ELECTREX
the energy saving technology

Engineered and manufactured in Italy
Made in Italy
Pensato, progettato e prodotto in Italia

LOW ENERGY CONSUMPTION

Femto 4Hall Rj45 & net

- Measurement of DC loads
- Flexibility (open platform)
- Reliability (high quality of components)
- Connectivity (Ethernet, Wi-Fi, RS485, ExpBus, NFC)

Energy Analyzer & (Wi-Fi) Web Data Manager

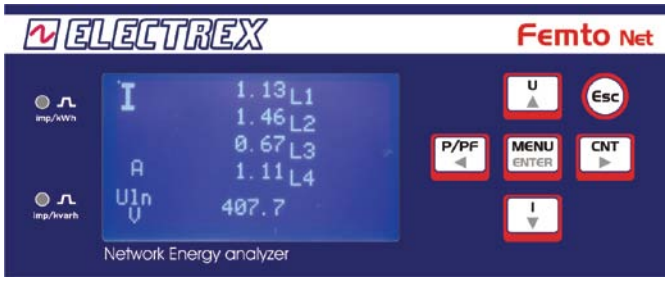
Femto 4Hall RJ45 D6 is an Energy Analyzer & Data Manager for the measurement of electrical parameters in direct current DC and logging of energy. It is equipped with an RJ45 port for connecting to Ethernet networks and and ExpBus port for high speed communication with expansion Modules. Can be transformed, activation via Upgrade (PUK) option, in a **net** version (becoming Web Data Manager) serving as a bridge and data-logger also for other Electrex devices connected behind it in Rs485. The net version is also a FTP and Web Server, including the Upgrade Web option, displaying on a web page measurements available on the instruments' display. The optional Wi-Fi connection permits to manage/display the data, in an already existing Wi-Fi network, from any device having a browser (PC, Smartphone, tablet, etc.). The **Femto 4Hall D6** uses exclusively the split current transformers Electrex CTS DC HALL (4 current inputs for up to 4 Hall effect transformers). The **Femto 4Hall D6** includes the **NFC** technology that opens the possibility for the creation of specific APPs for mobile devices regarding energy management. Suitable for applications in renewable energy generation, storage, telecom, data-centers, and other DC systems.

Measure unit

Continuous sampling of voltage and current with 64 bits resolution, thus ensuring the maximum accuracy even in the presence of small loads.

Simplicity

Equipped with a FSTN dot matrix display with high contrast, back-lighted, white LEDs allowing the simultaneous displaying of 4 measurements and of their identification symbol with high visibility characters.



The 6 keys keypad Joystick positioned and menu list type on the display for configuration provide a simple and rational use of the instrument, while the default page displayed when powering on is user definable.
On the front panel 2 calibration and control LEDs pulse with a frequency proportional to the imported Active and Reactive Energy for the on-field calibration with optical devices. The red LED pulsing under the symbol by the Electrex logo indicates the functioning state. 2 additional LEDs positioned under the white band report instead the activity on the RS485 port. While for the Rj45 port the 2 built-in LEDs will indicate the Ethernet activity.
In order to reduce the energy consumption it is possible to configure the display's back-lighting, the state LED and the ones related to the RS485 port.

Ethernet and RS485 port for sub-network

Femto 4Hall D6 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". It is equipped also with a serial RS485 port, protected against overvoltage, using Modbus-RTU, configurable up to 38.400 bps, which is slave for the **RJ45** and Master for **Net D6** versions allowing to connect other Electrex devices in a sub-network.

Measures

Parameters	*Type*		*Range*
Voltage	U	•	*10,0VDC...300VDC*
	U_{MAX} (1)	•	
	U_{MIN} (1)	•	
Direct Current (4 inputs)	I	•	*Via CTS DC HALL*
	I_{MAX} (1)	•	
	I_{AVG} (2)	•	
	I_{MD} (2)	•	
Active Power	P	•	*± 0,00…1999 MW*
	P_{AVG} (3)	•	
	P_{MD} (3)	•	
Operating time (4)	h (1/100 h)	•	*0,01…99.999,99 hours*
Active Energy	$E_{a\,IMP}$ (5)	•	*0,1 kWh…99.999,9 MWh*
	$E_{a\,EXP}$ (5)		

(1) Value on a period of 500mS.
(2) Mean value (rolling average) over the integration time (1.. 60 min. program.).
(3) Average value (moving average) in both import and export over the integration time (1..60 min programmable).
(4) Life-time counter (cannot be reset) and 4 partial operating time counters.
(5) Import/Export energies displayed as 9 digits in floating-point readings; internal energy counters are logged with a 64 bit resolution which assures a minimum definition of 0,1 Wh and a max count of 99.999.999,9999 kWh.

