

CONPROSYS nano Series
Remote I/O CPU Unit
CPSN-MCB271-S1-041
Remote I/O Model CPU Unit (LAN HUB)
CPSN-MCB271-1-041



CPSN-MCB271-S1-041



CPSN-MCB271-1-041

* Specifications, color and design of the products are subject to change without notice.

Hardware Features

I/O module expansion

With this product, you can freely add I/O modules to match the necessary functions from among the varied collection of CONPROSYS nano series I/O modules.

Max. 921,600bps RS-232C Serial Communication (only CPSN-MCB271-S1-041)

The Product has one RS-232C-standard serial port. Baud rates from 110 to 921,600 bps can be set.

Compact Design

Compact design, 110 (W) × 74.8 (D) × 95 (H) mm, features flexibility in installation.

Easy installation and removal of I/O modules

Expansion modules can be installed and removed without any tools.

Adaptable to a wide range of temperature between -20 and +60°C

The product is capable of operating in the temperature between -20 and + 60°C. It can be installed in the various environments.

Installation easy with a two-piece terminal on DIN or with screws

Regarding the power connector, the terminal connector can be removed without a screwdriver. Even when a malfunction occurs, this product can be replaced in a short length of time. Furthermore, as the product is mounted on the DIN rail, removing and replacing are easy as well. This product can also be installed with screws, so it supports a wide range of installation situations.

Equipped with the LED for an operation check

The product has the LED for an operation check, which helps you visually confirm the communication status of each interface.

No electrolytic capacitor

Without an electrolytic capacitor, which has a limited life, we are creating the product with a longer life.

2 ports of LAN port containing a switch function (available with the CPSN-MCB271-1-041 only)

The product with 2 ports of LAN port contains a switch function and can configure a network like daisy-chain connection.

The CPSN-MCB271-S1-041 contains one port of LAN port.

This product is a remote I/O model CPU unit that has RS-232C *1 and LAN interfaces in addition to four expansion slots. If necessary, you can freely combine this product with CONPROSYS nano series I/O modules.

In addition, this product can be controlled from a PC running Windows or Linux and supports Modbus TCP Slave and Modbus RTU Slave *1.

*1: This is available with CPSN-MCB271-S1-041 model only.

- * The contents in this document are subject to change without notice.
- * Visit the CONTEC website to check the latest details in the document.
- * The information in the data sheets is as of April 2024.

Software Features

Compatible with Modbus TCP Slave and Modbus RTU Slave^{*1}

Modbus is a communication protocol widely adopted in the industrial sector. Controlling and collecting data from higher-level devices with Modbus Master function can be conducted.

*1: This is available with CPSN-MCB271-S1-041 model only.

Applicable with Windows driver software

The product supplies UDP/IP-based original protocol (F&EIT) and applications can be created with Windows driver software in the Win32 API function format (DLL). In top of that, you can check whether software and hardware are operating properly with the diagnostic program.

Support the virtual COM driver

Software virtual COM driver enables you to operate the product in the same way as PC COM port (standard COM). Applications can be created with the OS standard Win32 API communication function.

Included Items

Product [CPSN-MCB271-S1-041 or CPSN-MCB271-1-041] ...1

Please read the following...1

Power Connector ...1 (Attached to the product)

Blank panel...3 (Attached to the product)

* This product is verified in conformity with our recommended power supply. In case you use other power supplies, thus, it may not be able to fulfil certification requirements. Please see the CONTEC website regarding power supply recommendation (<https://www.contec.com/>).

Specifications

Function specifications

| Item | | CPSN-MCB271-S1-041 | CPSN-MCB271-1-041 |
|--------------------------|---|--|--------------------------------------|
| CPU | | ARM Cortex-M3 180MHz | |
| Memory | | On Board 16MB SDRAM | |
| ROM | | On-Board 4MB NOR Flash for OS | |
| FeRAM | | Unused. | |
| LAN | Transmission standard | 10BASE-T/100BASE-TX | |
| | The number of channels | 1 | 2 (contains a switch function) *1 |
| | Connector | RJ-45 Connector | |
| | LED | Speed (Orange), Link / Act (Green) | |
| USB | | Unused. | |
| microSD Card slot | | Unused. | |
| RS-232C | Baud Rate | 110 - 921.6kbps | - |
| | Isolation | Non-isolated | |
| | Data length | 5, 6, 7, 8 bit | 1, 1.5, 2 stopbit |
| | Parity check | Even, Odd, Non-parity | - |
| | The number of channels | 1ch | - |
| | Connector | 9-pin D-SUB Connector (Male) | |
| Expansion slot | Number of slots | 4 | |
| | Maximum power supply | 12 - 24V 200mA, 5V 250mA, 3.3V 200mA (per slot) | |
| | Number insertions/removals of | 50 times (min) | |
| LED | | PWR(Green) / RUN(Green) / STS(Green) / ERR(Red) | |
| Switch | | Push switch | |
| RTC | Monthly error | ±15 seconds or less (25°C) | |
| | Backup time | Not equipped with the date retention battery for backup | |
| Power supply *2 | Rated input voltage | 12 - 24VDC | |
| | Input voltage range | 10.8 - 30VDC | |
| | Power consumption | <CPU Unit alone *3> 24V 0.08A (Typ), 0.1A (Max), 12V 0.15A (Typ), 0.2A (Max) <With I/O module> 24V 1.5A (Max), 12V 2.0A (Max) | |
| | Connector | 2 pieces 3.5mm pitch 3-pin Terminal (V+, V-, FG) | |
| | Applicable wire | AWG24 - 16 | |
| | Surge protection element V+ - V-, V- - FG | Interactive TVS Diode Stand off voltage : ±30V, Peak pulse power : 400W (1ms) | |
| Physical dimensions (mm) | | 110(W) x 74.8(D) x 95(H)mm (not include projection) | |
| Weight | | 250g | |
| Installation method | | Quick installation on a 35 mm DIN rail Vertical installation with screws *4 | |

