

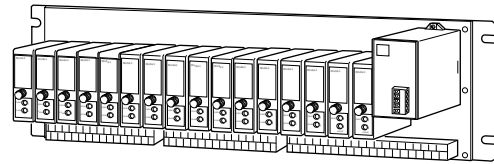
Super-mini Signal Conditioners Mini-M Series

COMMUNICATION CONTROLLER

(CC-Link)

Functions & Features

- Receiving up to 16 Mini-M modules
- Enabling interfacing analog I/Os to CC-Link
- Power supplied through printed wiring on the base



MODEL: M2BC-[1][2]-[3]

ORDERING INFORMATION

- Code number: M2BC-[1][2]-[3]

Specify a code from below for [1] through [3].

(e.g. M2BC-161-K)

Power input specification for each I/O modules must be the same as that of the base.

[1] CAPACITY

04: 4 positions

08: 8 positions

16: 16 positions

[2] I/O TYPE

1: Input

2: Output

[3] POWER INPUT

AC Power

K: 85 - 132 V AC

(Operational voltage range 85 - 132 V, 47 - 66 Hz)

DC Power

R: 24 V DC

(Operational voltage range 24 V \pm 10 %, ripple 10 %p-p max.)

PACKAGE INCLUDES...

- Terminating resistor (110 Ω , 0.5 W)

GENERAL SPECIFICATIONS

Capacity: 4, 8 or 16 positions

Connection

CC-Link: Euro type connector terminal

(applicable wire size: 0.2 to 2.5 mm², stripped length 7 mm)

I/O: M3 screw terminals (torque 0.8 N·m)

Power input: M3 screw terminals (torque 0.8 N·m)

Screw terminal: Nickel-plated steel

Isolation: I/O to CC-Link to power to FG1

Power indicator: Green LED turns on with power supplied.

CC-Link COMMUNICATION

CC-Link: Conforms to Version 1.10

Station type: Remote device station

Station No. setting: Rotary switch; 1 - 64

(factory set to:00)

Number of occupied stations:

M2BC-04: 1 station

M2BC-08: 2 stations

M2BC-16: 4 stations

Remote I/O (RX, RY) is fixed to 32 points.

Baud rate setting: Rotary switch

(156kbps(factory setting), 625kbps, 2.5Mbps, 5Mbps, 10Mbps)

Transmission cable: Approved for CC-Link

L RUN indicator: Red LED turns on in a normal condition.

L ERR. indicator: Red LED turns on or flashes in an abnormality; off with wire breakdown.

SD indicator: Red LED turns on when transmitting.

RD indicator: Red LED turns on when receiving.

INPUT SPECIFICATIONS

Input modules: Mini-M series; output 1 - 5 V DC;

(Each input must be isolated by signal conditioners. Non-isolated modules such as M2BW is not usable.)

■ Analog Input

Input range: See each I/O module spec.

Isolation: Transformer (by Mini-M module)

A/D conversion output: Signed binary

Signal range 0 - 100 % is converted into hexadecimal 0000 - 2710 (0 - 10000). -15 to 0 % is a negative range represented by 2's complements.

Overall range is represented by hexadecimal FA24 - 2CEC (-1500 - +11500), for -15 - +115 %.

■ A/D CONVERSION DATA

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
RWr n+0	SIGN BIT			INPUT 1 A/D CONVERSION DATA												
RWr n+1	SIGN BIT			INPUT 2 A/D CONVERSION DATA												
RWr n+2	SIGN BIT			INPUT 3 A/D CONVERSION DATA												
RWr n+3	SIGN BIT			INPUT 4 A/D CONVERSION DATA												
⋮				⋮												
RWr n+7	SIGN BIT			INPUT 8 A/D CONVERSION DATA												
⋮				⋮												
RWr n+11	SIGN BIT			INPUT 12 A/D CONVERSION DATA												
⋮				⋮												
RWr n+15	SIGN BIT			INPUT 16 A/D CONVERSION DATA												

RWr n+0 through RWr n+3 for 4 inputs.
 RWr n+0 through RWr n+7 for 8 inputs.
 RWr n+0 through RWr n+15 for 16 inputs.

