

## Mini Energy Web Server

Cat. N°: 4 149 47/48



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### 1. DESCRIPTION - UTILISATION

Mini Energy Web servers to configure, test, control and display via web browser with secured web pages (https...).

Via web browser on PCs, smartphone, web viewers, tablet computers, they allow remote configuration and management of data collected from: protection devices (DX<sup>3</sup> add-on modules with integrated measurement control unit, DPX<sup>3</sup> and DMX<sup>3</sup>), EMDX<sup>3</sup> electricity meters and multi-function measuring units, CX<sup>3</sup> energy management system and charging stations for electric vehicles. Mini Energy Web Server also performs the function of Modbus RS485 / Modbus IP gateway

### 2. PRODUCT RANGE

. Cat N° 4 149 47: for 10 Modbus addresses or 10 pulse output energy counters.

. Cat N° 4 149 48: for 32 Modbus addresses or 32 pulse output energy counters.

#### Width:

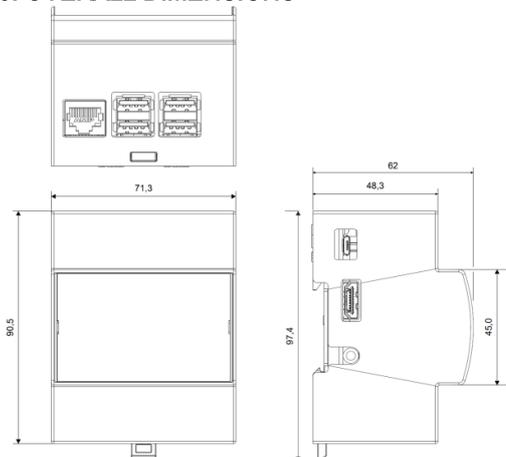
. 4 modules (71,3 mm).

#### Auxiliary supply:

. 9 ÷ 28 VDC (not supplied).

. Surge and reverse polarity protection with a 1,1A resettable fuse

### 3. OVERALL DIMENSIONS



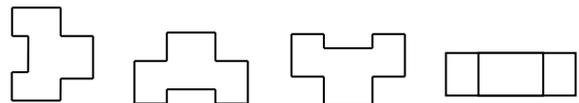
### 4. FIXING – CONNECTION

#### Fixing:

. On symmetric rail IEC/EN 60715 or DIN 35

#### Operating position:

. Vertical, Horizontal, backwards, on the side



#### Screw terminals:

. Terminal depth: 5 mm.  
. Stripping length: 5 mm

#### Screw head:

. Screws slotted.

#### Recommended tightening torque:

. 0,25 Nm

#### Tools required:

. Flat screwdriver 2,5 mm

. For fixing the device on the DIN rail: flat screwdriver 5.5 mm (from 4 to 6 mm).

#### Connectable section:

. Copper cables.

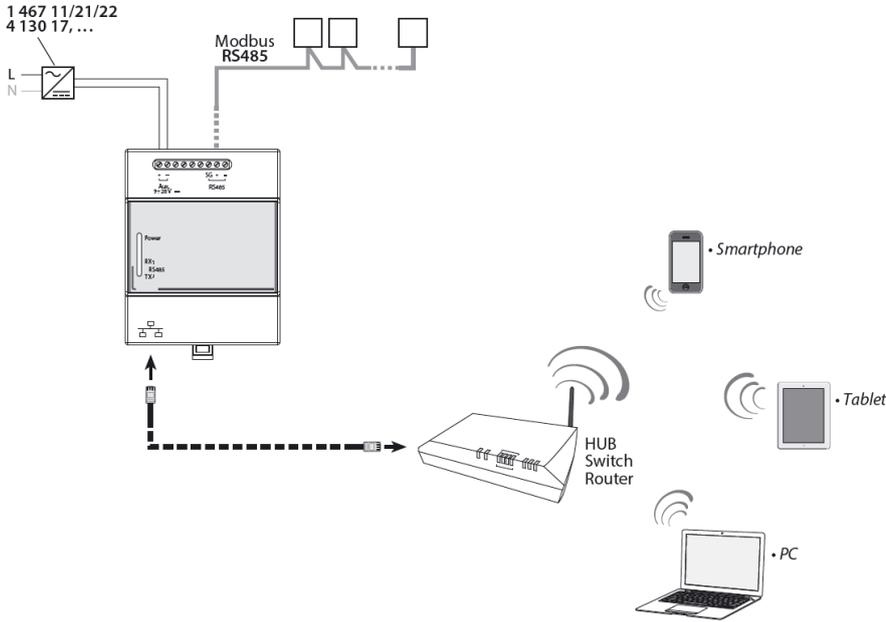
	Without ferrule	With ferrule
Rigid cable	<b>Max. 1 x 1,5 mm<sup>2</sup></b>	-
Flexible cable	<b>Max. 1 x 1,5 mm<sup>2</sup></b>	<b>Max. 1 x 0,5 mm<sup>2</sup></b>

