c-pro 3 giga

Programmable controllers (28 I/O)

EVCO

PLEASE READ CAREFULLY
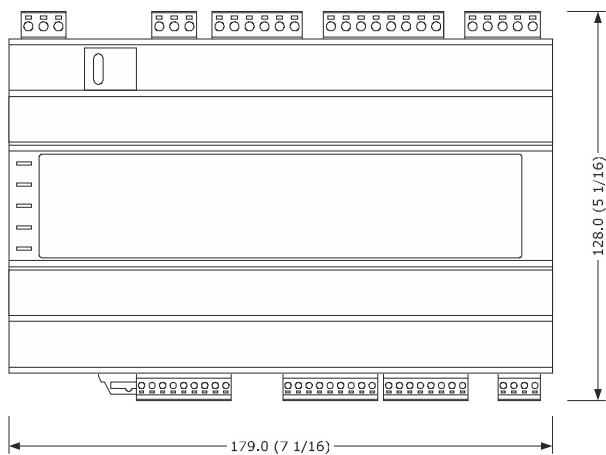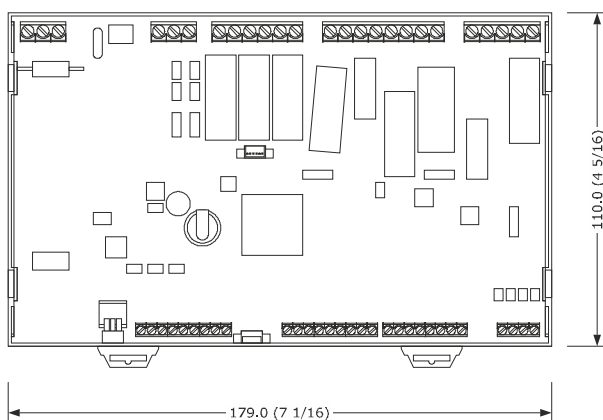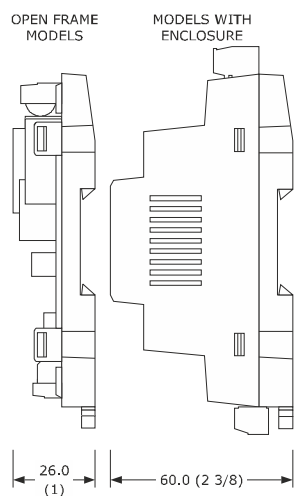and save this document
CONSIDER THE ENVIRONMENT

EN ENGLISH

- blind open frame models or with enclosure
- power supply 115… 230 VAC
- clock
- 10 analogue inputs (can be configured also for dry contact digital input)
- 3 dry contact digital inputs
- 2 high voltage digital inputs
- 4 analogue outputs
- 9 electro-mechanical relay digital outputs
- TTL MODBUS port
- INTRABUS port (RS-485 MODBUS master/slave by connecting the serial interface EVIF22ISX)
- RS-485 MODBUS slave port
- RS-485 port (MODBUS master/slave, BACnet MS/TP) [1]
- CAN port
- USB port
- models with Ethernet port (MODBUS TCP, WebServer, BACnet IP) [1]

[1] the BACnet communication protocol can be used only in alternative to the Web Server function
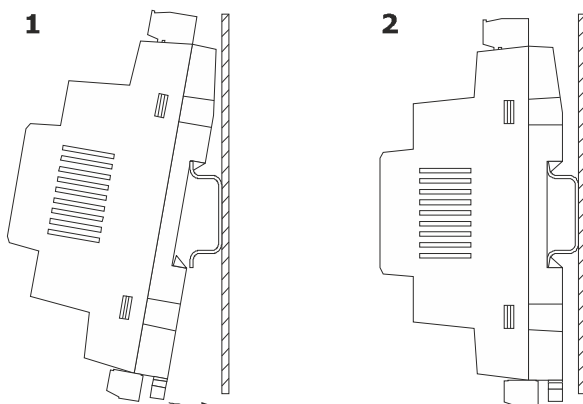
Purchasing codes	Version	Power supply	I/O	Communication ports
EPG9O	blind open frame	115… 230 VAC	28	TTL, INTRABUS, 2 RS-485, CAN and USB
EPG9B	blind with enclosure			
EPG9OHX	blind open frame			TTL, INTRABUS, 2 RS-485, CAN, USB and Ethernet
EPG9BHX	blind with enclosure			

1 MEASUREMENTS AND INSTALLATION

Measurements in mm (inches). To be fitted on a DIN rail, in a control panel.