■ D/A CONVERSION DATA

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
RWw n+0	SIGN BIT			OUTPUT 1 D/A CONVERSION DATA												
RWw n+1	SIGN BIT			OUTPUT 2 D/A CONVERSION DATA												
RWw n+2	SIGN BIT			OUTPUT 3 D/A CONVERSION DATA												
RWw n+3	SIGN BIT			OUTPUT 4 D/A CONVERSION DATA												
⋮				⋮												
RWw n+7	SIGN BIT			OUTPUT 8 D/A CONVERSION DATA												
⋮				⋮												
RWw n+11	SIGN BIT			OUTPUT 12 D/A CONVERSION DATA												
⋮				⋮												
RWw n+15	SIGN BIT			OUTPUT 16 D/A CONVERSION DATA												

RWw n+0 through RWw n+3 for 4 outputs.
 RWw n+0 through RWw n+7 for 8 outputs.
 RWw n+0 through RWw n+15 for 16 outputs.

OUTPUT SPECIFICATIONS

Output modules: Model M2VS; input 1 - 5 V DC

■ Analog Output

Output range: See model M2VS spec.

Isolation: Transformer

D/A conversion output: Signed binary

Signal range 0 - 100 % is converted into hexadecimal 0000 - 2710 (0 - 10000). -15 to 0 % is a negative range represented by 2's complements.

Overall range is represented by hexadecimal FA24 - 2CEC (-1500 - +11500), for -15 - +115 %.

INSTALLATION

Power Consumption:

•AC:

approx. 6 VA without I/O module
 approx. 30 VA with 4 modules (M2DY)
 approx. 50 VA with 8 modules (M2DY)
 approx. 90 VA with 16 modules (M2DY)

Current consumption:

•DC

approx. 0.25 A without I/O module
 approx. 1 A with 4 modules (M2DY)
 approx. 1.5 A with 8 modules (M2DY)
 approx. 2.5 A with 16 modules (M2DY)

Operating temperature: -5 to +55°C (23 to 131°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Atmosphere: No corrosive gas or heavy dust

Mounting: Surface

Weight: Without I/O module

M2BC-04 1.2 kg (2.6 lb)

M2BC-08 1.5 kg (3.3 lb)

M2BC-16 2 kg (4.4 lb)

PERFORMANCE in percentage of span

A/D conversion: Accuracy of input module $\pm 0.1\%$

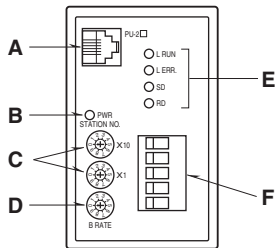
D/A conversion: Accuracy of M2VS $\pm 0.1\%$

Permissible power failure duration: ≤ 10 msec.

Insulation resistance: ≥ 100 M Ω with 500 V DC

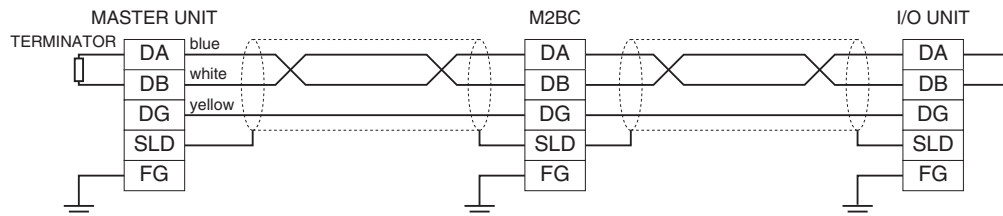
Dielectric strength: 1000 V AC @1 minute (power to I/O module to CC-Link module to FG1)

COMM. MODULE FRONT PANEL



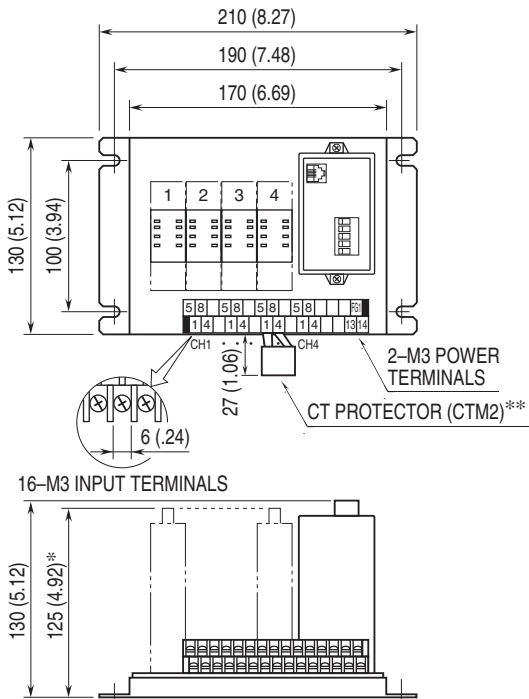
- A:** Modular jack for factory calibration
- B:** Power LED
- C:** Station No. Setting
- D:** Baud rate Setting
- E:** Status indicator LED
- F:** Euro type connector terminal for CC-Link

