	910	1010		
· · · · · · · · · · · · · · · · ·	811 812	911 912	1010	811 812	911 912	1011		
Md.37 Axis feedrate	813	913	1012	813	913	1012		
	814	914	1014	814	914	1014		
Md.38 Speed-position switching control positioning amount	815	915	1015	815	915	1015		
Md.39 External input/output signal	816	916	1016	816	916	1016		
Md.40 Status	817	917	1017	817	917	1017		
Md 41 Target value	818	918	1018	818	918	1018		
	819	919	1019	819	919	1019		
Md.42 Target speed	821	920 921	1020	820 821	920 921	1020		
	822	922	1022					
Md.43 OP absolute position	823	923	1023	-	-	-		
Md.44 Movement amount after near-point dog ON	824	924	1024	824	924	1024		
	825	925	1025	825	925	1025		
Md.45 lorque limit stored value	820	926	1026	826	926	1026		
Md.46 Special start data instruction code setting value	827	927	1027	827	927	1027		
Md.47 Special start data instruction parameter setting value	828	928	1028	828	928	1028		
Md.48 Start positioning data No. setting value	829	929	1029	829	929	1029		
Md.49 In speed limit flag	830	930	1030	830	930	1030		
Md.50 In speed change processing flag	831	931	1031	831	931	1031		
Md.51 Start data pointer being executed	832	932	1032	834	934	1034		
Md.52 Last executed positioning data No.	833	933	1033	837	937	1037		
Md.53 Repeat counter	834	03/	1034	832	032	1032		
(LD75P4/D4: Md.41 Special start repetition counter)	034	304	1034	032	932	1032		
Md.54 Positioning data No. being executed	835	935	1035	835	935	1035		
Md.55 Block No. being executed	836	936	1036	836	936	1036		
Md.56 Positioning data being executed	838 to 847	938 to 947	1038 to 1047	838 to 847	938 to 947	1038 to 1047		
Deceleration start flag	_	_	_	899	999	1099		

	Buffer memory address							
Item of A1SD75P□-S3	Δ	1SD75P□-S	3		LD75P4/D4			
	Axis 1	Axis 2	Axis 3	Axis 1	Axis 2	Axis 3		
Cd.1 Clock data setting (hour)		1100			-			
Cd.2 Clock data setting (minute, second)		1101		-				
Cd.3 Clock data writing		1102			-			
Cd.4 Target axis		1103			-			
Cd.5 Positioning data No.		1104			-			
Cd.6 Write pattern		1105			-			
Cd.7 Read/write request		1106			-			
Cd.8 Read/write positioning data I/F		1108 to 1137	7		-			
Cd.9 Flash ROM write request		1138			1900			
Cd.10 Parameter initialization request		1139			1901			
Cd.11 Positioning start No.	1150	1200	1250	1500	1600	1700		
Cd.12 Axis error reset	1151	1201	1251	1502	1602	1702		
Cd.13 Restart command	1152	1202	1252	1503	1603	1703		
Cd.14 M code OFF request	1153	1203	1253	1504	1604	1704		
Cd.15 New current value	1154	1204	1254	1506	1606	1706		
	1155	1205	1255	1507	1607	1707		
Cd.16 New speed value	1157	1207	1257	1515	1615	1715		
Cd.17 Speed change request	1158	1208	1258	1516	1616	1716		
Cd.18 Positioning operation speed override	1159	1209	1259	1513	1613	1713		
Cd.19 JOG speed	1160	1210	1260	1518	1618	1718		
	1161	1211	1261	1519	1619	1719		
	1164	1213	1203	1520	1626	1726		
Cd.21 Speed-position switching control movement amount change register	1165	1214	1265	1520	1620	1720		
Cd 22 Manual nulse generator enable flag	1167	1217	1267	1524	1624	1724		
	1168	1218	1268	1522	1622	1722		
Cd.23 Manual pulse generator 1 pulse input magnification	1169	1219	1269	1523	1623	1723		
Cd.24 OPR request flag OFF request	1170	1220	1270	1521	1621	1721		
Cd.25 External start valid	1171	1221	1271	1505	1605	1705		
(LD75P4/D4: Cd.8 External command valid)		1221	1271	1000	1000	1100		
Cd.26 Step valid flag	1172	1222	1272	1545	1645	1745		
Cd.27 Step mode	1173	1223	1273	1544	1644	1744		
Cd.28 Step start information	1174	1224	1274	1546	1646	1746		
Cd.29 Skip command	1175	1225	1275	1547	1647	1747		
Cd.30 New torque value	1176	1226	1276	1525	1625	1725		
Cd.31 Positioning starting point No.	1178	1228	1278	1501	1601	1701		
Cd.32 Continuous operation interrupt request	1181	1231	1281	1520	1620	1720		
Cd.33 New acceleration time value	1184	1234	1284	1508	1608	1708		
	1185 1186	1235 1236	1285 1286	1509	1609	1709		
Cd.34 New deceleration time value	1187	1237	1287	1511	1611	1711		
Cd.35 Acceleration/deceleration time change during speed change, enable/disable selection	1188	1238	1288	1512	1612	1712		