OPEN FRAME MODELS   MODELS WITH ENCLOSURE

26.0 (1)   60.0 (2 3/8)   110.0 (4 5/16)

179.0 (7 1/16)

2.2 Electrical connection
Example of electrical connection.

128.0 (5 1/16)

179.0 (7 1/16)

To install the device operate as shown in pictures 1 and 2.

To remove the device, first remove any screw-in removable terminal blocks mounted in the lower part, then operate as shown in pictures 3 and 4.

screwdriver   clip
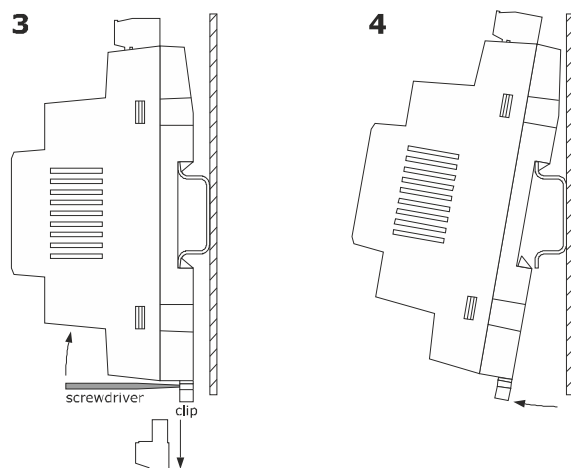
To install the device again press down the clip before.

INSTALLATION PRECAUTIONS

- Ensure that the working conditions are within the limits stated in the *TECHNICAL SPECIFICATIONS* section
- Do not install the device close to heat sources, equipment with a strong magnetic field, in places subject to direct sunlight, rain, damp, excessive dust, mechanical vibrations or shocks
- In compliance with safety regulations, the device must be installed properly to ensure adequate protection from contact with electrical parts. All protective parts must be fixed in such a way as to need the aid of a tool to remove them.

2 ELECTRICAL CONNECTION

N.B.
- Use cables of an adequate section for the current running through them
- To reduce any electromagnetic interference connect the power cables as far away as possible from the signal cables and, if necessary, connect to a RS-485 MODBUS network and/or a CAN network by using a twisted pair.

2.1 Connectors
Description of connectors.

N.	DESCRIPTION
V~	device power supply (115… 230 VAC)
V~	device power supply (115… 230 VAC)

N.	DESCRIPTION
DIHV1	high voltage digital input: DI1
DIHV2	high voltage digital input: DI2
COM	high voltage digital inputs common contact

N.	DESCRIPTION
NO1	K1 digital output normally open contact (3 A res. @ 250 VAC)
CO1	K1 digital output common contact
NO2	K2 digital output normally open contact (3 A res. @ 250 VAC)
CO2	K2 digital output common contact
NO3	K3 digital output normally open contact (3 A res. @ 250 VAC)
CO3	K3 digital output common contact

N.	DESCRIPTION
NO4	K4 digital output normally open contact (3 A res. @ 250 VAC)
CO4	K4 digital output common contact
NO5	K5 digital output normally open contact (2 A res. @ 250 VAC)
CO5	K5 digital output common contact
NO6	K6 digital output normally open contact (3 A res. @ 250 VAC)
CO6	K6 digital output common contact
NO7	K7 digital output normally open contact (8 A res. @ 250 VAC)
CO7	K7 digital output common contact
N.	DESCRIPTION
NO8	K8 digital output normally open contact (2 A res. @ 250 VAC)
CO8	K8 digital output common contact
NC9	K9 digital output normally closed contact
NO9	K9 digital output normally open contact (3 A res. @ 250 VAC)
CO9	K9 digital output common contact

N.	DESCRIPTION
CAN+	signal + CAN port
CAN-	signal - CAN port
A1/+	signal + RS-485 MODBUS slave port
B1/-	signal - RS-485 MODBUS slave port
A2/+	signal + RS-485 port (MODBUS master/slave, BACnet MS/TP)
B2/-	signal - RS-485 port (MODBUS master/slave, BACnet MS/TP)
IB	data INTRABUS port
GND	reference (GND)
12V	power supply remote user interfaces (13 VDC)

The actual UNI-PRO 3.13 version implements a BACnet® standardized device profile B-ASC, which doesn't require the managing of Scheduler and Calendar objects, instead required for the B-AAC profile.

