WORKSHOP SPECIFICATIONS

e-COMMUNICATION
AND MEASUREMENT

146 69

50.2.8 A
400.7
886.3
078.1
+00076430 kWh

I °C V F P PF MAX AVG H E

THE GLOBAL SPECIALIST IN ELECTRICAL AND
DIGITAL BUILDING INFRASTRUCTURES

Ll **legrand**®

Measurement is the basis of all diagnostics.
By simply monitoring consumption, between 8 and 12%
savings can be made. These results can be improved
by implementing specific initiatives.
Encouraged by new standards and directives, measurement
in commercial buildings is increasingly used so that
occupants can easily monitor consumption (heating,
cooling, hot water production, power sockets, lighting, etc).
In addition to electricity meters, Multi-function
measuring units and new protective devices
incorporating measurement functions, Legrand offers
an e.communicating infrastructure that can display
information about electricity consumption, electrical
disturbances on the system, harmonic distortion, etc.

Contents

CURRENT TRANSFORMERS (CT)
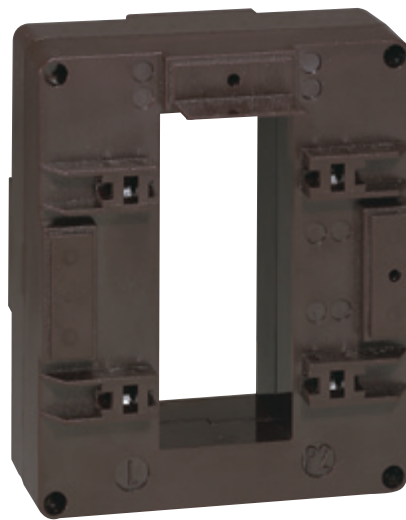
Current transformers (CTs) are used to convert high current values circulating in cables or busbars to values permitted by measuring devices (5 A).
There are 2 main CT families:
- single-phase CTs taking bars and/or cables
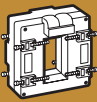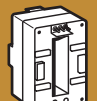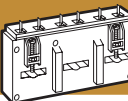- three-phase CTs taking 3 aligned busbars

CHARACTERISTICS
■ Primary current from 50 to 4000 A
■ Secondary current: 5 A
■ Frequency: 50/60 Hz
■ Degree of protection: IP 20
■ Precision class: 1%

PRODUCT SELECTION
The current transformer rating is selected according to the conductor dimensions, but also according to the maximum prospective current in the circuit to be measured. In order to minimise measurement errors, the rating must be selected as close as possible to this value.
CTs cannot be used with DC supply.

| CURRENT TRANSFORMERS	CAT. NO.	TRANSFORMATION RATIO	FOR CABLES Ø max. (mm)	FOR BARS width x height (mm)	FIXING ON RAIL	FIXING ON PLATE	DIRECT FIXING ON CABLES OR BARS
Single-phase							
	0 046 31	50/5		16 x 12.5	●	●	
	0 046 34	100/5	21	16 x 12.5	●	●	
	0 046 36	200/5		16 x 12.5	●	●	
	0 047 75	300/5	23	20.5 x 12.5 25.5 x 11.5 30.5 x 10.5	●	●	●
	0 046 38	400/5	35	40.5 x 10.5	●		●
	0 047 76	600/5		32 x 65			●
	0 047 77	800/5		32 x 65			●
	0 047 78	1000/5		32 x 65			●
	0 0 47 79	1250/5		34 x 84			●
	0 046 45	1500/5		38 x 127			●
	0 046 46	2000/5		38 x 127			●
	0 047 80	2500/5		54 x 127			●
	0 046 48	4000/5		54 x 127			●
Three-phase							
	0 046 98	250/5	8	20.5 x 5.5			●
	0 046 99	400/5		30.5 x 5.5			●

MOUNTING

Current transformers are available with several types of fixing. CTs taking cables can be clipped onto DIN rails. Others, which take bars, should be fixed in place by tightening the dedicated screw. They can also be fixed on a plate using the fixing points on the bottom.

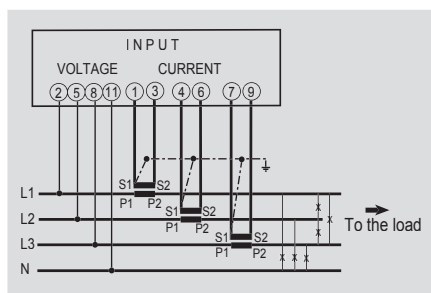Current transformers for cables mounted on DIN rail
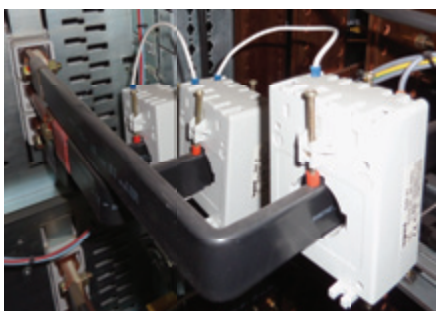
Current transformers mounted directly on flexible bars
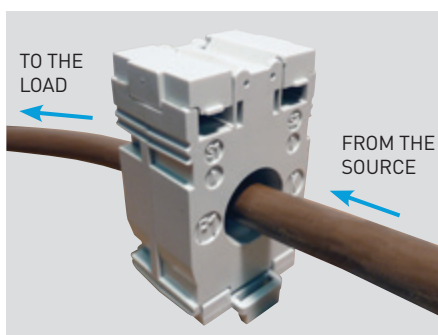
CONNECTION

The secondary terminals (S1 and S2) should be connected to the corresponding inputs on the measuring device (meter or control unit).


EARTHING THE CT SECONDARY

To ensure the safety of the installation when the secondary is opened, we recommend that this is connected to earth in TT or TN systems.

If an on-load CT has its secondary open, a high voltage may appear. It is therefore vital to short-circuit the current transformer secondary when the rating is changed for example.

i To reduce the number of cables, the S2 outputs on the CT secondary can be grouped together.
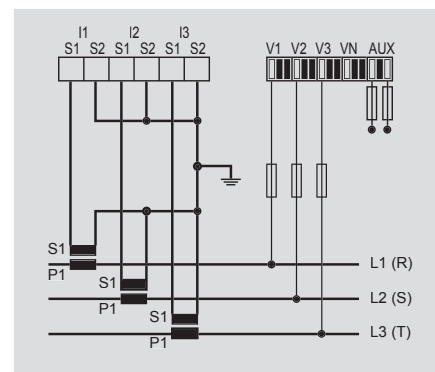
! The value sent to the meter or measurement control unit depends on the direction of mounting on the bar or cable. To avoid errors, it is essential to make sure that the CT is in the right position.

The current flow must enter at P1 (coming from the source) and exit at P2 (going towards the load).

ELECTRICITY
METERS

Meters are used to record the electricity consumed by a single-phase or three-phase circuit downstream of the electricity supply company's metering.

These display the electricity consumption of the measured circuit and other values (depending on the catalogue number) such as current, voltage, power, etc and transmit this information to a monitoring or energy management system.

There are 2 electricity meter families:
- direct connection
- connected with CT

CHARACTERISTICS
- LCD display
- Reference voltage Un
  - Single-phase: 230-240 V
  - Three-phase: 230 (400) V - 240 (415) V
- Frequency: 50-60 Hz
- Conforming to standards:
  - IEC 62052-11
  - IEC 62053-21/23
  - IEC 61010-1
- Accuracy
  - Active energy (EN 62053-21): Class 1
  - Reactive energy (EN 62053-23): Class 2
- DIN rail mounting

| CATALOGUE NUMBER	0046 70	0046 81	0046 72	0046 77	0046 78	0046 79	0046 73	0046 80	0046 82	0046 83	0046 74	0046 84	0046 85	0046 86
Type of mains supply	Single-phase						Three-phase							
Number of modules	1	2	2	2	2	2	4	4	4	4	4	4	4	4
Connection — direct (max. current)	32 A	36 A	63 A	63 A	63 A	63 A	63 A	63 A	63 A	63 A				
via a current transformer											5 A	5 A	5 A	5 A
Metering and measuring — Total active energy	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Total reactive energy							●	●	●	●	●	●	●	●
Partial active energy (reset)		●	●	●	●	●	●	●	●	●	●	●	●	●
Partial reactive energy (reset)							●	●	●	●	●	●	●	●
Active power			●	●		●	●	●	●	●	●	●	●	●
Reactive power							●	●	●	●	●	●	●	●
Apparent power							●	●	●	●	●	●	●	●
Current+ voltage			●	●	●	●	●	●	●	●	●	●	●	●
Frequency			●	●			●	●	●	●	●	●	●	●
Power factor			●	●			●	●	●	●	●	●	●	●
Operating time (reset)			●	●										
Average active power							●	●	●	●	●	●	●	●
Max. average active power							●	●	●	●	●	●	●	●
Dual tariff							●							
Communication — Pulse output	●	●	●		●		●		●		●	●	●	●
RS485 interface				●		●			●		●		●	
MID compliant					●	●				●	●		●	●

ELECTRICITY METERS

PRODUCT SELECTION

A meter should be selected according to the network (single-phase or three-phase), its maximum current, required displayed values and communication type, allowing it to be run by a monitoring system.

