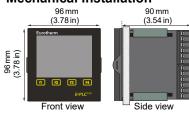
Software Installation Requirements

Operating System: Windows 8 / 10 (32/64 Bit). The versions maintained by Microsoft are supported.

Microsoft Internet Explorer 11, or higher. **Recommended System Properties:** 2.5GHz Processor, 8 GB RAM, 4 GB available HD space.

- Procedure
 1. Insert the DVD into the PC drive. The setup program should run automatically unless 'autorun' has been disabled.
- 2. If the DVD fails to autorun, in Windows Explorer double-click the DVD icon to see contents, then double click the setup.exe
- 3. In the **Do Install** section of the dialog, click the required button to start the installation.
- 4. Follow the instructions shown on-screen for each item of the installation

Mechanical Installation



Panel Cutout: mm (3.62 in) × 92 mm (3.62 in) $[both -0.+0.8 \, mm. (0.03 \, in)]$

Minimum inter-unit spacing

Horizontal = 10 mm (0.4 in)Vertical = 38 mm (1.5 in)

Labelling

Symbol

Symbols used on this instrument

One or more of the symbols may appear as a part of the instrument labelling

When connecting a USB device, it must be plugged directly into the instrument. The use of extension USB leads may compromise the ESD compliance.

Observe static precautions when accessing the rear terminals. Take special care with respect to USB and Ethernet connections.

Meaning

L	oyoc.	mouning			
	À	Refer to E+PLC100 User Manual for instructions.			
	(€	This unit is CE approved.			
		RCM. R egulatory C ompliance M ark for Australia and NZ.			
	CUL US LISTED E57766	Underwriters laboratories listed mark for Canada and the U.S.			
	40	For environmental reasons, this unit must be recycled before its age exceeds the number of years shown in the circle.			
	A	Risk of electric shock.			
		Precautions against static electrical discharge must be taken when handling this unit.			
		Ethernet connector.			
	•	USB connector.			
	(1)	Protective earth ground conductor terminal			

Restriction of Hazardous Substances (China RoHS)

The data shown here is related to the following version of the China RoHS 2.0: Administrative Measures for the Restriction of Hazardous Substances in Electric Appliances and Electronic Products" released January 21st 2016.

部件名称	有害物质 - Hazardous Substances					
Part Name	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 Metal parts	0	0	0	0	0	0
塑料部件 Plastic parts	0	0	0	0	0	0
电子件 Electronic	х	0	0	0	0	0
触点 Contacts	0	0	х	0	0	0
线缆和线缆附件 Cables & cabling accessories	0	0	0	0	0	0

- 本表格依据SJ/T11364的规定编制。 O: 表示该有害物质在该部件所有均质材料中的合量均在GB/T 26572规定的限量要求以下。 X: 表示该有害物质至少在该部件的某一均质材料中的合量超出GB/T 26572规定的限量要求。

This table is made according to SJ/T 11364.

part is above the limit as stipulated in GB/T 26572

O: indicates that the concentration of hazardous substance in all of the homogeneous materials for this part is below the limit as stipulated in GB/T 26572. substance in at least one of the homogeneous

Signed (Kevin Shaw, R&D Director):



Date: 24th June 2016

Specification

I/O Types Analogue input: Three max. (dependent on option board)

Digital input: Digital (logic) output: Relay output:

DC output: Network com Ethernet:

Protocols Cable type:

100 metres (110 yards) Maximum length: Termination R.145 Green LED illuminated = link connected; LEDs:

Amber LED flashing shows link activity USB port Number of ports: One at rear of instrument

Two max. (dependent on option board)

10/100BASE-T (IEEE802.3)

Modbus TCP/IP master/slave

Category 5

Three max. (dependant on option board)

Three max. (dependant on option board)

Standard: Transmission speeds 1.5Mbit/s (low speed device) <100mA Maximum current:

Memory stick (8GB max.), barcode scanner Peripherals supported (US locale only), keyboard (US layout only) 3.5" TFT colour display

(320 pixels wide x 240 pixels high) Controls: Projected capacitive touchscreen; webserve

Memory Resources 12MB Application/Visualisation files Data Recording history files 22MB Retain/Persistent data: 62kB Data Recording Update/Archi Trend update: 10Hz max.

