free Panel

Panel Mount Programmable Controller Installation Manual

eliwell

invensys Controls

CONTENTS

1   INTRODUCTION

To allow quick, easy reference, the guide has been designed with the following features:

References column:
A column to the left of the text contains *references* to subjects discussed in the text to help you locate the information you need quickly and easily.

Cross references:
All words in *italics* are listed in the analytical index along with the page number where they are dealt with in more detail.
In the "on-line" (computer) manual, the words in italics are "hyperlinks" (i.e. mouse-clickable links), connecting up the different parts of the manual and making it "navigable".

Some text passages are marked by icons in the *references* column, which have the following meanings:

Important! :   **highlights information of which an incorrect understanding *can* impact negatively on the system or result in risk to persons, instruments, data, etc.; users *must* read and take note of these sections.**

Note / highlight: indicates further information on the subject concerned that the user should take into account.

Tip: a suggestion that could help the user to understand and make better use of the information provided.

1.1   General description

The **FREE Panel (EVP)** is a fully programmable panel mounting solution with LCD *display* made by Eliwell, suitable for managing a wide *range* of HVAC/R and many other applications, from the simplest to the most complex.

The **EVP** *can* be used as a system controller, with gateway functions; used in combination with the FREE Evolution and FREE Smart or third-party controllers it guarantees high performance in terms of memory, connectivity and *user interface* as well as straightforward programming, maintenance and servicing.

The **EVP** is designed for panel mounting, and *can* also be wall-mounted using a special backplate, available as an accessory.

Programming of the **EVP** is managed via the **FREE Studio** development tool, which makes it possible to quickly and reliably create and customise new programs for all types of application.
The use of several different programming languages in accordance with IEC61131-3 standard (industrial control programming), makes it possible to develop new algorithms or entire programmes totally unassisted, which *can* then be uploaded to **FREE Evolution** modules via PC, guaranteeing maximum confidentiality with appropriate security.

The **EVP** *can* be used to:
- manage a local menu created with the **FREE Studio** *User Interface*
- manage up to 10 remote menus, created with the **FREE Studio** *User Interface* and uploaded from the respective **FREE Evolution** devices connected to the network
- share network variables (binding)

WEB functionalities

The **FREE Panel (EVP)** also features WEB functionalities (the **FREE Panel** product is also designated *FREE WEB*) offering makers of machinery and systems integrators full remote access. Having a web-based connection in machines significantly reduces support and maintenance costs by minimizing call-out charges. End users also benefit, as they *can* monitor their own systems both locally and from distance, using the easy-to-understand graphics interface of any common browser via smartphone, tablet or PC.

Main WEB functionalities
- Web-based access.
- Remote reading and support.
- Local and remote system control, including alarms management.
- Preventive and predictive maintenance.
- Email alarm alerts.
- Next generation system interface on PC, tablet and smartphone.

1.1.1   Specifications:

FREE Panel EVP 3300/C is equipped with serial *CAN*, *RS485* and *ETHERNET*, 3 inputs (1 on-board NTC + 1 remote configurable NTC/DI +1 remote current/voltage configurable).
FREE Panel EVP 3500/C/R is equipped with serial *CAN*, *RS485* and *ETHERNET*, 3 inputs (1 on-board humidity module + 1 on-board NTC + 1 remote configurable NTC/DI) .
The **EVP** comes with a built-in 128x64px graphical user terminal.
- - -
24V~/⎓ or 48V⎓ *power supply*.

1.2   Models and Features

- -> See Appendix A - *Models and Accessories*, and *Technical Data* section.

2   MECHANICAL INSTALLATION

IMPORTANT! Always make sure the device is switched OFF before touching *connections*.
All operations must be carried out by qualified personnel.
Do not mount devices in extremely damp and/or dirt-laden areas; they are designed for use in places with ordinary or normal levels of contamination.
Make sure the area near the cooling slots is ventilated.

Mounting the FREE Panel (EVP)
Designed for panel mounting.
Make a 138x68mm hole.
Remove the front panel (figure 1) and make 4 holes in the panel that the controller is to be mounted on (Figure 2, points A/B/C/D) or two holes (Figure 2, points E/F) of dia. 2.7 mm at the specified spacing (Figure 2).
Insert the device, fixing it with the screws. Press the front of the remote terminal to close.

| Figure 1 |
| :---: |
| Cut out EVP |
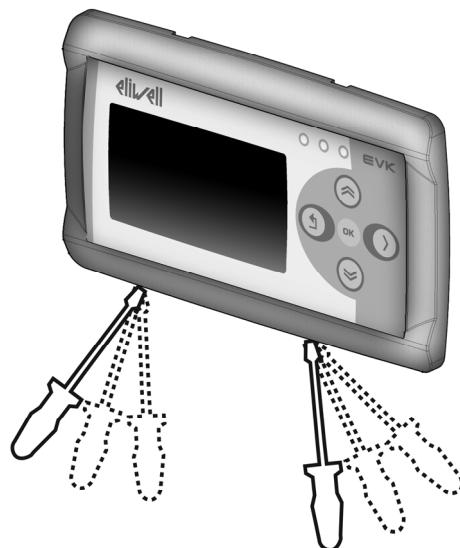
Figure 2
Cut out EVP
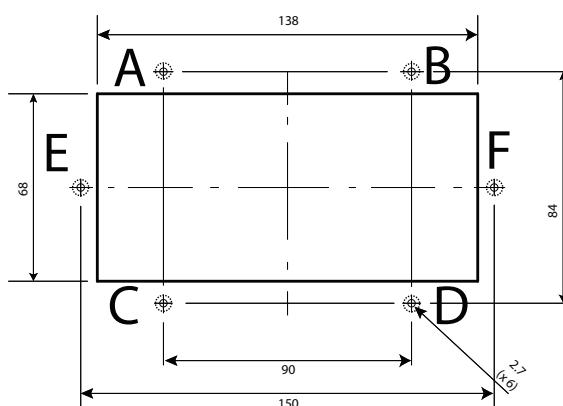
3   ELECTRICAL CONNECTIONS

3.1   General warnings

Before proceeding with any operation, make sure the device is connected to a suitable external *transformer*. The following rules must be followed when connecting cards to each other and to the application:
- Loads that exceed the maximum limits stated in this manual must not be applied to outputs.
- When connecting loads, follow the circuit diagrams carefully.
- To avoid unwanted couplings, wire all SELV (safety extra voltage) users separately from high voltage users.

IMPORTANT!
Make sure the appliance is switched off before working on *electrical connections*. Operations must be carried out by skilled personnel. To ensure proper *connections*, comply with the following:
- Power supplies other than those specified *can* seriously damage the system.
- Select cables of suitable section for the terminals used
- Separate the cables of probes and digital inputs from inductive loads and high voltage *connections* to prevent any electromagnetic interference. Do not place probe signal leads near other electrical equipment (switches, meters, etc.)
- Make *connections* as short as possible and do not wind them around electrically connected parts.
- To avoid electrostatic discharges, do not touch the electronic components on printed circuit boards.
- The device must be connected to a suitable *transformer* that complies with the specifications indicated in the *Technical Data* chapter.

3.1.1   Power supply

Important!
Make sure that the *power supply* is of the correct voltage for the instrument.

3.1.2   Analogue Inputs-Probes

Temperature probes

Probes have no connection polarity and *can* be extended using a normal two core cable (note that the extension of the probes influences the electromagnetic compatibility (EMC) of the instrument: take great care with the wiring).

Important!
Pressure probes

Pressure probes have a specific connection polarity, which must be observed.
Signal leads (temperature/*pressure probes*, digital inputs, RS-485/*CAN*-BUS *serials* and the electronic supply) must be routed separately from power cables.
Use probes supplied by Eliwell. Contact Eliwell sales department for parts availability.

3.1.3   Serial connections

- On-board *CAN* as standard
- On-board *RS485* as standard
- On-board *ETHERNET* serial as standard

Pay special attention when connecting serial lines: Do not connect instruments that communicate using *RS485* serial to *CAN* terminals, or *CAN* instruments to *RS485* terminals.

CAN

CAN
NOTE 1
- Use a shielded and "**twisted pair**" cable with two 0.5mm² conductors, plus braiding (ideally Belden cable model 3105A (characteristic impedance 120 Ohms) with PVC sleeve, 2 conductors plus braid, 22 AWG, nominal capacity between conductors 36pF/m, nominal capacity between conductor and shielding 68pF/m).
- Always follow regulations applicable to the routing and connection of cables. Make certain that data transmission circuits are properly separated from power lines.
- For *connections* over longer distances, it is better to end the line with resistors on both ends, inserting the two **R TERM** jumpers (available on the terminal strip beside the *CAN* serial as the *default* factory configuration).

NOTE 2
The maximum distance depends on the baud setting.

Kb/s (Kbaud)	On-board *CAN*
50 Kbaud	1000m
125 Kbaud	500m
250 Kbaud	250m
500 Kbaud	60m

NOTE 3
5-way terminal strip:
- 3-way ("GS", "H and "L") serial *CAN*
- 2-way *POWER supply*

RS485

INSTALLING THE RS-485 NETWORK

NOTE 1
Use a shielded and "**twisted pair**" cable with two 0.5mm^2 conductors, plus braiding (ideally Belden cable model 8762 with PVC sleeve, 2 conductors plus braid, 20 AWG, nominal capacity between conductors 89pF/m, nominal capacity between conductor and shielding 161pF/m).
See EN 50174 standard on IT cabling for indications on how cables should be routed.
Make certain that data transmission circuits are properly separated from power lines.
An RS-485 network up to 1200m in length with a maximum of 256* devices *can* be connected straight to the controller.
*Note: example of Evolution Modbus Slave with single Master supervisor.
This length *can* be extended and the number of devices for each channel increased using appropriate repeater modules.

NOTE 2
Single terminal strip with 3 conductors: use all 3 conductors ("+", "-" for the signal and "GS" for the braid).

NOTE 3
Attach the 120 (Ohm) 1/4W resistors between the "+" and "-" terminals of the interface and the last controller in each branch of the network.

NOTE 4
Maximum settable speed 57600 baud. Higher speeds are envisaged for local connection to FREE Studio Device and tests.