MID certification, in some meters, ensures the accuracy of metering with a view to charging out the electricity used.
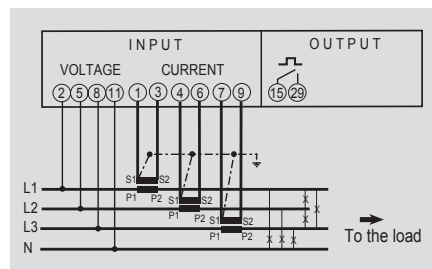
CONNECTION

■ Direct connection meters

The meter is connected in series on the line to be metered and is protected by the circuit breaker placed directly upstream. It must be calibrated to cope with the maximum current permitted by the meter.
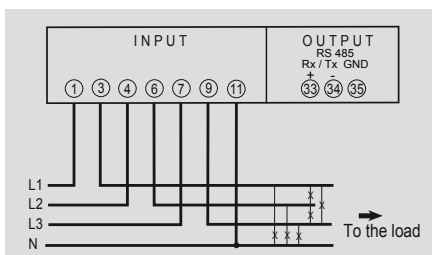

■ Meters connected with CT

Meters have 2 types of input: "current" and "voltage" inputs.

Each current transformer secondary is connected to the corresponding control unit inputs (terminals 1-3/4-6/7-9). This allows the current flowing through the CT to be measured.

To create the voltage tap, each conductor is connected to inputs 2/5/8 and 11 respectively. These connections are used to supply the meter with power.
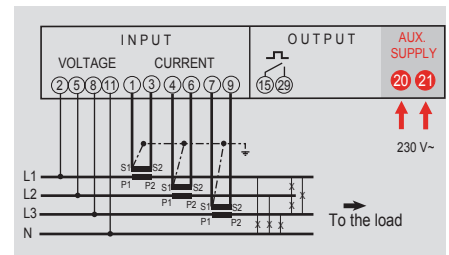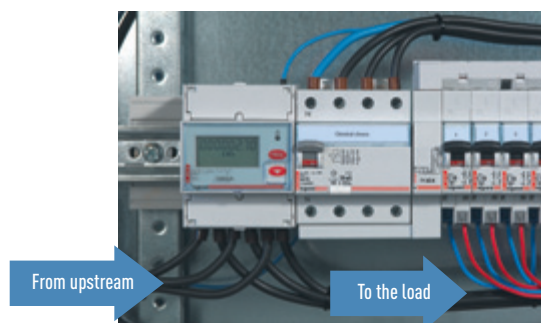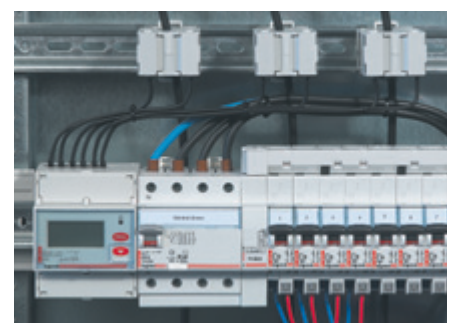

CAUTION

Some meters, such as MIDs, need an auxiliary power supply in order to work.

Both the connection and selection of output parameters (pulses or RS485) will be discussed in the "MODBUS network" section.

DIRECT CONNECTION

CONNECTION WITH CT

PARAMETER SETTING

After connection, the electricity meter parameters may need to be changed so that it displays data consistent with the currents flowing through the measured circuit.

The main parameters to be set are:

■ The connection mode
- Mode A or Mode B (3-phase meter with CT). This depends on the wiring (Number of CTs, network with or without neutral, etc).

■ The metering mode (Dual-tariff meter Cat. No. 0 046 73) :
- ASY mode: Partial electricity metering always active
- SYn mode: Partial electricity metering activated when the external contact closes (terminals 23/25)
- trf mode: Electricity metering with dual tariff. The tariff is switched when the external contact closes (terminals 23/25).

■ The CT transformation ratio
This corresponds to the value of the current transformer ratio.
Example: if the CT = 800/5, the CT value will be 800:5, or 160.

■ The VT transformation ratio
This corresponds to the value of the voltage transformer ratio.
Example: if the VT = 600/100, the VT value will be 600:100, or 6.

When the voltage transformer is not being used, leave the value at 1.

■ Data transfer
Electricity meters have pulse type or RS 485 outputs which can send data to an operating system. These outputs therefore need to be configured.
In programming mode, it is possible to change the pulse weights and duration or the address, the stop bit and the MODBUS network parity.

PARAMETER IDENTIFICATION

DISPLAY	PARAMETER
Addr	Communication address
bAUd	Communication speed
PAr	Parity bit
nonE	None
EVEn	Even
odd	Odd
PLSt Act	Pulse output = Active energy
PLSt rEA	Pulse output = Reactive energy
PLSU	Pulse weight
PLSd	Pulse duration
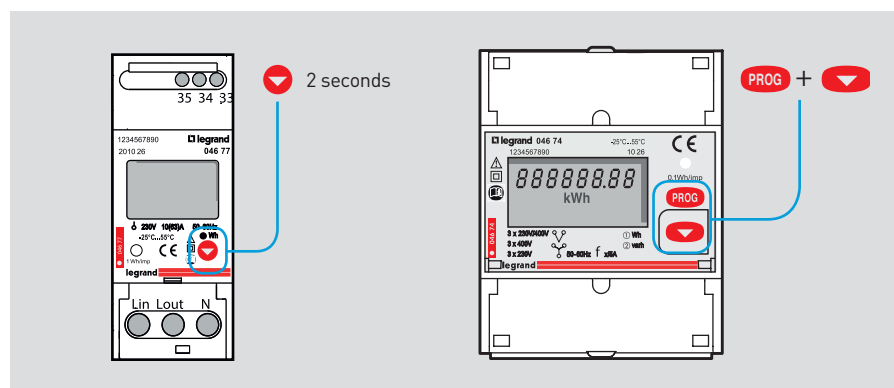
Enter programming mode, confirm and pass to the next stage
Default code for entering programming mode: 1000

MULTI-FUNCTION
MEASURING UNITS

Multi-function measuring units are used to meter, measure, monitor and communicate the installation electrical parameters in order to optimise the consumption and energy quality of electrical circuits in commercial and industrial environments.

Meter: the energy consumed by the various circuits.

Measure: the electrical (current, voltage, power, etc) or analogue (temperature) values to check if the installation is working properly.

Monitor: energy quality by analysing harmonics and measuring the reactive energy.

Communicate: the values measured to monitoring or energy management systems.

CHARACTERISTICS
- LCD display
- Reference voltage Un
  - single-phase: 11 V to 404 V ~
  - three-phase: 18 V to 704 V ~
- Frequency: 45 to 65 Hz
- Conform to standards:
  - IEC 61557-12
  - IEC 62053-22/23
- Accuracy
  - active energy (EN 62053-21): Class 0.5S
  - reactive energy (EN 62053-23): Class 2
- Mounted on DIN rail or on door

EMDX³
DOOR MOUNTING
MULTI-FUNCTION
MEASURING UNIT

EMDX³
DIN RAIL MOUNTING
MULTI-FUNCTION
MEASURING UNIT

PRODUCT SELECTION

The multi-function measuring units should be selected according to the network, mounting in the enclosure, required displayed values and communication type allowing it to be run by a monitoring system.

		Modular	Access	Premium
CATALOGUE NUMBER		0 046 75/76	0 146 68	0 146 69
Type		Modular	Access	Premium
Measurements				
Currents	Instantaneous: I1-I2-I3-IN	●	●	●
	Max. average: I1-I2-I3-IN	●	●	●
Voltages and frequencies	Instantaneous: U1-U2-U3-U12-U23-U31-F	●	●	●
	Average/Max. average: U1-U2-U3-U12-U23-U31-F			●
Power	Instantaneous: 3P-ΣP-3Q-ΣQ-3S-ΣS	●	●	●
	Max. average: ΣP-ΣQ-ΣS	●	●	●
	Predictive: ΣP-ΣQ-ΣS			●
Power factor	Instantaneous: 3PF-ΣPF	●	●	●
	Average/Max. average: ΣPF			●
Metering				
Energy	Active	+ kWh	+ kWh	+/- kWh
	Reactive	+ kvarh	+ kvarh	+/- kvarh
	Apparent			kVAh
Hour counter		●	●	●
Harmonic analysis				
Total harmonic distortion	Numbers	51	51	63
	Currents	THD I1/I2/I3	THD I1/I2/I3	THD I1/I2/I3/IN
	Phase-to-neutral voltages	THD U1/U2/U3	THD U1/U2/U3	THD U1/U2/U3
	Phase-to-phase voltages	THD U12/U23/U31	THD U12/U23/U31	THD U12/U23/U31
Other				
Dual tariff		●		
Temperature		Internal		External via PT100 sensor[1]
Alarm on electrical values		● [1]	● [1]	● [1]
Communication	RS 485 (MODBUS)	● [2]	● [1]	● [1]
	Pulses	●	● [1]	
Modules				
RS485 communication (MODBUS)			0 146 71	0 146 73
Functions	1 output: pulse or alarm feedback		0 146 72	
	Memory			0 146 74
	2 inputs/2 outputs: monitoring, remote control			0 146 75
	Temperature			0 146 77

1: with option module   -   2: Cat. No. 0 046 76 only

Depending on which of the various functions are required, the appropriate option modules must be used for door-mounted control units.

