Energy meters and power analyzers

- Single and three-phase energy meters
- MID certified versions with UTF certificates
- cULus certified versions
- Eichrecht certified versions
- Power analyzer and multifunction digital metering instruments, expandable, with icon display, monochrome or colour
- Connection to single, two and three-phase and for power monitoring systems
- Ideal for distribution systems, electricity cogeneration and within machinery installations
- High measurement accuracy
- Totally programmable digital and analog inputs and outputs
- RS485, RS232, USB, Ethernet, Profibus DP and M-Bus communication ports
- Digital voltmeters, ammeters, wattmeters, frequency meters and cosφ meters.

Page 28-12

ENERGY METERS

- Single-phase, three-phase with neutral, three-phase with or without neutral
- Direct connection or by current transformers
- MID or cULus certified versions
- Eichrecht certified versions
- Versions expandable with EXM... expansion modules
- Versions with built-in RS485 or M-Bus communication ports.

Page 28-17

DATA CONCENTRATORS

- Energy consumption data storage for network usage
- Connection up to 14 energy meters equipped with static output
- Expandable with EXM... expansion modules
- Built-in RS485 communication port.

NFC

Page 28-18

POWER ANALYZERS WITH WIDESCREEN COLOUR LCD

- Widescreen colour LCD display
- Flush-mount 92x92mm
- Versions with built-in RS485 communication port
- Versions with built-in Ethernet and data memory
- Versions expandable with EXP... expansion modules
- NFC and optical port
- Compatibility with EASY BRANCH power monitoring system.

Page 28-20

DIGITAL LCD MULTIMETERS AND POWER ANALYZERS

- Graphic or icon LCD
- Modular and flush-mount 92x92mm
- Versions expandable with EXM... and EXP... expansion modules
- Version with built-in RS485 communication port.
- Flush-mount version with current reading through Rogowski coils.

Page 28-23

LED MEASURING INSTRUMENTS

- Voltmeters, ammeters and wattmeters
- Modular and flush-mount 96x48mm versions.

Lovato electric

SINGLE-PHASE DIRECT CONNECTION ENERGY METERS








Type	DMED100T1	DMED110T1	DMED111	DMED112	DMED115T1	DMED120T1	DMED121	DMED122
Maximum current	40A	40A	40A	40A	40A	63A	63A	63A
Display								
Vertical, no backlight	●	●	●	●				
Horizontal, backlight					●	●	●	●
Measurements								
kWh	●	●	●	●	●	●	●	●
kWh, kW with average and max demand		●	●	●	●	●	●	●
kvarh, kvar, V, I, Hz, PF, total and partial hour counter		●	●	●		●	●	●
Interface								
Pulse output	●							
Programmable output (pulses/thresholds)		●			●	●		
Built-in Modbus-RTU (RS485)			●				●	
Built-in M-Bus				●				●
MID version -25...+55°C❶	●	●	●	●		●	●	●
MID version -25...+70°C❷			●					
Compatibility with Synergy, Synergy Cloud and Xpress software			●				●	

THREE-PHASE ENERGY METERS







Type	DMED300T2	DMED311	DMED302	DMED305T2	DMED330	DMED332	DMED310T2
Maximum current	80A	80A	80A	CT /5 or CT /1	CT /5 or CT /1	CT /5 or CT /1	CT /5
Connection type							
Direct	●	●	●				
Via CT				●	●	●	●
Interface							
Programmable output (pulses/thresholds)	●			●			●
Built-in Modbus-RTU (RS485)		●			●		
Built-in M-Bus			●			●	
Expandability							
Communication (RS485, Ethernet, USB)							●
Relay outputs for load disconnection							●
Data memory (Data logger)							●
MID version -25...+55°C❶❹	●		●	●	●	●	
MID version -25...+70°C❷❹		●					
cULus version (ANSI C12.20)❸	●						
Compatibility with Synergy, Synergy Cloud and Xpress software		●			●		●

❶ For MID versions add "MID"
❷ For MID7 versions add "MID7"
❸ For UL versions add "UL"
❹ UTF certified versions available on request.

Energy meters and power analyzers

Energy meters, multimeters and power analyzers

THREE-PHASE ENERGY METERS

Type	DMED341MID7	DMED341MID7E	DMED341MID7ER
Maximum current	80A	80A	80A
Connection type Direct	●	●	●
Interface Programmable output (pulses/thresholds)	●	●	●
Built-in Modbus-RTU (RS485)	●	●	●
MID version -25...+70°C	●	●	●
Eichrecht version		●	●
MID version -25...+70°C also for reverse/exported energy			●
Compatibility with Synergy, Synergy Cloud and Xpress software	●	●	●

DIN RAIL MOUNTING (MODULAR) MULTIMETERS

Type	DMG100	DMG110	DMG200	DMG210	DMG300
Maximum rated voltage	600VAC	600VAC	690VAC	690VAC	690VAC
Voltage and current measure accuracy	0.5%	0.5%	0.5%	0.5%	0.2%
Active energy measure accuracy	Class 1	Class 1	Class 1	Class 1	Class 0.5s
Single-phase energy meter	●	●			
Harmonic analysis	15th order	15th order	THD only	THD only	31st order
Boolean logic					●
Expandable with EXM... modules					3 modules
Display type	Icons	Icons	Graphic	Graphic	Graphic
Built-in communication port		RS485		RS485	
Communication port with EXM... modules					RS232 USB RS485 Ethernet
Ethernet-RS485 gateway function					●

FLUSH MOUNTING MULTIMETERS AND POWER ANALYZERS

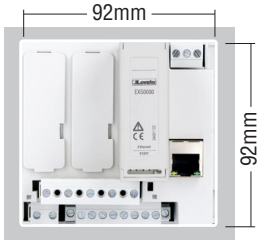
Type	DMG600	DMG610	DMG611	DMG615	DMG620	DMG7000	DMG7500	DMG8000	DMG9000...
Maximum rated voltage	600VAC	600VAC	600VAC	600VAC	600VAC	600VAC	600VAC	600VAC	600VAC
Current reading	CT /5A or CT /1A	CT /5A or CT /1A	Rogowski coils❶	CT /5A or CT /1A	CT /5A or CT /1A	CT /5A or CT /1A	CT /5A or CT /1A	CT /5A or CT /1A	CT /5A or CT /1A
Voltage and current measure accuracy	0.5%	0.5%	0.5%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Active energy measure accuracy	Class 1	Class 1	Class 1	Class 0.5s	Class 0.5s	Class 0.5s	Class 0.5s	Class 0.5s	Class 0.5s
Single-phase energy meter	●	●	●	●	●	●	●	●	●
Harmonic analysis	15th order	15th order	15th order	15th order	15th order	63rd order	63rd order	63rd order	63rd order
Neutral-earth voltage									●
Neutral current	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Measured
PLC logic						●	●	●	●
Display type	Icons	Icons	Icons	Icons	Icons	Colour graphic	Colour graphic	Colour graphic	Colour graphic
Built-in communication port		RS485	RS485	RS485	Ethernet		RS485	Ethernet	RS485 Ethernet
Expandable with EXP... modules	1 module	1 module	1 module	1 module	1 module	3 modules	3 modules	3 modules	3 modules
Communication port with EXP... modules	RS232 USB RS485 Ethernet	RS232 USB RS485 Ethernet	RS232 USB RS485 Ethernet	RS232 USB RS485 Ethernet	RS232 USB RS485 Ethernet	RS232 USB RS485 Ethernet Profibus DP	RS232 USB RS485 Ethernet Profibus DP	RS232 USB RS485 Ethernet Profibus DP	RS232 USB RS485 Ethernet Profibus DP
Data memory								●	●
Ethernet-RS485 gateway function						●	●	●	●
Energy quality according to EN 50160									●
Compatibility with EASY BRANCH power monitoring system							●	●	●
Degree of protection	IP54	IP54	IP54	IP54	IP54	IP65	IP65	IP65	IP65

❶ Coils and calibration report included.

POWER ANALYZERS WITH WIDESCREEN COLOUR LCD
DMG SERIES

WIDESCREEN COLOUR LCD

The large size of the colour LCD (4.3") allows for the optimal view of measures and parameters in a clear, simple and intuitive way.
The standard cutout dimensions (92x92mm) ensures a perfect compatibility with the usual front panel solutions.



10 LANGUAGES

The language shown can be selected from a large number of choices: English, French, German, Italian, Spanish, Portuguese, Polish, Russian, Czech, Chinese.

PROGRAMMABLE LEDs

3 front LEDs are programmable and let the user know the status of the device at any time: alarms programmed by the user, status of digital inputs or outputs, emission of pulses indicating energy consumption, communication in progress.

HIGH ACCURACY LEVEL FOR MEASUREMENTS

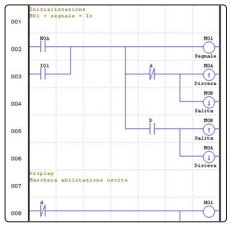
The measurements are verified according to the recognized international standards for measuring instruments: IEC 62053-22 (**class 0.5s**), IEC 62053-24 (**class 1**) and IEC 61557-12 (**class 0.5**).

NFC CONFIGURATION

Thanks to NFC technology, it is possible to configure and modify parameters (even when the device is not powered) through NFC LOVATO App, which can be downloaded for free from the Google Play Store and App Store for Android and iOS smart devices.

PLC LOGIC

Thanks to the built-in PLC logic, the power analyzers can perform simple automations related to timers and alarm states and digital inputs.
Programming with "contacts" (**Ladder**) is simple and intuitive thanks to the use of Xpress configuration software.



