sustainable savings

that can be viewed directly on the internet

MEASUREMENT, METERING & DISPLAY VIA
e.COMMUNICATION

legrand®

Measurement, metering and display, the first step towards sustainable savings

Measurement, metering & display via e•communication

Measurement is the basis of all diagnostics. By monitoring your consumption, you can make savings of 8 to 12%. And by combining this with action plans, you can optimise performance and commit to a sustainable development process. Energy efficiency requirements in commercial buildings will encourage the use of measurement by load type, in each consumer unit, with consumption displayed as close as possible to the user (heating, cooling, hot water production, lighting, cooking, power sockets).

Legrand solutions

In addition to energy meters, measurement control units and the new DX³ or DPX³ protection devices incorporating measurement functions, Legrand has developed an **e•communication** infrastructure for displaying information on reactive power consumption, voltage disturbance, harmonic distortion, etc. according to the type of building (low consumption/high environmental quality, whether in use or being refurbished).

ECO

Installation of 1 web server, 3 electricity meters and 1 measurement control unit, combined with corrective actions

Potential savings for a set of electrically heated offices 600 m²

ANNUAL SAVING

800 €

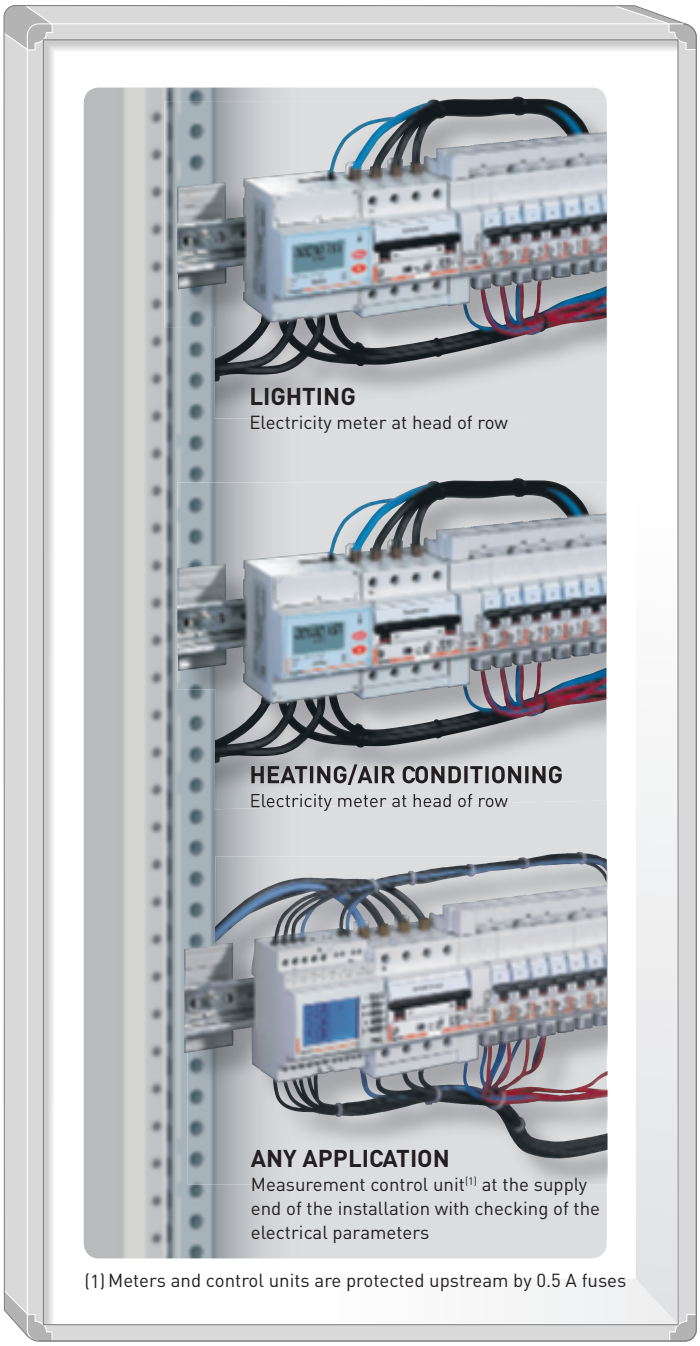
▶ **Payback 24 months max.(1)**

ANNUAL SAVING

1300 kg CO_2 equivalent

CO_2 equivalent of all polluting gases (CO_2, methane, carbon monoxide, fluorinated gases, etc.)

(1) Prices and data for information only valid in France.



(1) Meters and control units are protected upstream by 0.5 A fuses

DISPLAY IN THE CONSUMER UNIT

DISPLAY AS CLOSE AS POSSIBLE TO USERS

Directly on the internet and on tablet computers equipped with a web browser (iPad, Archos, etc.) or smartphones (iPhone, etc.)

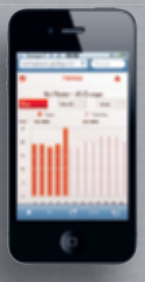
Measurement via e.communication on fixed and mobile screens

Display of the measurement on a screen connected to the IP network with web server, displaying data from measurement control units and EMDX^3 electricity meters.

CENTRALISED DISPLAY FOR OPERATING MANAGERS

Measurement via e.communication on PC screen

Remote display, for a set of buildings, of the measurement information from various main LV distribution boards (MB) or secondary boards (SB). One IP address per consumer unit. Used for the real-time display, measurement and recording of consumption.