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

The **.. Wi-Fi** o **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 while the presence of **NFC** opens the possibility for the creation of specific APPs for mobile devices on the energy management.

Femto 4Hall versions

- *basic*.....without inputs and a outputs
- *2DI 2DO (standard)* ..2 digital inputs and 2 digital outputs
- *4DI* ..... 4 digital inputs
- *4DO*..... 4 digital outputs
- *1DI 2DO Self-Powered*….1 self powered digital input and 2 digital outputs rated at 250V 100mA
- *2AO4-20mA*…….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)
- *2RO24VDC*..... *2* relay outputs(24VDC)
- *2RO230V*..... *2* relay outputs (230V)
- *4AI*..... 4 analog inputs 0÷10V (4-20mA)
- *4PT-NTC* .....for PT100, PT1000 and NTC sensors
- *4SI*.....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 or the 2DI 1RO the max sampling frequency is 100Hz (5ms), while for the 2DI 2DO and the 4DO 500Hz (2ms). 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 (example for day-night tariff changeover). 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 and PT-NTC Inputs

The **.. 4AI** version **4AI** is equipped with 4 analog inputs rated at -10÷10V (compatible with 0÷10V, 0÷5V, -5÷5V, 4÷20mA at 200 ohm). While the**..** **4PT-NTC** version is equipped with 4 independent inputs for PT100 and/or PT1000 and/or NTC.

Environmental Sensors Inputs

The **..4SI version** is equipped with a Sensor Bus I^2C for connecting up to 4 sensors (up to 4 for the temperature or up to 1 for the temperature, 1 for the humidity, 1 for the luminosity and 1 for the air pressure). The max total distance of the I2C bus is 20 m.

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 instead 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).
The **..2RO 230V** versions are equipped with 2 relay outputs with changeover contact rated at max 250V max 2A (resistive load).

Astronomical Clock Calendar

The **Femto 4Hall D6** is equipped with a clock / calendar with astronomical real time management of the Coordinated Universal Time (UTC). It manages also the rules for the automatic switching from Standard Time at summer time (Daylight Saving Time) and vice versa. Automatic synchronization via NTP.

System clock	
UTC time	Tue 19 Jul 2016 15:03:23
Local time	Tue 19 Jul 2016 17:03:23
UTC offset	+01:00
DST offset	+01:00
Next DST change	Sun 30 Oct 2016 03:00:00
Easter day	Sun 27 Mar 2016
Day begin	05:50
Day end	20:58
Solar noon	13:24
Day duration	15:08
NTP synchronization state	Synced!
Next NTP synchronization	Fri 22 Jul 2016 10:53:23

Alarms

The **..2DO** or **4DO** or **1RO** or **2RO** versions are equipped with outputs which can be related to the internal alarms. Each alarm can be linked to any one of the parameters available, for example, either as a minimum and/or as a maximum. All the alarm outputs can be linked to the same parameter in order to have more alarm thresholds. It is possible to set a delay on the activation / deactivation of each alarm (from 1s to 99 min), the hysteresis (% of the threshold value) and the polarity of the output contact (NA, NC, except for the **1RO** which is always NC). The alarms state information is always available on serial communication as Modbus "*coils*". Due to the numerous combinations available, only a part of them are programmable by keyboard while are entirely programmable via serial port with the Energy Brain software or via serial port using Modbus *Holding registers*..

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). In order to transform 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

Load profiles and import/export Energy counters

The **Femto 4Hall D6** continuously logs the data of consumption / production of energy and power by organizing them into separate daily files, containing the data necessary for the reconstruction of the load profile and the analysis of the trend of buying/selling of energy. The logged data can be downloaded **via Ethernet port or Wi-Fi** and managed using Energy Brain and/or Upgrade Charts option or via HTTP.

