

CC-Link IE TSN - CC-Link Bridge Module

FA3-BR1TC

New Product Release | No. 24-03E

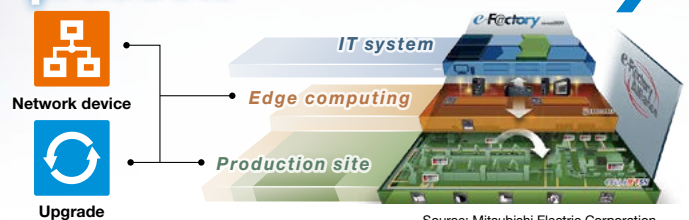
*Connect CC-Link devices to
CC-Link IE TSN networks*

CC-Link IE TSN



CC-Link V2

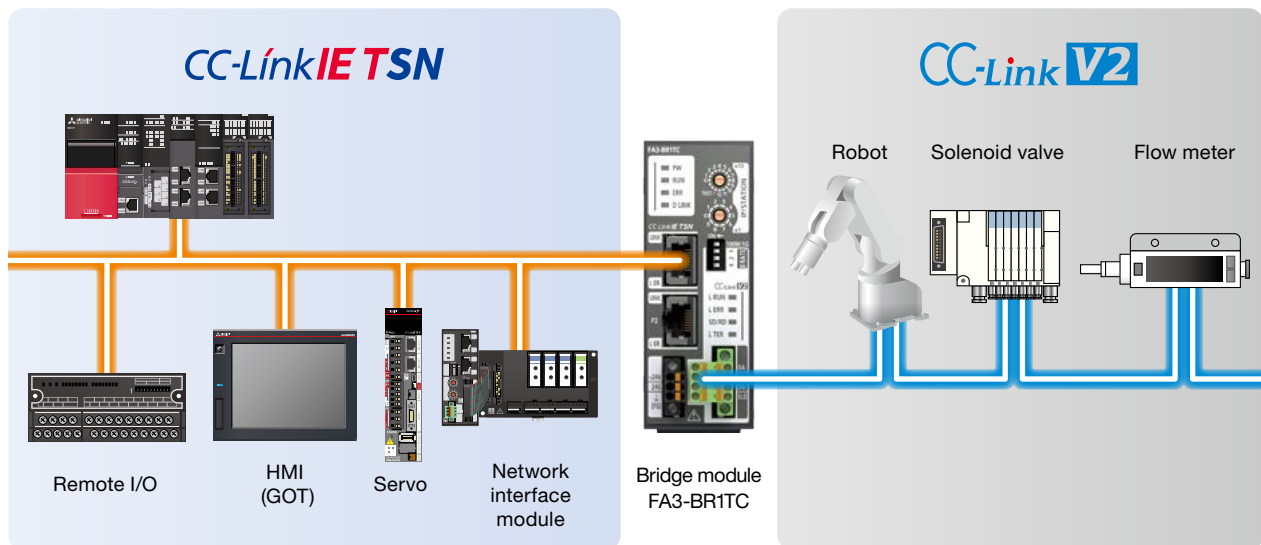
FA products **e-F@ctory**



Source: Mitsubishi Electric Corporation

Product overview

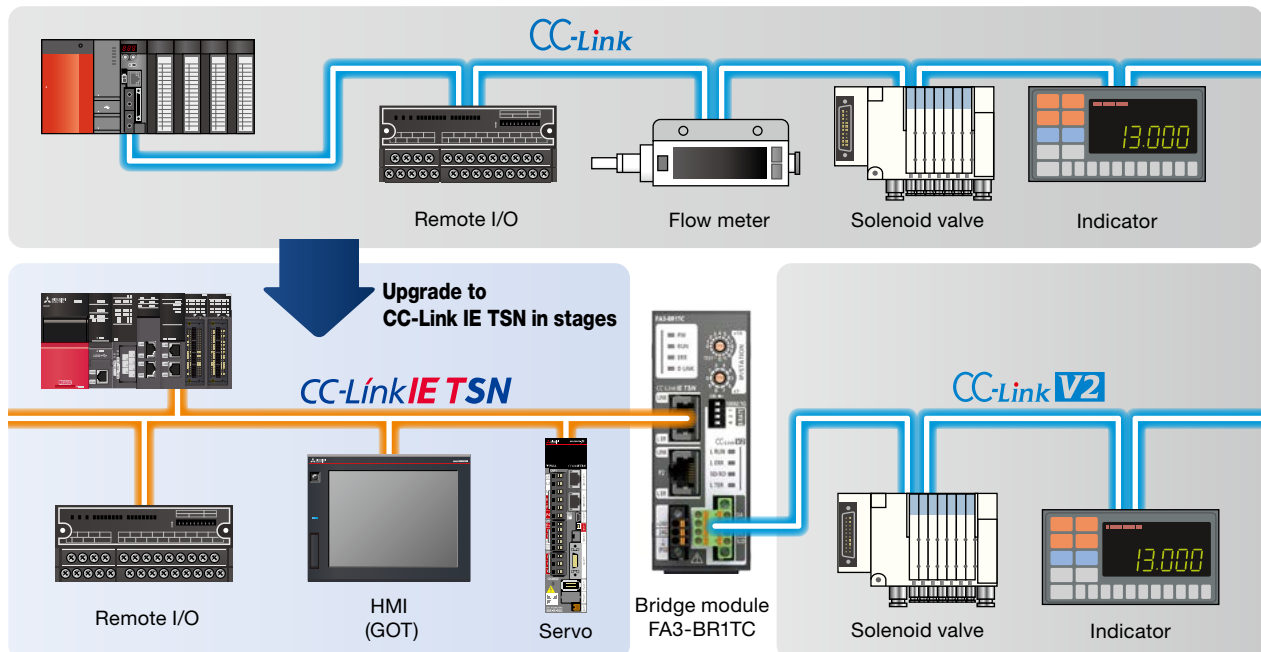
Connect CC-Link devices to CC-Link IE TSN networks



■ Control CC-Link devices from CC-Link IE TSN devices

- CC-Link master not required
- Control devices not in the CC-Link IE TSN lineup

Upgrade to CC-Link IE TSN in stages



■ Use existing devices, wiring, and operation data

