

Programmable Controller



Network

MELSEC iQ-R Series CC-Link IE TSN Introduction Guidebook

This manual describes how to communicate cyclic data on CC-Link IE TSN using the MELSEC iQ-R series CC-Link IE TSN master/local module.

This manual describes an example of cyclic transmission between the master station and the local station and between the master station and the remote station.



IP address: 192.168.3.2



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1 PREPARATION

1.1 Required Products

This section describes the products required for configuring a system in this manual.

Master station and local station

Prepare two sets of the MELSEC iQ-R series programmable controllers for the master and local stations.

MELSEC iQ-R series programmable controller



(1) Power supply module: R61P

(2) CPU module: R04CPU (firmware version 43 or later)

(3) Master/local module: RJ71GN11-T2

(4) Base unit: R35B

Remote station

CC-Link IE TSN remote I/O module



I/O combined module: NZ2GN2S1-32DT

General-purpose products Personal computer (one device) USB cable (one piece) Ethernet cable (two pieces) S W Mini-B connector Use Ethernet cables that meet the following GX Works3 (version 1.065T or later) standards. • The communication speed of 1Gbps is supported. · Category 5e or higher, straight cable (double shielded, STP) • IEEE 802.3 (1000BASE-T) • ANSI/TIA/EIA-568-B (Category 5e)

TSN hub

The use of TSN hub is described in Chapter 4.

CC-Link IE TSN industrial managed switch



8-port managed switch: NZ2MHG-TSNT8F2

2 PARAMETER SETTING

This chapter describes the procedure for setting parameters such as the station type, station number, IP address, remote I/O (RX, RY), and remote register (RWr, RWw) to enable devices that communicate data between devices on CC-Link IE TSN to recognize each other.

Also, configure the link refresh setting to transfer data between the devices of the RJ71GN11-T2 and the devices of the CPU module.

For CC-Link IE TSN, set the IP address and station number of each station connected to the master station first. Thus, set the parameters from a remote station.

Point P

If any of the devices to be prepared in Chapter 1 are not to be used in any other than the master station, the settings of the unused devices described in this chapter can be omitted.

2.1 Settings for Remote Stations

This section describes the procedure for setting the parameters with the IP address/station number setting switches of the CC-Link IE TSN remote I/O module.

Set only the IP address and station number from a remote station because the number of link device points of CC-Link IE TSN can be set from the master station collectively.

To use the module functions, set them with the function setting switches.



IP address/station number setting switches

Precautions

Configure the settings of the function setting switches and IP address/station number setting switches while the module is powered off.

Operating procedure

1. Set the IP address fourth octet in hexadecimal with the IP address/station number setting switches. Set the IP address of the CC-Link IE TSN remote I/O module (NZ2GN2S1-32DT) to 192.168.3.1 in this manual.



2. Set the functions of the CC-Link IE TSN remote I/O module with the function setting switches. Set the functions to the default settings (all off) in this manual.



For details on each function setting switch, refer to the following.

CC-Link IE TSN Remote I/O Module User's Manual (CC-Link IE TSN Communication Mode)

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2.2 Setting for Local Stations

Set the parameters using GX Works3 for local stations.

Set the station type, station number, IP address, and refresh settings for the RJ71GN11-T2, which is used as a local station, and write them to the CPU module because the number of link device points of CC-Link IE TSN can be set from the master station collectively.

Operating procedure

1. Connect a personal computer to the CPU module of the local station using a USB cable, and power on the local station. Start GX Works3.



2. Select [Project] in the menu bar and select [New].

| <u>P</u> ro | ject | <u>E</u> dit | <u>F</u> ind/Replace | <u>C</u> onvert | <u>V</u> iew |
|-------------|--------------|--------------|----------------------|-----------------|--------------|
| Ľ | <u>N</u> e | w | | Ct | rl+N |
| B | <u>O</u> p | en | | Ct | rl+O |
| | <u>C</u> lo | se | | | |
| | <u>S</u> av | /e | | C | trl+S |
| | S <u>a</u> v | e As | | | |

- **3.** Set the following and click the [OK] button.
- Series: RCPU
- Model: R04



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4. Click the [OK] button.

| MELSOFT GX Works3 | |
|---|----------------|
| Add a module. [Module Name] R04CPU [Start I/O No.] 3E00 | |
| Module Setting | Setting Change |
| Module Label:Not use Sample Comment:Use | ^ |
| | ~ |
| Do Not Show this Dialog Again | ок |

5. Double-click "Module Configuration" in the navigation window.



6. Click the [OK] button.



7. Select the modules to be used from the "Element Selection" window and add them to the module configuration diagram by dragging and dropping.

Set the following.

- Main Base: R35B
- Power Supply: R61P
- PLC CPU: R04CPU (Displayed in the module configuration diagram by default.)
- Network Module: RJ71GN11-T2 (Drag and drop this module to the slot No.0.)



8. Check the module configuration.

Right-click on the "Module Configuration" window and select [Check] ⇔ [System Configuration].



9

9. After the system configuration check is completed and there is no error or warning, click the [OK] button.



10. Fix the module configuration.

Right-click on the "Module Configuration" window and select [Parameter] ⇒ [Fix].



11. When the confirmation window appears, check the contents and click the [Yes] button.



12. Click the [Yes] button.



13. Click the [OK] button.

| MELSOFT | GX Works3 | |
|---------|--|----------------|
| i | Add a module. [Module Name] RJ71GN11- [Start I/O No.] 0000 | Τ2 |
| Mod | ule Setting | Setting Change |
| Mo | dule Label:Not use | ^ |
| | | × |
| Do | Not Show this Dialog Again | ОК |

14. Double-click "RJ71GN11-T2" on the navigation window.



15. Check that "Station Type" in "Required Settings" is set to "Local Station".

| Setting Item List | Setting Item | |
|-----------------------------------|--|------------------|
| Insuit the Cetting Item to Consol | Item | Setting |
| | E Station Type | |
| | Station Type | Local Station V |
| | 🖃 Network No. | |
| | Network No. | 1 |
| Station Type | Parameter Setting Method | |
| Network No. | Setting Method of Basic/Application Settings | Parameter Editor |

16. Set "Station No." to "2" and "IP Address" to "192.168.3.2".

| Setting Item List | Setting Item | |
|-----------------------------------|--|--|
| Insuit the Setting Item to Search | Item | Setting |
| | Station Type | |
| | Station Type | Local Station |
| | 😑 Network No. | |
| E- Required Settings | Network No. | 1 |
| Station Type | Parameter Setting Method | |
| ···· Network No. | Setting Method of Basic/Application Settings | Parameter Editor |
| Parameter Setting Method | Station No./IP Address Setting | |
| Basic Settings | Station No./IP Address Setting Method | Parameter Editor |
| | - 😑 Station No. | |
| | Station No. | 2 |
| | 🖳 😑 IP Address Setting | |
| | IP Address | 192.168.3.2 |
| | Subnet Mask | and the second |
| | Default Gateway | |

17. Select "Basic Settings" on the module parameter setting window and double-click <Detailed Settings> for "Refresh Settings".

