

Yocto net, net log and net master

Network gateway and data logger



Yocto net is a network gateway enabling the simultaneous access from PCs and PLCs (via Ethernet and RS232 serial port) to Electrex analysers and devices connected to the RS485 network. It combines the functions of a Modbus/TCP server, WEB server and FTP server. It is also upgradable by field PUK code.

Yocto net log adds to Yocto net functions the data-logging of parameters acquired via RS485 network (Modbus-RTU protocol) by Electrex devices. It is upgradable by field PUK code.

Yocto net master manages the customized web pages and the e-mail alarms (and SMS alarms if connected to a Yocto gate master) detected from all the Electrex devices connected to an Ethernet network by two or more Yocto net and/or Yocto net log.

Yocto net - main functions

Modbus/TCP server (max. 4 simultaneous connections) with bridge functions between RS485 line (Modbus-RTU) and Ethernet line (Modbus/TCP).

WEB server for configuration of Yocto net through Web browser.

FTP server for firmware update.

Arbiter function between Ethernet and RS232 serial port (Modbus-RTU protocol with possibility of supporting a PC, PLC or Yocto gate connection) toward RS485 port (Modbus-RTU protocol).

Direct connection to meter type: Fast , Flash, X3M. Requires the power supply if other Electrex devices are connected to RS485 port.

Static or dynamic IP address (DHCP protocol).

It is upgradable by field PUK code.

Yocto net log 8, 16, 24, 32, 40 - main functions

Yocto net log supports all the functions of the *Yocto net* but adds the possibility of recording (logging) the electrical energy parameters acquired via RS485 network by the Electrex meters using Modbus-RTU protocol. It is upgradable by field PUK code.

Yocto net log 8 manages 1 storage service that means logging of up to 8 channels (e.g. logging of powers and energies just in import from 8 Electrex meters. If needs logging more parameters as import/export the number of meters to manage will be lower).

Yocto net log 16 manages 2 storage services that means logging of up to 16 channels (e.g. logging of powers and energies just in import from 16 Electrex meters).

Yocto net log 24 manages 3 storage services that means logging of up to 24 channels (e.g. logging of powers and energies just in import from 24 Electrex meters).

Yocto net log 32 manages 4 storage services that means logging of up to 32 channels (e.g. logging of powers and energies just in import from 32 Electrex meters).

Yocto net log 40 manages 5 storage services that means logging of up to 40 channels (e.g. logging of powers and energies just in import from 40 Electrex meters).

Yocto net master – main functions

Yocto net master is a network bridge to be used for the email alarm management (and SMS alarm management if connected to a Yocto gate master) in case of a network with Electrex devices connected to Ethernet by two or more Yocto net and/or Yocto net log.

Activation of new functions by PUK code

It is possible activate the following functions on Yocto net and Yocto net log ordering a PUK code to be entered by a Web page.

Yocto net 8 upgrade (PUK)

Yocto net 8 upgrade (PUK) adds 1 storage service that means logging of up to 8 channels (e.g. logging of powers and energies just in import from 8 Electrex meters) to the Yocto net or Yocto net log. For example, adding this service a Yocto net becomes a Yocto net log 8 or starting from a Yocto net log 24 it becomes a Yocto net log 32. Each Yocto net or Yocto net log can manage up to 5 services (max. 40 channels).

Yocto net upgrade WEB (PUK)

Yocto net upgrade Web (PUK) adds the possibility to show into standard web pages the readings acquired from the various Electrex sub-meters.

Yocto net upgrade WEB open (PUK)

Yocto net upgrade Web open (PUK) adds to the Yocto net or Yocto net log the possibility to upload into its web server customized web pages displaying data collected from the various Electrex sub-meters. The Yocto net upgrade Web (PUK) code PFSW940-05 is requested for this option.