MODULES FOR EMDX³ ACCESS UNIT

RS485 Communication
Cat. No. 0 146 71

1 output
Cat. No. 0 146 72
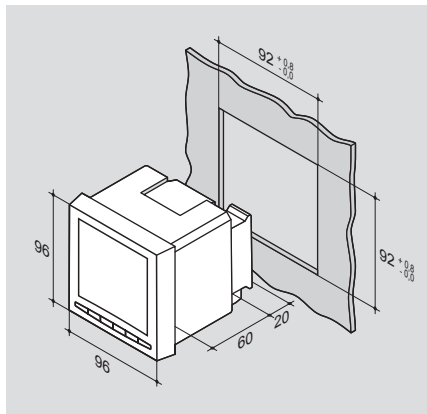
MODULES FOR EMDX³ PREMIUM UNIT

RS485 Communication
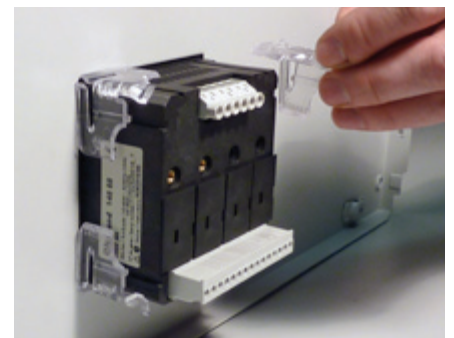Cat. No. 0 146 73

2 inputs/2 outputs
Cat. No. 0 146 75

Memory
Cat. No. 0 146 74

Temperature
Cat. No. 0 146 77

MOUNTING MULTI-FUNCTION MEASURING UNITS

Modular control units are mounted on a DIN rail. For door-mounted control units, a 92 x 92 mm cut-out needs to be made in the door or faceplate.

Making the cut-out with a punch

After making the cut-out, insert the control unit in its slot and fix all 4 clips at the back to hold it securely in place.
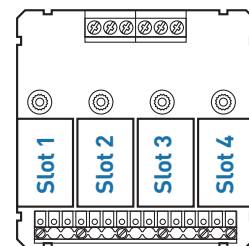
MOUNTING OPTION MODULES

Option modules are fixed to the back of door-mounted control units. To do this, the plastic cover needs to be removed and the module screwed in instead of this cover.
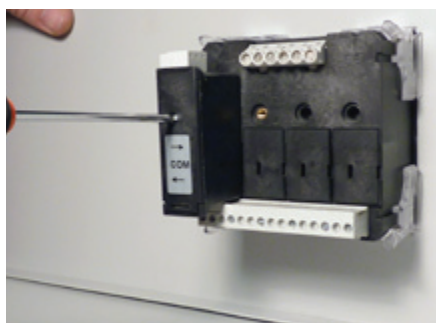

Caution, some modules are mounted in precise locations. Their positioning is indicated in each manual.
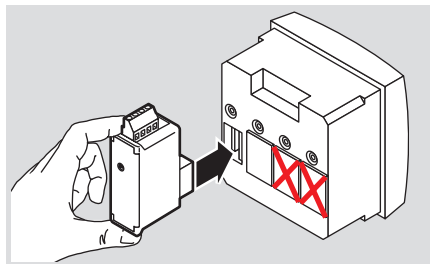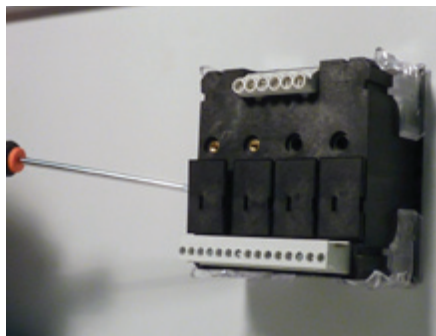
RS485 communication module for EMDX³ Access unit: Slot 1 & 2 only
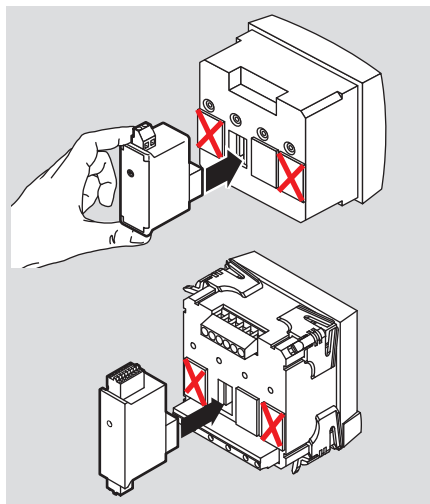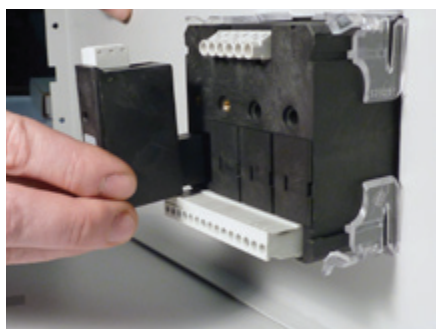
Memory module or temperature module for EMDX³ Premium unit: Slot 2 & 3 only

MULTI-FUNCTION MEASURING UNITS

CONNECTION

Like meters connected by a CT, Multi-function measuring units have 2 types of input. "Current" inputs and "voltage" inputs.

Each current transformer secondary is connected to the corresponding multi-function measuring unit inputs (terminals S1-S2). This allows the current flowing through the CT to be measured.

To create the voltage tap, each conductor is connected to inputs V1, V2, V3 and VN respectively.

! The multi-function measuring units need an auxiliary power supply in order to work. Protection with a 0.5 A gG fuse is recommended on the voltage taps and the auxiliary power supply.

"CURRENT" INPUTS

"VOLTAGE" INPUTS   AUXILIARY POWER SUPPLY
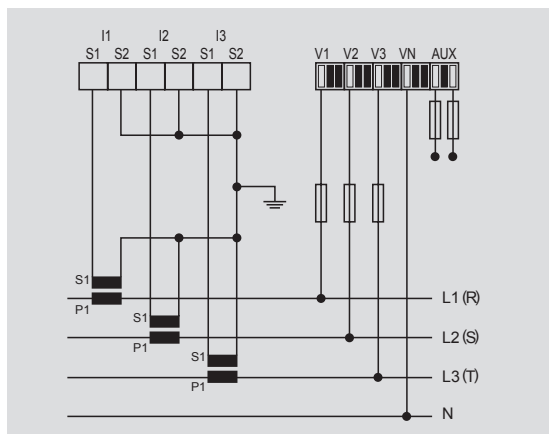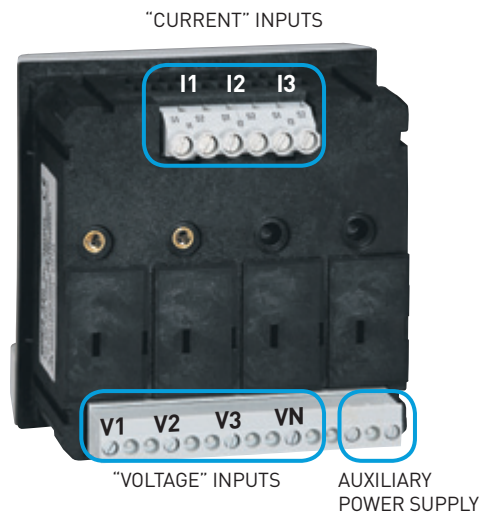
THREE-PHASE CONNECTION
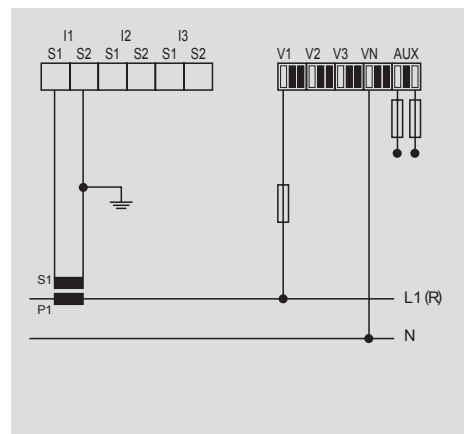
SINGLE-PHASE CONNECTION

PARAMETER SETTING

After connection, the control unit parameters need to be changed so that it displays data consistent with the currents flowing through the measured circuit.
The main parameters to be set are:
■ The network
This depends on the wiring (Number of CTs, single or three-phase network with or without neutral, balanced or not, etc).
■ The value of the CT primary
Example: if the CT = 800/5, the CT value will be 160.