N.	DESCRIPTION
GND	reference (GND)
DI3	digital input 3 (dry contact and for pulse trains up to 2 KHz): DI3
DI4	digital input 4 (dry contact and for pulse trains up to 2 KHz): DI4
DI5	digital input 5 (dry contact and for pulse trains up to 2 KHz): DI5
AI1	analogue input 1 (for PTC, NTC or Pt 1000 probes): AI1 can be configured also for dry contact digital input
AI2	analogue input 2 (for PTC, NTC or Pt 1000 probes): AI2 can be configured also for dry contact digital input
AI3	analogue input 3 (for PTC, NTC or Pt 1000 probes): AI3 can be configured also for dry contact digital input
AI4	analogue input 4 (for PTC, NTC or Pt 1000 probes): AI4 can be configured also for dry contact digital input
AI5	analogue input 5 (for PTC, NTC or Pt 1000 probes): AI5 can be configured also for dry contact digital input

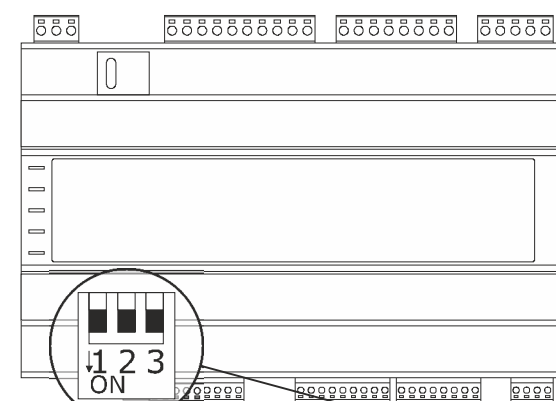| N.	DESCRIPTION
GND	reference (GND)
AI6	analogue input 6 (for PTC, NTC or Pt 1000 probes, 0-5 V, 0-10 V, 0-20 mA or 4-20 mA transducers): AI6 can be configured also for dry contact digital input
AI7	analogue input 7 (for PTC, NTC or Pt 1000 probes, 0-5 V, 0-10 V, 0-20 mA or 4-20 mA transducers): AI7 can be configured also for dry contact digital input
AI8	analogue input 8 (for PTC, NTC or Pt 1000 probes, 0-5 V, 0-10 V, 0-20 mA or 4-20 mA transducers): AI8 can be configured also for dry contact digital input
AI9	analogue input 9 (for PTC, NTC or Pt 1000 probes, 0-5 V, 0-10 V, 0-20 mA or 4-20 mA transducers): AI9 can be configured also for dry contact digital input
AI10	analogue input 10 (for PTC, NTC or Pt 1000 probes, 0-5 V, 0-10 V, 0-20 mA or 4-20 mA transducers): AI10 can be configured also for dry contact digital input
+5V	power supply 0-5 V ratiometric transducers (5 VDC)
VS	power supply transducers (13 VDC)

N.	DESCRIPTION
AO1	analogue output 1 (for 0-10 V or PWM)
AO2	analogue output 2 (for 0-10 V or PWM)
AO3	analogue output 3 (for 0-10 V or PWM)
AO4	analogue output 4 (for 0-10 V or PWM)