Operating time counter

The **Femto 4Hall D6** is equipped with partial time counters logging the operating time of a load or a machine. The counter can be triggered from the exceeding of a threshold related to a measurement or the status change of a digital input.

Firmware and Special versions on request

The **Femto 4Hall D6** can be provided also with other power supply or hardware versions and the firmware is upgradeable, remotely, at any time, in order to add and/or replace the existing characteristics with new and different functions.

CTS DC Hall Electrex

The **Femto 4Hall D6** use exclusively the split CT Electrex: CTS DC Hall Split Core Current Transformer Mini Series provided with a wire length of 2 meters and RJ11 connectors:

- **CTS DC Hall 16-50** Code PFC0360: nominal current 50A, internal window diameter 16 mm, dimensions width 30mm, height 54mm, depth 31mm.
- **CTS DC Hall 16-100** Code PFC0370: nominal current 100A, internal window diameter 16 mm, dimensions width 30mm, height 54mm, depth 31mm.
- **CTS DC Hall 24-200** Code PFC0380: nominal current 200A, internal window diameter 24 mm, dimensions width 45mm, height 76mm, depth 36mm.
- **CTS DC Hall 35-500** Code PFC0390: nominal current 500A, internal window diameter 35 mm, dimensions width 60mm, height 80mm, depth 40mm.

Voltage Divider

The **Femto 4Hall D6** can measure directly up to 300V. For higher voltages up to 900V it is necessary the use of a voltage divider with a 3/1 ratio (e.g. 900V in input correspond to 300V in output). The voltage divider size is 2 DIN Rail modules.

Femto 4Hall RJ45 D6 and Upgrade (PUK)

The **Femto 4Hall RJ45 D6** include also a WEB Server that can be used for its configuration, a Modbus-TCP Server and an FTP server for file transmission.
It can use a static or dynamic IP (DHCP protocol).
It is possible to transform the **Femto 4Hall RJ45** to **Femto 4Hall net Web** activating the relative Net Upgrade PUK code *PFSU940-84*.

Femto 4Hall net D6 Web and the Net upgrade (PUK)

The **Femto 4Hall net D6 Web** in addition to all the features of the Energy Analyzer & Data Manager Femto 4Hall RJ45 D6 includes also:
- the Modbus-TCP Server with functions of bridge between the Ethernet network (protocol Modbus-TCP) and RS485 master port and arbiter function between the Ethernet port (optional Wi-Fi) and the expansion bus, ExpBus port;
- the WEB Server where can be activated the following new functions (*Net upgrade options)*:

Enabled - Net upgrade WEB (PUK) PFSU940-05

Enables the display of measures on web pages for itself and each instrument connected to the RS485 port of the Femto 4Hall net.

Enabled - Net upgrade Log 8 (PUK) PFSU940-01

With the activation of the **PUK Log 8** it is possible to log the trend over time of energy/environmental parameters measured from Electrex devices connected to the Rs485 port of the Femto 4Hall net. A Net upgrade Log 8 enables 1 logging service suitable for up to 8 “logical” devices (the internal measuring unit plus other 7 devices connected in a sub-network). The logging service has a unique time base (sampling frequency). It is possible to activate up to 8 Upgrade Log 8 logging services.

Net upgrade Open WEB (PUK) PFSU940-10

Adds to the Femto 4Hall net the ability to upload and display custom Web pages than can be designed after a suitable training.

Net upgrade Charts (PUK) PFSU940-30

Allows to display on a web page charts, related to a programmable period of time (days, weeks, months), of electricity, temperature, humidity, luminosity, etc. obtained from the files stored in the Femto 4Hall net with the possibility to export the data displayed in CSV files.

Net upgrade Energy Automation (PUK) PFSU940-16

Adds 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 option (if active).

Net upgrade eMail PFSU940-15 (SMS PFSU940-17)

Adds the function of sending notification / alarm emails (and/or SMS by adding a specific modem/router with SIM). It can also be used in combination with the Energy Automation option (if active).

Net upgrade Net to Net Master

Allows to transform the Femto 4Hall net to Femto 4Hall net Master capable of communicating to all the Electrex gateways available in the Ethernet network and therefore to all the devices connected in Rs485 to each of them.

Net upgrade New Features – PFSU940-40

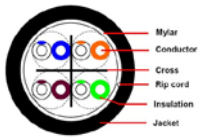
Upgrade to new versions of the firmware of the Femto 4Hall net adding new features.