- Using existing devices and wiring helps to cut costs and reduce construction time.
- Reusing devices reduces plastic usage.
- Collect new line/facility data and inspect it with MELSOFT GEMINI (a Mitsubishi Electric product).
- Reuse old line or facility operation data for new lines/facilities.

Setup support

Simple configuration using our engineering tool

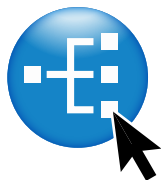
There is no need to setup multiple engineering tools and configure individual settings. CC-Link IE TSN and CC-Link devices can be configured with one tool.

STEP 1 Startup tool

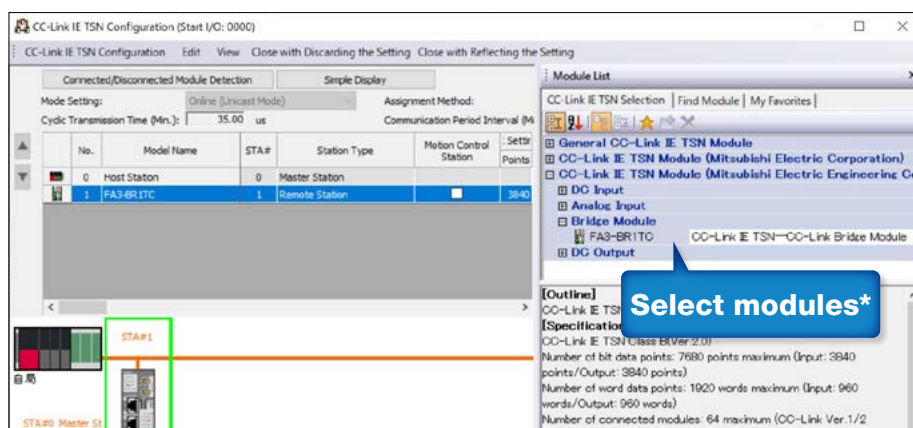


Startup GX Works3
(a Mitsubishi Electric product).