2.3 Fitting the termination resistor of RS-485 networks and CAN network
To fit the termination resistor of the RS-485 network connected to the RS-485 MODBUS slave port, place micro-switch **MBS1LT** in position ON.
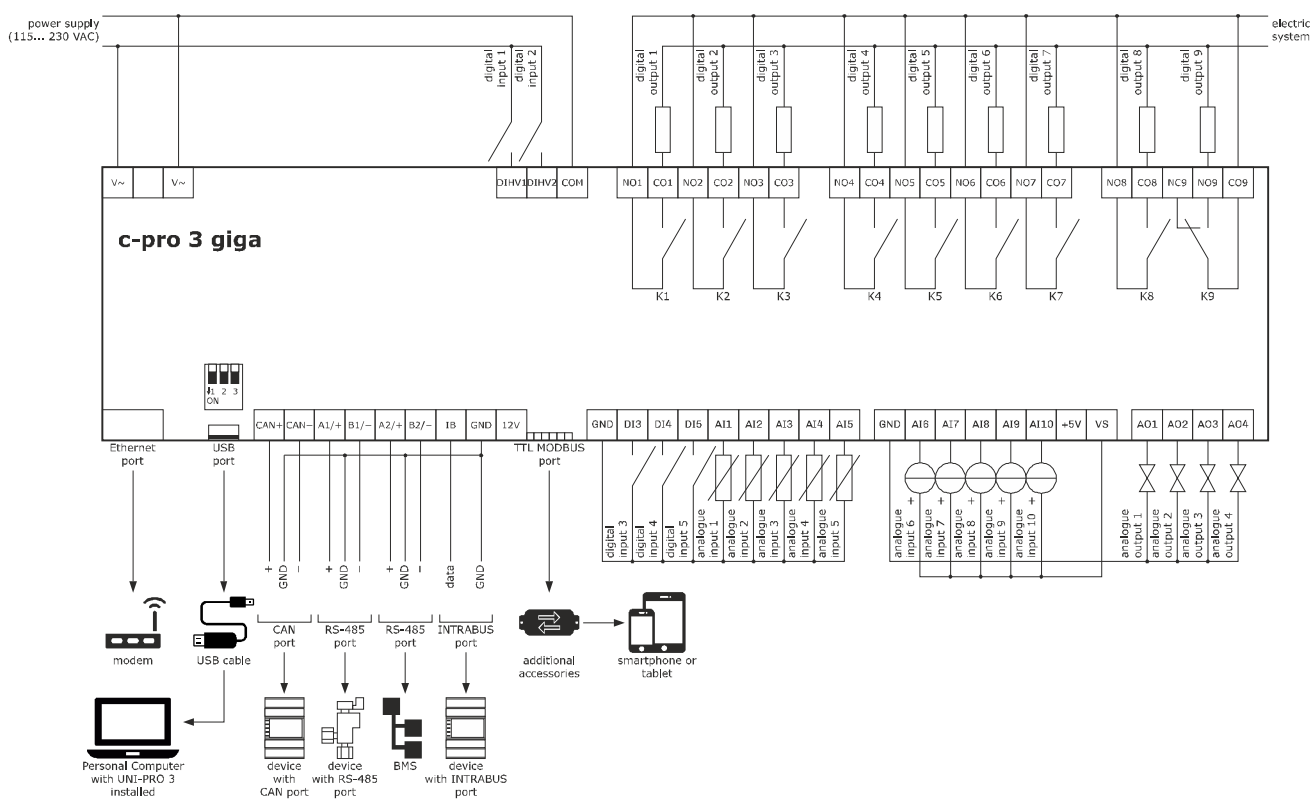To fit the termination resistor of the RS-485 network connected to the RS-485 port (MODBUS master/slave, BACnet MS/TP), place micro-switch **MBS2LT** in position ON.
To fit the CAN network termination resistor, place micro-switch **CANLT** in position ON.

PRECAUTIONS FOR ELECTRICAL CONNECTION
- If using an electrical or pneumatic screwdriver, adjust the tightening torque
- If the device has been moved from a cold to a warm place, the humidity may have caused condensation to form inside. Wait about an hour before switching on the device
- Make sure that the supply voltage, electrical frequency and power are within the set limits. See the section *TECHNICAL SPECIFICATIONS*
- Disconnect the power supply before doing any type of maintenance
- Do not use the device as safety device
- For repairs and for further information, contact the EVCO sales network.

3   TECHNICAL SPECIFICATIONS

Purpose of the control device:	Function controller.
Construction of the control device:	Built-in electronic device.
Container:	Grey, self-extinguishing.
Category of heat and fire resistance:	D.
Measurements:	
10 DIN modules: 179.0 x 110.0 x 26.0 mm (7 1/16 x 4 5/16 x 1 in) the open frame models	10 DIN modules: 179.0 x 128.0 x 60.0 mm (7 1/16 x 5 1/16 x 2 3/8 in) the models with enclosure.
Mounting methods for the control device:	To be fitted on a DIN rail, in a control panel.
Degree of protection provided by the covering:	
IP00 the open frame models	IP40 the front of the models with enclosure.
Connection method:	
screw terminal blocks for wires up to 1.5 mm² and 2.5 mm² the open frame models	removable screw terminal blocks for wires up to 1.5 mm² and 2.5 mm² the models with enclosure
Pico-Blade connector	Micro-USB connector
RJ45 F telephone connector (according to the model).	

Maximum permitted length for connection cables:	
Power supply: 10 m (32.8 ft)	Analogue inputs: 10 m (32.8 ft)
Auxiliary power supply and 0-5 V ratiometric transducer power supply: 10 m (32.8 ft)	Digital inputs: 10 m (32.8 ft)
0-10 V analogue outputs: 10 m (32.8 ft)	PWM analogue outputs: 1 m (3.28 ft)
Digital outputs: 100 m (328 ft)	INTRABUS port: 10 m (32.8 ft)
RS-485 MODBUS port: 1,000 m (3,280 ft)	USB port: 1 m (3.28 ft).

CAN port:	1,000 m (3,280 ft), baud rate: 20,000 baud
	500 m (1,640 ft), baud rate: 50,000 baud
	250 m (820 ft), baud rate: 125,000 baud
	50 m (164 ft), baud rate: 500,000 baud.

