

Real Time Control Engine  
That Opens the Way  
to the IoT Era

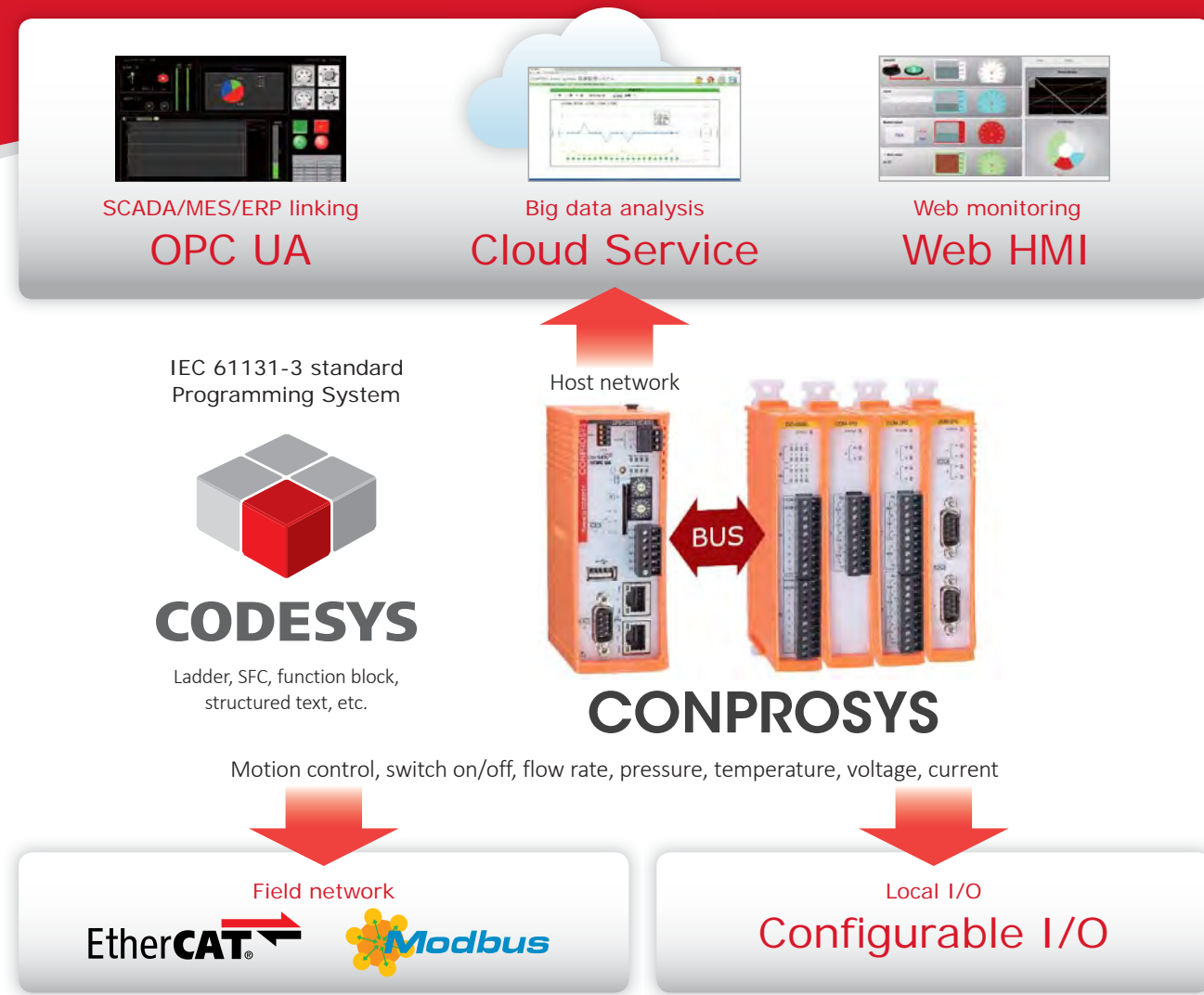


Programmable Automation Controllers

# CONPROSYS™ PAC series

IEC 61131-3 Standard Programming System

# Programmable Automation Controller (PAC)



CONPROSYS PAC series is one of CONTEC CONPROSYS product series.

The PAC series controllers are pre-installed a customized CODESYS Runtime system. A CONPROSYS PAC series controller allows you to configure a control system that supports IEC 61131-3 standard programming languages.

CODESYS is a 3S-Smart Software Solutions GmbH product. CODESYS is "the leading hardware-independent IEC 61131-3 automation software for developing and engineering controller applications." (from CODESYS web page)

Powered by the customized CODESYS Runtime system, a CONPROSYS PAC series controller also supports EtherCAT master function or Modbus TCP master function.