On request-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. The Log 8 services to be modified must already be active and if, for example, it is needed to modify two Log 8 services, it is necessary to activate two PUK Open Log.

Expansions via ExpBus

The **Femto 4Hall RJ45 D6** and **Femto 4Hall net D6** are evolutionary instruments capable to be adapted to the needs of the customer, even after the installation.
The system architecture is designed to allow the implementation on the field of hardware expansions thanks to the ExpBus, providing 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

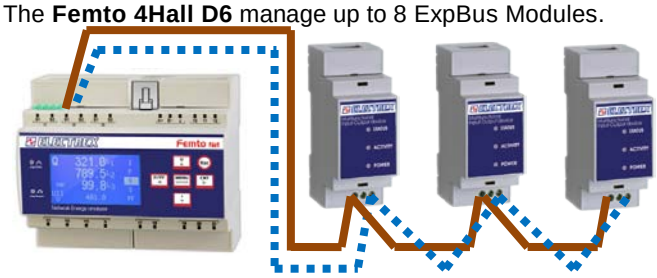
ExpBus

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 8 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 an unique Modbus address

The **Femto 4Hall D6** manage up to 8 ExpBus Modules.



ExpBus Modules for the Femto 4Hall D6

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 at the (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). Max. weight 45 gr.

ExpBus Module D4

The ExpBus Module D4 have a built-in 230Vac power supply (24Vdc power supply version on request) and can contain up to 2 modules, also self-powered.
Max. weight 100 gr. When the ExpBus Module D4 is connected, the Femto ECT D6 recognizes it and allows you to configure it via Web page

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

How to order ExpBus Module

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 4SI 2DI 2DO	*PFAB20E-T5Q*
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 4SI 2DI 2DO	*PFAB40E-T2Q*

How to order ExpBus Module

Description **Code**

ExpBus Module D2 *versions (2 DIN rail modules):*

Possible hardware combinations with 1 or 2 different 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

ExpBus Module D4 *versions (4 DIN rail modules):*

Possible hardware combinations with 1 or 2 different modules which can be also self-powered type.

Internal power supply 230Vac or other power supplies on request, see building code diagram below.

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 4SI (Sensor Bus I^2C) .....***T***
Module 4PT100.....***U***
Module 4PT1000.....***X***
Module 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***

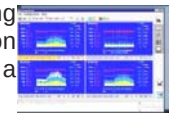
The Energy Brain 6.x and Energy Brain Pro 6.x software (to be installed on a PC, optional)

The Energy Brain software is uesd 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.

Main features

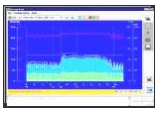
Configuration

- 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, 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.

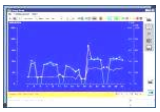


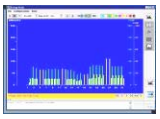
Parameters displaying

- 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 (Access®,PostgresSQL® or MySQL®).
- Export data to other DB via ODBC module or .txt or .xls format files.



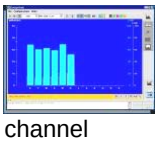


Tariffs

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

Virtual and Multiple Channels

- 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

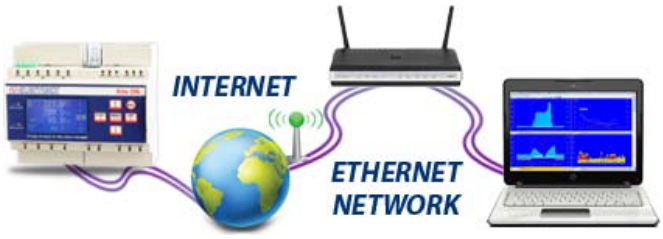


- Creation of multiple channels in order to view curves of more instruments in the same chart for a quick comparison.
- Inclusion of variables and mathematical formulas, even highly complex ones, particularly useful, for example, to perform simulations.

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.)..

