

Yocto net D6 Web

Network Gateway & Energy Automation Device

- ▶ Flexibility (open platform)
- ▶ Reliability (high quality of components)
- ▶ Connectivity (Ethernet, Wi-Fi, RS485, ExpBus, NFC)
- ▶ Built-in memory (Data Logger for up to 128 devices)
- ▶ Modbus TCP/IP, Web and FTP Server



Yocto net D6 Web is a Network Gateway & Energy Automation device for the supervision and the energy management of any kind of system in the industrial, commercial, civil, renewable energies, etc. Using Yocto net D6 Web and the other measuring devices of the Electrex product range will permit you to manage, with a single system, any kind of energy data and environmental parameters: electricity, gas, water, compressed air, temperature, humidity, luminosity, CO₂, etc.

Yocto net D6 Web allows to connect simultaneously from different locations via Ethernet to the Electrex devices connected on its Rs485 or ExpBus port. It serves also as a Modbus TCP/IP, WEB and FTP server.

Yocto net D6 Web Log includes the data-logging function (storing of trends over time) for the measurements collected from the Electrex devices connected in an Rs485 sub-network.

Yocto net Wi-Fi D6 Web and **Yocto net Wi-Fi EDA D6 Web** versions allow to connect to an existing Wi-Fi network and control the device from any device with a browser (PC, smart-phone, tablet, etc.) part of the same network.

Yocto net D6 Web Functions

Modbus-TCP Server (max. 4 simultaneous connections) serving as a bridge between the Ethernet network (Modbus TCP/IP protocol) and the RS485 line (Modbus RTU protocol).

WEB Server for the configuration of itself and the other devices connected on the Rs485 port via web browser.

FTP Server for firmware update.

Arbiter function between the Ethernet, RS485 (Modbus-RTU) and ExpBus port.

Clock synchronization by NTP server.

Dynamic or static IP address (DHCP protocol).

Wi-Fi, Wi-Fi EDA & NFC (Near Field Communication)

The **Wi-Fi** and **Wi-Fi EDA** versions (with a connector for an external antenna) communicates using an existing Wi-Fi network without the need to be connected to an Ethernet cable allowing to manage/display the measurements with all the other Wi-Fi devices equipped with a browser (smart phones, tablets, etc.) while the presence of **NFC** opens the possibility for the creation of specific APPs for mobile devices on the energy management.

Astronomical Clock Calendar

Yocto net D6 Web is equipped with a clock / calendar with astronomical real time management with the rules for the automatic switching from Standard Time at summer time (Daylight Saving Time) and vice versa and of the Coordinated Universal Time (UTC). Automatic synchronization via NTP.

Functioning time (from digital inputs)

With appropriate programming the Yocto net D6 Web is able to count the operating times based on the status of the digital inputs.

Tariff bands (from digital inputs)

By activating the Puk Calendars and Energy Automation and with appropriate programming, the Yocto net D6 Web is able to manage the tariff bands of the Energy based on the status of the digital inputs.

Ethernet and sub-network RS485 communication

Yocto net D6 Web is equipped with a 10/100 Base-TX (RJ45) Auto-MDIX **Ethernet port** for the "http" communications (real-time measurements and memory logs) and "Modbus over IP" (real-time measurements). It is equipped also with a serial RS485 Master port, protected against overvoltage, using Modbus-RTU "full compliant". The communication speed of the RS485 port is configurable, up to 115.200 bps, with a max. 125 registers requested (equivalent to 62 parameters) with no waiting time between two requests.

Yocto net D6 Web Log # main features

The **Yocto net D6 Web Log** can record the trend over time (data-logging function) of the energy/environmental parameters retrieved by the Electrex devices connected in its RS485 port. When activated a Log 8 option manages a memory partition: for e.g. stores the data coming from its built-in digital inputs and other 7 energy analyzers (power and energy + digital inputs). If two Log 8 options are activated (becoming Log 16 version) will be managed two memory partitions. Following this pattern it is possible to arrive at Log 64. If more memory is needed, with a specific PUK entry option, it is possible to transform all the Log 8 options to Log 16, doubling the storage capacity (a maximum of 128 devices can be logged).

Memory management (via Ethernet port or Wi-Fi)

The **Yocto net D6 Web Log** manages the 128 MB flash memory in a flexible way for the storing of the different log services and event logs. Each log service can contain a maximum of 255 files and is characterized by a predetermined sampling frequency; The number of channels (e.g. instruments) that can be stored for each service depends on the activated PUKs and the amount of free memory. The configuration and display pages for both standard and customized pages also reside in the memory. The memory can be read from **Ethernet port or Wi-Fi** network using the Energy Brain software and / or the HTTP protocol.