Other parameters can be accessed and modified depending on the option modules installed (eg: communication module, alarm for function module, etc).

PARAMETER IDENTIFICATION

DISPLAY	PARAMETER
nET	Network type
Ct	Current transformer
tIME I	Current integration time
tIME P	Power integration time
rSEt	Reset - Ea, Er, Pmax, Imax
OUt1 tYPE	Output type: Ea, Er, Alar, cd
OUt1 VAl	Output weight
OUt1 dUr	Pulse duration
COM Adr	Communication address
COM bdS	Communication speed
COM Par	Parity bit
COM StOP	Stop bit
bAC Lit	Backlighting
HOUr tYPE	Hour counter: I, U, Inpt, Aux
InPt	Input: Line or Tarf
PASS CHG	Change password
3000	Serial number
Soft	Software version

Enter programming mode by pressing and holding down the "PROG" button
Default code for entering programming mode: 100

THE
CONCENTRATOR

The concentrator is used to collect pulses sent by the electricity, gas, water, oil meters, etc and transmit this information, via its RS485 output, to a monitoring or energy management system.

CHARACTERISTICS
- LCD display
- Power supply:
  - AC: 110 to 400 V
  - DC: 120 to 300 V
- Frequency: 50-60 Hz
- 7 configurable digital inputs (open or closed contact)
- Communication: RS485 MODBUS
- Mounted on DIN rail

CONNECTION

Protection (2), with a 0.5 A gG fuse, is recommended on the device power supply (1).

Each meter pulse output is connected to a concentrator input (terminals 31 to 37). The common on these outputs should be connected to terminal 51 to polarise the circuit.

Make sure the polarity of meter pulse outputs connected to the concentrator is correct.

PARAMETER SETTING

The parameters of each input should be set according to which meter is connected. It is essential to change the unit (kWh, m³, etc) and the pulse weight. It is also possible to change the currencies (€, $, £, etc) or contact type (NO, NC) as well as to assign alarms.

The default code for entering programming mode is: 1000.

BELDEN 9842 cable
or cable with equivalent characteristics

120 Ω
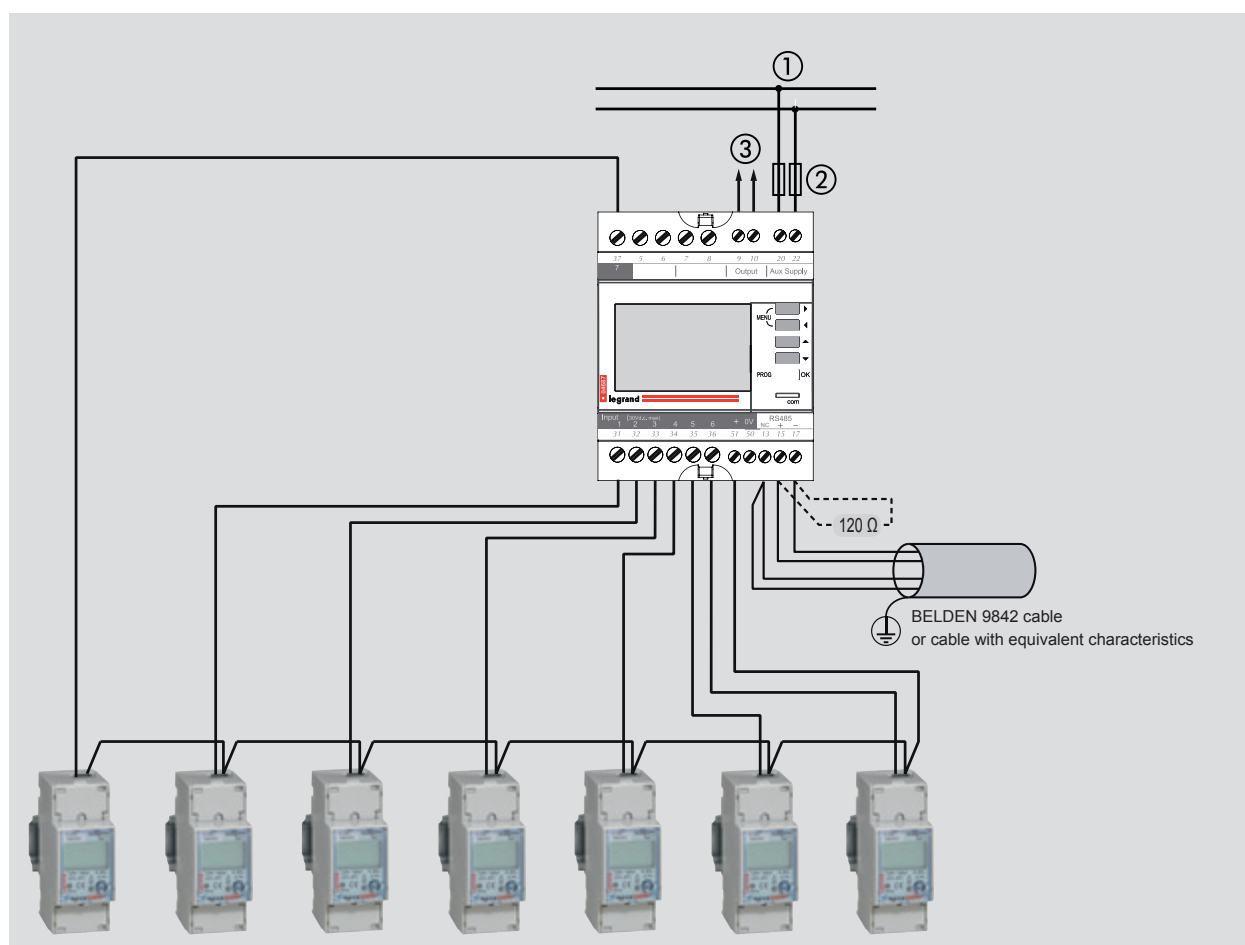
COMMUNICATION
INTERFACES FOR
CIRCUIT BREAKERS

INTERFACE FOR DPX
CAT. NO. 0 261 37

INTERFACE FOR DPX³ AND DX³ ADD-ON MODULE WITH INTEGRATED MEASUREMENT CAT. NO. 4 210 75

DMX³ ELECTRONIC PROTECTION UNIT WITH TOUCH SCREEN Integration in the circuit breaker and setting the communication option parameters must always be performed in the factory.

Circuit breakers with integrated measurement functions communicate via communication interfaces. They can used to remotely transfer data such as the state of the circuit breaker or the measured electrical values.

CHARACTERISTICS
- Communication interface for DPX electronic MCCBs – Cat. No. 0 261 37
- 24 V DC/AC power supply
- 2-wire RS485 serial port
- RTU/ASCII mode
- MODBUS address 1 to 247 via configurator kit
- Communication interface for DPX³ and DX³ add-on module with integrated measurement Cat. No. 4 210 75
- 24 V DC/AC power supply
- 2-wire RS485 serial port
- RTU/ASCII mode
- MODBUS address 1 to 247 via configurator kit
- DMX³ communication option - Cat. No. 0 288 05 Option integrated on request, in the factory, on protection unit version with touch screen: Lsi Cat. No. 0 288 03 and Lsig Cat. No. 0 288 04.

