## Final Control Elements

## MINI-TOP ELECTRONIC ACTUATOR

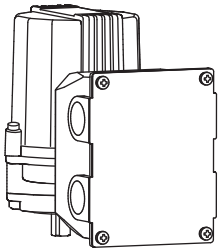
(rotary type; CC-Link)

Functions & Features

• Compact control valve actuator (drive unit) that can be connected directly to CC-Link equipped PLC
• Wiring cost can be reduced with the single cable daisy-chain connection
• Can be used along with other CC-Link devices on the same cable
• Information readable via CC-Link
• The information read is available for the maintenance and checking of valves and Mini-Top Electronic Actuator
• 1/1000 high-resolution type
• Angle adjustment in fully closed and open stop positioning is easy with the built-in electronic limiter
• Built-in overload protection

Typical Applications

• Actuator for automatic control valve in pilot plants
• Air-conditioning in buildings or plants
• Micro-flow control for pharmaceutical injection
• For small-size control valves



## MODEL: MRP4C2-[1][2]-0R

## ORDERING INFORMATION

• Code number: MRP4C2-[1][2]-0R
Specify a code from below for each of [1] and [2].
(e.g. MRP4C2-14-0R)

### [1] SPAN

**1**: 45 to 90 degrees
**2**: 90 to 180 degrees

### [2] OPERATION TIME, TORQUE

**4**: 7 s / 90 ° (5 N·m)
**5**: 13 s / 90 ° (5 N·m)

### CE MARKING

**0**: Without

### POWER INPUT

DC Power
**R**: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

## PACKAGE INCLUDES...

• Terminating resistor (110 Ω, 0.5 W)

## GENERAL SPECIFICATIONS

**Degree of protection**: IP66
**Operation at a communication error**:
Turn counterclockwise, clockwise or stop
(DIP SW selectable; factory set to 'stop')
Note: Counterclockwise or clockwise if seen from the cover
**Electrical connection:** M3 screw terminals (torque 0.8 N·m)
**Screw terminal**: Nickel-plated steel
**Transmission cable**: Conforms to CC-Link Ver 1.10
**Housing material**: Diecast aluminum
(Cast aluminum for the terminal box; steel for the cover)
**Drive**: Stepping motor
**Insulation class**: E
**Position detection**: Potentiometer
**Deadband**: 0.1 – 1.9 % adjustable (factory set to 1.5 %)
**Restarting timer**: 0 – 10 sec. adjustable
(factory set to 1.5 sec.)
**Isolation**: Housing or FE1 to communication to power
**Zero adjustment**: 0 – 25 %
**Span adjustment**: 50 - 100 %
**Protective functions**: Overload protection
**Status indicator LED**: Red light blinks in 2 sec. intervals in normal operations; blinks in 0.5 sec. intervals when a foreign object is detected mechanically caught inside.
**Manual operating handle**: Not available

## CC-Link COMMUNICATION

**Protocol**: CC-Link V1.10
**Device type**: Remote device station
**Station No. setting**: Rotary switch; 1 – 64
**Required node**: 1
**Baud rate setting**: Rotary switch
**L RUN indicator**: Red LED
**L ERR. indicator**: Red LED

## INSTALLATION

**Current consumption**
•**DC**: Approx. 0.7 A



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**Operating temperature**: -5 to +55°C (23 to 131°F)
**Operating humidity**: 30 to 85 %RH (non-condensing)
**Vibration**: 0.5 G (4.9 $m/s^2$) max.
**Mounting position**: All directions
Do not mount the actuator with its output stem or wiring conduit on the upside if the actuator is to be exposed to dripping water.
**Weight**: 1.7 kg (3.7 lb)

## PERFORMANCE

**Resolution**: 1/1000 or 0.09°, whichever is greater (deadband set to 0.1 %)
**Insulation resistance**: ≥ 100 MΩ with 100 V DC
**Dielectric strength**: 100 V AC @ 1 minute
(housing or FE1 to communication to power)