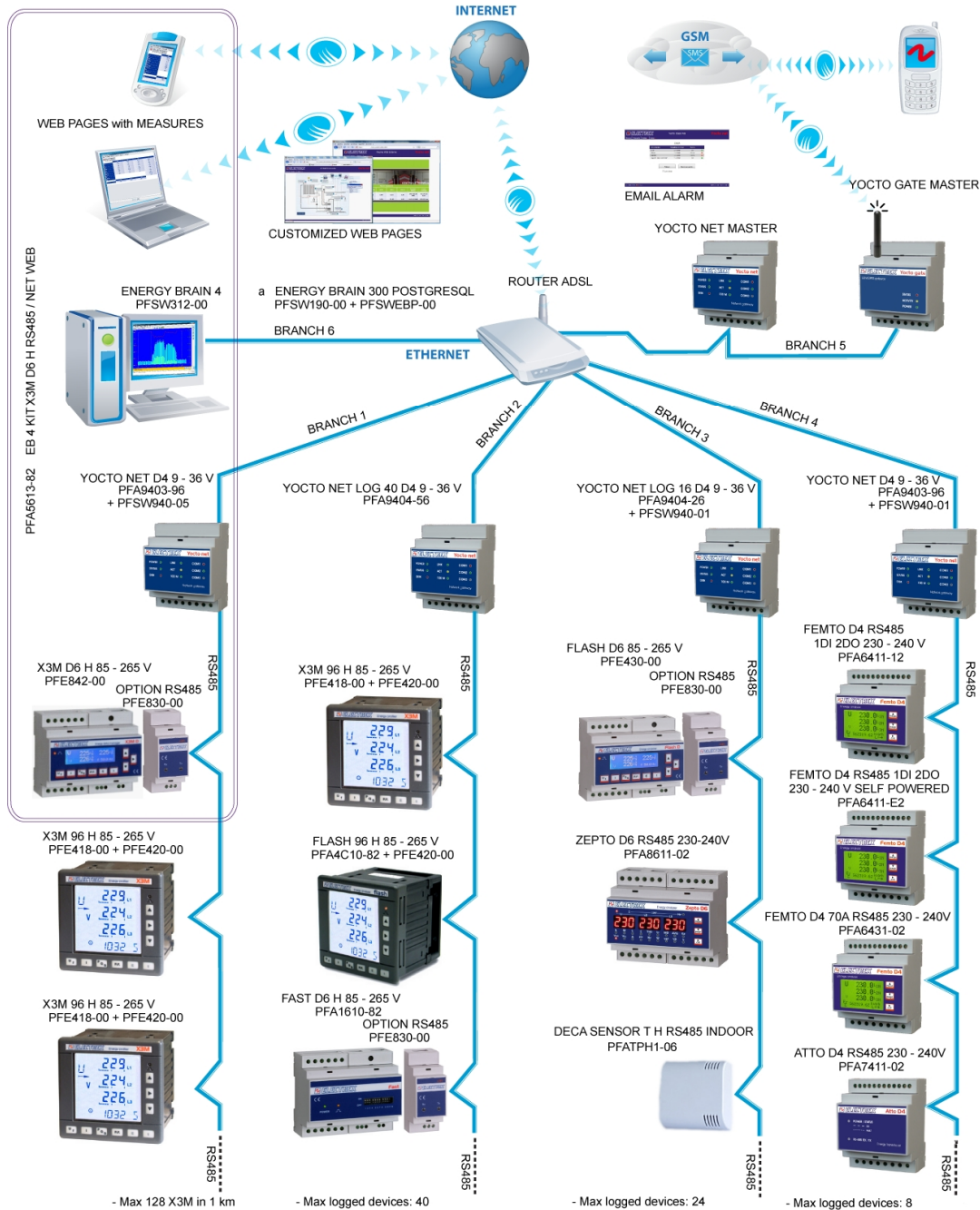
On request customized web pages can be done by our technicians.