INSTALLATION AND CONNECTION
Both communication interfaces for DPX and DPX³ and the DX³ add-on module with integrated measurement must be supplied with 24 V AC or DC and connect to the RS485 network. The network parameters should be configured using configurators (Cat. No. 3501K).
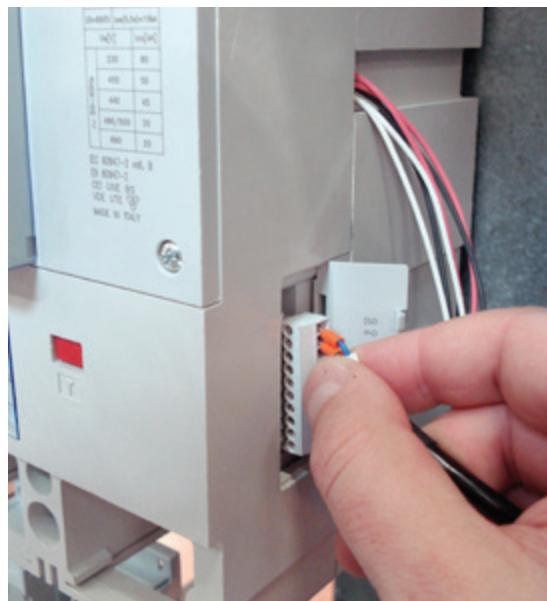
CONFIGURATOR KIT
CAT. NO. 3501K

COMMUNICATION INTERFACE
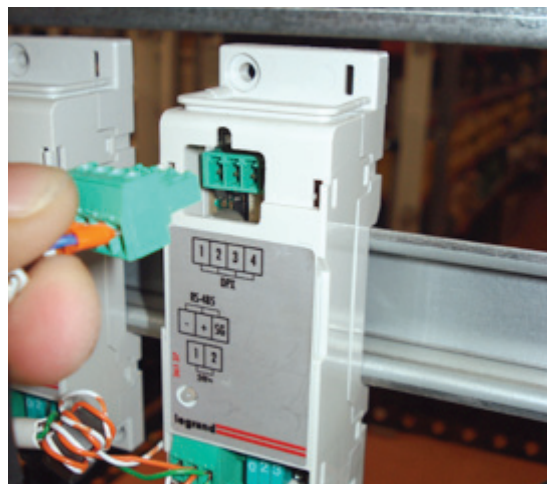## FOR DPX CAT. NO. 0 261 37
This interface is used to read information from an electronic DPX.
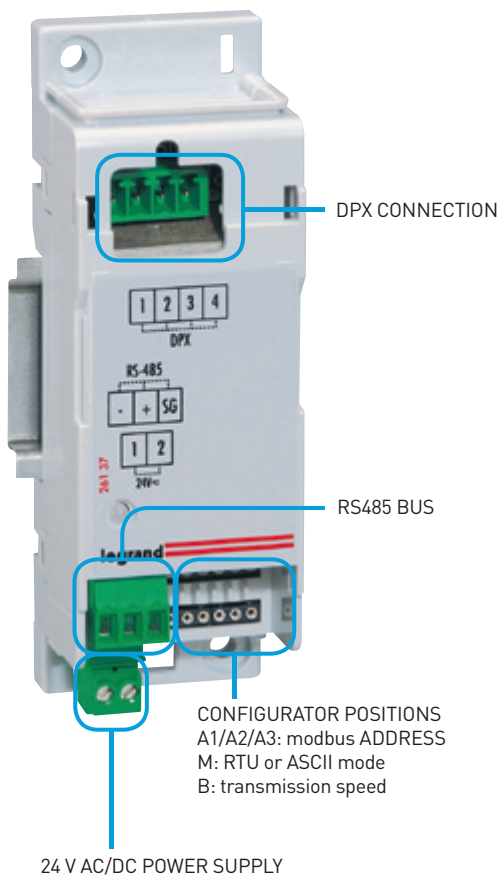
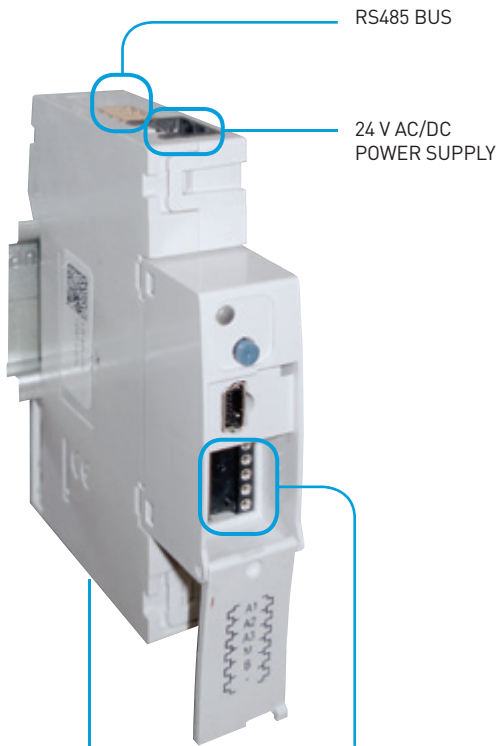CONNECTING THE INTERFACE TO THE DPX

Connection on the side of the DPX.

DPX CONNECTION

RS485 BUS

CONFIGURATOR POSITIONS
A1/A2/A3: modbus ADDRESS
M: RTU or ASCII mode
B: transmission speed

24 V AC/DC POWER SUPPLY

Connection on the front of the communication interface.
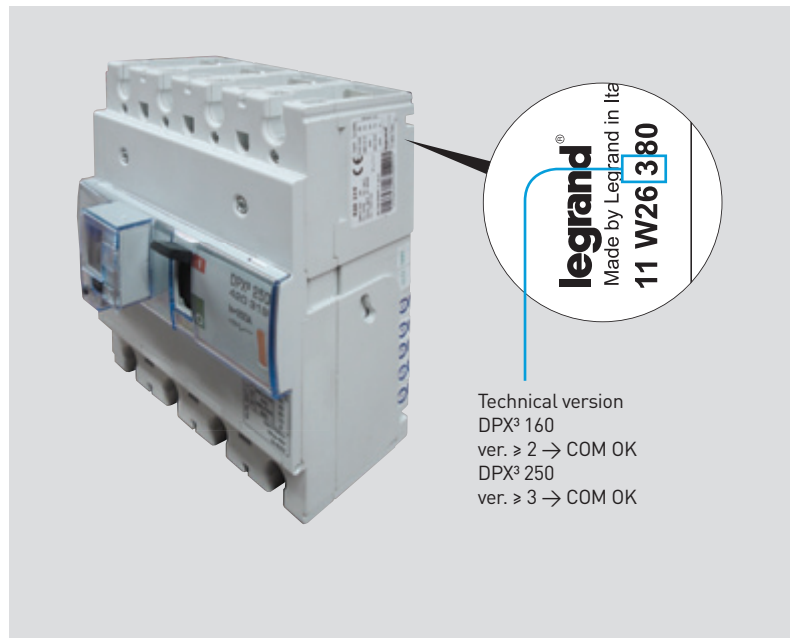The connecting cable is supplied with the interface.

**COMMUNICATION INTERFACE FOR
DPX³ AND DX³ ADD-ON MODULE WITH
INTEGRATED MEASUREMENT
CAT. NO. 4 210 75**
This interface is used to read the information
on an electronic DPX³ with measurement unit.

RS485 BUS

24 V AC/DC
POWER SUPPLY

DPX³ CONNECTION

CONFIGURATION OF
MODBUS PARAMETERS
A1/A2/A3: Modbus ADDRESS
M: RTU or ASCII
communication mode
B: transmission speed

IDENTIFICATION OF THE TECHNICAL VERSION OF COMPATIBLE CIRCUIT BREAKERS

Technical version
DPX³ 160
ver. ⩾ 2 → COM OK
DPX³ 250
ver. ⩾ 3 → COM OK

CONNECTING THE INTERFACE TO THE DPX³

Connection under the communication
interface. The connecting cable is supplied
with the interface.

Connection on the left-hand side of the
DPX³, under the label.

CONNECTION TO A DX³ add-on module with integrated measurement.

DX³: DX³ add-on modules with integrated measurement.
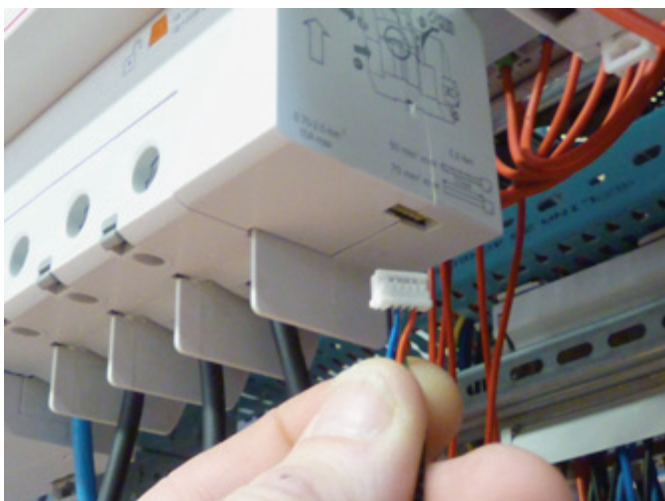
The communication interface is connected under the DX³ module.

The add-on module with integrated measurement can be used with DX³ circuit breakers with 1.5 modules per pole.

THE
IP CONVERTER

The IP converter is used to convert data from the RS485-MODBUS network to the Ethernet network (TCP/IP protocol). It is used to display and exploit the data on a PC, via dedicated software or a Web server.