Yocto net D6 Web versions for inputs/outputs

- *basic* without inputs and a outputs
- *2DI 2DO (standard)* .. 2 digital inputs and 2 digital outputs
- *4DI (4DO)*4 digital inputs (4 digital outputs)
- *1DI 2DO Self-Powered*....1 self powered digital input and 2 digital outputs rated at 250V 100mA
- *2AO 4-20mA*.....2 analog 4-20mA outputs (external power supply needed for resistances >250 Ohm)
- *2DI 1RO Self-Powered*2 self-powered digital inputs and 1 relay output (24Vdc)
- *2RO 24VDC*.....2 relay outputs(24VDC)
- *4AI*..... 4 analog inputs 0÷10V (4-20mA)
- *4PT100 or 4PT1000 or 4NTC*.... for the relative sensors
- *SI*..... for environmental sensors (T, H, L, P)

Digital Inputs

The versions .. **1DI** or **2DI** or **4DI** are equipped with an optically insulated digital input with programmable filter for input glitches. The digital input is set to operate for external pulse count of, example, water meters, gas meters (insulation to meet the ATEX requirements), water meters, quantity count, etc. For the 1DI 2DO S.P. and the 2DI 1RO S.P. the max sampling frequency is 100Hz (5ms), while for the 2DI 2DO and the 4DI 500Hz (1ms). Other user selectable operative modes are ON/OFF state input (example for reading the ON/OFF state of machines and switches) and tariff change input. The digital input requires an external 10-30Vdc power supply.

The **1DI 2DO Self-Powered** and **2DI 1RO Self-Powered** versions instead are provided with self powered digital inputs.

Analog Inputs and PT100 or PT1000 or NTC

The **4AI** version is equipped with four analog inputs -10 ÷ 10V (compatible 0 ÷ 10V, 0 ÷ 5V, -5 ÷ 5V, 4 ÷ 20mA with 200 ohm resistor). The **4PT100** or **4PT1000** or **4NTC** versions have 4 inputs for the respective sensor versions.

Ingressi per Sensori ambientali

The **SI** version is equipped with an I²C Sensor Bus to connect multiple sensors (eg up to 8 parameters between temperature and relative humidity or 1 for temperature, 1 for relative humidity, 1 for brightness and 1 for pressure air). The maximum total distance of the Sensor Bus is 20 m.

Internal alarms from the inputs

It is possible to associate the alarms with any inputs of the **Yocto net D6 Web** .. (**1DI** or **2DI** or **4DI** or **4AI** or **4PT-NTC** or **4SI** depending on the version). Each alarm can refer to the status of the input or to a threshold and can be configured as a minimum or maximum alarm. All the alarm outputs can also refer to the same register to have more alarm thresholds. It is possible to set the activation and deactivation delay of each alarm (1-99 seconds / minutes), the hysteresis (in % of the threshold value) and the polarity of the output contact if in presence of digital outputs (NO, NC, with the exception of **1RO** which is only NC). The status of the alarms is always available on the serial line (via "coils" Modbus). Given the numerous combinations available only a part of the alarms can be programmed from the keyboard while they are completely from the Web page or via the Energy Brain software or through "holding registers" with Modbus protocol.

Digital outputs

The ..**2DO** or **4DO** versions are equipped with two optically insulated transistor outputs rated 27 Vdc 27 mA according to DIN 43864 standards. The outputs may be set for the transmission of pulses or alternatively configured as outputs of the internal alarms (see Alarms) or as remote output devices controlled via serial line and Modbus commands.

The ..**1DI 2DO Self-Powered** versions is equipped with two opto-mos outputs rated at max 250V 100mA AC/DC.

Relay outputs

The ..**2DI 1RO Self-Powered** and the ..**2RO 24Vdc** versions are equipped with relay outputs with changeover contact rated at max 30V max 2A (resistive load).

Analog 4-20mA outputs

The ..**2AO4-20mA** version is equipped with 2 galvanic insulated analogue outputs 4-20 mA or 0-20 mA providing an extremely high accuracy and signal stability. The outputs are active for resistor loads up to 250 Ohm, for higher loads an external power supply (12Vdc) will be needed (up to 750 Ohm). The output in a 0-10V type must be connected in parallel a 500Ohm resistance. The outputs ensure a response time of max. 200 ms. Each output can be associated to any of the parameters.

Firmware and Special versions on request

The **Yocto net D6 Web** can be provided also with other power supply or hardware versions and the firmware is upgradeable remotely.

Additional functions activated via PUK code

On the **Yocto net D6 Web** it is possible to implement the following functions ordering PUK codes to be inserted in the internal configuration web page for the activation:

Enabled - Net upgrade WEB (PUK) PFSU940-05

Enables the display of measures on web pages for each instrument connected to the Yocto Net D6 Web.