## 4. FIXING – CONNECTION (continued)

### Wiring diagrams:

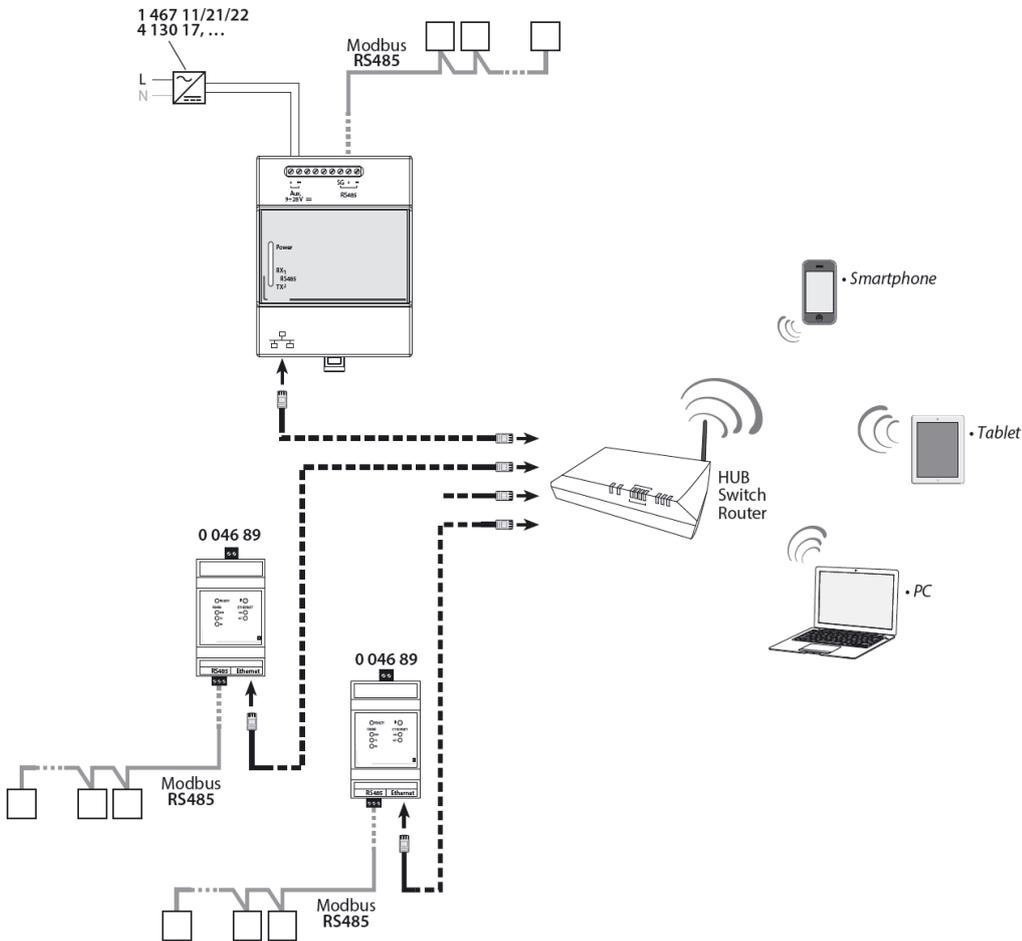
#### Configuration 1:

Web server used as a Modbus/IP gateway (all RS485 devices are directly wired to the Web server).