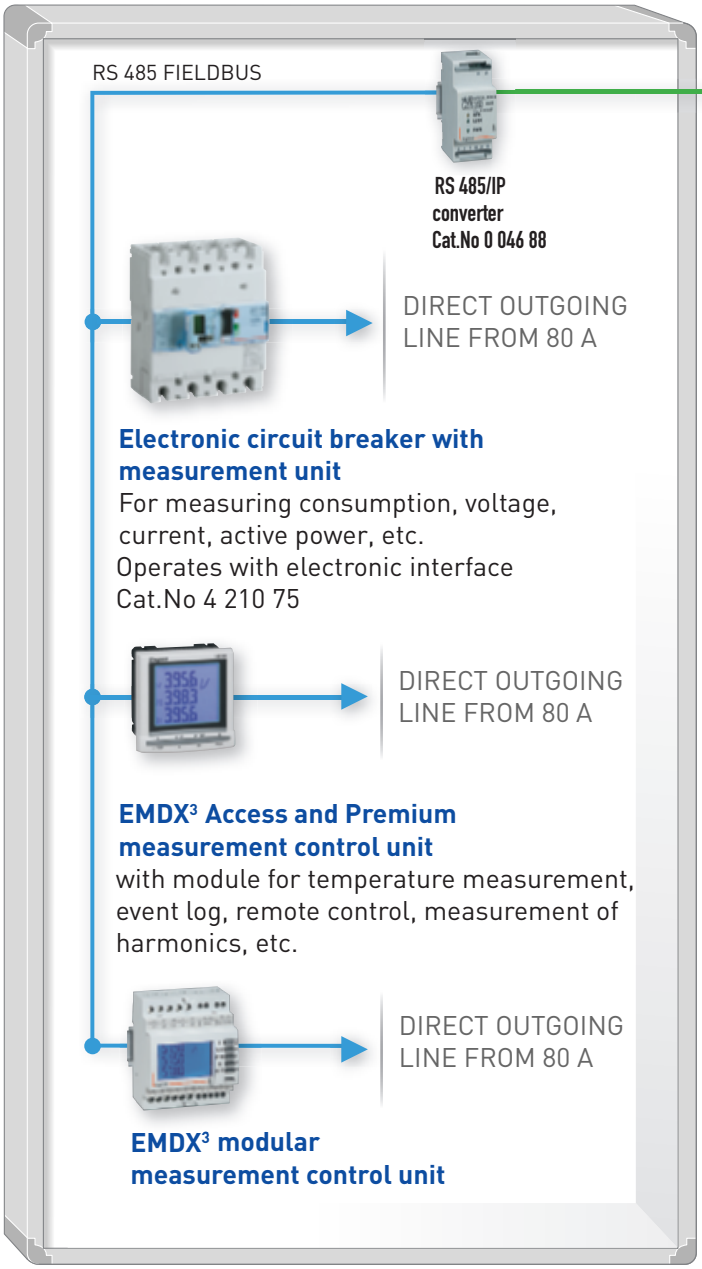


Build an architecture for measurement via e.communication

Measurement, metering and display via e•communication : Each consumer unit has an IP address

Main LV distribution board

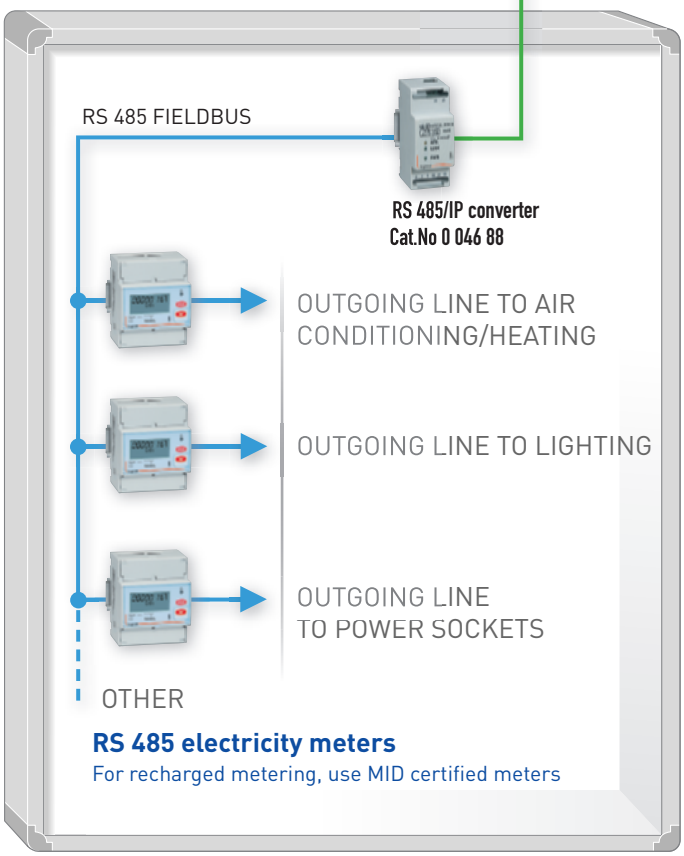
Measurement on each direct outgoing line



Secondary board

Essential measurements

New buildings

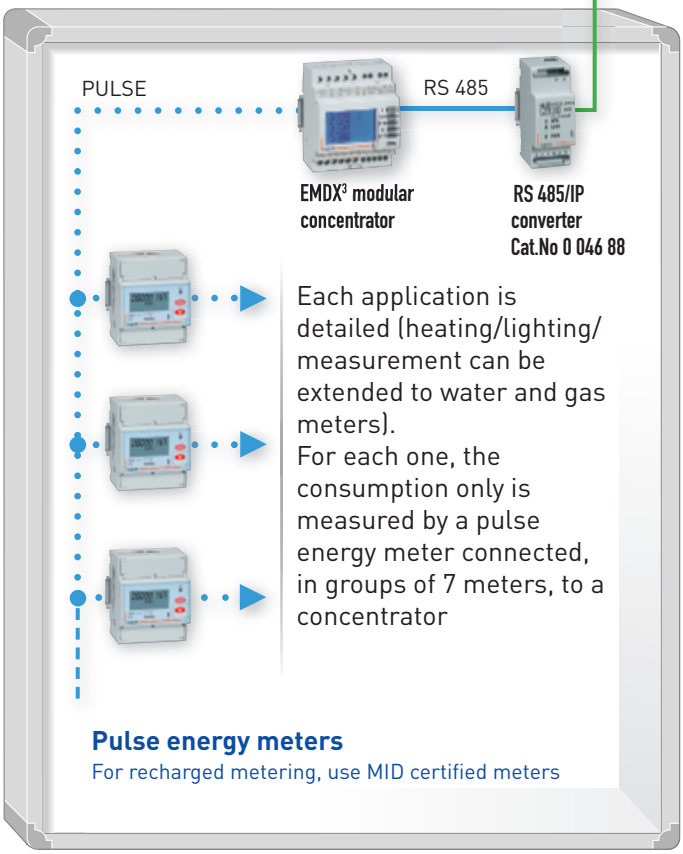


RS 485 - Fieldbus Pulse link IP protocol - Ethernet bus

IP PROTOCOL - ETHERNET BUS

Secondary board

Extension of measurements, (positive energy buildings), existing buildings



DIRECT DISPLAY ON SCREEN

(WITH SOFTWARE OR WEB SERVER, see page 15)