"EtherCAT is real-time industrial Ethernet technology. The EtherCAT protocol is suitable for hard and soft real-time requirements in automation technology, in test and measurement and many other applications." (EtherCAT Working Group web page)

"Modbus TCP/IP is a variant of the Modbus family of simple, vendor-neutral communication protocols intended for supervision and control of automation equipment. Specifically, it covers the use of Modbus messaging in an 'Intranet' or 'Internet' environment using the TCP/IP protocols." (Real Time Automation web page)

Build-in OPC UA server function gives you the ability to embedded a CONPROSYS PAC series controller system into a host SCADA system or other applications that support OPC UA specification.

"OPC is the interoperability standard for the secure and reliable exchange of data in the industrial automation space and in other industries. It is platform independent and ensures the seamless flow of information among devices from multiple vendors." (OPC Foundation web page)

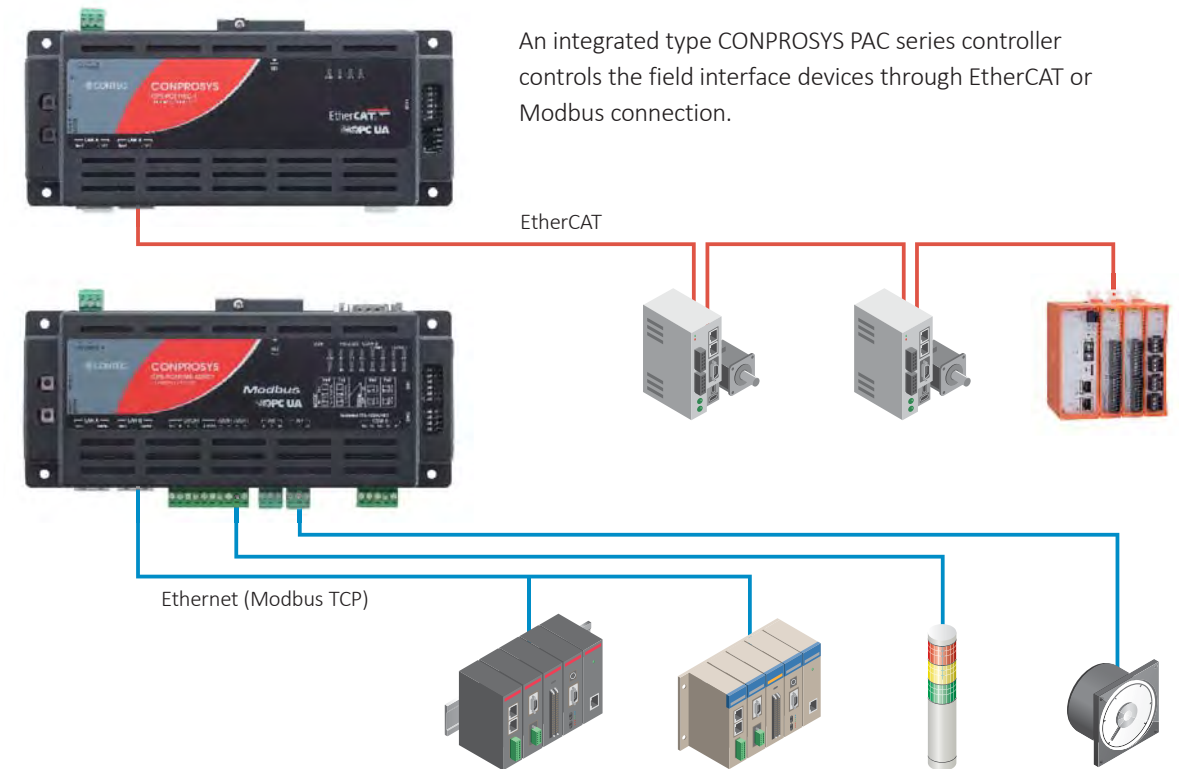
All CONPROSYS PAC series controllers support CONPROSYS web monitor function. Which allows you to monitor a CONPROSYS PAC controller systems from web browser software.

All CONPROSYS series controllers can be monitored from web browsers. You can edit monitor screen through a web browser.

