CONPROSYS Series
Multi-Function Module BATT DI12-24V
CPS-MC341-ADSC1-931

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

This product is a M2M controller with isolated RS-422A/485, isolated digital input/output, isolated counter input, inter-channel isolated analog input, RS-232C, LAN interface, and Ethernet Hub. It is equipped with the ARM®Cortex®-A8 processor (600MHz) and the 512MB DDR3-SDRAM system memory. On-board NOR-FLASH is utilized for a booting device.

CPS-MC341-ADSC1-931 contain OPC UA server function within. The product can communicate directly with HMI and SCADA software that support OPC UA clients from various makers. With the CONPROSYS series, data can be collected from various types of facilities and managed them all centrally.
All the processes from development to operation can be performed on a web browser. The functions such as Web monitoring of I/O information, alarm processing by I/O information, task divergence enable you to create a Cloud System at low cost and in a short time..

* 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 March 2024.

Hardware Features

The product contains I/O interface such as digital I/O, analog input, counter, and serial communication
RS-232C: 1-channel, RS-422A/485: 1-channel, Photocoupler isolation input (compatible with current sink output): 4-channel, Semiconductor relay output: 2-channel, Bus isolation analog input (current input): 2-channel. Counter input performs up-counting: equipped with two channels of up counters. * Two of four digital-input can be used as the counter-input.

Compact Design
Compact design, 188.0(W) × 78.0(D) × 30.5(H), features flexibility in installation.

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

Ethernet Hub Function within
Use the product as Ethernet Hub so that you can connect devices in the daisy-chain.

A powerful running platform without fan
The product contains the ARM® Cortex®-A8 processor (600MHz) and the DDR3 512MB system memory.

Decrease malfunctions or damages by bus isolation and surge protection. (the RS-422A/485, digital/counter input)
Electrical isolation between the RS-422A/485 and the CPU, as well as between the digital/counter input and CPU can block up the electrical noise flow. Moreover, the surge protection elements are used for signal line and on top of that, the RS-422A/485 is protected with the communication IC that can withstand ±70 V input voltage, which reduces malfunctions or damages by surge.

Decrease malfunctions or damages by bus isolation, inter-channel isolation and surge protection. (Analog input)
As analog inputs and channel, along with analog inputs and CPU, are electrically isolated, connecting an input signal with electric potential difference is possible. In addition, the surge protection elements are used for signal lines, which reduces malfunctions or damages by surge.

Capable of adapting a wide-range power (12- 24VDC)
The product is capable of dealing with a wide range of power in the differing environments. Power connector also has a FG terminal.

Installation easy with two pieces of terminal support and DIN rail
You can install and remove a terminal connector without a screwdriver so that it can shorten the time of the replacement. As the product can be mounted on the DIN rail, removing and replacing are easy as well.

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

Choice of a battery with a longer life
With a choice of a long-life battery, the Contec is creating longer lasting products.

Ethernet Hub function within
Use the product as Ethernet Hub so that you can connect devices in the daisy-chain.

Software Features

Together with OPC UA Server
OPC UA (Unified Architecture) is an advanced model of OPC specifications, which presents refined capability of transmitting and receiving semantic description data. OPC UA is a platform independent standard based on TCP. This product can be operated with HMI and SCADA software that support OPC UA clients from various makers.

Measurement and Upload
The product CPS-MC341-ADSC1-931 measures data with an external sensor and uploads them to the Cloud server.

Web Monitoring
The product contains a Web server. Even with the PC located remotely, I/O information can be monitored and updated through a Web browser. On the monitoring screen, the standard GUI parts (graphic, slider, button, etc.) can be freely arranged.
All operations including monitoring layout, making relations with I/O information, can be achieved through a Web browser.

Web Task Script
By combining icons such as arithmetic operations, conditional branching, data outputting, you can set up the executions or its processes like drawing them in the flowchart. All operations can be completed on the Web browser.

Support a communication protocol MTConnect for machine tools

MTConnect is a communication protocol for machine tools and standardized by MTConnect Institution. CONPROSYS has MTConnect Adapter and Agent built-in and can be operated with client software that supports MTConnect.