MB

For example at each outgoing line, display and measurement of harmonics, consumption history

SB

For example low consumption/high environmental quality building. Detailed measurements for each application

SB

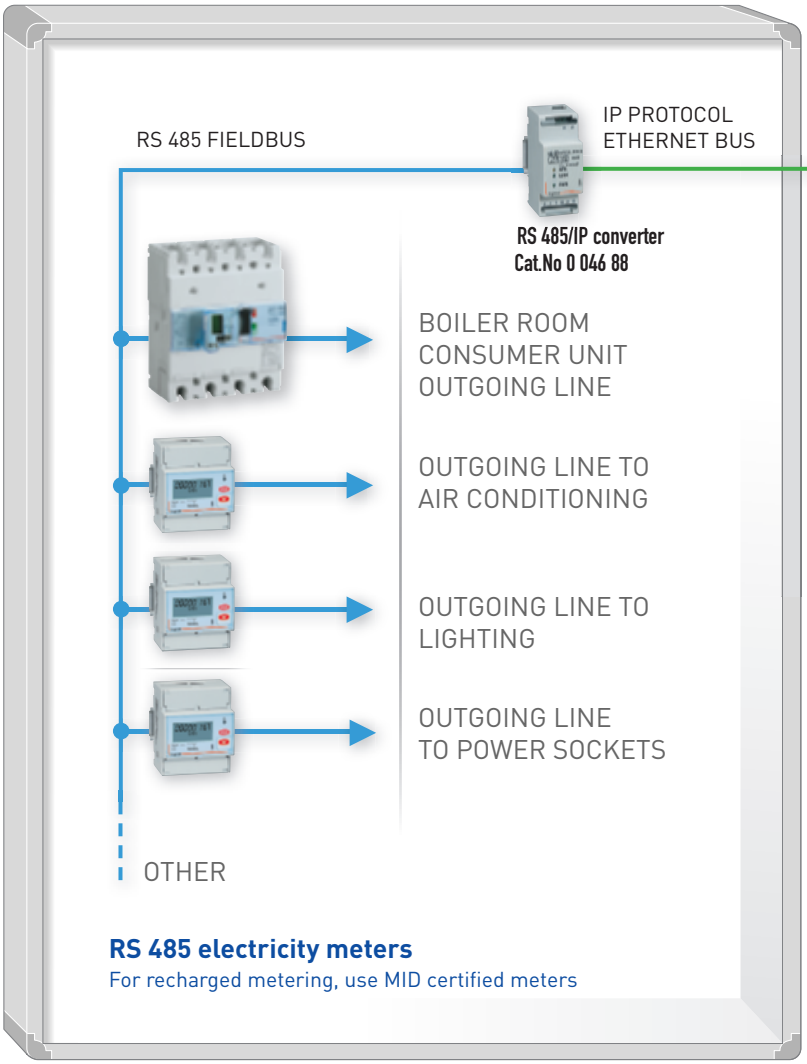
Consumption history per previous days, months and years

Build an architecture for measurement via e.communication

Measurement, metering & display via e.communication : Each consumer unit has an IP address

Main LV distribution board

Essential measurements



Web server

Enables consumption to be displayed on all types of screen equipped with a web browser (PC), Smartphone (iPhone, etc.), TV, tablet computer equipped with a web browser (iPad, Archos, etc.)

Software dedicated to measurement

For displaying measurement or metering on a dedicated PC

RS 485 - Fieldbus

IP protocol - Ethernet bus

GLOBAL IP DISPLAY DIRECTLY ON THE INTERNET WITH THE WEB SERVER

iPad, Archos, etc. type tablet computer equipped with a web browser

e•communication

The consumer unit's consumption per application is displayed, via the web server, on a screen connected to the network displaying, as required, all the parameters of the installation: consumption, energy, voltage, etc.

On PC | On Smartphone* | On TV* | On tablet*

* Direct display on screens equipped with a web browser, using the web server

IP DISPLAY WITH LEGRAND SOFTWARE

e•communication

Measurements from electricity meters or measurement control units (consumption, energy, voltage, etc.) are displayed, via the dedicated software, on a PC connected to the company network.

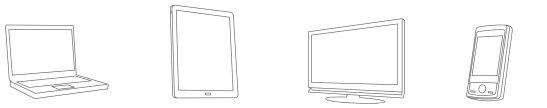
On PC

Configure a system for measurement via e.communication in 3 steps

A simple, intuitive application for complete display of the consumption of a building

To use remote display with the web server:
- If you are on a company network, ask you IT department for a fixed IP address
- If you have a box, ask your service provider for a fixed address

2 solutions for displaying the consumption of buildings: Installation of the "Measurement" application on a dedicated PC, or direct connection to a web server. Then, directly configure (in 3 steps) the display of the consumption of the buildings



* Direct display on screens equipped with a web browser, using the web server

EXAMPLE OF CONFIGURATION OF THE ELECTRICAL INFRASTRUCTURE OF A BUILDING BY CREATING CONSUMER UNITS, CIRCUITS AND AREAS

Example of screen for configuring a consumer unit. Repeat the same operations from the initial screen to create circuits and areas.

1 Add an item to the building:

Add

- Consumer units
- Circuits (and predefined applications)
- Areas

2 Name the items added:

Consumer units

Main LV distribution board

Secondary board

Examples of creating consumer units

3 Save

Circuits (applications)

Heating

Lighting

3 Save

Areas

Building A

Building B - 2nd floor

Examples of creating areas

3 Save

4 Display of the saved items

SB - Bldg B - 2nd floor - Heating

EXAMPLE OF CONFIGURATION OF THE GATEWAY* (IP ADDRESS) OF A CONSUMER UNIT

1 Add a gateway

+ Add

2 Enter the IP address of the consumer unit gateway

10.31.100.93

Each consumer unit has its own IP address (via the gateway)

3 Name the gateway

Gateway 1

4 Select the assigned consumer unit

Main LV distribution board

5 Save

EXAMPLE OF CONFIGURATION OF DEVICES (MEASUREMENT CONTROL UNIT OR ELECTRICITY METER) AND AREAS OF A BUILDING

Setting the parameters of a device

1 Add a device

+ Add

2 Select the device

Modular - 0 046 76

Designation of the meas. control unit (here 0 046 76)