Net upgrade Log 8 (PUK) PFSU940-01

Each additional Log 8 enables 1 storage service (for example, 8 instruments / Modbus addresses with powers / energies and inputs). Maximum 8 upgrade Log 8.

Net upgrade Log 16 (PUK) PFSU940-02

Expands all the storage services from Log 8 to Log 16. All the 8 Net upgrade Log 8 must have been installed previously.

Net upgrade Open Log (PUK) PFSU940-25

Allows to modify the sampling frequency and the choice of parameters to be logged for an existing Log 8 service for e.g. when performing a measurement campaigns and if, for example, it is needed to modify two Log 8 services, it is necessary to activate two PUK Open Log.

Net upgrade WEB Open (PUK) PFSU940-10

Adds to the Yocto net D6 Web the ability to upload and display custom Web pages.

Net upgrade Charts (PUK) PFSU940-30

Allows to display on a web page daily charts of electricity, temperature, humidity, luminosity, etc. obtained from the files stored in the Yocto net D6 Web with the possibility to export to CSV files.

Net upgrade Energy Automation (PUK) PFSU940-16

Adds to the Yocto net D6 Web the ability to manage Energy Automation tasks using the Ladder programming language for implementing ON/OFF switches, alarm and notifications and automations related to events and/or calendars (the Calendars option must be active) and/or the sending of e-mail/sms (E-Mail / SMS option must be active).

Net Upgrade Calendars (PUK) PFSU940-20

Allows to create calendars to be used for the time tariffs and / or in combination with the Energy Automation (if activated).

Upgrade eMail PFSU940-15 (and Sms PFSU940-17)

It adds the ability to send standard xml files (custom on request) through the function 'ftp report' or json strings through the 'http report' function. Additional costs for customizations. Requires activation of Energy Automation.

Net upgrade Net to Net Master (PUK)

The Yocto net Web becomes a Yocto net Master Web capable of communicating with all Electrex gateways in an Ethernet network and related devices in a subnet.

Expansions via ExpBus

The **Yocto net D6 Web** is an evolutionary Network Gateway & Energy Automation device capable to be adapted to the needs of the customer, even after it has been installed. The system architecture is designed to allow the implementation on the field of hardware expansions thanks to the ExpBus, providing therefore to the customers the ability to modulate the investment and / or to respond to new needs.



UTP cable for the ExpBus (max 10m)	
VCC	Blue
Exp L	White & Blue
Exp H	Brown
GND	White & Brown

ExpBus

The **ExpBus**, configurable via the Ethernet port from Web pages:

- allows a multicast communication to 250kb/sec with collision management
- has a maximum length of 10 meters
- manages up to 16 nodes (modules) but technically it can manage up to 126

The connecting cable is a UTP where 4 wires are used:
2 for the power supply at 9 Vdc
2 for the bidirectional communication

The modules power the ExpBus
The cable must be connected in the in-out modality (multidrop) as for the RS485 Bus.
Each node must have a unique Modbus address

The **Yocto net Web D6** manages up to 16 ExpBus Modules.



ExpBus Module idonei per Yocto net D6 Web

ExpBus Module D2



The **ExpBus Module D2** must be used with an external power supply of 24Vdc (e.g. Switching Power Supply D1 24VDC 400mA code PFTP100-Q2) and can contain up to 2 modules similar to the one shown here (of which, however, only one of the two types can be self powered, therefore only one for 1DI 2DO Self-Powered or 2AO4-20mA or 2DI 1RO Self Powered). Configuration via Web page. Max. Weight 45 gr.

ExpBus Module D4



The **ExpBus Module D4** have a built-in 230-240Vac power supply (other power supply version on request) and can contain up to 2 modules, also self-powered. Configuration via Web page. Max. Weight 100 gr.

UTP cable for the I2C Bus (max 20m)	
VCC	Orange
SCL	White Orange
SDA	Green
GND	White Green

