RIEV/TECH

Programmable relay, Ethernet relay,

WI-FI relay, GSM/GPRS Relay

Concentrated performance

www.rievtech.com

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CE

Contents

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RIEV/TECH

RIEVTECH(R: reliable, I: innovative, E: easy, V: value-added) ,EEC(Easy Electronic Co.,Ltd)a sister company of EEC , would be dedicated into global marketing and sales of all products developed and made by EEC under the trademark of "RIEVTECH" since its establishment.

EEC(Easy Electronic Co.,Ltd) is a leading manufacturer of automation Micro-control components, such as Micro PLC, super relay , super power, multifunction timer, counter etc, has been fast growing since its foundation, EEC also adapts its products to meet your specific application requirements. These products are ideal for applications like heating/air conditioning, access control, heat pumps, water and air treatment, waste treatment, lifting and handling, medical equipment and pump management.

We invest heavily in the areas of quality, R&D and new product innovation, EEC customers include manufacturers of machines and industrial equipment, OEMs, distributors, panel-builders, installers, system integrators.

Recognized across the industry for its responsive, flexible services; EEC can customize its products to match the specifications of OEMs, equipment manufacturers, distributors and integrators. We are driven by a culture of customer satisfaction. EEC works closely with customers to identify their exact technical and budget requirements to develop the suitable solution for their application.

Some of the company's most popular products can be found in the our SuperRelay series. These are the latest in a generation of powerful and flexible Micro-PLCs. The manufacturing process ensures they can be offered at affordable prices, and they are suitable for replacing such devices as Mini-PLCs and multiple components, like timers, counters and relays. Today, EEC xLogic SuperRelay products are considered by many to be cost-effective alternatives to the more expensive options on the market.

EEC Electronics also has the x-Messenger GSM/GPRS PLC, a telemetry solution that calls on a broad range of CPUs, software and accessories – all designed for GSM and GPRS wireless systems, which are in turn used for tasks such as diagnostics and data logging. The recent introduction of our Ethernet and Wi-Fi based low cost programmable logic controls underlines our companys' commitment to market changes and product development!

As a innovative and fast-growing maker, EEC's strategy is founded on continuous innovation. We spend 8%-10% of our annual revenue on research and development. To cater for the stringent demands of industrial markets, EEC has also established a policy of continuous improvement through strict quality management.
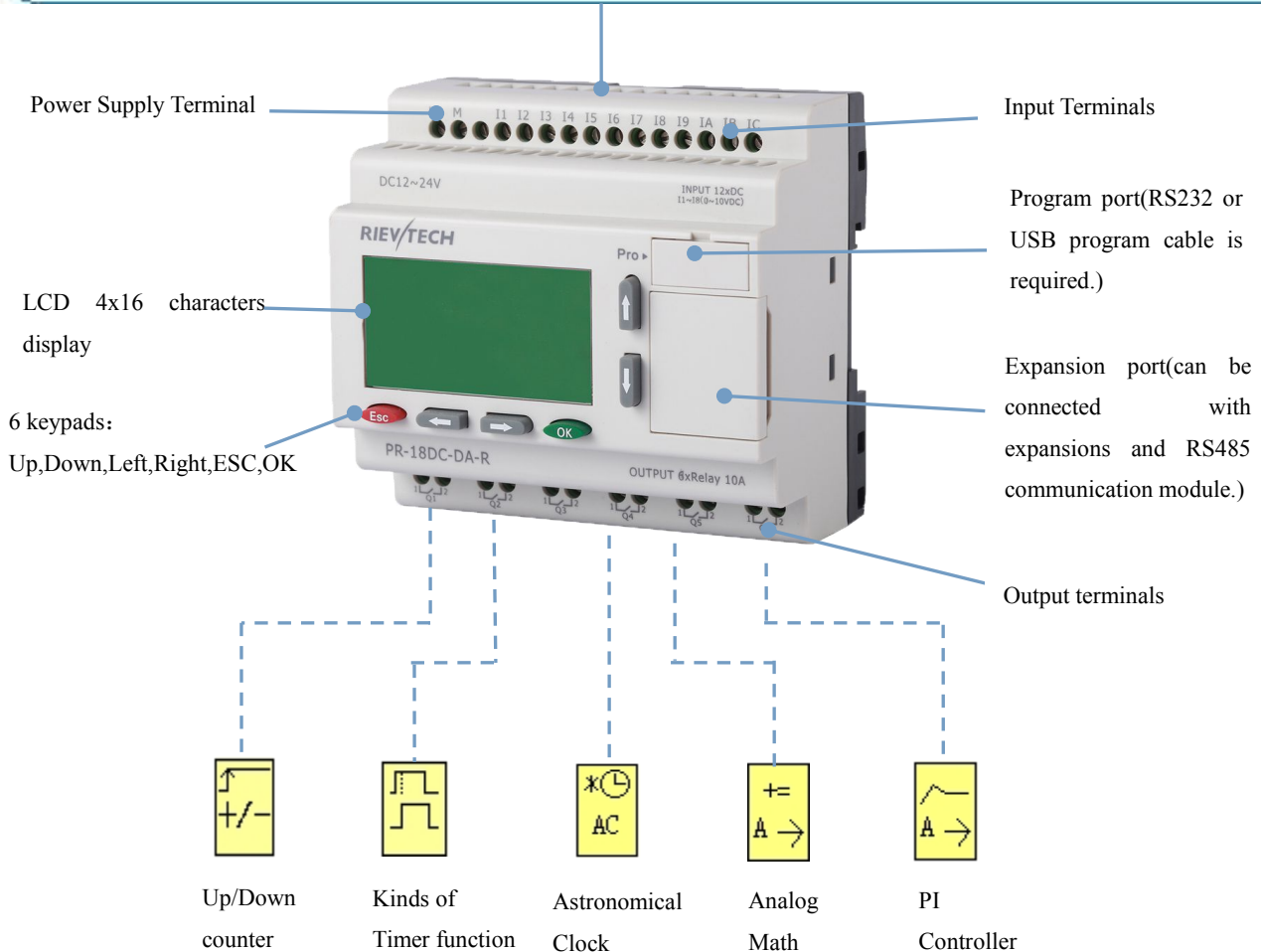
EEC incorporates eco-design into its processes and ensures that we comply with environmental directives, including the RoHS regulations.

Rievtech Program Relay

xLogic, overview

The xLogic program relay includes economic and advanced models, incorporating a good mix of digital & analogue IO , Integrated High Speed inputs and PWM output, counters, timers,real time clock and time switch functions. Available in 120V/240VAC or 12V/24VDC versions;Easy to configure with drag-and-drop function blocks using FREE xLogicSoft software.With HMI range offers 4-line detachable LCD display and keypad for modifying parameters or display and control whilst program is running.

| Timers | + | Control Relays | + | Counters | + | Temperature Controllers | + More |

Power Supply Terminal

Input Terminals

Program port(RS232 or USB program cable is required.)

LCD 4x16 characters display

Expansion port(can be connected with expansions and RS485 communication module.)

6 keypads：
Up,Down,Left,Right,ESC,OK

Output terminals

| Up/Down counter | Kinds of Timer function | Astronomical Clock | Analog Math | PI Controller |

To tackle simpler applications that still require a powerful logic controller.
Rievtech offers various range CPU and extensions(6 to 274I/Os) selection with a range of accessories to cover a lots of control requirements.

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Rievtech Program Relay

xLogic Hightlight

❖ Extremely large program capacity:up to 1024 functions possible.(64 functions for economic series)
❖ Flexibly expandable up to 140DI,136DO,70AI,and 32AO.
❖ Display of message texts,actual and set-point values and direct modification of the values on the display(not on pure variants).
❖ Integrated data retentivity-ensures backup of the current values in the event of a power failure.(not on pure variants)
❖ Bool function,multiple timers,counters,PWM,PI controller,Ramp.Analog math supported.
❖ Modbus RTU/ASCII/TCP protocol supported.(MODBUS TCP is only for Ethernet CPU)
❖ It's optional for xLogic to act as salve or master in certain Modbus communication network.
❖ Backup at Real Time Clock(RTC) at 25 ℃: 20days.
❖ Communicate with third party device which supports Modbus network.
❖ Data-logging:Data from the production process can be saves in SD card of the external accessory called ELC-MEMORY to either read it with a PC or evaluate it from the SD card at the workstation.
❖ 70 ready-to use functions integrated-no additional devices such as operating hours counter required. (34 for economic range)
❖ Powerful communication capability(1RS232 port,1 RS485 port and 1 expansion port)
❖ Password protection, the "disable read program" function protect program of OEM customer better.