3 Assign the Modbuss address

◄ 4 ►

Each device has a communication address number

4 Name the device

Meas. control unit 1

5 Load type

Lighting

6 Save

Set the parameters of an area

1 Assign the area(s) of the device

Lighting area 1

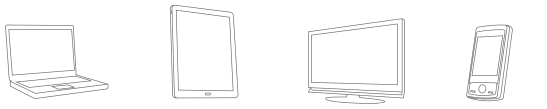
2 Save

*Gateway: IP converter

Display the consumption of buildings with the e.communication measurement application

All the measurements can be accessed from a dedicated PC with software for measurement via e.communication or on tablet computers (iPad, etc.), smartphones (iPhone, etc.) and TV screens using the Legrand web server

You can view all the readings taken (available in real time and historically), access the data by partial or total area and display the consumption or other electrical values



* Direct display on screens equipped with a web browser, using the web server

EXAMPLE OF DISPLAY OF A DEVICE (MEASUREMENT CONTROL UNIT OR ELECTRICITY METER)

Example of screen displaying the measurement of a central control unit with lighting circuit

1 Select the type of display for the device:

Gateway 1

- All (total measurement for the device)
- Gateway
- Table

2 Display of selected device:

Cent. control unit 1 lighting
1 ON

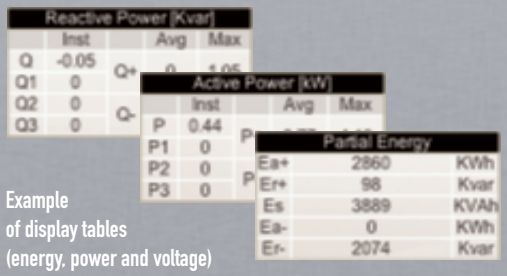
3 Select the type of measurement

Example (with a measurement control unit)

Energy | Power | V/A/Hz | THD

Energy — Power — Voltage, Current, Frequency — Total harmonic distortion

4 Display of the measurements



Example of display tables (energy, power and voltage)

EXAMPLE OF DISPLAY OF TOTAL CONSUMPTION

Example of screen displaying the total heating consumption of a device over a month

1 Display of the consumption in real time

Current month	
20.0 MWh	20 k€*

Display of consumption and estimated cost in euros per current and previous year, month and day (example 1 month)

2 Selection of the graphic showing consumption per period

Graphic period: Day | Month | Year

3 Display of consumption graphic

EXAMPLE OF DISPLAY OF PARTIAL CONSUMPTION (BY AREAS AND CIRCUITS)

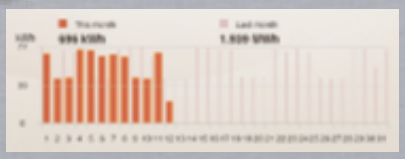
1 Select an area

Floor 1

2 Select a circuit

Heating

3 Display of consumption



Display of partial consumption per current and previous day, month and year

EXAMPLE OF DETAILED DISPLAY OF ALL THE ELECTRICAL VALUES

1 Select the type of measurement

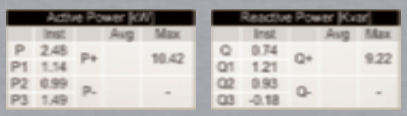
Energy | Power | V/A/Hz | THD

Energy — Power — Voltage Current Frequency — Total harmonic distortion

2 Select the device

3 Display of selected device

4 Display of consumption



Detailed display of the energy consumption of the heating device per current and previous day, month and year

*For information purposes only

EMDX³ multi-function measuring units

A range tailored to your measurement, metering and display requirements

High precision devices with complete communication functions

Thanks to the new range you can:

- Analyze energy consumption and reduce your electrical bill
- Find weak points and unsymmetrical loads in customer networks
- Check the quality of supplied energy and document this
- Create a measuring network for a complete installation
- Create a cost monitoring for different consumers

EMDX³ overview

	 **0 046 75** With pulse transmitter	 **0 046 76** With RS 485 communication interface	 **0 146 68** Access	 **0 146 69** Premium
Temperature storage module				●
Individual Harmonics 63rd				●
Harmonics 51rd			●	●
Communication RS 485		●	●	●
Communication pulse	●	●	●	
Double tarif	●	●		
U, V, I. Energy, THD, Demand,	●	●	●	●
Custom Alarms	●	●	●	●

EMDX³ main functions

0 046 75
With pulse transmitter

0 046 76
With RS 485 communication interface

0 146 68
Access

0 146 69
Premium

MEASURING	Current	Instantaneous	●	●	●	●
		Maximum	●	●	●	●
		Average			●	●
	Instantaneous Voltage		●	●	●	●
	Frequency		●	●	●	●
	Power	Instantaneous	●	●	●	●
		Average			●	●
		Max,Min	●	●	●	●
		Predictive				●
	Power factor (instantaneous)		●	●	●	●
	Temperature	Internal	●	●	●	●
		External (with plug-in module and sensors)				●
METERING	Active energy		●	●	●	●
	Reactive energy		●	●	●	●
	Apparent energy					●
	Hours run		●	●	●	●
	Harmonic distortion		●	●	●	●
	Harmonics current		●	●	●	●
	Phase to neutral voltage		●	●	●	●
	Phase to phase voltage		●	●	●	●
	Harmonics current individual					●
	Phase to neutral voltage					●
	Phase to phase voltage					●

EMDX³ electrical energy meters
rail mounting

0 046 70

0 046 74

Technical characteristics **p. 15**

Measure the electricity consumed by a single-phase or three-phase circuit downstream of the electricity distribution metering
Display electricity consumption in kWh, as well as other values such as current, active energy, reactive energy and power (depending on the catalogue number)
Conform to standards IEC 62053-21/23, IEC 62052-11 and IEC 61010-1
MID compliance ensures accuracy of the metering with a view to recharging for the electricity used