	DMG7000	DMG7500	DMG8000	DMG9000
Built-in RS485 port	–	●	–	●
Built-in Ethernet port (with web-server)	–	–	●	●
Ethernet-RS485 gateway function	+ EXP1012 + EXP1013	+ EXP1013	+ EXP1012	●
Memory for data collection	–	–	●	●
Statistics of network quality according to EN50160	–	–	–	●
Neutral current measurement through dedicated CT	–	–	–	●
Neutral-Earth voltage measurement	–	–	–	●
Compatibility with EASY BRANCH power monitoring system	–	●	●	●

EVERYTHING UNDER CONTROL!

MEASUREMENTS

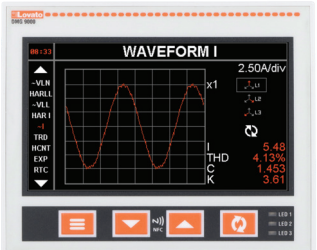
DMG power analyzers display all the measurements useful for a complete check of the electrical network. The voltage measurement input does not require external transformers **up to 600VAC**.

CHARTS AND HARMONICS

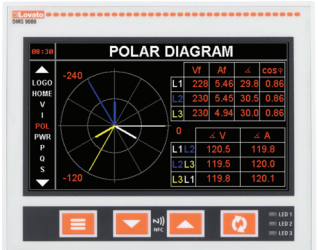
The electrical measurements are shown with waveform charts, polar diagrams and representations of the **harmonic spectrum up to the 63rd order** which is a useful tool to better understand the state of the system.

STATISTICS

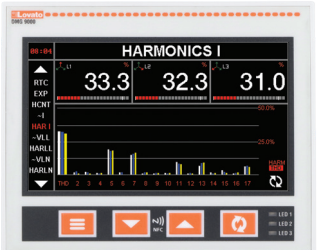
The DMG9000 model also provides statistics on the quality of the network according to the **EN50160** standard - class C - (voltage dips, overvoltages, interruptions, low frequency noises and much more).



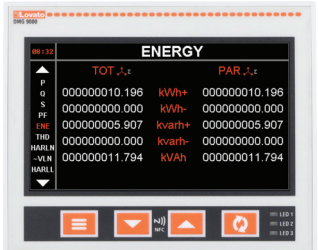
Waveforms



Polar diagram



Currents



Energy consumption control

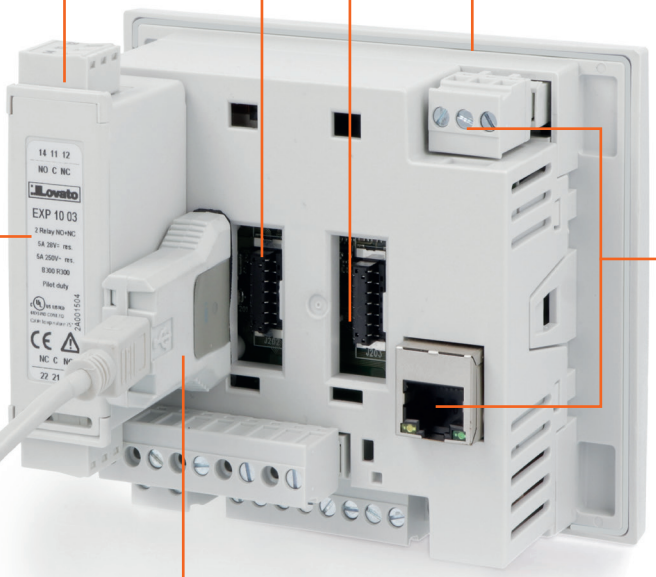
EXPANDABILITY AND COMMUNICATION

EXPANDABILITY

Possibility to add **up to 3** EXP... series expansion modules (additional inputs, outputs and communication ports).

DEGREE OF PROTECTION: IP65

Possibility of use in harsh environments thanks to the gasket on the back which guarantees the **IP65** degree of protection.



INTEGRATION WITH SIGNALS FROM THE FIELD

Thanks to the EXP... expansion modules it is possible to add **digital and analog inputs** by which field measurements such as gas or water consumption, tank levels, temperatures, pressures and much more are integrated into the data collection in order to obtain a complete energy management.

COMMUNICATION

Availability of models with built-in **RS485** and **Ethernet** communication ports.

OPTICAL PORT

The optical port compatible with the communication devices CX01 and CX02 is available and allows, thanks to Xpress software, the parameter configuration, the electrical network diagnostics and the firmware update of the power analyzer.

EASY BRANCH POWER MONITORING SYSTEM

Thanks to the EXS... modules, a simplified and very fast wiring can be achieved in panels where it is necessary to read the electrical parameters of different loads, drastically reducing the costs and the installation times.

WEB-SERVER FUNCTION IN DMG8000 AND DMG9000

SETTING OF ALL PARAMETERS

The programming of the parameters, as well as from the front panel, can also be done through the browser on a PC. The built-in web-server also allows the setting of the parameters of the EASY BRANCH power monitoring system, such as the descriptions of the individual measurement points.

WEB SERVER AND BUILT-IN DATA MEMORY

A flash data memory allows archiving of historical data. Through the built-in web server the user can:
- select the measures (up to 128);
- set the sampling frequency;
- download the .CSV file with the acquired information.

For example, by sampling 20 measurements with 1 minute of sampling time, 10 days of data can be stored.

MEASUREMENT VIEW

Representation of the measured values by means of tables and charts.

EASY BRANCH POWER MONITORING SYSTEM

When inside an electrical panel the parameters of several loads have to be monitored, **EASY BRANCH** power monitoring system is a more efficient and simple alternative solution to install than the traditional one which requires an independent instrument for each measuring point. The electrical distribution panels in shopping centres or in the departments of a production facility represent ideal applications for **EASY BRANCH** system by LOVATO Electric.

SYSTEM COMPONENTS

DMG7500 - 8000 - 9000
Power analyzer

DMG7500, DMG8000, DMG9000 power analyzers.

The power analyzers represent the heart of the system: they measure the electrical voltage in the switchboard and the input current, record the total measurements upstream of the distribution and the measurements of each individual monitored load available on their display. The electrical quantities can also be viewed via the built-in communication ports (RS485 or Ethernet).

On the DMG8000 and DMG9000 models, the system measurements can be viewed within a web page and can be recorded in the data memory to get historical trends.

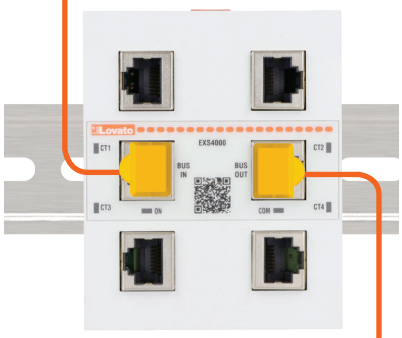
EXS0000
Bus module

EXS0000 bus module

Installed in one of the expansion slots of the power analyzer, by using a standard Ethernet cable (cat.6) it connects and supplies **up to 8 current measuring modules EXS4...** which are automatically recognized without the need for settings by the installer.
When connecting 5 or more EXS4 current modules ... the EXS0000 bus module requires a 24VDC - 0.2A power supply.

MAX 8 EXS4... current measuring modules can be connected to the EXS0000 bus module, to monitor up to:
- 33 three-phase loads;
- 99 single phase loads.

Including the loads connected to the power analyzer.

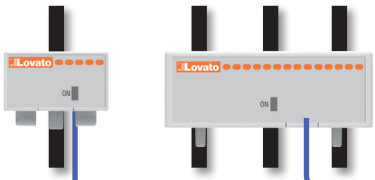


EXS4000
Current measuring module with
4 inputs for electronic RJ45 CTs

Current measuring module EXS4000

The module collects the measurements of the loads monitored by the electronic current transformers EXS3... (three-phase or single-phase) or EXS1... (single-phase). Each module measures **up to 4 three-phase loads or 12 single-phase loads** or a mixed single-phase and three-phase configuration. The module automatically recognizes the connected electronic current transformer and highlights, through diagnostic LEDs, the correct self-configuration of the measurement points and the correct coupling with the power analyzer.

Correct self-configuration LED



EXS1... - EXS3...
Electronic current transformer

Electronic current transformers EXS1... and EXS3...

They are current transducers suitable to be installed immediately downstream of the magnetic circuit breakers thanks to their compact size. Available **for single-phase or three-phase loads,** the diameter and pitch of the pass-through holes have been designed to be in line with the ones of the MCBs:
- for sizes up to 63A: Ø = 7mm and 18mm pitch;
- for sizes up to 125A: Ø = 12mm and 27mm pitch.

They connect to the EXS4000 current monitoring module via pre-wired **2 meter RJ45 cable,** thus making the connection fast and fail-safe.
EXS3 ... can be programmed to manage even single-phase loads.