Micro series（Non-expandable）   **Built-in Ethernet series**

ELC-6(no display)
4DI/2DO

PR-12E-CAP(no display)

PR-12-HMI
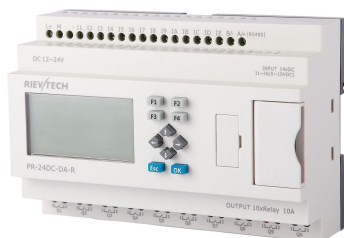8DI/4DO

ELC-12-N
8DI/4DO

Expandable Series   **Extension modules**

PR-18
8DI/4DO

PR-24
14DI/10DO

PR-E-16
8DI/8DO

V(0...10V), mA(0/4...20mA), PT100 Special signal extension
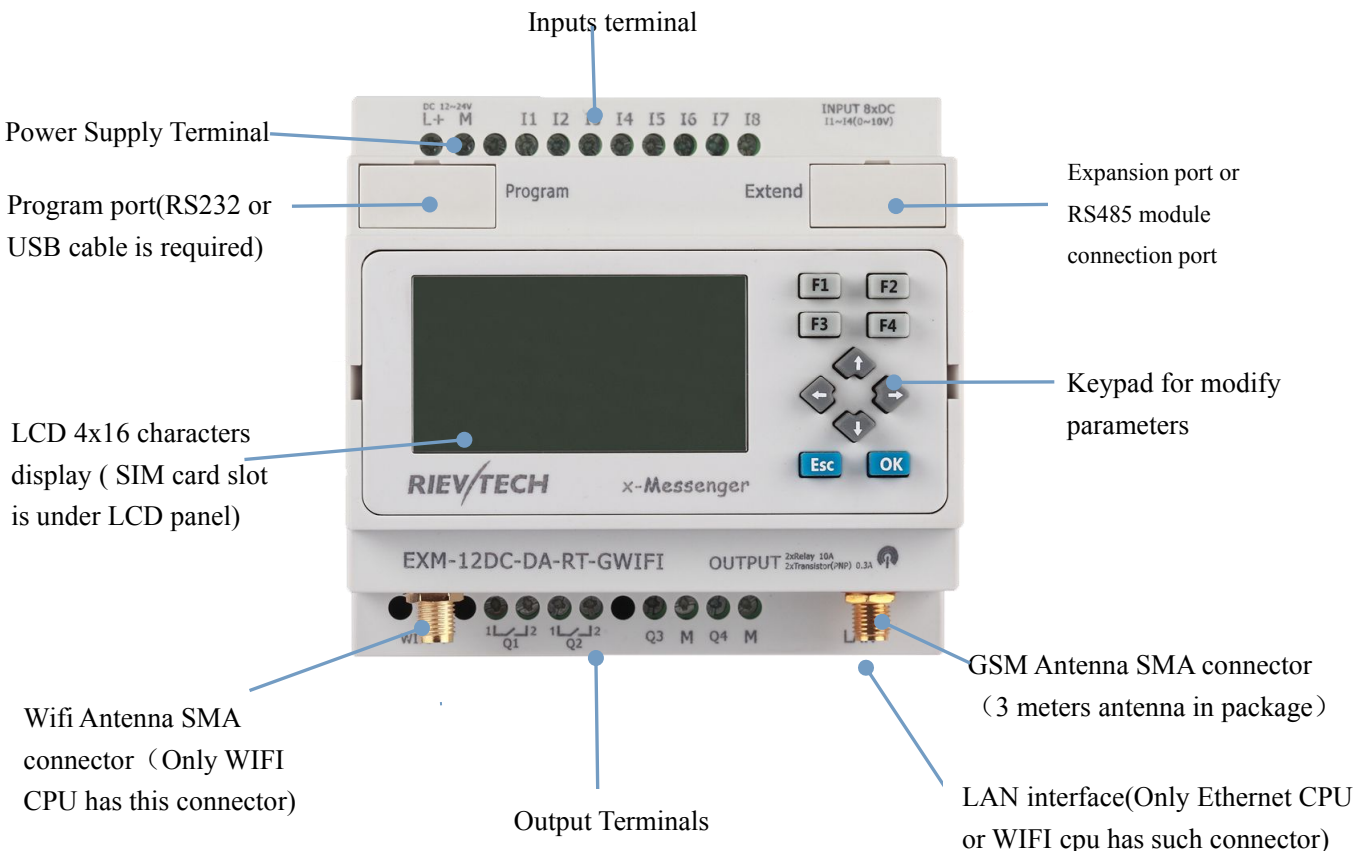
RS485 Communication module

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Rievtech GSM/GPRS Controller

x-Messenger overview

Incorporates a wide range of CPUs, expansions, various accessories and software, specially designed for GSM/ GPRS wireless systems being used for remote measurements, data logging, control, diagnostics and object via short text messages (SMS) or CLIP calls. Configurable messages sending from device with static (text) or dynamic (text) and measured values content are a convenient way of passing important information to the monitoring center, or directly tothe defined phone numbers. SMS messages sending or Call out can be triggered by change of binary input state, reaching alarm thresholds, marker state change, counters and clocks.

In particular, x-Messenger shall possess industrial design, practical set of I/O resources& easy to use configuration software tools. Multiple optional analog signals (0..10V DC) (0…20mA) ,(PT100) inputs built-in the module , make it possible to have direct connection of sensors, which lowers the cost of building system. Hence, it can directly work with humidity sensors,water level sensor, pressure transducers, flow sensors, smoke, gas, motion, shock and noise detectors, etc.

Inputs terminal

Power Supply Terminal

Program port(RS232 or USB cable is required)

LCD 4x16 characters display (SIM card slot is under LCD panel)

Wifi Antenna SMA connector（Only WIFI CPU has this connector)

Output Terminals

Expansion port or RS485 module connection port

Keypad for modify parameters

GSM Antenna SMA connector （3 meters antenna in package）

LAN interface(Only Ethernet CPU or WIFI cpu has such connector)

Rievtech offers various range x-Messenger CPU and extensions selection with a range of accessories to cover a lots of control and telemetry requirements with GSM/GPRS/WIFI.

The Range of x-Messenger

Rievtech GSM/GPRS controller

x-Messenger hightlight

- ❖ Integral GSM 850/900/1800/1900 modem
- ❖ GPRS, SMS ,Email and CLIP support
- ❖ Parameters in the program changing by means of SMS via cell phone
- ❖ RTC, Timers and Counters, High speed input
- ❖ Time-based and event-based SMS, Call-IN, Call-Out, Ring, voice
- ❖ IO status ,alarming message includes counters, analog values can be directly sent to Users
- ❖ Max. 64 different short messages and voice alarms
- ❖ Backup at Real Time Clock (RTC) at 25 °C:100 hours
- ❖ 4-lines, 16-character per line, backlight display& keypad optional
- ❖ Standard Modbus RTU/ASCII/TCP communication protocol supported
- ❖ 1 RS232,1 RS485, 1Ethernet interface optional
- ❖ It's optional for x-Messenger to act as slave or master in certain Modbus communication network.
- ❖ 1 Audio output interface optional
- ❖ WIFI connection optional(WIFI CPU)

Standard model	Built-in Ethernet（with "-N"）	Built-in voice function（with "-V"）
EXM-12 8DI/4DO	EXM-12-N 8DI/4DO	EXM-12-VN 8DI/4DO

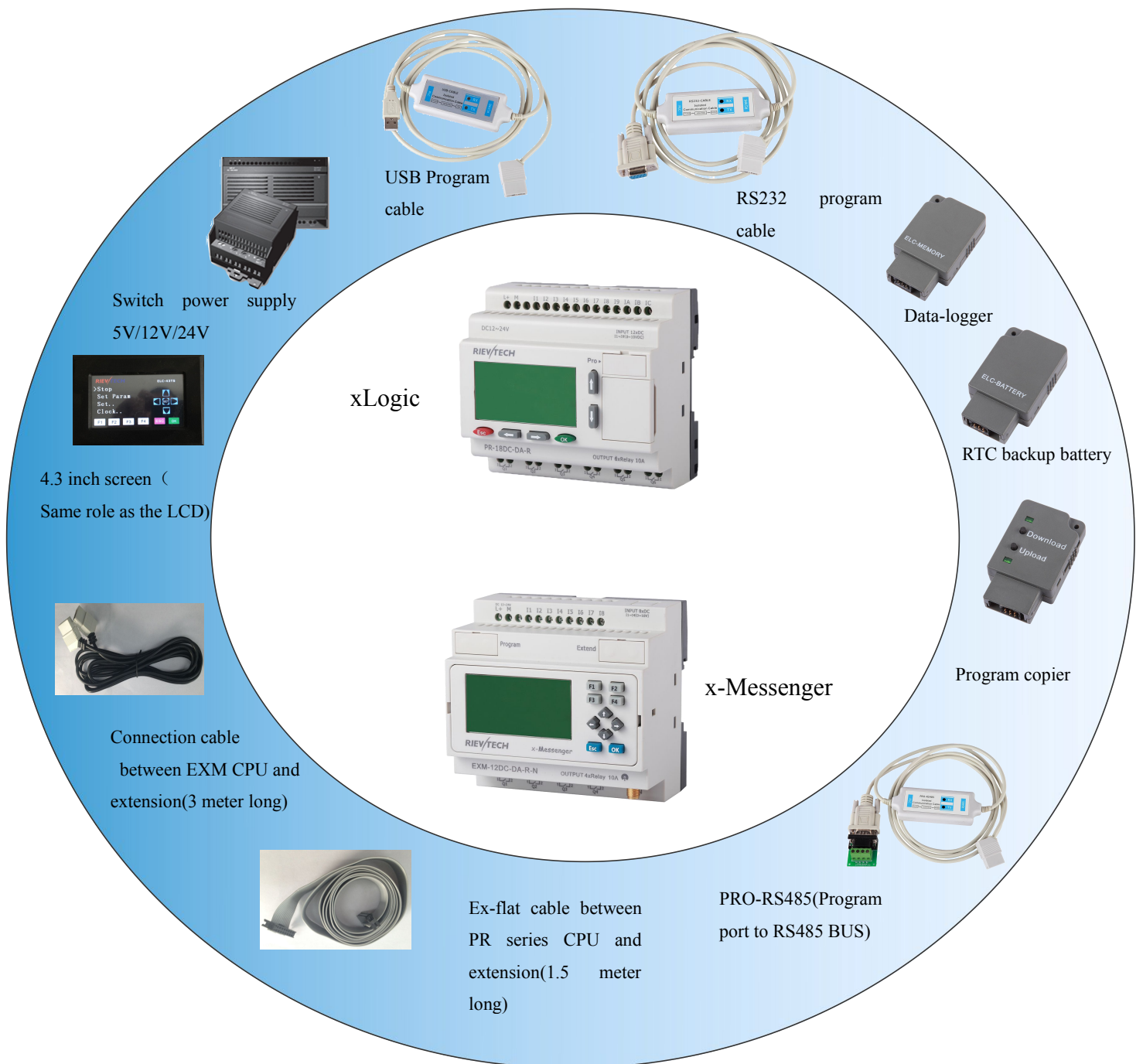| Built-in Wifi function(With "-Wifi"）	EXM expansion modules		
EXM-12-WIFI 8DI/4DO	EXM-E-8 4DI/4DO	V(0...10V), mA(0/4...20mA), PT100 special signal extension	RS485 communication module
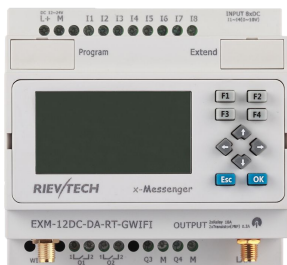
Accessories of xLogic and x-Messenger

Rievtech program relay and controllers

Accessories of xlogic and x-Messenger

With a whole accessories range: switch power supply, program copier, data-logger, RTC backup battery, 4.3touch screen(only can display the contents of bilt-in LCD), and communication cables(RS232,USB,RS485 types), simple and small control requirement can be easily developed with xlogic program relay or x-Messenger GSM controller.