ETH

The *Ethernet* connection allows the **FREE PANEL** to communicate on an *Ethernet* network using TCP/IP protocol.
The connection allows:
- connection of different controllers and/or applications exchanging variables and/or *parameters* (**network).**
- connection of a supervision system using Modbus TCP/IP protocol
- connection of an IEC 61131-3 **Free Studio** development system

NOTE: The *Ethernet* connector shield is internally connected to the earth of the instrument and therefore to the reference of the input and output channels.

3.2 Wiring diagrams

EVP3300/C

EVP3500/C/RH
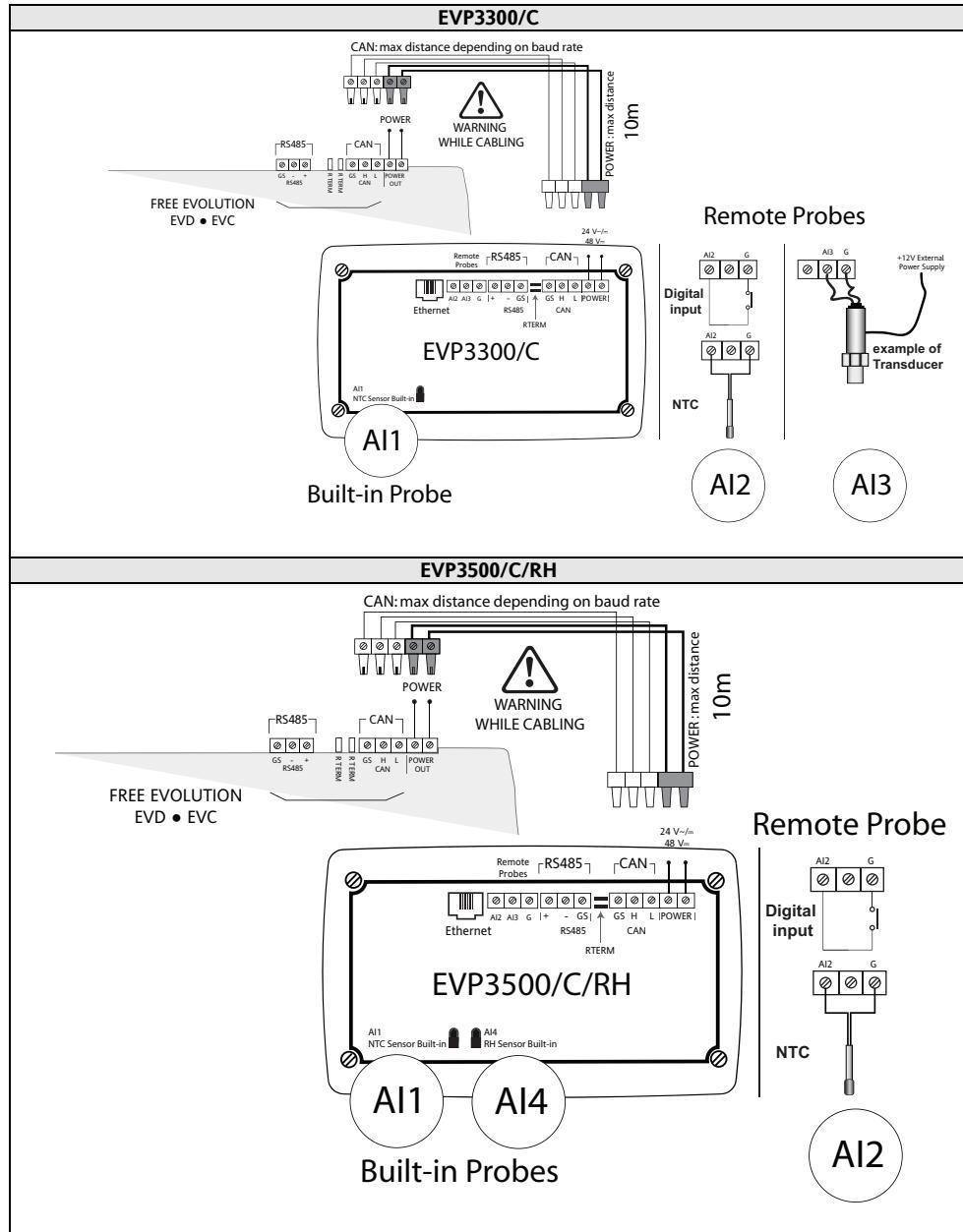
Label	Description	Notes
POWER	24V~/⎓ - 48V⎓ *power elivell supply*	Pin POWER Vout on EVD/EVC Max. distance 10m EVP-EVD/EVC
CAN **GS H L**	Isolated *CAN* serial **GS** ground serial isolated from **G**	**R TERM** termination resistors for *CAN*
cross – cabling: incorrect cabling irreversibly damages EVP and FREE Evolution		
RS485 **GS - +**	Isolated *RS485* serial **GS** ground serial isolated from **G**	Apply 120 Ohm terminal resistors
Ethernet	*ETHERNET* serial	
Built-in AI1 NTC Sensor	On-board NTC sensor	
AI2 Remote Probes **G**	NTC, D.I. remote Ground GND	Probe not included
AI3 Remote Probes **G**	4...20mA/0-10V/0-5V Ground GND	**EVP3300/C** Probe not included 12V External *power supply*
Built-in AI4 RH Sensor	On-board RH% sensor	**EVP3500/C/RH**

3.3 Analogue inputs

Inputs *can* be configured as specified in the table below.

Parameter	Description	Values					
		0	1	2	3	4	5
Cfg_AI1	Type of input analogue AI1	NTC probe (NK103)	Probe configured as voltage-free digital input	NTC probe (103AT-2)	-	-	-
Cfg_AI2	Type of input analogue AI2	NTC probe (NK103)	Probe configured as voltage-free digital input	NTC probe (103AT-2)	-	-	-
Cfg_AI3	Type of input analogue AI3	-	-	-	4-20 mA	0-10 V	0-5 V

Parameter	*Range*	Description
FullScaleMin_AI3	-9999...+9999	Analogue input AI3 start of scale value
FullScaleMax_AI3	-9999...+9999	Analogue input AI3 full scale value

The temperature and humidity measurement, as well as the corresponding precisions and tolerances, refer to the application point of the probes inside the instruments.

If these same measurements are to be referred to air conditions outside of the instrument, e.g. ambient measurements, account must be taken of offset (differential) *parameters* that depend on the installation and usage conditions of the instrument itself.
The differentials e.g. **Calibration** *parameters* that *can* be set are

Parameter	Description	Unit of Measure	*range*
Calibration_AI1	Analogue input AI1 differential	°C/10 or °F/10	-180 ... 180
Calibration_AI2	Analogue input AI2 differential	°C/10 or °F/10	-180 ... 180
Calibration_AI3	Analogue input AI3 differential		-1000 ... 1000
Calibration_AI4	Analogue input AI4 differential		-1000 ... 1000

for on-board (built-in) sensors, 'compensation' *parameters* are also available

	Parameter	Description	Unit of Measure	*range*	
	Compensation_AI1	**Internal compensation AI1** difference between external air temperature and measurement read by NTC sensor AI1	°C/10 or °F/10	-1000 ... 1000	
Factory for offsets a	**Compensation_AI4**	**Internal compensation AI4** difference between external temperature and T measurement read by RH sensor AI4 (this temperature is used to calculate the relative humidity based on psychrometric charts)	°C/10 or °F/10	-1000 ... 1000	values these assume typical

installation with wall mounted backplate in a non-ventilated environment and with the *display* backlighting mainly OFF. In these conditions the following calibration values are obtained:

Compensation_AI1 = -12.0 °C
Compensation_AI4 = -10.5 °C

If the usage conditions require the backlight to be mainly ON, the values must be modified as follows:

Compensation_AI1 = -15.0 °C
Compensation_AI4 = -13.0 °C

For other mounting conditions, it is advisable to carry out **calibration** during installation, checking the temperature and relative humidity differences between the external air and the internal probes and if necessary correcting the *parameters* **Compensation_AI1/ Compensation_AI4**

In any case it is possible to achieve a precision of +- 1°C on the temperature measurement and +- 3%RH on the relative humidity measurement.

3.4 Connections

3.4.1 Example: RS485 connection (Field)

- 1 **FREE Panel EVP**
- Max 127 FREE Evolution EVE expansion modules connected in *RS485*
  - o EVP is in Modbus RTU Master mode
  - o EVEs are in Modbus RTU Slave mode
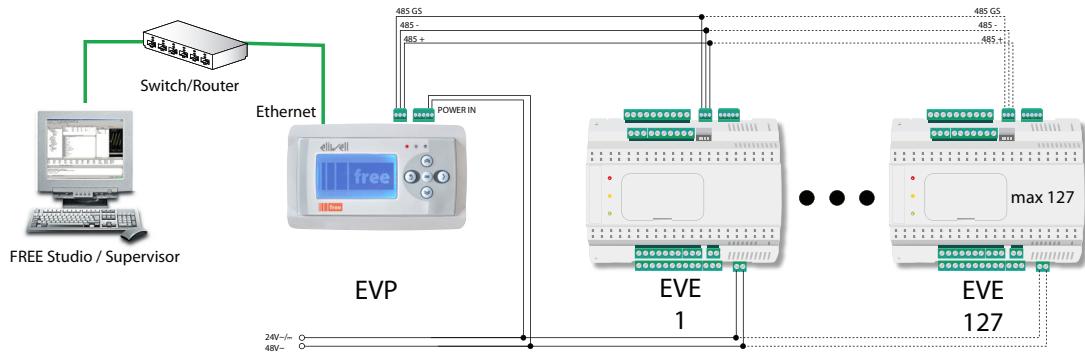
3.4.2 CAN connection example (Field)