Yocto net upgrade mail alarm (PUK)

Yocto net upgrade mail alarm (PUK) adds to the Yocto net or Yocto net log the possibility to send e-mail with various user programmable alarms (and SMS alarms if connected to a Yocto gate).

Yocto net upgrade 4you (PUK)

Yocto net upgrade 4you (PUK) allows, through a memory optimizer, to modify one existing storage service of a Yocto net log. For example it allows to change the sampling frequency and the days of storage of a load profile survey. Every Yocto net log can handle up to 5 different services.

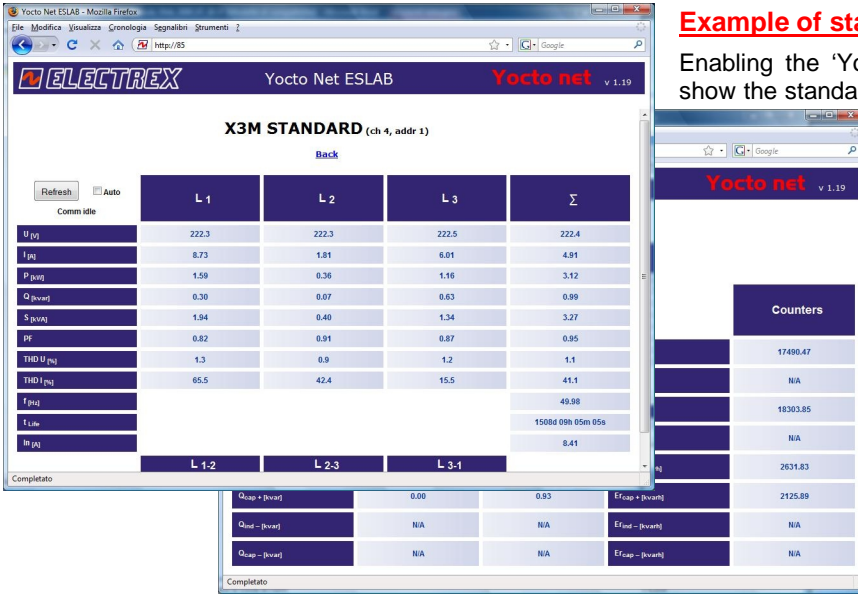


Yocto net 8 upgrade (PUK) - PFSW940-01 and Network example

The PUK code of 'Yocto net 8 upgrade' adds 1 storage service to the Yocto net (example Branch 4) or to the Yocto net log (example Branch 3). Each service allows to memorize each average power and energies for 60 days (circular memory) of up to 8 channels (e.g. from 8 Electrex meters). Each Yocto net or Yocto net log can manage up to 5 services (max. 40 channels, in the example the Yocto net log 40 - Branch 2). In the example of Branch 1 on use the Yocto net without storage services because there are X3Ms as sub-meters already equipped with memory.

- Inside the vertical rectangle are represented the components (and codes) of *EB4 Kit X3M D6 H RS485 / NET WEB* that is a starting point of a more complex network.
- The example above is similar to one of a Shopping center in which there are 4 Yocto net (3 with memory enabled - PFA9404-xx) connected to the LAN. Each Yocto net and net log has a serial RS485 sub-network with several devices connected, as: X3M D6 H - PFE842-00 and X3M 96 H - PFE418-00 (with option module RS485) connected to the main electrical distribution lines, to evaluate the energy quality and energy consumption; the Flash 96 H and FAST D6 H to monitor the main loads as the Air handling units; then Femto D4, Atto D4 and Zepto D6 to manage cost controls (as shops, lighting, refrigerators, etc.) and the Deca Sensors to monitor the air temperature and relative humidity.
- There is also a Yocto net master - PFA9404-96 with the email alarm enabled (PFSW940-15) and the customized web pages (PFSW940-05 + PFSW940-10 + pagine web). The manager of the shopping center can see the web pages via PC or Smartphone. The electrical maintainer can receive the SMS alarms sent by the Yocto gate master - PFA9409-96.