#### Configuration 2:

Web server used as a Modbus/IP gateway (some RS485 devices are directly wired to the Web server) and as a Gateways IP "Concentrator"

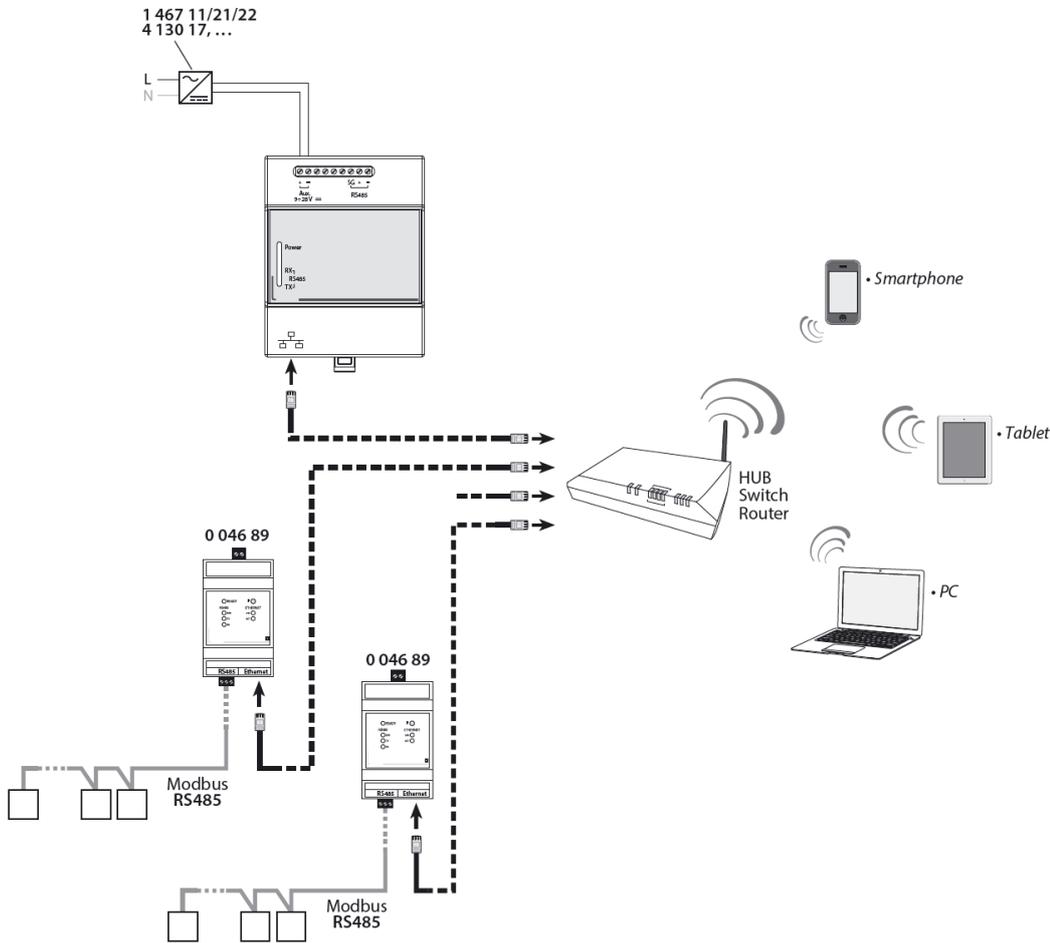


## 4. FIXING – CONNECTION (continued)

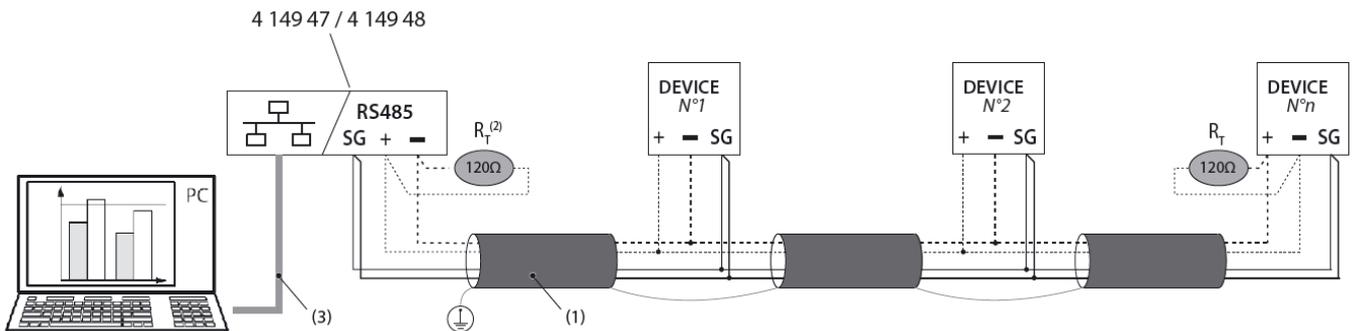
### Wiring diagrams (continued):

Configuration 3:

Web server used as a Gateways IP “Concentrator” (All Modbus RS485 devices are wired only to Gateways 0 046 89, which then communicate with the Web Server)