For other versions of ExpBus Module

Description	Code
ExpBus Module D2 versions (2 DIN rail modules):	
<i>Possible hardware combinations with 1 or 2 modules (of which, however, only 1 can be a self-powered type, e.g. only one 1DI 2DO Self-Powered or 2AO4-20mA or 2DI 1RO Self Powered module). Requires external power supply 24Vdc: Switching Power Supply D1 24VDC 400mA.....PFTP100-Q2</i>	
ExpBus Module D4 versions (4 DIN rail modules):	
<i>Possible hardware combinations with 1 or 2 modules which can be also self-powered type. Internal power supply 230Vac or other power supplies on request, see building code diagram below.</i>	
BUILDING CODE: PFAB 4 0 E - N 2 P	
PFAB = External modules	
Dimension in DIN modules: 4 = 4 modules	
2 = 2 modules	
Bus Type: E = ExpBus	
Internal modules:..... Characters for code:	
No module	0
Module 1DI 2DO	1
Module 2DI 1 RO Self Powered	2
Module 2RO24VDC	5
Module 2AO4-20mA	6
Module 2RO230V	8
Module 1DI 2DO Self Powered	E
Module 4DI	N
Module 4DO	P
Module 2DI 2DO	Q
Module 4AI	R
Module I2C Bus.....	T
Module 4PT-NTC	U
Scheda 4PT1000.....	X
Scheda 4NTC.....	Y
Power Supply:	
24Vdc +/- 10% only for Module D2	5
230Vac +/- 10% only for Module D4	2
15÷36Vac/18÷60Vdc only for Module D4	8
9÷24Vac/ 9÷36Vdc only for Module D4	7

ExpBus Module catalog codes

Type	Code
ExpBus Module D2 24VDC 4DI 4DO	PFAB20E-N5P
ExpBus Mod. D2 24VDC 2DI 2DO 2AO4-20mA..	PFAB20E-Q56
ExpBus Mod. D2 24VDC 4AI 2DI 2DO	PFAB20E-R5Q
ExpBus Mod. D2 24VDC 2DI 2DO SI	PFAB20E-Q5T
ExpBus Mod. D4 230V 4DI 4DO.....	PFAB40E-N2P
ExpBus Mod. D4 230V 2DI 2DO 2AO4-20mA.....	PFAB40E-Q26
ExpBus Mod. D4 230V 4AI 2DI 2DO	PFAB40E-R2Q
ExpBus Mod. D4 230V 2DI 2DO SI	PFAB40E-Q2T



Production plant energy monitoring network example

The diagram above represents a part of a monitoring solution in a production plant powered by a main MV load and equipped with 2 MV/LV transformers (one of them replaced recently) that serves 2 production lines, while the offices are powered by a LV system. The monitoring system consists of branches 1 and 2 to monitor the transformers and a part of the production lines, while branches 3, 4, 6 and 7 take care of the building with the offices, the testing department, a Photovoltaic on the roof and R & D building. These branches are connected to the company Ethernet network via the Kilo net D6 PQ (branch 1), the Lyra ECT net (branch 3) and the Yocto net D6 Master (branch 6) and via Wi-Fi the Kilo net Wi-Fi EDA 96 PQ (branch 2) and the Femto 4Hall net Wi-Fi EDA D6 DC (branch 5). The various instruments and sensors inserted in each branch are responsible for monitoring the relevant main users.

- In **branch 1** the Kilo net D6 PQ (gateway and datalogger) monitors the **quantity and power quality** under the transformer 1 and the Exa 96 RS485 in sub-grid RS485 to the Kilo net controls a machining center, while the Femto 96 is equipped with digital inputs in addition to taking care of lighting consumption and also of gas and water consumption. The RS485 Module detects some parameters from existing analogue probes.

- In **branch 2** the Kilo net Wi-Fi EDA 96 PQ (gateway datalogger) monitors the quantity and power quality under the transformer 2; one of the several Exa D6 RS485 in sub-network RS485 under the Kilo 96 detects a compressor while the Exa MID D6 is used to **de-tax** the energy of a galvanic processing. The ExpBus module connected to the Kilo net 96 deals with alarms and counting. There is also a Femto D4 ECT for monitoring an area with **LED lighting**. In Kilo net 96 the Energy Automation was activated to automate and make more efficient the switching on and off of three **compressors** by piloting the digital outputs of the same number of Exa D6 RS485.

- In **branch 3** that starts from the technical room there is a Lyra ECT net (gateway datalogger) that takes care of the general

lighting of the offices having in RS485 sub-network an Exa F D6 RS485 TA opening flexible (easier to insert) for the testing desk of large engines and an Exa TR D6 for testing of smaller engines.

- In **point 4** there is a Deca Coordinator E-Wi 868 that acts as an E-Wi 868MHz radio gateway for a Deca Sensor E-Wi 868 that detects the environmental parameters of a laboratory. The Deca Coordinator is connected in RS485 to the Yocto net Master which acts as the datalogger of the branch.

- **Branch 5** deals with continuous side monitoring (Femto 4Hall net DC, Femto D4 DC and Atto D4 DC) of a 50kWp photovoltaic system placed on the roof of the building.

In the Ethernet network, the Yocto Net D6 Web Master, **branch 6**, has enabled customized web pages (including those of the HVAC) to display the supervision pages on the PCs, tablets and smartphones of the managers and maintainers as well as sending alarms via eMail to warn in case of anomalies.

