



MN-2091U/MN-2091U-T

Distributed Motionnet Single-axis Universal Motion Control Module

Features

- Maximum communication speed: 20 Mbps
- Pulse Output Rate: 6.6 MHz (Max.)
- Control up to 64 axes per line
- Multi-axis linear interpolation function
- 2-axis circular interpolation function
- T/S-curve acceleration and deceleration
- Change speed and position on the fly
- Slow down sensor, home sensor, positive and negative limit sensors for each axis
- Software limit and compare trigger output
- Three-way isolation for power, communication and I/O. (Provide better noise immunity and device protection)
- Suitable for controlling a variety of servo drivers and stepper drivers



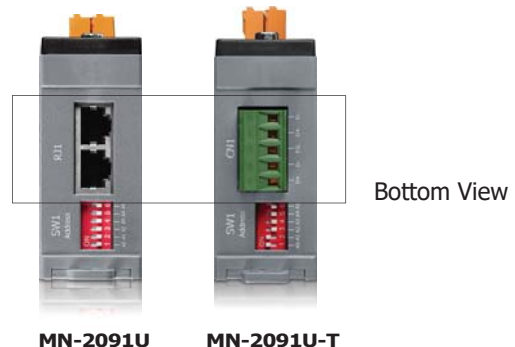
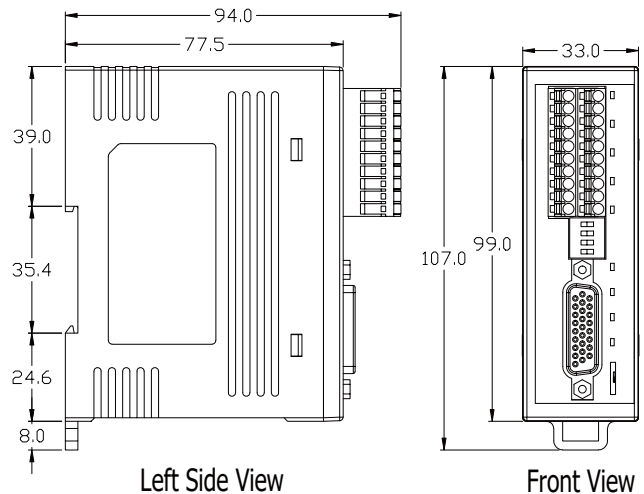
Introduction

The MN-2091U(-T) is used to expand the number of axes for distributed motion control on a Motionnet field bus. These extension slave modules are serially connected to the controller using a simple and affordable Cat.5 LAN cable, and one serial line can support up to 64 single-axis modules. The 26-pin HD D-Sub connector can be used to easily connect with various servo drivers and stepper drivers. ICP DAS also provides a variety of cables suitable for a range of brands of servo drivers, which further reduces the amount of wiring required between the drivers and the controller, making this an ideal solution for highly integrated machine automation applications.

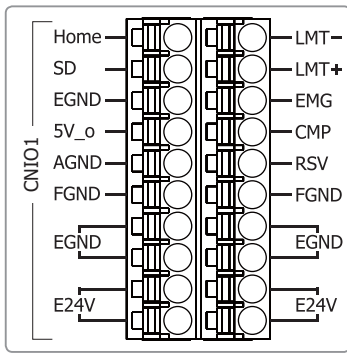
Specifications

| Model | MN-2091U | MN-2091U-T |
|--------------------------|---|----------------------|
| LED Indicators | | |
| Status | Communication state (Link, Error), Internal 3.3 V Power, Termination Resistor Switch, Mechanic Switch Input | |
| General | | |
| Speed Profile | Trapezoidal/S-shaped Acc/Dec Driving | |
| Auto-Home Search | 13 Types | |
| Axis I/O | | |
| Servo Interface Output | SVON, ERC, ALM_RST | |
| Latch Input | Yes (shared with SD) | |
| Mechanical Switch Input | LMT+, LMT-, HOME, SD, EMG | |
| Position Compare Output | High-Speed 5 V TTL or 24 V open collector | |
| Servo Interface Input | ALM, RDY, INP | |
| Encoder Input | | |
| Mode | CW/CCW, A/B phase | |
| Counter Width | 28-bit | |
| Pulse Output | | |
| Mode | OUT/DIR, CW/CCW | |
| Counter Width | 28-bit | |
| Rate | 6.6 MHz (Max.) | |
| Motionnet | | |
| Communication Connectors | RJ-45 x2 | 5-pin terminal block |
| Transfer Speed | 2.5, 5, 10, 20 Mbps | |
| Power | | |
| Input Range | 24VDC +/-5% (1000 V isolated) | |
| Environment | | |
| Operating Temperature | 0 ~ +60 °C | |
| Storage Temperature | -20 ~ +80 °C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

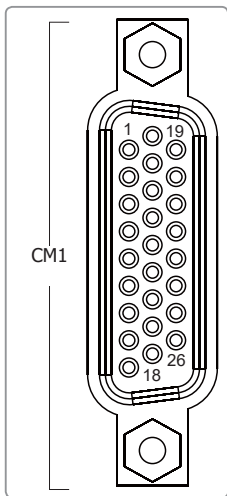
Dimensions: (Units: mm)



