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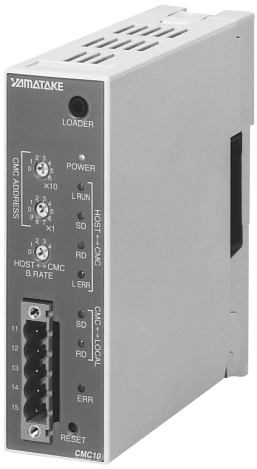
Specification

Communication Controller

CC-Link/CPL Converter
CMC10A

The communication controller CMC10A is a converter designed for the communication between Yamatake's digital indicating controller and Mitsubishi Electric's CC-Link without use of programs.
Use of the CMC10A makes it possible to automatically collect the data from the digital indicating controllers connected to the slave communication and to always refresh the data between the CC-Link master unit and CMC10A.
As a result, the software programming load is greatly reduced.

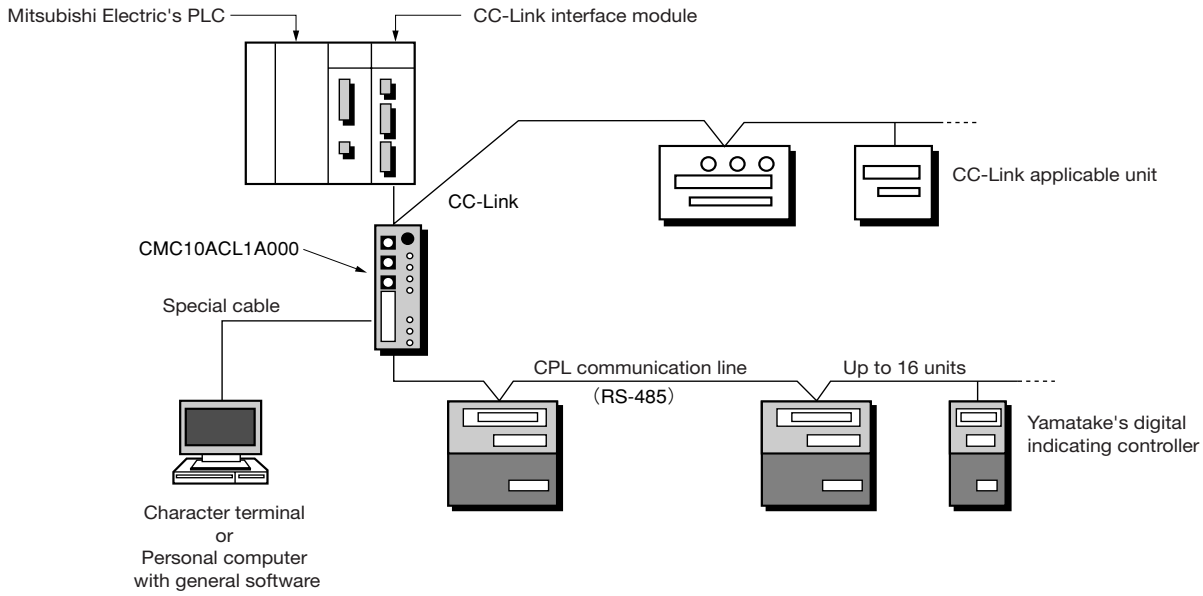


■ Features

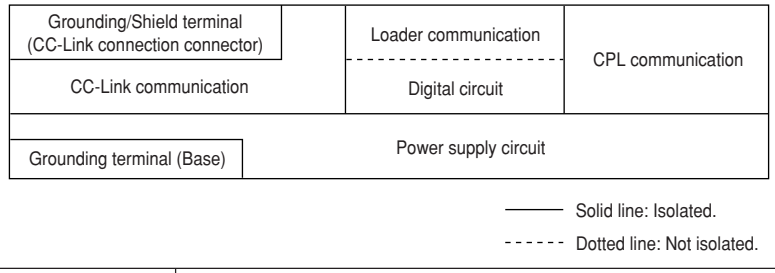
- **Program communication with Mitsubishi Electric's CC-Link can be performed.**
  One CMC10A unit can communicate with up to 16 digital indicating controllers.
- **PLC ladder software developing load is greatly reduced.**
  The CMC10A automatically collects the data from the digital indicating controllers connected to the slave communication. Additionally, the data between the CMC10A and CC-Link master unit is always refreshed.
  Therefore, when a communication system is constructed through CC-Link, the communication can be performed only using several program steps, greatly reduced when compared to the ladder program of the computer link unit (approx. 2000 steps).
- **Setup operation can be made with generally available communication software.**
  The setup of the CMC10A does not require any special application software and can be made with generally available communication software (TTY procedure).
- **Compact body**
  The outside dimensions of the CMC10A are only 30 × 100 × 105 mm.
  Additionally, the CMC10A is so designed that it can be mounted on the DIN rail, ensuring easy mounting.

