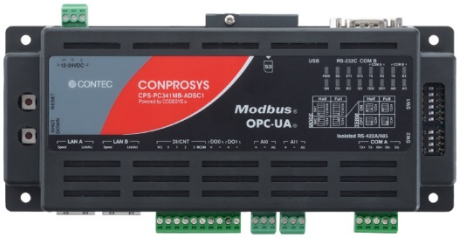
CONPROSYS Series
CODESYS Modbus Master BATT

CPS-PC341MB-ADSC1-9201



This product is a Modbus Master controller with isolated RS-422A/485, isolated digital input/output, isolated counter input, inter-channel isolated analog input, RS232C, and LAN interface.
This product contains the CODESYS* Soft PLC.
You can create your own PLC program and run with the CODESYS software.
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 or LD.

*CODESYS® is a registered trademark of 3S-Smart Software Solutions GmbH

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

* 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 September, 2019.

Hardware features

Max. 115,200bps RS-422A/485 Serial Communication and RS-232C Serial Communication
The Product has one RS-422A/485-standard serial port and one RS-232C-standard serial port.
Baud rates from 300 to 115,200 bps can be set.

Opto-coupler isolated input (compatible with current sink output) and semiconductor-relay output
The product has the 4 channels of opto-coupler isolated input (compatible with current sink output) and 2 channels of semiconductor-relay output.

Counter input capable of up-counting
The product has 2 channels of counter inputs capable of up-counting.

* 2 out of the digital input 4 channels can be assigned to the counter input.

Bus-isolated analog input module
The product has 2ch of bus-isolated analog input. It supports differential input and is capable of precise measurement of voltage with potential differences.

Adaptable to a temperature range 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.

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

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 (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 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.

Easy installation with screws or on DIN rail
This product can be installed on the wall with screws or on DIN rail with simple mounting.

Installation with two pieces of terminal support
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.

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.

Software features

Feature the CODESYS SoftPLC
CODESYS is a device-independent-PLC-programming system that is compliant with the IEC 61131-3 standard and supports all standard programming languages such as ST or LD.

Harmonize with Modbus TCP Master
Modbus is a communication protocol widely used in the industry. It can collect data and control the device for Modbus TCP Slave-compliant.

Together with OPC UA Server
OPC UA (Unified Architecture) is an advanced model of OPC specifications, which presents refined capability of communicating with higher-order system in addition to transferring and receiving data of devices or plants. 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.

Specifications

Function specifications

Item		CPS-PC341MB-ADSC1-9201
CODESYS compatible function	Version	V3.5 SP7 Patch2 or any later version
	Language	LD, SFC, FBD, ST, IL, CFC (IEC61131-3 compliant)
	Field bus	Modbus TCP Master / Slave, Modbus RTU Master / Slave
	Communication protocol	OPC UA Server
Program size	ROM size	1MB
	The number of maximum steps	250K steps
CPU basic performance	Basic command operation speed (LD)	1.6ns
	Applied command operation speed (ST)	5.8ns
	Scan time	74μs (at 20000 Steps)

Hardware specifications

Item		CPS-PC341MB-ADSC1-9201
CPU		ARM Cortex-A8 600MHz
Memory		On Board 512MB DDR3 SDRAM
ROM		On-Board 32MB 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) * Only full Duplex is supported by CODESYS
	The number of channels	1
	Isolation/Resistance	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/Resistance	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) (negative logic) *1
	Isolation/Resistance	Bus Isolation /500VDC, Opto-coupler Isolation/1000V
	Built-in power supply	12VDC
	Input resistance	5.6kΩ
	Input ON current	1.6mA or more
	Input OFF current	0.16mA or less
	Response time	Within 200μsec *2
	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)
	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.) *3
	Conversion rate	The sampling interval differs by the software programmed by the user.
	Data buffer	None
	Resolution	12bit
	Non-Linearity error *4	±10LSB
	Isolation/Resistance	Bus Isolation /500VDC, Inter Channel Isolation /200V
	Connector	2-piece 3.5mm pitch 3-pin terminal (AI+, AI-, AG)
	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℃) Lunar inequality: ±15sec (at 25℃)
Power supply *5	Rated input voltage	12 - 24VDC
	Input voltage range	10.8 - 30VDC
	Power consumption	12V 0.7A (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 *6
OS		Linux kernel 3.2

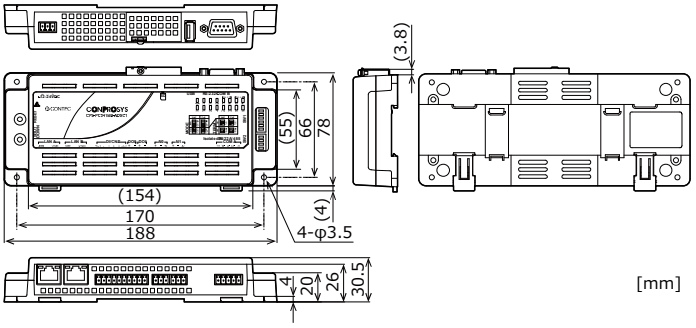
*1 Data 0 corresponds to High level and Data 1 corresponds to Low level.
*2 Response time of Opto-coupler
*3 Switching time of Inter Channel
*4 The non-linearity error means an error of approximately 0.07% occurs over the maximum range at -20 °C and +60 °C ambient temperature.
*5 Use power cable within 3meters.
*6 Commercial screws are required (fit into φ3.5 hole).

Installation Environment Requirements

Item		CPS-PC341MB-ADSC1-9201
Operating ambient temperature		-20 - +60°C *7
Operating ambient humidity		10 - 90%RH (No condensation)
Non-operating ambient temperature		-20 - +60°C *7
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 *8 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 *9 /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), UL, KC

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

Physical Dimensions



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Packing List

Product [CPS-PC341MB-ADSC-9201]...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
CODESYS Runtime license...1
(provided on the bottom face of the product)

List of Option

DIN rail fitting power supply

CPS-PWD-15AW12-01: fitting type power supply 15[w]
(Input: 100-240VDC, Output: 12VDC 1.3A)

SD Card

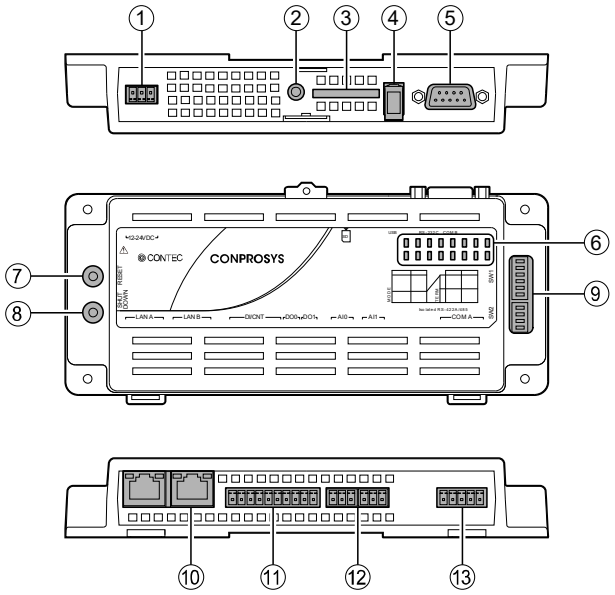
SD-4GB-A: SD Card 4GB

Magnet

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

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

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)