

**CONPROSYS Series**  
**Compact CPU Module 4G Module**  
**CPS-MG341G5-ADSC1-931**



- \* 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 March 2024.

**Hardware Features**

**4G LTE Cat. 4 communication**

This product is equipped with an LTE SIM-free communication module, enabling 4G LTE Cat. 4 communication.

**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, Opto-coupler 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°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.

**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.

**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

This product is a M2M controller with isolated RS-422A/485, isolated digital input/output, isolated input counter, inter-channel isolated analog input, RS-232C, LAN interface, and 4G LTE Cat.4 network communication module. 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-MG341G-ADSC1-930 contains OPC UA server function within and 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. With the CONPROSYS series, data collected from various types of facilities can be managed centrally. 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.

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 different grand level to each channel 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.

**No electrolytic capacitor**

No electrolytic capacitor is used. The Contec is creating the product with a longer life.

**Software Features**

**OPC UA Server function within**

OPC UA (Unified Architecture) is an advanced protocol 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 TCP-based platform independent protocol. This product can be operated with HMI and SCADA software that support OPC UA clients from various makers.

**Promoting a multi-vendor system that supports a varied lineup of PLCs and Modbus devices**

The product connects and supports every PLC and each Modbus device simultaneously. \*Visit our website regarding the details of supportive information.

**Connect up to 10 links and collect data 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**

CPS-MG341G-ADSC1-930 uploads measured data of a sensor and also collected data from PLC to the Cloud server.

**Web Monitoring**

The product contains a web server function. 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 through a Web browser.

**Message Communication Function**

With the RS232C, the RS-422A/RS-485 or the Ethernet device (TCP/UDP), up to 10 links can be set to send 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
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

Item		Description
	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, Inter Channel Isolation /1000V
	Built-in power supply	12VDC
	Input Resistance	3.6kΩ
	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)	
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°C)
	OFF leakage current	4µA or less (at 25°C)
	The number of channels	2
	LED	DO0 - DO1 (Yellow)
	Surge protection element	Interactive TVS diode Stand off voltage : ±30V, Peak pulse power : 400W(1msec)
	Surge protection element + to -	
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.) *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-, 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	
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)

Item	Description
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 *6
OS	Linux kernel 3.2.0

- \*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).

**Wireless Specification**

Item	Description
Support SIM	MVNO SIM
Communication method	4G LTE (Cat.4) 3G W-CDMA
Wireless frequency *7	4G LTE Band LTE-FDD... B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28 LTE-TDD... B38/B41 3G W-CDMA Band B1/B2/B4/B5/B6/B8/B19
Communication speed *8	4G LTE-FDD Upload : Up to 50MBit/sec, Download : Up to 150MBit/sec
	4G LTE-TDD Upload : Up to 30MBit/sec, Download : Up to 130MBit/sec
	3G W-CDMA Upload (With HSUPA) : Up to 384KBit/sec, Download : Up to 384KBit/sec
Attached Antenna	FMM800W-SMAP-L

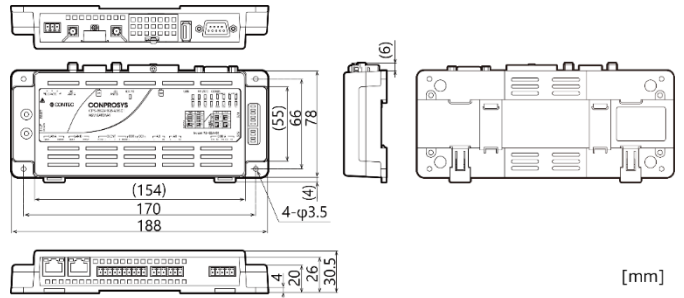
- \*7 NCC Wireless frequency : 3G W-CDMA Band [B1/B8] ,4G LTE BAND[B1/B3/B7/B8/B28/B38/B41]
- \*8 These are theoretical communication standard values and do not indicate actual data transfer speeds.

**Installation Environment Requirements**

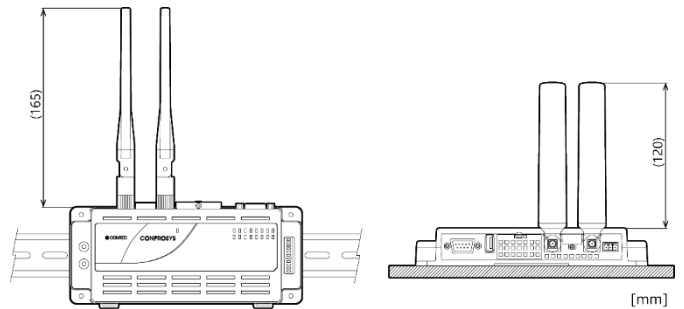
Item	Description
Operating Temperature	-20 - +60°C *9
Storage Temperature	-20 - +60°C
Humidity	10 - 90%RH (No condensation)
Floating dust particles	Not to be excessive
Corrosive gases	None
Line-noise resistance	Line noise AC Line/±2kV *10 Signal Line /±1kV(IEC61000-4-4 Level 3, EN61000-4-4 Level 3)
	Static electricity resistance Contact discharge /±4kV(IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Air discharge /±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, TELEC, FCC Class A, CE Marking (RE Directive Class A, RoHS Directive), NCC