USB Program cable

RS232 program cable

Data-logger

Switch power supply 5V/12V/24V

RTC backup battery

xLogic

4.3 inch screen（ Same role as the LCD)

Program copier

x-Messenger

Connection cable between EXM CPU and extension(3 meter long)

Ex-flat cable between PR series CPU and extension(1.5 meter long)

PRO-RS485(Program port to RS485 BUS)

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Communication solution

Communication selection

LCD need be installed separately with CPU

- CPU installed in cabinet, operation panel in the front door of cabinet.
- Viewing setpoints and alarming message on a touch panel less than 15 m away.
- Two screen display, LCD built-in and touch panel remotely.
- No additional configure software Simple directly make the connection with RS232 cable then it will works.

RS232 program cable — xLogic

RS232 program cable — x-Messenger
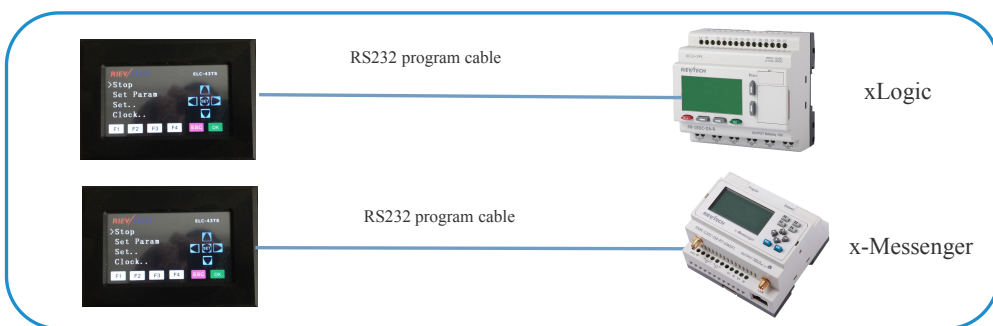
Modbus protocol via RS232/RS485/Ethernet supported makes it almost any HMI/touch panel can communicate with xlogic/x-messenger.

- Touch screen works as master, all xLogic/x-Messenger work as slaves.
- Text panel works as slave, the xLogic/x-Messenger works as master
- All the xlogics and x-Messenger programming port can be used as RS232 connection or RS485 connection with different accessories .

RS232 communication cable

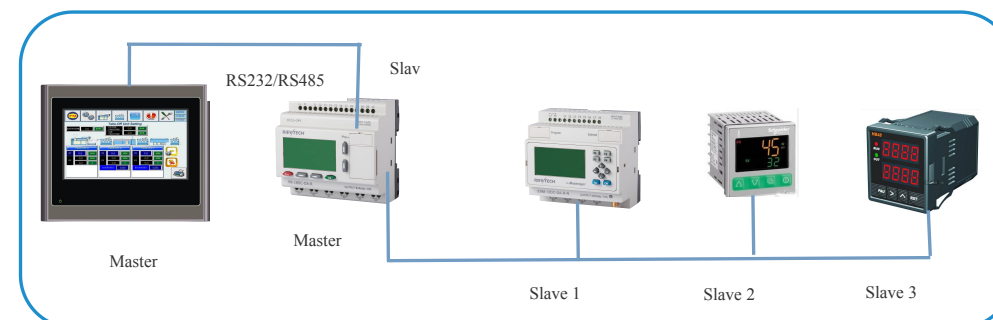PRO-RS485 cable

Or   RS485 module

从站 1

从站 2

从站 3

PR-E series extension can be linked up to 1km away from CPU.

- CAN BUS connection between PE-E series expansion and expandable CPU, can meet the dispersal IO control requirement.
- Extension module works like remote CAN IO unit
- Total 16 expansion can be connected to CPU up to 274 IOs.

Max. Distance 1km

Twisted cable

CPU   Extension 1   Extension 2   Extension 16
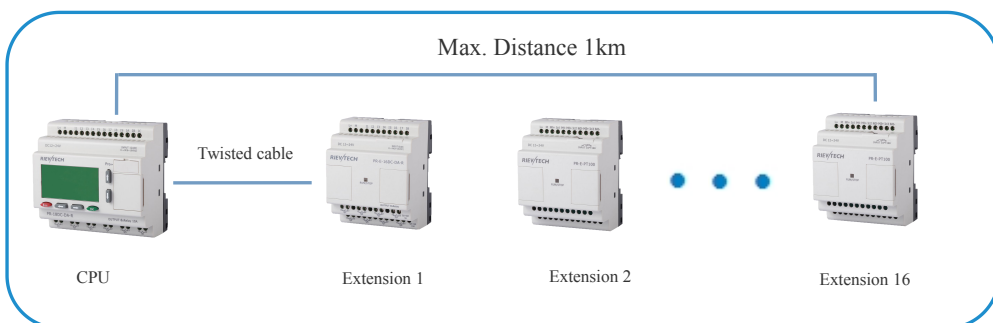
It's option to make the xlogic or x-Messenger works as master or slave, each com port works separately.

- We can use xLogic and x-Messenger connection through RS485, then SMS function will be available on xLogic system and total IO numbers will be added.
- Programming port/RS232 works as slave communicate with HMI, then RS485 port works as master to communicate with other devices: inverter, counter, sensors, meters.

RS232/RS485

Slav

Master

Master

Master

Slave 1   Slave 2   Slave 3

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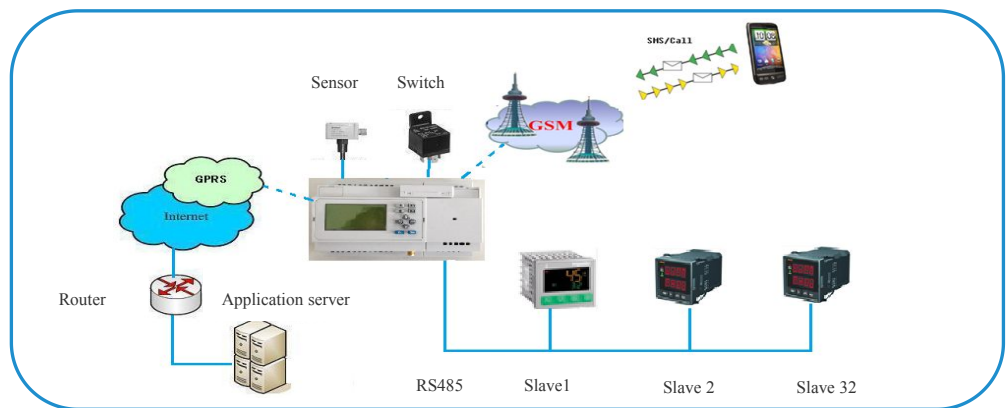# Communication solution

GSM, GPRS, Ethernet, Wifi communication

Alarming and Control by GSM

- Alarming message or report data (includes IO status, sensor values, counter values , machine parameters). Control relays, doors, motors with cellphone.
- Send SMS to change the setpoints or receiver numbers with fixed format SMS.
- Remote station x-Messenger can send SMS includes kinds of parameters to local x-Messenger.
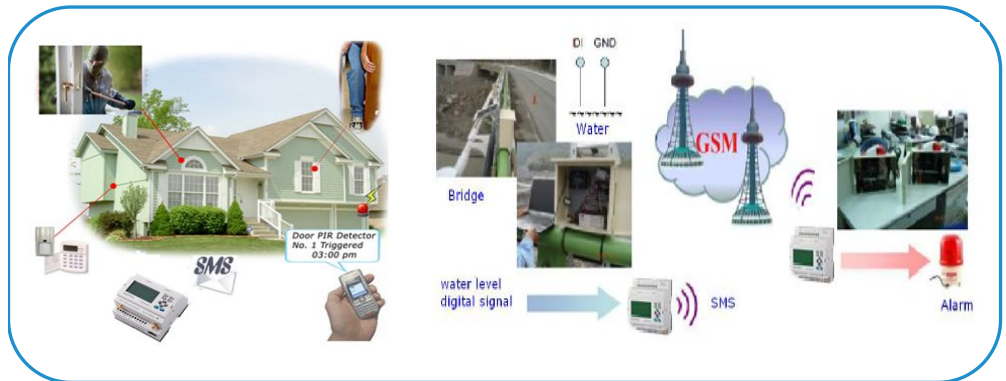

Modbus is also applied to x-Messenger, so other modbus devices connected to x-Messenger will have SMS,GPRS capacity.

- x-Messenger can read other modbus device status and values for display or use in its program or transfer to data center
- You can make a call to trigger a bit status in x-Messenger, for example make a call to open door.
- Alarming messages or data report also can be sent out with Email.