## Lineup of CONPROSYS PAC Series Controllers

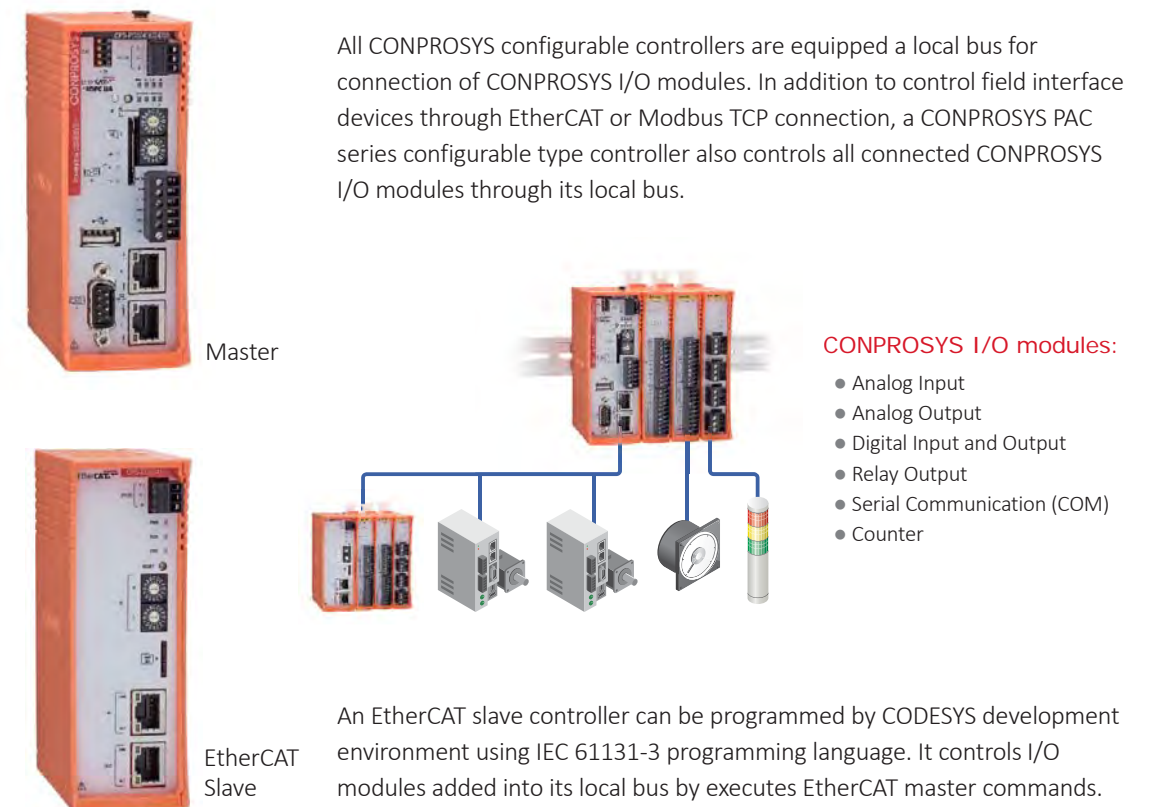
Two types of CONPROSYS PAC Series Controllers

### Integrated Type



An integrated type CONPROSYS PAC series controller controls the field interface devices through EtherCAT or Modbus connection.

### Configurable Type



All CONPROSYS configurable controllers are equipped a local bus for connection of CONPROSYS I/O modules. In addition to control field interface devices through EtherCAT or Modbus TCP connection, a CONPROSYS PAC series configurable type controller also controls all connected CONPROSYS I/O modules through its local bus.

CONPROSYS I/O modules:

- Analog Input
- Analog Output
- Digital Input and Output
- Relay Output
- Serial Communication (COM)
- Counter

An EtherCAT slave controller can be programmed by CODESYS development environment using IEC 61131-3 programming language. It controls I/O modules added into its local bus by executes EtherCAT master commands.



# Features

## Usable even in severe temperature environments (-20°C to +60°C / -4°F to +140°F)

All CONPROSYS controllers and I/O modules support operating temperatures ranging from -20°C to +60°C (-4°F to +140°F), allowing for indoor use in severe temperature environments.

## Equipped with a mechanism for mounting on a 35mm DIN rail

All CONPROSYS series controllers and I/O modules are equipped with a mechanism for mounting on a 35mm DIN rail, which makes it easy to mount them within a panel. A controller or module can be easily installed and removed just by turning the stopper on the rear on or off.

## Up to 16 I/O modules can be connected to the configurable type controllers

There are more than 14 add-on local bus I/O modules for various solutions. Up to 16 of the I/O modules can be stacked onto configurable type controllers of CONPROSYS PAC series. However, the maximum current consumption for all connected I/O modules must not exceed 3.3A.

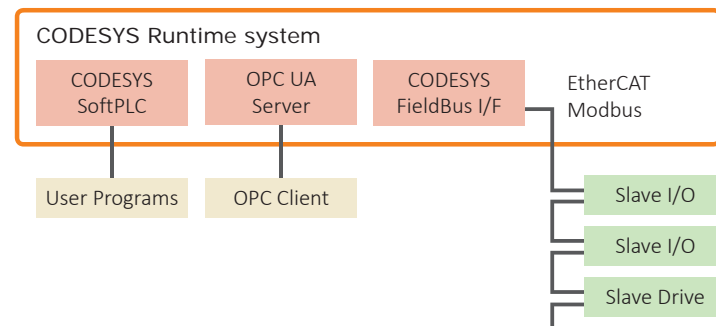


## Slide method for easy installation and removal

For configurable type I/O modules, simply slide modules to install and remove them. This makes it possible to exchange a module while the other modules remain attached to the DIN rail.