To monitor the Research & Development building across the street, a Libra (quick to install) panel was used connected to a router with data SIM, **item 7**.

The Energy Manager uses his Notebook both when it is in the plant (locally) and when it is out (remotely), to connect to the company Lan network and evaluate the effectiveness of energy efficiency interventions through data that the software Energy Brain PRO periodically downloads from Electrex devices. Recently, in order to continuously improve in terms of energy efficiency (**ISO 50001**), the Energy Manager has also involved in the Energy Management System the department managers, making available their consumption data that can be viewed from a PC, tablet and smartphone at any time via the Energy Brain Cloud which is also active in the **Control Room**. The management is implementing different levels of interconnection (hardware and software) with a view to **Industry 4.0**.

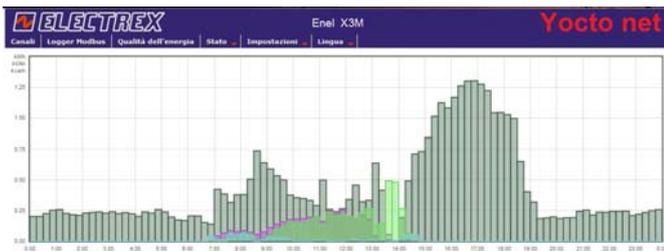
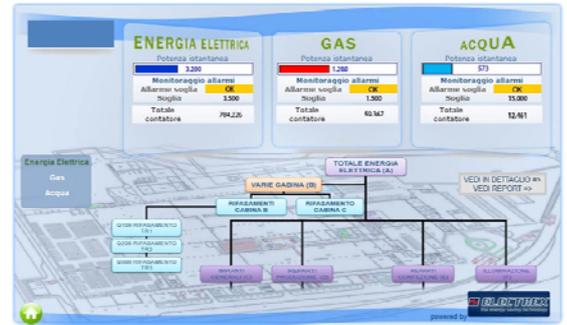


Examples of measurement web pages – PFSU940-05

The 'Net upgrade WEB' option, enabled by default it is possible to view the standard web pages displaying real-time measurements from the devices connected via RS485 to the Yocto net D6 Web. The images on the side show real-time measurements, the average values and the energy counters of an Electrex device.

Examples of custom web pages – PFSU940-10

Enabling also the 'Net upgrade WEB open' functionalities it is possible to insert in the memory of the Yocto Net D6 Web some customized web pages. Alongside are reported an example of real time monitoring of the electricity, gas and water of a production plant with the possibility of setting thresholds and alarms. The main page is linked to second level pages for more details on each load/monitoring point and through a link it is possible to connect to historical data. The pages residing on the web server of the Yocto Net D6 Web are easily accessible from any the browser of a PC, Smartphone, etc., typing just the IP address.

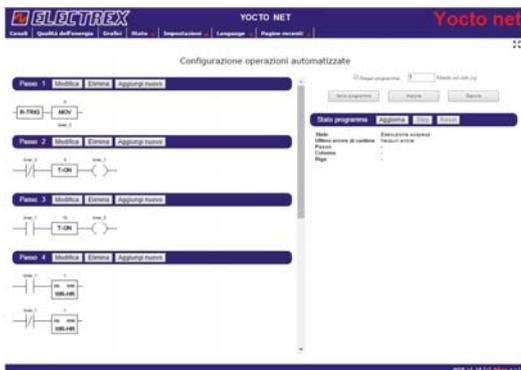
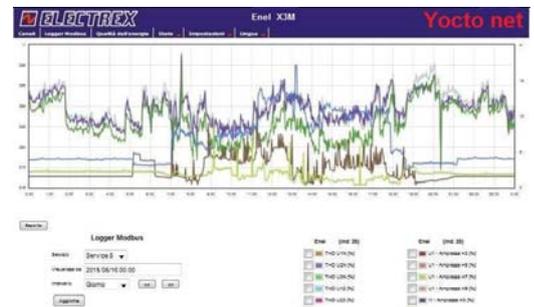


Web charts examples – PFSU940-30

Enabling the 'Net upgrade Charts' option in the Yocto Net D6 it is possible to display on a web page the charts obtained from the files stored in the same Yocto Net. In the example, the chart shows the load profile of active energy produced and consumed by the PV system.

Measurement campaign example – PFSU940-25

Enabling the 'Net upgrade Open Log' option related to an existing Log 8 logging service of the Yocto net D6 Web it is possible to implement measurement campaigns for any parameter retrieved from Electrex devices connect to it with a chosen sampling frequency. In the example it is shown the measures campaign for the 3 phase-currents and 3 phase-voltages logged every minute.