STEP 2 Add modules



Select modules from the "Module List" in the "CC-Link IE TSN Configuration" window.

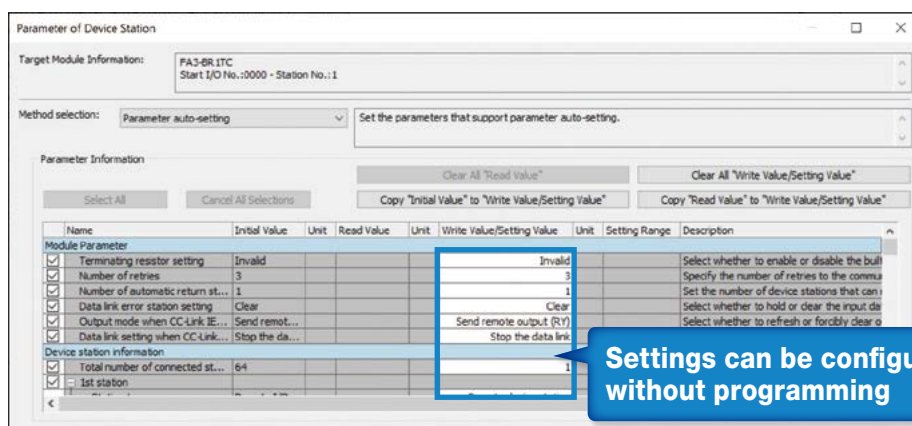


* If the module is not displayed in the list, import the CSP+ file.

STEP 3 Parameter settings



- CC-Link IE TSN and CC-Link parameters can be configured without any programming.
- There is no need to setup multiple engineering tools.
- The automatic detection function of the CC-Link system is supported.



Network status check with the engineering tool

The status of the network during setup can be checked with one tool.

STEP 1 Startup tool



Startup GX Works3
(a Mitsubishi Electric
product).

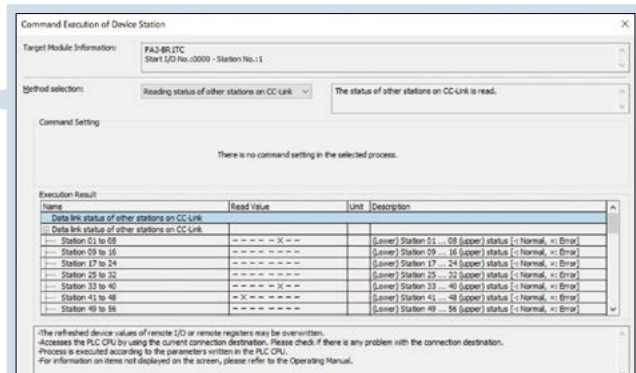
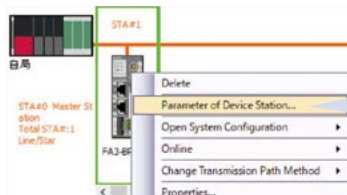
STEP 2 Display the Configuration window



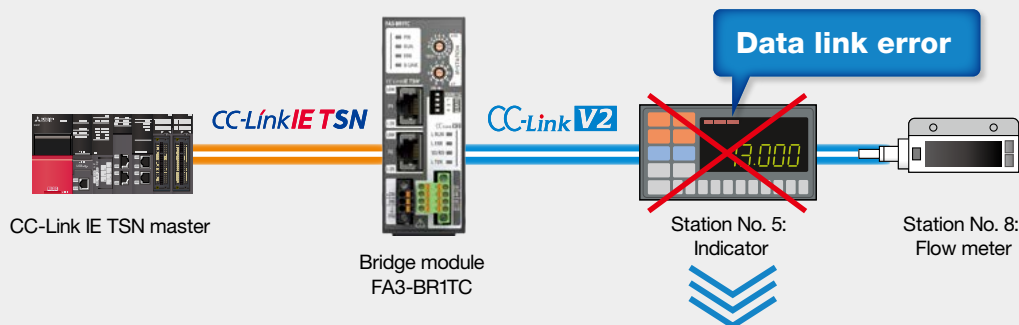
STEP 3 Check the connection status



Display the "CC-Link IE TSN Configuration" window and check the network connection status in the "Command Execution of Device Station" window.