CHARACTERISTICS
■ Supply voltage
Cat. No. 0 046 88 (2 modules):
- 18 to 30 V DC or
- 12 to 29 V AC - 50/60 Hz
Cat. No. 0 046 89 (3 modules):
- 90 to 260 V AC - 50/60 Hz

■ Conforming to the following standards and specifications:
- EN 61000-6-1/EN 61000-6-2
- EN 61000-6-3/EN 61000-6-4
- EN 50428 (HBES)
- IEEE 802.3, EIA RS485
■ Ethernet interface:
- RJ 45; 10/100 Mb
■ RS485 interface:
- 2 wires (+/-) and earth
■ RTU/ASCII mode
■ No. of devices which can be connected: 32 max.
■ Max. length of the RS485 bus: 1200 m
■ Mounted on DIN rail

CONNECTION
Three connections are needed to connect the IP converter.

1 - Power supply
The IP converter Cat. No. 0 046 88 should be powered with direct voltage of 18 to 30 V DC or with alternating voltage of 12to 29 V AC and converter Cat. No. 0 046 89 with alternating voltage of 90 to 260 V AC.

2 - MODBUS RS485 connection
The MODBUS network is connected with a cable consisting of 2 wires (+/-) and earth (recommended cable: Belden 9842).

⚠ **The cable shielding should only be earthed at one end of the MODBUS network (see page 22).**
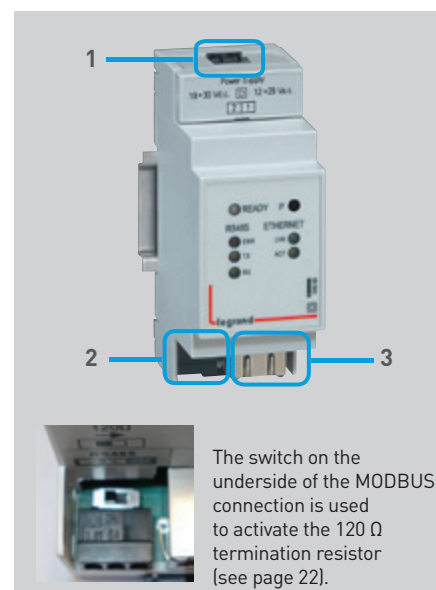
3 - Ethernet connection
The connection is made via an RJ 45 socket.

IP converter Cat. No. 0 046 88

27 V DC - 0.6 A modular
power supply Cat. No.E49
(old Cat. No. 0 035 67)

The switch on the underside of the MODBUS connection is used to activate the 120 Ω termination resistor (see page 22).
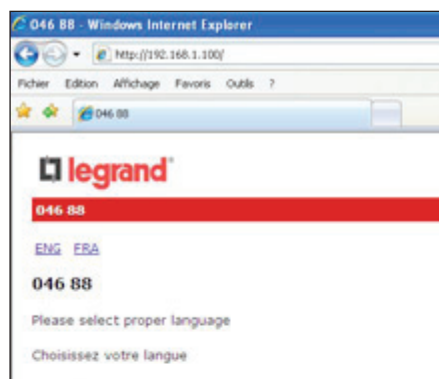
PARAMETER SETTING

The IP converter parameters (MODBUS and Ethernet) need to be changed. To set the parameters, connect a PC directly to the converter with a crossover cable.

Cat. Nos. 0 046 88/89

RJ 45 crossover cable
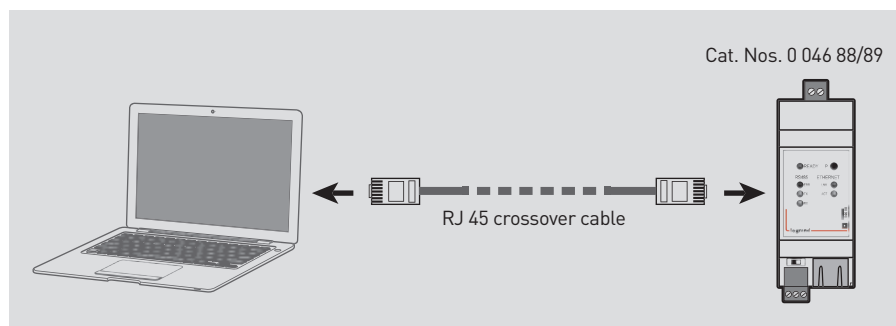
For the direct link between the PC and the converter, always use a RJ 45 crossover cable

Once the converter is connected and powered, change your PC's network parameters (see manual), then open your web browser and type in the converter IP address (default address: 192.168.1.100)

The IP converter home page appears. Select your language.

The various converter parameters are now displayed.
Click Settings.

Enter the user name and password.
By default:
- user name: customer
- password: 0000
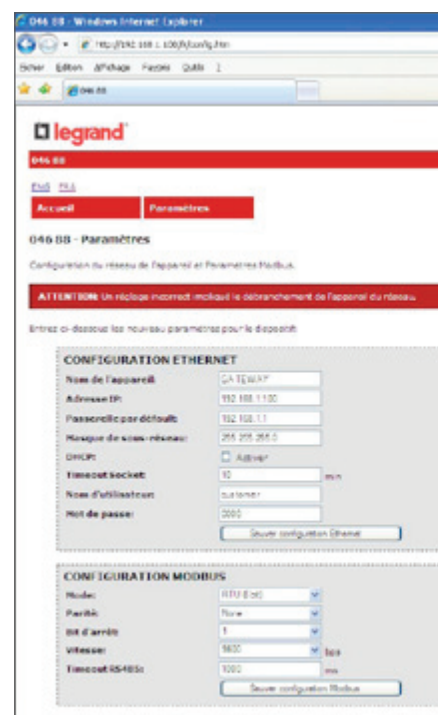
Start by changing the MODBUS parameters, then save.
Next change the Ethernet parameters, then save.
Disconnect the IP converter from the PC and connect it to your Ethernet network.

THE
RS485-MODBUS
NETWORK

PRINCIPLE

The RS485-MODBUS network is a communication network which allows measuring devices to exchange information with a computer or a PLC. This network is based on the master/slave principle.

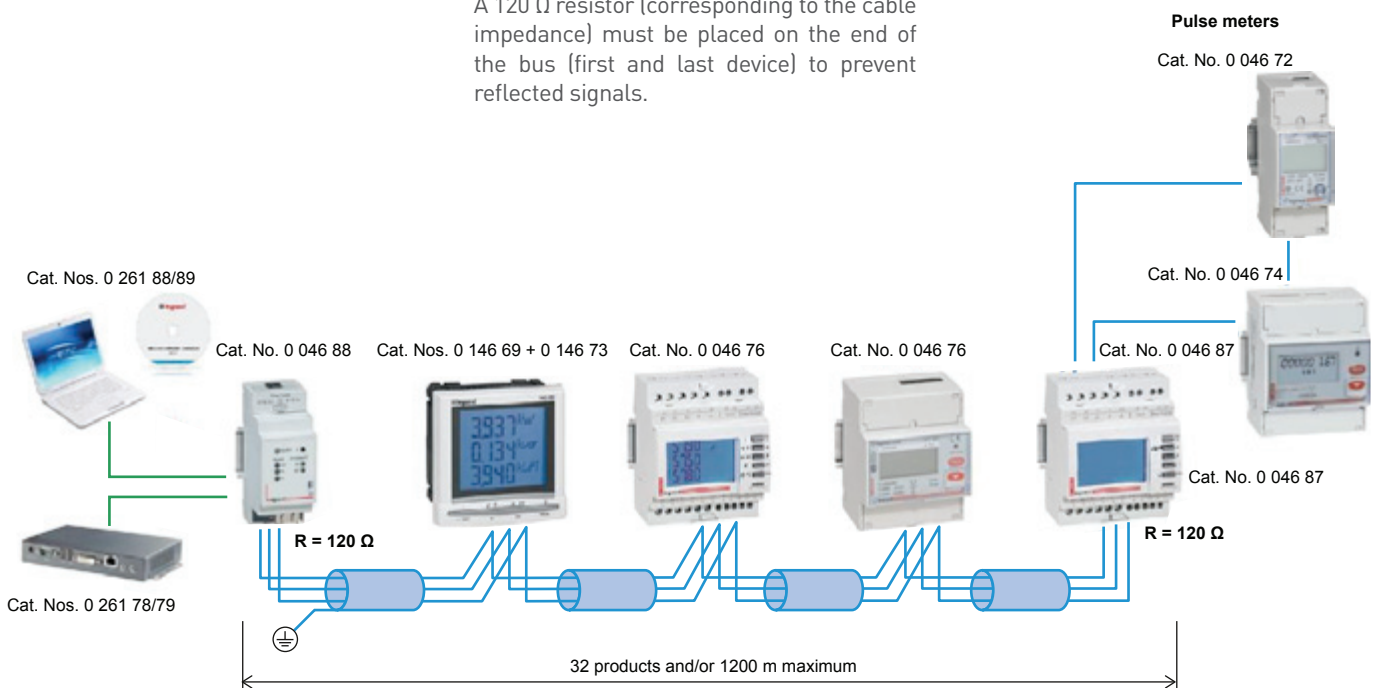Legrand measurement products operate in 8-bit MODBUS RTU protocol.