COMMUNICATION CABLE CONNECTIONS



EXTERNAL DIMENSIONS unit: mm (inch)

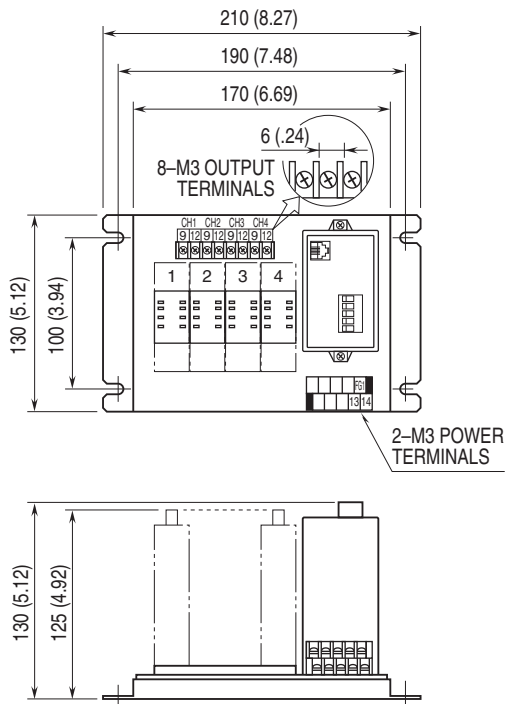
■ M2BC-041 (INPUT BASE)



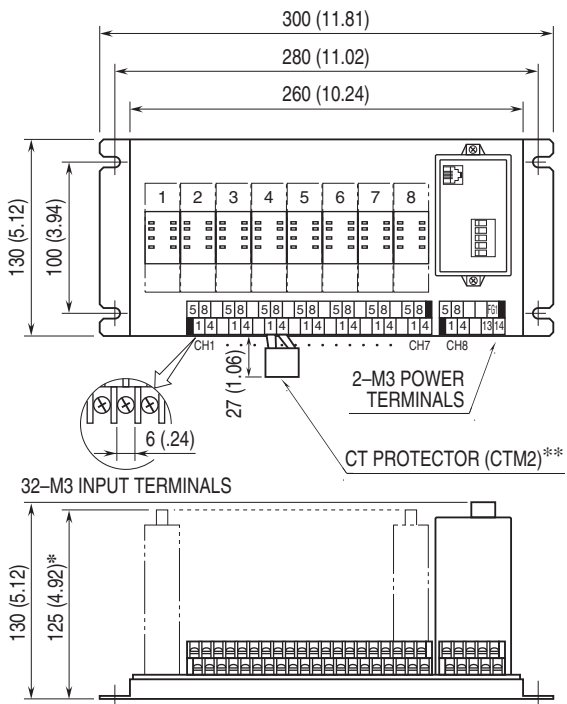
* 165 (6.50) required for pneumatic tubing for M2PV.

** Attached to M2CA and M2CE.

■ M2BC-042 (OUTPUT BASE)



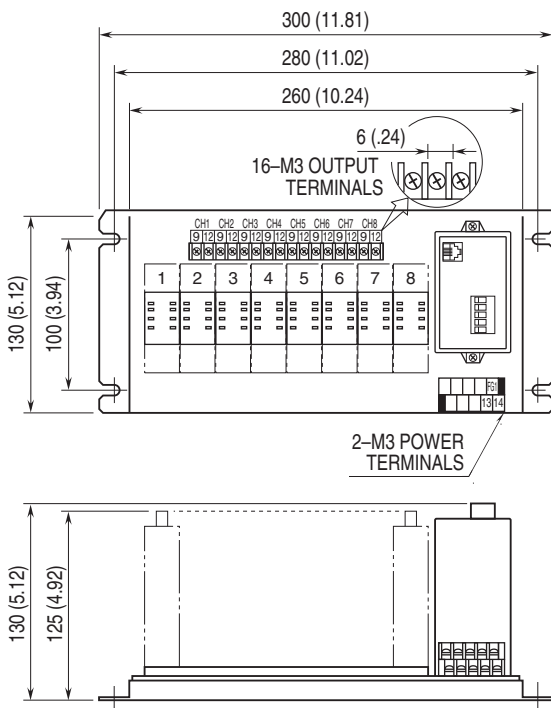
■ M2BC-081 (INPUT BASE)