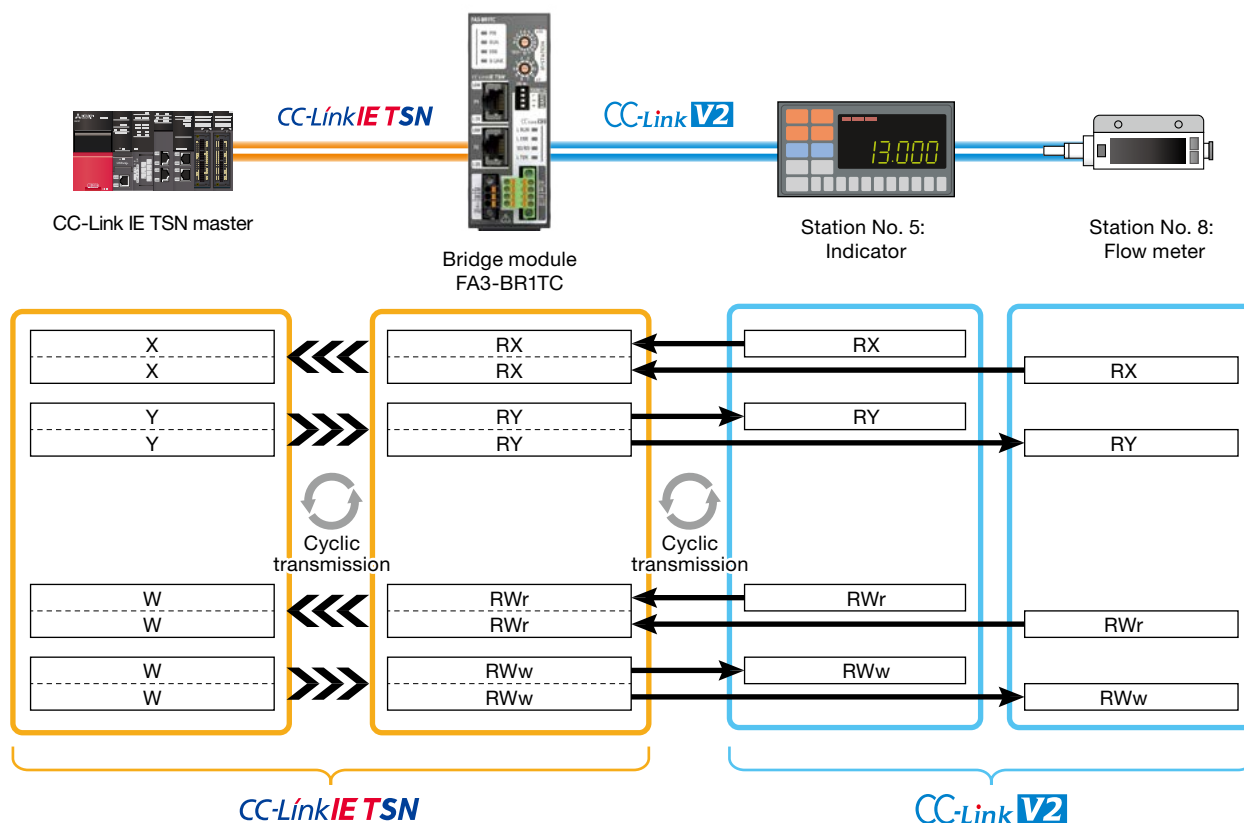
Data link error example



Name	Read value	Unit	Description
Data link status of other stations on CC-Link			
Data link status of other stations on CC-Link			
Station 01 to 08	-----X--		(Lower) Station 01 ... 08 (upper) status [-: Normal, x: Error]

Data communication between CC-Link IE TSN and CC-Link

Both CC-Link word data and bit data can be read/written to and from the CC-Link IE master station.