* CC-Link is an abbreviation of Control & Communication Link, Mitsubishi Electric's field network.

■ Example of connection



<table>
<tr><td rowspan="20">Communica-tions</td><td rowspan="13">CC-Link Note (1)
(HOST ↔ CMC)</td><td>Communication method</td><td colspan="6">Broadcast polling method</td></tr>
<tr><td>Synchronization method</td><td colspan="6">Frame synchronization</td></tr>
<tr><td>Transmission line type</td><td colspan="6">Bus type (RS-485 compatible: 3-wire system)</td></tr>
<tr><td>Transmission speed</td><td colspan="6">10M/5M/2.5M/625K/156K bps</td></tr>
<tr><td>Station type</td><td colspan="6">Remote device station</td></tr>
<tr><td>Number of occupied stations</td><td colspan="6">4 stations are occupied.</td></tr>
<tr><td>Model type</td><td colspan="6">Temperature controller (Temperature controller 8-ch type or temperature controller 16-ch type can be selected using the setup.)</td></tr>
<tr><td>Remote station No.</td><td colspan="6">1 to 64 (Start station No. ranging from 1 to 61 is set.)</td></tr>
<tr><td rowspan="2">Maximum transmission distance Note (2)
(examples of maximum transmission distances with use of cable FANC-SB)</td><td>Transmission speed</td><td>10m</td><td>5m</td><td>2.5m</td><td>625K</td><td>156K</td></tr>
<tr><td>Total extension distance</td><td>100m</td><td>150m</td><td>200m</td><td>600m</td><td>1200m</td></tr>
<tr><td>Number of connection units</td><td colspan="6">Units satisfying the following formulas (1) and (2) can be connected.
(1 x a) + (2 x b) + (3 x c) + (4 x d) ≤ 64 ..... (1)
a: Number of units occupying station 1, b: Number of units occupying station 2
c: Number of units occupying station 3, d: Number of units occupying station 4
(16 x A) + (54 x B) + (88 x C) ≤ 2304 ..... (2)
A: Number of units occupying station 1, B: Number of units occupying station 2
C: Number of units occupying station 3, D: Number of units occupying station 4
For example, when only the CMC10A is connected, up to 16 units can be connected.</td></tr>
<tr><td>Connection cable</td><td colspan="6">Special CC-Link cable</td></tr>
<tr><td>Terminating resistor (3)</td><td colspan="6">Terminating resistor unit (optional unit)
110Ω: 81446717-001(2 pcs./set)
130Ω: 81446717-002 (2 pcs./set)</td></tr>
<tr><td>Connection connector</td><td colspan="6">Model No. 81440792-001 (4 pcs./set, optional unit)</td></tr>
<tr><td colspan="7">Note (1) CC-Link is an abbreviation of Control & Communication Link.
For details about CC-Link specifications, see the User's Manual for CC-Link system master local unit published by Mitsubishi Electric.</td></tr>
<tr><td colspan="7">Note (2) In the CC-Link, the specifications of the maximum transmission distance may vary depending on the cable type, transmission speed, total number of remote units, minimum distance between stations, and/or system configuration.
For details, see Mitsubishi Electric's sequencer technical news No. PLC-D-330.</td></tr>
<tr><td colspan="7">Note (3) In the CC-Link, the specifications of the terminating resistor may vary depending on the cable type.
For details, see Mitsubishi Electric's sequencer technical news No. PLC-D-330.</td></tr>
<tr><td rowspan="8">CPL communications
(CMC ↔ LOCAL)</td><td>Communication method</td><td colspan="5">Half duplex method</td></tr>
<tr><td>Synchronization method</td><td colspan="5">Start-stop synchronization</td></tr>
<tr><td>Transmission line type</td><td colspan="5">Bus type (RS-485 compatible: 3-wire system)</td></tr>
<tr><td>Transmission speed</td><td colspan="5">9600 bps</td></tr>
<tr><td>Transmission distance</td><td colspan="5">Up to 500m</td></tr>
<tr><td>Number of connection units</td><td colspan="5">Up to 16 units (Up to 8 units when using temperature controller 8-ch type)</td></tr>
<tr><td>Data format</td><td colspan="5">8 data bits, 1 stop bit, even parity</td></tr>
<tr><td>Communication address</td><td colspan="5">1 to 127 (LOCAL station address)</td></tr>
<tr><td>Connection applicable models</td><td colspan="5">SDC10-series, SDC20/21-series, SDC30/31-series and SDC40A series (standard model)
Models with optional RS-485 communication of each model-series</td></tr>
<tr><td rowspan="5">Loader communications
(CMC ↔ PC)</td><td>Communication method</td><td colspan="5">Half duplex method</td></tr>
<tr><td>Synchronization method</td><td colspan="5">Start-stop synchronization</td></tr>
<tr><td>Transmission line type</td><td colspan="5">Special cable 81440793-001 (optional unit) is used.</td></tr>
<tr><td>Control method</td><td colspan="5">Non-procedure (TTY procedure)</td></tr>
<tr><td>Transmission speed</td><td colspan="5">9600 bps</td></tr>
<tr><td>Data format</td><td colspan="5">8 data bits, 1 stop bit, even parity</td></tr>
</table>