## COMMUNICATIONS

**■MASTER to SLAVE**

| DATA TYPE | ADDRESS | FUNCTION | DETAIL |
|---|---|---|---|
| Bit | RY0 | Forced Closed Position Input *1 | 0 : Disable 1 : Position = 0% |
| | RY1 | Forced Open Position Input *1 | 0 : Disable 1 : Position = 100% |
| | RY2 | | |
| | RY3 | | |
| | RY4 | | |
| | RY5 | | |
| | RY6 | | |
| | RY7 | | |
| | RY8 | Enable Target Position Input | 0 : Disable 1 : Enable |
| | RY9 | | |
| | RYA | Reset Motor Deadlock Alarm | Motor deadlock alarm is cancelled when '1' is set. |
| | RYB | Clear Motor Starting Counter | Motor starting counter is reset to 0 when '1' is set. |
| | RYC | Clear Motor Reversing Counter | Motor reversing counter is reset to 0 when '1' is set. |
| | RYD | Clear Accumulated Running Distance | Accumulated running distance is reset to 0 when '1' is set. |
| | RYE | | |
| | RYF | | |
| Word | RWw0 | Target Position Input | Signed, 0.01% increments (e.g. 100 = 1.00%)<br>Valid only when Enable Target Position Input is enabled. |
| | RWw1 | | |
| | RWw2 | | |
| | RWw3 | | |

*1. Valid regardless of the RY8 (Enable Target Position Input) status. Stopped when '1' is set both at RY0 and RY1.



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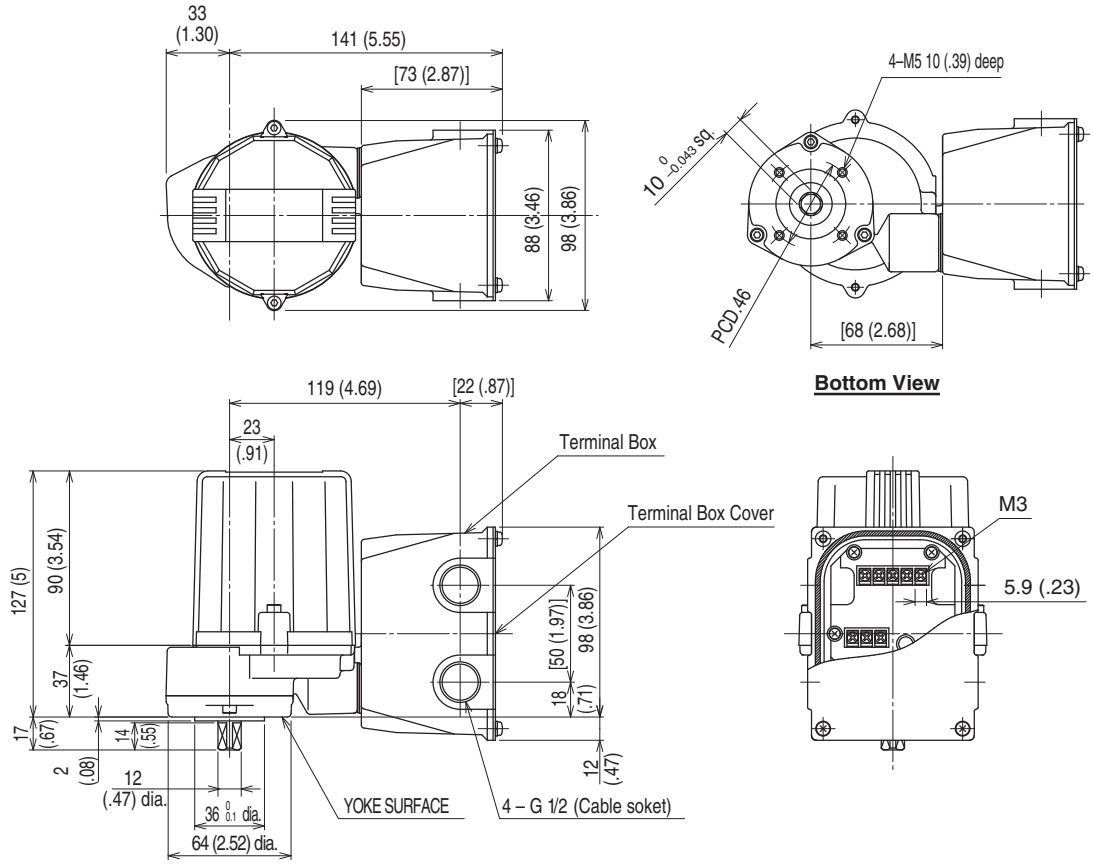
■**SLAVE to MASTER**