Specifications

Function specifications

Item		CPS-MC341-ADSC1-931
CPU		ARM Cortex-A8 600MHz
Memory		On Board 512MB DDR3 SDRAM
ROM		On-Board 64MB NOR Flash for OS
LAN	Transmission standard	10BASE-T/100BASE-TX
	The number of channels	2
	Connector	RJ-45 Connector
	LED	Speed (Yellow), Link/Act (Green)
RS-422A/485	Transmission scheme	Asynchronous serial transmission (Full Duplex/Half Duplex)
	The number of channels	1
	Isolation	Bus Isolation/500VDC(when surge protected parts between SG-FG are unimplemented)
	Baud Rate	300bps - 115.2kbps
	Data length	5, 6, 7, 8bit　1, 1.5, 2stopbit
	Parity check	Even, Odd, Non-parity
	Connector	2-piece 3.5mm pitch 5-pin terminal (TX+, TX-, RX+, RX-, SG)
	Applicable wire	AWG28 - 16
	LED	Transmission (Yellow), Reception (Yellow)
	Switch	DIP Switch (Full Duplex /Half Duplex, Terminator (ON/OFF))
	Surge protection element each signal - SG	Interactive TVS diode Stand off voltage : ±13V, Peak pulse power : 400W(1msec)
	Surge protection element SG - FG	Gas discharge tube arrester Discharge voltage : ±300V, impulse current tolerance : 2000A(8/20μsec, 10 times)
USB	Transmission standard	USB2.0 standard follow
	The number of channels	1
	Connector	TYPE-A
SD card slot	Standard	SD standard follow
	Connector	SD memory card slot
	LED	Read/Write (Yellow)
RS-232C	Baud Rate	300bps - 115.2kbps
	Isolation	Non-isolated
	Data length	5, 6, 7, 8bit　1, 1.5, 2stopbit
	Parity check	Even, Odd, Non-parity
	The number of channels	1
	Connector	9-pin D-SUB connector (Male)
	LED	Transmission (Yellow), Reception (Yellow)
Digital input Counter input	Input type	Opto-coupler Isolation Input (Compatible with current sink output and current source output) (negative logic) *1
	Isolation/Resistance	Bus Isolation /500VDC, Opto-coupler Isolation/1000V
	Built-in power supply	12VDC (compatible with current sink output) *2
	Input type	5.6kΩ
	Input ON current	1.6mA or more
	Input OFF current	0.16mA or less
	Response time	Within 200μsec *3
	Interrupt (Digital input)	4 interrupt input signals are arranged into a single output of interrupt signal. An interrupt is generated at the falling edge (HIGH-to-LOW transition) or rising edge (LOW-to-HIGH transition). (setting can be done by software)
	The number of channels	4 (It is possible to allocate 2channels to counter input)
	Count type	Up count
	Max. count	FFFFFFH (binary data)

Item		CPS-MC341-ADSC1-931
	Counter response speed	1kHz (Max.), Duty: 50% (Max.)
	Interrupt (Counter input)	One interrupt caused upon channel count match
	Timer	None
	LED	DI0 - DI3 (Yellow)
	Surge protection element each signal to B_COM	Interactive TVS diode Stand off voltage : ±30V, Peak pulse power : 400W(1msec)
Digital output	Output type	Semiconductor relay output
	Isolation/Resistance	Semiconductor relay isolation/1000V
	Maximum output voltage / current	26.4VAC/VDC/100mA
	Response time	Within 2msec
	ON resistance	8Ω or less (at 25℃)
	OFF leakage current	4μA or less (at 25℃)
	The number of channels	2
	LED	DO0 - DO1 (Yellow)
	Surge protection element + to -	Interactive TVS diode Stand off voltage : ±30V, Peak pulse power : 400W(1msec)
Digital input / Counter input / Digital output	Connector	2-piece 3.5mm pitch 10-pin terminal (DI_ACOM, DI0, DI1, DI2, DI3, DI_BCOM, DO0+, DO0-, DO1+, DO1-)
	Applicable wire	AWG28 - 16
Analog input	Input type	Current Input
	Input range	0 - 20mA
	Maximum input rating	30mA
	Input impedance	250Ω
	The number of channels	Differential Input 2ch
	Channel switching rate	3msec/ch (Max.) *4
	Conversion rate	The sampling interval differs by the software programmed by the user.
	Data buffer	None
	Resolution	12bit
	Non-Linearity error *5	±10LSB
	Isolation/Resistance	Bus Isolation /500VDC, Inter Channel Isolation /200V
	Connector	2-piece 3.5mm pitch 3-pin terminal (AI+, AI-, SG)
	Applicable wire	AWG28 - 16
	LED	AI0 - AI1 (Yellow)
LED		Power (Green)/Status 1 (Green)/Status 2 (Red)
Switch		Reset SW, Shut Down SW, Full Duplex/Half Duplex Switching SW
RTC		RTC built-in (battery life :10 years or longer at 25°C) lunar inequality ±15sec (at 25°C)
Power supply *6	Rated input voltage	12 - 24VDC
	Input voltage range	10.8 - 30VDC
	Power consumption	12V 0.7 A (Max.), 24V 0.4A (Max.)
	Connector	2-piece 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(1msec)
Physical dimensions (mm)		188.0(W)×78.0(D)×30.5(H) (No projection included)
Weight		250g
Installation method		Quick mounting on the 35mm DIN rail, Mounting on the wall using the screws *7
OS		Linux kernel 3.2