Ethernet communication: built-in LAN port, standard TCP/IP protocol

- Built-in LAN port, ethernet module configure software shows all the on-line units
- Ethernet module can be configured as TCP server, or TCP client.
- 4 Ethernet units can communicate each other, one works as tcp server, other 3 work as tcp client.
- Communication with other device (touch screen , PC SCADA etc) which support MODBUS TCP.
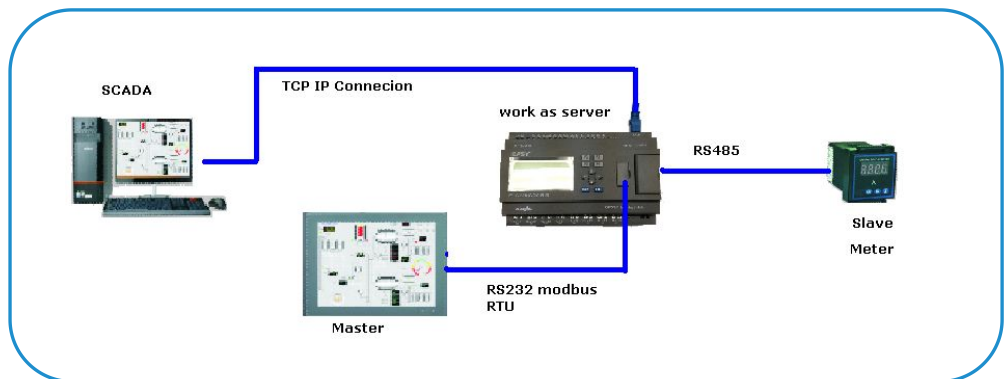
The WIFI unit can connect to Ethernet network without any cable

- Wireless Parameters Support 802.11b/g /n wireless standards
- WIFI unit can be configured work as AP or STA mode
- Wireless upload/download program
- xLogicApp(Andriod) can directly control wifi unit through standard MODBUS TCP protocol.
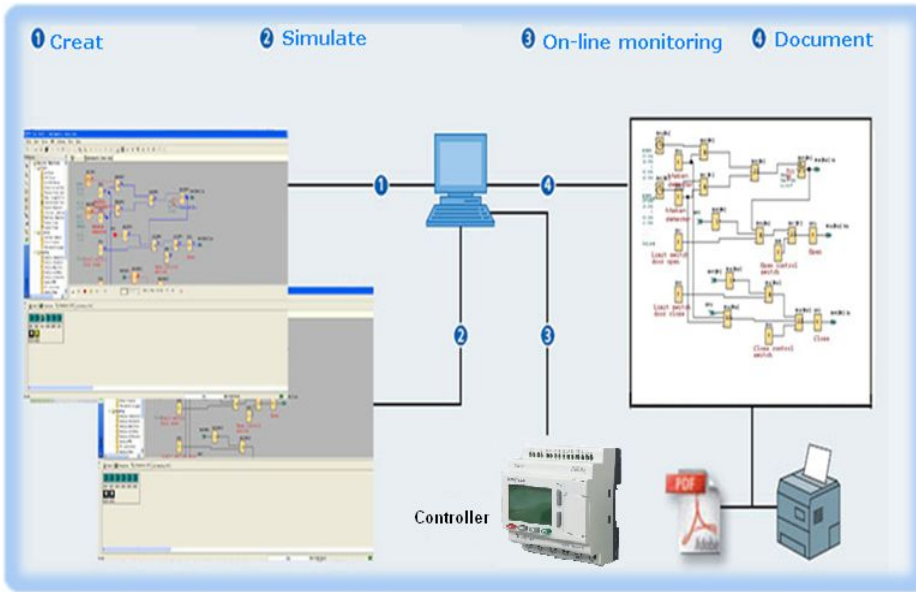
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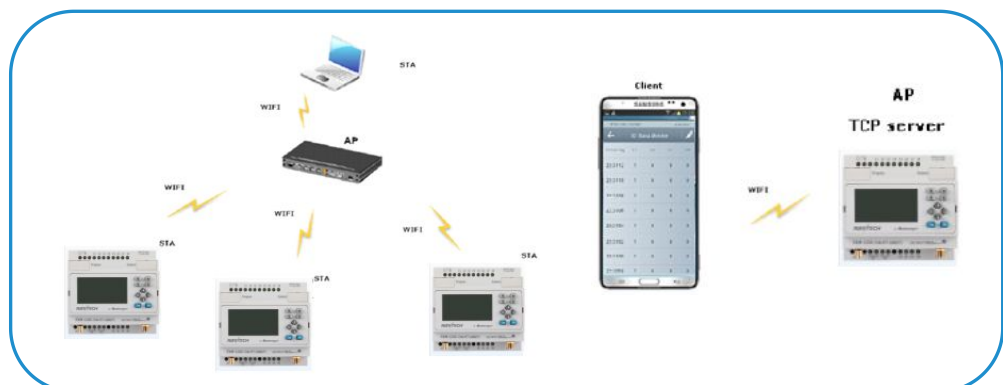
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xLogicsoft（ELC and PR series PLC program software）& **eSmsConfig**（EXM series controller programming software)

Free

xLogicsoft&eSmsConfig are both can be downloaded from our website (www.rievtech.com)

Easy to use

- Quick, simple and intuitive programming requires no specialist knowledge
- Self-teaching made easier thanks to a user-friendly on-line help guide
- A simulation mode that consistently represents controller operation

Powerful

- 70 kinds of function blocks:counting,timing,comparison,display,logic etc can be connected in a program can be up to 512 blocks in Maximum.
- The interface supports 7 languages:English，Russian，Czech,German,French,Spanish,Chinese

EasySCADA

Free Again

EasySCADA package can be downloaded from our website (www.rievtech.com) as well
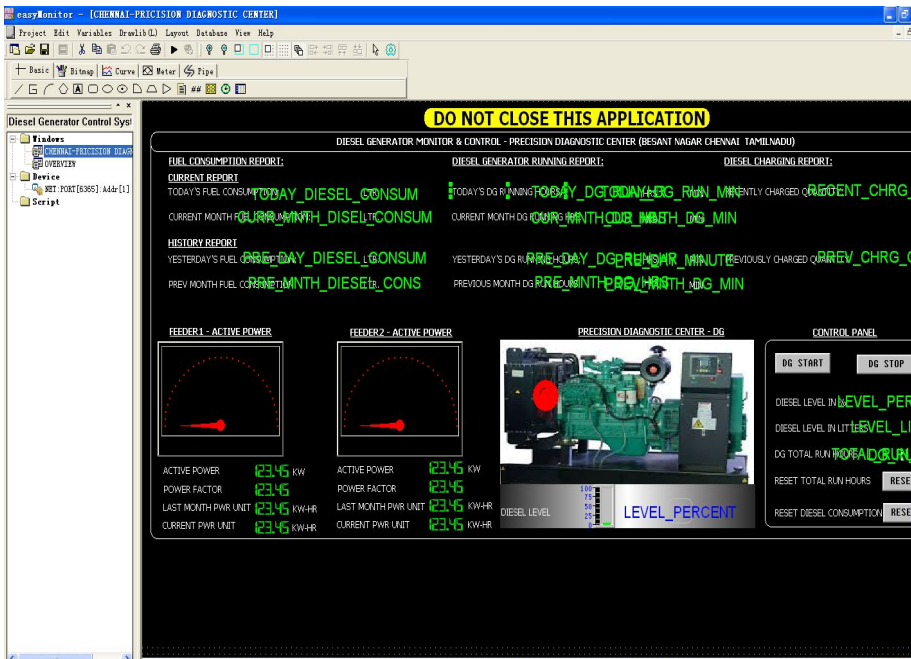
Complete functions

including basic shape drawing,trend picture display,meter,historical data collection

Powerful Communication

easyMonitor provides drives for communication with PLCs projects of all PR,ELC and EXM series CPU via RS232, RS485,Ethernet/GPRS. Available protocol is MODBUS RTU/TCP.

Multiple Resources

Easy Monitor provides abundant resources. The picture library of easy monitor includes indicator light, button, tank, pipe, bars. In addition, many pictures are provided with animation properties and can be used to design vivid animation.

It also allows for user-defined picture library and inserting pictures from Windows.

Application

Where are thev found?

Building Equipment

Access Control

Opening Control for doors
Control opening and closing of doors and other associated security devices for Restricting access; synchronization between the various doors

Automatic Barriers
Control barriers with automatic detection of vehicles. Function for selecting opening times/days

HVAC

Heat Pump
Management of various parameters such as heating, cooling, Fluid temperatures, operation,calendar-based function,alarm management, etc

Air treatment plant
Maintaining force air at the correct temperature. PI controller block is available in program

Building Automation

Solar water heating
Automation of operation and heating regulation, remote management of the installation

Light Control
Managing flashing on LED lights, illuminated signs. Actions(ON/OFF) based on Weekly timer,year timer, astronomical clock.

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Infrastructure and Energy

Fluid Management

Swimming pools, fountains, spas

Managing circulation pumps, monitoring levels, temperature and conductivity of the water

Irrigation/Sprinklers

Irrigation control based on temperature, humidity, and day/night cycle

Energy Saving

Hotel power saving

The xlogic has been applied to a variety of hotels for energy saving in Europe. Switch off power when occupy sensor checked no person in room.

Wind strength and direction measurement

Customer is using the xLogic to monitor wind speed and direction for off-shore wind farms around the UK coast.

Industry Equipment

Steel pipe process equipment

xLogic is already used on the equipment which process the steel pipe. To measure the steel pipe length and make it with a angle or cut off it.

Hoisting machine

The xlogic has been used for controlling the electromagnetism derrick in China

GSM/GPRS Controller application

Fluid ,Temperature monitoring and control

Remote monitor the fluid(With SMS message report or alarming). Control the valve on/off remotely by SMS.

Temperature monitoring and control in Data Central room.

Home security and Industry equipment

Home security, user is allowed to edit kinds of SMS to indicator the status of the sensor installed at home.