Pin Assignments



| No. | CNIO1B (Left) | | CNIO1A (Right) | | I/O |
|--------|---------------|--|----------------|--|---------------------|
| | Name | Description | Name | Description | |
| 1 | HOME | Home position | LMT- | Negative end limit | Input |
| 2 | SD | Slowdown | LMT+ | Positive end limit | Input |
| 3 | EGND | External ground | EMG | Emergency stop | Input |
| 4 | 5V_o | Internal 5V power derived from 24V supply | CMP | High-speed position compare | Output |
| 5 | AGND | Optional analog ground, no internal connection | RSV | Reserved signal (no internal connection) | Connect to CM1 only |
| 6 | FGND | Frame ground | FGND | Frame ground | None |
| 7 ~ 8 | EGND | External ground | EGND | External ground | Input |
| 9 ~ 10 | E24V | External power 24V | E24V | External power 24V | Input |



| No. | Name | Description | I/O |
|-----|--------|---|--------|
| 1 | SRV_ON | Servo On | Output |
| 2 | INP | In Position | Input |
| 3 | ERC | Error Counter Clear | Output |
| 4 | RDY | Servo Ready | Input |
| 5 | P- | Forward rotation pulse train (differential line driver) | Output |
| 6 | P+ | | |
| 7 | A- | Encoder A-phase pulse | Input |
| 8 | A+ | | |
| 9 | N.C. | No internal connection | N.C. |
| 10 | RESET | Alarm Reset | Output |
| 11 | ALARM | Servo Alarm | Input |
| 12 | E24V | External power 24V | Input |
| 13 | EGND | External ground | Input |
| 14 | N.C. | No internal connection | N.C. |

| No. | Name | Description | I/O |
|-----|------|---|-----------------------|
| 15 | AGND | Optional analog ground (no internal connection) | Connect to CNIO1 only |
| 16 | B- | Encoder B-phase pulse | Input |
| 17 | B+ | | |
| 18 | N.C. | No internal connection | N.C. |
| 19 | EMG | Emergency stop | Input |
| 20 | RSV | Reserved signal (no internal connection) | Connect to CNIO1 only |
| 21 | EGND | External ground | Input |
| 22 | EGND | External ground | Input |
| 23 | N- | Forward rotation pulse train (differential line driver) | Output |
| 24 | N+ | | |
| 25 | Z- | Encoder Z-phase pulse | Input |
| 26 | Z+ | | |

Ordering Information

| | |
|----------------------|---|
| MN-2091U CR | Distributed Motionnet Single-axis Universal Motion Control Module with RJ-45 Connector (RoHS) |
| MN-2091U-T CR | Distributed Motionnet Single-axis Universal Motion Control Module with Terminal Block (RoHS) |

Related Products

| | |
|--------------------------------|---|
| PISO-MN200(T/EC) CR | PCI Bus, Dual-line Motionnet Master Card (RoHS) |
| MN-SERVO-xxx(-EC) Series CR | Distributed Motionnet Single-axis Motion Control Modules (MJ3 / PA4 / YSV / DAA) (RoHS) |
| MN-MP4U-DIN CR | Distributed Motionnet Four-axis Universal Motion Control Module (RoHS) |
| MN-3254(T) CR / MN-D622-DIN CR | Distributed Motionnet 16-ch Isolated DI 16-ch Isolated DO Module (RoHS) |
| MN-3253(T) CR / MN-D640-DIN CR | Distributed Motionnet 32-ch Isolated DI Module (RoHS) |
| MN-3257(T) CR / MN-D604-DIN CR | Distributed Motionnet 32-ch Isolated DO Module (RoHS) |
| MN-AD8-DIN CR | Distributed Motionnet 8-ch Analog Input Module (RoHS) |
| MN-DA2-DIN CR | Distributed Motionnet 2-ch Analog Output Module (RoHS) |
| MN-HUB4(EC) CR | Distributed Motionnet 4 Port Hub Module (RoHS) |

Accessories

| | |
|------------------------|---|
| CA-PC26M | 26-pin HD D-Sub solder cup Male connector with plastic cover |
| CA-26-MJ3-15/30/50(B) | 26-pin HD D-Sub Male cable for Mitsubishi servo amplifier, 1.5/3/5 M (for MELSERVO-J3/J4 series) |
| CA-26-YSV-15/30/50(B) | 26-pin HD D-Sub Male cable for Yaskawa servo amplifier, 1.5/3/5 M (for Sigma II/III/V series) |
| CA-26-PA4-15/30/50(B) | 26-pin HD D-Sub Male cable for Panasonic servo amplifier, 1.5/3/5 M (for MINAS A4/A5 series) |
| CA-26-DAA2-15/30/50(B) | 26-pin HD D-Sub Male cable for Delta A2 servo amplifier, 1.5/3/5 M (for ASDA-A2 series) |
| CA-26-DAB2-15/30/50(B) | 26-pin HD D-Sub Male cable for Delta B2 servo amplifier, 1.5/3/5 M (for ASDA-B2 series) |
| CA-26-FFW-15/30/50 | 26-pin HD D-Sub Male cable for Fuji servo amplifier, 1.5/3/5 M (for FALDIC-W and ALPHA5 Smart series) |
| CA-26-TTA-15/30/50 | 26-pin HD D-Sub Male cable for Teco servo amplifier, 1.5/3/5 M (for TSTA-A/A+ series) |