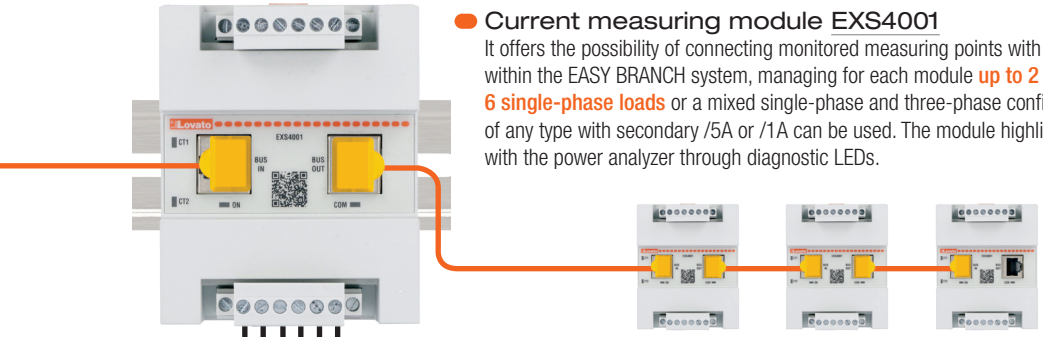
2m pre-wired cable

Correct coupling signalling LED

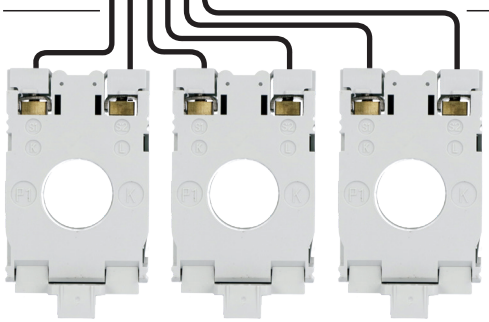
Current measuring module EXS4001

It offers the possibility of connecting monitored measuring points with traditional current transformers within the EASY BRANCH system, managing for each module **up to 2 three-phase loads or 6 single-phase loads** or a mixed single-phase and three-phase configuration. Current transformers of any type with secondary /5A or /1A can be used. The module highlights the successful coupling with the power analyzer through diagnostic LEDs.

Correct coupling signalling LED



EXS4001
Current measuring module with 2 inputs for three-phase traditional CTs or 6 inputs for single-phase traditional CTs



DM...
Current transformers

Traditional current transformer DM...

Current transformers (CTs) type DM... are mounted in an electrical system to reduce the line current to a secondary value of 5A and compatible with EXS4001 current measuring modules.
They are available in many versions:
- with wire-wound primary for reduced currents;
- solid core type;
- high precision for very accurate measurements;
- split-core and pre-wired types which are suitable for updating the panels;-

primary current from 5 to 4000A.

Gateway data logger

A gateway data logger is the key device for the implementation of a modern and well-designed energy monitoring system.
It collects data from LOVATO Electric devices or from environmental sensors relating to any type of energy carrier (water, air, gas, electricity and steam) equipped with a compatible protocol.
The data collected, as well as being represented by the integrated web-server, can be transmitted to Synergy supervision software of LOVATO Electric or forwarded to remote servers in formats suitable for appropriate processing.

EXCGLB...
Gateway data loggers

Supervision software

All the data of the EASY BRANCH system are available on the central power analyzer and, through its communication ports, it is possible to collect them remotely by connecting directly with a browser if the model chosen is DMG8000 or DMG9000, or through Synergy software installed on a local server, or using Synergy Cloud if the gateway data logger EXCGLB... is added to the system.

SYNERGY
Supervision software

EASY BRANCH PLUG & PLAY SYSTEM ADVANTAGES

4 COMPONENTS NEEDED

The EASY BRANCH system consists of a few elements to add to the power analyzer: EXS0000 module to get the communication bus, the EXS4... module to measure currents and the EXS1..., EXS3 electronic current transformers... or traditional /5A or /1A CTs.
Up to 33 three-phase or 99 single-phase measuring points can be obtained!

DRAMATIC REDUCTION OF WIRING TIMES

In a monitoring system with traditional measuring instruments, 4 voltage and 6 current cables are required for each three-phase measuring point and two additional cables for the auxiliary power supply are added: a total of 12 cables to be connected for each measuring point.
With the EASY BRANCH system, for each additional current measuring module (EXS4000) only one cable with RJ45 terminal must be connected, getting 4 three-phase or 12 single-phase measurement points, each of which is connected with a cable with RJ45 terminal, drastically reducing the wiring time.

STOP TO WIRING MISTAKES!

In a monitoring system with traditional measuring instruments, 12 cables to be connected for each three-phase measuring point can cause various wiring errors (phase sequence, phase correspondence between voltages and currents, current transformers sense) which cause errors in reading the electrical quantities and delay the commissioning of the switchboard.
The EASY BRANCH system, thanks to the RJ45 connections of the electronic CTs, is foolproof!

Plug & Play

SETTING TIME REDUCTION

EXS1... and EXS3... electronic transformers have a **self-recognition** system with the current module to which they are connected, avoiding the installer the need to set the CT primary and the type of connection (single-phase, three-phase). A LED on the electronic transformers indicates the correct power supply, while a LED on EXS4000 current measuring module indicates the correct coupling.

NO SPECIAL CABLES NEEDED

No special cable is needed to connect the current measuring modules to EASY BRANCH bus: **a standard Cat.6 Ethernet cable is enough.**

COMPARISON BETWEEN EASY BRANCH AND TRADITIONAL MEASURING SYSTEMS

If 5 three-phase loads are to be monitored in an electrical panel:
- **EASY BRANCH SYSTEM**: 1 power analyzer, 1 display where to search for measurements, 1 EXS0000 bus module, 1 EXS4000 current measuring module, 4 three-phase electronic transformers and only 12 cables to be wired
- **TRADITIONAL SYSTEM**: 5 multimeters, 5 displays where to search for measurements, 15 current transformers and 60 cables to be wired.

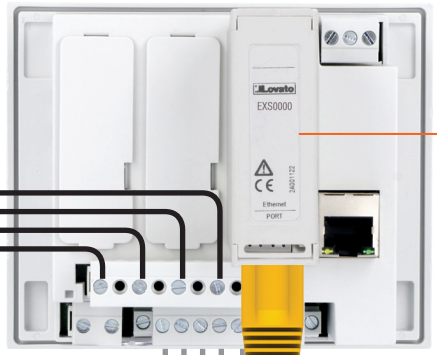
The more the measuring points increase, the more the advantages in favour of the EASY BRANCH system are evident.

MEASUREMENT ACCURACY

The EASY BRANCH system guarantees high measurement accuracy according to IEC61557-12 and IEC62053-22/23 standards.

PLANT MANAGEMENT WITH EASY BRANCH

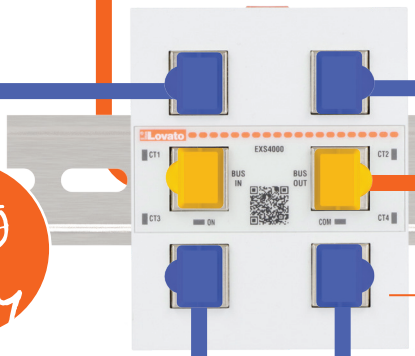
DMG7500 - 8000 - 9000
Power analyzer



EXS0000
Bus module for EASY BRANCH system

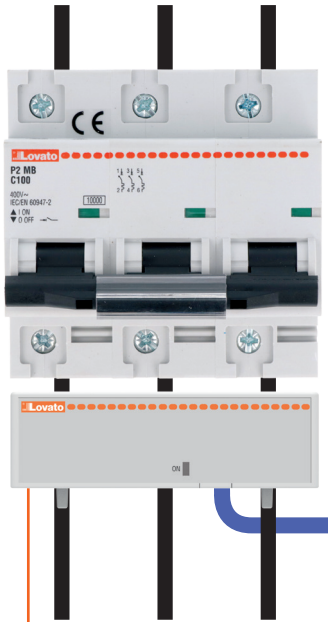
EXS1080
80A single-phase electronic current transformer with RJ45 cable, 2m long