Pack	Cat.Nos		
	Non-MID	MID compliant	**Single-phase meters**
			Direct connection
1	0 046 70		32 A - 1 module Pulse output
1	0 046 81		36 A - 2 modules Pulse output
1	0 046 72	0 046 78	63 A - 2 modules Pulse output
1	0 046 77	0 046 79	63 A - 2 modules RS 485 output
			Three-phase meters
	Non-MID	MID compliant	
			Direct connection
1	0 046 73	0 046 82	63 A - 4 modules Pulse output
1	0 046 80	0 046 83	63 A - 4 modules RS 485 output
			Connection with CT
1	0 046 74	0 046 85	5 A - 4 modules pulse output
1	0 046 84	0 046 86	5 A - 4 modules RS 485 and pulse output
			Concentrator
1	0 046 87		For collecting and transmitting measurements taken by 7 universal pulse electricity meters Also collects data from other meters (gas meters, water meters, etc.) RS485 output 4 modules

EMDX³ multi-function measuring units
rail mounting

0 046 76

Technical characteristics **p. 16**

Conform to standards:
- IEC 61557-12
- IEC 62053-22 class 0.5 S
- IEC 62053-23 class 2

Pack	Cat.Nos	**EMDX³ modular**
		For mounting on rail Width: 4 modules • LCD display • Measurement of currents, voltages, active, reactive and apparent power and internal temperature • Dual tariff metering: - Active energy consumed - Reactive energy consumed - Operating time - Power factor • THD voltages and currents up to order 51 • Programmable alarms on all functions • Outputs for controlling wiring devices, alarm feedback and pulse feedback
		EMDX³ pulse unit
1	0 046 75	Data transmission via pulses
		EMDX³ RS 485 unit
1	0 046 76	Data transmission via RS 485 communication interface and pulses

EMDX³ multi-function measuring units
for mounting on door or solid faceplate


0 146 68


0 146 69


0 146 73


0 261 78


0 261 89


0 046 88

Technical characteristics **p. 16**

Conform to standards:
- IEC 61557-12
- IEC 62053-22 class 0.5 S
- IEC 62053-23 class 2

Pack	Cat.Nos	EMDX³ - Access
		Multi-function measuring unit
1	0 146 68	For mounting on door or solid faceplate Dimensions: 96 x 96 x 60 mm • LCD display • Measurement of currents, voltages, active, reactive and apparent power, internal temperature and power factor • Metering: - Active energy consumed or produced - Reactive energy consumed or produced - Operating time - Pulses • THD voltages and currents up to order 51 • Programmable alarms on all functions Can take 2 optional modules
		Modules for EMDX³ - Access multi-function measuring unit
1	0 146 71	RS485 communication module MODBUS link
1	0 146 72	1-output module Can be assigned to pulse feedback, alarm feedback or control of wiring devices
		EMDX³ - Premium
		Multi-function measuring units
1	0 146 69	For mounting on door or solid faceplate Dimensions: 96 x 96 x 60 mm • LCD display • Measurement of currents, voltages, active, reactive and apparent power, internal temperature and power factor • Metering: - Active energy consumed or produced - Reactive energy consumed or produced - Operating time - Pulses • Individual harmonics up to order 63 • Programmable alarms on all functions Can take 4 optional modules

Pack	Cat.Nos	EMDX³ - Premium (continued)
		Modules for EMDX³ - Premium multi-function measuring units
1	0 146 73	RS 485 communication module MODBUS link
1	0 146 74	Storage module Storage of active and reactive power over 62 days, the last 10 alarms and the average voltage and frequency values over 60 days max.
1	0 146 75	Module with 2 inputs/2 outputs Up to 3 modules, i.e. 6 inputs/6 outputs, can be installed Outputs can be assigned to monitoring mode, remote control or timed remote control
1	0 146 77	Temperature module Indication of the internal temperature and possibility of connecting 3 sensors for measuring the external temperature
		Communication and supervision
		Web servers
1	0 261 78	Enable remote viewing, via a web browser on PCs, smartphones, web viewers, tablet computers such as iPads, Archos, etc., of values collected on electricity meters and multi-function measuring units For 32 metering points (meters or multi-function measuring units)
1	0 261 79	For an unlimited number of metering points (meters or multi-function measuring units)
		Legrand software dedicated to measurement
1	0 261 88	For displaying the values collected from electricity meters or multi-function measuring units on a PC connected to the network For 32 metering points (supplied on CD)
1	0 261 89	For an unlimited number of metering points (supplied on CD)
		IP converter
1	0 046 88	For RS485/Ethernet conversion for connecting electricity meters and multi-function measuring units to an IP network

current transformers CT

0 047 79

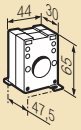
Pack	Cat.Nos	Single-phase current transformers (CT)	
		Used with ammeters, electricity meters or multi-function measuring units Provide a 0 to 5 A current at the secondary, proportional to the primary current For fixing on plates, EN 60715 ⊔ rail Cat.Nos 0 046 31/34/36, or bars Secondary connected by terminals or lugs Precision class 1%	
		For 16 x 12.5 mm bar and ∅21 mm cable	
		Transformation ratio	Output (VA)
1	0 046 31	50/5	1.25
1	0 046 34	100/5	2.5
1	0 046 36	200/5	5.5
		For 20.5 x 12.5 and 30 x 10.5 mm bar and ∅23 mm cable	
1	0 047 75	300/5	11
		For 40.5 x 10.5 mm bar and ∅35 mm cable	
1	0 046 38	400/5	12
		For 65 x 32 mm bar	
1	0 047 76	600/5	12
1	0 047 77	800/5	15
1	0 047 78	1000/5	20
		For 84 x 34 mm bar	
1	0 047 79	1250/5	15
		For 127 x 38 mm bar	
1	0 046 45	1500/5	15
1	0 046 46	2000/5	20
		For 127 x 54 mm bar	
1	0 047 80	2500/5	50
1	0 046 48	4000/5	50

		Three-phase current transformers (CT)	
		Used with ammeters, electricity meters or multi-function measuring units Provide a 0 to 5 A current at the secondary, proportional to the primary current For fixing directly on bars Secondary connected by terminals or lugs Precision class 1%	
		For three 20.5 x 5.5 mm bars	
		Transformation ratio	Output (VA)
1	0 046 98	250/5	3
		For three 30.5 x 5.5 mm bars	
1	0 046 99	400/5	4

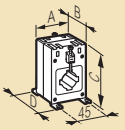
■ Current transformers (CT)

Technical characteristics
Degree of protection: IP 20
Operating frequency: 50/60 Hz