| Setting Item List | Setting Item | |
|---|--|--|
| Input the Setting Item to Search | ltem □ Refresh Settings | Setting |
| □ □ | Refresh Settings | Coetailed Setting> |
| Item List Find Result | Explanation Set transfer range betwee module. Chec <u>k</u> | n devices of link special relay/register in CC-Link IE TSN module, link device and CPU |
| | | Apply |

18. Set the devices and range between the RJ71GN11-T2 and the R04CPU to be refreshed.

| Link Side | | | | | | CPU Side | | | | | | |
|-----------------|-----------------------------------|---|--|--|--|--|---|--|---|--|---|--|
| No. Device Name | | Points | Start | End | | Target | | Device Name | | Points | Start | End |
| SB | \sim | | | | + | | \sim | | | | | |
| SW | \sim | | | | + | | \sim | | | | | |
| LB | \sim | 32 | 00000 | 0001F | + | Specify Device | \sim | В | \sim | 32 | 00000 | 0001F |
| LW | \sim | 32 | 00000 | 0001F | - 🖶 - | Specify Device | \sim | W | \sim | 32 | 00000 | 0001F |
| | Device Na SB SW LB LW | Device Name SB ~ SW ~ LB ~ LW ~ | Link Side Device Name Points SB ~ SW ~ LB ~ LW ~ | Link Side Device Name Points Start SB ~ SW ~ LB ~ 32 00000 LW ~ 32 00000 | Link Side Device Name Points Start End SB \sigma | Link Side Device Name Points Start End SB ~ SW ~ LB ~ 32 00000 0001F LW ~ 32 00000 0001F | Link SideDevice NamePointsStartEndTargetSB </th <th>Link Side:Side:Device NamePointsStartEndTargetSB\checkmarkImage:Image:\checkmarkSW\checkmarkImage:Image:\checkmarkLB\checkmark32000000001FImage:LW\checkmark32000000001FImage:</th> <th>Link Side CPU 3 Device Name Points Start End Target Device Name SB Device Name Device Name Device Name Device Name Device Name Device Name Device Name</th> <th>Link Side CPU Side Device Name Points Start End Target Device Name SB Device Name SB SW LB 32 00000 0001F Specify Device B LW 32 00000 0001F Specify Device W</th> <th>$\begin{array}{c c c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$</th> <th>$\begin{array}{c c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$</th> | Link Side:Side:Device NamePointsStartEndTargetSB \checkmark Image:Image: \checkmark SW \checkmark Image:Image: \checkmark LB \checkmark 32000000001FImage:LW \checkmark 32000000001FImage: | Link Side CPU 3 Device Name Points Start End Target Device Name SB Device Name Device Name Device Name Device Name Device Name Device Name Device Name | Link Side CPU Side Device Name Points Start End Target Device Name SB Device Name SB SW LB 32 00000 0001F Specify Device B LW 32 00000 0001F Specify Device W | $\begin{array}{c c c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$ | $ \begin{array}{c c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$ |

Point P

With the refresh setting, data in the following range is automatically transferred when the operation is performed.



19. Click the [Apply] button.

| 0000:RJ71GN11-T2 Module Parameter | | | | | | | | | | | | | |
|-----------------------------------|-----------|---------------|----------------|----------|------------|----------------------|-------------------|--------|-------------|--------|-------|-------|---|
| Setting Item List | Setting I | tem | | | | | | | | | | | |
| Input the Setting Item to Search | | | | | | | | | | | | | |
| | | | Link Side | , | | | | _ | CPU Side | • | | | ^ |
| E. C Required Settings | No. | Device Nam | e Points | Start | End | | Target | | Device Name | Points | Start | End | |
| ⊟ @ Basic Settings | - | SB 🔍 | • | | | + | | \sim | | | | | |
| Refresh Setting | · | SW 🗸 | · | | | | | \sim | | | | | |
| Maring Application Settings | 1 | LB | 32 | 00000 | 0001F | _ <u></u> | Specify Device | ~ | B v | 32 | 00000 | 0001F | |
| | 2 | LW | 32 | 00000 | 0001F | - 🗖 - | Specify Device | ~ | W V | 32 | 00000 | 0001F | |
| | 3 | | | | | | | ~ | | | | | |
| | 5 | | | | | | | ž | | | | | |
| | 6 | | | | | | | ~ | | | | | |
| | 7 | · · · · · | | | | - H | | ~ | | | | | |
| | 8 | · · · · | • | | | - 😸 | | ~ | | | | | |
| | 9 | \ \ | • | | | ₩. | | \sim | | | | | |
| | 10 | | | | | Ä | | | | | | | × |
| | Explana | tion | | | | | | | | | | | |
| | The end | number (hexad | lecimal) of th | e device | range to | be refresh | ned is displayed. | | | | | | ~ |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Ť |
| them List Find Result | | Chec <u>k</u> | | Restore | e the Defa | a <u>u</u> lt Settir | ngs | | | | | | |
| | | | | | | | | | | | Apr | bly | |

20. Select [Convert] in the menu bar and select [Rebuild All].



21. Click the [OK] button.



22. Select [Online] in the menu bar and select [Write to PLC].



23. Click the [Parameter + Program] button and then the [Execute] button.

| Online Data Operation | | | | | | | | | - | | × |
|--|-----------------|-------------|--------|--------|------------|--------|--------------------------|-------------------|-----------|------|------|
| Display Setting Related Functions | | | | | | | | | | | |
| | 9 | 1 | Verify | - 🖳 🧳 | Delete | | | | | | |
| Parameter + Program(E) Select <u>All</u> Open/Close All(<u>1</u>) Deselect All(<u>N</u>) | Legend CPU E | Built-in Me | mory | SD M | emory Card | 💼 Inte | elligent Function Module | | | | |
| Module Name/Data Name | * | | | Detail | Title | | Last Change | Size (Byte) | | | ^ |
| Untitled Project | | | | | | | | | | | |
| Parameter | | | | | | | | | | | |
| System Parameter/CPU Parameter | ~ | | | | | | 1/17/2024 10:08:13 | Not Calculate | ed | | |
| Module Parameter | ✓ | | | | | | 1/17/2024 10:15:23 | Not Calculate | ed | | |
| Memory Card Parameter | | | | | | | 1/17/2024 9:59:02 AM | Not Calculate | ed | | |
| Remote Password | ✓ | | | | | | 1/17/2024 9:59:02 AM | Not Calculate | ed | | |
| 🗆 🎁 Global Label | | | | | | | | | | | |
| Global Label Setting | | | | | | | 1/17/2024 9:59:04 AM | AM Not Calculated | | | |
| 🖻 🔚 Program | | | | Detail | | | | | | | |
| MAIN | | | | | | | 1/17/2024 9:59:04 AM | Not Calculate | ed | | |
| Device Memory | | | | | | | | | | | |
| MATN | | | | Detail | | | 1/17/2024 Q+5Q+04 AM | - | | | ¥ |
| Display Memory Capacity | | | | | | | | | | | |
| Memory Capacity Program Memory | | | | | | | | | Free | | |
| Size Calculation | | | | | | | | | 160/160KE | | |
| Legend Data Memory | | | | | | | | | Free | | |
| Used | | | | | | | | | 1916/2049 | KB | |
| Device/Label Memory (File Stor | age Area) — | | | | | | | | Free | | |
| Demand | • • | | | | | | | | 256/256KE | | |
| SD Memory Card | | | | | | | | | Free | | |
| Free: 5% or Less | | | | | | | |] | 0/0KB | | |
| | | | | | | | | | | | |
| | | | | | | | | <u>E</u> xecute | | Clos | ie - |