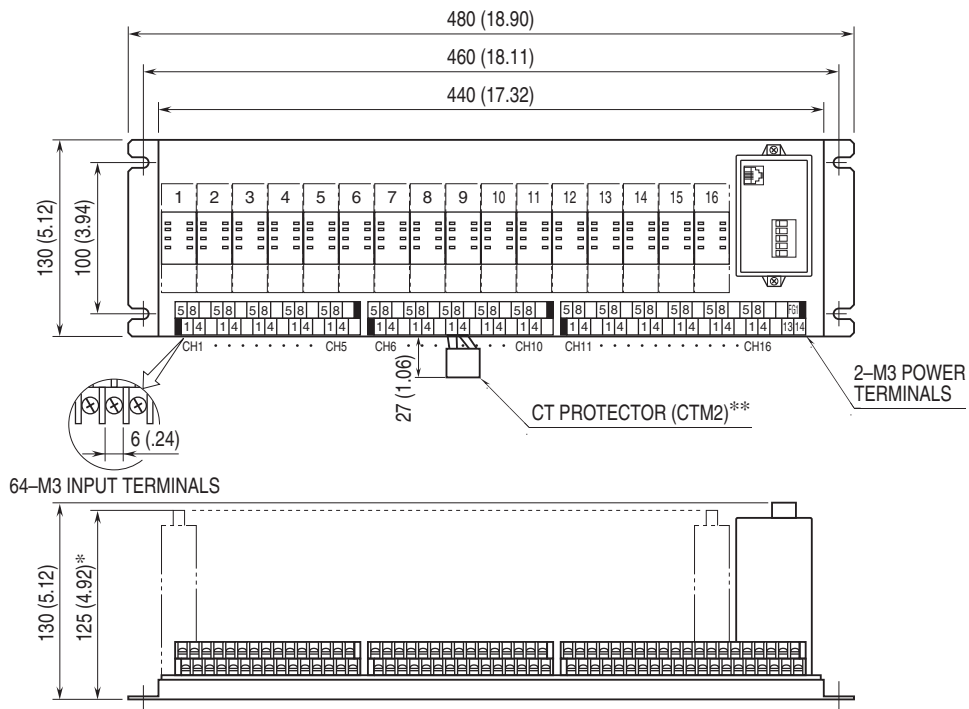
* 165 (6.50) required for pneumatic tubing for M2PV.

** Attached to M2CA and M2CE.

■ M2BC-082 (OUTPUT BASE)



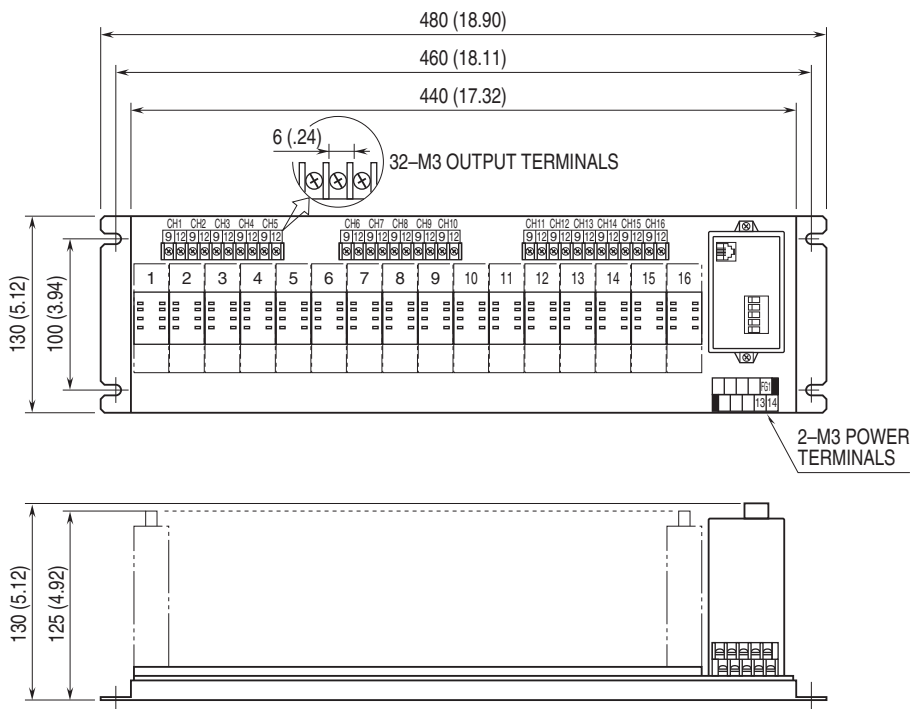
■ M2BC-161 (INPUT BASE)



