CONPROSYS Series
M2M Gateway for PLC
Multi-Function 3G OPC UA
CPS-MG341G-ADSC1-930

* 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.

The product is a M2M controller with isolated RS-422/485, isolated digital input/output, isolated input counter, inter-channel isolated analog input, RS232C, LAN interface, Ethernet Hub and 3G network communication module.

CPS-MG341G-ADSC1-930 contains OPC UA server function within. This product can communicate directly with HMI and SCADA software that support OPC UA clients from various makers.

The product is the data collector M2M Gateway for PLC that supports respective PLCs as well as various Modbus devices. For equipment with PLC control, data will be collected by "M2M Gateway for PLC". For the one without PLC control, data can be collected by "M2M controller" that supports sensor input. "M2M Gateway for PLC" can connect up to 10 Ethernet/calculating links with differing makers PLCs simultaneously.

The CONPROSYS series enables you to collect and consolidate data from a wide range of equipment.

You can perform all processes on a web browser from the development to the operation. 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.

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.

Adaptable to a temperature range 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.

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

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

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.

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.

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.

With no use of electrolytic capacitor and primary battery
Neither an electrolytic capacitor, which has a limited life, nor a primary battery is used. We are creating the product with a longer life.

Software Features

Promoting a multi-vendor system supporting a varied lineup of PLCs and Modbus devices
The product connects and supports every PLC and each Modbus device simultaneously.
*please visit our website regarding the details of supportive information.

Connect up to 10 links and data collection from 100 group registers
Up to 10 Ethernet/calculating links can be connected. Data collection from 30 PLCs and 100 group registers can be carried out. Up to 1000 data mapping for Modbus is possible.

Measurement and Upload
The product uploads measured data of the sensor and collected data from PLC to the Cloud server.

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

Message Communication Function

By working with the RS-232C 1 port, the RS-422A/RS-485 1 port or the Ethernet device (TCP/UDP), you can establish up to 10 links and transmit or receive messages. Message communication can be accomplished from Web task script.

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		Description
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 *1
	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	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 and current source output) (negative logic) *2
	Isolation/Resistance	Bus Isolation /500VDC, Inter Channel Isolation /1000V
	External circuit power supply	12 - 24 VDC (±10%)
	Built-in power supply	12VDC (compatible with current sink output) *3
	Input Resistance	5.6kΩ
	Input ON current	1.6mA or more
	Input OFF current	0.16mA or less
	Response time	Within 200μsec *4
	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		Description
	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	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	Current Input 2ch
	Channel switching rate	3msec/ch (Max.) *5
	Conversion rate	The sampling interval differs by the software programmed by the user.
	Data buffer	None
	Resolution	12bit
	Non-Linearity error *6	±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 more at 25℃) lunar inequality ±15sec (at 25℃)
Power supply *7	Rated input voltage	12 - 24VDC
	Input voltage range	10.8 - 30VDC
	Power consumption	12V 0.8A (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		350g
Installation method		Quick mounting on the 35mm DIN rail, Mounting on the wall using the screws *8
OS		Linux kernel 3.2

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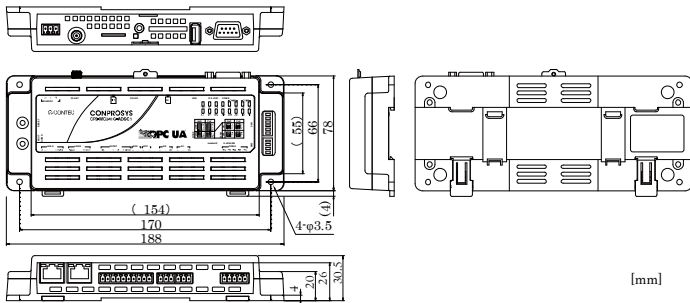*8   Commercial screws are required (fit into φ3.5 hole).