### RS485 Wiring diagram:



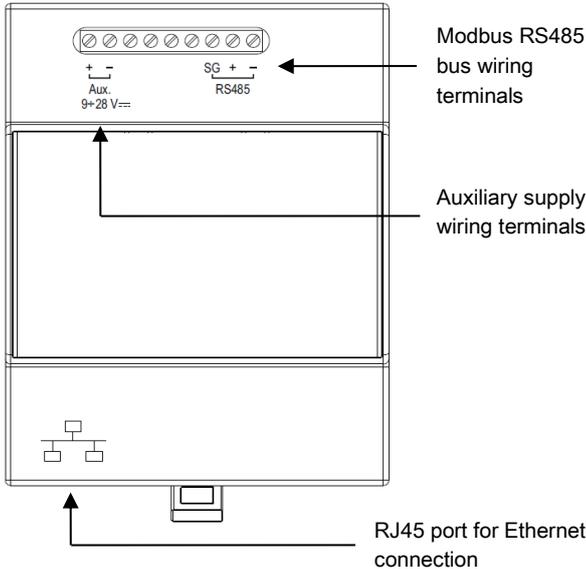
(1) RS485: Prescribed use of Cable Belden 9842, Belden 3106A (or equivalent) for a maximum length of 1000 m, or Category 6 cable (FTP or UTP) for a maximum length of 50 m;

(2) Resistance not furnished

## 5. GENERAL CHARACTERISTICS

### Case marking:

- By permanent ink pad printing:



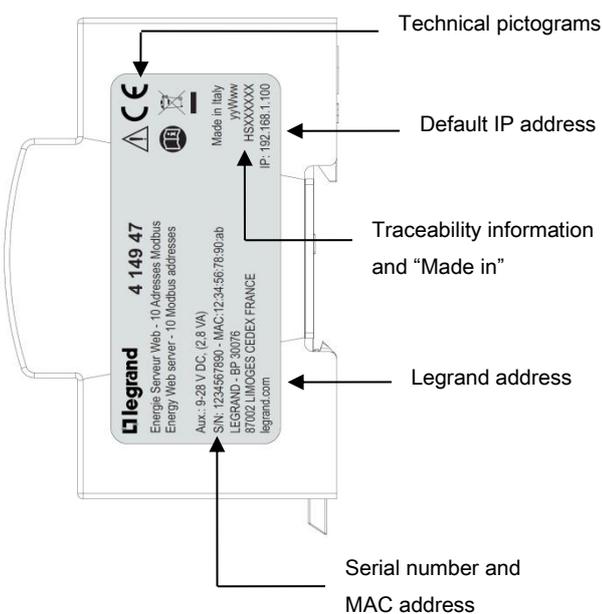
### Front face marking:

- Adhesive foil:



### Lateral side marking:

- Adhesive foil:



## 5. GENERAL CHARACTERISTICS (continued)

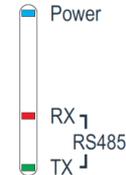
### RS485 communication port's characteristics:

- Baud rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
- Parity bit: none, even, odd
- Stop bit: 1 or 2
- Galvanically isolated respect to auxiliary supply
- Standard RS485 3 wires, half-duplex
- Protocol Modbus® RTU (not configurable)
- Default configuration:**
  - baud rate: 19200 bps
  - parity bit: even
  - stop bit: 1
  - RS485 timeout: 300 ms

### Signalling LEDs:

- Gives information about the operating state of the Web server:

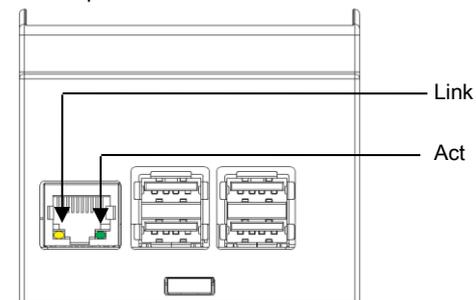
- Front face



- Possible states & colours:

Led	State	Meaning
"Power" (blue)	Steady on	Device supplied
	Off	Device not supplied
"RX" (red)	Blinking	Receive data RS485 side
"TX" (green)	Blinking	Transmission data RS485 side

- Lower part



- Possible states & colours:

Led	Etat	Signification
"Link" (yellow)	Steady on	Device connected to the Ethernet network
"Act" (green)	Blinking	Receive/Transmission data Ethernet side

**Note: all LEDs and ports not described in this document do not have any use in Legrand applications.**

## 5. GENERAL CHARACTERISTICS *(continued)*

### Technical characteristics of communication:

- . Ethernet specification compliance: IEEE 802.3, EIA RS485
- . Interface Ethernet: RJ45 10/100Mb

### Default configuration:

- . IP Address: 192.168.1.100
- . Subnet Mask: 255.255.255.0
- . Gateway: 198.168.1.1

### IT security:

- . Server web pages use HTTPS with SSL and 256-bit cryptography (AES-256).

### Operating system:

The operating system is Linux (Ubuntu / Debian) and the embedded application on the Web server is written in Java.

### Web pages access:

- . Access to the web Servers pages and data is secured by two identification codes (PIN and PUK codes).
- . Four types of "default" users are configured:

User	PIN	PUK
administrator	99999	00000 9999 00000
greenUp	88888	00000 8888 00000
Installer	55555	00000 5555 00000
user	11111	00000 1111 00000

**Note:** The home page ("home") will be different depending on the type of user that access to the device *(for more details refer to the user manual)*.

### Historical of consumptions

- . All energy, water and gas values ( $\Delta$  of consumptions and global counters) and statistical values (average values, peak values, etc.), only if available on the device making the measurement, are saved automatically in files ".CSV" compatibles with Excel or "csv" reader.

- . Access to this data is possible in several ways:
    - "FTP" protocol
    - creation of a network drive
    - data download via web pages
    - receive automatic reports sent by the web server
- (for more details refer to the user manual)*.

### Data storage time:

- . Energies (Ea+), Water consumption, Gas Consumption: **data storage time is unlimited.**

Sampling of data (accuracy per minutes) is over time reduced, thus passing to an accuracy per hour → per day → per month → per year for the oldest stored data.