Product specifications

Item			Description
External connection method	CC-Link IE TSN communication section		RJ45 connector × 2
	CC-Link communication section		Terminal block for CC-Link system (2-piece spring clamp terminal)
	Module power supply section		Terminal block for module power supply and FG (2-piece spring clamp terminal block)
Applicable DIN rail			TH35-7.5Fe, TH35-7.5Al (JIS C 2812 compliant)
Connection cables and power wires	CC-Link IE TSN	1Gbps	Ethernet cable that meets the 1000BASE-T standard (straight/crossover) Category 5e or higher (double-shielded, STP) cable
		100Mbps	Ethernet cable that meets the 100BASE-TX standard (straight/crossover) Category 5 or higher (double-shielded, STP) cable
	CC-Link		Ver.1.10-compatible CC-Link dedicated cable (Mitsubishi Electric FA-CBL200PSBH, FANC-110SBH, CS-110)
			The terminal block slot size is 2.4mm × 1.5mm.
	Module power supply/FG terminal	Wire size	0.14 to 1.5mm ² (24 to 16 AWG)
		Type	Stranded wire or solid wire
		Material	Copper
		Temperature rating	75°C or more
	Module power supply	Voltage	
Current		150mA	
External Dimensions	H (height)		105mm
	W (width)		40mm
	D (depth)		70mm (excluding terminal block)
			86mm (including terminal block)
Weight			180g

Network specifications

Item				Description
CC-Link IE TSN	Communication speed			1Gbps/100Mbps
	Communication mode			1000BASE-T (full-duplex) / 100BASE-TX (full-duplex)
	Station type			Remote station
	Certification class			Class B Ver.2.0
	Topology			Line topology/Star topology/Mixture of star and line topology/Ring topology
	Number of link points	RX/RY		3840 points (480 bytes)/3840 points (480 bytes)
RWw/RWr		960 points (1920 bytes)/960 points (1920 bytes)		
CC-Link	Transmission speed			Select from 156Kbps, 625Kbps, 2.5Mbps, 5Mbps, and 10Mbps.
	CC-Link version			Ver.2.00
	Station type			Master station
	Maximum number of connectable stations			64 stations
	Maximum number of link points	CC-Link Ver.1	Remote I/O (RX/RY)	2048 points (256 bytes)/2048 points (256 bytes)
			Remote register (RWw/RWr)	256 points (512 bytes)/256 points (512 bytes)
		CC-Link Ver.2	Remote I/O (RX/RY)	3584 points (448 bytes)/3584 points (448 bytes)
			Remote register (RWw/RWr)	816 points (1632 bytes)/816 points (1632 bytes)
	Station-to-station cable length (minimum station-to-station distance)			20cm
Maximum overall cable length (maximum transmission distance)			156Kbps: 1200m / 625Kbps: 900m / 2.5Mbps: 400m 5Mbps: 160m / 10Mbps: 100m	

Versions that support CC-Link IE TSN

Class	Support
Class A Ver.2.0	×
Class B Ver.2.0	✓

CC-Link connection specifications

Send station	Receive station						
CC-Link Ver.2.00	CC-Link Ver.2.00			CC-Link Ver.1.10			
Master station	Local station	Intelligent device station	Remote device station	Local station	Intelligent device station	Remote device station	Remote I/O station
CC-Link IE TSN—CC-Link bridge module	×	×	✓ ^{*1}	×	×	✓ ^{*2}	✓ ^{*2}

*1: Extended cyclic communication

*2: Cyclic communication

Function List

Common specifications

Function	Description
Error history function	Checks the error history of this module using the engineering tool.
Unit test function	Checks for abnormalities with the module's hardware.

CC-Link IE TSN functions

Function	Description
Error notification function	Notifies the CC-Link IE TSN master station of CC-Link errors.
CC-Link IE TSN diagnostics	Checks the status of the module using the engineering tool. This function also checks the reasons of and solutions to errors.
Automatic parameter setting function	Automatically sets parameters via the master station when the module accesses or returns to the network.