## Built-in customized CODESYS Runtime system

A customized CODESYS Runtime system has been pre-installed into CONPROSYS PAC series controllers. The customized CODESYS Runtime system supports the following functions.



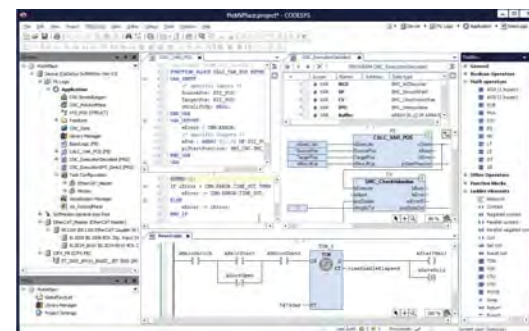
## IEC 61131-3 standard CODESYS programming

Equipped with the PLC engine "CODESYS," applications can be developed using programming languages, such as Ladder/SFC/Function Block etc., that comply with international standard IEC 61131-3.

## Integrated development environment

An integrated development environment for developing applications is provided free of charge. This makes it possible to seamlessly perform all the required development such as control logic and field bus I/O.

Supported integrated development environment:  
V3.5 SP7 Patch 2 or later  
Supported languages: LD / SFC / FBD / ST / IL / CFC



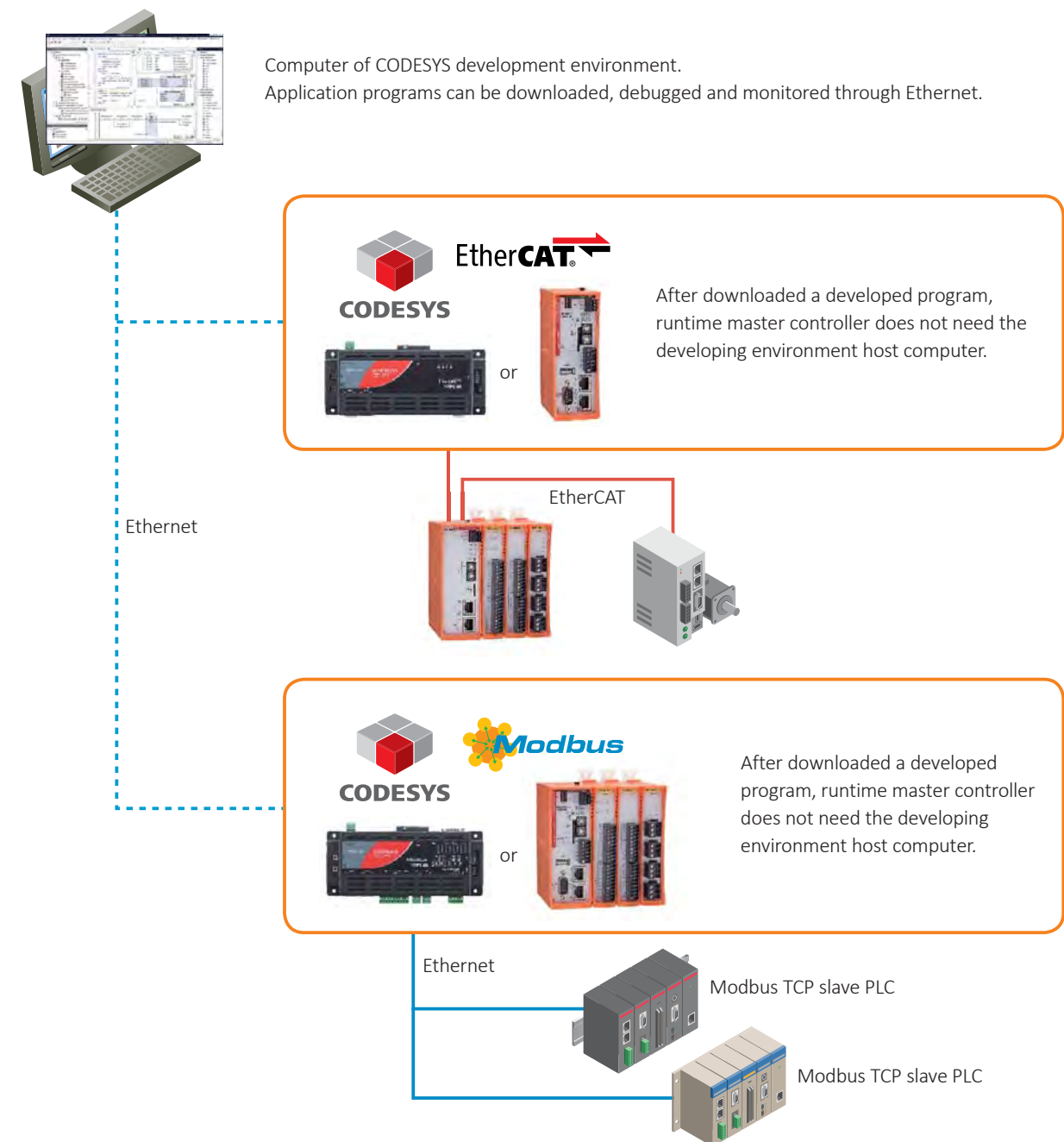
## Fieldbus master functions

The built-in customized CODESYS Runtime system supports EtherCAT / Modbus TCP master functions. In the CODESYS integrated development environment, fieldbus I/O can be directly assigned to variables in the same manner as the built-in I/O of CONPROSYS PAC series controllers and the CONPROSYS I/O.

EtherCAT is a master/slave type fieldbus. Its protocol is based on Ethernet technology. Because its real time feature, EtherCAT protocol is well used in automatic control systems.