24. When the window below appears, click the [Yes to all] button.

| MELSOFT GX | Works3 | |
|---------------------------------------|--|--------|
| <u> </u> | The following file already exists. Are you sure you want to overwrite it? | |
| System Pa | ameter | ^ |
| | | \sim |
| Skip wri <u>Y</u> e: <u>N</u> o | ting for the files that have not been changed. | |

25. After the parameters are written, click the [Close] button to close the window.

| Write to PLC |
|---|
| |
| 6/6 |
| 100/100% |
| |
| System Parameter: Skig Writing, CPU Parameter: Skig Writing, Remote Passweid: Skig Writing, Module Parameter Skig Writing, Porgam File(AINI): Skig Writing, Porgam Gild(AINI): Skig Writing, Postprocessing Completed Write to PLC 2 End |
| ~ ~ |
| The window is automatically closed when the operation is completed successfully. |
| Cose |

26. Set the RUN/STOP/RESET switch of the CPU module to the RESET position. When all the LEDs turn off on the CPU module, return the switch to the STOP position. (Powering off and on the module is regarded as the same operation above.)



Set the switch to the RESET position (left).

The CPU module is reset.

Precautions

When the ERROR LED is on or flashing, check the error details on GX Works3 and eliminate the cause(s).

2.3 Settings for Master Station

Set the station type and refresh settings using GX Works3 for the master station.

Register remote stations and local stations to be connected in the network configuration settings, and set the CC-Link IE TSN parameters such as the number of link device points at once.

Set these parameters to the RJ71GN11-T2 (master station), and write them to the CPU module.

Point P

For CC-Link IE TSN, the communication cycle needs to be adjusted depending on the number of remote stations to be connected and the number of link device points to be set. Check the parameter settings of the master station.

For the setting details, refer to the following.

MELSEC iQ-R CC-Link IE TSN User's Manual (Application)

Operating procedure

1. Connect a personal computer to the CPU module of the master station using a USB cable, and power on the master station.

Start GX Works3.



2. Select [Project] in the menu bar and select [New].



- **3.** Set the following and click the [OK] button.
- Series: RCPU
- Model: R04

| New | | × |
|------------------|-----------|--------|
| <u>S</u> eries | 4 RCPU | \sim |
| <u>Т</u> уре | 10 R04 | \sim |
| | | |
| Mode | | \sim |
| Program Language | 🔒 Ladder | \sim |
| | OK Cancel | |

4. Click the [OK] button.

| MELSOFT GX Works3 | |
|---|----------------|
| Add a module. [Module Name] R04CPU [Start I/O No.] 3E00 | |
| Module Setting | Setting Change |
| Module Label:Not use Sample Comment:Use | ^ |
| | ~ |
| Do Not Show this Dialog Again | ок |

5. Double-click "Module Configuration" in the navigation window.



6. Click the [OK] button.



7. Select the modules to be used from the "Element Selection" window and add them to the module configuration diagram by dragging and dropping.

Set the following.

- Main Base: R35B
- Power Supply: R61P
- PLC CPU: R04CPU (Displayed in the module configuration diagram by default.)
- Network Module: RJ71GN11-T2 (Drag and drop this module to the slot No.0.)



8. Check the module configuration.

Right-click on the "Module Configuration" window and select [Check] ⇒ [System Configuration].



9. After the system configuration check is completed and there is no error or warning, click the [OK] button.



10. Fix the module configuration.

Right-click on the "Module Configuration" window and select [Parameter] ⇒ [Fix].



11. When the confirmation window appears, check the contents and click the [Yes] button.



12. Click the [Yes] button.



13. Click the [OK] button.

| MELSOFT | GX Works3 | |
|--------------|---|----------------|
| i | Add a module. [Module Name] RJ71GN11 [Start I/O No.] 0000 | -T2 |
| Mod | ule Setting | Setting Change |
| Mo | dule Label:Not use | ^ |
| | | ~ |
| <u>D</u> o I | Not Show this Dialog Again | ОК |

14. Double-click "RJ71GN11-T2" on the navigation window.



15. Change "Station Type" in "Required Settings" to "Master Station".

| Setting Item List | Setting Item | |
|----------------------------------|--|------------------|
| June 4 the Cetting Rom to Counch | Item | Setting |
| | E Station Type | |
| | Station Type | Master Station |
| | Network No. | |
| | Network No. | 1 |
| Station Type | Parameter Setting Method | |
| Network No. | Setting Method of Basic/Application Settings | Parameter Editor |

16. Click the [Yes] button.



17. Check that the IP address is "192.168.3.253".

| Setting Item List | Setting Item | |
|-------------------------------------|--|---------------------|
| Januat Alina Catting Many to Casual | Item | Setting |
| | Station Type | |
| | Station Type | Master Station |
| | 📮 Network No. | |
| 🖃 🛅 Required Settings | Network No. | 1 |
| Station Type | Parameter Setting Method | |
| Network No. | Setting Method of Basic/Application Settings | Parameter Editor |
| Parameter Setting Method | Station No./IP Address Setting | |
| Basic Settings | Station No./IP Address Setting Method | Parameter Editor |
| Application Settings | - E Station No. | |
| | Station No. | 0 |
| | IP Address Setting | |
| | IP Address | 192 . 168 . 3 . 253 |
| | Subnet Mask | |
| | Default Gateway | |

18. Select "Basic Settings" on the module parameter setting window and double-click "Network Configuration Settings".

| Setting Item List | Setting Item | |
|-----------------------------------|---|----------------------------------|
| Insuitable Contine New to Consult | Item | Setting A |
| Input the Setting item to Search | Network Configuration Settings | |
| | Network Configuration Settings | <detailed setting=""></detailed> |
| | 🖃 Refresh Settings | |
| | Refresh Settings | <detailed setting=""></detailed> |
| 👾 🕼 Basic Settings | Network Topology | |
| Network Configuration Settings | Network Topology | Line/Star |
| Network Topology | Communication Period Setting | |
| Communication Period Setting | Basic Period Setting | |
| Connection Device Information | Setting in Units of 1us | Not Set |
| Device Station Setting | Communication Period Interval Setting (Do not Set it in Units of 1us) | 1000.00 us |
| | Communication Period Interval Setting (Set it in Units of 1us) | 1000.00 us |
| | System Reservation Time | 20.00 us |
| | Cyclic Transmission Time | 500.00 us |
| | Transient Transmission Time | 480.00 us |
| | Multiple Period Setting | |
| | Normal-Sneed | x4 ¥ |

19. Select the modules to be used from "Module List" and add them by dragging and dropping.

Since the IP address fourth octet is set sequentially from 1 in the order of the dragged and dropped modules, drag and drop them in the order of the NZ2GN2S1-32DT and the RJ71GN11-T2.



