

PUMCL is a communication module, which connects module type temperature controller PUM series with CC-Link system. Compatible with CC-Link Ver1.1 and 2.0, and designed for high-speed communication at the maximum speed of 10Mbps. Being able to up to 16 units (64 channel) of PUMA (control module), PUMCL requires minimum wiring, less space, and saves labor for engineering.

## FEATURES

- I. Program-less connection to CC-Link
  1. CC-Link Ver1.1 / Ver2.0 compatible
    - High-speed communication at max.10Mbps
  2. Access to all parameters of control module (PUMA/PUMB) via CC-Link
  3. High-speed data communication with connected control modules (PUMA/PUMB)
    - Quick data importing and setting data reflection
- II. User-friendly structure and functions
  1. Lateral connection : Max.16 units (64 channels) + event input/output module 16 units = total 32 units
    - Simple wiring for power supply and communication
  2. Detachable structure: Terminal block, main unit, and the base part
    - → Easy wiring with detachable terminal block
    - → Main units exchangeable without re-wiring

## SYSTEM SPECIFICATION

1. Product type: Multi-loop module type temperature controller
2. Module type
  - 1) Analog module: Total maximum 16 units
    - a) Control module (4 loop/unit)
    - b) Extended input/output module
      - Analog input/output module (Input/output 4 points/unit)
      - Analog input module (Input 4 points/unit)
      - Analog output module (output 4 points/unit)
  - 2) Extended input/output (digital) module:
    - Maximum 16 units
    - Event input/output module (Input/output ; 8 points/unit)
  - 3) Enhanced communication module: 1 unit
3. Connecting method:
  - Lateral connecting with connectors
  - For power supply and RS-485 communication, any one of connected modules is required to be connected.
4. No. of loop, input/output
  - 1) Control loop: Max. 64
  - 2) No. of input/output: DI 128 points / DO 128 points



## ENHANCED COMMUNICATION MODULE (CC-LINK) SPECIFICATION

### 1. General specification

- (1) Power supply: 24V DC  $\pm$ 10%
- (2) Power consumption: Max. 3.2 W (135 mA)
  - [when 24V DC is applied]
- (3) Insulation resistance: 20M $\Omega$  or more (500V DC)
- (4) Withstand voltage:
  - Power supply  $\leftrightarrow$  loader communication: 1000V AC 1 min.
  - Power supply  $\leftrightarrow$  SLD/FG terminal, CC-Link communication: 500V AC 1 min.
  - SLD/FG terminal  $\leftrightarrow$  CC-Link communication: 50V AC 1 min.
- (5) Applied standards:
  - UL, C-UL, RoHS directive
  - [Pending for UL and C-UL]

### 2. CC-Link communication module

#### 2.1 CC-Link communication

- (1) Compliant version: CC-Link Ver.2.00 / 1.10
- (2) Station type: Remote device
- (3) Communication speed and distance

| Speed    | 156kbps       | 625kbps      | 2.5Mbps      | 5Mbps        | 10Mbps       |
|----------|---------------|--------------|--------------|--------------|--------------|
| Distance | 1200m or less | 900m or less | 400m or less | 200m or less | 100m or less |

- (4) Occupation No. of channel/station:
  - 4 stations/station No.setting; 1 to 61
- (5) Communication data length

| No. of occupied stations/extended cyclic | Remote input/output (RX/RX) | Remote register (RWw/RWw) | Control module (PUMA/B) No. of connectable units |
|--|-----------------------------|---------------------------|--|
| 4 stations occupied $\times$ 1           | 128 bit                     | 16 words                  | 2 or 4 units                                     |
| 4 stations occupied $\times$ 2           | 256 bit                     | 32 words                  | 4 or 8 units                                     |
| 4 stations occupied $\times$ 4           | 512 bit                     | 64 words                  | 8 or 16 units                                    |

- (6) Connecting cable: Ver1.10 compatible cable for CC-Link
- (7) Connecting method: M3 screw terminal block
- (8) Termination resistance: External (110 $\Omega$ , 1/2W)

## 2.2 Display, configuration

- (1) Display: Status display LED  
(2 colors × 2 points + 4 points)
- (2) Display contents:  
RUN/FAULT, control module connection status (TX/RX), CC-Link status (L.RUN, L.ERR, SD, RD)

