CONPROSYS nano Series
CODESYS Modbus Master CPU Unit
# CPSN-PCB271-S1-041



This product is a CPU unit containing RS-232C, LAN interface, and with four expansion slots to support CODESYS programming and Modbus Master.

The CONPROSYS nano series configurable I/O modules can be arranged and combined along with the product to satisfy the user's needs.

* 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 July 2022.

* 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**
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℃**
The product is capable of operating in the temperature between -20 and + 60℃. 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.

## Software Features

**Collaborate with the CODESYS**
This product features the CODESYS Soft PLC. CODESYS is a device-independent-PLC-programming system that is complied with the IEC 61131-3 standard and supports all standard programming languages such as ST and LD.

**Along with Modbus TCP Master and Modbus RTU Master**
Modbus is a communication protocol widely applied in the industrial field. Data collecting from devices that contain Modbus Slave function or controlling can be carried out.

## Specifications

Function specifications

| Item | | CPSN-PCB271-S1-041 |
|---|---|---|
| CPU | | ARM Cortex-M3 180MHz |
| Memory | | On Board 16MB SDRAM |
| ROM | | On-Board 4MB NOR Flash for OS |
| FeRAM | | On-Board 32kB |
| LAN | Transmission standard | 10BASE-T/100BASE-TX |
| | The number of channels | 1 |
| | Connector | RJ-45 Connector |
| | LED | Speed(Orange), Link / Act(Green) |
| USB | Transmission standard | USB2.0 standard follow |
| | The number of channels | 1 |
| | Connector | TYPE-A |
| microSD Card slot | Standard | SD standard follow |
| | Connector | microSD memory card slot |
| 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 |
| | Isolation | Non-isolated |
| | 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 of insertions/removals | 50 times (min) |
| LED | | PWR(Green) / RUN(Green) / STS(Green) / ERR(Red) |
| Switch | | Push switch |
| RTC | Monthly error | ±15 seconds or less (25℃) |
| | Backup time | 10 years or more (25℃) Lithium primary battery |
| Power supply *1 | Rated input voltage | 12 - 24VDC |
| | Input voltage range | 10.8 - 30VDC |
| | Power consumption | <CPU Unit alone *2> 24V 0.08A (Typ.), 0.1A (Max.), 12V 0.15A (Typ.), 0.2A (Max.) <With I/O module and USB> 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)×74.8(D)×95(H)mm (not include projection) |
| Weight | | 250g |
| Installation method | | Quick installation on a 35 mm DIN rail Vertical installation with screws *3 |

*1  Use power cable within 3meters.
*2  With no USB load and no expansion slot load
*3  Commercially available screws are required.

Installation Environment Requirements

| Item | | CPSN-PCB271-S1-041 |
|---|---|---|
| Operating ambient temperature | | Vertical installation   -20 - +60°C<br>Vertical installation with an angle of 90° to the right/left,<br>Horizontal installation : -20 - +55°C |
| Operating ambient humidity | | 10 to 90%RH (No condensation) |
| Non-operating ambient temperature | | -20 to +60°C |
| Non-operating ambient humidity | | 10 to 90%RH (No condensation) |
| Floating dust particles | | Not to be excessive |
| Corrosive gases | | None |
| Line-noise resistance | Line noise | AC Line/±2kV *1<br>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)<br>Air/±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3) |
| Vibration resistance | Sweep resistance | 10 - 57Hz*2 / semi-amplitude vibration 0.15mm, 57 - 150Hz / 2.0G<br>40 minutes each in X, Y, and Z directions<br>(JIS C60068-2-6-compliant, IEC60068-2-6-compliant) |
| Shock resistance | | 15G half-sine shock for 11ms in X, Y, and Z directions (JIS C60068-2-27-compliant, IEC60068-2-27-compliant) |
| Grounding | | Class D grounding (previous class 3 grounding),<br>SG-FG / non-conduction |
| Standard | | VCCI Class A, FCC Class A,<br>CE Marking (EMC Directive Class A, RoHS Directive), UKCA |

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

## Physical Dimensions



[mm]
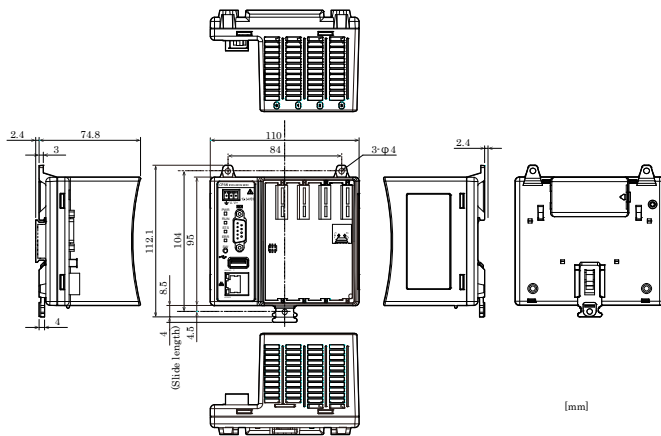
## Packing List

Product [CPSN-PCB271-S1-041] ...1
Product Guide...1
Warranty Certificate...1
Serial Number Label...1
Power Connector ...1
Blank panel...3

## List of Options

DIN rail mounting power supply
CPS-PWD-30AW24-01 : DIN rail mounting power supply 30[W]
                                    Input: 100 - 240VAC, output: 24VDC 1.3 A)
CPS-PWD-90AW24-01 : DIN rail mounting power supply 90[W]
                                    Input: 100 - 240VAC, output: 24VDC 3.8 A)

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-08BRL :               with isolated digital output (output 8 channels, built-in
                                        power supply, source 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
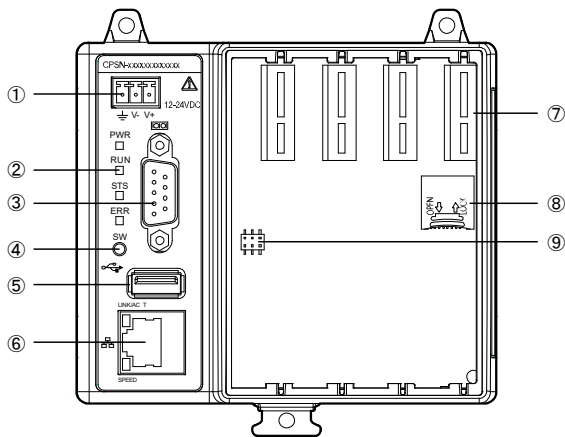
CPSN-CNT-3201I :               with isolated counter input (1channel)

CPSN-COM-1PD :                with isolated RS-422A/485 (1channel)

CPSN-SSI-4C :                     with isolated the thermocouple input (4channels)

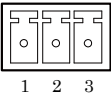*    Visit the Contec website regarding information on the optional products.

## Name of each parts



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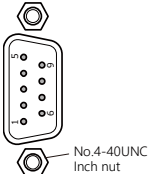(9) Jumper : Please do not use it.

## Power Connector (12 - 24VDC)

Use the 3-pin connector, included in this package.
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 ports of a baud rate 921,600bps (Maximum).

No.4-40UNC
Inch nut

| 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 |