Connections between PC and Femto ECT D6
direct Ethernet Rj45 port, Wi-Fi, Ethernet network, Internet

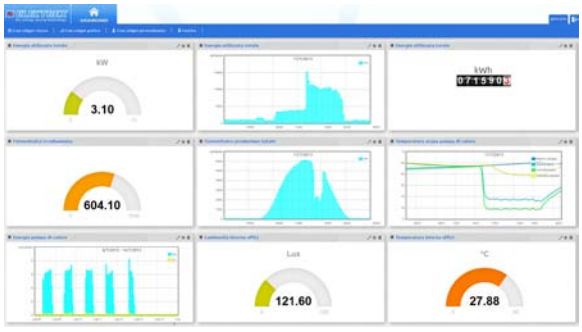


Energy Brain software is expandable and it is available in different versions according to the functions and the number of channels required.
For more details about the software: www.electrex.it/en

Energy Brain Cloud

Energy Brain Cloud is the software that allows to display and manage via a web browser, on a variety of devices such as PCs, tablets, Smartphones, data, measures and real-time and historical charts acquired by Electrex instruments.
Taking advantage of the technology of cloud computing, users can manage the data collected through a standard Internet browser without installing any software on their computer or mobile device.
Energy Brain Cloud can be used in three modalities:

1. Energy Brain Cloud is installed and managed directly by the end user of the Electrex monitoring networks
2. A third party (Energy Consultants, Energy Saving Company, associations, etc.). Installs and manages Energy Brain Cloud and makes available to its customers/members the access to their data as a service
3. Electrex provides to end users of the Electrex monitoring networks access to their data through Energy Brain Cloud as a service



Energy Brain PRO 6.x software

1. For the description fo all the additional features included in the PRO 6.x version please refer to the Energy Brain software datasheet

Technical Specifications Femto ECT RJ45 & Net Web

Measurements

Voltage: ..... U
Min: ..... U_{MIN}
Max: ..... U_{MAX}
Current (4 inputs): I
Max: ..... I_{MAX}
Average (AVG): ..... I_{AVG}
Peak (MD): ..... I_{MD}
Active Power, $_{IMPORT}$: ..... P_{IMP}
$_{EXPORT}$: ..... P_{EXP}
Average (AVG) $_{IMPORT}$: ..... $P_{AVG\ IMP}$
$_{EXPORT}$: ..... $P_{AVG\ EXP}$
Peak (MD) $_{IMPORT}$: ..... $P_{MD\ IMP}$
$_{EXPORT}$: ..... $P_{MD\ EXP}$
Active Energy, $_{IMPORT}$: ..... $E_{a\ IMP}$
$_{EXPORT}$: ..... $E_{a\ EXP}$
Life-Time and 4 operating time counters: ..... h, 1/100 h
Load profile ad imported/exported Energy (via Ethernet port)

Electrical characteristics

Voltage inputs
Direct input: ..... from 10Vdc up to 300 Vdc
Current Inputs (versions for CTS DC Hall)
CTS DC Hall mini ..... 50 / 100 / 200 / 500A
Measure up to 150% of the nominal value
Power Supply..... 85÷265 Vac/100÷374 Vdc
or others on request e.g. 15÷36 Vac/18÷60 Vdc
..... e.g. 9÷24 Vac/9÷36 Vdc
Power supply toward other modules, max ..... 5 VA

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..... 1 green and 1 red under the white band

Functional characteristics

Quadrants..... 2 or 4 quadrants (programmable)
Accuracy: .....
Voltage (Ucc): ..... Class 0,5 from 10Vcc to 60Vcc
Direct current (Icc): ..... Class 1 F.S.
Active power (P): ..... Class 1,5 F.S.
Active energy (E): ..... Class 1,5

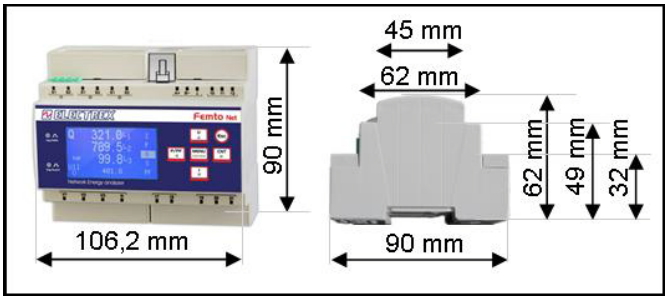
Mechanical characteristics

Working temperature ..... -20/+60 °C
Humidity..... 95% R.H. non condensing
Enclosure..... Self-extinguishing plastic material class V0
Protection degree ..... Front panel IP40
IP20 (Terminals side)
Size..... 6 DIN modules
Mounting..... DIN rail
Terminals:..... screw connector cables max. section up to 4 mm^2
Weight..... about 260 gr. net