Modbus is an open serial communication protocol widely applied in the industrial field. Modbus TCP is one of Modbus protocols used for communications over TCP/IP network. Modbus uses also the master/slave mechanism.

A CONPROSYS PAC series controller supports you to build a real time control system by action as an EtherCAT master, or constructs an application system linked by Modbus TCP communication protocol when itself acts as a Modbus TCP master. As a runtime controller, after downloading the control program, developed in CODESYS development environment, into the CONPROSYS PAC series controller, the connection of the development environment computer is not necessary.

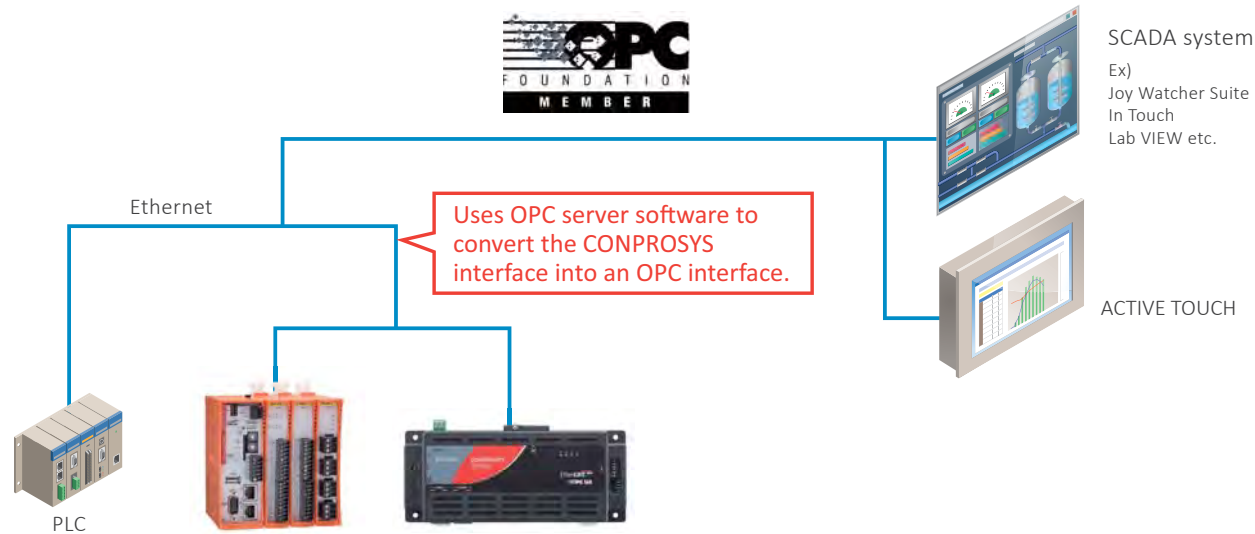


# Features

## SCADA / MES / EPR linking built-in OPC UA server

OPC UA (Unified Architecture) is an advanced model of OPC specifications, which features refined capability of transmitting and receiving semantic description data. OPC UA is a platform independent standard based on TCP. The product can be operated with HMI and SCADA software that are provided from differing makers and applicable to OPC UA client.

- A CONPROSYS PAC Series controller has been pre-installed an OPC UA Server.
- Can be used with OPC UA Client supported HMI / SCADA software such as Intouch and LabVIEW



## Web monitor function

With CONPROSYS HMI software, you can effortlessly monitor the system. This software enables you to edit page designs and run the programs via web browser from PCs or mobile terminals such as tablets and smartphones.