Dimensions
• Single-phase CTs
Cat.Nos 0 046 31/34/36 for 16 x 12.5 mm bar and Ø21 mm cable
Fixing on EN 60715 rail

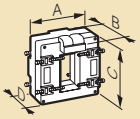


Cat.No 0 047 75 for 20.5 x 12.5 and 30 x 10.5 mm bar and Ø23 mm cable
Cat.No 0 046 38 for 40.5 x 10.5 mm bar and Ø35 mm cable
Fixing on EN 60715 rail or on plate



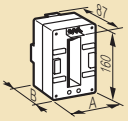
Cat.Nos	A	B	C	D	Ø	Fixing centres on plate
0 047 75	56	42	94	50	23	50 x 45
0 046 38	77	46	107	54	35	54 x 45

Cat.Nos 0 047 76/77/78 for 65 x 32 mm bar
Cat.No 0 047 79 for 84 x 34 mm bar
Fixing on bar



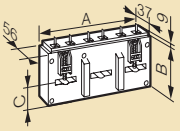
Cat.Nos	A	B	C	D
0 047 76/77/78	90	90	94	40
0 047 79	96	87	116	58

Cat.Nos 0 046 45/46 for 127 x 38 mm bar
Cat.Nos 0 047 80 and 0 046 48 for 127 x 54 mm bar
Fixing on bar



Cat.Nos	A	B
0 046 45/46	99	58
0 046 48/0 047 80	125	40

• Three-phase CT
Cat.No 0 046 98 for three 20.5 x 5.5 mm bars
Cat.No 0 046 99 for three 30.5 x 5.5 mm bars
Fixing on bar



Cat.Nos	A	B	C
0 046 98	107	58.5	25
0 046 99	135	66.5	30

Determination of the max. distance between CT and meter

Cat.Nos	Max. power of CT	Meter consump. (W)	Max. loss in capac. (VA)	Max. distance bet. CT & meter (m)		
				Wiring 2.5 mm²	Wiring 4 mm²	Wiring 6 mm²
0 046 31	1.25	0.5	0.75	1.8	2.7	3.9
0 046 34	2.5	0.5	2	4.9	7.1	10.4
0 046 98	3	0.5	2.5	6.1	8.9	13
0 046 99	4	0.5	3.5	8.5	12.4	18.1
0 046 36	5.5	0.5	5	12.2	17.8	25.9
0 047 75	11	0.5	10.5	25.5	37.3	54.4
0 046 38 0 047 76	12	0.5	11.5	28	40.8	59.6
0 047 77/79 0 046 45	15	0.5	14.5	35.3	51.5	75.2
0 046 46 0 047 78	20	0.5	19.5	47.4	69.3	101.1
0 047 80 0 046 48	50	0.5	49.5	120.4	175.8	256.7

EMDX³ electrical energy meters

rail mounting

■ Technical characteristics

Single-phase meters Cat.Nos 0 046 70/72/77/78/79/81

LCD display: 7 digits
Resolution: 0.1 kWh
Maximum indication: 99999.9 kWh
Metrological LED: 1 Wh/pulse (Cat.No 0 046 70 : 0.5 Wh/pulse)
Accuracy (EN 62053-21): class 1
Reference voltage Un: 230 V-240 V
Reference frequency: 50-60 Hz
Pulse output: 1 pulse/10 Wh
(Cat.No 0 046 70: 2 pulse/Wh)

Three-phase meters Cat.Nos 0 046 73/74/80/82/83/84/85/86

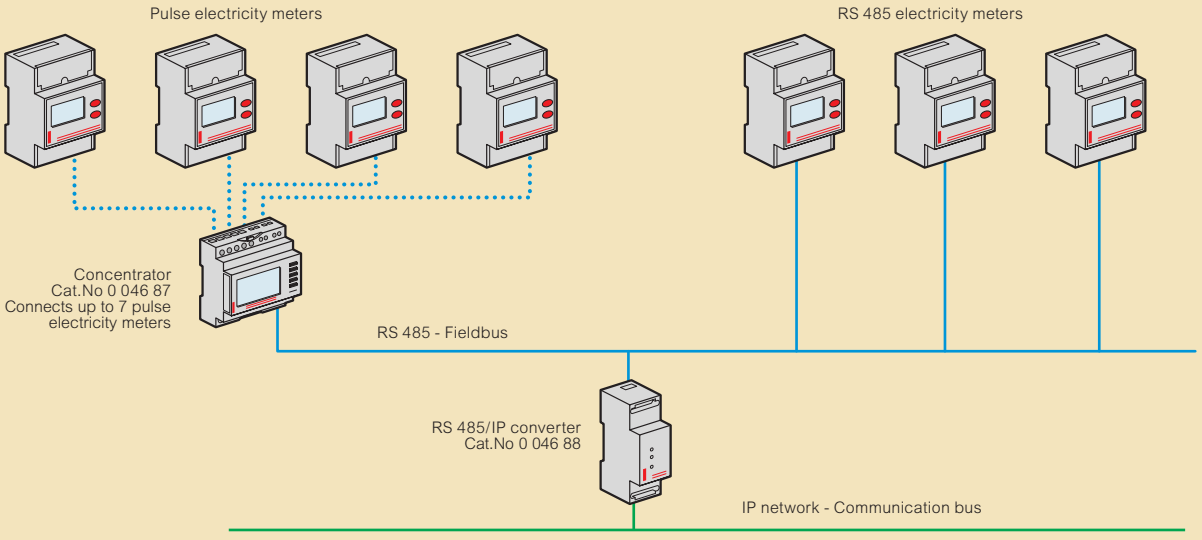
LCD display: 8 digits
Resolution: 0.01 kWh(1)
Maximum indication: 99999.99 kWh(1)
Metrological LED: 0.1 Wh/pulse or 1 Wh/pulse
Active energy accuracy (EN 62053-21): class 1
Reactive energy accuracy (EN 62053-23): class 2
Reference voltage Un:
- Single-phase: 230-240 V
- Three-phase: 230(400)-240(415) V

Operating limit range (EN 62053-21, EN 62053-23):
- Single-phase: 110 to 254 V
- Three-phase: 110(190) to 254(440) V