Example of Energy Automation – PFSU940-16

Enabling the 'Net upgrade Energy Automation' it is possible to automate even complex operations such as power on / off, alarms / alerts and operations triggered by events. The programming of the logic is in Ladder language. It is possible to combine the programming features also with customized calendars (if implemented Upgrade Calendars option) and / or with the sending of e-mail / SMS (if implemented Upgrade E-Mail / SMS option).

Net upgrade Calendars – PFSU940-20

Enabling the 'Upgrade Calendars' in the Yocto net D6 Web it is possible to configure Calendars to be used for e.g. for tariffs and/or combined with the Energy Automation option for scheduled tasks of power ON/OFF. The astronomic type clock is synchronized via NTP server (connection via Internet or to an internal LAN one).



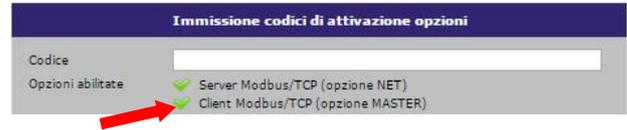


Example of eMail alarm – PFSU940-15 and Sms – PFSU940-17

Enabling the 'Upgrade E-Mail / SMS' it is possible to configure the Yocto net D6 Web to send email alarms and notifications for example related to the status of a digital input, while if connected to a suitable external router it is possible to send also alarm SMS. The example images show the eMail alarm of a load in a bakery and the graphical status display in the specific web page of Yocto net D6 Web.

Net upgrade Net to Master Version – PFSU940-86

Implementing this option the Yocto net D6 Web becomes a Master device capable of communicating with all the Electrex gateways and devices connected to the same Ethernet network (LAN or WAN). The option is very useful in case of customized web pages displaying measurements/alarm status from different Ethernet nodes and/or RS485 sub-networks or when a single public IP address is given for a multitude of gateways present in the network.



Server Modbus/TCP (opzione NET)
Client Modbus/TCP (opzione MASTER)

Hardware characteristics Yocto net D6 Web

Nr. 1 Master Serial port RS-485 galvanically insulated for connection of Electrex devices in the subnetwork.
Built-in dip-switches for the configuration of the RS485 termination resistors and fail safe.

Nr.1 Ethernet Port 10/100 BASE-TX (RJ45) Auto-MDIX.
Versions with Nr. 1 Wi-Fi or Wi-Fi EDA (antenna included) port.

Nr.1 NFC - Near Field Communication Port
Nr. 1 ExpBus Port for the management of ExpBus modules

Microprocessor: Cortex-M4 Dual Core
Astronomical Clock / Calendar with battery backup.

128MB Flash memory (non volatile) available for the measurements management, for the Web pages and/or data logging and/or other functionalities as e-mail alarms and Energy Automation.

Memory access via Ethernet port (or Wi-Fi) through HTTP protocol.

Power Supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply toward other modules, max:.....5 VA
Self consumption.....< 2 W
Frequency:..... 45-65 Hz

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply toward other modules, max:.....5 VA
Self consumption.....< 2 W
Frequency:..... 45-65 Hz

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Power supply.....85÷265 Vac/100÷374 Vdc
Or others on request e.g.. 15÷40 Vac/18÷60 Vdc
or 9÷24 Vac/ 9÷36 Vdc

Inputs/Outputs characteristics (depending on the version)

Digital inputs (galvanically insulated):

- Programmable for: pulse counting, status, tariff switching
- Anti-bouncing programmable: e.g. 10Hz, 100Hz (500Hz for the 2DI 2DO and 4DI versions)
- External power supply: 10-30Vdc
- Current absorbed: from 2 to 10mA or self powered (version named Self-Powered)

Analog inputs: -10÷10V (compatible 0÷10V, 0÷5V, -5÷5V, 4÷20mA with 200 ohm resistance).

PT100, PT1000 and NTC inputs:
- Specific for PT100 or PT1000 or NTC.

Environmental sensors inputs:
- Sensor Bus I²C (max 20m) for connecting up to 4 Deca Sensor Bus Unit (4 T or T, H, L, P)

Digital outputs (galvanically insulated):

- Programmable for: weighted, alarm notification, command implementation
- NPN conform to DIN 43864 (max 27Vdc, max 27mA)
- Or Self-Powered solid state relay version (opto-mos) up to 250V 100mA ac/dc

Relay outputs:

- Programmable for: alarm notification, command implementation remotely
- changeover contact rated at max 30V max 2A (resistive load)
- changeover contact rated at max 250V max 2A (resistive load)

Analog outputs 4-20mA (galvanic insulated):

- Scale: 0-20mA or 4-20mA (programmable)
- Update interval: 200ms
- Max load resistance: 250 ohm (750 ohm internal power supply 12Vdc)
- Max current provided:..... 27 mA
- Accuracy: 1% of reading from 4 to 20mA