- 1 **FREE Panel EVP**
- Max 12 **FREE Evolution** EVE expansion modules connected in *CAN*
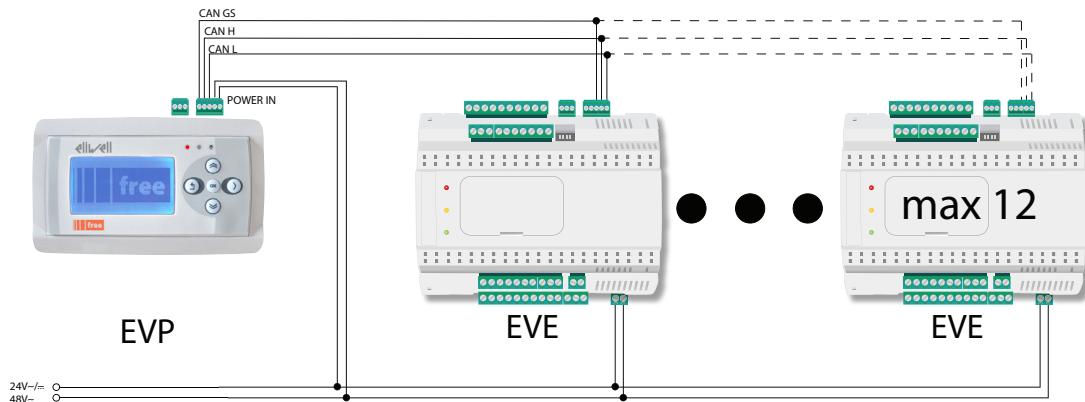
3.4.3 Example: RS485 connection with FREE Smart network

- 1 **FREE Panel EVP**
- Max 127 **FREE Evolution EVD/EVC or FREE Smart or** Eliwell and/or third-party instruments equipped with *RS485* serial
  - o EVP is in Modbus RTU Master mode
  - o All devices equipped with *RS485* are in Modbus RTU Slave mode (including the FREE Evolution modules)
- *CAN* network – see *CAN* connection example
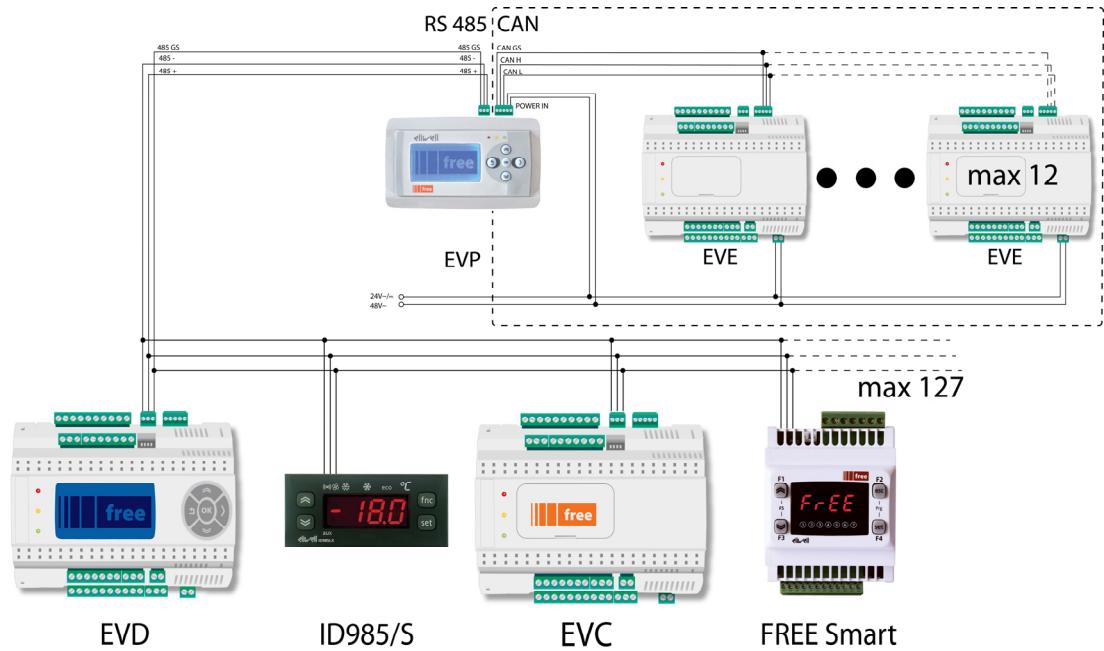
3.4.4 CANopen network connection example

- 1 **FREE Panel EVP**
- Max 10 **FREE Evolution EVD/EVC**
- *CAN* network – see *CAN connection example (Field)*

HMI menu
EVP *can* be equipped with its own menu (named Network menu)
In this case EVP is programmed with the network menu, which *can* read variables present in the Evolution controller network

EVP *can* operate from the terminal of the individual controllers and download up to 10 remote menus from the respective Evolution controllers
In this case the remote menu allows 'local' navigation of the individual Evolution controller

PLC
The variables of the various controllers are shared (bound together)
A PLC present on EVP *can* use variables present in the network and share its own variables with other PLCs present on the respective Evolution controllers
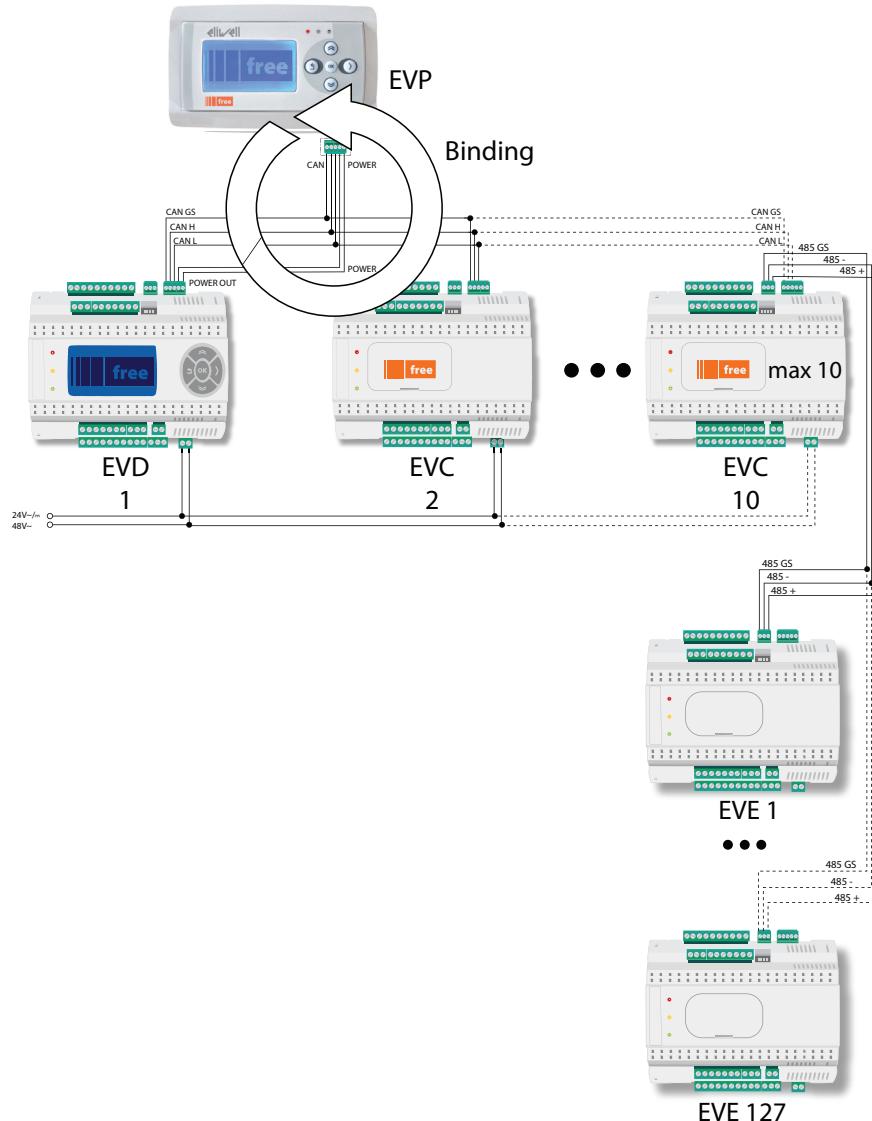
The FREE Panel product is also designated *FREE WEB*
The *Ethernet* connection also allows communication using HTTP protocol, i.e. access to a Web Server contained in FREE Evolution.

FREE WEB

FREE WEB

FREE Studio allows the creation and management of web pages internally of *FREE WEB*, i.e. a veritable website in miniature. WEB functionalities allow complete local or remote access by way of an ordinary browser. Thanks to the web connection, the system provides remote reading and support and remote diagnostics services, as well as e-mail alarm alerts.
Note. Connection to *FREE WEB* remains possible by way of FREE Studio.

NOTE: refer to the section on *Parameters / ETHERNET* PASSIVE PLUG-IN *folder*
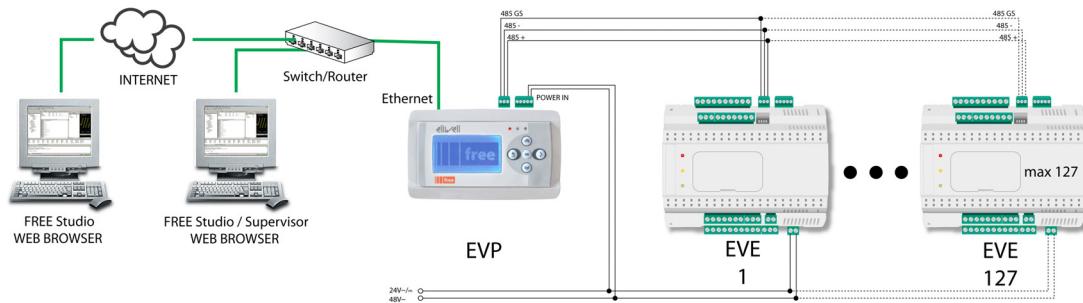
BRIDGE

BRIDGE

FREE Studio allows monitoring of FREE Smart tools or third party tools, typically Modbus/RTU slaves, where *FREE WEB* (or FREE Evolution with Plug-In ETH) is the Master Modbus/RTU.

In a FREE Studio project, more exactly, *FREE WEB* is used as a Modbus/TCP to Modbus/RTU protocol conversion element for Modbus 0x03 and 0x10 commands.