CONNECTION

To create a MODBUS network, the various measuring devices with an output, or RS485 interface, must be connected in series (see diagram below).

The connection must be made using a shielded twisted pair (eg: Belden 9842 cable) with minimum cross-section of 0.20 mm² and impedance of 120 Ω.

To ensure equipotentiality of the shielding, only one end must be connected to earth.

A 120 Ω resistor (corresponding to the cable impedance) must be placed on the end of the bus (first and last device) to prevent reflected signals.

Pulse meters

Cat. No. 0 046 72

Cat. No. 0 046 74

Cat. Nos. 0 261 88/89

Cat. No. 0 046 88   Cat. Nos. 0 146 69 + 0 146 73   Cat. No. 0 046 76   Cat. No. 0 046 76   Cat. No. 0 046 87

Cat. No. 0 046 87

R = 120 Ω

R = 120 Ω

Cat. Nos. 0 261 78/79

32 products and/or 1200 m maximum

PARAMETER SETTING

Four parameters are essential to ensure correct operation of a MODBUS network:
– the MODBUS ADDRESS
– the communication speed
– the parity bit
– the stop bit

MODBUS ADDRESS

Each device must have a different MOD-BUS address. Each meter or measurement control unit must therefore be configured with a different address between 1 and 255.

Communication speed

The communication speed is the data transmission speed between master and slave in bps (bits per second). This must be identical for all devices connected to the RS485 bus.

Parity bit

This improves the reliability of communication. Legrand recommends setting no parity bit (none) because other more effective checking methods exist in the whole monitoring system.

Stop bit

After transmission, the line is set to off for 1 or 2 clock periods depending on the number chosen.

i Recommendations for an RS485 network with Legrand products:

- Communication speed: 9600 bps
- Parity bit: None
- Stop bit: 1

THE WEB SERVER AND
THE MEASUREMENT
DISPLAY SOFTWARE

The Web server or measurement display software is used to remotely display and save data provided by the measuring devices.

■ The Web server
This can be used to display data on any type of screen equipped with a web browser (PC, smartphone, tablet computer, etc). It has a hard disk for saving data.

■ Measurement display software
This can be used to view measurements on a dedicated PC on the local area network. Data is saved to the computer hard disk.

CHARACTERISTICS
■ Web servers
Number of measuring devices:
Cat. No. 0 261 78: 32 max.
Cat. No. 0 261 79: 255 max.
■ Software
Number of measuring devices:
Cat. No. 0 261 88: 32 max.
Cat. No. 0 261 89: 255 max.

CONNECTION

Power supply with adaptor provided

Connection to the Ethernet network with RJ 45 cable

DC IN 12-19 V   RS 232   USB USB   DVI-D   LAN   Line out Line in
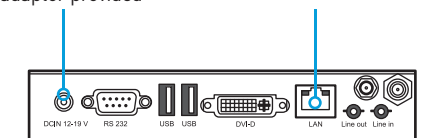
OVERVIEW OF THE INSTALLATION STRUCTURE

Cat. Nos. 0 261 78/79
230 V AC/12 V DC
power supply adaptor
included

Cat. Nos. 0 046 88/89

Hub
Switch
Router

Smartphone

Tablet

Computer

Do not connect any other devices (gateways etc)

Do not connect to the local area network
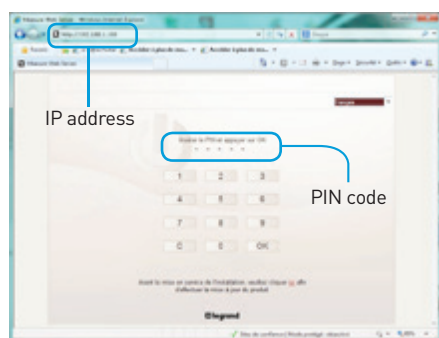
Web server

Hub Switch Router
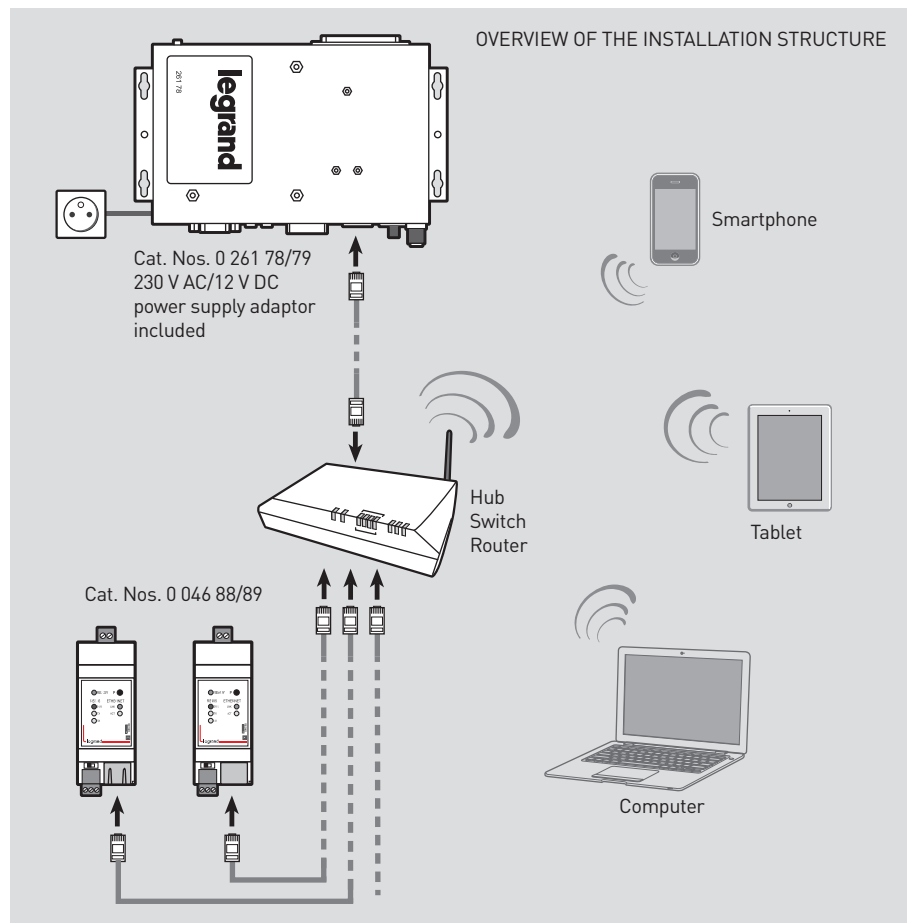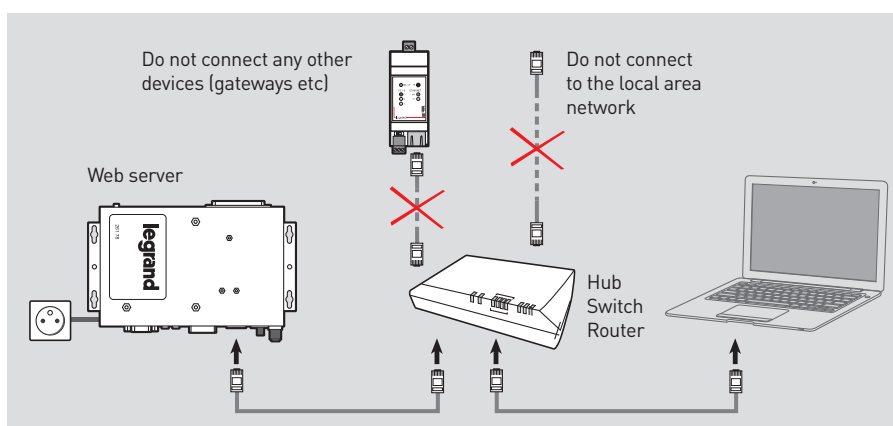
FIRST LOGIN TO SET THE PARAMETERS

PARAMETER SETTING

The first time you log in, connect your computer directly to the web server and change the server configuration (network parameters, date, time, software update, etc).

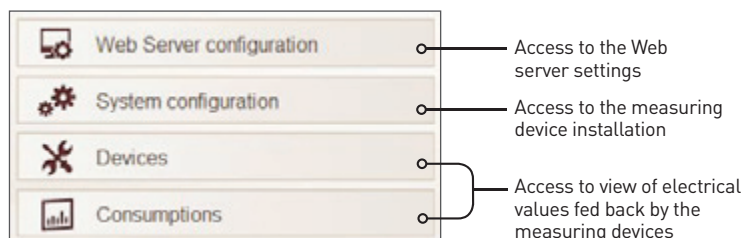Open your web browser and enter the Web server default IP address (192.168.1.100).