20. Set the link devices.

Click the [Detailed Display] button and set as follows.

| 8 | C-Li | ink IE TSN Config | guration | n (Start I/O: 0000) |) | | | | | | | | | | | | | | | | | | |
|------|--|--------------------------|-----------|---------------------------|-------------------|------------------|----------------|----------|-------------------|-----------|---------|--------|-----------|--------|--------|-----------|------|--------|-----------|------|--------|-----------|------|
| i co | -Lin | k <u>I</u> E TSN Configu | ration | <u>E</u> dit <u>V</u> iew | Close with Discar | di <u>ng</u> the | Setting | Clos | e with <u>R</u> e | eflecting | g the S | etting | | | | | | | | | | | |
| | Connected/Disconnected Module Detection Detailed Display | | | | | | | | | | | | | | | | | | | | | | |
| | Mod | e Setting: | | Online (Unicast | : Mode) | ~ | <u>A</u> ssign | ment M | ethod: | | | | | \sim | | | | | | | | | |
| | Cycli | ic Transmission Tim | ne (Min.) | : 20.00 | us | | Comm | unicatio | n Period | Interval | (Min.): | 1 | 25.00 | us | | | | | | | | | |
| | | | | | | D | V Sattin | | D | / Satting | | DV | Vr Settin | ~ | DV | Vw Sattin | - | | R Satting | | IV | V Satting | |
| | No. | Model Name | STA# | Station Type | Station | Points | Start | End | Points | Start | End | Points | Start | End | Points | Start | End | Points | Start | End | Points | Start | End |
| - | 0 | Host Station | 0 | Master Station | | | | | | | | | | | | | | 16 | 0000 | 000F | 16 | 0000 | 000F |
| - | 1 | NZ2GN2S1-32DT | 1 | Remote Station | | 32 | 0000 | 001F | 32 | 0000 | 001F | 4 | 0000 | 0003 | 4 | 0000 | 0003 | | | | | | |
| - | 2 | RJ71GN11-T2 | 2 | Local Station | | 32 | 0020 | 003F | 32 | 0020 | 003F | 16 | 0004 | 0013 | 16 | 0004 | 0013 | 16 | 0010 | 001F | 16 | 0010 | 001F |

| Model | Station type | Setting | Point | Start |
|---------------|----------------|-------------|-------|-------|
| Own station | Master station | LB Setting | 16 | 0000 |
| | | LW Setting | 16 | 0000 |
| NZ2GN2S1-32DT | Remote station | RX Setting | 32 | 0000 |
| | | RY Setting | 32 | 0000 |
| | | RWr Setting | 4 | 0000 |
| | | RWw Setting | 4 | 0000 |
| RJ71GN11-T2 | Local station | LB Setting | 16 | 0010 |
| | | LW Setting | 16 | 0010 |



With the link device setting, data in the following range is automatically transferred when the operation is performed.



21. Click the [Close with Reflecting the Setting] button in the menu bar.

| 8 | C-Lin | k IE T | SN Configuratior | n (Start | I/O: 0000) | | | | | | | | | | | | | | | | | — | | × |
|--------------|----------------|--------|---------------------|--------------|----------------------|----------------------------|----------------|----------|---------------|-----------|-----------|--------|--------|-----------|------|--------|-----------|------|--------|-----------|------|--------|-----------|------|
| ; cc | -Link <u>I</u> | E TSN | V Configuration | <u>E</u> dit | <u>V</u> iew Close v | vith Discardi <u>ng</u> th | e Setting | Close | with <u>F</u> | leflectin | g the S | etting | | | | | | | | | | | | |
| | С | onneo | cted/Disconnected | Module | Detection | Simple Disp | lay | | | | | | | | | | | | | | | | | |
| | Mode S | Settin | g: | Onlin | ne (Unicast Mode) | \sim | <u>A</u> ssign | ment M | ethod: | | | Point | /Start | \sim | | | | | | | | | | |
| | Cyclic ' | Trans | mission Time (Min.) |): [| 20.00 us | | Comm | unicatio | n Perioc | l Interva | l (Min.): | | 125.00 | us | | | | | | | | | | |
| | | No | Model Name | STA# | Station Turns | Motion Control | RJ | (Settin | g | R | Y Setting | 1 | R\ | Vr Settin | g | RV | /w Settin | g | L | B Setting | 1 | LV | V Setting | 1 |
| | | NO. | Houer Name | STR# | Station Type | Station | Points | Start | End | Points | Start | End | Points | Start | End | Points | Start | End | Points | Start | End | Points | Start | End |
| \mathbf{v} | 10 | 0 | Host Station | 0 | Master Station | | | | | | | | | | | | | | 16 | 0000 | 000F | 16 | 0000 | 000F |
| _ | - | 1 | NZ2GN2S1-32DT | 1 | Remote Station | | 32 | 0000 | 001F | 32 | 0000 | 001F | 4 | 0000 | 0003 | 4 | 0000 | 0003 | | | | | | |
| | - | 2 | RJ71GN11-T2 | 2 | Local Station | | 32 | 0020 | 003F | 32 | 0020 | 003F | 16 | 0004 | 0013 | 16 | 0004 | 0013 | 16 | 0010 | 001F | 16 | 0010 | 001F |

22. Double-click "Refresh Setting" on the module parameter setting window.

| Setting Item List | Setting Item | |
|-----------------------------------|---|----------------------------------|
| Insuit the Setting Item to Second | Item | Setting 🔨 |
| | Network Configuration Settings | |
| | Network Configuration Settings | <detailed setting=""></detailed> |
| | 😑 Refresh Settings | |
| | Refresh Settings | <detailed setting=""></detailed> |
| Basic Settings | 😑 Network Topology | |
| Network Configuration Settings | Network Topology | Line/Star |
| Refresh Setting | Communication Period Setting | |
| Communication Period Setting | Basic Period Setting | |
| Connection Device Information | Setting in Units of 1us | Not Set |
| Device Station Setting | Communication Period Interval Setting (Do not Set it in Units of 1us) | 1000.00 us |
| in Application Settinge | Commission Device Internet Contra (Contra to Unite of the) | 1000.00 |

23. Set the devices and range between the RJ71GN11-T2 and the R04CPU to be refreshed.

| Ne | | | Link Side | ; | | | | | CPU S | Side | ; | | |
|------|------------|--------|-----------|-------|-------|---|----------------|--------|-----------|----------------|----|-------|-------|
| INO. | Device Nar | ne | Points | Start | End | | Target | | Device Na | ce Name Points | | Start | End |
| - | SB | \sim | | | | + | | \sim | | | | | |
| - | SW | \sim | | | | + | | \sim | | | | | |
| 1 | RX | \sim | 32 | 00000 | 0001F | + | Specify Device | \sim | Х | \sim | 32 | 01000 | 0101F |
| 2 | RY | \sim | 32 | 00000 | 0001F | + | Specify Device | \sim | Y | \sim | 32 | 01000 | 0101F |
| 3 | RWr | \sim | 4 | 00000 | 00003 | + | Specify Device | \sim | W | \sim | 4 | 00100 | 00103 |
| 4 | RWw | \sim | 4 | 00000 | 00003 | + | Specify Device | \sim | W | \sim | 4 | 00200 | 00203 |
| 5 | LB | \sim | 32 | 00000 | 0001F | + | Specify Device | \sim | В | \sim | 32 | 00000 | 0001F |
| 6 | LW | \sim | 32 | 00000 | 0001F | + | Specify Device | \sim | W | \sim | 32 | 00000 | 0001F |

Point P

• With the refresh setting, data in the following range is automatically transferred when the operation is performed.