			Buffer memory address													
		Item of A1SD75P□-S3				A1SD7	5P□-S3					LD75	P4/D4			
			1	Axi	is 1	Ax	is 2	Axi	is 3	Axi	is 1	Ax	is 2	Ax	is 3	
	Da	1 Operation pattern														
	Da.	2 Control system		13	00	23	00	33	00	20	00	8000		14000		
	Da.	3 Acceleration time No.		10	00	20	00		00	2000		0000		1-1		
	Da.	4 Deceleration time No.														
	Da. No.	9 M code/condition data		13	01	23	01	3301		2001		8001		140	001	
a.	Da. dest	8 Dwell time/JUMP tination positioning data	No.1	13	1302		2302 3302		2002		80	8002		002		
dati	Not	used	-	13	03	23	03	33	03	20	03	80	03	14(	003	
ning		7 Command anod		13	04	23	04	33	04	20	04	80	04	14(	004	
sitio	Da.			13	05	23	05	33	05	20	05	80	05	140	005	
PC	Da.	5 Positioning address/		13	06 07	23	06 07	33	06 07	20	06 07	80	06	14(	006	
	mo	vement amount		13	07	23	07	33	07	20	07	80		140	108	
	Da.	6 Arc address		13	09	23	09	33	09	20	09	80	09	140	009	
		No.2	1	1310 t	o 1319	2320 t	o 2329	3310 t	o 3319	2010 t	2010 to 2019		8010 to 8019		14010 to 14019	
	No.3			1320 t	o 1329	2330 to 2339 3320 to 3329		2020 to 2029		8020 to 8029		14020 to 14029				
	:				•				•		•		:	:		
	No.100		2290 t	o 2299	3290 t	o 3299	4290 to 4299 2990 to 2999		o 2999	8990 to 8999		1499 149	90 to 999			
		Da.10 Shape														
	ock data ^{*2}	Da.11 Start data No. Da.12 Special start instruction	1st point	4300	4350	4550	4600	4800	4850	26000	26050	27000	27050	28000	28050	
	rt bl	Da.13 Parameter														
	Sta	2nd point		4301	4351	4551	4601	4801	4851	26001	26051	27001	27051	28001	28051	
2				4302	4352	4002	4002	4002	4002	20002	20052	21002	27052	20002	20052	
ation		50th point	-	4349	4399	4599	4649	4849	4899	26049	26099	27049	27099	28049	28099	
start inform		Da.14 Condition target	-	44	00	46	50	49	00	261	100	27100		28100		
ning			No 1	44	02	46	52	49	02	26	102	27	102	28	102	
sitio	ta	Da. 16 Address	110.1	44	03	46	53	49	03	26	103	27	103	28	103	
Po	1         1         4404           0         0         1           4405         4405		04 05	46 46	54 55	49 49	04 05	26 26	104 105	27 27	104 105	28 28	104 105			
	Iditio	Do 18 Parameter 2	4406		06	46	56	49	06	26	106	27	106	28	106	
	Cor	No 2		44	07	46	57	49 4010 t	07	26 ²	107	27 ⁻	107	28 ⁻	07	
		110.2		44100	4400	40001	4009	49101	4919	2612	20 to	271101	20 to	2812	20 to	
		No.3		4420 t	0 4429	4670 t	0 4679	4920 t	0 4929	26	129	27	129	28	129	
		:			•				•	2610	an to	2710	: P0 to	2810	90 to	
		No.10		4490 t	4490 to 4499 4740 to 4749		4990 to 4999		261	199	27	199	28	199		

*1 With the LD75P4/D4, the positioning data buffer memory addresses are No. 1 to 600.