- Can be developed and run on a web browser
- Platform-Independent (Can be run under Windows, Android, iOS and etc.)
- More than 20 types of display controllers are pre-installed, such as Label, Switch, Lamp, Image, Trend and Table etc.

The image shows two examples of the web monitoring interface. The top part displays a control panel with various indicators: ON/OFF status, input levels, button inputs, and trend graphs. The bottom part shows a detailed 'Water Purifying Plant' monitoring view, including a process flow diagram with tanks and pumps, and various data points and gauges.

# Integrated Type

## • Controllers



**CPS-PC341EC-1-9201**

- The product features the CODESYS SoftPLC
- Support EtherCAT Master
- Together with OPC UA Server
- Adaptable to a temperature range from -20°C to +60°C (-4°F to +140°F)
- Fan less designing



**CPS-PC341MB-ADSC1-9201**

- The product features the CODESYS SoftPLC
- Support Modbus TCP Master
- Together with OPC UA Server
- Adaptable to a temperature range from -20°C to +60°C (-4°F to +140°F)
- Fan less designing

Model	CPS-PC341EC-1-9201	CPS-PC341MB-ADSC1-9201
CODESYS Supporting Functions	Version	V3.5 SP7 Patch2 or later
	Language	LD, SFC, FBD, ST, IL, CFC (IEC 61131-3 compliant)
	Field Bus	EtherCAT Master
	Communication Protocol	OPC UA Server
Program Size	ROM Size	1MB
	Maximum Steps	250K steps
	Scan Time	74µs (at 20000 steps)
CPU Basic Performance	Basic Instruction Execution Speed (LD)	1.6ns
	Basic Instruction Execution Speed (ST)	5.8ns
	Scan Time	74µs (at 20000 steps)
EtherCAT Performance	Input Processing Time (LD)	144ns
	Output Processing Time (ST)	138ns
	Scan Time	166µs (64 inputs and 64 outputs)
CPU	ARM Cortex-A8 (600MHz)	
Memory	On Board 512MByte DDR3 SDRAM	
ROM	On Board 32Mbyte nor-flash for OS	
LAN	Transmission Standard	10BASE-T/100BASE-TX x 2ch
SD Card Slot	Standard	SD2.0 follow (SD memory card slot)
USB	Transmission Standard	-
RS-422A/485	Transmission Spec.	-
RS-232C	Transmission Spec.	-
Digital Input	Input Method	-
Digital Output	Output Method	-
	Output Voltage/Current	-
Count Input	Input Method	-
Analog Input	Input Spec.	-
RTC	RTC built-in	
Power Supply	12V 0.7A (max.), 24V 0.4A (max.)	
Physical Dimensions (mm)	188.0 (W) x 78.0 (D) x 30.5 (H) (7.40" x 3.07" x 1.20") (excluding protrusions)	
Weight	250g (8.82oz)	
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)	



# Configurable Type

## Controllers



### CPS-PCS341EC-DS1-1201

- The product features the CODESYS SoftPLC
- Support EtherCAT Master
- Together with OPC UA Server
- Adaptable to a temperature range from -20°C to +60°C (-4°F to +140°F)
- Fan less designing
- RS-232C x 1ch
- Digital I/O x 4ch
- There are 14 types of CONPROSYS I/O modules can be added



### CPS-PCS341MB-DS1-1201

- The product features the CODESYS SoftPLC
- Support Modbus TCP Master
- Together with OPC UA Server
- Adaptable to a temperature range from -20°C to +60°C (-4°F to +140°F)
- Fan less designing
- RS-232C x 1ch
- Digital I/O x 4ch
- There are 14 types of CONPROSYS I/O modules can be added

Model	CPS-PCS341EC-DS1-1201	CPS-PCS341MB-DS1-1201	
CODESYS Supporting Functions	Version	V3.5 SP7 Patch2 or any later version	
	Language	LD, SFC, FBD, ST, IL, CFC (IEC 61131-3 compliant)	
	Field Bus	EtherCAT Master	Modbus TCP Master
	Communication Protocol	OPC UA Server	
Program Size	ROM Size	1MB	
	Maximum Steps	250K steps	
CPU Basic Performance	Basic Instruction Execution Speed (LD)	1.6ns	
	Basic Instruction Execution Speed (ST)	5.8ns	
	Scan Time	74µs (at 20000 steps)	
EtherCAT Performance	Input Processing Time (LD)	144ns	-
	Output Processing Time (ST)	138ns	-
	Scan Time	166µs (64 inputs and 64 outputs)	-
CPU	ARM Cortex-A8 (600MHz)		
Memory	On Board 512MByte DDR3 SDRAM		
ROM	On Board 32Mbyte nor-flash for OS		
LAN	Transmission Standard	10BASE-T/100BASE-TX x 2ch	
SD Card Slot	Standard	SD2.0 follow (SD memory card slot)	
USB	Transmission Standard	USB2.0 standard follow, (TYPE-A connector) x 1ch	
RS-232C	Transmission Spec.	Non-isolated asynchronous series transfer, up to 115.2Kbps (9-Pin) x 1ch	
Digital Input	Input Method	Bus isolated non-voltage input x 4ch	
Digital Output	Output Method	Semiconductor relay output (13.2VDC, 200mA) x 4ch (share with digital Input terminals)	
RTC	High-precision RTC built-in		
Required Power Supply	Controller only: 24V 0.3A(max.), with stacking device(s): 24V 3.6A(max.)		
Physical Dimensions (mm)	44.7 (W) x 97.4 (D) x 124.8 (H) (1.76" x 3.83" x 4.91") (not include projection)		
Weight	300g (10.58oz)		
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)		



