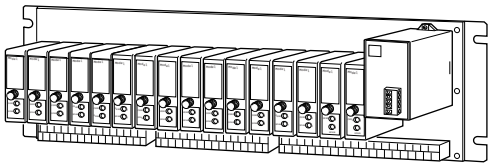
**Super-mini Signal Conditioners Mini-M Series**

## COMMUNICATION CONTROLLER

(DeviceNet™ use)

Functions & Features

- Receiving up to 16 Mini-M modules
- Enabling interfacing analog I/Os to DeviceNet™
- Power supplied through printed wiring on the base
- UL approval, CE marking



## MODEL: M2BD–[1][2]-[3][4]

## ORDERING INFORMATION

• Code number: M2BD-[1][2]-[3][4]
Specify a code from below for each [1] through [4].
(e.g. M2BD-161-R/UL)
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)
(CE or UL not available)
**DC Power**
**R**: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

## [4] OPTIONS

**STANDARDS & APPROVALS**
**blank**: Without UL or CE
**/UL**: UL approval (CE marking)

## GENERAL SPECIFICATIONS

**Capacity**: 4, 8 or 16 positions
**Connection**
**Transmission**: Terminal block
**Field I/O**: M3 screw terminals (torque 0.8 N·m)
**Power input**: M3 screw terminals (torque 0.8 N·m)
**Transmission cable**: approved for DeviceNet
**Screw terminal**: Nickel-plated steel
**Isolation**: Field I/O to transmission to power
**Node address setting**: DIP switch; 00 – 63
**Baud rate setting**: DIP switch
125 kbps (factory default), 250 kbps, 500 kbps
**Power indicator**: Green LED turns on with power supplied.
**MS (Module Status) indicator**: bi-color (green/red)
LED indicates device status.
**NS (Network Status) indicator**: bi-color (green/red)
LED indicates status of the communication link.

## INPUT SPECIFICATIONS

**Input modules**: Mini-M series; output 1 – 5 V DC;
(non-isolated types are not usable.)
■ ANALOG INPUT
**Input range**: See each I/O module spec.
Voltage at the field I/O terminals limited within 30 V DC for UL.
**Isolation**: transformer (by Mini-M module)
**A/D conversion output**: 16-bit binary
Signal range 0 – 100 % is converted into hexadecimal 0000 – 1770 (0 – 6000). -15 to 0 % is represented by 2's complements.
Overall range is represented by hexadecimal FC7C – 1AF4 (-900 – +6900), for -15 – +115 %.

## 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**: 16-bit binary
Signal range 0 – 100 % is converted into hexadecimal 0000 – 1770 (0 – 6000). -15 to 0 % is represented by 2's complements.
Overall range is represented by hexadecimal FC7C – 1AF4 (-900 – +6900), for -15 – +115 %.

## INSTALLATION

•AC Power input:
Power Consumption:
approx. 6 VA without I/O module
approx. 30 VA with 4 modules (M2DY)
approx. 50 VA with 8 modules
approx. 90 VA with 16 modules
• DC Power input
Current consumption:
approx. 0.25 A without I/O module
approx. 1 A with 4 modules (M2DY)
approx. 1.5 A with 8 modules
approx. 2.5 A with 16 modules
Power output: 11 – 25 V DC; 60 mA max. at 24 V
(supplied from the comm. terminal)
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
M2BD-04 1.2 kg (2.6 lbs)
M2BD-08 1.5 kg (3.3 lbs)
M2BD-16 2 kg (4.4 lbs)

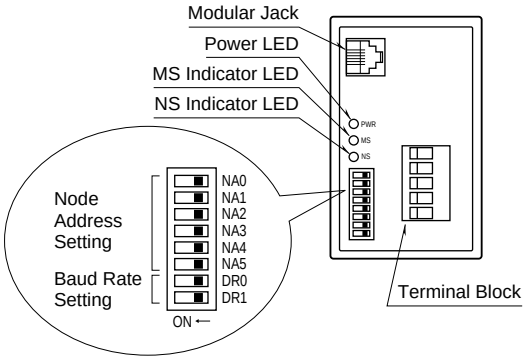
## PERFORMANCE in percentage of span

A/D conversion: Accuracy of input module ±0.1%
D/A conversion: Accuracy of M2VS ±0.1 %
Power loss time: ≤ 10 msec.
Insulation resistance: ≥ 100 MΩ with 500V DC
Dielectric strength: 1000 V AC @1 minute (power to I/O module to communication module)