L1
L2
L3
N
T1
T2
T3

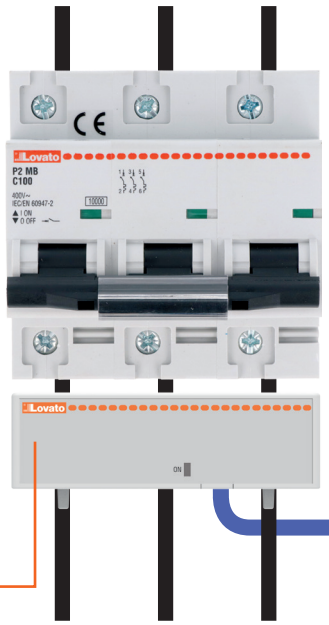


Plug & Play

EXS4000
Current measuring module with 4 inputs for electronic RJ45 CTs

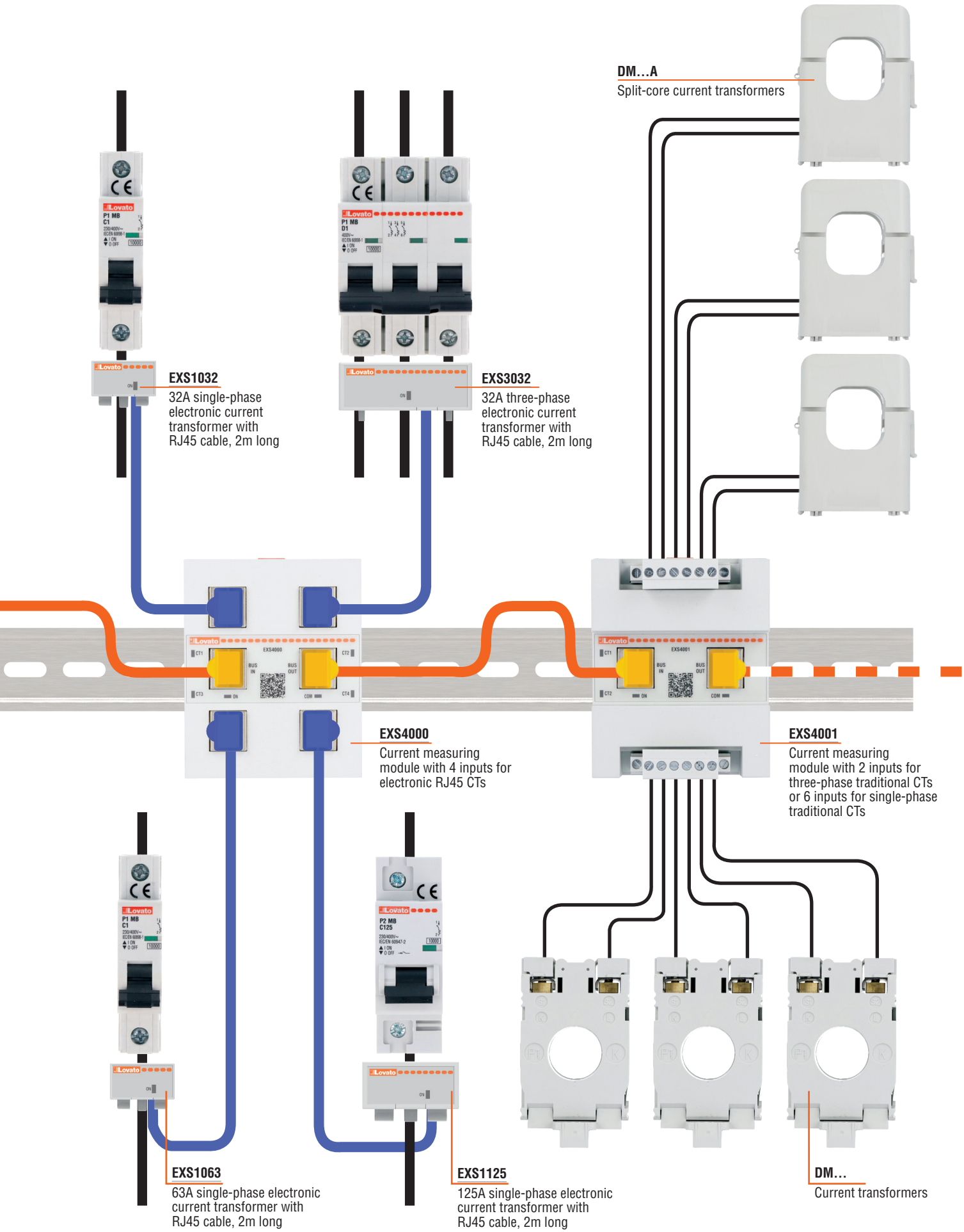


EXS3125
125A three-phase electronic current transformer with RJ45 cable, 2m long



EXS3080
80A three-phase electronic current transformer with RJ45 cable, 2m long

EXS3063
63A three-phase electronic current transformer with RJ45 cable, 2m long

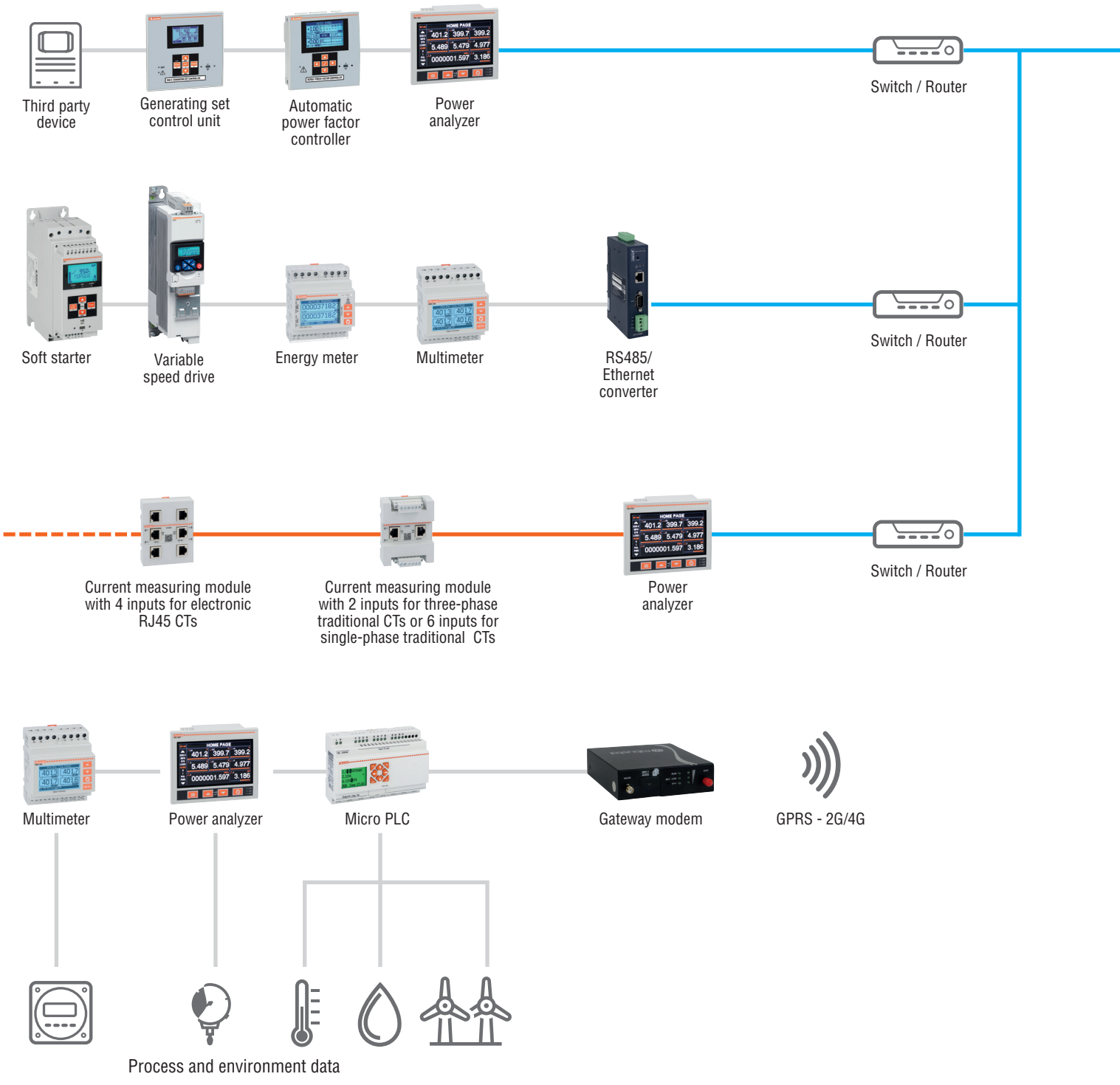

DM...A
Split-core current transformers
EXS1032
32A single-phase electronic current transformer with RJ45 cable, 2m long
EXS3032
32A three-phase electronic current transformer with RJ45 cable, 2m long
EXS4000
Current measuring module with 4 inputs for electronic RJ45 CTs
EXS4001
Current measuring module with 2 inputs for three-phase traditional CTs or 6 inputs for single-phase traditional CTs
EXS1063
63A single-phase electronic current transformer with RJ45 cable, 2m long
EXS1125
125A single-phase electronic current transformer with RJ45 cable, 2m long
DM...
Current transformers

ENERGY MANAGEMENT SOLUTION BY LOVATO ELECTRIC

For the purpose of monitoring and energy saving, LOVATO Electric provides a complete and integrated solution consisting of:

- **hardware devices** for energy measurement and control (power analyzers, multimeters, energy meters, variable speed drives, soft starters, automatic power factor controllers, gateway data loggers, etc.);
- web based **software** to continuously monitor energy vectors via the Web.

Synergy by LOVATO Electric is an energy monitoring and analysis system with a professional, flexible and integrated approach from an Industry 4.0 perspective. Thanks to the LOVATO Electric **measurement devices** equipped with a communication port and through the web-based supervision platform, it is possible to monitor real time measurements, consult graphics, receive alarms, export customized reports and carry out commands and settings.



GATEWAY DATA LOGGER LOCAL WEB SERVER

LOVATO Electric **EXCGLB...** gateway data loggers provides access to an integrated web server which allows local consultation of the monitored data and acts as a gateway to Synergy supervision software.

Gateway data logger

Built-in web server information view

Pre-defined live pages, charts and data logs

MONITORING AND SUPERVISION SOFTWARE

Synergy is a software which can be completely customized by the user who can thus have the key indicators of the monitored systems, be notified in the event of alarms for anomalies in consumption and monitor performance over time. It is open to the integration of third-party instrumentation thanks to the use of the MODBUS communication protocol and the ability to integrate any device equipped with analog or digital output.

