sustainable savings
that can be viewed directly on the internet

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 friendly icon](eco_icon.png)

**Potential savings for a set of electrically heated offices 600 m²**

<table>
<thead>
<tr>
<th>ANNUAL SAVING</th>
<th>800 €</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payback 24 months max.</td>
<td></td>
</tr>
</tbody>
</table>

**ANNUAL SAVING**
1300 kg CO₂ equivalent

CO₂ equivalent of all polluting gases (CO₂, methane, carbon monoxide, fluorinated gases, etc.)

---

[1] Prices and data for information only valid in France.
DISPLAY IN THE CONSUMER UNIT

DISPLAY AS CLOSE AS POSSIBLE TO USERS

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® electricity meters.

DIRECTLY ON THE INTERNET AND ON TABLET COMPUTERS EQUIPPED WITH A WEB BROWSER (iPAD, ARCHOS, ETC.) OR SMARTPHONES (IPHONE, ETC.)

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

Main LV distribution board
Measurement on each direct outgoing line

Electronic circuit breaker with measurement unit
For measuring consumption, voltage, current, active power, etc.
Operates with electronic interface
Cat.No 4 210 75

EMDX³ modular measurement control unit

EMDX³ Access and Premium measurement control unit
with module for temperature measurement, event log, remote control, measurement of harmonics, etc.

Secondary board
Essential measurements
New buildings

For recharged metering, use MID certified meters
Secondary board

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

Each application is detailed (heating/lighting/measurement can be extended to water and gas meters). For each one, the consumption only is measured by a pulse energy meter connected, in groups of 7 meters, to a concentrator.

Pulse energy meters
For recharged metering, use MID certified meters

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

RS 485 FIELDBUS
IP PROTOCOL ETHERNET BUS
RS 485/IP converter Cat.No 0 046 88

BOILER ROOM
CONSUMER UNIT
OUTGOING LINE

OUTGOING LINE TO
AIR CONDITIONING

OUTGOING LINE TO
LIGHTING

OUTGOING LINE
TO POWER SOCKETS

OTHER

RS 485 electricity meters
For recharged metering, use MID certified meters

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
GLOBAL IP DISPLAY DIRECTLY ON THE INTERNET WITH THE WEB SERVER

**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.

* 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 your 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

**EXAMPLE OF CONFIGURATION OF THE ELECTRICAL INFRASTRUCTURE OF A BUILDING BY CREATING CONSUMER UNITS, 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
   - Circuits (applications)
     - Heating
     - Lighting
   - Areas
     - Building A
     - Building B - 2nd floor
     - Examples of creating areas

3. Save

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

**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
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

*Gateway: IP converter

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
2. Select the device
   Modular - 0 046 76
   Designation of the meas. control unit (here 0 046 76)
3. Assign the Modbuss address
   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
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.

**EXAMPLE OF DISPLAY OF A DEVICE**

(Measurement Control Unit or Electricity Meter)

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
   - ON

3. Select the type of measurement
   - Example (with a measurement control unit)
   - Energy
   - Power
   - V/A/Hz
   - THD

4. Display of the measurements
   - Example of display tables (energy, power and voltage)

*Direct display on screens equipped with a web browser, using the web server
EXAMPLE OF DISPLAY OF TOTAL CONSUMPTION

Display of the consumption in real time

- Current month: 20.0 MWh
- Estimated cost in euros per current and previous year, month and day (example 1 month)

Selection of the graphic showing consumption per period

Graphic period: Day, Month, Year

Display of consumption graphic

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

Select an area
- Floor 1

Select a circuit
- Heating

Display of consumption

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

EXAMPLE OF DETAILED DISPLAY OF ALL THE ELECTRICAL VALUES

Select the type of measurement
- Energy
- Power
- Voltage
- Current
- Frequency
- Total harmonic distortion