Operating temperature:	From -10 to 55 °C (from 14 to 131 °F).
Storage temperature:	From -20 to 70 °C (from -4 to 158 °F).
Operating humidity:	Relative humidity without condensate from 5 to 95%.
Pollution status of the control device:	2.
Compliance:	

RoHS 2011/65/EC	WEEE 2012/19/EU	REACH (EC) Regulation no. 1907/2006
EMC 2014/30/EU	LVD 2014/35/UE.	

Power supply:	115… 230 VAC (+10% -15%), 50/60 Hz (±3 Hz), max. 16 VA.
Earthing methods for the control device:	None.
Rated impulse-withstand voltage:	2.5 KV.
Over-voltage category:	II.
Software class and structure:	A.
Clock:	With secondary lithium battery.
Clock drift:	≤ 30s/month at 25°C (77 °F).
Clock battery autonomy in the absence of a power supply:	> 6 months at 25 °C (77 °F).
Clock battery charging time:	24h (the battery is charged by the power supply of the device).
Analogue inputs:	5 for PTC, NTC or Pt 1000 probes (can be configured also for dry contact digital input)
	5 for PTC, NTC or Pt 1000 probes, 0-5 V, 0-10 V, 0-20 mA or 4-20 mA transducers (can be configured also for dry contact digital input).

PTC probes:	Sensor type:	KTY 81-121 (990 Ω @ 25 °C, 77 °F)
	Measurement field:	from -50 to 150 °C (from -58 to 302 °F)
	Resolution:	0.1 °C (1 °F).
NTC probes:	Sensor type:	ß3435 (10 KΩ @ 25 °C, 77 °F)
	Measurement field:	from -50 to 120 °C (from -58 to 248 °F)
	Resolution:	0.1 °C (1 °F).
Pt 1000 probes:	Sensor type:	1 KΩ @ 0 °C, 32 °F
	Measurement field:	from -100 to 400 °C (from -148 to 752 °F)
	Resolution:	1 °C (1 °F).
0-5 V transducers:	Input resistance:	≥ 10 KΩ
	Resolution:	0.01 V.
0-10 V transducers:	Input resistance:	≥ 10 KΩ
	Resolution:	0.01 V.
0/4-20 mA transducers:	Input resistance:	≤ 200 Ω
	Resolution:	0.01 mA.

Power supply remote user interfaces:	13 VDC, +20 % -10%, 150 mA max.
Power supply transducers:	13 VDC, +20 % -10%, 100 mA max.
Power supply 0-5 V ratiometric transducers:	5 VDC, ±10 %, 20 mA max.
Digital inputs:	3 dry contact and for pulse trains up to 2 KHz
	2 high voltage.

Dry contact:	Contact type:	3.3 VDC, 1 mA
	Power supply:	
High voltage contac:	Power supply:	115… 230 VAC.

Analogue outputs:	4 for 0-10 V or PWM signal

0-10 V signal:	Minimum applicable impedance:	1 KΩ
	Resolution:	0.01 V.
PWM signal:	Power supply:	0… 10 VDC, 10 mA max.
	Frequency:	10 Hz… 2 KHz
	Duty:	0… 100%
	Resolution:	1% up to 500 Hz, 5% up to 2 KHz.

Digital outputs:	2 with SPST electro-mechanical relay, 2 A res. @ 250 VAC
	5 with SPST electro-mechanical relay, 3 A res. @ 250 VAC
	1 with SPDT electro-mechanical relay, 3 A res. @ 250 VAC
	1 with SPST electro-mechanical relay, 8 A res. @ 250 VAC.

The device guarantees:
- reinforced insulation between SELV circuits and relay outputs
- reinforced insulation between "groups" of relay outputs
- basic insulation between relay outputs belonging to the same group
- reinforced insulation between live parts and SELV circuits
- reinforced insulation between "group 1" of relay outputs (K1… K3) and high voltage digital inputs (DIHV1 and DIHV2)
- basic insulation between live parts of opposite polarity (line-neutral).

Type 1 or Type 2 Actions:	Type 1.
Additional features of Type 1 or Type 2 actions:	C.
Communications ports:	
1 TTL MODBUS port	1 INTRABUS port (RS-485 MODBUS master/slave by connecting the serial interface EVIF22ISX)
1 RS-485 MODBUS slave port	1 RS-485 port (MODBUS master/slave, BACnet MS/TP)
1 CAN port	1 USB port
according to the model, Ethernet port (MODBUS TCP, WebServer, BACnet IP).	