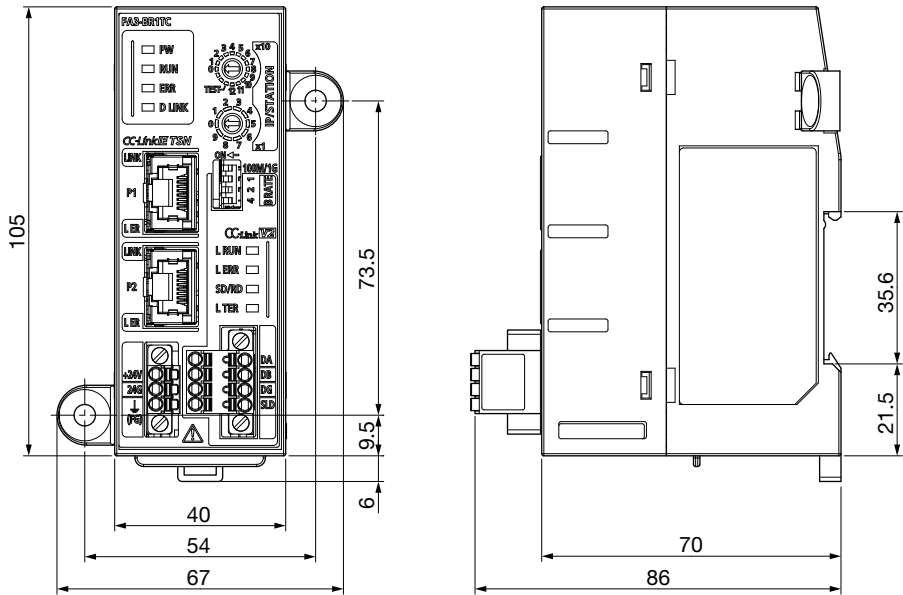
CC-Link functions

Function			Description
Cyclic transmission	Communication with other stations	Communication using RX and RY	Communicates I/O data between the module and other stations with bits.
		Communication using RWr and RWW	Communicates I/O data between the module and other stations with words.
	Link refresh		Refreshes the CC-Link IE TSN and CC-Link data in the module.
	Cyclic data assurance		Prevents read/write data from being separated from new and old data.
	Input data from data link faulty station		Holds or clears input data from stations with a faulty data link.
	CC-Link IE TSN Master station output Hold/Clear setting during CPU module STOP		Holds or clears the refresh data of Remote output (RY) to 0 when CC-Link IE TSN communications stop.
	Data link setting at CPU module error on CC-Link IE TSN master station		Stops or resumes data link when the CC-Link IE TSN communications stop.
	Setting at data link error on CC-Link IE TSN side		Holds or clears data sent to CC-Link when a data link error occurs in the bridge module.
	Data link stop and restart		Stops or restarts data link during operations such as debugging.
	Remote I/O station points setting		8, 16, or 32 refresh points can be selected.
RAS	Device station cut-off function		Continues data link with normally operating stations and disconnects device stations that cannot perform data link due to an error.
	Automatic return function		Automatically returns the disconnected device station to the network and restarts the data link when a disconnected station returns to normal.
Diagnostics	Line test		Checks whether data link with the device station is possible.
	CC-Link diagnostics		Checks the status of the CC-Link system.
Other	Reserved station function		Reserves a disconnected device station and does not recognize it as an error station.
	Error invalid station setting function		Prevents a device station from being detected as an error station.
	Temporary error invalid station setting function		Temporarily prevents a station from being detected as an error station when a device station data link error occurs.
	Automatic detection of connected devices function		Automatically detects connected devices in the "Device list".

■ Product configuration

Model	Included items:
FA3-BR1TC	<ul style="list-style-type: none">• Manual (Hardware)• Screw-in installation bracket• RJ45 dust cap

■ External dimensions



■ Related information

CC-Link Partner Association website


<https://www.cc-link.org/>

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MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED


NAGOYA ENGINEERING OFFICE | 1-9, Daiko-Minami, 1-Chome, Higashi-ku, Nagoya, Aichi 461-0047 Japan

Website



www.mitsubishielectricengineering.com/sales/fa/meefan/

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