*2 With the LD75P4/D4 $\Box$ , it is called "block start data".

*3 With the LD75P4/D4□, the "block start data" and "condition data" in are called "start block 0". There are five start blocks: 0 to 4.

			Buffer memory address							
	Item of A1	SD75P□-S3	A	A1SD75P□-S	3	LD75P4/D4				
			Axis 1	Axis 2	Axis 3	Axis 1	Axis 2	Axis 3		
		Start No.8001	4500	4750	5000	-	-	-		
Positioning start	Indirect	Start No.8002	4501	4751	5001	-	-	-		
information	designation	:	:	:	:	:	:	:		
		Start No.8050	4549	4799	5049	-	-	-		
		Condition judgmont torget data	5050			30000				
CPU module mer	mory area	of the condition date	:			:				
				5099			30099			
Target axis			5100 –							
Head positioning	block No.		5101			-				
No. of read/write data items			5102			-				
Read/write request			5103				-			
Read/write block				5110 to 6109		_				

### 7.2.5 External interface specifications comparison

The following table lists the differences of the external interface specifications between the A1SD75PD-S3 and LD75P4/D4.

			O: Compa	atible, $\triangle$ : Partial change required
	Item ^{*1}	Difference ^{*2}	Compati- bility	Precautions for replacement
	Drive unit READY	_	0	
	Upper/lower limit signal	_	0	
	Stop signal	_	0	
	Near-point dog signal	Input resistance: $4.7 k\Omega \rightarrow 4.3 k\Omega$	0	
	Speed/position switching signal	Input resistance: $4.7 k\Omega \rightarrow 7.7 k\Omega$	0	
Input	Zero signal	Input resistance: $3.5k\Omega \rightarrow 4.7k\Omega$ (at input of 24V) $0.5k\Omega \rightarrow 0.62k\Omega$ (at input of 5V) Response time: $0.8ms \rightarrow 1ms^{*3}$ ON voltage: $2.5V \rightarrow 2.0V$ (at 5V input) Rated input current: $7mA \rightarrow 5mA$ (at 24V input)	Δ	Including the response time differences, reconfirming the specifications is required.
	Manual pulse generator	ON current: 3.5mA $\rightarrow$ 2mA	0	
Output	Pulse	_	0	
Output	Deviation counter clear	-	0	

*1 The external start and in-position signals are not listed because the LD75P4/D4 does not have these signals.

*2 The "Difference" is described as the form, [Specifications of A1SD75P $\Box$ -S3]  $\rightarrow$  [Specifications of LD75P4/D4].

*3 The response time difference (0.2ms) between the A1SD75PD-S3 and LD75P4/D4 is the time difference of 1pls as the creep speed of 5000pps.

If accuracy is required, the creep speed needs to be as low as possible.

# REPLACEMENT OF OTHER MODULES

## 8.1 Replacement of Other Modules

This section lists AnS series modules not introduced in previous chapters and describes their alternative methods. The AnS series modules listed in this section require some special alternative methods because there are no L series alternative models, or their functions and specifications differ from those of L series modules.