• To communicate data between the master station and the local station using RX/RY/RWr/RWw, set the following refresh settings for both the master station and the local station.

| Ne | | | Link Side | е | | | | | CPU S | Side | • | | |
|------|-----------|--------|-----------|-------|-------|-------|----------------|--------|-------|--------|--------|-------|-------|
| INO. | Device Na | me | Points | Start | End | | Target | Target | | | Points | Start | End |
| - | SB | \sim | | | | + | | \sim | | | | | |
| - | SW | \sim | | | | + | | \sim | | | | | |
| 1 | RX | \sim | 64 | 00000 | 0003F | + | Specify Device | \sim | Х | \sim | 64 | 01000 | 0103F |
| 2 | RY | \sim | 64 | 00000 | 0003F | + | Specify Device | \sim | Y | \sim | 64 | 01000 | 0103F |
| 3 | RWr | \sim | 20 | 00000 | 00013 | + | Specify Device | \sim | W | \sim | 20 | 00100 | 00113 |
| 4 | R\v/w | \sim | 20 | 00000 | 00013 | + | Specify Device | \sim | W | \sim | 20 | 00200 | 00213 |
| 5 | LB | \sim | 32 | 00000 | 0001F | + | Specify Device | \sim | В | \sim | 32 | 00000 | 0001F |
| 6 | LW | \sim | 32 | 00000 | 0001F | - 🗰 - | Specify Device | \sim | W | \sim | 32 | 00000 | 0001F |

24. Click the [Apply] button.

| 0000:RJ71GN11-T2 Module Parameter | | | | | | | | | | | | | |
|-----------------------------------|---|--|-----|--|---|--|--|---|---|--|--|---|---|
| Setting Item List | Setting | ltem | | | | | | | | | | | |
| Setting Item List | Setting No. - - 1 2 3 4 5 6 7 8 9 10 Explana Set the [Setting Range of | tem Device N SB SW RX RY RV RW LB LW tion start number range] gepends on 1 | ame | Link Side Points 32 32 4 4 4 32 32 32 32 adecimal) evice setti | 5 Start 00000 0000 000000 | End 0001F 00003 00003 0001F 0001F | tt tt tt tt tt tt tt tt tt tt tt tt tt | Target Specify Devic Specify Devic Specify Devic Specify Devic Specify Devic | CPU S Device Nar X X V W W B W W W V B V V V V V V V V V V V | iide ne Points 32 32 4 4 32 32 32 1 1 1 1 1 1 1 1 1 1 1 1 1 | Start 01000 0100 00100 00000 | End 0101F 0101F 00103 00203 0001F 0001F | * |
| Item List Find Result | | Chec <u>k</u> | | | Restor | e the Def | a <u>u</u> lt Setti | ngs | | | | | ~ |
| | | | | | | | | | | | Дрр | ly | |

25. Select [Convert] in the menu bar and select [Rebuild All].



26. Click the [OK] button.



27. Select [Online] in the menu bar and select [Write to PLC].



28. Click the [Parameter + Program] button and then the [Execute] button.

| Bankar String Related Functions Parameter + Program (F) Select All(1) Deselect All(1) Deselect All(1) Deselect All(2) Deselect All(2) | nline Data Operation | | | | | | | | | — | | × |
|--|---|------|---|--------|--------|--------|--|----------------------|----------------|-----------|-----|-----|
| Wree Legend Open/Close Al(C) Deselect Al(N) Deselect Al(N) Detail Title Last Change System Parameter / CPU Parameter Image: CPU Parameter Variable Parameter | Jisplay Setting Related Functions | | | | | | | | | | | |
| Parameter + Program() Select All() Deselect All()) CPU Bulkt-inMemory Is SD Memory Card Intelligent Function Module Module Name/Data Name Image: CPU Bulkt-inMemory Is SD Memory Card Intelligent Function Module Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Bulkt-inMemory Image: CPU Braneter Image: CPU Braneter Image: CPU Braneter Image: CPU Braneter Image: CPU Braneter Image: CPU Braneter Image: CPU Braneter Image: CPU Braneter Image: CPU Braneter Image: CPU Braneter | 🖳)) 🎧 Write 🛄 🌔 🎧 | Read | 1 | Verify | 🖳 🧳 | Delete | | | | | | |
| Module Name/Data Name Image: Size (Byte) Image: Not Calculated Project Image: Size (Byte) Image: Not Calculated Parameter Image: Size (Byte) Image: Name Parameter | Parameter + Program(E) Select All Legend Open/Close All(T) Deselect All(N) CPU Built-in Memory SD Memory Card Intelligent Function Module | | | | | | | | | | | |
| Image: Style of Lass | Module Name/Data Name | * | | | Detail | Title | | Last Change | Size (Byte) | | | ^ |
| Image: Parameter Image: Parameter (PU Parameter Image: Parameter Image: Parameter (PU Parameter) Image: Parameter) Image: Parameter) <t< td=""><td>💷 📲 Untitled Project</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | 💷 📲 Untitled Project | | | | | | | | | | | |
| Image: System Parameter/CPU Parameter Image: System Parameter/CPU Parameter Image: System Parameter <t< td=""><td>Parameter</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | Parameter | | | | | | | | | | | |
| Image: Module Parameter Image: Module Parameter <td>System Parameter/CPU Paramet</td> <td>er 🗹</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1/17/2024 10:08:13</td> <td>Not Calculate</td> <td>d</td> <td></td> <td></td> | System Parameter/CPU Paramet | er 🗹 | | | | | | 1/17/2024 10:08:13 | Not Calculate | d | | |
| Image: Memory Card Parameter 1/17/2024 9:59:02 AM Not Calculated Image: Remote Password Image: Remote Password </td <td>- 🚳 Module Parameter</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1/17/2024 10:15:23</td> <td>Not Calculate</td> <td>d</td> <td></td> <td></td> | - 🚳 Module Parameter | | | | | | | 1/17/2024 10:15:23 | Not Calculate | d | | |
| Image: Program Image | Memory Card Parameter | | | | | | | 1/17/2024 9:59:02 AM | Not Calculate | d | | |
| Image: Sign Sign Sign Sign Sign Sign Sign Sign | Remote Password | | | | | | | 1/17/2024 9:59:02 AM | Not Calculate | d | | |
| Image: Strate Setting Image: Strate Set | 🗆 🎁 Global Label | | | | | | | | | | | |
| Image: Sign of Less Program Image: Sign of Less Sign of Less <t< td=""><td colspan="8">Global Label Setting I 1/17/2024 9:59:04 AM No</td><td colspan="2">Not Calculated</td><td></td></t<> | Global Label Setting I 1/17/2024 9:59:04 AM No | | | | | | | | Not Calculated | | | |
| Image: Main matrix Image: Ma | Program 🗹 🖌 Detail | | | | | | | | | | | |
| Image: Stressed Decressed Software Free Free: 5% or Less SD Memory Card Free | MAIN | ✓ | | | | | | 1/17/2024 9:59:04 AM | Not Calculate | d | | |
| Display Memory Capacity Image: Constraint of the constra | | | | | | | | | | | | |
| Display Memory Capacity V Memory Capacity Program Memory Spe Calculation Free Legend Data Memory Used Data Memory Free 1916/2049KB Device/Label Memory (File Storage Area) Free Spe Calculation Free Pree: 5% or Less SD Memory Card Spe Calculation Free QNKB SD Memory Card | A MATN | | | | Detail | 1 | | 1/17/2024 Q+5Q+04 AM | - | | | × 1 |
| Memory Capacity Program Memory Free Sipe Calculation Program Memory Free Legend Data Memory Free Used Data Memory Free Decreased Decreased S56/256K8 Free: 5% or Less S0 Memory Card Free Output Free 00K8 | Disp <u>l</u> ay Memory Capacity | | | | | | | | | | | |
| Spe Calculation 160/160K8 Legend Data Memory Free Used Device/Label Memory (File Storage Area) Free Decreased Device/Label Memory (File Storage Area) Free Free: 5% or Less SD Memory Card Free OW SD Memory Card Free OW OW OW | Memory Capacity Program Memory – | | | | | | | | | Free | | |
| Legend Data Memory Free Used Increased 1916/2049KB Increased Device/Label Memory (File Storage Area) Free Percessed SD Memory Card Free SD Memory Card Free 000KB | Size Calculation | | | | | | | | 160/160KB | | | |
| Used 1916/2049KB Increased Device/Label Memory (File Storage Area) Free Decreased | Legend Data Memory | | | | | | | | | Free | | |
| Increased Device/Label Memory (File Storage Area) Free Decreased | Used | | | | | | | | | 1916/2049 | KB | |
| Decreased 256/256K8 Free: 5% or Less SD Memory Card Free Output Free 0/0KB | Increased Device/Label Memory (File Storage Area) | | | | | | | | | Free | | |
| Free: 5% or Less SD Memory Card Free 0/0KB | | | | | | | | | | 256/256KB | | |
| 0/0KB | SD Memory Card - | | | | | | | | | Free | | |
| | Free, 570 OF Less | | | | | | | | | 0/0KB | | |
| | | | | | | | | | | ••• | | |
| <u>E</u> recute Close | | | | | | | | | Execute | | Clo | se |