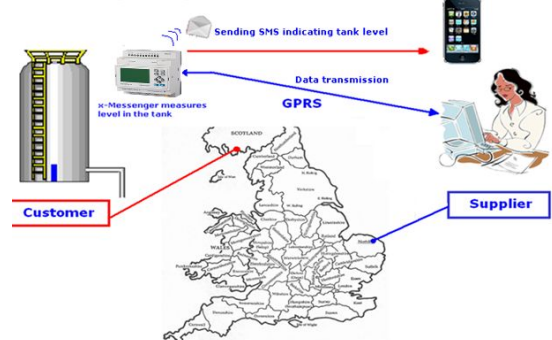Equipment status and production information can be report to management person or System on PC.

Multiple Signals(Digital, Analog, PT100, Relay)

Control light, Heat, Cooling, Sprinkler, automatic door by SMS. Get alarming message or collection datas by SMS as well
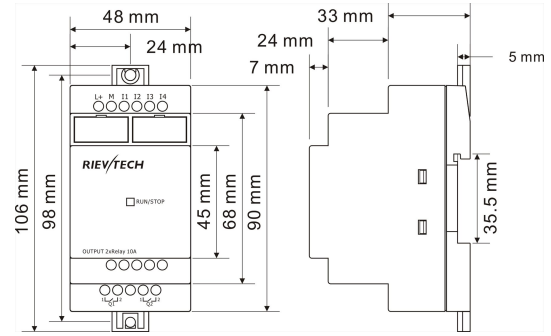
Collection sensor datas through GPRS

Collect data from kinds of sensor through GPRS, Ethernet remotely. It's a good combination of DTU and PLC.
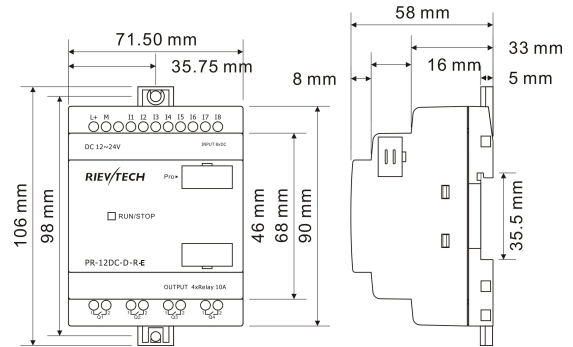
Other typical applications:

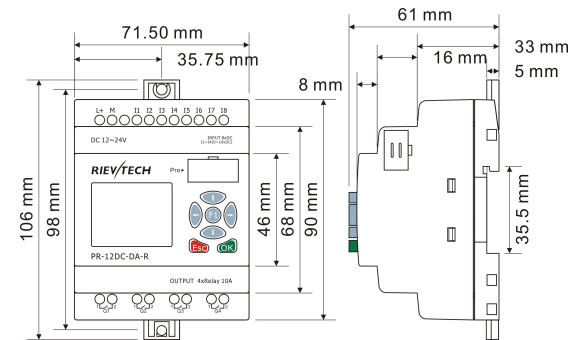Medical，Solar, Agricultural Equipment, Transportation, Hoisting,Handling...

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PR-6 CPU And EXM-E extension

48 mm
24 mm
33 mm
24 mm
7 mm
5 mm
106 mm
98 mm
45 mm
68 mm
90 mm
35.5 mm

PR-6AC-R
OUTPUT 2xRelay 10A

PR-12-CAP(no HMI) CPU

71.50 mm
35.75 mm
58 mm
8 mm
16 mm
33 mm
5 mm
106 mm
98 mm
46 mm
68 mm
90 mm
35.5 mm

PR-12AC-R
OUTPUT 4xRelay 10A
PR-12DC-D-R-E

PR-12-HMI CPU

71.50 mm
35.75 mm
61 mm
8 mm
16 mm
33 mm
5 mm
106 mm
98 mm
46 mm
68 mm
90 mm
35.5 mm

PR-12AC-R
OUTPUT 4xRelay 10A
PR-12DC-DA-R

PR-18 CPU

47.6 mm
47.6 mm
61.4 mm
16.5 mm
8.9 mm
32.5 mm
5.0 mm
106 mm
98 mm
46.0 mm
68.0 mm
90.0 mm
35.5 mm

PR-18DC-DA-R
OUTPUT 6xRelay 10A

PR-E series extension

71.5 mm
35.8 mm
16.5 mm
8.9 mm
32.5 mm
5.0 mm
106.0 mm
98.0 mm
46.0 mm
68.0 mm
90.0 mm
35.5 mm

PR-E-16DC-DA-R
OUTPUT 8xRelay

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PR-24 series CPU

EXM series CPU And ELC-12-N Ethernet CPU
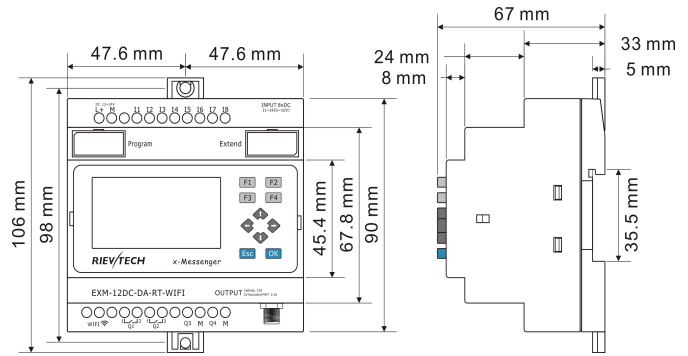
ELC-AS/AL Power supply

Data-logger Program-Copier RTC-Battery

RS232 Program cable(2M) USB Program cable (2M) PRO-RS485 cable(2M)

xLogic Program Relay

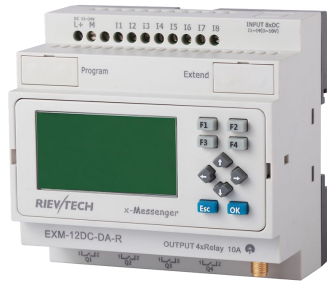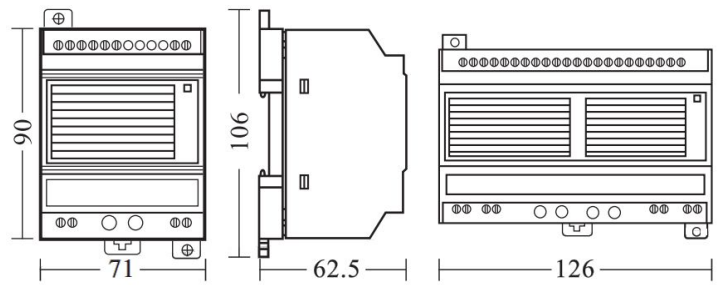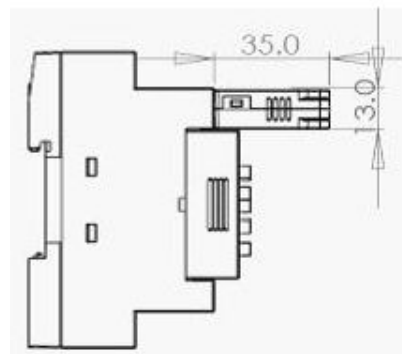| Type	Model	Power	Digital Input	Digital Output	Analog Input	Analog Output	HMI	Comment（HSI=High speed input）
Non-expandable CPU	PR-6AC-R	AC 110-240V	4 AC	2(10A Rly）	- - -	- - -	N	
	PR-6DC-DA-R	DC12-24V	4 DC	2(10A Rly）	- - -	- - -	N	
	PR-12AC-R-E-CAP	AC 110-240V	8 AC	4(10A Rly）	- - -	- - -	N	
	PR-12DC-DA-R-E-CAP	DC12-24V	8 DC	4(10A Rly）	4 （0...10V）	- - -	N	
	PR-12AC-R-HMI	AC 110-240V	8 AC	4(10A Rly）	- - -	- - -	Y	
	PR-12DC-DA-R-HMI	DC12-24V	8 DC	4(10A Rly）	4 （0...10V）	- - -	Y	4HSI(60KHZ)
	PR-12DC-DA-TN-HMI	DC12-24V	8 DC	4(0.3A PNP）	4 （0...10V）	- - -	Y	4HSI(60KHZ)
Expandable CPU	PR-18AC-R-HMI	AC 110-240V	12 AC	6(10A Rly）	- - -	- - -	Y	
	PR-18DC-DA-R-HMI	DC12-24V	12 DC	6(10A Rly）	6 （0...10V）	- - -	Y	4HSI(60KHZ)
	PR-18DC-DA-RT-HMI	DC12-24V	12 DC	4R(10A)+2T(0.3A)	6 （0...10V）	- - -	Y	4HSI(60KHZ)
	PR-24AC-R-HMI	AC 110-240V	14 AC	10(10A Rly）	- - -	- - -	Y	4HSI(60KHZ)
	PR-24DC-DA-R-HMI	DC12-24V	14 DC	10(10A Rly）	6 （0...10V）	- - -	Y	4HSI(60KHZ)
	PR-24DC-DAI-RTA-HMI	DC12-24V	12 DC	6R+2T+2Analog	2I+4V	1 V/1 I	Y	V=0-10V;I=0/4..20mA; 4HSI
Eth CPU	ELC-12AC-R-N-HMI	AC 110-240V	8 AC	4(10A Rly）	- - -	- - -	Y	Eth=Ethernet
	ELC-12DC-DA-R-N-HMI	DC12-24V	8 DC	4(10A Rly）	4 （0...10V）	- - -	Y	2HSI(60KHZ)
Expansions for PR-18 CPU	PR-E-16AC-R	AC 110-240V	8 AC	8 Rly	- - -	- - -	- - -	Q1-Q4(3A)+Q5-Q8(10A)
	PR-E-16DC-DA-R	DC12-24V	8 DC	8 Rly	4 （0...10V）	- - -	- - -	Q1-Q4(3A)+Q5-Q8(10A)
	PR-E-AI-I	DC12-24V	- - -	- - -	4 （0/4...20mA）	- - -	- - -	Resolution（0.02mA)
	PR-E-PT100	DC12-24V	- - -	- - -	3 PT100	- - -	- - -	Range：（-50--200℃） Resolution：0.3℃
	PR-E-AQ-VI	DC12-24V	- - -	- - -	- - -	2(0...10V) /2(0...20mA)	- - -	Resolution（0.02V)/ Resolution（0.02mA)
	PR-RS485	DC12-24V	- - -	- - -	- - -	- - -	- - -	With Isolated RS485 module
Accessories	ELC-USB	USB download cable						
	ELC-RS232	RS232 download cable, also can be used as the RS232 connection cable between PLC and other device with RS232 interface						
	ELC-43TS	4.3touch screen, it plays the same role as the LC, just install separately of PLC.						
	ELC-Copier	Program copier, copy program between same model PLCs						
	ELC-MEMORY	Data-logger,， save IO,Analog value,parameters into .txt file in SD card.						
	ELC-BATTERY	RTC backup battery,						
	PRO-RS485	Program port convert RS485 port						