### (3) Setting device and set contents

| Setting device |                   | Set contents                |
|----------------|-------------------|-----------------------------|
| Front          | Rotary SW × 2     | CC-Link Station No. setting |
| Inside         | Rotary SW × 1     | CC-Link speed setting       |
|                | Dip SW (6bit) × 1 | CC-Link mode setting        |

## 3. Power outage

- (1) Impact of power outage:  
Outage of 2ms or less ; no impact
- (2) Operation after power outage:  
Start from the first step (cold start)
- (3) Memory backup:  
Nonvolatile memory (EEPROM)  
No. of update ; 100,000

## 4. Self diagnosis

- Diagnosis method:  
Program error monitoring by watch dog timer

## 5. Structure

- (1) Installation method:  
DIN rail mounting or mounting with M3 screws inside a cabinet
- (2) Dimensions: 30 (W) × 100 (H) × 85 (D) mm  
(excluding terminal cover and projected part)
- (3) Weight: Approx. 200 g
- (4) Extrenal terminal
  - CC-Link communication:  
Detachable terminal block  
(M3 screw × 20 terminals)
  - Power supply connection:  
Terminal block on the base part  
(M3 screw × 2 terminals)  
Power is supplied via side connectors in case of lateral connecting. (Max. 33 units)
  - Loader communication port:  
2.5 diameter mini-plug/jack  
[on the front of the module]
- (5) Case material: Polyphenylene oxide  
(flame retardant grade : UL94V-0 equivalent)
- (6) Case color: Case ; red  
Terminal, base part ; black
- (7) Protection
  - Body: IP20 grade protection  
(ventilation slits on the top and the bottom of the body)
  - Terminal: IP00 grade protection, terminal cover is available as an option

## 6. Normal operating condition

- (1) Ambient temperature\*: -10 to 50°C  
\* "Ambient temperature" is the temperature underneath the controller inside the equipment or the cabinet where the controller is installed.

- (2) Ambient humidity:  
90% RH or less (non condensing)
- (3) Vibration: 10 to 70Hz, 9.8m/s<sup>2</sup> (1G) or less

## 7. Transporting, storage condition (packing condition)

- (1) Storage temperature: -20 to 60°C
- (2) Ambient humidity: 90%RH or less (no condensing)
- (3) Vibration: 10 to 70Hz, 9.8m/s<sup>2</sup> (1G) or less
- (4) Shock: 294m/s<sup>2</sup> (30G) or less

## 8. Packing list

- Temperature controller: 1unit
- Instruction manual: 1 copy
- Termination resistor of internal communication: 1 unit

## 9. Loader software

- (1) Distribution medium:  
Free download from Fuji Electric Systems HP (<http://www.fic-net.jp/eng/index.html>)
- (2) Recommended operating environment
  - PC: DOS/V (PC-AT compatible)
  - OS: Windows XP (operation confirmed in Japanese / English)
  - RAM: 256M bytes or more
  - Free space on the hardware: 500M bytes or more
  - Display resolution: 1024 × 768 or over
  - Serial interface: RS-232C 1 port  
(without RS-232C, USB serial converter cable required)
- (3) Connection with PUM  
Via loader interface on the front face of the module (special cable available from Fuji is required) or via RS-485

## CODE SYMBOLS

### [Enhanced communication module]

| Digit | Description   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10     |
|-------|---|---|---|---|---|---|---|---|---|---|--------|
|       |   | P | U | M |   |   | Y | Y | 1 | 0 |        |
| 4     | < Module type ><br>Enhanced communication module    |   |   |   |   | C |   |   |   |   |        |
| 5     | < Communication function ><br>CC-Link communication |   |   |   |   |   | L |   |   |   |        |
| 10    | < Operation manual ><br>Japanese<br>English         |   |   |   |   |   |   |   |   |   | A<br>B |