## STANDARDS & APPROVALS

CE conformity:
EMC Directive (2004/108/EC)
EMI EN 61000-6-4
EMS EN 61000-6-2
Low Voltage Directive (2006/95/EC)
EN 61010-1
Measurement Category II
Pollution Degree 2
Max. operating voltage 300V
Input or output to power: Reinforced insulation
Input to output: Basic insulation
Approval:
UL/C-UL nonincendive Class I, Division 2,
Groups A, B, C, and D hazardous locations
(UL 1604, CAN/CSA-C22.2 No.213);
UL/C-UL general safety requirements
(UL 3111-1, CAN/CSA-C22.2 No.1010-1)

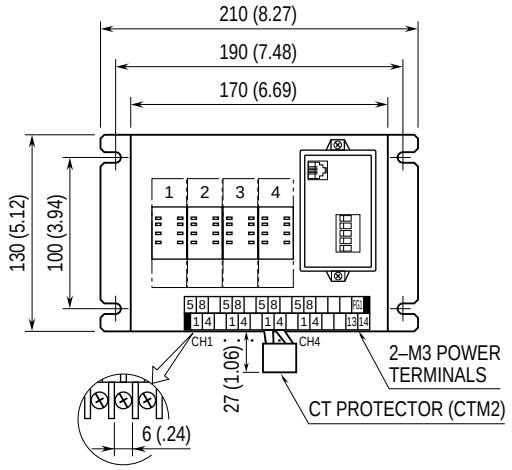
## COMM. MODULE FRONT PANEL




Refer to the instruction manual for detailed precedures.

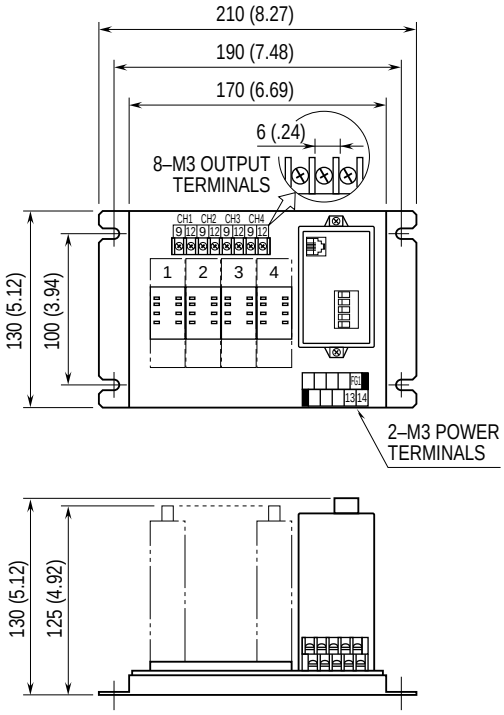
## DIMENSIONS unit: mm (inch)

### ■ M2BD-041 (INPUT BASE)

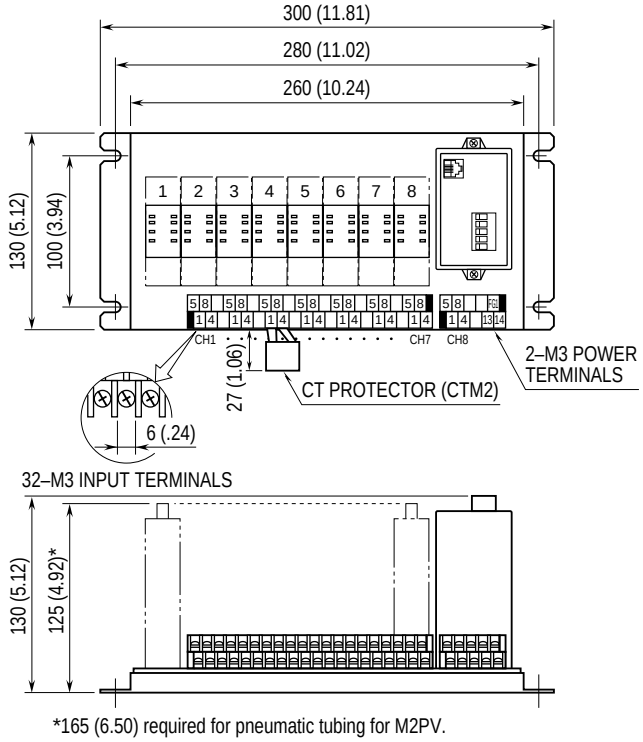



*165 (6.50) required for pneumatic tubing for M2PV.