Naming Rule：

PR-12DC-DA-R-HMI
① ② ③ ④ ⑤ ⑥

CPU： 1.Series Name：ELC and PR series

2.Total points of IO：6，12，18，22

3.Power：DC(12/24V) AC(110-240V)

4.Input type：DA，digital&analog

5.Output type： R:relay； TN:PNP type transistor

6.HMI: -HMI,with display，no/-CAP ：without display

Note：-N：with Ethernet module

PR-E-16DC-DA-R
① ② ③ ④ ⑤ ⑥

Extension： 1.Series name：PR series

2.E, expansion

3.Total points of IO：6，12，18，22

4.Power：DC(12/24V) AC(110-240V)

5.Input type：DA，digital&analog

6.Output type：R:Relay； TN:PNP type transistor

Note：AI-I：0/4..20mA Input； AQ-I:0..20mA output

AQ-VI：0...10V/ 0..20mA output   PT100：PT100 input

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x-Messenger GSM/GPRS Controller

Type	Model	Power	Digital Input	Digital Output	Analog Input	Analog Output	HMI	Comment
standard	EXM-8AC-R-HMI	AC 110-240V	6 AC	2(10A Rly）	- - -	- - -	N	Support GSM,GPRS,EMAIL
	EXM-12DC-DA-R-HMI	DC12-24V	8 DC	4(10A Rly）	4(0...10V)	- - -	N	Support GSM,GPRS,EMAIL
	EXM-12DC-DAI-R-HMI	DC12-24V	6 DC	4(10A Rly）	2(0...10V) +2(0..20mA)	- - -	N	Support GSM,GPRS,EMAIL)
	EXM-8DC-PT100-R-HMI	DC12-24V	2 DC	4(10A Rly）	2 PT100+ 2(0...10V)	- - -	N	Support GSM,GPRS,EMAIL
With Ethernet CPU	EXM-12DC-DA-R-N-HMI	DC12-24V	8 DC	4(10A Rly）	4(0...10V)	- - -	Y	With GSM,GPRS,EMAIL,Ethernet
	EXM-12DC-DA-R-VN-HMI	DC12-24V	8 DC	4(10A Rly）	4(0...10V)	- - -	Y	Support GSM,GPRS,EMAIL, Ethernet,voice
With Wifi CPU	EXM-12DC-DA-RT-WIFI-HMI	DC12-24V	8 DC	2(10A Rly）+2 （0.3A Trn)	4(0...10V)	- - -	Y	No GSM,GPRS,EMAIL
	EXM-12DC-DA-RT-GWIFI-HMI	DC12-24V	8 DC	2(10A Rly）+2 （0.3A Trn)	4(0...10V)	- - -	Y	Support GSM,GPRS,EMAIL
Extension for all EXM series CPU	EXM-E-8AC-R	AC 110-240V	4 AC	4 Rly	- - -	- - -	- - -	Q1-Q2(3A)+Q3-Q4(10A)
	EXM-E-8DC-DA-R	DC12-24V	8 DC	8 Rly	4(0...10V)	- - -	- - -	Q1-Q2(3A)+Q3-Q4(10A)
	EXM-E-AI-I	DC12-24V	- - -	- - -	4(0/4...20mA）	- - -	- - -	Resolution（0.02mA）
	EXM-E-PT100	DC12-24V	- - -	- - -	3 PT100	- - -	- - -	Range：（-50--200℃） Resolution：0.3℃
	EXM-E-AQ-V	DC12-24V	- - -	- - -	- - -	2(0...10V)	- - -	Resolution（0.02V）
	EXM-E-AQ-I	DC12-24V	- - -	- - -	- - -	2(0...20mA)	- - -	Resolution（0.02mA）
	EXM-E-RS485	DC12-24V	- - -	- - -	- - -	- - -	- - -	With Isolated RS485 module
Accessories	ELC-USB	USB download cable						
	ELC-RS232	RS232 download cable, also can be used as the RS232 connection cable between PLC and other device with RS232 interface						
	ELC-43TS	4.3touch screen, it plays the same role as the LC, just install separately of PLC.						
	ELC-Copier	Program copier, copy program between same model PLCs						
	ELC-MEMORY	Data-logger,，save IO,Analog value,parameters into .txt file in SD card.						
	ELC-BATTERY	RTC backup battery,						
	PRO-RS485	Program port convert RS485 port						
	EXM-CB-B	Connection cable between EXM CPU and Extension 3meters long						

Naming rule：

EXM-12DC-DA-R-N-HMI
① ② ③ ④⑤⑥⑦

CPU： 1.Series name：EXM series

2.Total IOs：8,12

3.Power：DC(12/24V) AC(110-240V)

4.Input type：DA，digital and analog

5.Output type： R:Relay； T:PNP type transistor

6.Special function：-N： built-in Ethernet；-VN： With

Ethernet and voice； WIFI; with WIFI function

7.-HMI:with display panel

EXM-E-8DC-DA-R
① ②③④ ⑤ ⑥

Extension：1.Series Name： PR series

2.E, expansion

3.Total IOs：6，12，18，26

4.Power：DC(12/24V) AC(110-240V)

5.Input type：DA，digital and analog

6.Output type：R:Relay； TN:PNP type transistor

Note：AI-I：AI-I：0/4..20mA Input；AQ-I:0..20mA output

AQ-V：0...10V output PT100：PT100 input

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Model Selection

xLogic switch power supply

| Model	ELC-05AS	ELC-12AS	ELC-24AS	ELC-05AL	ELC-12AL	ELC-24AL
Ouput voltage	DC 5V	DC 12 V	DC 24 V	DC 5V	DC 12V	DC 24V
Output Current	6 A	3A	1.5A	10 A	6 A	3 A
Dimension (LxWxH)	71*106*65			126*106*65		
Installation	35mm standard DIN rail, or wall-mounting					
Input Voltage	110--240VAC/140--340VDC					
Allowance range	85--265VAC/140--340VDC					
Input Frequency	43-67 Hz					
Output Voltage Stability	≤ 0.5%					
Ripple	≤ 150 mVp-p					
Temperature	-25℃--70℃					
Insulation and breakdown	＞1. 5KV					
Efficiency	>75%					

1. Remote Control：

Close switchK1，output voltage，

Open switchK1，no voltage output。

（Short circuit block connected in default）
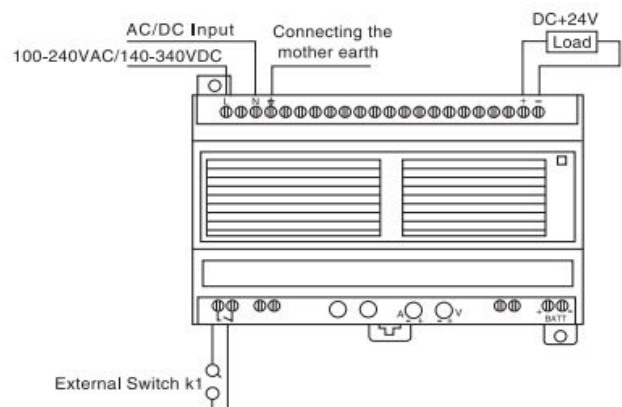
2. Using UPS function：

（If the battery voltage is over +24V, you need to adjust potentiometer(V) to make it over battery voltage, the adjustable voltage is not exceed 26.5V.
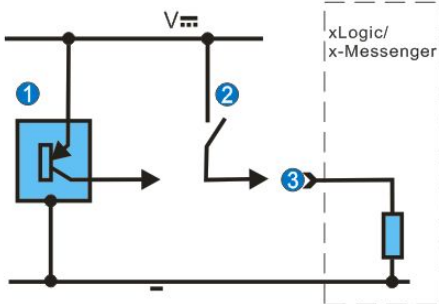
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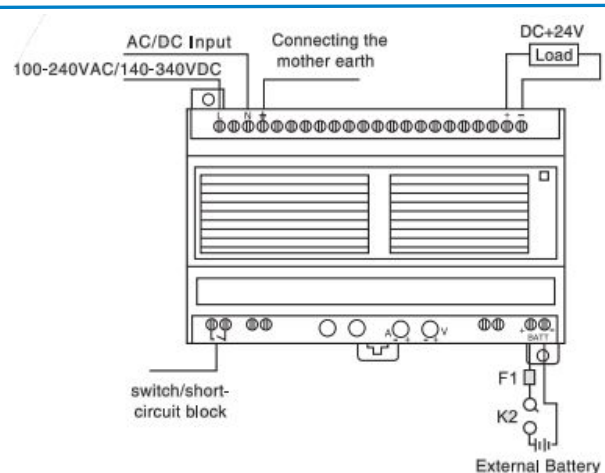
→ **I/O（Input/Output）wiring**