E.g. from FREE Studio, set the connection with FREE Smart as Modbus/TCP, inserting the *FREE WEB* IP address and the Modbus/RTU address of the Smart slave.
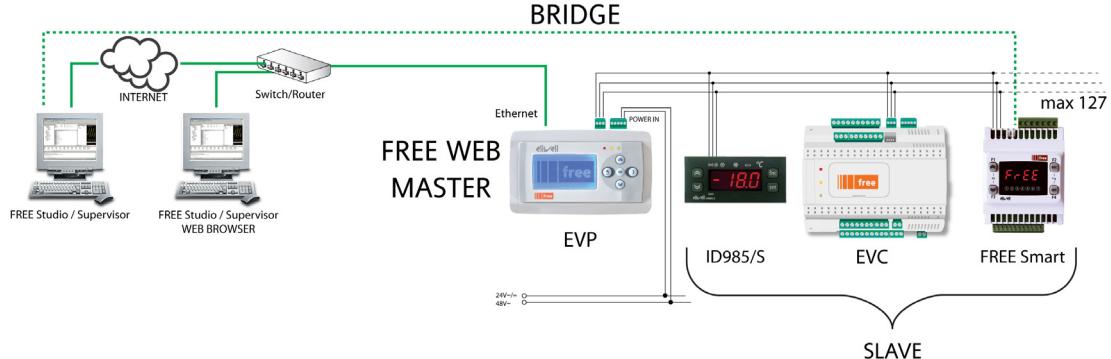
TFTP

TFTP (Trivial File Transfer Protocol)
Note. *TFTP* (Trivial File Transfer Protocol) *can* also be enabled for file transfer between PC and controller on an *Ethernet* network.

4   TECHNICAL DATA

4.1   General Technical Data

	Standard	Min.	Max.
Supply voltage*	24V~/⎓ ±20% or 48V⎓ ±20%	21V	60V
Power supply frequency	50Hz/60Hz	---	---
Power consumption	5W		
Insulation class	2	---	---
Ambient operating temperature	25°C	-10°C	+55°C
Ambient operating temperature of EVK1000 terminal	25°C	-5°C	+55°C
Ambient operating humidity (non-condensing)	30%	10%	90%
Storage temperature	25°C	-20°C	+85°C
Ambient storage humidity (non-condensing)	30%	10%	90%
* powered via FREE Evolution EVD/EVC or directly via a *transformer* Note: power cable must not be longer than 10m			

Classification	
The product meets the requirements of the following European Community Directives	Directive 2006/95/EC Directive 89/108/EC
and complies with the following harmonized regulations	EN 60730-2-6 / EN 60730-2-9 / EN 60730-1
Use	in terms of construction, as an independently mounted temperature-sensitive automatic electronic controller
Mounting	on DIN Omega bar support
Type of action	1.B
Pollution class	2 (normal)
Over voltage category	II
Nominal pulse voltage	2500V
Digital outputs	refer to the *label* on the device
Fire resistance category	D
Software class and structure	A
Type of disconnection or suspension for each circuit	Microswitch disconnection
PTI of materials used for insulation	PTI 250V
Period of electrical stress on the insulating parts	Long period

4.2   I/O features

Type and *Label* *Analogue inputs*	probe	Description	Resolution	Accuracy	Measurement *range*	Impedance	3300 /C	3500 /C /RH
AI1	On-board	NTC	0.1°C/°F	0.5% f.s + 1 digit		10KΩ	x	x
AI2 configurable	Remote	NTC 103AT	0.1°C/°F	0.5% f.s + 1 digit	−50...+110 °C (-58...230°F)	10KΩ	x	x
	NOT included	NTC NK103	0.1°C/°F	0.5% f.s + 1 digit	-40...+150 °C (-40...302°F)	10KΩ		
		D.I.**				20KΩ		
AI3 configurable	Remote	4...20mA	1 digit	1% f.s +1 digit	0...1000	100Ω	x	
	NOT included	0-5V*	1 digit	1% f.s +1 digit	0...1000	21KΩ		
		0..10V	1 digit	1% f.s +1 digit	0...1000	21KΩ		
AI4	On-board	On-board %RH input	0.01%RH (0%=0pt, 100% = 1000pt)	±3% [20...80%] ±5% ...] [... elsewhere	0-100 %RH			x

*50mA maximum current @5V; **Clean contact.
Note: Also see *Electrical Connections* chapter / *Analogue Inputs* paragraph for instructions on offsets and calibrations

4.3 Display

- backlit with LEDs +
- 3 LEDs

Note: LED and backlighting *can* be controlled from IEC application

Protection rating:	The single-mould plastic front cover allows for water resistant panel mounting that is comparable to IP65 protection.
Display:	Monochromatic LCD graphic *display* 128x64px backlit with LEDs
Container:	backplate + frame in PC+ABS UL94 V-0 plastic resin, front cover in transparent polycarbonate, polyester membrane keys

4.4 Serials

Serial	Description	Notes
CAN	Open opto-isolated serial *CAN*	max50m@500kpbs 200m@125kpbs Note: 2 jumpers available for *CAN* terminal resistance
RS-485	Opto-isolated RS-485 Modbus RTU serial	Pay special attention when connecting serial lines: do not cable *RS485* in *CAN* port or vice versa
ETHERNET	Modbus TCP/IP *ETHERNET* port	Pack includes MACADDRESS, in barcode and 12-digit alphanumeric format

4.5 Transformer

The instrument must be connected to a suitable current *transformer* with the following features:

- Primary voltage: Depending on requirements of device and/or country of installation
- Secondary voltage: 24V~/⎓ - 48V⎓ ±20%
- *Power supply* frequency V~:   50/60Hz
- Power: 5W min.

4.6 Mechanical dimensions

	Length (L) mm	Depth (d) mm	Height (H) mm	Notes
Space required	160	10	96	
Hole for panel mounting	68	/	138	(+0.2 mm / -0.1 mm)

4.7 Permitted use

For safety reasons, the device must be installed and used according to the instructions provided. In particular, parts carrying dangerous voltages must not be accessible in normal conditions.

The device must be adequately protected from water and dust with regard to the application, and must only be accessible using tools (with the exception of the front panel).

The device is suitable for use in household and/or similar air conditioning appliances or installations and has been tested for safety aspects in accordance with harmonized European reference standards.

4.8 Improper Use

Any use other than that expressly permitted is prohibited.

The relay contacts supplied are of the functional type and subject to fault (since they are electronically controlled they are prone to short-circuiting or remaining open). Any protection devices specified in product standards or suggested by common sense for obvious safety requirements must be installed externally to the device.

Eliwell is not liable for damage caused by:

- Unspecified installation/use and, in particular, in contravention of the safety requirements of established legislation or specified in this document;
- Use on equipment which does not provide adequate protection against electrocution, water and dust in the actual installation conditions;
- Use on equipment in which dangerous components *can* be accessed without the use of specific tools;
- Installation/use on equipment which does not comply with established legislation and standards.

4.9 Disclaimer

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5   USER INTERFACE

The interface, comprising the front cover of the controller, allows you to perform all operations needed to use the device.

EVP
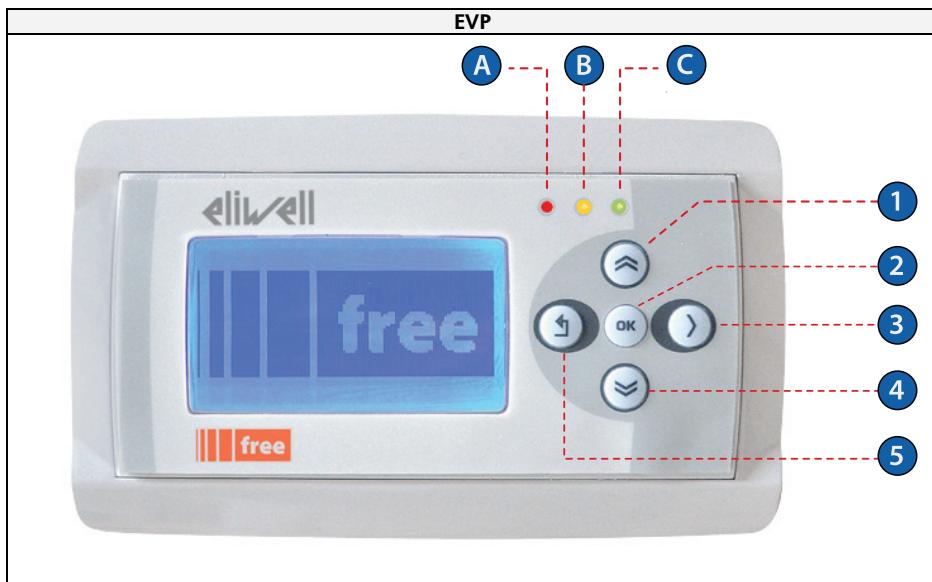
5.1   Keys and LEDs

The LEDs *can* be programmed from the IEC application.
The keys *can* be programmed from the IEC application. By *default*, the device displays a short menu containing the following *default* settings.