Product	Model	Alternative method
Pulse catch module	A1SP60	Consider using the pulse catch function of the built-in I/O function of the LCPU.
	A1S68TD	Consider using the CC-Link compatible temperature input module or
Temperature input module	A1S62RD3N	temperature control module as the temperature input module.
	A1S62RD4N	Or, consider using an analog input module by converting signals outside.
Position detection module	A1S62LS	Consider using CC-Link compatible ABSOCODER [®] VE-2CC manufactured by NSD Corporation.
Analog timer module	A1ST60	Consider using programming by indirect specification of the internal timer.
ID interface module	A1SD35ID1	There are no alternative models. Consider using our partner manufacturer's products (Balluff ID system BIS M series), which can be
	A1SD35ID2	(System migration) For details, refer to the technical bulletin (FA-A-0062).
B/NET interface module	A1SJ71B62-S3	There are no alternative models. Consider replacement with Q series, or consider using a product that can be connected to Mitsubishi programmable controllers.
MELSECNET/MINI-S3 master module	A1SJ71PT32-S3	Consider replacement with a CC-Link system. (Refer to the Transition from MELSECNET/MINI-S3, A2C(I/O) to CC-Link Handbook (L-08061).)
MELSEC-I/O LINK master module	A1SJ51T64	Consider replacement with a CC-Link system, CC-Link system + CC- Link/LT, or AnyWire (using a bridge module). (Refer to the Transition from MELSEC-I/OLINK to CC-Link/LT Handbook (L-08062).)
AS-i master module	A1SJ71AS92	There are no alternative models. Consider replacement with Q series, or consider using a product that can be connected to Mitsubishi programmable controllers.
Memory card interface module	A1SD59J-S2	Create a file register in a memory card or the standard RAM, and use the file register as a substitute.
Dummy module	A1SG62	The MELSEC-L series modules require no dummy modules.
# Memo


# **EXTERNAL DIMENSIONS**

MELSEC

# 9.1 External Dimensions

For external dimensions of modules described in this handbook, refer to the user's manual for each module.

For external dimensions of base units for the MELSEC-AnS/QnAS (small type) series, refer to the following.

			Transition target	
No.	Handbook	Manual number	AnS/	L
			QNAS	
1	Transition from MELSEC-AnS/QnAS (Small Type) Series to L Series Handbook		$\sim$	0
	(Fundamentals)	LUOZODEING	0	0

# Memo


# **APPENDICES**

### Appendix 1 Spare Parts Storage

(1) The general specifications of programmable controllers are as follows. Please do not store spare parts under a high temperature or high humidity condition, even within the range guaranteed by the specifications.

Storage ambient temperature	-20 to 75°C
Storage ambient humidity	10 to 90%, no condensation

- (2) Store in a place avoiding direct sunlight.
- (3) Store under condition with less dust or no corrosive gas.
- (4) The battery capacity of a A6BAT battery or a lithium-coin battery (commercially available) for memory card will be decreased by its self-discharging even when not used. Replace it with new one in 5 years as a guideline.
- (5) For a power supply module, CPU module with built-in power supply, or analog module that use any aluminum electrolytic capacitor, which is indicated in the table below, take the following measures since the characteristics will be deteriorated when the aluminum electrolytic capacitor is left un-energized for a long time.

Product	Model (AnS series)
CPU module	
(Power supply built-in type)	
Power supply module	A1S61PN, A1S62PN, A1S63P
Apalog modulo	A1S64AD, A1S68AD, A1S62DA, A1S68DAI, A1S68DAV, A1S63ADA,
Analog module	A1S66ADA

[Countermeasures for preventing aluminum electrolytic capacitor characteristics deterioration] Apply the rated voltage to the aluminum electrolytic capacitor for several hours once a year to activate it. Or, rotate products at the periodic inspection (in every 1 year or two).

[Reference]

The life of an aluminum electrolytic capacitor, even if not used, under a normal temperature decreases approximately at 1/4 speed of the case when it is energized.

# Appendix 2 Relevant Manuals

Manuals can be downloaded from the following Mitsubishi Electric FA site: http://www.mitsubishielectric.com/fa/worldwide/

### Appendix 2.1 Replacement handbooks

### (1) Transition guides

No.	Manual namo	Manual number A (large)	Та	irget
			AnS (small)	
1	MELSEC-A/QnA Series Transition Guide	L-08077E	0	×
2	MELSEC-AnS/QnAS Series Transition Guide	L-08236E	×	0