The Energy Manager of the shopping center can use the personal computer, connected to the LAN, to evaluate the data automatically downloaded by Energy Brain software from the Electrex devices and to manage the email alarms.

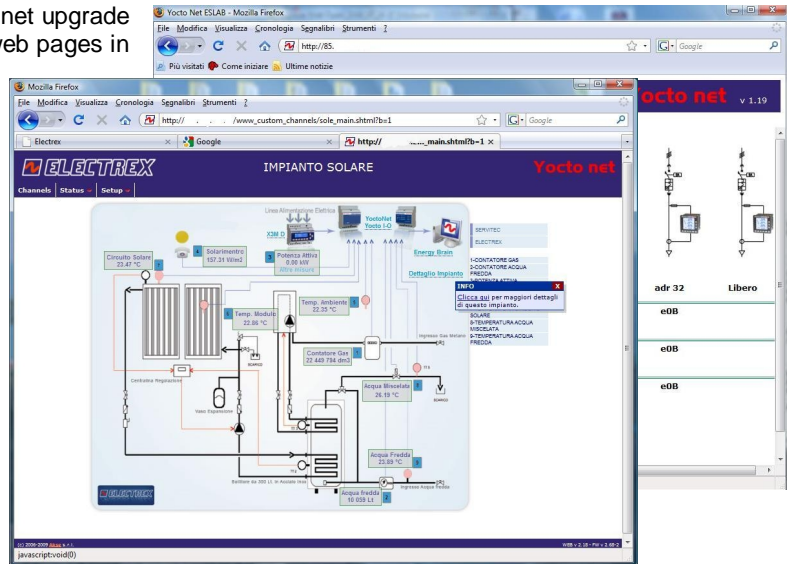


Example of standard web pages – PFSW940-05

Enabling the 'Yocto net upgrade WEB' function is it possible to show the standard web pages with the instantaneous readings, the average power and the energy counters of each Electrex device connected to the Yocto net / Yoco net log or Yocto net master. In the web page you can see the instantaneous readings while in the web page (under) you can see the counters and the average values of a PFE842-00 X3M D6 H.

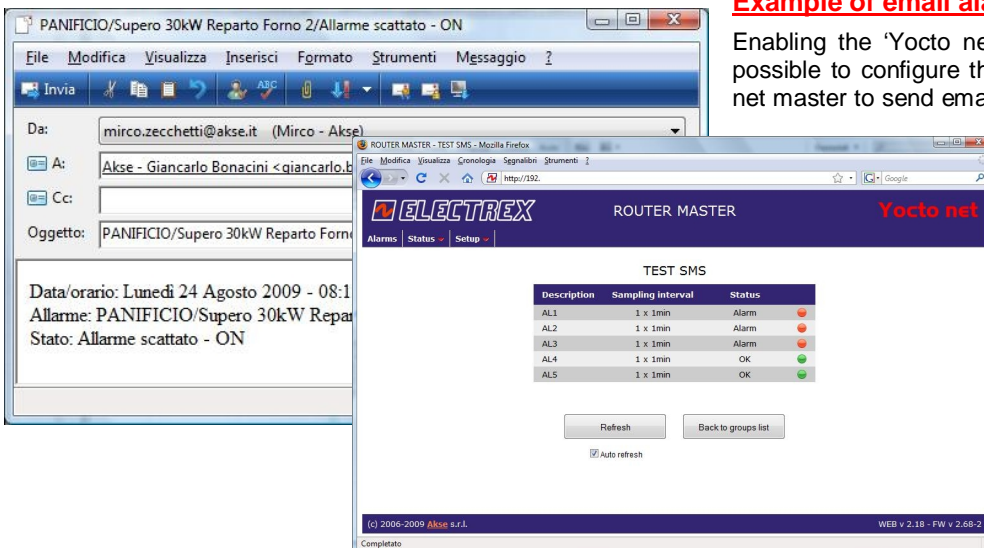
Example of customized web pages – PFSW940-10

Enabling the 'Yocto net upgrade WEB' and the 'Yocto net upgrade WEB open' functions you can upload the customized web pages in a Yocto net / Yocto net log / Yocto net master. In these customized web pages are represented a functional diagram of a solar cooling system and an electrical design of a plant. Both (static and / or dynamics) web pages show the instantaneous value of several readings. From a browser of any PC or smart-phone you can easily reach these web pages typing the IP address and the password.