Key	Key	Press once (press and release)
1	UP	• Scroll up • Return to previous page (e.g. 2/10 ←3/10) • Increase / modify a value • Go to the next *label*
2	OK	• Scroll down • Move to next level/menu (open *folder*, subfolder, parameter, value) • Enter/exit edit mode • Confirm operation
3	>	• Moves cursor to right in Edit Mode
4	DOWN	• Scroll down • Move to the next page (e.g. 1/10→2/10) • Decrease / modify a value • Go to previous *label*
5	↰ Exit	• Exit menu page / go back to previous menu • Move cursor to left in Edit Mode • (press and hold) Exit Edit Mode without saving any changes

DIA Menu

EVP is factory configured with a *default* DIAGNOSTICS (DIA) menu that appears when the instrument is powered on.
After uploading of an IEC application and/or a HMI menu from FREE Studio, the main *display* consists of the application menu created with FREE Studio Interface.
In which case, to open the *DIAGNOSTICS menu* proceed as follows:

Key combination		Prolonged press (press and hold for about 3 seconds)
4+5	DOWN	Open *DIAGNOSTICS menu*
	↰ Exit	

To return to the IEC application menu open the '*HMI Management*' page, select ↱↳ and press the **OK** key
See *Remote Interface* paragraph

5.2 First power on

When the instrument is powered up for the first time, a few summary pages are displayed showing system status (**SYSTEM INFO**)

SYSTEM INFO
HW
BIOS
DATE
BOOT
EEPROM

NOR FLASH	OK
NAND FLASH	OK
SDRAM	OK
BATRAM	OK
RTC	OK

The system will also search for the PLC application and the local menu…
If present, the menu will appear on the *display*

PLC searching	…
HMI searching	…
CON	loaded

5.3 DIAGNOSTICS menu

The DIAGONISTICS menu, native to EVP, is used to manage system *parameters* (*BIOS parameters*), *remote interface*s (HMI) and to *display* I/O values and clock
The *DIA menu can* be displayed in 5 languages: English, Italian, German, Spanish and French.
To change the *default language*, open *BIOS Parameters* > *Display*

EVP
BIOS parameters
HMI Management
Probe values
Date and time

5.3.1 BIOS parameters

Parameter configuration menu. See *Parameters* chapter.
Note: This menu is depopulated with respect to the *parameters* table contained in the corresponding chapter and in the FREE Studio device

Language change example

BIOS parameters
Display
Buzzer
CAN

Display
1/3
Language
Italiano

BIOS parameters → < OK key > *Display* 1/3 → < OK key > Edit Mode < UP/DOWN key >
select *language* < OK key > < ⬅ key >

Display
1/3
Language
English

See parameter *Display*/**Hmi_*Language***

5.3.2 HMI Management

See *Remote Interface* paragraph

5.3.3 Probe values

Shows input values (read only)
EVP has 3 inputs. Example EVP3500/C/RH

Probes values 1/3	Probes values 2/3	Probes values 3/3
Internal NTC	External NTC	Humidity sensor
27.3	- - - - - - - - - - - - - -	43.38
°C, °F	°C, °F	RH%

Note: for offset programming see the section on Analogue Inputs in the Connections chapter

5.3.3.1 Date and time

Shows time (HH : MM : SS) and date (DD / MM / YY) of the internal clock

Date and time
14 : 45 : 45
20 / 07 / 11
Update

To edit the value press OK. Select the value that you want to modify
Press the OK key to enter Edit Mode. Use the UP and DOWN keys to modify value. Confirm with the OK key
Select 'Update' and press OK to update the clock

Date and time
16 : 50 : 56
20 / 07 / 11
Update

5.4 Remote interface

EVP
Language: 0   ↱↴
HMI sel: Network
COM setting
HMI Management

5.4.1 Language

This section is for setting the *language* of the remote menu, defined from the FREE Studio *User Interface*
The number of languages and the order are established by the corresponding application/menu
See parameter *HMI Management*/**Hmi_Language**

5.4.2 ↱↴

To return to the menu of the IEC application, move the cursor onto this symbol and press the **OK** key
See *HMI sel*

5.4.3 HMI sel

This section is for setting the menu to be shown on the *display*
By *default* HMI menus are NOT present (only the *DIA menu* is available)
Network: this is the EVP 'local' menu (local HMI)
rem1...rem10: menus located on max 10 Evolution devices connected to the network that *can* be 'uploaded' to EVP

EVP		EVP		EVP
HMI sel: Network		*HMI sel*: rem1	…	*HMI sel*: rem10

To move from one page to the next press the UP and DOWN keys
After selecting the desired menu move the cursor onto ↳ to view the menu

```
┃ Launch remote page ┃
├────────────────────┤
│                    │
│     Please Wait    │
│                    │
│                    │
└────────────────────┘
```
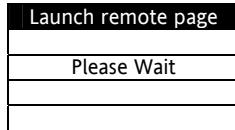
If OK the *display* will show the selected menu (IEC application)
If the menu is not present, the following screen appears

```
┃      Warning       ┃
├────────────────────┤
│    Upload failed   │
│                    │
│      Press OK      │
│                    │
└────────────────────┘
```
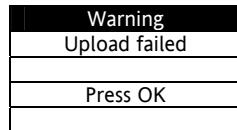
5.4.3.1   COM Setting

This **read-only** page shows the configuration of the EVP serial ports

```
┃         EVP        ┃
├────────────────────┤
│ CAN : 1 . 500000   │
│ 485s : 1 . 38400.P81│
│ ETH : 010.000.000.100│
│                    │
└────────────────────┘
```
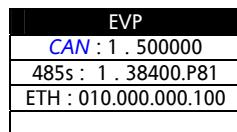
5.4.3.2   HMI Management

This page shows the configuration of the 10 remote pages

```
┃       EVP          ┃         ┃       EVP          ┃                  ┃ EVP        10/10   ┃
┃       1/10         ┃   ↳     ┃       1/10         ┃   ↳              ┃                    ┃   ↳
├────────────────────┤  🗐↥    ├────────────────────┤  🗐↥     ...     ├────────────────────┤  🗐↥
│ File: HMIREM.KBD   │         │                    │                  │                    │
│ Id: 0              │         │ Id: 0              │                  │ Id: 0              │
│ Com: CAN           │         │ Com: CAN           │                  │ Com: CAN           │
│ Addr: 125          │         │ Addr: 000          │                  │ Addr: 000          │
└────────────────────┘         └────────────────────┘                  └────────────────────┘
```
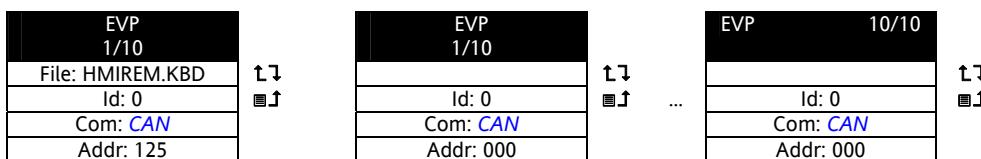
From these pages it is possible to 'launch' (run) the corresponding menu – if present
Move the cursor onto ↳ and press the **OK** key
Note: it will not be possible to launch the local (network) menu from this section
Note: in the example only one remote page is present

To 'upload' a remote page use 🗐↥

After selecting the desired menu move the cursor onto ↳ to view the menu

```
┃ Upload remote page ┃
├────────────────────┤
│    Upload page?    │
│ The process cannot │
│   be interrupted   │
│                    │
│ Cancel         OK  │
└────────────────────┘
```
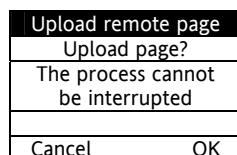
Press OK to upload or any other key to cancel

```
┃ Upload remote page ┃
├────────────────────┤
│    Uploading…      │
│ ■■■■■■■■□□          │
│       80%          │
│                    │
└────────────────────┘
```
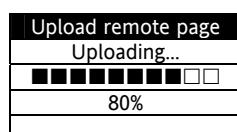
Note: the upload may take up to a minute

If there are no data to upload, the following screen displays

```
┃     Attenzione     ┃
├────────────────────┤
│ There are no remote│
│  pages on the card │
│                    │
│      Press OK      │
│                    │
└────────────────────┘
```
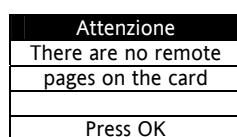
6   PARAMETERS

User-parameterization renders the FREE Panel EVP fully configurable.

Parameters can be changed using:
- Keys on the EVP front panel
- PC and FREE Studio software

The following sections provide a detailed analysis of each parameter, divided into categories (folders).

6.1   Table of parameters

The **following table** contains all the device configuration *parameters* available in FREE Studio Device and in the DIAGNOSTICS (DIA) / *BIOS Parameters* menu

Description of columns:

FOLDER
This indicates the *label* of the FREE Studio Device *folder* containing the parameter in question
A group of these *parameters* is available on the LCD *display* in the DIAGNOSTICS (DIA) menu
Refer also to the following table:

	FOLDER	EVP	EVP DIA
All *Parameters*	ACKNOWLEDGEMENT	x	-
	AI CALIBRATION	x	-
	ANALOGUE INPUTS	x	-
	ON-BOARD *RS485*	x	-
	ON-BOARD *CAN*	x	x
	ETHERNET	x	x
	Display	x	x
	Buzzer:	x	x
HMI management	*HMI management*	x	x
	HMI remote 1 (rem1)	x	(x)
	...	x	(x)
	HMI remote 10 (rem10)	x	(x)

(x) if present (loaded to EVP)
The local menu - if present (uploaded to EVP) - is defined with the Network *label*

LABEL
This indicates the *label* used to *display* the **parameters**

VAL PAR ADDRESS
Indicates the address of the modbus register containing the resource to be accessed.

RESET (Y/N)
Indicates whether the device **MUST** be rebooted after the parameter has been changed.
- Y=YES the device **MUST** be rebooted to save the change.
- N=NO the device DOES NOT need to be rebooted after changing the parameter

R/W
Indicates if resources are read/write, read-only or write-only:
- R   The resource is read-only
- W   The resource is write-only
- RW   The resource *can* be both read and written to

DATA SIZE
Indicates the size of the data in bits.

CPL
When the field indicates "-1", the value read by the register requires conversion, because the value represents a number with a sign. In other cases the value is always positive or null.
To carry out the conversion, proceed as follows:
- If the value in the register is between 0 and 32.767, the result is the value itself (zero and positive values)
- If the value in the register is between 32.768 and 65.535, the result is the value of the register – 65.536 (negative values)

RANGE
Describes the interval of values that *can* be assigned to the parameter. It *can* be correlated with other instrument *parameters* (indicated in the parameter *label*).

DEFAULT
Indicates the factory setting for the standard model of the instrument.