Select the device

Display of selected device

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

<table>
<thead>
<tr>
<th></th>
<th>0 046 75 With pulse transmitter</th>
<th>0 046 76 With RS 485 communication interface</th>
<th>0 146 68 Access</th>
<th>0 146 69 Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature storage module</td>
<td></td>
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</tr>
<tr>
<td>Individual Harmonics 63rd</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Harmonics 51st</td>
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<tr>
<td>Communication RS 485</td>
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<td>Communication pulse</td>
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<td>U, V, I, Energy, THD, Demand,</td>
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<td>Custom Alarms</td>
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<td>Function</td>
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<td>0 046 76 With RS 485 communication interface</td>
<td>0 146 68 Access</td>
<td>0 146 69 Premium</td>
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<tr>
<td>Average</td>
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<td>Power</td>
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<td>Average</td>
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<td>Power factor (instantaneous)</td>
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<td>Temperature</td>
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<td></td>
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<tr>
<td>Internal</td>
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<td>●</td>
<td>●</td>
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<td>External (with plug-in module and sensors)</td>
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<td>Active energy</td>
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<td>Reactive energy</td>
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<td>●</td>
</tr>
<tr>
<td>Apparent energy</td>
<td></td>
<td></td>
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<td>Hours run</td>
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<td>Harmonic distortion</td>
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<td>Harmonics current</td>
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<tr>
<td>Phase to neutral voltage</td>
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<td>●</td>
<td>●</td>
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<tr>
<td>Phase to phase voltage</td>
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<tr>
<td>Harmonics current individual</td>
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<td>●</td>
</tr>
<tr>
<td>Phase to neutral voltage</td>
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<td>●</td>
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<tr>
<td>Phase to phase voltage</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>
EMDX³ electrical energy meters
rail mounting

EMDX³ multi-function measuring units
rail mounting

Technical characteristics p. 15

EMDX³ modular

Pack Cat.Nos

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
Data transmission via pulses

EMDX³ RS 485 unit
Data transmission via RS 485 communication
interface and pulses

| Technical characteristics p. 16 |

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

Single-phase meters

Direct connection
32 A - 1 module
Pulse output
36 A - 2 modules

1 0 046 70 0 046 81 0 046 72 0 046 78 0 046 77 0 046 79
Pack Cat.Nos

Three-phase meters

Direct connection
63 A - 4 modules
Pulse output
63 A - 4 modules
RS 485 output
1 0 046 73 0 046 80 0 046 83 0 046 74 0 046 85 0 046 84 0 046 86

Connection with CT
5 A - 4 modules
Pulse output
5 A - 4 modules
RS 485 and pulse output
1 0 046 75 0 046 78 63 A - 2 modules

Concentrator
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
1 0 046 87
**EMDX³ multi-function measuring units**

for mounting on door or solid faceplate

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

### Technical characteristics

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

### EMXD³ - Access

<table>
<thead>
<tr>
<th>Pack</th>
<th>Cat.Nos</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tbody>
</table>

**Multi-function measuring unit**

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

**Modules for EMXD³ - Access multi-function measuring unit**

<table>
<thead>
<tr>
<th>Pack</th>
<th>Cat.Nos</th>
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</thead>
<tbody>
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<tr>
<td>1</td>
<td>0 146 72</td>
</tr>
</tbody>
</table>

RS485 communication module

1-output module

Can be assigned to pulse feedback, alarm feedback or control of wiring devices

### EMXD³ - Premium

<table>
<thead>
<tr>
<th>Pack</th>
<th>Cat.Nos</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 146 69</td>
</tr>
</tbody>
</table>

**Multi-function measuring units**

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

### Modules for EMXD³ - Premium multi-function measuring units

<table>
<thead>
<tr>
<th>Pack</th>
<th>Cat.Nos</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 146 73</td>
</tr>
<tr>
<td>1</td>
<td>0 146 74</td>
</tr>
</tbody>
</table>

RS485 communication module MODBUS link

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.

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

Temperature module

Indication of the internal temperature and possibility of connecting 3 sensors for measuring the external temperature

### Communication and supervision

**Web servers**

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

**Legrand software dedicated to measurement**

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)

For an unlimited number of metering points (supplied on CD)

**IP converter**

For RS485/Ethernet conversion for connecting electricity meters and multi-function measuring units to an IP network
**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