*1 Data 0 corresponds to High level and Data 1 corresponds to Low level.
*2 The default setting is for an external circuit power supply. With a software command, it can be switched to the built-in power use.
*3 Response time of Opto-coupler
*4 Switching time of Inter Channel
*5 The non-linearity error means an error of approximately 0.07% occurs over the maximum range at -20 °C and +60 °C ambient temperature.
*6 Use power cable within 3meters.
*7 Commercial screws are required (fit into φ3.5 hole).
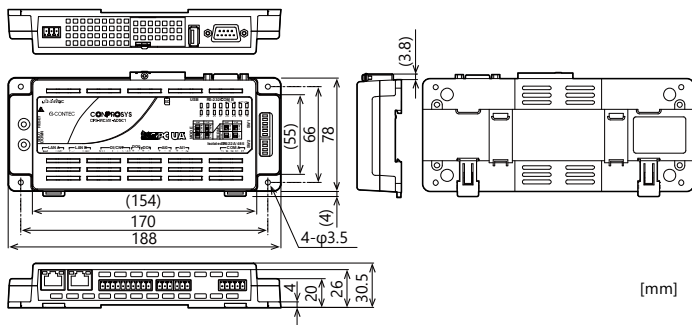
Installation Environment Requirements

Item		CPS-MC341-ADSC1-931
Operating ambient temperature		-20 - +60°C *8
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 *9 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 *10 /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, KC, UL

*8   If you use the USB with bus power, operate the product at between -20 and +55℃.
*9   When you use the CPS-PWD15AW12-01 (optional product)
*10 When you use an optional power product: 10-55Hz (See the manual of optional power product for details)

Physical Dimensions

[mm]

List of Option

DIN rail mounting power supply
CPS-PWD-15AW12-01:   DIN rail mounting power supply 15[w]
        (Input: 100 - 240VAC, output: 12VDC 1.3 A)

FANUC CNC connection cable
CPS-CAB-S01-1:   1m

CPS-CAB-S01-3:   3m

CPS-CAB-S01-5:   5m

MITSUBISHI CNC connection cable
CPS-CAB-S02-1:   1m

SD card
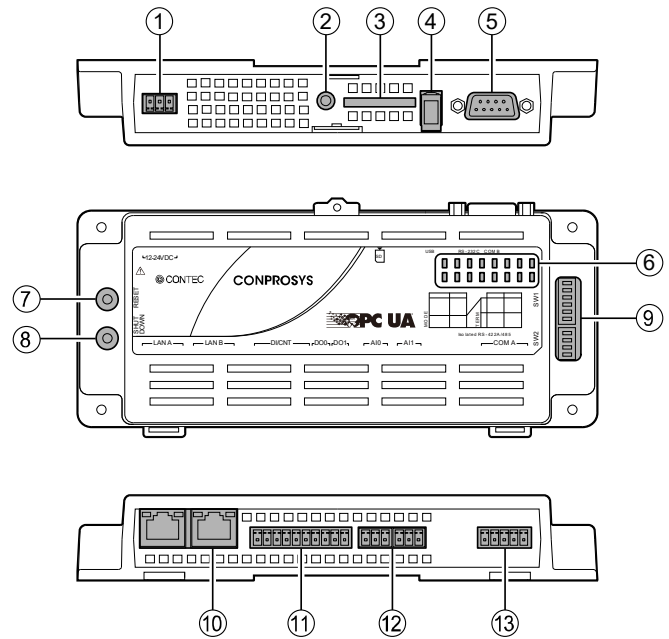SD-4GB-A: SD card 4GB

Magnet
CPS-MAG01-4:   Magnets for installation (Four Piece Set)

*   Information about the option products, see the Contec's website.

Packing List

Product [CPS-MC341-ADSC1-931]...1
Product Guide...1
Warranty Certificate...1
Serial Number Label...1
3-pin Connector (Power/Analog) ...3
5-pin Connector (RS-422A/485)...1
10-pin Connector (Digital) ...1

Component Name

No.	Name	Function
1	Power Connector	This is a connector for power. Use the 3-pin connector included in the package.
2	Debug Connector	Do not use this.
3	SD Card Slot	This a slot for inserting SD card to store data.
4	USB Port	This is a TYPE-A USB port.
5	RS-232C Serial Port	This is a RS-232C serial port. (male)
6	LED Indicator	This indicates status of the product.
7	Reset Switch	This resets the product.
8	Shutdown Switch	This shuts down the product.
9	DIP Switch	This is used for system setup and RS-422A/485 setup.
10	LAN Port	This is a connector for LAN.
11	Digital Input/Counter Input/Digital Output Connector	This is a connector for digital input/counter input/digital output. (Use the 10-pin connector included in the package)
12	Analog Input Connector	This is a connector for analog input. (Use the 3-pin connector included in the package)
13	RS-422A/485 Connector	This is a connector for RS-422A/485 communication. (Use the 5-pin connector included in the package)