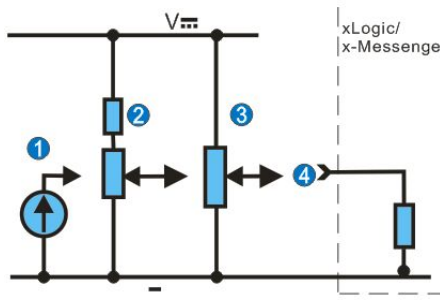## Input DC12-24V （Digital，analog DC0..10V, high speed input）

CPU:PR-6DC,PR-12DC,PR-18DC,ELC-12DC-N,EXM-12DC,PR-24DC
Extension：PR-E-16DC,EXM-E-8DC

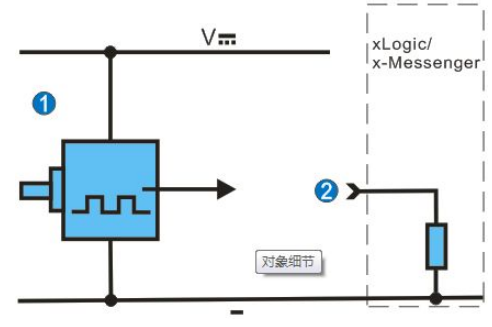CPU:PR-12DC,PR-18DC,ELC-22DC,EXM-12DC,PR-24DC
Extension：PR-E-16DC,EXM-E-8DC

CPU:PR-12DC,PR-18DC,ELC-12DC,EXM-12DC,PR-24DC

① 3-wire PNP sensor
② Contact
③ Digital input of CPU and Ext.

① DC 0..10V(input set to 0..10V)
② Potentiometer type (input set to 0--10V)
③ Potentiometer （input set as a potentiometer）
④ Analog input(0...10V) of CPU or extension

① Encode
② High speed digital input

Input AC110-240V （digital）

CPU:PR-6AC,PR-12AC,PR-18AC,ELC-12AC-N,EXM-8AC,PR-24AC
Extension：PR-E-16AC.EXM-E-8AC
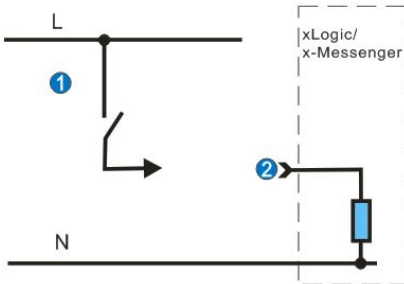
① Contact
② Digital input of CPU and extension

Analog input signal（0/4...20mA, PT100 input）

CPU:EXM-12DC-DAI-R(I3，I4);
Extension:PR-E-AI-I,EXM-E-AI-I

CPU:EXM-8DC-PT100-R
Extension：PR-E-PT100,EXM-E-PT100
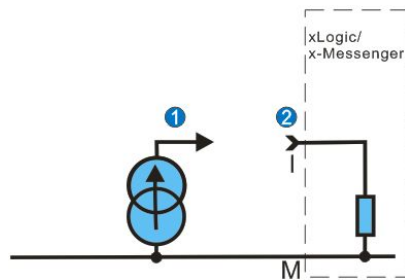
① 0/4..20mA signal
② 0/4..20mA input terminal（I1，M1) of CPU and extension
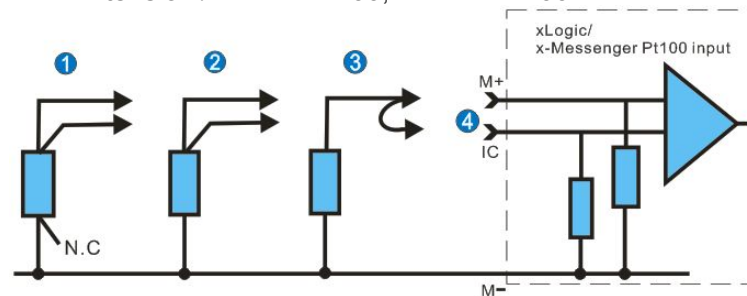
① PT100 4-wire
② PT100 3-wire
③ PT100 2-wire
④ PT100 input terminal of CPU and extension

Relay Output

CPU:ELC-6,PR-12,PR-18,PR-24,,EXM series
Extension：PR-E-16,EXM-E-8
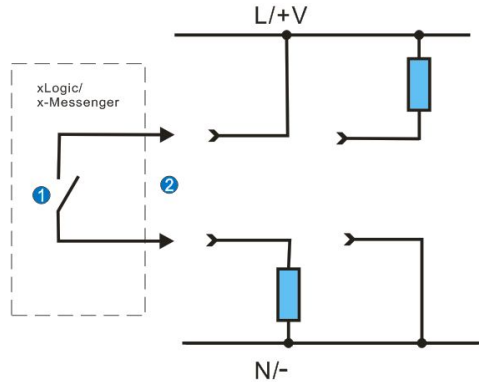
① Relay of CPU or Extension(Normally open)

② Load（DC or AC）

Transistor output

CPU:PR-12-TN,,PR-18DC-DA-RT,PR-24DC-DAI-RTA,N,EXM-12DC-DA-RT series
Extension：PR-E-16-TN,EXM-E-8DC-TN
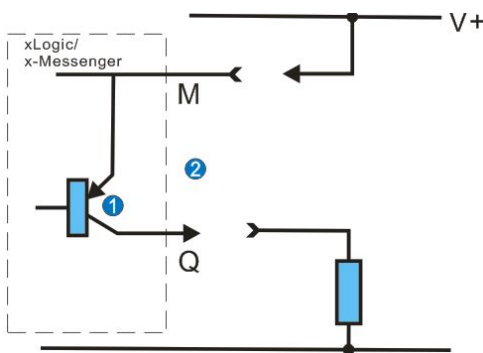
① Transistor of CPU or extension(M terminal need be connected with L+)

② Digital Output/PWM（Max.0.3A）

Analog Output（DC0..10V， 0/4....20mA)

DC 0..10V: PR-E-AQ-VI, EXM-E-AQ-V

① 0..10V terminal of Extension

② Load：R>=5000R

0/4...20mA: PR-E-AQ-VI, EXM-E-AQ-I

① 0...20mA output terminal of Extension

② Load：R<=250R

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xLogic/x-Messenger Technical Data

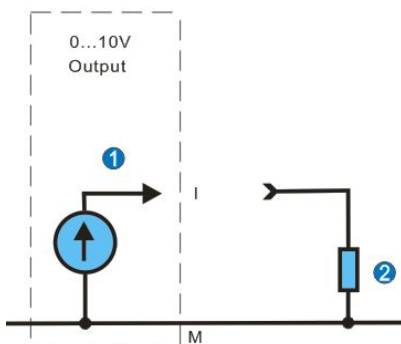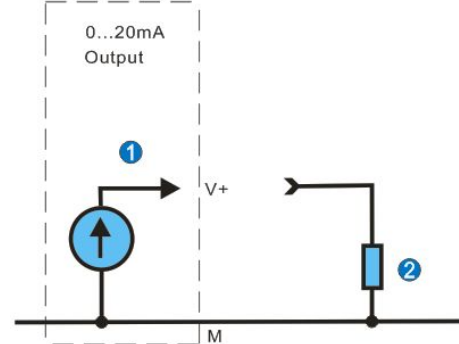| General environment characteristics for PR product types	
Certifications	CE
Conformity to standards (with the low voltage directive and EMC directive)	IEC/EN 61131-2 (Open equipment)
	IEC/EN 61131-2 (Zone B)
	IEC/EN 61000-6-2
	IEC/EN 61000-6-3 (*)
	IEC/EN 61000-6-4
Earthing	Not included
Protection rating	In accordance with IEC/EN 60529: IP20
Overvoltage category	3 in accordance with IEC/EN 60664-1
Pollution	in accordance with IEC 60068-2-42
	in accordance with IEC 60068-2-43
Max operating Altitude	Operation: 2000 m
	Transport: 3048 m
Mechanical resistance	Immunity to vibrations IEC/EN 60068-2-6 5 ... 8.4 Hz (constant amplitude 3.5 mm)
	Immunity to shock IEC/EN 60068-2-27 8.4 ... 150 Hz (constant acceleration 1 g)
Resistance to electrostatic discharge	IEC/EN 61000-4-2 Severity 3 8 kV air discharge
	6 kV contact discharge
Resistance to HF interference	Immunity to radiated electrostatic fields
	IEC/EN 61000-4-3
	Immunity to fast transients (burst immunity)
	IEC/EN 61000-4-4, level 3
	Immunity to shock waves
	IEC/EN 61000-4-5 Severity 3
	Radio frequency in common mode
	IEC/EN 61000-4-6, level 3
Conducted and radiated emissions	Class B in accordance with EN 55022
Operating temperature	-20 → +55°C in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-2-2
Storage temperature	-40 → +70℃ in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-2-2
Relative humidity	10 → 95 % . (no condensation or dripping water) in accordance with IEC/EN 60068-2-30
Mounting	On 35 mm standard mounting rail, 4 MW, or wall-mounting
Screw terminals connection capacity	Flexible wire with ferrule =
	1 conductor: 0.25 to 2.5 mm^2(AWG 24 →AWG 14)
	2 conductors 0.25 to 0.75 mm^2(AWG 24 →AWG 18)
	Semi-rigid wire =
	1 conductor: 0.2 to 2.5 mm^2(AWG 25 →AWG 14)

Processing characteristics of PR-6,PR12, PR18,PR-24,EXM product types						
	PR-6 Series	PR-12-E Without display	PR-12 series With display	EXM and ELC-12-N series	PR-18 series	PR-24 series
Program size function blocks (FBD)	64		512		1024	
Memory size function blocks (FBD)	4K		32K		64K	