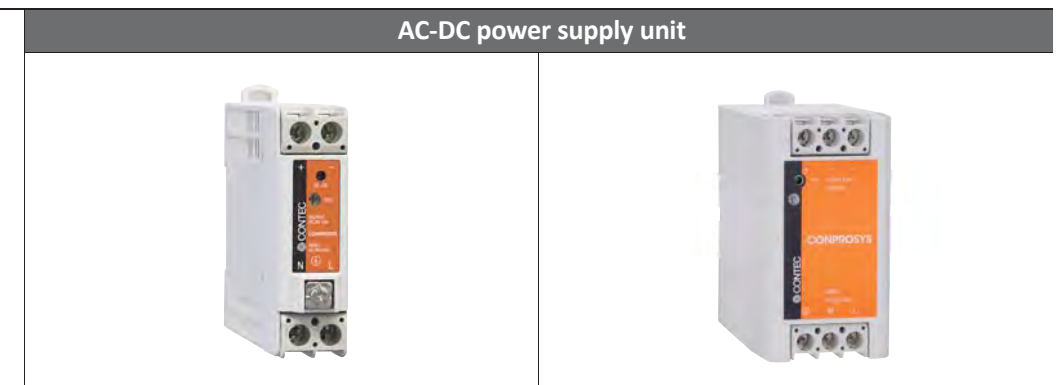
### CPS-ECS341-1-011

- Support EtherCAT Slave
- Adaptable to a temperature range from -20°C to +60°C (-4°F to +140°F)
- Fan less designing
- There are 14 types of CONPROSYS I/O modules can be added

Model	CPS-ECS341-1-011	
EtherCAT	Transmission Standard	100BASE-TX
	The number of channels	In 1 port, Out 1 port
	Connector	RJ-45 connector
	LED	Act (Yellow), Link (Green)
Operating Mode	FreeRun mode	
Address	Auto increment addressing	
Process data	PDO Mapping, SDO	
Corresponding Profile	CoE, FoE	
Maximum numbers of stacking	16	
Required Power Supply	24VDC 0.2A (max), with configurative device (s): 24V 3.5A (max)	
Physical Dimensions (mm)	44.7 (W) x 97.4 (D) x 124.8 (H) (1.76" x 3.83" x 4.91") (not include projection)	
Weight	250g (8.82oz)	
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)	

# Configurable Type




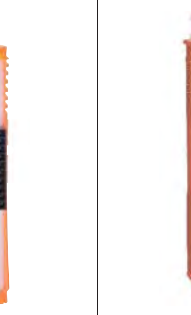
## Power Supply Units




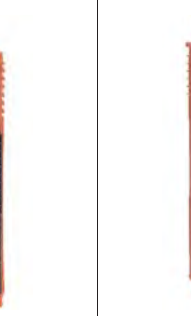


Model	CPS-PWD-30AW24-01	CPS-PWD-90AW24-01
Input	85 to 264VAC	
Output	24VDC, 1.3A (max.)	24VDC, 3.8A (max.)
Usage Conditions	Operation:-20°C to +70°C (-4°F to +158°F) ; Storage:-30°C to +85°C (-22°F to +185°F) 20 to 90%RH (no condensations)	
Physical Dimensions (mm)	22.5 (W) x 75.0 (D) x 90.0 (H) (0.89" x 2.95" x 3.54") (not including protrusions)	50.0 (W) x 90.0 (D) x 90.0 (H) (1.97" x 3.54" x 3.54") (not including protrusions)
Weight	165g (5.82oz)	405g (14.28oz)
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)	