### ■ M2BD-042 (OUTPUT BASE)

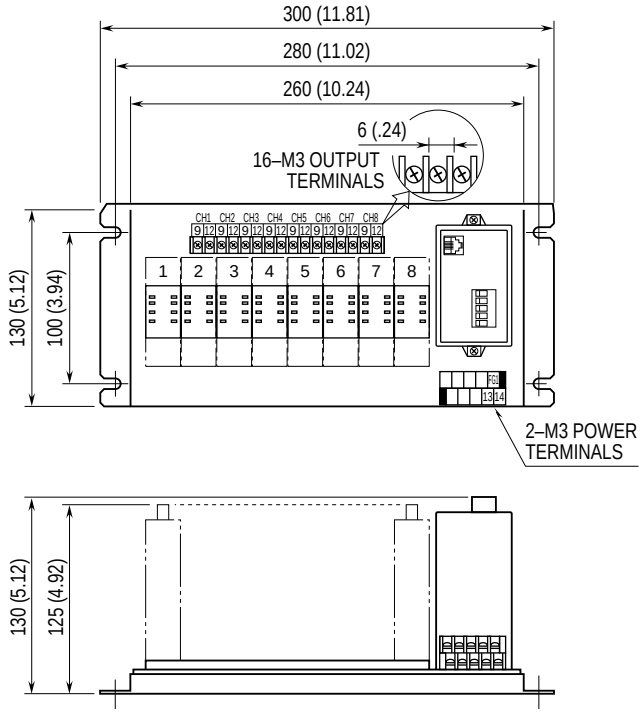


## ■ M2BD-081 (INPUT BASE)

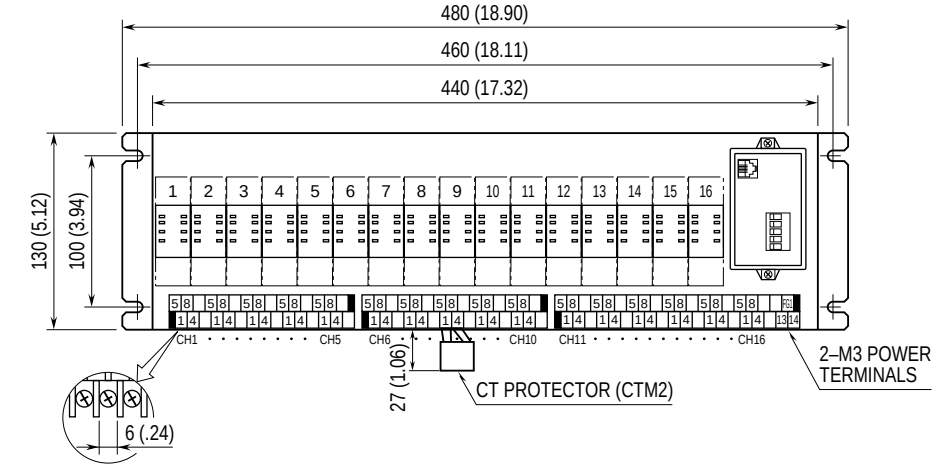



*165 (6.50) required for pneumatic tubing for M2PV.