- \*9 If you use the USB with bus power, operate the product at between -20 and +55°C.
- \*10 When you use the CPS-PWD15AW12-01 (optional product)
- \*11 When you use an optional power product: 10-55Hz (See the manual of optional power product for details)

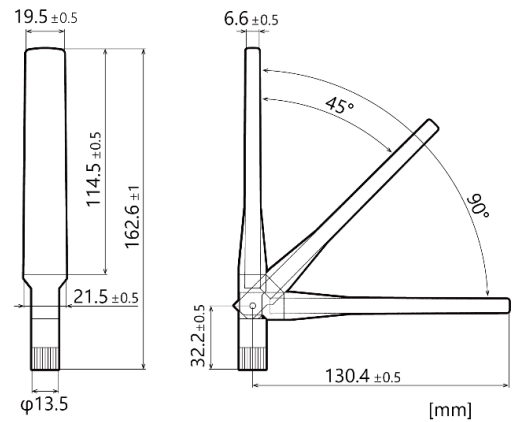
**Physical Dimensions (Product)**



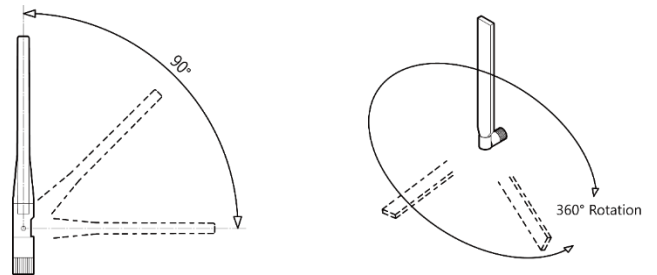
**Physical Dimensions (With Antennas Attached)**



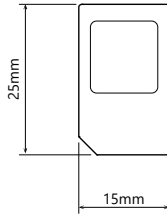
**Physical Dimensions (Antenna)**



**Physical Dimensions (Antenna Steerable Range)**



## Physical Dimensions (Standard SIM size)



## List of Option

Product Name	Model type	Description
DIN rail fitting power supply	CPS-PWD-15AW12-01	Fitting power supply 15W (Input: 100-240VDC, Output: 12VDC 1.3A)
FANUC CNC connection cable	CPS-CAB-S01-1	CNC connection cable 1m
FANUC CNC connection cable	CPS-CAB-S01-3	CNC connection cable 3m
FANUC CNC connection cable	CPS-CAB-S01-5	CNC connection cable 5m
MIITSUBISHI CNC connection cable	CPS-CAB-S02-1	CNC connection cable 1m
SD Card	SD-4GB-A	SD card (4GB)
Magnet	CPS-MAG01-4	Magnet (Four Piece Set)
4G Antenna	CPS-ANT-R5-01	Antenna (Cable length: 5 meters)

Visit the Contec website for the latest optional products.

## Support Software & Service

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

Web HMI / SCADA software "CONPROSYS HMI System (CHS) "

Data Acquisition Software "CONPROSYS On-Premise Data Acquisition Package" \*1

\*1 It can be downloaded free of charge from our website (<https://www.contec.com/>).

## Packing List

Product [CPS-MG341G5-ADSC1-931] ...1

Product Guide ... 1

Warranty Certificate ...1

Serial number Label ...1

Cautions for setting the SIM card...1

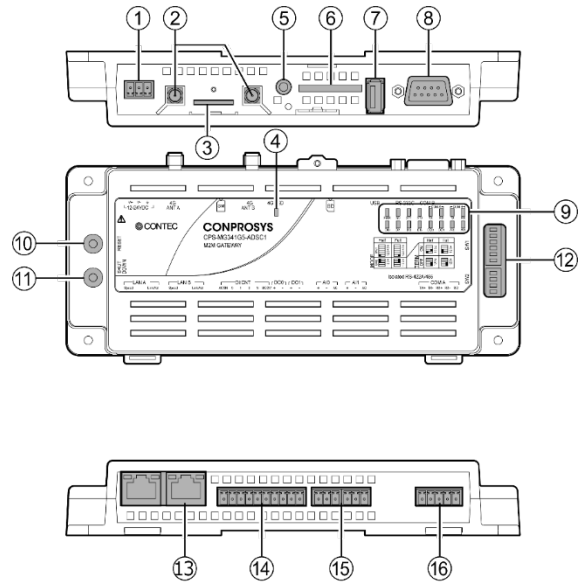
3-pin Connector ...3 (Power/Analog)

5-pin Connector ...1 (RS-422A/485)

10-pin Connector ...1 (Digital)

Antenna ...2

## 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	4G LED	This displays the intensity of the signal reception.
5	Debug Connector	Do not use this.
6	SD Card Slot	This is 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)