General specifications	**Rated power voltage**	24Vdc	
	Operating power voltage	21.6 to 26.4Vdc	
	Power consumption	5W (under operating conditions)	
	Insulation resistance	50MΩ or more when measured using 500Vdc-Megger (between case or grounding terminal and power terminal)	
	Dielectric strength	500Vac for 1 min. (between case or grounding terminal and power terminal)	
	Isolation		
	Operating conditions	Ambient temperature	0 to 50°C
		Ambient humidity	30 to 90%RH
	Transport/Storage conditions	Ambient storage temperature	–20 to +70°C
		Ambient storage humidity	10 to 90%RH
		Vibration resistance	4.9m/s^2 or less
		Package drop test:	Drop height 60 cm free fall
	Screw tightening torque	Connector for CC-Link connection	Terminal part: 0.8 N·m Mounting part: 0.8 N·m
		Power supply and CPL communication terminals	0.8 to 1 N·m
	Mounting	Screw mounting or DIN rail mounting	
	Mask/Case	Mask/Case materials	Mask: Polycarbonate, Case: Polycarbonate, Base: Polycarbonate
		Mask/Case color	Mask: Navy blue, Case: Light gray, Base: Light gray
	Mass	300g	

Optional units (separately sold units)	**Unit name**	**Model No.**	**Contents**
	Connector set	**81440792-001**	Connector set for CC-Link connection (4 pcs./set)
	Special cable	**81440793-001**	Special cable for loader communication (1 set/set) (Jack ↔ D-SUB 25-pin, D-SUB 25-pin ↔ 9-pin)
	Terminating resistor unit (110Ω)	**81446717-001**	110Ω terminating resistor unit (2 pcs./set)
	Terminating resistor unit (130Ω)	**81446717-002**	130Ω terminating resistor unit (2 pcs./set)