| DATA TYPE | ADDRESS | FUNCTION | DETAIL |
|---|---|---|---|
| Bit | RX0 | | |
| | RX1 | | |
| | RX2 | | |
| | RX3 | | |
| | RX4 | | |
| | RX5 | | |
| | RX6 | | |
| | RX7 | | |
| | RX8 | Motor Deadlock Alarm | 0 : Normal 1 : Overload or other deadlock alarm |
| | RX9 | Target Position Input Error | 0 : Normal 1 : Out of range from -0.5 to +100.5% |
| | RXA | System Error | 0 : Normal 1 : Memory or other system error |
| | RXB | Control Status | 0 : Remote (CC-Link) 1 : Manual |
| | RXC | | |
| | RXD | | |
| | RXE | | |
| | RXF | | |
| Word | RWr0 | Position Output | Signed, 0.01% increments (e.g. 100 = 1.00%) |
| | RWr1 | Motor Starting Counter *2 | 1 count per every 100 starting actions |
| | RWr2 | Motor Reversing Counter *2 | 1 count per every 100 reversing actions |
| | RWr3 | Accumulated Running Distance (%) *2 | 1 count per running 100% distance every time |

*2. When the count reaches 65535, the value is held until it is reset.

## EXTERNAL DIMENSIONS unit: mm [inch]



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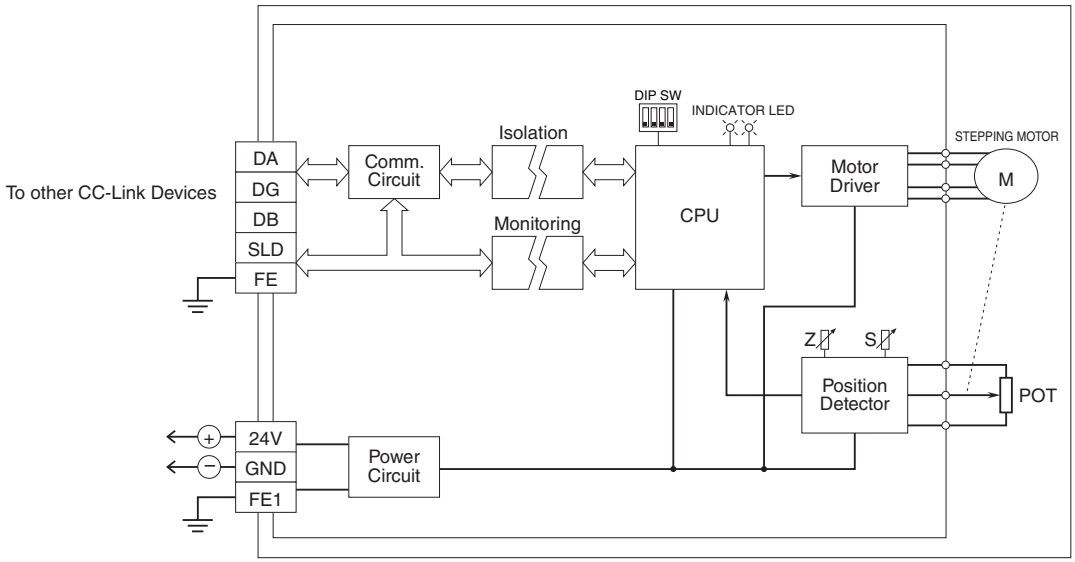
## SCHEMATIC CIRCUITRY




⚠ Specifications are subject to change without notice.



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