Archive sample value: Latest value at archive time Display value Latest value at display update time

Real time clock battery Stored data: Time, date Replacement period Three years typical Minimum of 1 year with unit unpowered Support time:

Temperature stability: 0 to 55 °C < +3.5ppm RTC Ageing: First year to 10 year < ±5ppm Type: Lithium polycarbonmonofluoride Eurotherm Part Number PA260195

CAUTION

Battery may explode if mistreated. Do not recharge, disassemble or

Integrated development environment

CODESYS IDE v3.5 with E+PLC packages

Power specifications 100 to 230V ac ±15% at 48 to 62Hz Supply voltage: Standard: 24V ac (+10% -15%) at 48 to 62Hz, or Low voltage: 24V dc (+20% -15%)

Power dissipation: 9W (max.) No internal fuse fitted Fuse type: Interrupt protection:

Holdun >20 ms at 85 V RMS supply voltage Standard: Holdup >20 ms at 20.4 V RMS supply voltage Low voltage:

Environmental specification Ambient temperature range

Operating: Storage -20 to +70°C, max. rate of change 1°C/min Humidity range: Operating: 5% to 85% RH non-condensing Storage: IP66. NEMA12

Protection Front panel: Rear panel: IP10 (International) Shock/Vibration: To BS EN61131-2: section 4.2.1 (5 to 150Hz at 2g; 0.5 octave per min.)

<2000 metres Altitude: Not suitable for use in explosive or Atmosphere: corrosive atmospheres

Electromagnetic compatibility BS EN61326 Class B-Light industrial Standard units: BS EN61326 Class A—Heavy industrial Low voltage option:

BS EN61326 Industrial

Other approvals and compliance details
Regional: Europe: CE, RoHS, REACH, WEEE USA. Canada III clii

EAC and Metrological Pattern Approval Russia: RoHS, CCC: Not subject to CCC China: suitable for use in furnace classes A–E, as per AMS2750E Section3 Industry-specific:

Packaging: BS61131-2:2007 section 6.3.3/6.3.4. BS EN61010-1 (Installation category II; Flectrical safety

Pollution degree 2)

Physical

Panel mounting: 1/4 DIN

0.44kg (15.52ozs) Weight: Panel cut out dimension 92×92mm, both -0.0mm +0.8mm) (3.62×3.62", both -0.00" +0.03") 90mm (3.54in) excluding wiring

Fixed I/O

Analogue Inputs (An In 1–4): General Number of Inputs:

Input types: dc volts, dc mV, dc mA, linear ohms, RTD (2-wire and 3-wire)

Four Input type mix: Freely configurable Sample rate: 8Hz (125ms) 16 bit delta sigma Conversion method: See Table 1 and Table 2 Input ranges: Mains rejection (48 to 62Hz) Series mode: > 95dB Common mode:>179dB Common mode voltage 250V ac max. Series mode voltage: 280mV at lowest range;

5V peak to peak at highest range 40 mV, 80 mV, 2V ranges: Input Impedance: input voltages > 5.6V: 62.5kΩ 10V range: input voltages < 5.6V: 667kΩ

Overvoltage protection:Continuous: ±30V RMS Transient (<1ms):±200V pk-pk between terminals

Sensor break detection

Type: ac sensor break on each input giving quick

response with no associated dc deviations Recognition time: <3 seconds Minimum break resistance: 40 mV & 80 mV ranges: 5kΩ;

Other ranges: Isolation

Channel to channel: 300V RMS or dc (Double insulation) Channel to common electronics: 300 V RMS or dc (Double insulation Channel to ground: 300V RMS or dc (Single insulation) Dielectric strength