 $\ensuremath{\textbf{29.}}$ When the window below appears, click the [Yes to all] button.

| MELSOFT GX | Works3 | |
|------------|--|---|
| <u> </u> | The following file already exists, Are you sure you want to overwrite it? | |
| System Par | ameter | ~ |
| Skip wri | ting for the files that have not been changed. | |
| Yes | s Yes to <u>a</u> ll | |
| No | No to all Cancel | |

30. After the parameters are written, click the [Close] button to close the window.

| Write to PLC | | | | | | | | | |
|---|------------------------|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
| | 6/6 | | | | | | | | |
| | 100/100% | | | | | | | | |
| | | | | | | | | | |
| System Parameter: Skip Wining. CPU Parameter: Skip Wining. Remote Password: Skip Wining. Module Parameter: Skip Wining. Program File(MATIN): Skip Wining. Postprocessing Completed Write to PLC : End | ~ | | | | | | | | |
| The window is automatically closed when the opera | v tion is completed | | | | | | | | |
| uccessfully. | | | | | | | | | |
| Close | | | | | | | | | |

31. Set the RUN/STOP/RESET switch of the CPU module to the RESET position. When all the LEDs turn off on the CPU module, return the switch to the STOP position. (Powering off and on the module is regarded as the same operation above.)



Set the switch to the RESET position (left).

The CPU module is reset.

Precautions

When the ERROR LED is on or flashing, check the error details on GX Works3 and eliminate the cause(s).

3 OPERATION CHECK

This chapter describes the procedures for checking communications between the master station and the local station and between the master station and the remote station.

Power on the remote station and connect a personal computer (GX Works3) to the master station.

Set the RUN/STOP/RESET switches on the CPU modules of the master and local stations to the RUN position.



When a data link is normally performed, the D LINK LEDs on the RJ71GN11-T2s of the master and local stations and the DATA LINK LED on the NZ2GN2S1-32DT of the remote station turn on.



Precautions

When the ERROR LED is on or flashing, check the error details on GX Works3 and eliminate the cause(s).

Checking communications between the master station and the local station

Checking communications from the master station to the local station

This section describes the procedure for checking communications between the master station and the local station using the LB/LW data set in the refresh settings.



Operating procedure

1. Start the project data of the master and local stations on a personal computer.



2. Select [Online] in the menu bar ⇒ [Watch] ⇒ [Register to Watch Window] and click [Watch Window 1] on GX Works3 of the master station.



3. Enter [B0] and [W0] in [Name]. ⇔ Click [Start Watching].

| Watch 1 | | | | д х |
|---------|--------------------------|---------------------|------------------------------------|------------|
| | 🗗 ON/OFF toggle 🕴 🛃 Upda | ate 🛛 🗙 Clear All 💈 | 🕄 Start Watching 🛛 🛒 Stop Watching | |
| Name | Current Value | Display Format | Data Type | English |
| 😰 B0 | - | BIN | Bit | |
| 🔮 W0 | - | Decimal | Word [Signed] | |
| | | | | |

4. Enter the value in [Current Value].

- B0 ⇔ TRUE
- W0 ⇒ 1234

| Watch 1[Watching] | Natch 1[Watching] | | | | | | | | | | |
|-------------------|--------------------------|-----------------------|------------------------------------|---------|--|--|--|--|--|--|--|
| | 🕂 ON/OFF toggle 🛃 Upda | ate 👿 Clear All 🌌 | 🗟 Start Watching 🙀 Stop Watching | | | | | | | | |
| Name | Current Value | Display Format | Data Type | English | | | | | | | |
| 👰 ВО | TRUE | BIN | Bit | | | | | | | | |
| 🔮 W0 | 1,234 | Decimal | Word [Signed] | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

5. Change the connection destination to the local station.

Select [Online] ⇒ [Current Connection Destination] to display the "Specify Connection Destination Connection" window on GX Works3 of the local station.

| Current Connection Destination | <u>O</u> nline | De <u>b</u> ug | <u>R</u> ecording | <u>D</u> iagnostics |
|--------------------------------|----------------|----------------|-------------------|---------------------|
| | | | | |

- 6. Set the following and click the [OK] button.
- PC side I/F: Serial USB
- PLC side I/F: PLC Module
- Other Station Setting: Other Station (Single Network)
- Network Communication Route: CC IE TSN
- Network No.: 1
- Station No.: 2