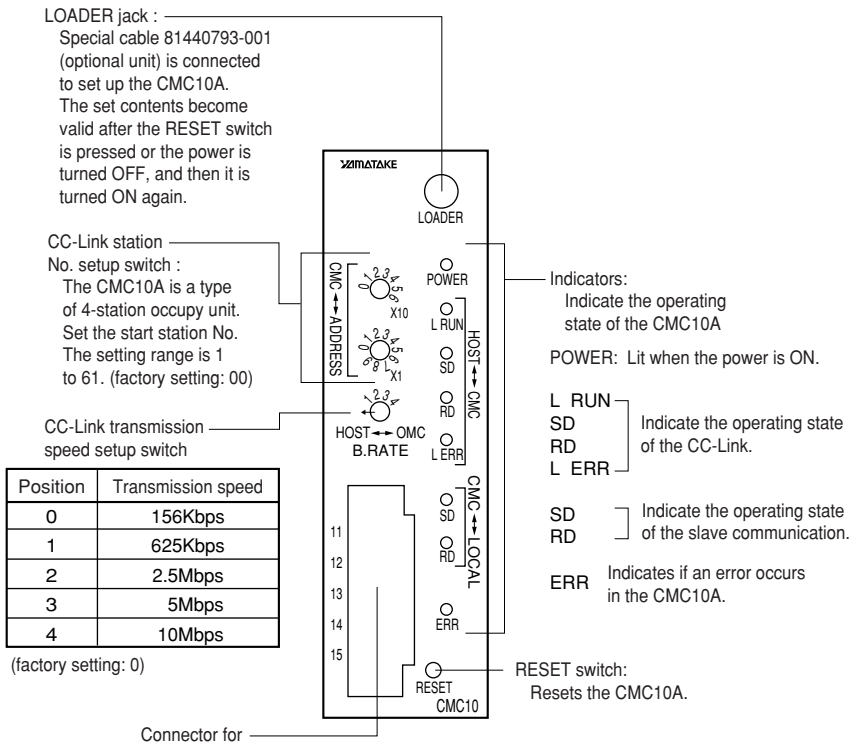
Model selection guige

I II III IV V **Example: CMC10ACL1A000**

I	II	III	IV	V	Contents
Basic model	**Additional No.**	**Application**	**Mounting**	**Option**	
CMC10					Communication controller
	A				Additional No.
		CL1			Applicable to CC-Link
			A		Left and right base connectors provided.
				000	None

■ Terminal/Connector connections

● Body

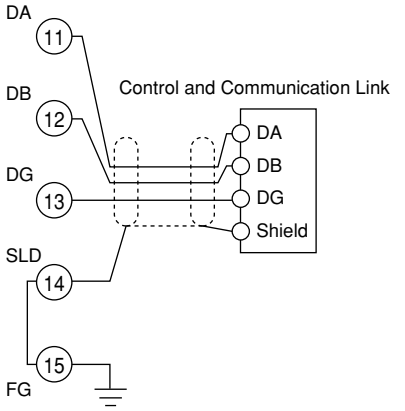


Position	Transmission speed
0	156Kbps
1	625Kbps
2	2.5Mbps
3	5Mbps
4	10Mbps

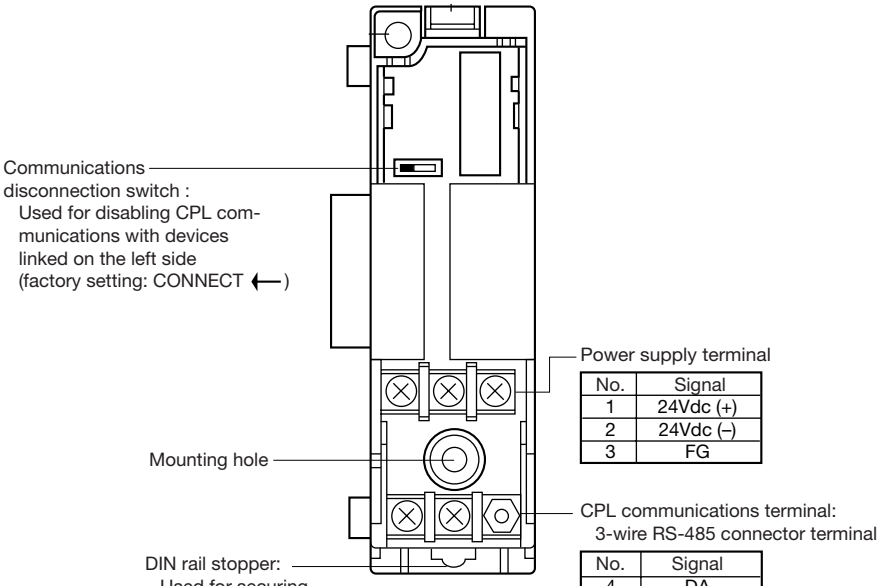
(factory setting: 0)

Position	Signal name
11	DA
12	DB
13	DG
14	SLD
15	FG

Connecting the CC-Link
CC-Link is connected using a connector.
Applicable connector is 81440792-001 (4 pcs./set).