Multi-device

Laptop

Tablet

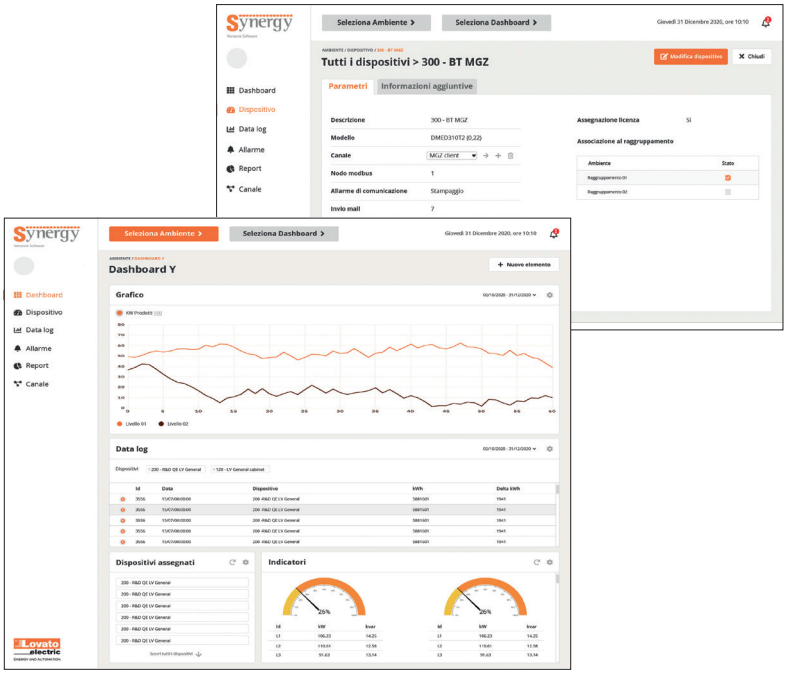
Smartphone

Multi-users

Administrators

Powerusers

Users



Customizable Dashboard, Data Log and Reports

Single-phase

DMED110T1
DMED111
DMED112

DMED115T1
DMED120T1
DMED121 - DMED122

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter, with LCD screen.			
DMED100T1	40A direct connection, 1U 1 pulse output, 220...240VAC	1	0.086
DMED110T1	40A direct connection, 1U 1 program. static output, multi-measurements❶, 220...240VAC	1	0.090
DMED111	40A direct connection, 1U, RS485 interface multi-measurements❶, 110...240VAC	1	0.090
DMED112	40A direct connection, 1U, M-Bus interface multi-measurements❶, 110...240VAC	1	0.090
Digital meter with backlight LCD display.			
DMED115T1	40A direct connection, 2U, 1 program. static output, multi-measurements ❷, 220...240VAC	1	0.090
DMED120T1	63A direct connection, 2U 1 program. static output, multi-measurements ❶, 220... 240VAC	1	0.148
DMED121	63A direct connection, 2U, RS485 interface multi-measurements❶, 110...240VAC	1	0.148
DMED122	63A direct connection, 2U, M-Bus interface multi-measurements❶, 110...240VAC	1	0.148

General characteristics
The energy meters are instruments for energy consumption measurement in single-phase installations with direct connection.

Operational characteristics
- LCD meter: with 5+1 digit count for DMED100T1, DMED110T1, DMED111, DMED112; backlight with 6+1 digit count for DMED115T1, DMED120T1, DMED121, DMED122
- Direct connection
- Active energy measurement and accuracy:Class 1 (IEC/EN/BS 62053-21)
- Reactive energy measurement and accuracy:Class 2 (IEC/EN/BS 62053-23)
- Metrological LED with pulse emission for consumption indication
- Clearable partial energy measurement
- Built-in RS485 or M-Bus ports for pulse output models compatible with Synergy and Xpress
- Modular housing
- Sealable terminal blocks, standard supplied
- EN degree of protection: IP40 on front; IP20 at terminals.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

Certifications and compliance
Certifications obtained: cULus (DMED100T1, DMED110T1, DMED120T1, DMED121), EAC (for all DMED... type), RCM (for all DMED...type, DMED122 except).
Compliant with standards: IEC/EN/BS 50470-1, IEC/EN/BS 61010-1 for all DMED... type; UL 61010-1, CSA C22-2 n° 61010-1 for DMED100T1, DMED110T1, DMED120T1, DMED121.

❶ Multi-measurements:
- Total and partial active energy
- Total and partial reactive energy
- Voltage
- Current
- Active and reactive power
- Power factor
- Frequency
- Total and partial hour counter
- Average active power (calculation made using the last 15 minutes of data)
- Maximum demand.

❷ Multi-measurements:
- Total and partial active energy
- Active power
- Average active power (calculation made using the last 15 minutes of data)
- Maximum demand.

Single-phase, MID certified

MID

DMED110T1MID
DMED111MID
DMED112MID

-25...+70°C

DMED111MID7

DMED120T1MID
DMED121MID
DMED122MID

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter with LCD display.			
DMED100T1MID	40A direct connection, 1U 1 pulse output, 230VAC	1	0.090
DMED110T1MID	40A direct connection, 1U 1 programmable static output, multi-measurements ❶, 230VAC	1	0.090
DMED111MID	40A direct connection, 1U, RS485 interface, measurements❶, 230VAC	1	0.090
DMED111MID7	40A direct connection, 1U, RS485 interface, measurements❶, 230VAC, -25...+70°C	1	0.090
DMED112MID	40A direct connection, 1U, M-Bus interface, measurements❶, 230VAC	1	0.090
DMED120T1MID	63A direct connection, 2U 1 programmable static output, multi-measurements ❶, 230VAC	1	0.152
DMED121MID	63A direct connection, 2U, RS485 interface multi-measurements ❶, 230VAC	1	0.148
DMED122MID	63A direct connection, 2U, M-Bus interface multi-measurements ❶, 230VAC	1	0.148

General characteristics
The DME... series energy meters, MID certified, are needed for billing purposes between electricity suppliers and consumers and for energy consumption measurement in directly connected single-phase installations.
MID is the Measuring Instruments Directive of the European Union; instruments must be certified accordingly whenever used for monetary transactions in this territory.

Operational characteristics
- LCD meter: DMED100T1/110T1/111/112MID; backlight with 6+1 digit count for DMED120T1/121/122MID
- Direct connection
- Active energy measurement and accuracy:Class B (EN 50470-3)
- Reactive energy measurement and accuracy: Class 2 (IEC/EN/BS 62053-23)
- Metrological LED with pulse emission for consumption indication
- Clearable partial energy measurements
- Built-in RS485 or M-Bus ports for pulse output models compatible with Synergy and Xpress
- 70°C model ideal for electric vehicle charging stations
- Modular housing
- Sealable terminal blocks, standard supplied
- EN degree of protection: IP40 on front; IP20 at terminals.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

Certifications and compliance
Certifications obtained: MID Class B (EN 50470-1, EN 50470-3), certifications per module B (type tests) + module D (production conformity).
Compliant with standards: EN 50470-1, EN 50470-3, TR50579.

❶ Multi-measurements:
- Total and partial active energy
- Total and partial reactive energy
- Voltage
- Current
- Active and reactive power
- Power factor
- Frequency
- Total and partial hour counter
- Average active power (calculation made using the last 15 minutes of data)
- Maximum demand.

Three-phase with or without neutral, non expandable

DMED300T2
DMED311
DMED302

DMED305T2
DMED330
DMED332

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter for three-phase with neutral. 80A direct connection.			
DMED300T2	2 programmable static outputs, multi-measurements❶, 4U	1	0.360
DMED300T2UL	2 programmable static outputs, multi-measurements❶, cULus certified, 4U	1	0.360
DMED311	RS485 interface, multi-measurements❶, 4U	1	0.360
DMED302	M-Bus interface, multi-measurements❶, 4U	1	0.360
Digital meter for three-phase with or without neutral. Connection by CT /1A and /5A.			
DMED305T2	2 programmable static outputs, multi-measurements❶, 4U	1	0.332
DMED330	RS485 interface, multi-measurements❶, 4U	1	0.332
DMED332	M-Bus interface, multi-measurements❶, 4U	1	0.332

Three-phase with or without neutral, expandable

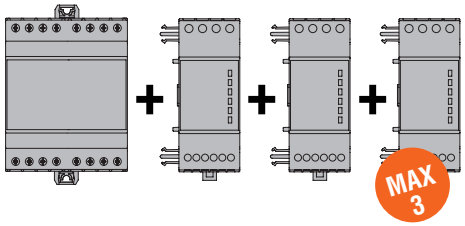
DMED310T2

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter for three-phase with or without neutral. Connection by CT /5A.			
DMED310T2	2 programmable static outputs, multi-measurements ❶, expandable with EXM... modules series, 4U	1	0.332

Order code	Description
DMED310T2 EXPANSION MODULES. Inputs and outputs.	
EXM1000	2 digital inputs and 2 static outputs, opto-isolated
EXM1001	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports.	
EXM1010	Opto-isolated USB interface
EXM1011	Opto-isolated RS232 interface
EXM1012	Opto-isolated RS485 interface
EXM1013	Opto-isolated Ethernet interface
EXM1020	Opto-isolated RS485 interface and 2 relay outputs rated 5A 250VAC
EXM1030	Data storage, clock-calendar (RTC) with backup reserve energy for data logging

EXM1010

Maximum combination for DMED310T2



General characteristics
The energy meters are digital meters/analyzers of electric energy for systems with direct three-phase connection or by CT.

Operational characteristics
- LCD multifunction meter
- Nominal supply voltage: 380...415VAC (L-L); UL nominal supply voltage: 120VAC (L-N), 240VAC (L-L), 60Hz, direct two-phase + N
- Active energy measurement and accuracy: Class 0.5s (IEC/EN/BS 62053-22) for DMED305T2, DMED330 and DMED332; Class 1❷ (IEC/EN/BS 62053-21) for DMED300T2, DMED311 and DMED302; Class 0.5 (ANSI C12.20) for DME300T2UL
- Active energy measurement and accuracy: Class 2 (IEC/EN/BS 62053-23)
- Metrological LED with pulse emission for consumption indication
- Clearable partial active energy measurements
- 1 programmable digital input
- Built-in RS485 or M-Bus ports for pulse output models compatible with Synergy and Xpress
- Optical interface for EXM... expansion modules with DMED310T2
- Modular housing, 4 module
- Sealable terminal blocks, standard supplied
- EN degree of protection: IP40 on front; IP20 at terminals.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

EXM series expansion modules
See page 35-3.

Certifications and compliance
Certifications obtained: EAC, RCM for all types, cULus for DMED300T2UL.
Compliant with standards: IEC/EN/BS 50470-1, IEC/EN/BS 61010-1, IEC 61010-2-030 for all DMED...; IEC/EN/BS 62052-11, IEC/EN/BS 62052-31 for DMED311..

❶ Multi-measurements:
- Total and partial active energy
- Total and partial reactive energy
- Voltage
- Current
- Active and reactive power
- Power factor
- Frequency
- Total and partial hour counter
- Average active power (calculation made using the last 15 minutes of data)
- Maximum demand.