Example of email alarms – PFSW940-15

Enabling the 'Yocto net upgrade mail alarm' function it is possible to configure the Yocto net / Yocto net log / Yocto net master to send email (and SMS alarms if connected to a Yocto gate) in the case of one or more sub-meters exceed the thresholds setted. In the example you can see an email alarm of a department in a bakery and a graphic visualization (green and red dots) in the specific web page of Yocto net.



Hardware characteristics

1 insulated RS485 serial port (COM1) with built-in fail-safe and end-line resistors (selectable by dip-switch).

1 insulated RS232 serial port (COM2), D-Sub 9 male connector, to connect a Yocto Gate GSM, a PLC or a PC with a Modbus supervision software (example Energy Brain or SCADA system).

1 TTL port (COM3) for connecting the YOCTO NET directly to the CN1 port of meters type X3M-D, Flash-D, Fast with Power Cable code PCAFL00-00. For meters type X3M 96 and Flash 96 other than the Power Cable is needed the adapter cable code PCADL00-00). No external power supplied is required for this application.

1 Ethernet port 10/100 BASE-TX (RJ45), Auto-MDIX.

9 Led indicators (power, status, flash disk, Ethernet 10 link/activity, Ethernet 100 link/activity, Full Duplex, COM1, COM2, COM3)

Auxiliary power supply: 9÷36Vac/12÷60Vdc.

Self consumption: < 3VA

64 Mbit non volatile Flash memory for web pages and/or data-logging and/or email alarm management.

Real-time calendar/clock with battery buffer (10 years lifetime) supporting the time zone (GMT + DST) format and the rules for the automatic switching from Standard Time to Daylight Saving Time and vice versa.

Environmental conditions

Working temperature range..... -20/+70 °C

Relative Humidity R.H < 95%. non condensing

Mechanical characteristics

Enclosure Self-extinguishing plastic material class V0

Protection degree Front panel IP40

Terminals side IP20

Size..... 4 DIN modules..... 70 x 90 x 58 mm

Mount..... DIN rail

Terminals power supply and RS 485 screw connector

Max cable size 2,5 mm² (stranded cable) /
4 mm² (solid cable)

How to order

Type	Code
Yocto net D4 9÷36V.....	PFA9403-96
Yocto net WEB D4 9÷36V.....	PFA9403-97
Yocto net log 8 D4 9÷36V	PFA9404-16
Yocto net log 16 D4 9÷36V	PFA9404-26
Yocto net log 24 D4 9÷36V	PFA9404-36
Yocto net log 32 D4 9÷36V	PFA9404-46
Yocto net log 40 D4 9÷36V	PFA9404-56
Yocto net 8 upgrade (PUK)	PFSW940-01
Yocto net upgrade WEB (PUK)	PFSW940-05
Yocto net upgrade WEB Open (PUK)	PFSW940-10
Yocto net upgrade Mail Alarm (PUK)	PFSW940-15
Yocto net upgrade 4You (PUK)	PFSW940-25
Yocto net master D4 9÷36V	PFA9404-96
Power Cable Yocto net / X3M e Flash D6....	PCAFL00-00
Adapter Cable Interface DIN / 96.....	PCADL00-00
Switching Power Supply D1 24VDC 400mA...	PCAFL00-00

Subject to modification without prior notice

Data-sheet Yocto net 2010 02 12 -ENG

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