### (2) Transition handbooks

No	Manual name	Manual number	Та	irget
NO.	Manual name	Manual number	A (large)	AnS (small)
	Transition from MELSEC-A/QnA (Large Type) Series to Q		0	×
1	Series Handbook (Fundamentals)	L-00043ENG	0	^
	Transition from MELSEC-AnS/QnAS (Small Type) Series to Q	L-080210ENG	×	0
	Series Handbook (Fundamentals)	L-000219EING	^	0
	Transition from MELSEC-AnS/QnAS (Small Type) Series to L	1.08258ENG	×	0
	Series Handbook (Fundamentals)	LUOZJOLING	^	0
	Transition from MELSEC-A/QnA (Large Type) Series to Q	1-08046ENG	0	×
	Series Handbook (Intelligent Function Modules)	L-00040LING	0	~
2	Transition from MELSEC-AnS/QnAS (Small Type) Series to Q	L-08220ENG	×	0
2	Series Handbook (Intelligent Function Modules)	L-00220LING	C	0
	Transition from MELSEC-AnS/QnAS (Small Type) Series to L	1 08250ENG	×	0
	Series Handbook (Intelligent Function Modules)	LUOZJAENG	~	0
	Transition from MELSEC-A/QnA (Large Type), AnS/QnAS	1-08048ENG	0	0
З	(Small Type) Series to Q Series Handbook (Network Modules)	E-00040ENG	0	Ŭ
Ŭ	Transition from MELSEC-AnS/QnAS (Small Type) Series to L	1.08260ENG	×	0
	Series Handbook (Network Modules)	LUUZUULINU	Â	
	Transition from MELSEC-A/QnA (Large Type), AnS/QnAS	1-08050ENG	0	0
4	(Small Type) Series to Q Series Handbook (Communications)	E-00030ENG	0	U
-	Transition from MELSEC-AnS/QnAS (Small Type) Series to L	1.08261ENG	×	0
	Series Handbook (Communications)	LUOZUTEING	Â	0
5	Transition from MELSEC-A0J2H Series to Q Series Handbook	L-08060ENG	0	0
e	Transition from MELSECNET/MINI-S3, A2C(I/O) to CC-Link		0	0
6	Handbook	L-0000TENG	0	0
7	Transition from MELSEC-I/OLINK to CC-Link/LT Handbook	L-08062ENG	0	0
	Transition of CPUs in MELSEC Redundant System Handbook	004475NO	0	
8	(Transition from Q4ARCPU to QnPRHCPU)	L-0811/ENG	0	×

#### (3) Transition examples manual

No.	Manual namo	Manual number	Та	rget
		Wanual number	A (large)	AnS (small)
1	MELSEC-A/QnA Series Transition Examples	L-08121E	0	0

### (4) Others

No.	Manual namo	Manual number	Та	irget
		Manual number	A (large)	AnS (small)
1	Procedures for Replacing Positioning Module AD71 with QD75	FA-A-0060	0	0

*1 Materials can be downloaded from the Mitsubishi Electric FA site.