❷ Class 1 according to IEC/EN/BS 62053-21, accuracy measured in the 0.75A-80A range: 0.5%.

Three-phase with neutral, non expandable, MID certified

MID

DMED300T2MID
DMED311MID7
DMED302MID

new

-25...+70°C

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter for three-phase with neutral. 80A direct connection.			
DMED300T2MID	2 programmable static outputs, multi-measurements❶, 4U	1	0.360
DMED311MID7	RS485 interface, multi-measurements❶, -25...+70°C, 4U	1	0.360
DMED302MID	M-Bus interface, multi-measurements❶, 4U	1	0.360
Digital meter for three-phase with neutral. Connection by CT /1A and /5A.			
DMED305T2MID	2 programmable static outputs, multi-measurements❶, 4U	1	0.332
DMED330MID	RS485 interface, multi-measurements❶, 4U	1	0.332
DMED332MID	M-Bus interface, multi-measurements❶, 4U	1	0.332

DMED305T2MID
DMED330MID
DMED332MID

Three-phase with neutral, non expandable, for electric vehicle charging stations, with Eichrecht certified versions

DMED341MID7
DMED341MID7E
DMED341MID7ER

-25...+70°C

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter for three-phase with neutral. 80A direct connection, up to 70°C.			
DMED341MID7	RS485 interface, 1 programmable static output, multi-measurements❶, -25...+70°C, 4U	1	0.360
DMED341MID7E	RS485 interface, 1 programmable static output, multi-measurements❶, 4U, Eichrecht certified	1	0.360
DMED341MID7ER	RS485 interface, 1 programmable static output, multi-measurements❶, -25...+70°C, 4U, Eichrecht certified, imported/exported active energy certified	1	0.360

General characteristics
The DME... series energy meters, MID certified, are compulsory in Europe, are needed for billing purposes between electricity suppliers and consumers and for energy consumption measurement in directly or CT connected three-phase installations.
The DMED341MID7... types (4 DIN module three-phase direct insertion up to 80A) have been designed for use in **electric vehicle charging stations.**
- they are suitable for particularly demanding applications from the point of view of thermal exposure
- they are MID certified up to 70°C
- they integrate an RS485 communication port with Modbus RTU protocol.

In particular, the DMED341MID7E... also complies with the requirements of the VDE-AR-E 2418-3-100 2020 edition which is the standard used by charging station manufacturers to satisfy the obligations deriving from the German calibration law (Eichrecht) MessEG (Mess und Eichgesetz) MessEV (Mess und Eichverordnung).
In addition, the DMED341MID7ER is MID certified not only for the energy consumed (imported) but also for the energy produced (exported).

Operational characteristics
- LCD multifunction meter
- Nominal supply voltage: 230VAC (L-N); 400VAC (L-L)
- Voltage range: 187...264VAC (L-N); 323...456VAC (L-L)
- Active energy measurement and accuracy: Class B (EN 50470-3, IEC/EN/BS 62052-11 and IEC/EN/BS 62052-31 only for DMED311MID7 and DMED341MID7...)
- Reactive energy measurement and accuracy: Class 2 (IEC/EN/BS 62053-23)
- Metrological LED with pulse emission for consumption indication
- Clearable partial energy measurements
- 1 programmable digital input
- Built-in RS485 or M-Bus ports for pulse output models compatible with Synergy and Xpress
- Modular housing 4 module
- Sealable terminal blocks, standard supplied
- EN degree of protection: IP40 on front; IP20 at terminals.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

Certifications and compliance
Certifications obtained:
DMED30..., DMED33... :MID Class B (EN 50470-1, EN 50470-3), certifications for module B (type tests) + for module D (production conformity).
DMED311MID7, DMED341MID7...: MID/MIR Class B (IEC/EN 62052-11, IEC/EN 62052-31, EN 50470-3), certifications for module B (type tests) + for module D (production conformity), Eichrecht (VDE-AR-E 2418-3-100) only for DMED341MID7E...
Compliant with standards:
DMED30..., DMED33... :EN 50470-1, EN 50470-3, TR50579.
DMED311MID7, DMED341MID7...: IEC/EN/BS 62052-11, IEC/EN/BS 62052-31, BS EN 50470-3, VDE-AR-E 2418-3-100 (only for DMED341MID7E...).

❶ Multi-measurements:
- Total and partial active energy
- Total and partial reactive energy
- Voltage
- Current
- Active and reactive power
- Power factor
- Frequency
- Total and partial hour counter
- Average active power (calculation made using the last 15 minutes of data)
- Maximum demand.

Three-phase with neutral, MID certified

MID

DMED305F

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter for three-phase with neutral, non expandable, complete with UTF certificates for installations in Italy.			
DMED300F	DMED300T2MID, complete with UTF certificates	1	0.360
DMED311F	DMED311MID7, complete with UTF certificates	1	0.381
DMED305F	DMED305T2MID, complete with UTF certificates	1	0.381
DMED330F	DMED330MID, complete with UTF certificates	1	0.381

General characteristics
The UTF (Finance Technical Office) certification is required in Italy in case of applications where taxes have to be paid due to energy production (Italian regulations for plants >20kW). The certificates must be associated to the energy meter (MID version) and to each single current transformer is needed (see page 29-5 for selection).
DME... energy meters, MID version, for three-phase systems with or without current transformers can be supplied with the certificates included (DME...F). DMED310F... can be expanded up to 3 EXM... modules.
If required, the fifth certificate relevant to the meter and current transformer combination can be supplied as well (see page 29-5).

Operational characteristics
- LCD multifunction meter
- Nominal supply voltage: 230VAC (L-N); 400VAC (L-L)
- Voltage range: 187...264VAC (L-N); 323...456VAC (L-L)
- Active energy measurement and accuracy: Class B (EN 50470-3)
- Reactive energy measurement and accuracy: Class 2 (IEC/EN/BS 62053-23)
- Metrological LED with pulse emission for consumption indication
- Clearable partial energy measurements
- 1 programmable digital input
- Models with 2 programmable static outputs and built-in RS485 compatible with Synergy and Xpress
- Modular housing 4 module
- Sealable terminal blocks, standard supplied
- EN degree of protection: IP40 on front; IP20 at terminals.

Multi-measurements
- Total and partial active energy
- Total and partial reactive energy
- Voltage
- Current
- Active and reactive power
- Power Factor
- Frequency
- Total and partial hour counter
- Average active power (calculation made using the last 15 minutes of data)
- Maximum demand.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

Certifications and compliance
UTF certificates are standard supplied.

Expandable

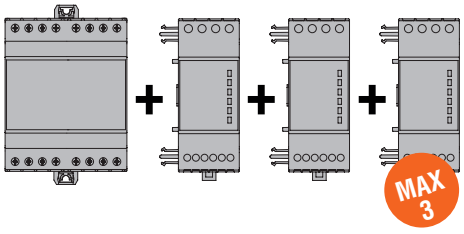
DMECD

EXM1010

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Data concentrator for general use.			
DMECD	With 8 programmable digital inputs, expandable, for pulse count, RS485 port	1	0.337

Order code	Description
DME CD EXPANSION MODULES. Inputs and outputs.	
EXM1000	2 digital inputs and 2 static outputs, opto-isolated
EXM1001	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
EXM1002	4 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports.	
EXM1010	Opto-isolated USB interface
EXM1011	Opto-isolated RS232 interface
EXM1012	Opto-isolated RS485 interface
EXM1013	Opto-isolated Ethernet interface
EXM1020	Opto-isolated RS485 interface and 2 relay outputs, rated 5A 250VAC
EXM1030	Data storage, clock-calendar (RTC) with backup reserve energy for data logging

Maximum combination for DMECD



General characteristics
DMECD is equipped with 8 inputs, which can be increased up to a maximum of 14 with expansion modules EXM1000/1001/1002, that allow to indirectly interface devices without communication as long as they have at least one pulse output.
It is capable of pulse counting that comes in from the outputs of meters for energy, water, gas and other types of consumption: All data is viewed on its display or can also be available for PCs through its built-in RS485 interface using Synergy or Xpress software .
It can be expanded with up to 3 EXM... series modules by optical interface.
With the programmable functions, average values can be determined for instantaneous quantities, such as power, speed, production rate, gas and water consumption, etc.

Operational characteristics
- Backlight graphic LCD meter, multifunction
- Nominal supply voltage: 100...240VAC/110...250VDC
- Voltage range: 85...264VAC/93.5...300VDC
- 8 inputs, expandable with EXM... modules up to 14
- Built-in RS485 communication port
- Modbus-RTU, ASCII and TCP communication protocol
- Clearable total and partial counters for each channel
- Programmable general counters
- Calculation of derivative average values
- Mathematical operations among counters
- Modular housing, 4 module
- EN degree of protection: IP40 on front; IP20 at terminals.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

EXM series expansion modules
See page 35-3.

Certifications and compliance
Certifications obtained: cULus, EAC.
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3.

Power analyzers with widescreen colour LCD

DMG...

NFC

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Auxiliary supply 100...240VAC.			
DMG7000	Expandable with 3 EXP... modules	1	0.375
DMG7500	Expandable with 3 EXP... modules, built-in RS485 port, compatible with EASY BRANCH power monitoring system	1	0.375
DMG8000	Expandable with 3 EXP... modules, built-in Ethernet port, compatible with EASY BRANCH power monitoring system	1	0.375
DMG9000	Expandable with 3 EXP... modules, built-in RS485 and Ethernet port, compatible with EASY BRANCH power monitoring system	1	0.375
Auxiliary supply 12...48VDC.			
DMG9000D048	Expandable with 3 EXP... modules, built-in RS485 and Ethernet port, compatible with EASY BRANCH power monitoring system	1	0.375

new

Expansion modules

EXP10...