## ■ M2BD-082 (OUTPUT BASE)

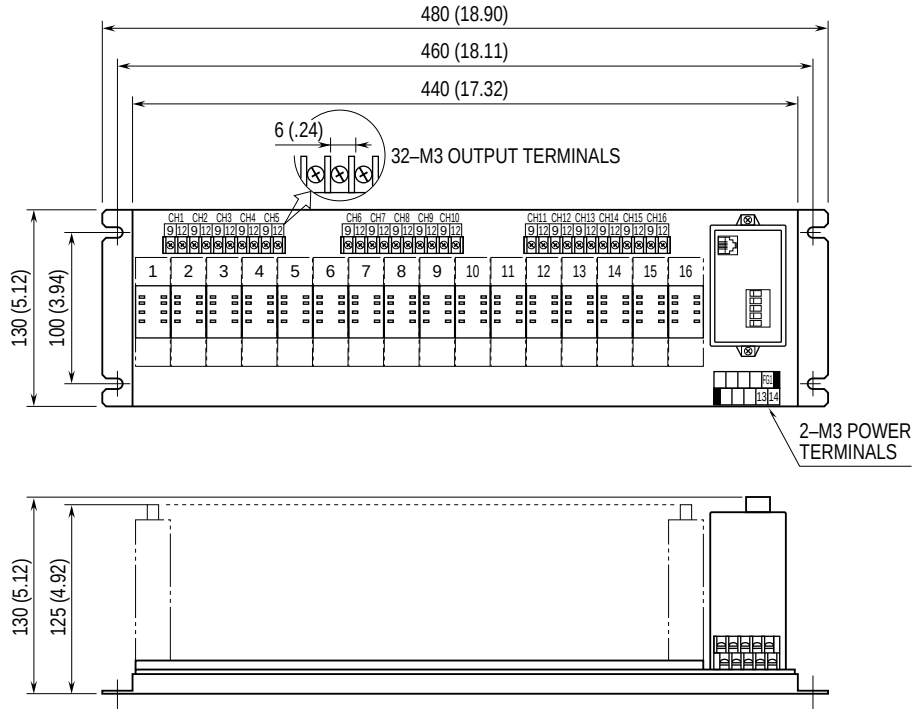


## ■ M2BD-161 (INPUT BASE)



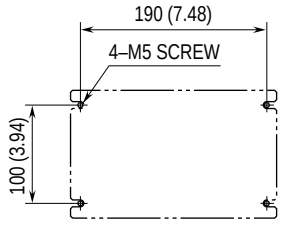

*165 (6.50) required for pneumatic tubing for M2PV.

## ■ M2BD-162 (OUTPUT BASE)

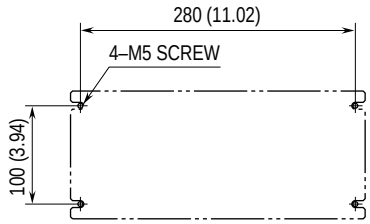


## MOUNTING REQUIREMENTS unit: mm (inch)

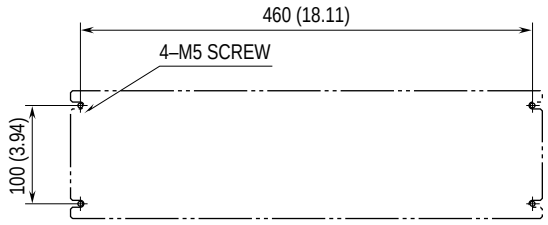
■ **M2BD-04**



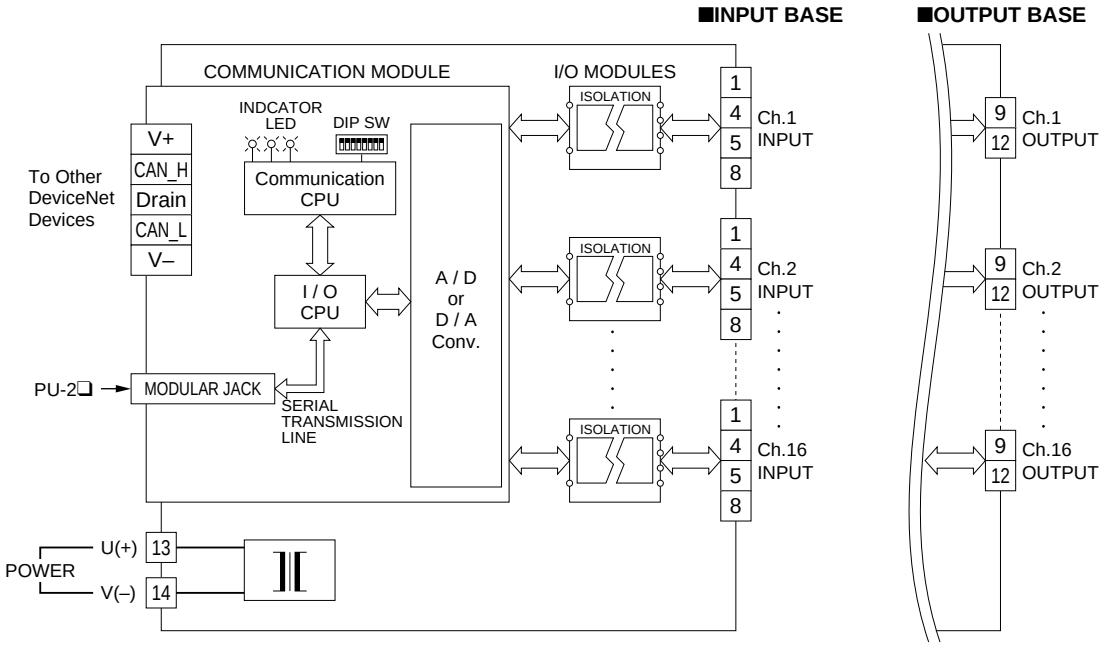

■ **M2BD-08**




■**M2BD16**




## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM




⚠ Specifications are subject to change without notice.