### Appendix 2.2 AnS series manuals

No.	Manual name	Manual number	Model code
1	A/D Converter Module Type A1S64AD User's Manual	IB-66336	13J676
2	Analog-Digital Converter Module Type A1S68AD User's Manual	IB-66576	13J757
3	D/A Converter Module Type A1S62DA User's Manual	IB-66335	13J673
4	Digital-Analog Converter Module Type A1S68DAV/DAI User's Manual	IB-66587	13J810
5	Thermocouple Input Module Type A1S68TD User's Manual	IB-66571	13J781
6	Type A68RD3N/4N,A1S62RD3N/4N Pt100 Input Module User's Manual	SH-080193	13JR46
	A1S62TCTT-S2 Heating-Cooling Temperature Control Module		
7	A1S62TCTTBW-S2 Heating-Cooling Temperature Control Module with Wire	SH-3643	13JL35
	Breakage Detection Function User's Manual		
	A1S62TCRT-S2 Heating-Cooling Temperature Control Module		
8	A1S62TCRTBW-S2 Heating-Cooling Temperature Control Module with Wire	SH-3644	13JL36
	Breakage Detection Function User's Manual		
	Temperature Control Module Type A1S64TCTRT/Temperature Control		
9	Module with Disconnection Detection Function Type A1S64TCTRTBW	SH-080549ENG	13JR79
	User's Manual		
	A1S64TCRT-S1 Temperature Control Module/A1S64TCRTBW-S1		
10	Temperature Control Module with Disconnection Detection Function User's	IB-66756	13JL03
	Manual		
	A1S64TCTT-S1 Temperature Control Module/A1S64TCTTBW-S1		
11	Temperature Control Module with Disconnection Detection Function User's	IB-66747	13J891
	Manual		
12	Positioning Module Type A1SD70 User's Manual	IB-66367	13JE04
13	A1SD75M1/M2/M3, AD75M1/M2/M3 Positioning Module User's Manual	IB-66715	13J870
	A1SD75P1-S3/P2-S3/P3-S3, AD75P1-S3/P2-S3/P3-S3 Positioning Module	10.00740	40.1074
14	User's Manual	IB-66716	13J871
15	Type A1S62LS User's Manual	IB-66647	13J837
16	High Speed Counter Module Type A1SD61 User's Manual	IB-66337	13J674
17	High Speed Counter Module Type A1SD62, A1SD62E, A1SD62D(S1) User's	ID 66502	12 1916
17	Manual	10-00090	133010
18	Pulse catch module type A1SP60 (Hardware) User's Manual	IB-66477	13JE61
19	Analog timer module type A1ST60 (Hardware) User's Manual	IB-66479	13JE57
20	AJ71B62-S3/A1SJ71B62-S3 B/NET Interface Module User's Manual	IB-68930	13JM67
21	Analog input/output module type A1S63ADA User's Manual	IB-66435	13JE30
22	Analog Input/Output Module Type A1S66ADA User's Manual	IB-66819	13JL41
23	MELSECNET/MINI-S3 Master Module Type AJ71PT32-S3, AJ71T32-S3,	IB-66565	13 IE64
20	A1SJ71PT32-S3, A1SJ71T32-S3 User's Manual		
24	AS-i Master module type A1SJ71AS92 User's Manual	SH-080085	13JR15
25	A1SD59J-S2/MIF Memory Card Interface Module User's Manual	SH-080056	13JR05

# Appendix 2.3 L series manuals

No.	Manual name	Manual number	Model code
1	Programmable Controllers MELSEC-L Series	L-08159E	-
2	MELSEC-L Analog-Digital Converter Module User's Manual		121742
	L60AD4	3H-000099ENG	133242
2	MELSEC-L Digital-Analog Converter Module User's Manual		121742
3	L60DA4	5H-000900ENG	133243
4	MELSEC-L Analog I/O Module User's Manual		12 1707
4	L60AD2DA2	SH-U0110/ENG	133207
F	MELSEC-L Temperature Control Module User's Manual		121764
5	L60TCTT4, L60TCTT4BW, L60TCRT4, L60TCRT4BW	3H-001000ENG	133204
6	MELSEC-L CPU Module User's Manual (Built-In I/O Function)		12 1720
0	L02CPU, L02CPU-P, L26CPU-BT, L26CPU-PBT	3H-000092ENG	133230
7	MELSEC-L High-Speed Counter Module User's Manual		13JZ49
'	LD62, LD62D	3H-060920ENG	
0	MELSEC-L LD75P/LD75D Positioning Module User's Manual	SH 090011ENC	121746
0	LD75P, LD75D	SII-0009TIENG	133240
	MELSEC-L LD77MH Simple Motion Module User's Manual (Positioning		
9	Control)	IB-0300172	1XB942
	LD77MH4, LD77MH16		
	MELSEC-Q/L QD77MS/LD77MH Simple Motion Module User's Manual		
10	(Synchronous Control)	IB-0300174	1XB943
	LD77MH4, LD77MH16		

# Appendix 2.4 Programming tool manuals

No.	Manual name	Manual number	Model code
1	GX Works2 Version 1 Operating Manual (Common)	SH-080779ENG	13JU63
2	GX Works2 Version 1 Operating Manual (Intelligent Function Module)	SH-080921ENG	13JU69
3	GX Developer Version 8 Operating Manual	SH-080373E	13JU41

### Appendix 3 How to Change Resolution After Analog I/O Module is Replaced

This section describes how to change the resolution of an analog I/O module after the module is replaced from AnS series to L series.

### **Appendix 3.1 Resolution**

The following table lists the resolutions of the AnS series and L series analog I/O modules. Each AnS series analog I/O module has different resolution. Please check the resolution of the module in this handbook or user's manual.