*1 The CPSN-MCB271-1-041 model contains a switch function and can configure a network like daisy-chain connection between LAN A port and LAN B port.

*2 Use power cable within 3meters.

*3 With no expansion slot load

*4 Commercially available screws are required.

Installation Environment Requirements

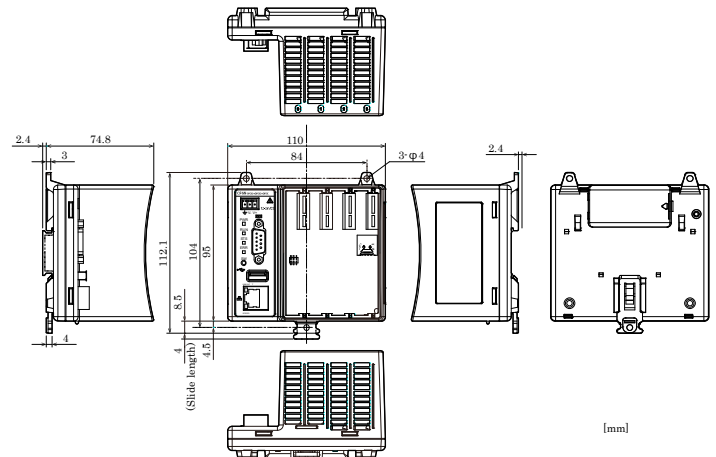
| Item | Description |
|-----------------------------------|--|
| Operating ambient temperature | Vertical installation -20 - +60°C Vertical installation with an angle of 90° to the right/left, Horizontal installation : -20 - +55°C |
| Operating ambient humidity | 10 - 90%RH (No condensation) |
| Non-operating ambient temperature | -20 - +60°C |
| Non-operating ambient humidity | 10 - 90%RH (No condensation) |
| Floating dust particles | Not to be excessive |
| Corrosive gases | None |
| Line-noise resistance | Line noise AC Line/±2kV *5 Signal Line/±1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3) |
| | Static electricity resistance Touch /±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Air /±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3) |
| Vibration resistance | Sweep resistance 10 - 57Hz *6 /semi-amplitude vibration 0.15mm, 57 - 150Hz/2.0G 40minutes each in X, Y, and Z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant) |
| | Shock resistance 15G half-sine shock for 11ms in X, Y, and Z directions (JIS C 60068-2-27 -compliant, IEC 60068-2-27 -compliant) |
| Grounding | Class D grounding (previous class 3 grounding), SG-FG/ non-conduction |
| Standard | VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA |

*5 When an optional power product is used.

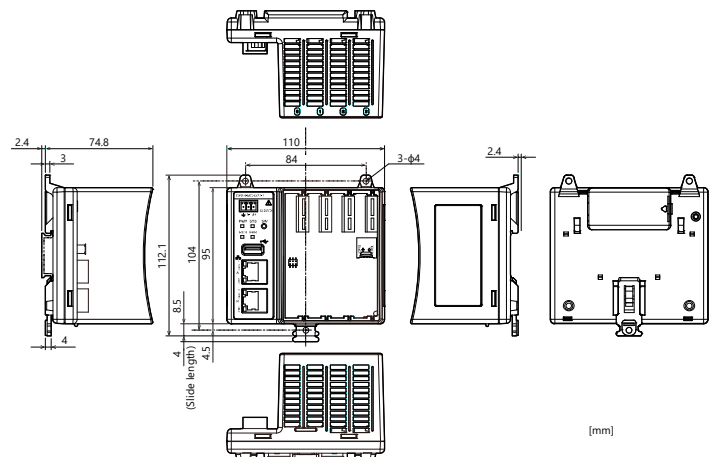
*6 When an optional power product is used : 10 - 55Hz (See the manual of optional power product for details)