7. Select [Online] in the menu bar ⇒ [Watch] ⇒ [Register to Watch Window] and click [Watch Window 1].



8. Enter [B0] and [W0] in [Name]. \Rightarrow Click [Start Watching].

| I | Watch 1 | | | | 4 × |
|---|---------|--------------------------|-----------------------|------------------------------------|------------|
| I | | 🕂 ON/OFF toggle 🛛 🛃 Upda | ate ᆽ Clear All 🛛 🖉 | 🕄 Start Watching 📲 📆 Stop Watching | |
| I | Name | Current Value | Display Format | Data Type | English |
| | 🚱 B0 | | BIN | Bit | |
| | 🚱 W0 | | Decimal | Word [Signed] | |
| | | | | | |
| | | | | | |

 $\textbf{9.} \quad \text{Check that the value input at the master station is transferred}.$

| Watch 1[Watching] | /atch 1[Watching] 4 × | | | | | | | | | | |
|-------------------|--|----------------|---------------|---------|--|--|--|--|--|--|--|
| | 🎚 ON 🕇 🖡 OFF 💤 ON/OFF toggle 😰 Update 👳 Clear All 🕅 Start Watching 📆 Stop Watching | | | | | | | | | | |
| Name | Current Value | Display Format | Data Type | English | | | | | | | |
| 👰 ВО | TRUE | BIN | Bit | | | | | | | | |
| 🔮 W0 | 1,234 | Decimal | Word [Signed] | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

3

Checking communications from the local station to the master station

Check that data is successfully sent from the local station to the master station. Store a new value in the device while connected to the local station.



Operating procedure

1. Enter [B10] and [W10] in [Name] on the "Watch 1" window.

| Watch 1[Watching] | Vatch 1[Watching] 4 × | | | | | | | | | | | |
|--|-----------------------|----------------|---------------|---------|--|--|--|--|--|--|--|--|
| 📲 ON 🛛 🕇 🖢 OFF 🛛 🗚 ON/OFF toggle 🛛 😰 Update 🛛 👳 Clear All 🛛 🕅 Start Watching 🛛 式 Stop Watching | | | | | | | | | | | | |
| Name | Current Value | Display Format | Data Type | English | | | | | | | | |
| 👰 ВО | TRUE | BIN | Bit | | | | | | | | | |
| 🚱 W0 | 1,234 | Decimal | Word [Signed] | | | | | | | | | |
| 🚱 B10 | FALSE | BIN | Bit | | | | | | | | | |
| 🔮 W10 | 0 | Decimal | Word [Signed] | | | | | | | | | |
| | | | | | | | | | | | | |

- 2. Enter the value in [Current Value].
- B10 ⇒ TRUE
- W10 🕏 5678

| Watch 1[Watching] | Vatch 1[Watching] III-ON ↓ I-OFF ↓ ON/OFF toggle 🖉 Update 👳 Clear All Start Watching Stop Watching | | | | | | | | | | |
|---|---|---------|---------------|--|--|--|--|--|--|--|--|
| Name Current Value Display Format Data Type English | | | | | | | | | | | |
| 👰 ВО | TRUE | BIN | Bit | | | | | | | | |
| 🚱 W0 | 1,234 | Decimal | Word [Signed] | | | | | | | | |
| 👰 B10 | TRUE | BIN | Bit | | | | | | | | |
| 🔮 W10 | 5,678 | Decimal | Word [Signed] | | | | | | | | |
| | | | | | | | | | | | |

3. Change the connection destination to the master station. Select [Online] in the menu bar ⇒ [Watch] ⇒ [Register to Watch Window] and click [Watch Window 1] on GX Works3 of the master station.

| <u>O</u> nli | ne De <u>b</u> ug <u>R</u> ecording <u>D</u> iagnosti | cs | Too | N N | (indow <u>H</u> | elp | | | | | |
|-------------------|---|----|-----|-------------|---------------------|-------------------|------------|---|------------|-------------|--|
| | Current Connection Destination | | 50 | 🕄 🖡 | 8 11 15 | i 🖓 🔝 | 🗳 🚑 📮 | , 🖳 🔜 | ÐQ | 84% | - <u>-</u> i m |
| | Read from PLC | | ta. | | | - | | | | 1 | : • • • • • • • • • • • • • • • • • • • |
| - 50 | Write to PLC | | | - - | @ •2 • | | | : ::::::::::::::::::::::::::::::::::::: | n ø 🛤 | | 1 김 연 년 |
| | Verify with PLC | | 460 | | HEE HHHEE 1 | | PS 11- 11- | | | | |
| | Remote Operation(<u>S</u>) | | | | | | | | | | |
| | Safety PLC Operation | • | - | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | Redundant PLC Operation(G) | • | - | | | | | | | | {END } |
| | CPU Memory Operation | | - | | | | | | | | |
| | Delete PLC Data | | | | | | | | | | |
| | Us <u>e</u> r Data | • | | | | | | | | | |
| | Set <u>C</u> lock | | | | | | | | | | |
| <u>M</u> onitor ► | | | | | | | | | | | |
| | Motion Monitor(<u>B</u>) | ٠ | | | | | | | | | |
| | FB Property Management (Online) | | | | | | | | | | |
| | Wa <u>t</u> ch | • | | Sta | rt <u>W</u> atching | | | | | | |
| | User Authentication | ۲ | | Sto | p Watching | Shi | ift+Alt+F3 | | | | |
| | | | | Reg | jister to Wat | c <u>h</u> Windov | w I | v | /atch Wind | ow <u>1</u> | |
| | | | | <u>B</u> at | ch Register | to Watch V | Vindow I | • v | /atch Wind | ow <u>2</u> | 1 |
| | | | | | | | | v | /atch Wind | ow <u>3</u> | |
| | | | | | | | | v | /atch Wind | ow <u>4</u> | |
| | | | | | | | | | | | 2 |

- **4.** Enter [B10] and [W10] in [Name]. ⇒ Click [Start Watching].
- **5.** Check that the value input at the local station is transferred.

| Watch 1[Watching] | | | | |
|--|---------------|----------------|---------------|---------|
| 📲 ON 🛛 🕇 OFF 🛛 👫 ON/OFF toggle 🛛 😰 Update 🛛 菜 Clear All 🛛 छ Start Watching 🛛 🔤 Stop Watching | | | | |
| Name | Current Value | Display Format | Data Type | English |
| 👰 ВО | TRUE | BIN | Bit | |
| 🔮 W0 | 1,234 | Decimal | Word [Signed] | |
| 👰 B10 | TRUE | BIN | Bit | |
| 🔮 W10 | 5,678 | Decimal | Word [Signed] | |
| | | | | |
| | | | | |

Checking communications between the master station and the local station is completed.

Checking communications from the master station to the remote station

Check that data is successfully sent from the master station to the remote station.