Hardware characteristics

N.1 Ethernet port 10/100 BASE-TX (RJ45) Auto-MDIX .
N. 1 Serial port RS-485 galvanically insulated:
- Femto 4Hall RJ45: RS485 slave port for connecting in an RS485 network;
- Femto 4Hall Net: RS485 master port for connecting other Electrex devices in a subnetowrk

Nr.1 Wi-Fi Ethernet 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.
Disk access via Ethernet port through HTTP protocol.



How to order Femto 4Hall D6

Type	Code
Femto 4Hall RJ45 D6 85÷265V 4AI	PFN66-H17R9-0M0
*The **Femto 4Hall RJ45** can evolve in **Femto 4Hall net Web** by activating the following Upgrade (PUK):*	
Upgrade RJ45 to Net Web version	PFSU940-84
Femto 4Hall net D6 Web Log 8 85÷265V 4AI	PFN66-H15R9-110
*The **Femto 4Hall net Web** evolve in **Femto 4Hall net Master Web** by activating the following Net upgrade (PUK):*	
Net Upgrade Net to Master version	PFSU940-86
Femto 4Hall net Wi-Fi D6 Web Log 8 85÷265V 4AI	PFN66-H1WR9-110
Femto 4Hall net Wi-Fi EDA D6 Web Log 8 85÷265V 4AI	PFN66-H1AR9-110
Femto 4Hall net D6 Web Log 8 18÷60VDC 4AI	PFN66-H15R8-110
*The **Femto 4Hall net** 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 Open Web (PUK)	PFSU940-10
Net Upgrade Charts (PUK)	PFSU940-30
Net Upgrade Energy Automation (PUK)	PFSU940-16
Upgrade E-Mail / SMS (PUK) *also for RJ45*	PFSU940-15
Upgrade Calendars (PUK) *also for RJ45*	PFSU940-20
Net Upgrade New Features (PUK)	PFSU940-40
Upgrade RJ45 to Net Web version (PUK)	PFSU940-84
Net Upgrade Net to Master version (PUK)	PFSU940-86
Upgrade to H version (PUK) – on request	PFSU940-85
Upgrade H to PQ version (PUK) – on request	PFSU940-81
Net Upgrade Open Log (PUK) – on request	PFSU940-25
VOLTAGE DIVIDER D2 DC 900V/300V	PFAQ280-00

How to order the split CT CTS DC Hall series

Type	Code
CTS DC HALL 16-50 Split Current Transformer	PFC0360
CTS DC HALL 16-100 Split Current Transformer	PFC0370
CTS DC HALL 24-200 Split Current Transformer	PFC0380
CTS DC HALL 35-500 Split Current Transformer	PFC0390

Other versions of Femto 4Hall D6

CODE | P | F | N | 6 | 6 | - | H | 0 | 5 | 0 | 8 | - | 1 | 1 | 0 |

Type	Code

BUILDING CODE ..... ***PFN 6 6 - H 0 5 0 8 - 1 1 0***

Family Femto = **6**

Dimension 6 modules DIN = **6**

Current Input
CTS DC Hall split = **H**

Communication .....
RJ45 ..... **7**
Net **5**
Wi-Fi ..... **W**
Wi-Fi EDA ..... **A**

Internal modules .....
No module ***0***
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 4SI (Sensor Bus I^2C) ..... ***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***