Front panel

Display..... LCD, FSTN dot-matrix 128 x 64 points
Visible area.....22 x 44 mm

Backlight White Led
Keyboard 6 keys keypad Joystick positioned on the front panel:

Calibration LED 2 red for the Ea and Er
Functioning / State LED..... 1 red under the symbol

Communication RS485 LED ... green and 1 red under the white band

Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

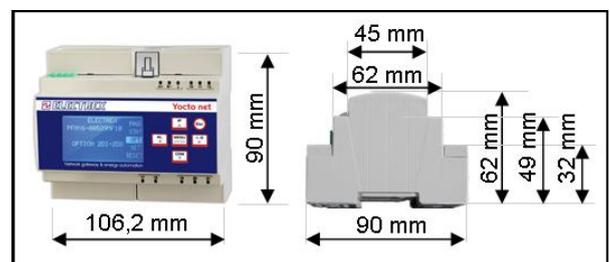
Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

Working temperature-20/+60 °C
Humidity..... 95% R.H. non condensing

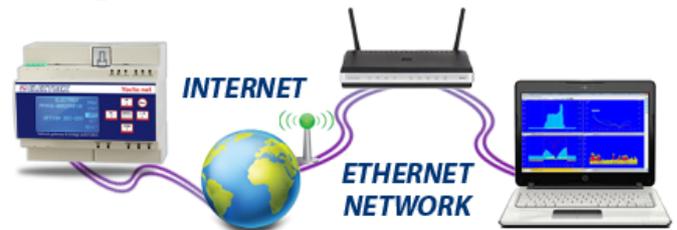


The Energy Brain 6.x and Energy Brain Pro 6.x software to be installed on the PC (options apart)

The Energy Brain software is used for the management of instrument networks, also very complex ones, both locally or remotely. It is suitable for applications with Electrex instruments equipped with a communication port, and provides all the necessary functions for monitoring and accurate management of energy efficiency (consumption / production of electricity, gas, water, etc.), environmental parameters (temperature, humidity, luminosity, CO2, etc.) and process parameters.



Connections between PC and Yocto net D6 Web
direct Ethernet RJ45 port, Wi-Fi, Ethernet network, Internet.



Main features

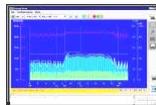
Configuration

- The available options allow for maximum flexibility in adapting the software to the network instruments (even to different types of networks connected simultaneously) and the operator needs.
 - Remote set-up of the devices (CT, VT, alarms, etc.)
 - Network configuration (per each device, per each client, per groups, per locations) with individual setting of the local connection (direct RS485, E-Wi, Ethernet) or remote (Internet, Wi-Fi) and of the communication parameters (speed, etc.).
 - Configuration of scheduled downloading specific for each location and customer, on a daily, weekly or monthly basis through a programmable agenda.



Load chart and curves of consumption/production

- Charts of the daily, weekly, monthly, yearly power curves.
- Charts of the daily, weekly, monthly, yearly consumption curves.
- Charts of powers, power peaks and energy per each tariff.
- Up to 4 simultaneous charts.
- Zoom and selection of measures functions.
- Numerical and graphical data print.



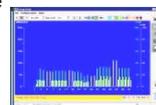
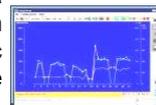
Parameters displaying

- Displays on-line all the measures provided by each of the instruments on the field



Data archive

- Automatic or manual download of the data of power, energy and other variables from the devices connected and automatic archiving in the internal database (PostgreSQL®).
- Export data to other DB via ODBC module or .txt or .xls format files.



Tariffs

- Management of the data per each tariff
- Configuration Editor for tariffs and calendars



Virtual and Multiple Channels (not counted)

- Creating virtual channels, so of "groups" of instruments (e.g. "summation" of various departments) and display those, on graphical form, in the same way of a physical channel
- Creation of multiple channels in order to view curves of more instruments in the same chart for a quick comparison.
- Inclusion of variables and mathematical formulas, even highly complex ones, particularly useful, for example, to perform simulations.



Other types of Energies / Measurements

- Creating charts of data obtained from Electrex Deca Sensors and / or third party transducers with pulse output (e.g. luminosity, temperature, gas, calories, etc.).

Energy Brain Pro 6.x

A professional version adding to the previous functions new features:

Navigator

- To move more easily between the channels (instruments).

Multi-tab Homepage

- It is possible to pre-configure and save multiple home pages with the default 4 charts layout. This option is very useful in case of big monitoring networks having multiple Electrex devices.

Multi-period time frame

- Allows to display charts with data referred to extended multiple periods: days, weeks, etc.