U.M.
Unit of measure for values converted according to the rules indicated in the *CPL* column
The unit of measure shown is an example only, as it may change depending on the application (e.g. *parameters* with a *U.M.* in °C/bar could also have %RH)

6.1.1   Table of parameters

(See next page)

EVP *parameters*

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
ACKNOWLEDGEMENT	Par_TAB	15716	WORD		Y	RW	**Map code** Note: read/write parameter	0 ... 65535	0	num.
ACKNOWLEDGEMENT	Par_POLI	15717	WORD		Y	RW	**Model Code** Note: read/write parameter	0 ... 65535	1025	num.
ACKNOWLEDGEMENT	Par_PARMOD	15719	BOOL			RW	**Parameter changed** Flag indicating change to *default* settings. • 0= map not modified. • 1= at least one parameter has been changed from the original configuration.	0 ... 1	0	num.
AI CALIBRATION	Gain_Ntc_AI1	15616	WORD			RW	**Ai1 NTC calibration gain**	0 ... 65535	32768	num.
AI CALIBRATION	Gain_Ntc_AI2	15617	WORD			RW	**Ai2 NTC calibration gain**	0 ... 65535	32768	num.
AI CALIBRATION	Gain_5V_AI3	15620	WORD			RW	**Ai3 0-5V calibration gain**	0 ... 65535	32768	num.
AI CALIBRATION	Gain_10V_AI3	15621	WORD			RW	**Ai3 0-10V calibration gain**	0 ... 65535	32768	num.
AI CALIBRATION	Gain_mA_AI3	15622	WORD			RW	**Ai3 4-20mA calibration gain**	0 ... 65535	32768	num.
AI CALIBRATION	Offs_Ntc_AI1	15650	WORD	-1		RW	**Ai1 NTC calibration offset**	-32768 ... 32767	0	num.
AI CALIBRATION	Offs_Ntc_AI2	15651	WORD	-1		RW	**Ai2 NTC calibration offset**	-32768 ... 32767	0	num.
AI CALIBRATION	Offs_5V_AI3	15654	WORD	-1		RW	**Ai3 0-5V calibration offset**	-32768 ... 32767	0	num.
AI CALIBRATION	Offs_10V_AI3	15655	WORD	-1		RW	**Ai3 0-10V calibration offset**	-32768 ... 32767	0	num.
AI CALIBRATION	Offs_mA_AI3	15656	WORD	-1		RW	**Ai3 4-20mA calibration offset**	-32768 ... 32767	0	num.

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
ANALOGUE INPUTS	Temp_UM	15725	WORD		Y	RW	**Temperature unit of measure** • 0 = °C; • 1 = °F	0 … 1	0	num.
ANALOGUE INPUTS	Cfg_AI1	15726	WORD			RW	**Type of analogue input Ai1** • 0= NTC (NK103) • 1= DI • 2= NTC (103AT)	0 … 2	2	num.
ANALOGUE INPUTS	Cfg_Ai2	15727	WORD			RW	**Type of analogue input Ai2** See Cfg_Ai1	0 … 2	2	num.
ANALOGUE INPUTS	Cfg_Ai3	15728	WORD			RW	**Type of analogue input Ai3** • 3 = 4…20mA • 4=0-10V • 5=0-5V	3 … 5	3	num.
ANALOGUE INPUTS	Cfg_Ai4	15729	WORD			RW	**Type of analogue input Ai4** See Cfg_Ai3	3 … 5	3	num.
ANALOGUE INPUTS	FullScaleMin_Ai3	15736	WORD	-1		RW	**Analogue input Ai3 start of scale value** **N.B.: Minimum full scale:** for current probes, value at 4mA, for 0-10V voltage probes, value at 0V, 10% for (0-5V) probes, value at 10% (corresponding to 0.5V).	-9999…+9999	0	
ANALOGUE INPUTS	FullScaleMAx_Ai3	15737	WORD	-1		RW	**Analogue input Ai3 full scale value** **N.B.: Maximum full scale** for current probes, value at 20mA, for 0-10V voltage probes, value at 10V, for (0-5V) probes, value at 90% (corresponding to 4.5V).	-9999…+9999	1000	
ANALOGUE INPUTS	Calibration_Ai1	15748	WORD	-1		RW	**Analogue input Ai1 differential**	-180 … 180	0	°C/10 or °F/10
ANALOGUE INPUTS	Calibration_Ai2	15749	WORD	-1		RW	**Analogue input Ai2 differential**	-180 … 180	0	°C/10 or °F/10
ANALOGUE INPUTS	Calibration_Ai3	15750	WORD	-1		RW	**Analogue input Ai3 differential**	-1000 … 1000	0	
ANALOGUE INPUTS	Calibration_Ai4	15751	WORD	-1		RW	**Analogue input Ai4 differential**	-1000 … 1000	0	
ANALOGUE INPUTS	Compensation_AI1	15752	WORD	-1		RW	**Internal compensation AI1**	-1000 … 1000	0	°C/10
ANALOGUE INPUTS	Compensation_AI4	15753	WORD	-1		RW	**Internal compensation AI4**	-1000 … 1000	0	°C/10

FOLDER	LABEL	VAL PAR AdDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
RS485 ON BOARD	Addr_RS485_OB	15774	WORD		Y	RW	**On-board RS485 serial address** The actual address is determined by the sum of this value + the value of the dip switch.	0 … 255	1	num.
RS485 ON BOARD	Proto_RS485_OB	15775	WORD		Y	RW	**On-board RS485 protocol selection** 2 = uNET 3 = Modbus/RTU	2 … 3	2	num.
RS485 ON BOARD	Databit_RS485_OB	15776	WORD		Y	RW	**On-board RS485 data bit number** Fixed setting 8	8 … 8	8	num.
RS485 ON BOARD	Stopbit_RS485_OB	15777	WORD		Y	RW	**On-board RS485 stop bit number** • 1= 1 stop bit • 2= 2 stop bit	1… 2	1	num.
RS485 ON BOARD	Parity_RS485_OB	15778	WORD		Y	RW	**On-board RS485 protocol parity** • 0= NULL • 1= ODD • 2= EVEN	0 … 2	2	num.
RS485 ON BOARD	Baud_RS485_OB	15779	WORD		Y	RW	**On-board RS485 protocol baudrate** • 0=9600 baud • 1=19200 baud • 2=38400 baud • 3=57600 baud • 4=76800 baud • 5=115200 baud	0 … 5	2	num.
ON-BOARD CAN	Addr_CAN_OB	15780	WORD		Y	RW	**On-board CAN serial address** The actual address is determined by the sum of this value + the value of the dip switch.	1 … 127	1	num.
ON-BOARD CAN	Baud_CAN_OB	15781	WORD		Y	RW	**On-board CAN protocol baudrate** • 2=500 Kbaud • 3=250 Kbaud • 4=125 Kbaud • 5=125 Kbaud • 6=50 Kbaud	2 … 6	2	num.

ON BOARD *ETHERNET*

WEB SERVER FUNCTIONALITY: For more details refer to document 9IS24252_Web_ApplicationNotes

The *parameters* necessary for the configuration of ports and protocols are these:

HTTP and *TFTP* ports
FREE WEB allows the use of HTTP and *TFTP* servers

HTTP HyperText Transfer Protocol.
An HTTP server generally listens on port 80 using TCP protocol.

		value
Port_HTTP	**HTTP port** HTTP communication Port number *Default* 0 corresponds to **port 80**	0

***TFTP* Trivial File Transfer Protocol.**
Protocol using basic FTP functionalities. Typical use: transfer of small files between hosts on a network. *TFTP* USES PORT 69
The *parameters* for configuring the PORTS are:

		value
Port_*TFTP*	***TFTP* port** *TFTP* communication Port number *Default* 0 corresponds to **port 69**	0

DHCP protocol

		value
EnableDHCP_ETH	**Enable DHCP** 0 ... 1 (False, True)	False

DNS system

System for the conversion of host names, or network nodes, to IP addresses

Used by FREE Studio to send text e-mails (strings)

		value			value
PriDNS_1_ETH	**Primary DNS server (part 1)**	194	**SecDNS_1_ETH**	**Secondary DNS server (part 1)**	194
PriDNS_2_ETH	**Primary DNS server (part 2)**	25	**SecDNS_2_ETH**	**Secondary DNS server (part 2)**	25
PriDNS_3_ETH	**Primary DNS server (part 3)**	2	**SecDNS_3_ETH**	**Secondary DNS server (part 3)**	2
PriDNS_4_ETH	**Primary DNS server (part 4)**	129	**SecDNS_4_ETH**	**Secondary DNS server (part 4)**	130

FOLDER	*LABEL*	*PAR. VALUE ADDRESS*	*DATA SIZE*	*CPL*	*RESET (Y/N)*	*R/W*	*DESCRIPTION*	*RANGE*	*DEFAULT*	*U.M.*
ETHERNET ON BOARD	**Port_TFTP**	**15772**	WORD		Y	RW	**TFTP port** TFTP communication Port number Default 0 corresponds to **port 69**	0 ... 65535	0	num.
ETHERNET ON BOARD	**Port_HTTP**	**15796**	WORD		Y	RW	**HTTP port** HTTP communication Port number Default 0 corresponds to **port 80**	0 ... 65535	0	num.
ETHERNET ON BOARD	**Port_ETH**	**15797**	WORD		Y	RW	**Port** TCP/IP Modbus communication port. Port 502 for example	0 ... 65535	502	num.
ETHERNET ON BOARD	**Ip_1_ETH**	**15798**	WORD		Y	RW	**On-board Ethernet passive IP address (part 1)**	0 ... 255	10	num.
ETHERNET ON BOARD	**Ip_2ETH**	**15799**	WORD		Y	RW	**On-board Ethernet passive IP address (part 2)**	0 ... 255	0	num.
ETHERNET ON BOARD	**Ip_3ETH**	**15800**	WORD		Y	RW	**On-board Ethernet passive IP address (part 3)**	0 ... 255	0	num.
ETHERNET ON BOARD	**Ip_4ETH**	**15801**	WORD		Y	RW	**On-board Ethernet passive IP address (part 4)**	0 ... 255	100	num.