Operating procedure

1. Start the project data of the master station on a personal computer.



2. Select [Online] in the menu bar ⇒ [Watch] ⇒ [Register to Watch Window] and click [Watch Window 2].



| Watch 2 | | | | ų × |
|--|---------------|----------------|-----------|---------|
| 📲 ON 🖥 OFF 🛃 OFF Stoggle 🛛 🖉 Update 🛛 👳 Clear All 🖉 Start Watching 🖉 Stop Watching | | | | |
| Name | Current Value | Display Format | Data Type | English |
| 👔 Y1010 | | BIN | Bit | |
| | | | | |
| | | | | |

4. Enter the value (TRUE) in [Current Value] of Y1010.

| Watch 2[Watching] | | | | ά× |
|--|----------|----------------|-----------|---------|
| 📲 ON 🛛 🕇 🖿 OFF 🛛 👫 ON/OFF toggle 🛛 🖉 Update 🛛 菜 Clear All 🛛 छ Start Watching 🛛 📆 Stop Watching | | | | |
| Name Currer | nt Value | Display Format | Data Type | English |
| 💿 Y1010 TRUE | | BIN | Bit | |
| | | | | |

5. Check that Y10 LED at the remote station turns on.

| _ | ¥10 |
|---|-----|
| | |
| | |

Checking communications between the master station and the remote station is completed.

4 CONNECTING TSN HUB

The network can be configured in a star topology via a TSN hub.

This chapter describes an example which uses the CC-Link IE TSN industrial managed switch (NZ2MHG-TSNT8F2).



Key feature of star topology

A star topology can operate in the same way as a line topology.

In a line topology, when an error occurs in a device station (a station other than the master station (local station or remote station)), the stations connected after the faulty station are disconnected. In a star topology, even when an error occurs in a device station, communications can be continued with the stations that are operating normally. Devices can be flexibly added even after the system is configured.

Connection method

To connect the CC-Link IE TSN compatible devices, the following settings must be the same in the entire CC-Link IE TSN system.

- Time synchronization method
- Communication cycle

When these settings of the master station are default, a TSN hub can communicate with the default settings. Set the TSN hub with a web interface or CLI.

Precautions

When the settings of the master station and the connected CC-Link IE TSN compatible devices and the settings of the TSN hub are set differently, communications may not be performed.

For the details, refer to the manuals in RELEVANT MANUALS.

Operating procedure

The following describes how to connect the TSN hub to the web interface.

1. Connect the personal computer and the TSN hub with an Ethernet cable.



2. For the IP address of the port on the personal computer connected with the Ethernet cable, set the same IP address of the TSN hub.

The default IP address of the TSN hub is set as follows.

- IP address: 192.168.3.252
- Subnet mask: 255.255.255.0

| Internet Protocol Version 4 (TCP/IPv4) | Properties | × | |
|---|---------------------|----|--|
| General | | | |
| You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings. | | | |
| O Obtain an IP address automatical | ly | | |
| IP address: | 192 . 168 . 3 . 100 | | |
| Subnet mask: | 255.255.255.0 | | |
| Default gateway: | · · · | | |
| Obtain DNS server address automatically | | | |
| Use the following DNS server add | resses: | 11 | |
| Preferred DNS server: | | | |
| Alternate DNS server: | | | |
| Ualidate settings upon exit | Ad <u>v</u> anced | | |
| | OK Cance | | |

3. Access the web interface.

Enter the IP address of the TSN hub into a web browser and access the web interface.



To access the web interface in the encrypted communications (SSL communications), enter the IP address starting with "https://".

4. Log in.

Enter the account information and log in. The default settings are as follows.

- User name: admin
- Password: admin



| Username | | |
|----------------|--|--|
| Password | | |
| Login | | |
| NZ2MHG-TSNT8F2 | | |

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5. When the login is successful, a dialog box and the web interface window will appear.



Precautions

- When a proxy server is used, the web interface may not be accessed depending on the proxy server settings. If so, correct the proxy server settings.
- The web interface may not be accessed depending on the firewall settings. If so, correct the firewall settings.
- When accessing the web interface, enable JavaScript and Cookie in the web browser settings.
- For security measures, change the default account information at login.

Point P

For details on the settings and functions of the TSN hub using the web interface, refer to the manuals in RELEVANT MANUALS.

5 CHECKING CONNECTION STATUS WITH CC-Link IE TSN DIAGNOSTICS

This chapter describes the procedure for checking whether an error occurs in devices or cables connected in a system using the CC-Link IE TSN/CC-Link IE Field diagnostics.

The status of each station can also be checked in the procedure.

Checking method

The following shows an example of system configuration where a personal computer (GX Works3) is connected to the master station.



Operating procedure

1. Select [Diagnostics] and [CC-Link IE TSN/CC-Link IE Field Diagnostics] in the menu bar.



2. Select a station to be checked.



3. The communication status of the selected station is displayed on the top of "Selected Station Communication Status Monitor".

When an error is detected, the [PORT1 Cable Disconnected] button or another error button is display so that the details and corrective actions can be confirmed by clicking the button.

| CC-Link IE TSN/CC-Link IE Field Diagnostics | |
|---|--|
| Select Diagnostics Destination | Monitor Status |
| Module Module 1 (Network No. 1) Change Module Select Station | ion No.0 V Monitoring Start Monitoring Stop Monitoring St. Info By Device Name V |
| Total Linked Stations 2 Total Linked Stations 1 Comm. Period (Parameter) 2 (Connected) 1 Communication Mode 4 Unicast 4 Communication | tion Change IP Address Display ed Next> Update(g) Legend Data Unlinked |
| Connected Sta. Master:0 Remote:1 P1 | |
| Selected Station Communication Status Monitor (RJ71GN11-T2) | Operation Test |
| Sta. No. 0 Error Network: CC IE TSN CC-Link IE TSN Class: B | Communication Test |
| MAC Address: IP Address: 192.168.3.253 | |
| | Information Confirmation/Setting |
| RUN ERR M MST D LINK P1SD/RD PORT1 Cable Disconnected P2SD/RD | Station Information List Able to check the one such as model name/IP address/F/W version of linked station in the list. |
| | Selected Station Operation |
| | Remote Operation CPU status of the selected station can be changed by starting remote operation of the selected station. |
| | Close |

RELEVANT MANUALS

For details, refer to the following relevant manuals.

| Manual name [manual number] | Description |
|---|---|
| MELSEC iQ-R Programmable Controller CPU Module User's Manual [SH-082488ENG] | Procedures before operation, specifications, devices, memory, functions, parameters, and troubleshooting of the programmable controller CPU module |
| MELSEC iQ-R CC-Link IE TSN User's Manual (Startup) [SH-082127ENG] | Specifications, procedures before operation, system configuration, wiring, and communication examples of CC-Link IE TSN |
| MELSEC iQ-R CC-Link IE TSN User's Manual (Application) [SH-082129ENG] | Functions, parameter settings, troubleshooting, I/O signals, and buffer memory of CC-Link IE TSN |
| CC-Link IE TSN Remote I/O Module User's Manual (CC-Link IE TSN Communication Mode) [SH-082135ENG] | Part names, specifications, procedures before operation, system configuration, installation, wiring, parameter settings, functions, programming, troubleshooting, and I/O signals of the I/O module to be used in CC-Link IE TSN communication mode |
| CC-Link IE TSN Industrial Managed Switch User's Manual [SH-082449ENG] | Specifications, procedures before operation, system configuration, installation, wiring, parameter settings, functions, and troubleshooting of the managed switch |
| GX Works3 Operating Manual [SH-081215ENG] | System configuration, parameter settings, and online operations of GX Works3 |

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