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Inputs and outputs.			
EXP1000	4 opto-isolated digital inputs	1	0.060
EXP1001	4 opto-isolated static outputs	1	0.054
EXP1002	2 digital inputs and 2 static outputs, opto-isolated	1	0.058
EXP1003	2 relay outputs rated 5A 250VAC	1	0.050
EXP1004	2 analog inputs, opto-isolated 0/4...20mA or PT100 or 0...10V or 0...±5V	1	0.056
EXP1005	2 analog outputs, opto-isolated 0/4...20mA, 0-10V or 0...±5V	1	0.064
EXP1008	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC	1	0.058
Communication ports.			
EXP1010	Opto-isolated USB interface	1	0.060
EXP1011	Opto-isolated RS232 interface	1	0.040
EXP1012	Opto-isolated RS485 interface	1	0.050
EXP1013	Opto-isolated Ethernet interface	1	0.060
EXP1014	Opto-isolated Profibus-DP interface	1	0.080

Communication devices

CX01

CX02

Order code	Description	Qty per pkg	Wt
		n°	[kg]
CX01	USB/optical device with PC ↔ LOVATO Electric product connecting cable, for programming, data download, diagnostics and firmware upgrade	1	0.090
CX02	Wi-Fi device for PC ↔ LOVATO Electric product programming, data download, diagnostics and cloning	1	0.090

General characteristics
DMG... power analyzers display electrical values on their large colour LCD display with exceptional accuracy to enable precise monitoring of power grids. They are designed in flush-mount housing (cutout 92x92mm/3.62x3.62") with 3 slots for EXP series plug-in expansion modules to adapt them to a variety of applications.
The use of NFC technology allows the user to configure the unit and make settings with a smart device. The optical port on the back of the unit enables the user to make settings, run power grid diagnostics and update the power analyzer firmware.
The graphic interface, available in 10 languages (English, French, German, Italian, Spanish, Portuguese, Polish, Russian, Czech and Chinese), has been designed to facilitate the display of data, including:
– Voltage (phase, phase-to-phase and system)
– Phase current (calculated neutral current, and measured neutral current on the DMG9000...)
– Measurements on 4 quadrants
– Power (active, reactive and apparent phase and total power)
– Power factor (phase and total)
– Frequency
– Maximum (HIGH), minimum (LOW) and average (AVERAGE) of all measured values
– Peak power/current (max demand)
– Voltage and current asymmetry and active power unbalance
– Total harmonic distortion (voltage and current)
– Voltage and current harmonic analysis up to the 63rd order
– Active, reactive and apparent energy metering (partial and total)
– Hour meter (total and partial, programmable).

The EASY BRANCH multi-circuit measurement system
The DMG7500, DMG8000 and DMG9000... can also be used in multi-circuit applications when more than one load is to be monitored in the electrical switch board. All values are shown on the display or via the integrated communications interface.
Refer to page 28-19 for the components of the EASY BRANCH measurement system.

Operational characteristics
– Auxiliary power:
  • 100...240VAC / 110...250VDC
  • 12-48VDC (DMG9000D048)
– Voltage measurement range: 50...720VAC L-L
– Can be used in medium and high voltage systems using TV
– Nominal input current: 5A or 1A with an external current transformer
– Frequency measurement range: 45...66Hz, 360...440Hz
– Accuracy (IEC/BS 61557-12):
  • voltage: Class 0.2 (V=100...480VAC L-N, 174...830VAC L-L)
    Class 0.5 (V=50...100 VAC L-N, 87...174VAC L-L)
  • current: Class 0.2 (Iref = 5AAC)
  • power: Class 0.5 (active), Class 1 (reactive)
  • power factor: Class 0.5
  • frequency: Class 0.02
  • THD and harmonics V and I: Class 5
  • active energy: Class 0.5s
  • active energy: Class 0.5s (IEC/EN/BS 62053-22)
  • reactive energy: Class 1 (IEC/EN/BS 62053-24)
– Integrated data memory (DMG8000, DMG9000...)
– Integrated communications ports (RS485 or Ethernet)
– Communications protocols: Modbus-RTU, ASCII and TCP
– Compatible with Synergy, Xpress and App NFC
– Protection rating: IP65 for front panel.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

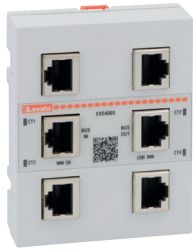
Lovato App NFC
See Section 36.

EXP series expansion modules
See page 35-3.

Certifications and compliance
Certifications: cETLus (in accordance with National Electrical Code (US) and Canadian Electrical Code).
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2 and IEC/EN/BS 61000-6-4.

EASY BRANCH power monitoring system

EXS0000



EXS4000

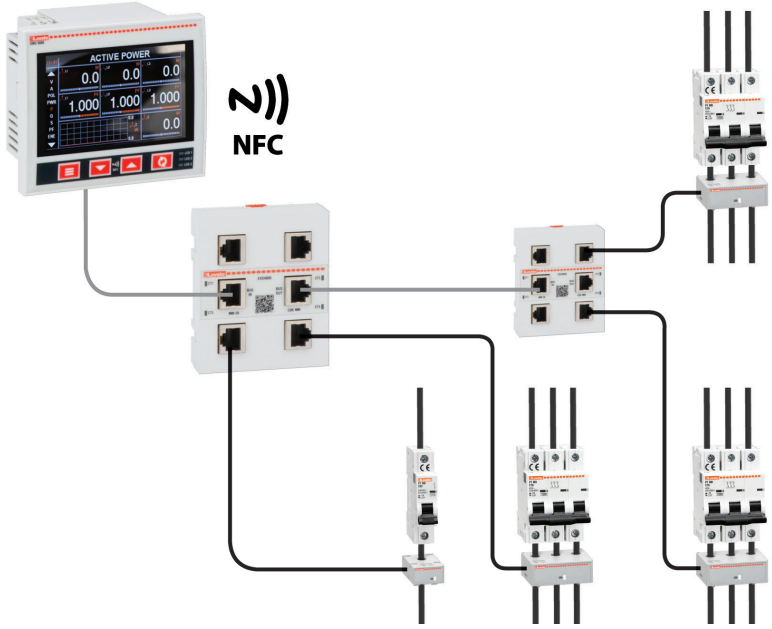
EXS4001

EXS1063

EXS3063

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Modules for EASY BRANCH system.			
EXS0000	Bus module for EASY BRANCH power monitoring system	1	0.090
EXS4000	Current measuring module with 4 inputs for electronic RJ45 CTs	1	0.140
EXS4001	Current measuring module with 2 inputs for three-phase traditional CTs or 6 inputs for single-phase traditional CTs	1	0.210
Electronic current transformers for EASY BRANCH system. Single-phase.			
EXS1032	32A single-phase electronic current transformer with RJ45 cable, 2m long	1	0.060
EXS1063	63A single-phase electronic current transformer with RJ45 cable, 2m long	1	0.060
EXS1080	80A single-phase electronic current transformer with RJ45 cable, 2m long	1	0.105
EXS1125	125A single-phase electronic current transformer with RJ45 cable, 2m long	1	0.105
Three-phase.❶.			
EXS3032	32A three-phase electronic current transformer ❶ with RJ45 cable, 2m long	1	0.080
EXS3063	63A three-phase electronic current transformer ❶ with RJ45 cable, 2m long	1	0.080
EXS3080	80A three-phase electronic current transformer ❶ with RJ45 cable, 2m long	1	0.135
EXS3125	125A three-phase electronic current transformer ❶ with RJ45 cable, 2m long	1	0.135
Traditional current transformers. See Section 29.			

❶ Configurable as single-phase current transformer (3 single-phase measure per each EXS3...).



General characteristics
The EASY BRANCH multi-circuit metering system is a modern solution to the need for electrical parameter metering when more than one load is to be monitored inside a single electrical enclosure. Each DIN rail mounting current metering unit can monitor 2 or 4 measurement points and display the values on the DMG7500, DMG8000 or DMG9000... power analyzers to which it is connected, thus centralising the display of data, which includes:
- Phase current
- Measurements on 4 quadrants
- Power (active, reactive and apparent phase and total power)
- Power factor (phase and total)
- Maximum (HIGH), minimum (LOW) and average (AVERAGE) of all measured values
- Peak power/current (max demand)
- Current asymmetry and active power unbalance
- Total harmonic distortion (current)
- Current harmonic analysis up to the 63rd order
- Active, reactive and apparent energy metering (partial and total).

The RJ45 port on the EXS4000 metering module provides foolproof connection of EXS1... and EXS3... electronic current transformers.
The values can also be monitored using the communications ports of DMG... power analyzers, to which up to 8 current metering modules can be connected in cascade thanks to the integrated communications bus with standard Ethernet cable (cat.6), which also provides power.
Connecting 5 or more EXS4... current metering modules requires a 24VDC-0.2A power supply. Each measurement point can be configured as single- or three-phase, up to a total of 33 three-phase or 99 single-phase points.

Operational characteristics of EXS4... current measuring modules
- Power supplied by the bus cable (connecting 5 or more EXS4... current metering modules requires a 24VDC-0.2A power supply)
- nominal input current:
  EXS4000: 32A, 63A, 80A or 125A, depending on the connected EXS1... or EXS3... electronic transformer.
  EXS4001: 5A or 1A via external current transformer
- Accuracy (IEC/BS 61557-12):
  • current: Class 0.5 (Iref = 5AAC)
  • power: Class 1 (active), Class 2 (reactive)
  • power factor: Class 1
  • THD and current harmonics: Class 5
  • active energy: Class 1
  • active energy: Class 1 (IEC/EN/BS 62053-21)
  • reactive energy: Class 2 (IEC/EN/BS 62053-23)
- Diagnostics LED indicates correct power supply and electronic current transformer recognition
- Mounts to 35mm omega rail (IEC/EN/BS 60715).