Import/Export Energy chart

- Allows to display on the same chart the energy consumed and produced (imported / exported).

Operating time counter

- Allows to display on a chart, in addition to the energy data, also the operating time of a load appliance (available on the devices equipped with this feature).

Editor for data validation

- For the correction of missing data or abnormal data (password protection).

Import / Export file

- For creating benchmark charts for forecasting or performance indicators EnPI / KPI (performance indicators).

Data Import

- Importing of a file related to a monitored variable.

Option apart: Modbus tool

- For special projects where measurements are taken from other standard Modbus RTU devices.

Energy Brain software is expandable and it is available in different versions according to the functions and the number of channels required.

For more details about the www.electrex.it/en software: www.electrex.it/en

How to order Yocto Net Web D6

Type	Code
Yocto Net D6 Web 85÷265V	PFNY6-00509-100
Yocto Net D6 Web Log 8 85÷265V 2DI 2DO...	PFNY6-005Q9-110
Yocto Net D6 Web Log 40 85÷265V 2DI 2DO..	PFNY6-005Q9-150
Yocto Net D6 Web Log 8 Charts 85÷265V 2DI 2DO
.....	PFNY6-005Q9-A10
Yocto Net D6 Web Log 8 Full 85÷265V 2DI 2DO
.....	PFNY6-005Q9-F10
Yocto Net Wi-Fi D6 Web Log 8 85÷265V 2DI 2DO
.....	PFNY6-00WQ9-110
Yocto Net Wi-Fi EDA Web Log 8 D6 85÷265V 2DI 2DO
.....	PFNY6-00AQ9-110

The Yocto Net Web D6 can implement additional features in subsequent times after the purchase by activating the following Net upgrade (PUK):

Net Upgrade Log 8 (PUK).....	PFSU940-01
Net Upgrade Log 16 (PUK).....	PFSU940-02
Net Upgrade Open Web (PUK)	PFSU940-10
Net Upgrade Charts (PUK).....	PFSU940-30
Net Upgrade Open Log (PUK).....	PFSU940-25
Net Upgrade eMail (PUK).....	PFSU940-15
Net Upgrade Sms (PUK)	PFSU940-17
Net Upgrade Calendars (PUK)	PFSU940-20
Net Upgrade Energy Automation (PUK).....	PFSU940-16
Net Upgrade Bundle En. Autom., Calendars, eMail (PUK)	PFSU940-22
Net Upg. Bundle En. Autom., Calendars, eMail, Sms (PUK) ..	PFSU940-23
Net Upgrade Sending Files (PUK).....	PFSU940-50
Net Upgrade New Features (PUK).....	PFSU940-40
Net Upgrade Net to Master version (PUK)	PFSU940-86

For the ExpBus Module please refer to the specific paragraph above in this document.

Various versions of Yocto Net Web D6 are included also in:
KIT NET D6 WEB LOG8 FULL EB 8 6.X Personal ReportPKA0054-006

Other versions of Yocto Net Web D6

CODE	P	F	N	Y	6	-	0	0												
------	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--

Type	Code
BUILDING CODE	PFN Y 6 - 0 0 5 Q 9 - 1 1 0
Family Yocto Net D6 = Y	Y
Dimension 6 modules DIN = 6	6
Communication	
Net	5
Wi-Fi	W
Wi-Fi EDA	A
Internal module	
No internal module	0
Module 2DI 1 RO Self Powered	2
Module 2RO24VDC	5
Module 2AO4-20mA	6
Module 1DI 2DO Self Powered	E
Module 4DI	N
Module 4DO	P
Module 2DI 2DO	Q
Module 4AI	R
Module SI (Sensor Bus I ² C).....	T
Module 4PT100	U
Module 4PT1000	X
Module 4NTC.....	Y
Power Supply:	
85÷265Vac/100÷374Vdc.....	9
15÷40Vac/18÷60Vdc	8
9÷24Vac/9÷36Vdc	7
Not Master version	-
Master	M
Sending Files	F
Master e Sending Files	N
Additional Functionality:	
No additional functionality	0
Functionality Web	1
Functionality Web Charts.....	A
Functionality Web Energy Automation.....	5
Functionality Web E-Mail / SMS	7
Functionality Web Calendars.....	8
Functionality Web Automation E-Mail Calendars... ..	9
Funct. Web Full (Charts Autom. eMail Calendars).....	F
Functionality Open Web	2
Functionality Open Web Charts.....	C
Funct. Open Web Autom. E-Mail Calendars.....	B
Functionality Open Web Full.....	D
Log 8 activated; none.....	0
N. of Log 8 activated	1 to 8
Doubled to Log 16	9
Open Log activated: none.....	0
N. of Open Log activated	1 to 8

Distributor