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
ETHERNET ON BOARD	DefGtwy_1_ETH	15802	WORD		Y	RW	Default Gateway (part 1)	0 ... 255	192	num.
ETHERNET ON BOARD	DefGtwy_2_ETH	15803	WORD		Y	RW	Default Gateway (part 2)	0 ... 255	168	num.
ETHERNET ON BOARD	DefGtwy_3_ETH	15804	WORD		Y	RW	Default Gateway (part 3)	0 ... 255	0	num.
ETHERNET ON BOARD	DefGtwy_4_ETH	15805	WORD		Y	RW	Default Gateway (part 4)	0 ... 255	1	num.
ETHERNET ON BOARD	NetMsk_1_ETH	15806	WORD		Y	RW	Net mask (part 1)	0 ... 255	255	num.
ETHERNET ON BOARD	NetMsk_2_ETH	15807	WORD		Y	RW	Net mask (part 2)	0 ... 255	255	num.
ETHERNET ON BOARD	NetMsk_3_ETH	15808	WORD		Y	RW	Net mask (part 3)	0 ... 255	255	num.
ETHERNET ON BOARD	NetMsk_4_ETH	15809	WORD		Y	RW	Net mask (part 4)	0 ... 255	0	num.

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
ETHERNET ON BOARD	PriDNS_1_ETH	15810	WORD		Y	RW	Primary DNS server (part 1)	0 ... 255	194	num.
ETHERNET ON BOARD	PriDNS_2_ETH	15811	WORD		Y	RW	Primary DNS server (part 2)	0 ... 255	25	num.
ETHERNET ON BOARD	PriDNS_3_ETH	15812	WORD		Y	RW	Primary DNS server (part 3)	0 ... 255	2	num.
ETHERNET ON BOARD	PriDNS_4_ETH	15813	WORD		Y	RW	Primary DNS server (part 4)	0 ... 255	129	num.
ETHERNET ON BOARD	SecDNS_1_ETH	15814	WORD		Y	RW	Secondary DNS server (part 1)	0 ... 255	194	num.
ETHERNET ON BOARD	SecDNS_2_ETH	15815	WORD		Y	RW	Secondary DNS server (part 2)	0 ... 255	25	num.
ETHERNET ON BOARD	SecDNS_3_ETH	15816	WORD		Y	RW	Secondary DNS server (part 3)	0 ... 255	2	num.
ETHERNET ON BOARD	SecDNS_4_ETH	15817	WORD		Y	RW	Secondary DNS server (part 4)	0 ... 255	130	num.
ETHERNET ON BOARD	EnableDHCP_ETH	15819	WORD		Y	RW	Enable DHCP	0 ... 1 (False, True)	False	flag

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
Display	**Hmi_*Language***	**15819**	WORD			RW	***Display language*** 0 = Italian 1 = English 2 = French 3 = German 4 = Spanish	0 … 65535	0	num.
Display	**Par_ContrLCD**	**15723**	WORD		Y	RW	**LCD Contrast** Allows adjustment of the LCD *display* contrast.	0 … 64	30	Num.
Display	**Par_BackLightTime**	**15724**	WORD			RW	**Backlight switch-on time** Allows adjustment of LCD *display* switch-on time.	0 … 3600	10	sec
Buzzer	**Buzzer_Mode**	**15990**	WORD			RW	**Buzzer mode** 0= always off 1= beep per key	0 … 1	0	num.

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
HMI Management	Hmi_*Language*	15989	WORD			RW		0 ... 65535	0	num.
HMI Management	HmiList_Current	15820	WORD			RW	Current HMI 0= HMI remote 1 1= HMI remote 2 2= HMI remote 3 3= HMI remote 4 4= HMI remote 5 5= HMI remote 6 6= HMI remote 7 7= HMI remote 8 8= HMI remote 9 9= HMI remote 10 10 = not used 11= Local HMI	0 ... 11	11	num.
NOTE: if HmiList_Current=11 the following folders/*parameters* are NOT USED										
HMI remote 1	HmiList_ID_1	15821	WORD			RW	HMI remote 1 navigation ID list	0 ... 254	0	num.
HMI remote 1	HmiList_Res_1	15833	WORD			RW	HMI remote 1 navigation resource type 1=RTU (*RS485* Modbus RTU) 2=TCP (Modbus TCP) 3=*CAN* (CANopen)	1 ... 3	3	num.
HMI remote 1	HmiList_Addr_1	15845	WORD			RW	HMI remote 1 navigation resource address for *CAN*, RTU and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 1	HmiList_Addr_2	15846	WORD			RW	HMI remote 1 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 1	HmiList_Addr_3	15847	WORD			RW	HMI remote 1 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 1	HmiList_Addr_4	15848	WORD			RW	HMI remote 1 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 1	HmiList_File_1	15893	15 byte			RW	HMI remote 1 navigation file (DOS 8.3 uppercase format)	********		string
HMI remote 2	HmiList_ID_2	15822	WORD			RW	HMI remote 2 navigation ID list	0 ... 254	0	num.
HMI remote 2	HmiList_Res_2	15834	WORD			RW	HMI remote 2 navigation resource type 1=RTU (*RS485* Modbus RTU) 2=TCP (Modbus TCP) 3=*CAN* (CANopen)	1 ... 3	3	num.
HMI remote 2	HmiList_Addr_1	15849	WORD			RW	HMI remote 2 navigation resource address for *CAN*, RTU and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 2	HmiList_Addr_2	15850	WORD			RW	HMI remote 2 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 2	HmiList_Addr_3	15851	WORD			RW	HMI remote 2 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 2	HmiList_Addr_4	15852	WORD			RW	HMI remote 2 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 2	HmiList_File_2	15901	15 byte			RW	HMI remote 2 navigation file (DOS 8.3 uppercase format)	********		string

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
HMI remote 3	HmiList_ID_3	15823	WORD			RW	HMI remote 3 navigation ID list	0 ... 254	0	num.
HMI remote 3	HmiList_Res_3	15835	WORD			RW	HMI remote 3 navigation resource type 1=RTU (RS485 Modbus RTU) 2=TCP (Modbus TCP) 3=CAN (CANopen)	1 ... 3	3	num.
HMI remote 3	HmiList_Addr_1	15853	WORD			RW	HMI remote 3 navigation resource address for CAN, RTU and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 3	HmiList_Addr_2	15854	WORD			RW	HMI remote 3 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 3	HmiList_Addr_3	15855	WORD			RW	HMI remote 3 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 3	HmiList_Addr_4	15856	WORD			RW	HMI remote 3 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 3	HmiList_File_3	15909	15 byte			RW	HMI remote 3 navigation file (DOS 8.3 uppercase format)	********		string
HMI remote 4	HmiList_ID_4	15822	WORD			RW	HMI remote 4 navigation ID list	0 ... 254	0	num.
HMI remote 4	HmiList_Res_4	15836	WORD			RW	HMI remote 4 navigation resource type 1=RTU (RS485 Modbus RTU) 2=TCP (Modbus TCP) 3=CAN (CANopen)	1 ... 3	3	num.
HMI remote 4	HmiList_Addr_1	15857	WORD			RW	HMI remote 4 navigation resource address for CAN, RTU and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 4	HmiList_Addr_2	15859	WORD			RW	HMI remote 4 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 4	HmiList_Addr_3	15859	WORD			RW	HMI remote 4 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 4	HmiList_Addr_4	15860	WORD			RW	HMI remote 4 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 4	HmiList_File_4	15917	15 byte			RW	HMI remote 4 navigation file (DOS 8.3 uppercase format)	********		string
HMI remote 5	HmiList_ID_5	15825	WORD			RW	HMI remote 5 navigation ID list	0 ... 254	0	num.
HMI remote 5	HmiList_Res_5	15837	WORD			RW	HMI remote 5 navigation resource type 1=RTU (RS485 Modbus RTU) 2=TCP (Modbus TCP) 3=CAN (CANopen)	1 ... 3	3	num.
HMI remote 5	HmiList_Addr_1	15861	WORD			RW	HMI remote 5 navigation resource address for CAN, RTH and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 5	HmiList_Addr_2	15862	WORD			RW	HMI remote 5 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 5	HmiList_Addr_3	15863	WORD			RW	HMI remote 5 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 5	HmiList_Addr_4	15864	WORD			RW	HMI remote 5 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 5	HmiList_File_5	15925	15 byte			RW	HMI remote 5 navigation file (DOS 8.3 uppercase format)	********		string

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
HMI remote 6	HmiList_ID_6	15826	WORD			RW	HMI remote 6 navigation ID list	0 ... 254	0	num.
HMI remote 6	HmiList_Res_6	15838	WORD			RW	HMI remote 6 navigation resource type 1=RTU (RS485 Modbus RTU) 2=TCP (Modbus TCP) 3=CAN (CANopen)	1 ... 3	3	num.
HMI remote 6	HmiList_Addr_1	15865	WORD			RW	HMI remote 6 navigation resource address for CAN, RTH and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 6	HmiList_Addr_2	15866	WORD			RW	HMI remote 6 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 6	HmiList_Addr_3	15867	WORD			RW	HMI remote 6 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 6	HmiList_Addr_4	15868	WORD			RW	HMI remote 6 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 6	HmiList_File_6	15933	15 byte			RW	HMI remote 6 navigation file (DOS 8.3 uppercase format)	********		string
HMI remote 7	HmiList_ID_7	15827	WORD			RW	HMI remote 7 navigation ID list	0 ... 254	0	num.
HMI remote 7	HmiList_Res_7	15839	WORD			RW	HMI remote 7 navigation resource type 1=RTU (RS485 Modbus RTU) 2=TCP (Modbus TCP) 3=CAN (CANopen)	1 ... 3	3	num.
HMI remote 7	HmiList_Addr_1	15869	WORD			RW	HMI remote 7 navigation resource address for CAN, RTU and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 7	HmiList_Addr_2	15870	WORD			RW	HMI remote 7 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 7	HmiList_Addr_3	15871	WORD			RW	HMI remote 7 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 7	HmiList_Addr_4	15872	WORD			RW	HMI remote 7 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 7	HmiList_File_7	15941	15 byte			RW	HMI remote 7 navigation file (DOS 8.3 uppercase format)	********		string
HMI remote 8	HmiList_ID_8	15828	WORD			RW	HMI remote 8 navigation ID list	0 ... 254	0	num.
HMI remote 8	HmiList_Res_8	15840	WORD			RW	HMI remote 8 navigation resource type 1=RTU (RS485 Modbus RTU) 2=TCP (Modbus TCP) 3=CAN (CANopen)	1 ... 3	3	num.
HMI remote 8	HmiList_Addr_1	15873	WORD			RW	HMI remote 8 navigation resource address for CAN, RTU and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 8	HmiList_Addr_2	15874	WORD			RW	HMI remote 8 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 8	HmiList_Addr_3	15875	WORD			RW	HMI remote 8 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 8	HmiList_Addr_4	15876	WORD			RW	HMI remote 8 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 8	HmiList_File_8	15949	15 byte			RW	HMI remote 8 navigation file (DOS 8.3 uppercase format)	********		string