Pulse output: 1 pulse/10 Wh

Cat.Nos		0 046 70	0 046 81	0 046 72	0 046 77	0 046 78	0 046 79	0 046 73	0 046 80	0 046 82	0 046 83	0 046 74	0 046 84	0 046 85	0 046 86
Number of modules		1	2	2	2	2	2	4	4	4	4	4	4	4	4
Connection	Direct	●	●	●	●	●	●	●	●	●	●				
	Via a current transformer											●	●	●	●
	Single-phase	●	●	●	●	●	●					●	●		
	Three-phase							●	●	●	●	●	●	●	●
Max. current		32 A	36 A	63 A	63 A	63 A	63 A	63 A	63 A	63 A	63 A	5 A (CT)	5 A (CT)	5 A (CT)	5 A (CT)
Metering and measurement	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			●	●			●	●	●	●	●	●	●	●
	Time-of-use			●	●										
	Average active power							●	●	●	●	●	●	●	●
	Max. average active power value							●	●	●	●	●	●	●	●
	Dual tariff							●							
Communication	Pulse output	●	●	●		●		●		●		●	●	●	●
	RS 485 interface				●		●		●		●		●		●
MID compliant						●	●			●	●			●	●
Operating conditions	Reference temperature	23 °C ± 2 °C													
	Operating temperature	-20 to +55 °C	-10 to +45 °C					-5 to +55 °C							
	Storage temperature	-40 to +70 °C	-25 to +70 °C					-25 to +70 °C							
	Consumption	≤ 8 VA						≤ 4 VA per phase				≤ 1 VA per phase			
	Heat dissipation	≤ 6.5 W						≤ 6 W				≤ 4 W			

■ Interfacing with IP communication network



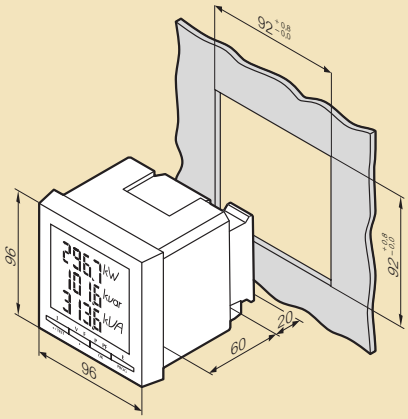
1: For direct connection meters
If connected via transformers, the resolution and maximum indication depend on the transformation ratios of these transformers

EMDX³ multi-function measuring units

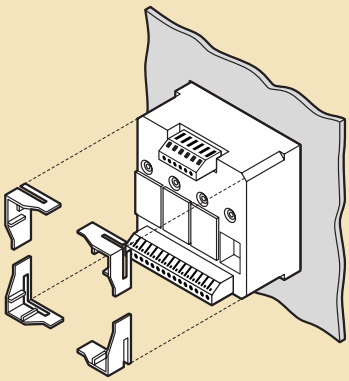
■ Technical characteristics

Cat.Nos			0 046 75/76	0 146 68	0 146 69
Connection	Current measurement terminals		4 mm²	6 mm²	6 mm²
	Other terminals		2.5 mm²	2.5 mm²	2.5 mm²
Protection index	Front cover		IP 51	IP 52	IP 52
	Casing		IP 20	IP 30	IP 30
Weight			205/215 g	400 g	400 g
Display			Backlit LCD	Backlit LCD	Backlit LCD
Measurements			3P+N, 3P, 2P, 1P+N	3P+N, 3P, 2P, 1P+N	3P+N, 3P, 2P, 1P+N
Voltage measurement	Direct	Phase/phase	50 to 520 V∿	50 to 500 V∿	18 to 700 V∿
		Phase/neutral	28 to 300 V∿	28 to 289 V∿	11 to 404 V∿
	From a PT	Primary	-	-	≤ 500 kV
		Secondary	-	-	60, 100, 110, 115, 120, 173, 190 V∿
	Permanent overload between phases		760 V∿	800 V∿	760 V∿
	Update period		1 s	1 s	1 s
Current measurement	From a CT	Primary	5 to 9999 A	≤ 9999 A	≤ 9995 A
		Secondary	5 A	5 A	1 or 5 A
	Minimum measurement		5 mA	5 mA	10 mA
	Input consumption		< 0.6 VA	< 0.6 VA	< 0.3 VA
	Display		0 to 9999 A	1 to 11 kA	0 to 11 kA
	Permanent overload		6 A	6 A	10 A
	Intermittent overload		60 A/1 s - 120 A/0.5 s	10 In/1 s	10 In/1 s
	Update period		1 s	1 s	1 s
	Max. CT x PT ratio		-	-	10000000
Power measurement	Total		0 to 9999 kW/kvar/kVA	0 to 11 MW/Mvar/MVA	0 to 8000 MW/Mvar/MVA
	Update period		1 s	1 s	1 s
Frequency measurement	Measurement range		45.0 to 65.0 Hz	45.0 to 65.0 Hz	45.0 to 65.0 Hz
	Update period		1 s	1 s	1 s
Auxiliary power supply	50/60 Hz		200 to 277 V∿ ±15%	110 to 400 V∿ ±10%	110 to 400 V∿ ±10%
	DC		-	120 to 350 V⎓ ±20%	120 to 350 V⎓ ±20%
	Consumption		< 5 VA	< 10 VA	< 10 VA
Operating temperature			-10 °C to +55 °C	-10 °C to +55 °C	-10 °C to +55 °C
Storage temperature			-20 °C to +70 °C	-20 °C to +85 °C	-20 °C to +85 °C

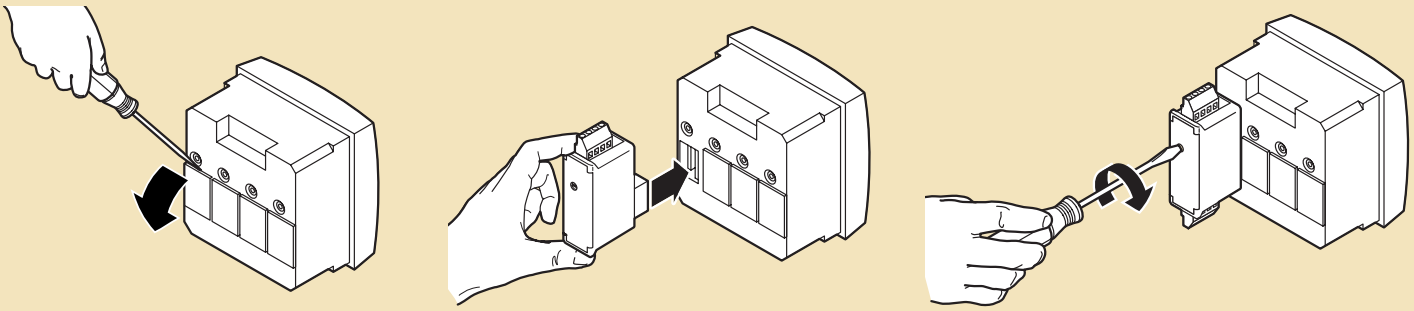
■ Flush-mounting dimensions Cat.Nos 0 146 68/69