BS EN61010, 1 minute type test Channel to Channel: 2500V ac

Channel to Ground: 1500 V ac

0m\/			
OIIIV	1.9µV	4.6µV + 0.053% of reading	13ppm of input per °C
0mV	3.2µV	7.5µV + 0.052% of reading	13ppm of input per ℃
۷ Y	82µV	420μV + 0.044% of reading	13ppm of input per °C
0V :	500µV	1.5mV + 0.063% of reading	45ppm of input per ℃
١.	/	0mV 3.2μV / 82μV 0V 500μV	0 mV 3.2μ V 7.5μ V + 0.052% of reading 420μ V + 0.044% of reading

Analogue Inputs (An In 1-4): Thermocouple

Temperature scale ITS90

Off, internal, external, remote CJC Types: Remote CJC source: Any input channel Internal CJC accuracy: <1 °C max., with instrument at 25 °C

Internal CJC rejection ratio:40:1 from 25 °C Upscale/downscale drive: High, low or none independently configurable for each channel's sensor break detection

Linearisation

0.07

Types, ranges and accuracies: See Table 2

Range (℃)

type	italige (O)	Otalidara	accuracy (℃)
В	0 to +1820	IEC584.1	0 to 400 = 1.7 400 to 1820 = 0.03
С	0 to +2300	Hoskins	0.12
D	0 to +2495	Hoskins	0.08
E	-270 to +1000	IEC584.1	0.03
G2	0 to + 2315	Hoskins	0.07
J	-210 to +1200	IEC584.1	0.02
K	-270 to +1372	IEC584.1	0.04
L	-200 to +900	DIN43710:1985 (to IPTS68)	0.02
N	-270 to +1300	IEC584.1	0.04
R	-50 to +1768	IEC584.1	0.04
S	-50 to +1768	IEC584.1	0.04
T	-270 to +400	IEC584.1	0.02
U	-200 to + 600	DIN43710:1985	0.08
NiMo/NiCo	-50 to + 1410	ASTM E1751-95	0.06
Platinel	0 to + 1370	Engelhard	0.02
Ni/NiMo	0 to + 1406	Ipsen	0.14

Table 2: An In 1-4 Thermocouple types, ranges and accuracies

0 to + 1888 ASTM E1751-95

Pt20%Rh/

Analogue Inputs (An In 1-4): Current (dc mA)

 1Ω to $1k\Omega$ mounted externally

additional deviation due to shunt: 0.1% of input for 2.49 $\!\Omega$ shunt Analogue Inputs (An In 1–4): Resistance (ohms)

0 to 400Ω (resolution $20 \text{m}\Omega$) Calibration accuracy (instrument at 25°C): 120mΩ + 0.023% of reading

Temperature performance: 25 ppm of input per °C Analogue Inputs (An In 1-4): RTD (2-wire & 3-wire)

Maximum source current 200µA 0 to 400Ω (−200 to +850 °C) Range:

Resolution: 0.05 °C

Calibration accuracy: ±0.31 °C ±0.023% of measurement in °C

at 25 °C ambient Temperature coefficient: ±0.01 °C / °C ±25ppm/ °C

measurement in °C from 25 °C ambient Electrical noise: 0.05°C peak-peak with τ=1.6s input filter Linearisation accuracy: 0.0033% (best fit straight line)

Lead resistance: 0 to 220 matched lead resistances

200 uA nominal Bulb current:

		1	1
RTD type	Overall range (℃)	Standard	Max. linearisation (℃)
Cu10	-20 to +400	General Electric Co.	0.02
Cu53	-70 to +200	RC21-4-1966	0.01
JPT100	-220 to +630	JIS C1604:1989	0.01
Ni100	-60 to +250	DIN43760:1987	0.01
Ni120	-50 to +170	DIN43760:1987	0.01
Pt100	-200 to +850	IEC751	0.01
Pt100A	-200 to +600	Eurotherm Recorders SA	0.09

Table 3: An In 1-4 RTD type details

Digital Inputs (Dig In A and Dig In B): Contact closure

Short circuit sensing current (source):
Open circuit (inactive) resistance: 5.5mA (min.) to 6.5mA (max.) > 600 Ω

Closed circuit (active) resistance:

Relay Outputs (O/P4 and O/P5) Form A (normally open)

Contact switching power (resistive): 1A max. at 240V RMS ±15%, 5mA min. at 5V

Current through terminals:

Isolation: 300 V RMS or dc; double insulated from processor/comms electronics

Resolution:

Optional I/O Channel positions Opt 1, Opt 2 and Opt 3 can either be fitted with an LLR board (logic, logic, relay) or a DDD board (dc output, dc output, dc output). LLR Logic input (Opt1 only)

Active (current on) contact closure sourcing

Input current: Input at 12V 0mA min. to 44mA max. 6mA (steady state) to 44mA (switch current) Input at 0V:

Open circuit input voltage: +11V to +13V Open circuit (inactive) resistance: >500Q Closed circuit (active) resistance: >150Ω

LLR Logic outputs (Opt1 and/or Opt2) Type: Active (current on) current sourcing

Voltage output across termina +11V to +13V Short circuit output current: 6 mA (steady state) to 44 mA (switch current

Type: Inactive (current off) current sourcing Voltage output across terminals

Output source leakage current into short circuit: 0 µA to 100 µA LLR Relay (Opt 3 only)

Form A (normally open) Contact switching power (resistive): 2A max, at 240V RMS ±15%

100 mA min, at 12 V Current through terminals:

DDD mA current outputs (Opt1, Opt2 and Opt3)
Output range: Configurable within 0 to 20 mA Load resistance 500 Ω max.

Calibration accuracy: < ±100 µA ±1% of reading Resolution > 11 bits

Isolation: 300 V RMS or dc: double insulated from proce

< 100 ppm/°C Thermal drift: Isolation: 300 V RMS or dc; double insulated from processor/comms electronics

DDD voltage output (Opt3 only) Output range:

Configurable within 0 to 10V dc Load resistance: $500\,\Omega$ min. Calibration accurac < ±50mV ±1% of reading

> 11 bits

Thermal drift < 100 ppm/°C Isolation: 300 V RMS or dc; double insulated from processor/comms electronics

Safety Notes

⚠ WARNING

Any interruption of the protective conductor inside or outside the apparatus, or disconnection of the protective earth terminal is likely to make the apparatus dangerous under some fault conditions. Intentional interruption is prohibited.

Safety requirements for permanently connected equipment state:

- A switch or circuit breaker shall be included in the building installation
- It shall be in close proximity to the equipment and within easy reach of the operator
- It shall be marked as the disconnecting device for the equipment.
- Recommended external fuse ratings: For 100–230V ac, fuse type: T rated 2A 250V
- 1. Before any other connection is made, the protective earth terminal shall be connected to a protective conductor. The mains (supply voltage) wiring must be terminated in such a way that, should it slip, the earth wire would be the last wire to become disconnected.
- 2. Whenever it is likely that protection has been impaired, the unit shall be made inoperative. and secured against accidental operation. The manufacturer's nearest service centre should be contacted for advice.
- 3. Where conductive pollution (e.g. condensation, carbon dust) is likely, adequate air condition ing/filtering/ sealing etc. must be installed in the enclosure.
- 4. Signal and supply voltage wiring should be kept separate from one another. Where this is impractical, shielded cables should be used for the signal wiring.
- 5. If the unit is used in a manner not specified by the manufacturer, the protection provided by the equipment might be impaired.
- 6. Installation must only be carried out by suitably qualified personnel.
- 7. To prevent hands or metal tools touching parts that may be electrically live, the unit must be installed in an enclosure.
- 8. The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure.
- 9. Separate or redundant control paths must be provided for critical control functions.
- 10. System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link
- 11. Each implementation of this equipment must be individually and thoroughly tested for proper operation before being placed into service.
- 12. The maximum continuous voltage applied between any of the following terminals must not exceed 240V ac:
- relay output to logic, dc or sensor connections:
- any connection to ground.

The unit must not be wired to a three phase supply with an unearthed star connection. Under fault conditions such a supply could rise above 240V ac with respect to ground and the product would not be safe.