### [Accessories]

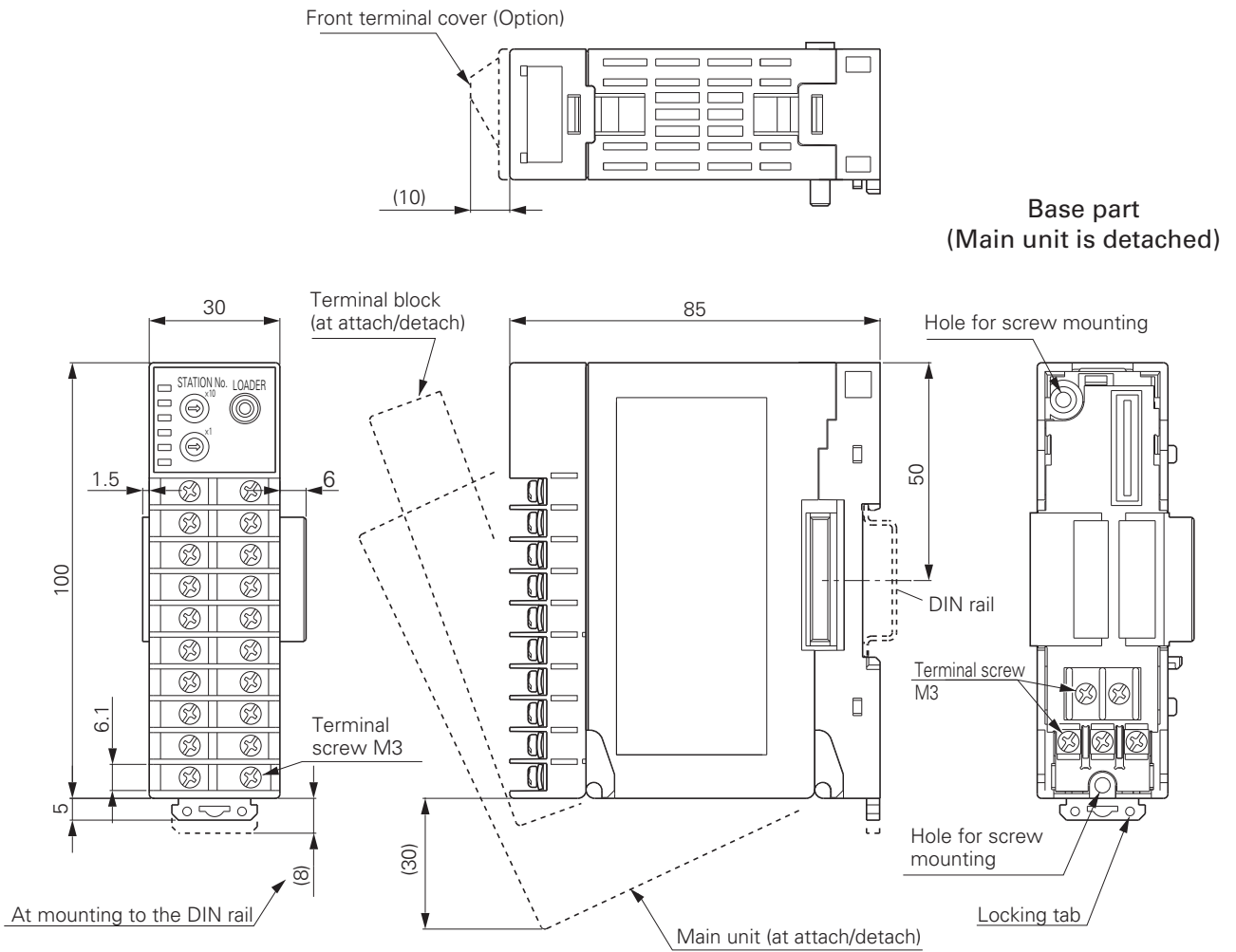
| Digit | Description   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8   |
|-------|---|---|---|---|---|---|---|---|-----|
|       |   | P | U | M | Z | * |   |   |     |
| 6     | DIN rail mounting end plate                             |   |   |   |   |   |   | A | 0 2 |
| 7     | Side connecting terminal cover                          |   |   |   |   |   |   | A | 0 3 |
| 8     | (right & left 1 set)<br>Front face screw terminal cover |   |   |   |   |   |   | A | 0 4 |
|       | Loader connecting cable (RS-232C)                       |   |   |   |   |   |   | L | 0 1 |