Sampling of data (accuracy per minutes) is over time reduced, thus passing to an accuracy per hour → per day → per month → per year for the oldest stored data.

## 5. GENERAL CHARACTERISTICS *(continued)*

### Data storage time *(continued)*:

- . For data such as:
  - THD *(if available on the measuring device installed)*
  - Harmonics *(if available on the installed measuring device)*
  - Min, max, average values *(if available on the measuring device installed)*
  - Status information *(if available on the device installed)*

### the storage time is limited according to:

- total number of registered devices
- number of "EQ" devices activated
- type of registered devices (e.g. Energy meter, Multifunction devices, ...)

Sampling of data (accuracy per minutes) is over time reduced, thus passing to an accuracy per hour → per day → per month → per year for the oldest stored data.

### Real Time Clock:

- . Internal RTCC circuit with back-up non-replaceable Lithium battery (type CR 1025, 3 VDC).
- . Expected battery life without main power supply: ~3 years
- . Expected battery life with main power supply: >10 years

### Impulse withstand voltage:

- . Aux. Supply:
  - wave 1,2 / 50  $\mu$ s, 2  $\Omega$ : 0,5kV
- . RS485 port:
  - wave 1,2 / 50  $\mu$ s, 2  $\Omega$ : 0,5kV
  - wave 10/1000  $\mu$ s: peak 600 W

### Protection against electrostatic discharges:

- . Port RS485, Terminals " + " and " - ":
  - human body model (HBM): 15 kV
  - discharge on contact with a metal object: 8 kV

### Pollution degree:

- . 2

### Ambient operating temperature:

- . Min. = 0°C; Max. = +50°C

### Ambient storage temperature:

- . Min. = -20°C; Max. = +70°C

### Plastic material:

- . Self-extinguishing polycarbonate.
- . Heat and fire resistant according to IEC/EN 60695-2-12, glow-wire test at 960°C.

### Protection Index:

- . Protection index of terminals against direct contacts: IP2X (IEC/EN 60529).
- . Protection index of terminals against solid and liquid bodies (wired device): IP 20 (IEC/EN 60529).
- . Protection index of the front face against solid and liquid bodies: IP 40 (IEC/EN 60529).
- . Class II, front panel with faceplate.

## 5. GENERAL CHARACTERISTICS *(continued)*

### Consumption:

. 2,8 VA.

### Average weight per device:

. 0,152 kg.

### Volume when packed:

. 0,685 dm<sup>3</sup>.

### Consumption:

. 2,8 VA.

## 6. COMPLIANCE AND APPROVALS

### Compliance to standards:

- . Compliance with Directive on electromagnetic compatibility (EMC) n° 2014/30/EU
- . Compliance with low voltage directive n° 2014/35/EU.
- . Electromagnetic Compatibility:
  - emission tests according to EN 61000-6-3: 2007
  - immunity tests according to EN 61000-6-2: 2005
- . Electrical safety: EN 60664-1: 2007

### Environment respect - Compliance with EU directives:

- . Compliance with Directive 2011/65/EU as amended by Directive 2015/863 (RoHS 2) on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
- . Compliance with REACH regulation (1907/2006): at the date of the publication of this document no element of the SVHC substance list (updated on 27/06/2018) is present in these products.
- . WEEE directive (2012/19/EU): the sale of this product is subject to a contribution to eco-organisations in each country responsible for managing end-of-life products in the field of application of the European Waste Electronic and Electrical Equipment Directive.
- . Compliant with regulation REACH

### Plastic materials:

- . Halogens-free plastic materials.
- . Marking of parts according to ISO 11469 and ISO 1043.

### Packaging:

- . Design and manufacture of packaging compliant to decree 98-638 of the 20/07/98 and also to directive 94/62/CE.

### Installation software:

- . XL PRO<sup>3</sup>.