- 13. Grounding of the temperature sensor shield. In some installations it is common practice to replace the temperature sensor while the unit is still powered up. Under these conditions, as additional protection against electric shock, we recommend that the shield of the temperature sensor is grounded. Do not rely on grounding through the framework of the machine.
- 14. Over Temperature Protection. To prevent overheating of the process under fault conditions, a separate over-temperature protection unit should be fitted which will isolate the heating circuit. This must have an independent temperature sensor. Alarm relays within the unit will not give protection under all failure conditions.
- 15. Isopropyl alcohol, water or water based products may be used to clean labels. A mild soap solution may be used to clean other exterior surfaces.
- 16.Before removing a unit from its sleeve, disconnect the supply and wait at least two minutes to allow capacitors to discharge. Avoid touching the exposed electronics of an unit when withdrawing it from the sleeve.
- 17. This unit is intended for industrial temperature and process control applications within the requirements of the European Directives on Safety and EMC.

CAUTION

Live sensors. The unit is designed to operate if the temperature sensor is connected directly to an electrical heating element. However, you must ensure that service personnel do not touch connections to these inputs while they are live. With a live sensor, all cables, connectors and switches for connecting the sensor must be mains rated for use in 240 V ac CATII.

Wiring: It is important to connect the unit in accordance with the data in this sheet ensuring that the protective earth connection is ALWAYS fitted first and disconnected last. Wiring must comply with all local wiring regulations, i.e. UK, the latest IEE wiring regulations, (BS7671), and USA, NEC Class 1 wiring methods. Do not connect ac supply to low voltage sensor input or low level inputs and outputs.

USB Device Precautions

The use of U3 USB Flash drives is not recommended.

- 1. Precautions against electrostatic discharge should be taken when the unit terminals are being accessed. The USB and Ethernet connections are particularly vulnerable.
- 2. Ideally, the USB device should be plugged directly into the unit, as the use of extension leads may compromise the unit's ESD compliance.
- 3. When using a USB extension cable, a high quality screened cable must be used with a maximum length of 3 metres (10 ft.).

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E+PLC¹⁰⁰

Installation Guide



E+PLC100 is a 1/4 DIN instrument that combines a PLC with precise control, recording and archiving strategies that aids compliance with industry

- standards. It has the following features: · Modbus TCP master/slave
- Programmer
- · Control loops with autotune
- Zirconia probe support (optional)
- Recording
- Batch Archiving
- Webserver (optional)

Further information is available in the E+PLC100 User Manual, part number HA032001 which may be downloaded from www.eur



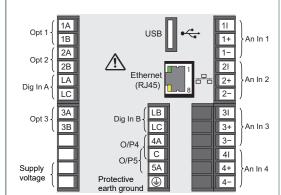


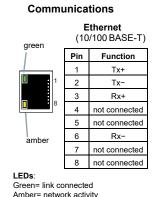
HA032021ENG Issue 10 (ECN 38577) July 2020



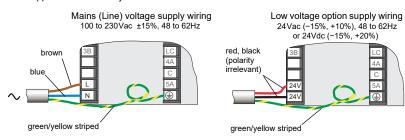
by Schneider Electric

Rear Terminals





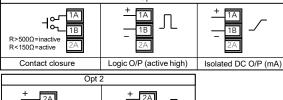
Power supplyThe power supply input is not fuse protected: this must be provided externally. Use copper conductors only.



Termination Details

The screw terminals accept wire sizes in the range:

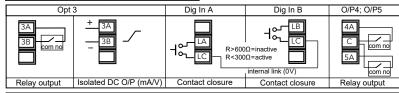
Single wire 0.205 to 2.08 mm² (14 to 24 AWG). Two wires 0.205 to 1.31 mm² (16 to 24 AWG) inclusive. Screw terminals should be tightened to a torque between 0.4N·m (3.54lb·in) and 0.5N·m (4.43lb·in).



Ont 1



Each wire connected to LA, LB and LC must be less than 10 metres in length.



An In 1; An In 2; An In 3; An In 4					
11 1+ T/C V mV	11 1+ 1- 1R0 ≤ R ≤ 1k0	1+	1+	11-	
Thermocouple, V, mV	milliamps	RTD (three wire)	RTD (two wire)	ohms input	