Wireless Specification

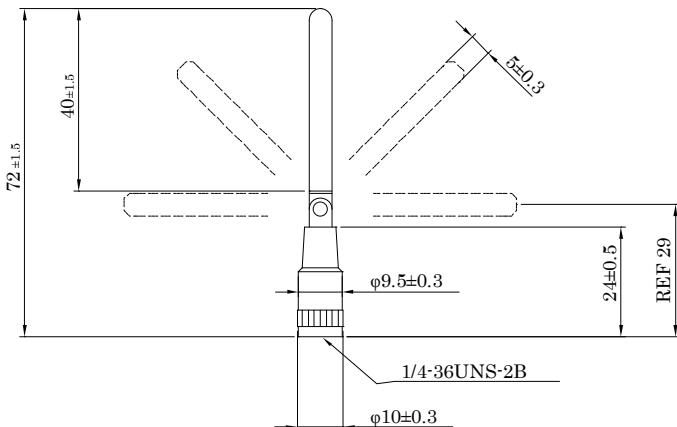| Item		Description
Support SIM		MVNO SIM
SIM slot		Standard SIM
Communication method		3G (UMTS)
Wireless frequency		Band1 (2100MHz), Band2 (1900MHz), Band5 (850MHz), Band6 (800MHz), Band8 (900MHz), Band19 (800MHz)
Maximum Output Power		23 dBm
Communication speed	Upload	Maximum 384kBit/s
	Download	Maximum 384kBit/s

Installation Environment Requirements

Item		Description
Operating ambient temperature		-20 - +60°C *9
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 *10 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 *11 / 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, TELEC, FCC Part 15, CE Marking (RE Directive EMC Directive Class A, RoHS Directive, RE Directive), UL

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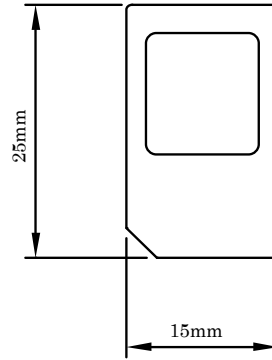*10 When you use an optional power product: 10-55Hz (See the manual of optional power product for details)

Physical Dimensions

[mm]

Physical Dimensions (Antenna)

Standard SIM size

Support Software & Service

Cloud-based remote monitoring service "CONPROSYS cloud Data Service 2"

Monitoring in the on-premises environment "CONPROSYS data collection software"

Driver software that streng thens the collaboration with devices. "OPC Server Software"
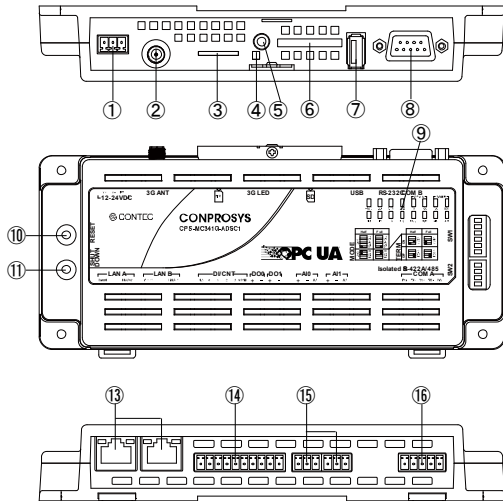
List of Option

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

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

3G Antenna
CPS-ANT-R3-01:   Antenna (Cable length: 3 meters)

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

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

Packing List

Product [CPS-MG341G-ADSC1-930]...1
Product Guide...1
Warranty Certificate...1
Cautions for setting the SIM card...1
Serial Number Label...1
3-pin Connector (Power/Analog) ...3
5-pin Connector (RS-422A/485)...1
10-pin Connector (Digital) ...1
Antenna...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	Antenna Connector	This is a connector to connect an antenna. Use the supplied connector or optional one.
3	SIM Card Slot	This is a slot for inserting SIM card.
4	3G LED	This displays the intensity of the signal reception.
5	Debug Connector	Do not use this.
6	SD Card Slot	This a slot for inserting SD card to store data.
7	USB Port	This is a TYPE-A USB port.
8	RS-232C Serial Port	This is a RS-232C serial port. (male)
9	LED Indicator	This indicates status of the product.
10	Reset Switch	This resets the product.
11	Shut-Down Switch	This shuts down the product.
12	DIP Switch	This is used for system setup and RS-422A/485 setup.
13	LAN Port	This is a connector for LAN.
14	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)
15	Analog Input Connector	This is a connector for analog input. (Use the 3-pin connector included in the package)
16	RS-422A/485 Connector	This is a connector for RS-422A/485 communication. (Use the 5-pin connector included in the package)