IP address

PIN code

Enter the default PIN and PUK codes to access the menu.

PIN : 99999
PUK: 00000 9999 00000

DESCRIPTION OF THE MENUS

The display takes the form of 4 menus that can access various submenus.

Web Server configuration	Access to the Web server settings
System configuration	Access to the measuring device installation
Devices	Access to view of electrical values fed back by the measuring devices
Consumptions	

■ "Web server configuration" menu

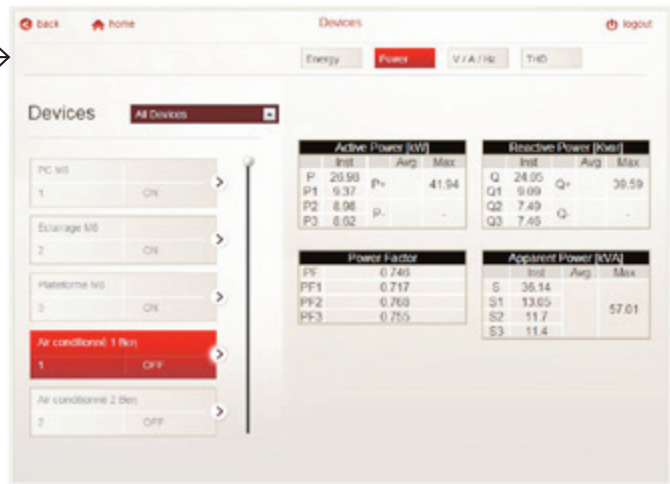|	
Users	Used to assign access according to the type of user (administrator, installer, consultant, etc) and change the PIN and PUK codes
Date and time	Access to date and time settings
CSV and other settings	Used to change the format of log files, the language, the server name, etc
Network settings	Used to change the server IP address
Software update	Used to install internal software updates
Backup / Restore	Used to save and restore the database

■ "System configuration" menu

Used to create electrical panels, circuits and measurement zones

Used to provide information to the IP converters and their related measuring devices

Used to change currencies and the cost of energy (price of kWh)

■ "Devices" and "Consumption" menus
This menu can be used to view all the electricity consumption and values.

Can be used to view the energy, power, voltage, current and harmonic distortion for each network device.

Consumptions

Used to display total and partial consumption.

Grand Total

Partials - Groups and load type

Details

Display of total consumption of all devices connected to the web server.
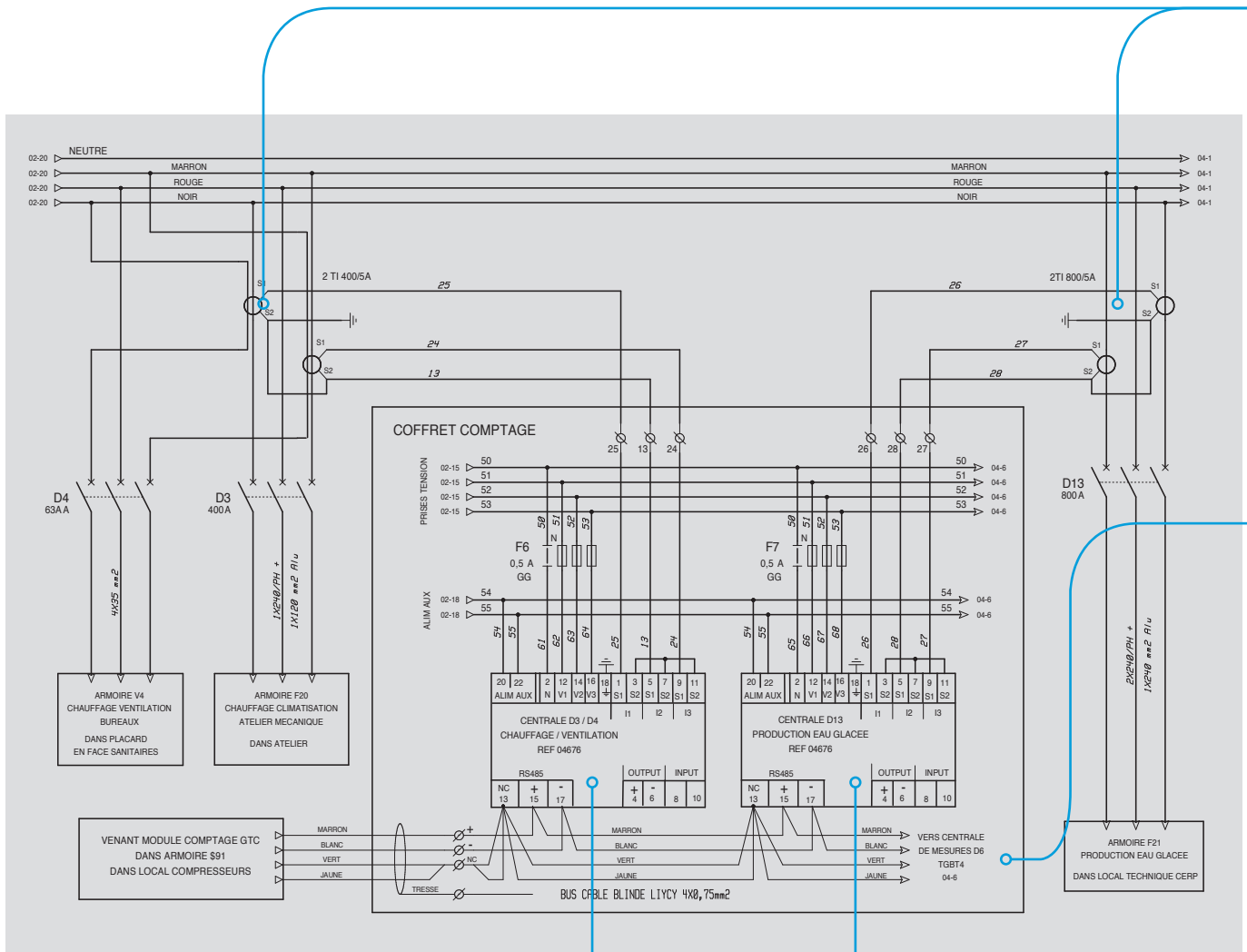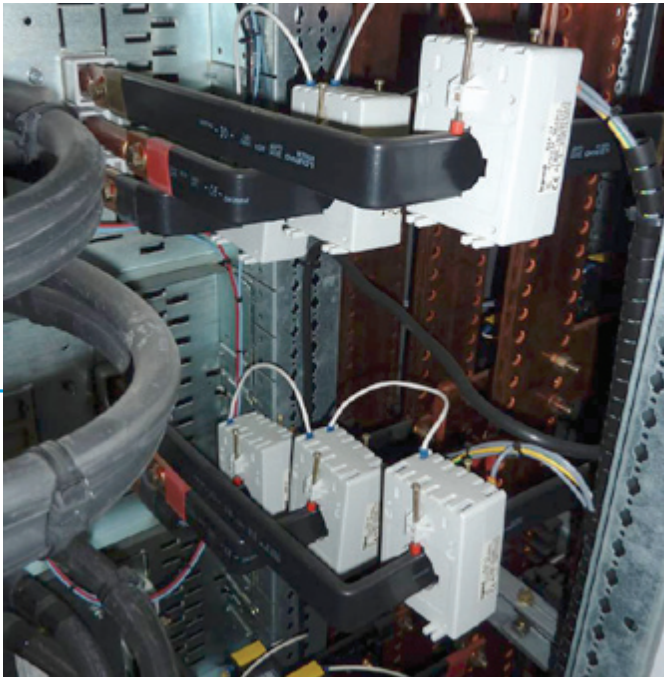

Display of consumption by circuit and measurement zone.

Display of consumption of each device according to the circuit or zone.

EXAMPLES OF
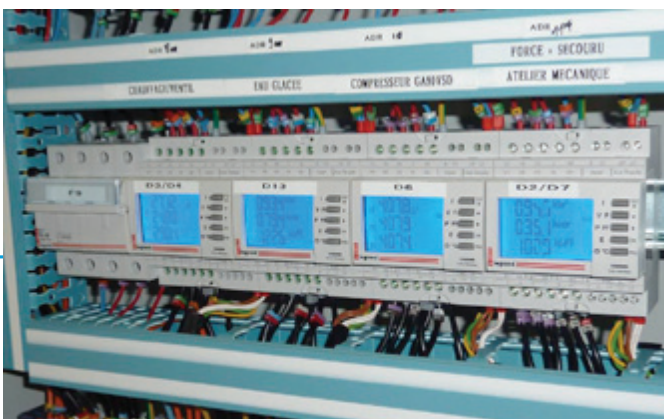# INSTALLATION

Current transformers
mounted on flexible bars

24 V power supply
and IP converter

Multi-function
measuring units
on rail

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