■ Fixing on door Cat.Nos 0 146 68/69

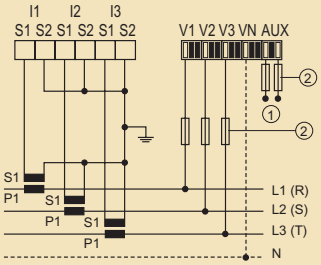


■ Fitting modules Cat.Nos 0 146 68/69

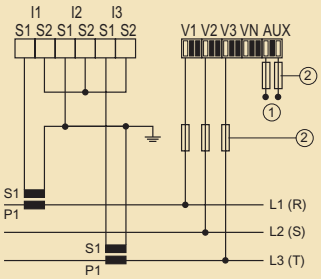


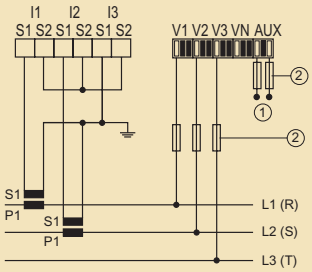
■ Connection solutions

Unbalanced three-phase network (3 or 4-wire)

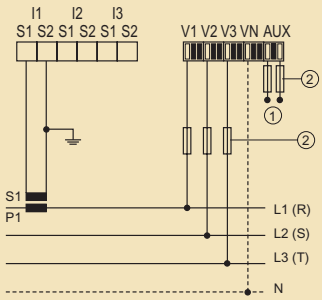


(3-wire)

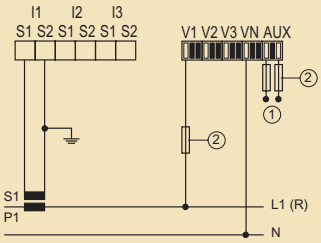




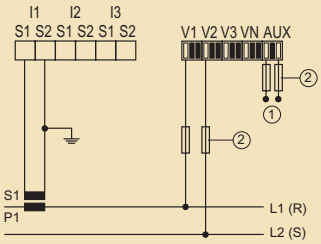
Balanced three-phase network (3 or 4-wire)



Single-phase network (2-wire)

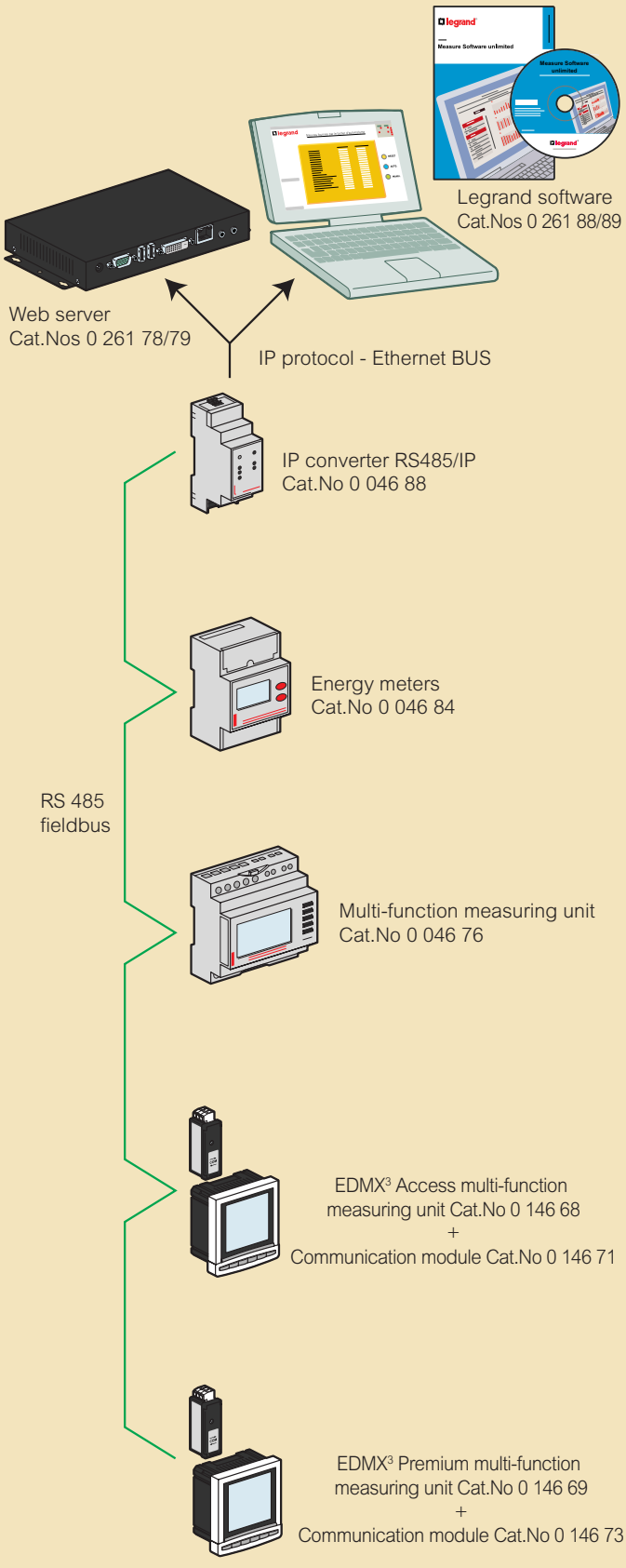


Two-phase network (2-wire)



① Auxiliary power supply: 110 ... 400 VAC/120 ... 350 VDC
② Fuse: 0.5 A gG/BS 88 2A gG/0.5 A class CC

■ Wiring example of communication network



EXB12049 - July 2012 - Photos: Istock - Pierre Maufront

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