## [Table 1] Insulation block diagram

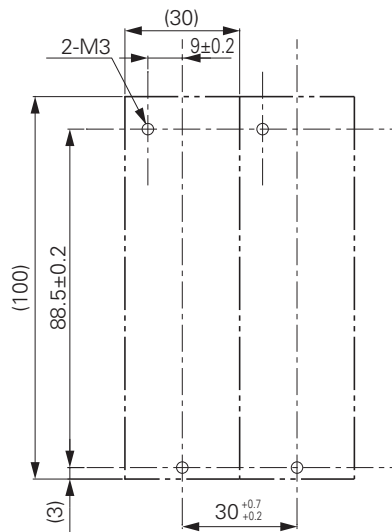
|                           |  |
|---------------------------|--|
| Power                     | SLD/FG terminal<br>(CC-Link connecting terminal) |
| Loader communication port | CC-Link communication                            |

- ==== Functional insulation (1000VAC)
- Functional insulation (500VAC)
- ..... Functional insulation (50VAC)

# OUTLINE DIAGRAM (Unit : mm)

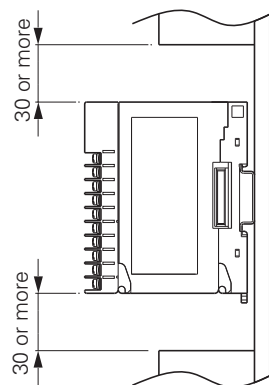


## Dimensions for screw mounting



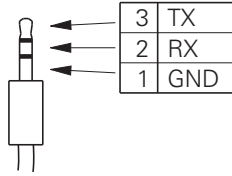
## Notice at the installation

Please keep the distance of 30mm from this instrument to radiate.  
[50mm is recommended]

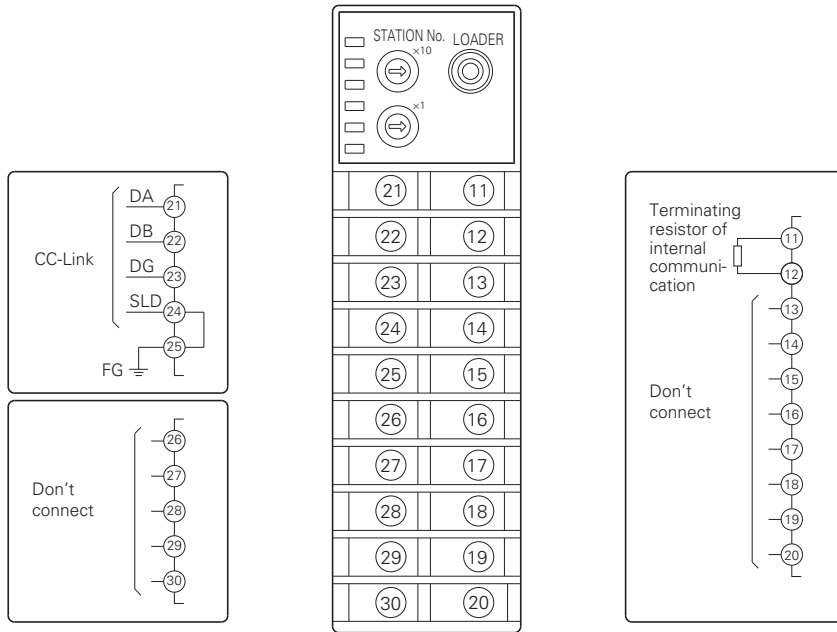


# TERMINAL CONNECTION DIAGRAM

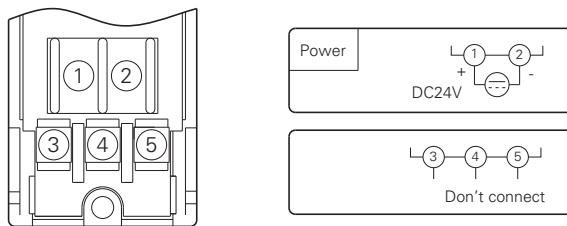
## Loader interface plug (RS-232C)



φ2.5 3-pole miniature plug



## Base part



⚠ Caution on Safety

\*Before using this product, be sure to read its instruction manual in advance.

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