# Configurable Type


- I/O Modules

	Analog I/O modules			
				
Model	CPS-AI-1608ALI	CPS-AI-1608LI	CPS-AO-1604LI	CPS-AO-1604VLI
Analog Input	8ch differential input; 16-bit Resolution, 0-20mA	8ch differential input; 16-bit Resolution, ±10V	-	-
Analog Output	-	-	4ch current output; 16-bit resolution, 0-20mA	4ch voltage output; 16-bit resolution, ±10V
Non-linearity Error	±20LSB (at 25°C/77°F)		±15LSB (at 25°C/77°F)	
Conversion / Setting Time	20µs/ch	10µs/ch	20µs/ch	10µs/ch
Isolation	Bus isolation			
Power Consumption	0.1A (max.)		0.2A (max.)	
Connectors	Screw terminal block (3.81mm pitch)			
Usage Conditions	-20°C to +60°C (-4°F to +140°F), 10 to 90%RH (no condensation)			
Physical Dimensions (mm)	25.2 (W) x 94.7 (D) x 124.8 (H) (0.99" x 3.73" x 4.91") (not including protrusions)			
Weight	200g (7.05oz)			
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)			

	Digital I/O modules			
				
Model	CPS-DIO-0808BL	CPS-DIO-0808L	CPS-DIO-0808RL	CPS-RRY-4PCC
Digital Input	8 optocoupler-isolated inputs (compatible with current sink output)		8 optocoupler-isolated inputs (compatible with current source output)	
Digital Output	8 optocoupler-isolated, open-collector outputs (current sink type)		8 optocoupler-isolated output (current source type)	
Built-in Power Supply	12VDC (shared between all inputs and outputs)		-	
Power Consumption	0.2A (max.)	0.1A (max.)		
Connectors	Screw terminal block (3.81mm pitch)			Screw terminal block (5.08mm pitch)
Usage Conditions	-20°C to +60°C (-4°F to +140°F), 10 to 90%RH (no condensation)			-20°C to +60°C (-4°F to +140°F), 10 to 85%RH (no condensation)
Physical Dimensions (mm)	25.2 (W) x 94.7 (D) x 124.8 (H) (0.99" x 3.73" x 4.91") (not including protrusions)			
Weight	200g (7.05oz)			250g (8.82oz)
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)			

	RS-232C COM modules		RS-422A/485 COM modules	
				
Model	CPS-COM-1PC	CPS-COM-2PC	CPS-COM-1PD	CPS-COM-2PD
Transmission Scheme	RS-232C (asynchronous serial transmission)		RS-422A/485 asynchronous serial transmission (full duplex / half duplex)	
No. of Channels	1	2	1	2
Data Length	5, 6, 7, or 8 bits; 1, 1.5, 2 stop bits			
Parity Check	Even, odd, none			
Isolation	Bus isolation	Bus isolation, channel isolation	Bus isolation	Bus isolation, channel isolation
Power Consumption	0.1A (max.)	0.2A (max.)		
Connectors	9-pin D-SUB connector		Screw terminal block (3.81 pitch)	
Usage Conditions	-20°C to +60°C (-4°F to +140°F), 10 to 90%RH (no condensation)			
Physical Dimensions (mm)	25.2 (W) x 94.7 (D) x 124.8 (H) (0.99" x 3.73" x 4.91") (not including protrusions)			
Weight	170g (6.00oz)		200g (7.05oz)	
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)			

	Temperature sensor module
	
Model	CPS-SSI-4P
Supported Sensor	Pt100
Wiring Method	Three-wire, Four-wire
No. of Channels	4
Precision	±0.3°C (at 25°C/77°F)
Conversion Time	170ms/ch
Isolation	Bus isolation
Power Consumption	0.1A (max.)
Connectors	Screw terminal block (3.81mm pitch)
Usage Conditions	-20°C to +60°C (-4°F to +140°F), 10 to 90%RH (no condensation)
Physical Dimensions (mm)	25.2 (W) x 94.7 (D) x 124.8 (H) (0.99" x 3.73" x 4.91") (not including protrusions)
Weight	200g (7.05oz)
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)

	Counter module
	
Model	CPS-CNT-3202I
Counter	32bit Up/Down counter
Counter Input Signals	Phase A/Up 1 x 2channels Phase B/Down 1 x 2channels Phase Z/CLR 1 x 2channels General Input 1 x 2channels
Response Frequency	500KHz, duty 50%
Power Consumption	0.1A (max.)
Connectors	Screw terminal block (3.81mm pitch)
Usage Conditions	-20°C to +60°C (-4°F to +140°F), 10 to 90%RH (no condensation)
Physical Dimensions (mm)	25.2 (W) x 94.7 (D) x 124.8 (H) (0.99" x 3.73" x 4.91") (not including protrusions)
Weight	200g (7.05oz)
Standard	VCCI Class A, FCC Class A, CE marking (EMC Directive Class A, RoHS Directive)

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