LCD display	No	4 lines of 16 characters and configurable backlighting
Programming method	Function block Diagram	
Program memory	Flash EEPROM	
Back-up time in the event of power failure	Program and settings in the controller: 10 years	
	Program and settings in the plug-in memory: 10 years	
	Data memory: 10 years	
Cycle time	FBD: typ. 0.6ms → 8.0ms	
Response time	Input acquisition time: + 1 to 2 cycle times	
Clock data retention	25°C typ. 20days	
Clock drift	± 2 s/day	
Timer block accuracy	1 % ± 2 cycle times Unit （resolution）：s：+10 ms m：+1 s h：+1 min	
Start up time on power up	Typ. 4s	

Characteristics of products with AC power supplied

Supply	**110 → 240 V ac**
Nominal voltage	110 → 240 V ac
Operating limits	85 → 265 V ac
Supply frequency range	47 → 63 Hz
Immunity from micro power cuts	115 VAC typ. 10 ms 240 VAC typ. 20 ms
Max. absorbed power	PR24: 130 mA (85V ac) ; 40mA (265V ac)
	PR18: 49 mA (85V ac) ; 37mA (265V ac)
	PR12(standard): 48.5mA (85V ac) ; 35mA (265V ac)
	PR12(Economy): 38mA (85V AC); 30mA (265V AC)
	PR16: 53 mA (85V ac) ; 38mA (265V ac)
	PR 6: 34 mA (85V ac) ; 26mA (265V ac)
	EXM-8AC-R：86 mA (85V ac)；35mA (265V ac)
	ELC-12AC-R-N：51 mA (85V ac)；37mA (265V ac)
Isolation voltage	1780V ac

Inputs	**110 → 240 V ac**	
Input voltage	110 → 240 V ac	
Input current	0.07 mA @ 85 V ac	
	0.26 mA @ 265 V ac	
Logic 1 voltage threshold	> 79 V ac	
Making current at logic state 1	> 0.06 mA ac	
Logic 0 voltage threshold	< 40 V ac	
Release current at logic state 0	< 0.03 mA ac	
Input Response Time	Delay time at 0 to 1：	Delay time at 1 to 0：
	120V AC ：Typ. 50 ms	120V AC ：Typ. 90ms
	240V AC：Typ. 30 ms	240V AC：Typ.100 ms
Maximum counting frequency	Normal 4 Hz ； High speed input: NO	
Sensor type	Contact or 3-wire PNP	
Input type	Resistive	
Isolation between power supply and inputs	None	

Isolation between inputs	None	
Protection against polarity inversions	Yes	
Status indicator	No, only can monitor with software	On LCD screen

Characteristics of relay outputs common to the entire range

Max. breaking voltage	AC 250 V
	DC 110 V(0.1A) DC30V(10A)
Breaking current	PR 6 Series, PR12 Series, PR16 Series(Q5-Q8), PR18 Series,PR24 Series, EXM Series: 10 A
	PR16 Series(Q1-Q4), EXM-E Series : 3A
Electrical durability for 500 000 operating cycles	10^5 Operations at Rated Resistive Load
Max. Output Common Current	Type. 10 A with resistive load But,（PR-E-16，Q1-Q4; EXM-E-8, Q1-Q2） 3 A with resistive load
	Type. 2 A with inductive load 1 A with inductive load
Maximum rate	10 Hz mechanical
	2 Hz resistive load
	0.5 Hz inductive load
Mechanical life	10^7 Operations at No Load condition
Response time	Operate Time : 15 mSec. Max.
	Release Time : 10 mSec. Max.
Built-in protections	Against short-circuits: None
	Against overvoltages and overloads: None
Status indicator	no	On LCD screen

Characteristics of product with DC power supplied

Supply	12 → 24V dc
Nominal voltage	12 → 24V dc
Operating limits	10.8 → 28.8V dc
Immunity from micro power cuts	1 ms (repetition 20 times)
Max. absorbed power	PR24: 4.8 W (10.8V dc) ; 5 W (28.8V dc)
	PR18: 3.5 W (10.8V dc) ; 4 W (28.8V dc)
	PR12(standard): **-R**: 3.2 W (10.8V dc) ; 3.8 W (28.8V dc) **-TN**: 2 W (10.8V dc) ; 2.3 W (28.8V dc)
	PR12(Economy): 3.5 W (10.8V dc) ; 4 W (28.8V dc)
	PR16: 3.5 W (10.8V dc) ; 4.5 W (28.8V dc)
	PR6: 1.1 W (10.8V dc) ; 1.2 (28.8V dc)
	EXM：4 W (10.8V dc) ；4.5 W (28.8V dc) Transient current：1A (12V DC)
Protection against polarity inversions	No

Digital inputs (I7 to IC for PR-18 , I5 to I8 for PR-12, and I7 to IE for PR-24)	12 → 24V dc
Input voltage	12 → 24V dc
Input current	2.3 mA @ 10.8V dc
	2.6 mA @ 12.0 V dc
	5.2 mA @ 24 V dc
	6.5 mA @ 30.0 V dc

Logic 1 voltage threshold	> 8VDC
Making current at logic state 1	> 1.6 mA
Logic 0 voltage threshold	< 5 VDC
Release current at logic state 0	< 1.0 mA
Response time	0 to 1 ：Typ. 1.5 ms ；<1.0 ms（PR18: I9-IC; PR12: I5-I8）
	1 to 0 ：Typ. 1.5 ms ；<1.0 ms（PR18: I9-IC; PR12: I5-I8）
Maximum counting frequency	PR18,PR-24: I9- IC : 60K HZ
	PR12(With LCD) I5- I8 : 60K HZ
	EXM-12: I7 , I8 : 60K HZ
Sensor type	Contact or 3-wire PNP
Input type	Resistive
Isolation between power supply and inputs	None
Isolation between inputs	None
Protection against polarity inversions	None
Status indicator	On LCD screen for PR12,PR18,PR-24 and EXM

Analog or digital inputs	12 → 24V dc
PR18 and PR24 Series	6 inputs : I1 → I6
PR12 Series and PR16Series, PR-6, EXM-12 and ELC-12-N	4 inputs : I1 → I4

Inputs used as analog inputs	
Measurement range	(0 → 10 V)
Input impedance	Min, 24KΩ ; Max. 72KΩ
Input voltage	28.8 V dc max.
Value of LSB	15 mV
Input type	Common mode
Resolution	10 bit/0.01V (PR-6DC,PR-12DC-DA-R-E,PR-E-16DC-DA-R,PR-E-16DC-DA-TN,EXM-E-8DC-DA-R：9bit ,0.015V)
Conversion time	300ms
Accuracy at 25 °C	± (Max.0.02)V
Accuracy at 55 °C	± (Max.0.04)V
Isolation between analog channel and power supply	None
Cable length	10 m max. shielded and twisted
Protection against polarity inversions	NO

Inputs used as digital inputs(PR18 and PR24 series:I1-I6,PR12 Series and PR16Series, PR-6, EXM-12 and ELC-12-N:I1-I4)	
Input voltage	0 → 28.8 V DC
Input current	0.4mA @ 10.8V dc
	0.5mA @ 12.0 V dc
	1.2mA @ 24 V dc
	1.5mA @ 28.8 V dc
Input impedance	Min, 21KΩ ; Max. 72KΩ
Logic 1 voltage threshold	> 8 V dc
Making current at logic state 1	> 0.30 mA
Logic 0 voltage threshold	< 5 V dc
Release current at logic state 0	< 0.10 mA

Response time	**ELC-6,PR-12 Series :** 0 to 1 ： Typ. 1.5 ms ； 1 to 0 ： typ. 1.5 ms
	EXM-12,ELC-12-N,PR-18,PR-24 Series : 0 to 1 ： Typ. 1.5 ms ； 1 to 0 ： Typ. 1.5 ms
	PR16 extension Series : 2ms * n + （0 to 1 ： Typ 1.5 ms ； 1 to 0 ： typ 1.5 ms）
	n=1-16(number of extension is connected together
	EXM8 extension Series : 2ms * n + （0 to 1 ： Typ 1.5 ms ； 1 to 0 ： typ 1.5 ms）
	n=1-16(number of extension is connected together

Maximum counting frequency	Typ. 4Hz

Sensor type	Contact or 3-wire PNP
Input type	Resistive
Isolation between power supply and inputs	None
Isolation between inputs	None
Protection against polarity inversions	None
Status indicator	No, but LCD can display for the CPU with LCD

Digital / PWM transistor outputs	12 ➔ 24V dc
PWM transistor outputs	PR-12DC-DA-TN : Q3 , Q4 ; PR-18DC-DA-RT : Q5 , Q6; PR-24DC-DAI-RTA : Q5 , Q6;
Breaking voltage	10.4 ➔ 30 V dc
Nominal voltage	≤ Supply voltage
Nominal current	Max. 0.3 A per channel
Max. breaking current	0.3A
Voltage drop	<1 V for I = 0.3 A (at state 1)
Response time	Make ≤ 1 ms
	Release ≤ 1 ms
Frequency (Hz)	resistive load : 10 Hz
	inductive load : 0.5 Hz
Built-in protections	Against overloads and short-circuits: NO
	Against overvoltages (*): NO
	Against inversions of power supply: YES
Min. Load	1 mA
Maximum incandescent load	0.3 A / 12 V dc
	0.3 A / 24 V dc
Galvanic isolation	None
PWM frequency	10K HZ
PWM cyclic ratio	0 ➔ 100 %
PWM accuracy at 120 Hz	< 5 % (20 % ➔ 80 %) load at 10 mA
Max. Breaking current PWM	50 mA
Max. cable length PWM	20m
PWM accuracy at 500 Hz	< 10 % (20 % ➔ 80 %) load at 10 mA
Status indicator	No, but LCD can display for the CPU with LCD