* 165 (6.50) required for pneumatic tubing for M2PV.

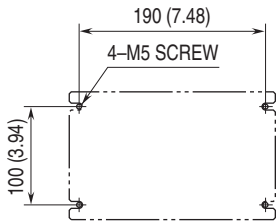
** Attached to M2CA and M2CE.

■ M2BC-162 (OUTPUT BASE)

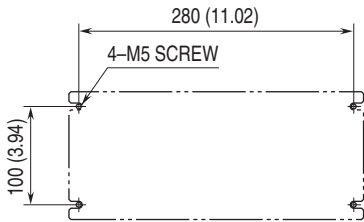


MOUNTING REQUIREMENTS unit: mm (inch)

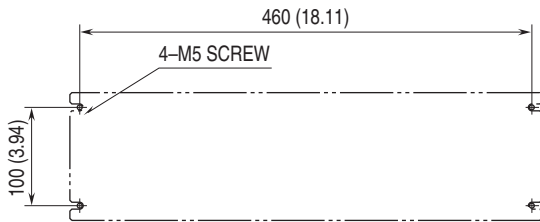
■ M2BC-04



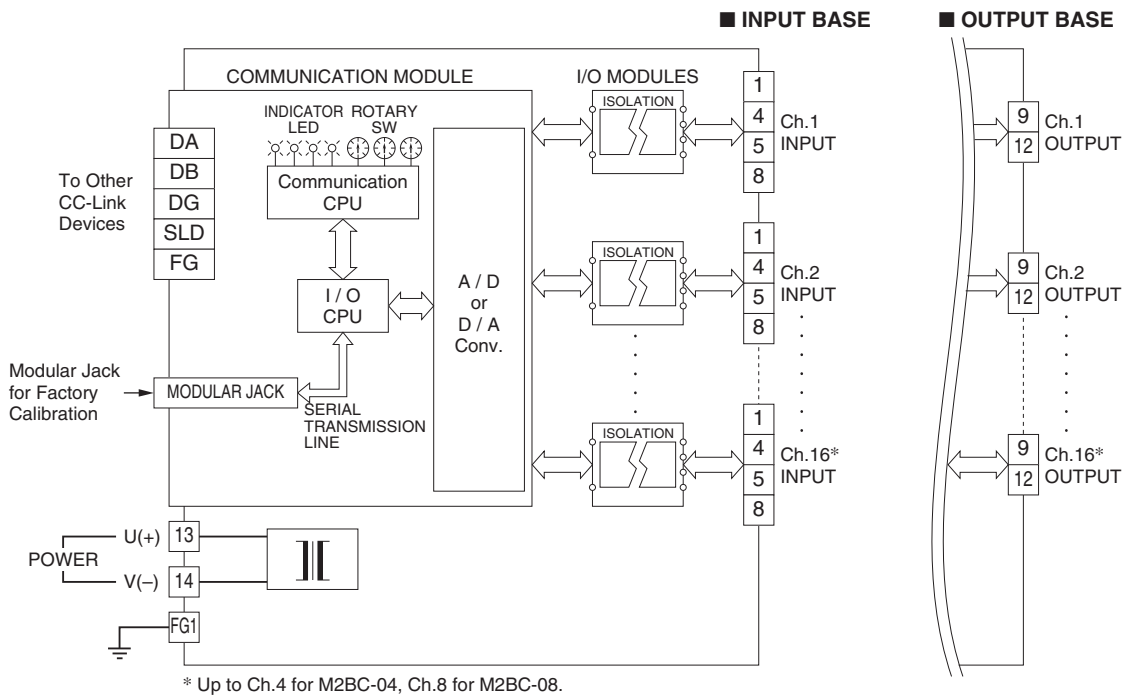
■ M2BC-08



■ M2BC-16



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM





Specifications are subject to change without notice.