Physical Dimensions

CPSN-MCB271-S1-041



CPSN-MCB271-1-041



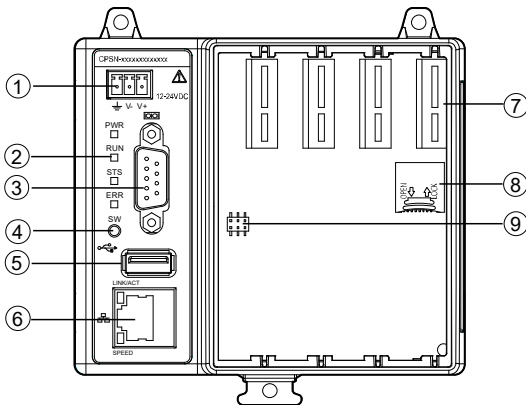
Optional Products

| Product Name | Model type | Description |
|--------------------------------|-------------------|--|
| DIN rail mounting power supply | CPS-PWD-30AW24-01 | Fitting power supply 30W (Input: 100 - 240VAC, output: 24VDC 1.3 A) |
| | CPS-PWD-90AW24-01 | Fitting power supply 90W (Input: 100 - 240VDC, Output: 24VDC 3.8A) |
| I/O module | CPSN-DI-08L | with digital input (input 8 channels, No built-in power supply) |
| | CPSN-DI-08BL | with isolated digital input (input 8 channels, built-in power supply) |
| | CPSN-DI-16BCL | with isolated digital input (input 16 channels, switchable between external and built-in power supplies, switchable between sink input and source input) |
| | CPSN-DIO-08SL | with isolated digital input/output (input 8 channels, output 8 channels, sink output) |
| | CPSN-DO-08L | with isolated digital output (output 8 channels, No built-in power supply) |
| | CPSN-DO-08BL | with isolated digital output (output 8 channels, built-in power supply) |
| | CPSN-DO-08RL | with isolated digital output (output 8 channels, source output) |
| | CPSN-DO-16L | with isolated digital output (output 16 channels, sink output) |
| | CPSN-DO-16BL | with isolated digital output (output 8 channels, built-in power supply, sink output) |
| | CPSN-RRY-4PCA | with relay contact output (4channels) |
| | CPSN-AI-1208LI | with isolated analog input |
| | CPSN-AI-2408LI | with isolated analog input (24-bit voltage input 8 channels/current input 4channels) |
| | CPSN-AO-1602LC | with non-isolated analog output (16-bit voltage output 2 channels/current output 2 channels) |
| | CPSN-CNT-3201I | with isolated counter input (1channel) |
| | CPSN-COM-1PD | with isolated RS-422A/485 (1channel) |
| | CPSN-SSI-4C | with isolated the thermocouple input (4channels) |

* Visit the CONTEC website regarding information on the optional products.

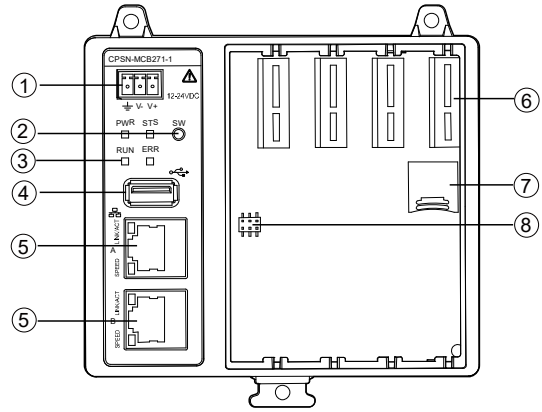
Name of each parts

CPSN-MCB271-S1-041



- Power Connector : Use the power connector (3 pin connector), included in this package.
- LED Indicator : Indicates the status of the product.
- RS-232C : It is a RS-232C serial ports (male).
- Push Switch : This is used with the software setup.
- USB Port : Unused.
- LAN Port : It is a connector for LAN.
- Expansion slot : These are used to supply power to and communicate with expansion modules.
- microSD Card Slot : Unused.
- Jumper : Please do not use it.

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Power Connector (12 - 24VDC)

Use the 3-pin connector, included in the package, to connect to external power.

[Connector type] : DEGSON 15EDGKD-3.5-03P-13-00A(H) (or equivalent)

| Pin No | Signal name | Meaning |
|--------|-------------|---------------------------|
| 1 | FG | Frame ground |
| 2 | V- | Power supply (GND) |
| 3 | V+ | Power supply (12 - 24VDC) |

RS-232C Interface (COM)

This product has 1port of RS-232C compliant serial interface. (the CPSN-MCB271-S1-041 only) The baud rate is 921,600bp (Max.)

| Pin No. | Signal name | Direction | Meaning |
|---------|-------------|-----------|---------------------|
| 1 | CD | Input | Carrier detection |
| 2 | RD | Input | Received data |
| 3 | TD | Output | Transmitted data |
| 4 | DTR | Output | Data terminal ready |
| 5 | GND | --- | Signal ground |
| 6 | DSR | Input | Data set ready |
| 7 | RTS | Output | Request to send |
| 8 | CTS | Input | Clear to send |
| 9 | RI | Input | Ring indicate |