FOLDER	LABEL	PAR. VALUE ADDRESS	DATA SIZE	CPL	RESET (Y/N)	R/W	DESCRIPTION	RANGE	DEFAULT	U.M.
HMI remote 9	HmiList_ID_9	15829	WORD			RW	HMI remote 9 navigation ID list	0 ... 254	0	num.
HMI remote 9	HmiList_Res_9	15841	WORD			RW	HMI remote 9 navigation resource type 1=RTU (RS485 Modbus RTU) 2=TCP (Modbus TCP) 3=CAN (CANopen)	1 ... 3	3	num.
HMI remote 9	HmiList_Addr_1	15877	WORD			RW	HMI remote 9 navigation resource address for CAN, RTU and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 9	HmiList_Addr_2	15878	WORD			RW	HMI remote 9 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 9	HmiList_Addr_3	15879	WORD			RW	HMI remote 9 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 9	HmiList_Addr_4	15880	WORD			RW	HMI remote 9 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 9	HmiList_File_9	15957	15 byte			RW	HMI remote 9 navigation file (DOS 8.3 uppercase format)	********		string
HMI remote 10	HmiList_ID_10	15830	WORD			RW	HMI remote 10 navigation ID list	0 ... 254	0	num.
HMI remote 10	HmiList_Res_10	15842	WORD			RW	HMI remote 10 navigation resource type 1=RTU (RS485 Modbus RTU) 2=TCP (Modbus TCP) 3=CAN (CANopen)	1 ... 3	3	num.
HMI remote 10	HmiList_Addr_1	15881	WORD			RW	HMI remote 10 navigation resource address for CAN, RTU and TCP (IP part 1)	0 ... 255	0	num.
HMI remote 10	HmiList_Addr_2	15882	WORD			RW	HMI remote 10 navigation resource address for TCP (IP part 2)	0 ... 255	0	num.
HMI remote 10	HmiList_Addr_3	15883	WORD			RW	HMI remote 10 navigation resource address for TCP (IP part 3)	0 ... 255	0	num.
HMI remote 10	HmiList_Addr_4	15884	WORD			RW	HMI remote 10 navigation resource address for TCP (IP part 4)	0 ... 255	0	num.
HMI remote 10	HmiList_File_10	15965	15 byte			RW	HMI remote 10 navigation file (DOS 8.3 uppercase format)	********		string

7.1   Models

Model	Mounting	Dimensions	*Display*	On-board Analogue Inputs (*)	Remote Analogue Inputs (**)	*Power supply*	*Serials*
EVP3300/C	**Panel***	**160x96x10mm**	**LCD backlit**	1x NTC	1xNTC/DI 1x4...20mA/ 0-5V/ 0..10V	24V~/⎓ - 48V⎓	CANopen *RS485* *ETHERNET* TCP/IP
EVP3300/C/RH	**Panel***	**160x96x10mm**	**LCD backlit**	1 xNTC 1 x%RH	1xNTC/DI	24V~/⎓ - 48V⎓	CANopen *RS485* *ETHERNET* TCP/IP

 (*) low voltage SELV: SAFETY EXTRA LOW VOLTAGE
 (**) NOT INCLUDED - low voltage SELV: SAFETY EXTRA LOW VOLTAGE
/C indicates presence of RTC (Real Time Clock)

Accessories **for Wall Mounting**
Contact the Eliwell Sales Department for wall-mounting *accessories*.
Make 4 holes of diameter 4.2mm in the wall at the specified spacing, to fix the backplate. Alternatively use the two side slots, one at the bottom and one at the top, under the corresponding break-open removable doors, preventing the opening of holes in walls with recessed-wall wiring.
Make all the necessary *connections*, then insert the EVP terminal (without front) in the backplate, which serves as a panel, following the instructions for panel mounting (see Mounting chapter).

Accessories **for Wall Mounting**	
	Code EVA00WMRC0000 **Backplate for wall mounting**

Dimensions of wall-mounting backplate
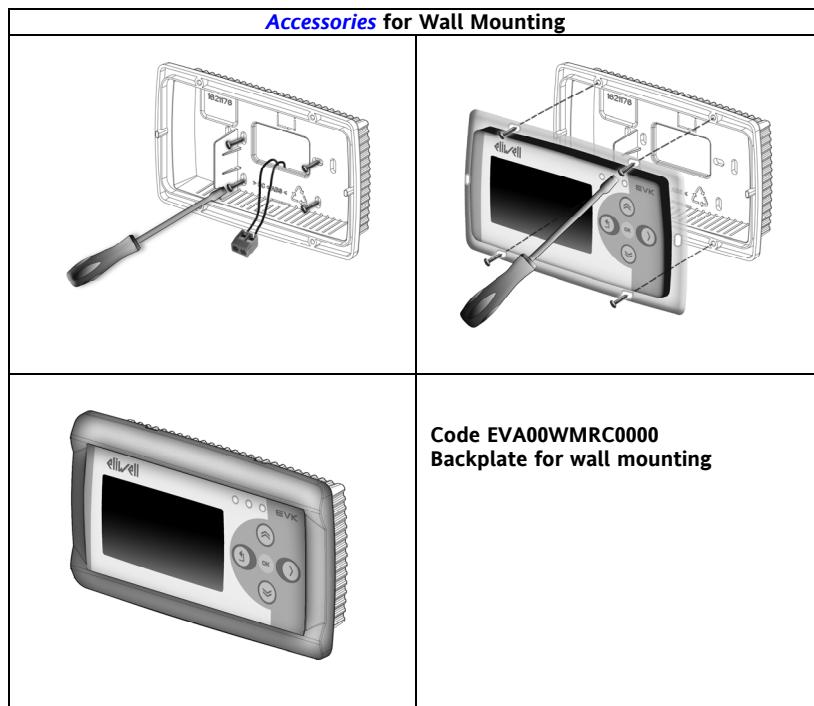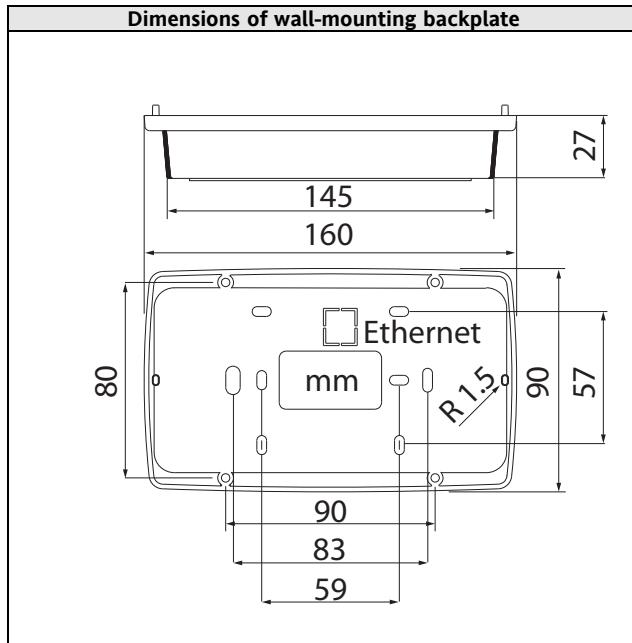
7.2 Accessories

Note: the photos are intended to show the *accessories* and are by way of example only. The dimensions shown in the figures are not to scale.

Name		Code	Description	Documentation / Notes
Converters and cables		SAR0RA00X701	USB/485 MINI KIT converter + USB cable	
		EVA00USCA0000	USB/CAN converter	
Cable		Contact Eliwell Sales Department	*Ethernet* cable	
Transformer		TF111202	230V~/24V 25VA *transformer* Note: cable must be no longer than 10m	
		TF111205	230V~/24V 35VA *transformer* Note: cable must be no longer than 10m	Mounting on DIN rail

Name		Code	Description	Documentation / Notes
Temperature probes		SN8D6L4002	NTC probe NK103C1R1, 4m Extended *range* (polyester, 2-wire cable) IP65;	**Instruction Sheet** SN8D6L4002 GB-I
		SN691150	NTC probe 103AT, 1.5m (plastic cap, 2-wire cable);	**Instruction Sheet** SN8D6L4002 GB-I
		SN8DED11502C0	NTC temperature probe 5X20 1.5m TPE IP68	**Instruction Sheet** SN8T6H1502 GB-I

Name		Code	Description	Documentation / Notes
Pressure transducers		(¹)	Pressure transducer 4...20mA male or female connector *Range* from -0.5/7bar to 0/50 bar Depending on model	**Instruction Sheet 9IS64173** EWPA EN-IT-ES-DE-FR-RU

		Code	Description	Documentation / Notes
Software Tools		Contact Eliwell Sales Department	FREE Studio	Contact Eliwell Sales Department
Demo Case		VAL00033K	Demo case FREE Evolution	
Backplate		EVA00WMRC0000	Backplate for wall mounting	

(¹) Various items available. Contact the Sales Department
(²) Various lengths *can* be requested

GENERAL NOTES:
- Eliwell *can* also supply a variety of different NTC probes depending on the cable type (PVC or silicon) and length.

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Eliwell Controls S.r.l.

Via dell' Industria, 15 Zona Industriale Paludi

32010 Pieve d' Alpago (BL) Italy

Telephone +39 0437 986 111

Facsimile +39 0437 989 066

Sales:

+39 0437 986 100 (Italy)

+39 0437 986 200 (other countries)

saleseliwell@invensys.com

Technical helpline:

+39 0437 986 250

E-mail *eliwell.freeway@invensys.com*

www.eliwell.com

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