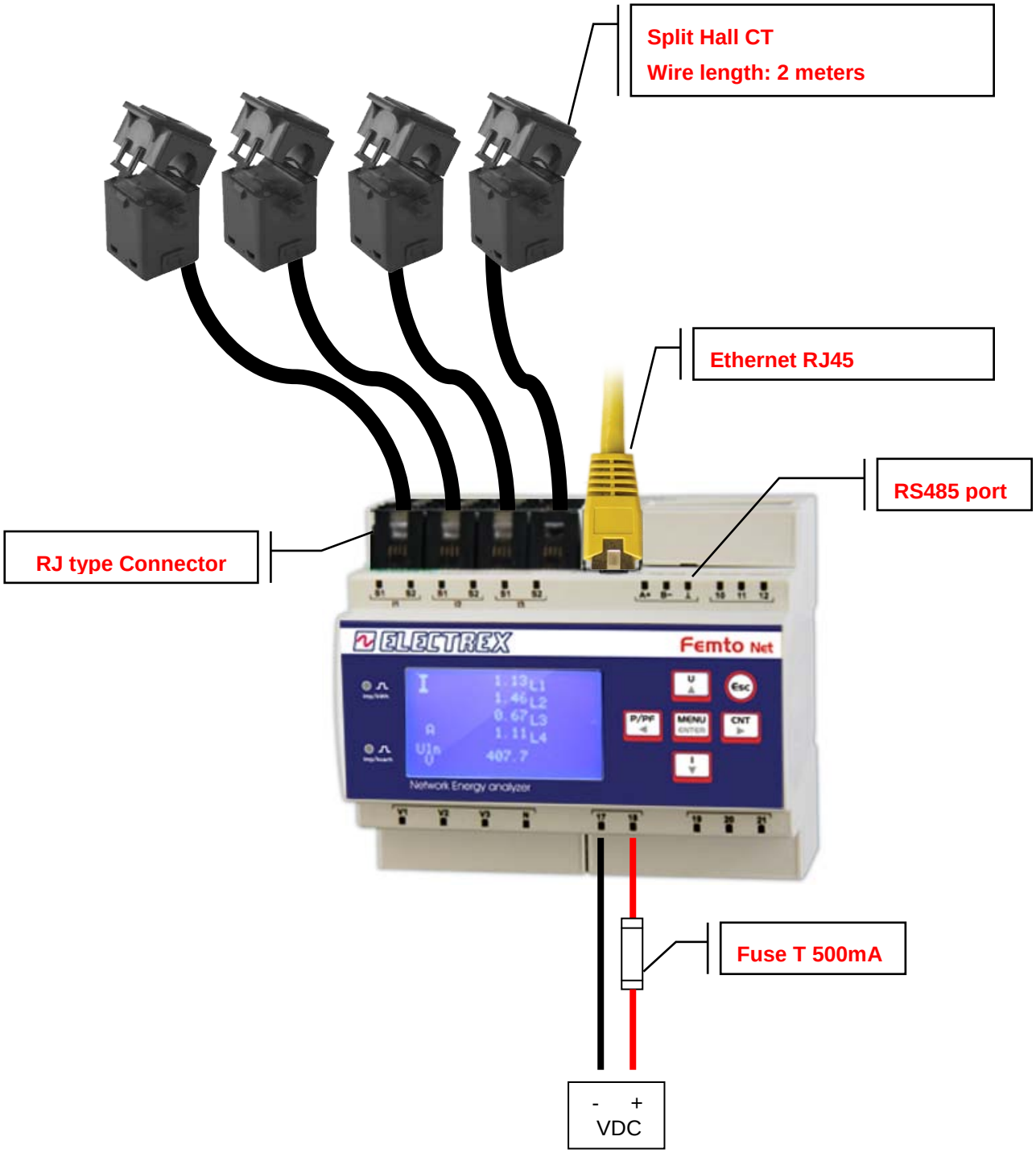
Version not Master ..... **-**
Master ..... **M**

Additional Functionality:.....
No additional functionality ***0***
Functionality Web ***1***
Functionality Web Charts ..... ***A***
Functionality Web Energy Automation ***5***
Functionality Web eMail ***7***
Functionality Web Calendars ***8***
Fun. Web Energy Automation Calendars eMail ***9***
Fun. Web Full (Charts Autom. Calendars eMail) ... ***F***
Functionality Open Web ***2***
Functionality Open Web Charts ..... ***C***
Fun. Open Web Automation E-Mail Calendars ..... ***B***
Functionality Open Web Full ..... ***D***

Log for the internal energy analyzer ..... **M**
N. of Log 8 activated (for Net version) .. **1 a 8**

No Open Log (for Net version) **0**

WIRING


Split Hall CT
Wire length: 2 meters
Ethernet RJ45
RS485 port
RJ type Connector
Fuse T 500mA
- +
VDC

ELECTREX the energy saving technology

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Subject to modification without prior notice
Data sheet Femto 4Hall RJ45 D6 and net 2016 07 19-ENG

Distributor