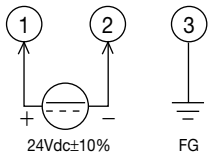
● Base



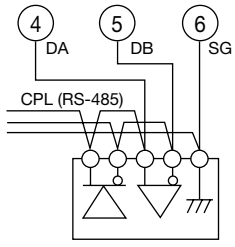
No.	Signal
1	24Vdc (+)
2	24Vdc (–)
3	FG

No.	Signal
4	DA
5	DB
6	SG

Connecting the power supply
Connect the power terminal as follows:



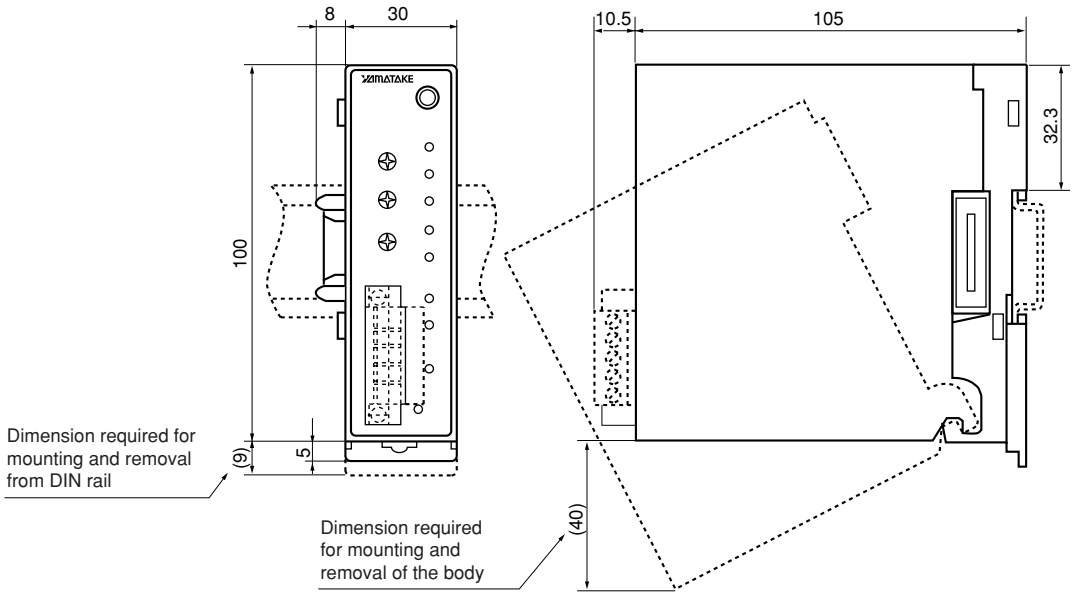
Connecting CPL communications
CPL communications (RS-485) is performed using a 3-wire connection.



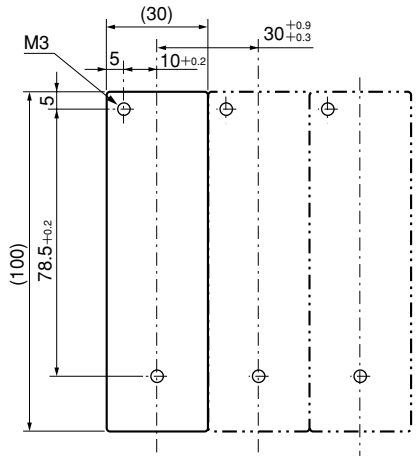
■ External Dimensions

● Body/Base

(unit: mm)



● Dimensions for screw mounting



Secure two mounting holes in the base using the M3 screws.

⚠ RESTRICTIONS ON USE

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment. Accordingly, when used in the applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- **Safety devices for plant worker protection**
- **Start/stop control devices for transportation and material handling machines**
- **Aeronautical/aerospace machines**
- **Control devices for nuclear reactors**

Never use this product in applications where human safety may be put at risk.

Specifications are subject to change without notice.

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URL:http://www.azbil.com

Printed in Japan. (H)
1st Edition: Issued in Jan., 2003

Printed on recycled paper.

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