**For 65 x 32 mm bar**
- 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

**For 84 x 34 mm bar**
- Cat.No 0 047 79 for 84 x 34 mm bar
- Cat.No 0 046 45/46 for 127 x 38 mm bar
  Fixing on bar

**Three-phase CTs**
- 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

**Determination of the max. distance between CT and meter**

<table>
<thead>
<tr>
<th>Cat.No</th>
<th>Max. power of CT (W)</th>
<th>Max. loss in capac. (VA)</th>
<th>Max. distance between CT &amp; meter (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 046 31</td>
<td>1.25</td>
<td>0.75</td>
<td>2.7</td>
</tr>
<tr>
<td>0 046 34</td>
<td>2.5</td>
<td>0.75</td>
<td>2.7</td>
</tr>
<tr>
<td>0 046 98</td>
<td>3</td>
<td>0.5</td>
<td>2.5</td>
</tr>
<tr>
<td>0 046 99</td>
<td>4</td>
<td>0.5</td>
<td>3.5</td>
</tr>
<tr>
<td>0 046 36</td>
<td>5.5</td>
<td>0.5</td>
<td>12.2</td>
</tr>
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<td>0 047 75</td>
<td>11</td>
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<td>10.5</td>
</tr>
<tr>
<td>0 046 38</td>
<td>12</td>
<td>0.5</td>
<td>11.5</td>
</tr>
<tr>
<td>0 046 45</td>
<td>15</td>
<td>0.5</td>
<td>14.5</td>
</tr>
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<td>0 047 79</td>
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<td>0.5</td>
<td>19.5</td>
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<td>0 047 80</td>
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<td>0.5</td>
<td>49.5</td>
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<tr>
<td>0 047 81</td>
<td>50</td>
<td>0.5</td>
<td>49.5</td>
</tr>
</tbody>
</table>

**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
- Secondary connected by terminals or lugs
- Precision class 1%

**For 16 x 12.5 mm bar and Ø21 mm cable**
- Transformation ratio  
  50/5: 1.25  
  100/5: 2.5  
  200/5: 5.5

**For 20.5 x 12.5 and 30 x 10.5 mm bar and Ø23 mm cable**
- Transformation ratio  
  300/5: 11

**For 40.5 x 10.5 mm bar and Ø35 mm cable**
- Transformation ratio  
  400/5: 12

**For 65 x 32 mm bar**
- Transformation ratio  
  600/5: 12  
  800/5: 15  
  1000/5: 20

**For 84 x 34 mm bar**
- Transformation ratio  
  1250/5: 15

**For 127 x 38 mm bar**
- Transformation ratio  
  1500/5: 15  
  2000/5: 20

**For 127 x 54 mm bar**
- Transformation ratio  
  2500/5: 50  
  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 on bars  
  Secondary connected by terminals or lugs

**For three 20.5 x 5.5 mm bars**
- Transformation ratio  
  250/5: 3

**For three 30.5 x 5.5 mm bars**
- Transformation ratio  
  400/5: 4
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: 9999.9 kWh
- 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 73/80/82/83/84/85/86

- LCD display: 8 digits
- Resolution: 0.01 kWh
- Maximum indication: 99999.9 kWh
- 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

### Connection

- Direct
- Via a current transformer
- Single-phase
- Three-phase

### Max. current

<table>
<thead>
<tr>
<th>Cat.Nos</th>
<th>0 046 70</th>
<th>0 046 72</th>
<th>0 046 73</th>
<th>0 046 74</th>
<th>0 046 75</th>
<th>0 046 76</th>
<th>0 046 77</th>
<th>0 046 78</th>
<th>0 046 79</th>
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<tbody>
<tr>
<td>Number of modules</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
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<td>Direct</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Single-phase</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three-phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. current</td>
<td>32 A</td>
<td>36 A</td>
<td>63 A</td>
<td>63 A</td>
<td>63 A</td>
<td>63 A</td>
<td>63 A</td>
<td>63 A</td>
<td>63 A</td>
</tr>
</tbody>
</table>

### 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
- RS 485 electricity meters
- IP network - Communication bus

### Operating conditions

- Reference temperature: 23 °C ± 2 °C
- Operating temperature:
  - Single-phase: -20 to +55 °C
  - Three-phase: -10 to +45 °C
- Storage temperature:
  - Single-phase: -40 to +70 °C
  - Three-phase: -5 to +55 °C
- Heat dissipation:
  - Single-phase: ≤ 6.5 W
  - Three-phase: ≤ 4 W