If the resolution differs between AnS series and L series modules, it needs to be matched by a user (by creating a sequence program or changing user range settings).

	O: Measure required by user,	$\triangle$ : Measure not required by user	
Resolution of AnS series analog I/O module	Resolution of L series analog I/O module		
1/4000	1/20000 (L60AD4)	△*1*2	
1/8000		△*1*2	
1/12000		△*1*2	

*1 Adjust the resolution using the scaling function. (Refer to Appendix 3.2.)

*2 Change the resolution in a sequence program. (Refer to Appendix 3.2.)

### Appendix 3.2 Using the scaling function of an analog I/O module

By using the scaling function of the L series analog I/O module, a resolution can be changed.

(1) Example of setting intelligent function module parameters

Parameters can easily be set by using the intelligent function module parameters of GX Works2 without a program. For details of the setting procedure, refer to the manual for each module.

(Setting conditions)

- (a) Resolution of the AnS series module: 1/8000 (Only one channel is used.)
- (b) L series module: L60AD4

(Example of scaling setting window)

Scaling function		Sets for scaling on A/D conversion.	
	Scaling enable/disable setting	0:Enable	
	Scaling upper limit value	8000	
l	Scaling lower limit value	0	

### ⊠Point

The scaling value (digital operation value) and digital output value of the analog input module are stored different buffer memory addresses, therefore, the scaling value of each channel needs to be read from the buffer memory.



#### (2) Example of sequence program settings

(Setting conditions)

- (a) Resolution of the AnS series module: 1/8000 (Only one channel is used.)
- (b) L series module: L60AD4
- (Example of scaling settings and scaling values (digital operation values) read program) Setting request



(Buffer memory areas of L60AD4 used by the scaling function ^{*1})

Address				
Hexadeci-	Decimal	Description	Default	Read/write
mal				
35 _H	53	Scaling enable/disable setting	00FF _H	R/W
36 _H	54	CH1 Scaling value (digital operation value)	0	
37 _H	55	CH2 Scaling value (digital operation value)	0	D
38 _H	56	CH3 Scaling value (digital operation value)	0	ĸ
39 _H	57	CH4 Scaling value (digital operation value)	0	
to	to	System area (Use prohibited)		-
3E _H	62	CH1 Scaling lower limit value	0	
3F _H	63	CH1 Scaling upper limit value	0	
40 _H	64	CH2 Scaling lower limit value	0	
41 _H	65	CH2 Scaling upper limit value	0	
42 _H	66	CH3 Scaling lower limit value	0	
43 _H	67	CH3 Scaling upper limit value	0	
44 _H	68	CH4 Scaling lower limit value	0	
45 _H	69	CH4 Scaling upper limit value	0	

*1 For details of the scaling function, refer to the user's manual for the module used.

#### Appendix 3.3 Adding the scaling operation function to sequence program

Adding a scaling operation program to the L series sequence program can change a resolution.

(1) Example of scaling operation sequence program

(Sample program conditions)

- (a) Resolution of the AnS series module: 1/4000
- (b) Device that stores the present value read from the analog I/O module: D0

#### (c) Devices used for resolution change operation*: D100 and D101

Two-/four-word data is used in the four arithmetic operations instruction. Use unused device areas so that existing device data are not affected by this operation.



### ⊠Point -

The scan time is longer by the addition to the sequence program.

When the scaling function described in Appendix 3.2 is used, however, because the scaling operation is performed in the analog module, the scan time is not affected.

# WARRANTY

Please confirm the following product warranty details before using this product.

#### 1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.

However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

#### [Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.

Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

- (1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
- (2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
  - 1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
  - 2. Failure caused by unapproved modifications, etc., to the product by the user.
  - 3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
  - 4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
  - 5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
  - 6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
  - 7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

#### 2. Onerous repair term after discontinuation of production

- (1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued.
- Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
- (2) Product supply (including repair parts) is not available after production is discontinued.

#### 3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

#### 4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

#### 5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

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# Mitsubishi Programmable Controller

# **MITSUBISHI ELECTRIC CORPORATION**

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN NAGOYA WORKS : 1-14 , YADA-MINAMI 5-CHOME , HIGASHI-KU, NAGOYA , JAPAN

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