### Interfaceing with IP communication network

- Pulse electricity meters
- RS 485 electricity meters

**Concentrator** Cat.No 0 046 87

Connects up to 7 pulse electricity meters

**RS 485 - Fieldbus**

**RS 485/IP converter** Cat.No 0 046 88

Connects up to 7 pulse electricity meters

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

<table>
<thead>
<tr>
<th>Cat.Nos</th>
<th>0 046 75/76</th>
<th>0 146 68</th>
<th>0 146 69</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connection</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>4 mm²</td>
<td>6 mm²</td>
<td>6 mm²</td>
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<td>measurement</td>
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<td>terminals</td>
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<tr>
<td><strong>Protection</strong></td>
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<tr>
<td>index</td>
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<tr>
<td>Casing</td>
<td>IP 51</td>
<td>IP 52</td>
<td>IP 52</td>
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<tr>
<td><strong>Display</strong></td>
<td>205/215 g</td>
<td>400 g</td>
<td>400 g</td>
</tr>
<tr>
<td>optional</td>
<td>Backlit LCD</td>
<td>Backlit LCD</td>
<td>Backlit LCD</td>
</tr>
<tr>
<td><strong>Measurements</strong></td>
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<td></td>
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<tr>
<td>Voltage</td>
<td></td>
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</tr>
<tr>
<td>measurement</td>
<td>3P+N, 3P, 2P+</td>
<td>3P+N, 3P, 2P+</td>
<td>3P+N, 3P, 2P+</td>
</tr>
<tr>
<td>from a PT</td>
<td>50 to 520 V~</td>
<td>50 to 500 V~</td>
<td>18 to 700 V~</td>
</tr>
<tr>
<td>from a CT</td>
<td>5 to 9999 A</td>
<td>≤ 9999 A</td>
<td>≤ 9995 A</td>
</tr>
<tr>
<td>Current</td>
<td>5 A</td>
<td>5 A</td>
<td>1 or 5 A</td>
</tr>
<tr>
<td>measurement</td>
<td>≤ 0.6 VA</td>
<td>≤ 0.6 VA</td>
<td>≤ 0.3 VA</td>
</tr>
<tr>
<td>from a CT</td>
<td>0 to 9999 A</td>
<td>1 to 11 kA</td>
<td>0 to 11 kA</td>
</tr>
<tr>
<td>minimum</td>
<td>&lt; 5 mA</td>
<td>&lt; 5 mA</td>
<td>10 mA</td>
</tr>
<tr>
<td>consumption</td>
<td>6 A</td>
<td>6 A</td>
<td>10 A</td>
</tr>
<tr>
<td><strong>Auxiliary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>power supply</td>
<td>200 to 277 V~ ±15%</td>
<td>110 to 400 V~ ±10%</td>
<td>110 to 400 V~ ±10%</td>
</tr>
<tr>
<td>measurement</td>
<td>≤ 5 VA</td>
<td>≤ 10 VA</td>
<td>≤ 10 VA</td>
</tr>
<tr>
<td>from a CT</td>
<td>6 A</td>
<td>6 A</td>
<td>10 A</td>
</tr>
<tr>
<td>consumption</td>
<td>&lt; 0.6 V A</td>
<td>&lt; 0.6 V A</td>
<td>&lt; 0.6 V A</td>
</tr>
<tr>
<td>Temperature</td>
<td>10 °C to +55 °C</td>
<td>10 °C to +55 °C</td>
<td>10 °C to +55 °C</td>
</tr>
<tr>
<td>Storage</td>
<td>-20 °C to +70 °C</td>
<td>-20 °C to +85 °C</td>
<td>-20 °C to +85 °C</td>
</tr>
</tbody>
</table>

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

![Flush-mounting dimensions](image)

### Fixing on door Cat.Nos 0 146 68/69

![Fixing on door](image)

### Fitting modules Cat.Nos 0 146 68/69

![Fitting modules](image)
Connection solutions

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

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

Single-phase network (2-wire)

Two-phase network (2-wire)

Wiring example of communication network

Web server
Cat.Nos 0 261 78/79

IP protocol - Ethernet BUS

IP converter RS485/IP
Cat.No 0 046 88

Energy meters
Cat.No 0 046 84

RS 485 fieldbus

Multi-function measuring unit
Cat.No 0 046 76

EDM3X Access multi-function measuring unit
Cat.No 0 146 68
Communication module Cat.No 0 146 71

EDM3X Premium multi-function measuring unit
Cat.No 0 146 69
Communication module Cat.No 0 146 73

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