Operational characteristics of EXS1... - EXS3... electronic current transformers
- Diagnostics LED to confirm connection
- Pre-wired cable: 2m
- RJ45 connector.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

Lovato App NFC
See Section 36.

Certifications and compliance
Certifications: cETLus (in accordance with National Electrical Code (US) and Canadian Electrical Code).
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2 and IEC/EN/BS 61000-6-4.

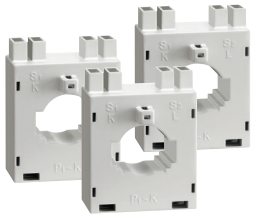
Modular LCD multimeters, non expandable

DMG1...

DMG200 - DMG210

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMG100	Icon LCD, auxiliary supply 100...240VAC/120...250VDC. Multilanguage: Italian, English, French, Spanish, Portuguese and German	1	0.294
DMG110	Icon LCD, built-in RS485 port, auxiliary supply 100...240VAC/120...250VDC. Multilanguage: Italian, English, French, Spanish, Portuguese and German	1	0.294
DMG200	Graphic 128x80 pixel LCD, auxiliary supply 100-240VAC/110-250VDC. Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.294
DMG200L01	Graphic 128x80 pixel LCD, auxiliary supply 100-240VAC/110-250VDC. Multilanguage: English, Czech, Polish, German and Russian	1	0.294
DMG210	Graphic 128x80 pixel LCD, built-in RS485 port, auxiliary supply 100-240VAC/ 110-250VDC. Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.300
DMG210L01	Graphic 128x80 pixel LCD, built-in RS485 port, auxiliary supply 100-240VAC/ 110-250VDC. Multilanguage: English, Czech, Polish, German and Russian	1	0.300

Kits with CT



DMGKIT100150

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMGKIT100060	Composed of one DMG100 multimeter and n°3 CTs 60/5A for Ø22mm cable	1	1.035
DMGKIT100100	Composed of one DMG100 multimeter and n°3 CTs 100/5A for Ø22mm cable	1	1.035
DMGKIT100150	Composed of one DMG 100 multimeter and n°3 CTs 150/5A for Ø23mm cable	1	0.856
DMGKIT100250	Composed of one DMG100 multimeter and n°3 CTs 250/5A for Ø23mm cable	1	0.856

General characteristics
DMG... digital multimeters are available with a modular housing, 4 module size, and are equipped with a graphic backlight LCD (except DMG100/110 with icon display) capable of providing extremely clear, intuitive and flexible viewing of all electrical parameters of an installation.
For DMG110 and DMG210 versions, there is a built-in isolated RS485 interface.
Main measurements:
- Voltage: phase, line and system values
- Current: phase values (neutral current calculated)
- Power: apparent, active and reactive phase and total values
- P.F.: Power Factor per phase and total
- Frequency of measured voltage value
- HIGH-LOW-AVERAGE value functions of all measurements
- Maximum demand of power and current values
- Asymmetric voltage and current
- Total harmonic distortion (THD) of voltage and current values
- Energy meters for active, reactive and apparent values
- Hour counter (total and partial, 1 on DMG200/210, 4 programmable on DMG100/110)
- Phase energy (DMG100/110)
- Harmonic analysis up to the 15th order (DMG100/110).

Operational characteristic
- Auxiliary supply voltage range: 100...240VAC / 110...250VDC
- Maximum rated measurement voltage
  - 600VAC (DMG100/110)
  - 690VAC (DMG200/210)
- Voltage measurement range:
  - 50...720VAC phase-to-phase (DMG100/110)
  - 20...830VAC phase-to-phase (DMG200/210)
- Usage in medium and high-voltage systems with voltage transformers
- Rated input current: With external CT /5A (also 1A for DMG100/110)
- Current measurement range with CT up to 10,000A
- Frequency measurement range: 45...66Hz, 360...440Hz
- True RMS measurements for voltage and current values
- Accuracy:
  - Voltage: ±0.5% (50...720VAC for DMG1...) (50...830VAC) for DMG2...
  - Current: ±0.5% (0.1...1.1In)
  - Power: ±1% f.s.
  - Frequency: ±0.05%
  - Active energy: Class 1 (IEC/EN/BS 62053-21)
  - Reactive energy: Class 2 (IEC/EN/BS 62053-23)
- Non-volatile memory for data storage
- Communication protocol Modbus-RTU and ASCII (only for DMG110 and DMG210)
- Programming and remote control by software (only for DMG110 and DMG210; compatible with Synergy and Xpress software)
- Modular housing, 4 module
- EN degree of protection: IP40 on front; IP20 at terminals.

CURRENT TRANSFORMERS OF DMG... KITS
- Operating frequency: 50...60Hz
- Secondary output current: 5A
- Overload withstand: 120% Ipn
- Rated insulation voltage Ui: 720V
- Rated short time thermal current Ith: 40...60Ipn for 1 second
- Rated dynamic current Idyn: 2.5Ith for 1 second
- Insulation (dry type): class E
- Faston terminals
- EN degree of protection: IP30.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

Certifications and compliance
Certifications obtained: cULus, EAC and RCM.
Compliant with standards: DMG100/110: IEC/EN/BS 61010-1, IEC/EN/BS 61010-2-030, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3, UL 61010-1, CSA C22.2 n° 61010-1, UL 61010-2-030, CSA 22.2 n° 61010-2-030.
DMG200/210: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-4, UL 61010-1, UL508, CSA C22.2 n°14.

Modular LCD multimeters, expandable

DMG300

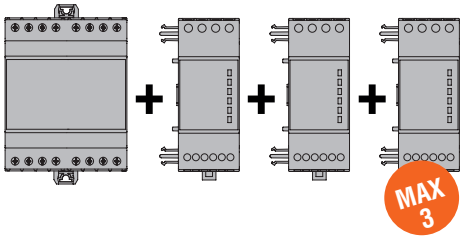
Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMG300	Graphic 128x80 pixel LCD, harmonic analysis, auxiliary supply 100...240VAC/110...250VDC, expandable with modules series EXM... Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.320
DMG300L01	Graphic 128x80 pixel LCD, harmonic analysis, auxiliary supply 100...240VAC/110...250VDC, expandable with modules series EXM... Multilanguage: English, Czech, Polish, German and Russian	1	0.320

Expansion modules

EXM1010

Order code	Description
DMG300 AND DMG300L01 EXPANSION MODULES. Inputs and outputs.	
EXM1000	2 digital inputs and 2 static outputs, opto-isolated
EXM1001	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
EXM1002	4 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports.	
EXM1010	Opto-isolated USB interface
EXM1011	Opto-isolated RS232 interface
EXM1012	Opto-isolated RS485 interface
EXM1013	Opto-isolated Ethernet interface
EXM1020	Opto-isolated RS485 interface and 2 relay outputs rated 5A 250VAC
EXM1030	Data storage, clock-calendar (RTC) with backup battery for data logging

Maximum combination for DMG300 and DMG300L01



General characteristics

DMG300... digital multimeters are available with a modular housing, 4 module size, and are equipped with a graphic backlight LCD capable of providing extremely clear, intuitive and flexible viewing of all electrical parameters of a system.
The very accurate measurements combined with their extreme compactness provide an ideal solution for every type of application.
Expandable with up to 3 module EXM... series by optical interface.
Main measurements:
- Voltage: phase, line and system values
- Current: phase values (neutral current calculated)
- Power: apparent, active and reactive phase and total values
- P.F.: Power Factor per phase and total
- Frequency of measured voltage value
- HIGH-LOW-AVERAGE value functions for all measurements
- Maximum demand of power and current values
- Voltage and current asymmetry
- Total harmonic distortion (THD) of voltage and current values
- Harmonic analysis of voltage and current up to 31° order
- Energy meters for active, reactive, apparent partial and total values, programmable tariff functions
- Hour counter for programmable total and partial hours
- Pulse counter for general use: consumption pulse counting for water, gas, etc. with expansion module only.

Operational characteristics

- Auxiliary supply voltage range: 85...264VAC / 93.5...300VDC
- Voltage measurement range: 20...830VAC phase-to-phase, 10...480VAC phase-neutral
- Usage in medium and high-voltage systems with voltage transformers
- Rated input current: With external CT, 5A or 1A
- Current measurement range with CT up to 10,000A
- Frequency measurement range: 45...66Hz, 360...440Hz
- True RMS measurements for voltage and current values
- Measurements accuracy:
  - Voltage: ±0.2% (50...830VAC)
  - Current: ±0.2% (0.1...1.1In)
  - Power: ±0.5% f.s.
  - Power factor: ±0.5%
  - Frequency: ±0.05%
  - Active energy: Class 0.5s (IEC/EN/BS 62053-22)
  - Reactive energy: Class 2 (IEC/EN/BS 62053-23)
- Non-volatile memory for data storage
- Communication protocol Modbus-RTU, ASCII and TCP (only with communication expansion modules)
- Programming and remote control by software (only with communication expansion modules); compatible with Synergy and Xpress software
- Modular housing, 4 module
- EN degree of protection: IP40 on front; IP20 at terminals.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

EXM series expansion modules
See page 35-3.

Certifications and compliance

Certifications obtained: UL Listed, for USA and Canada (cULus - File E93601), as Auxiliary Devices - Multimeters; EAC and RCM for all.
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-4, UL508, CSA C22.2 n° 14.

Flush-mount LCD multimeters, expandable

DMG600 - DMG610
DMG615 - DMG620

DMG611R...

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Icon LCD 72X46mm/2.83x1.81", backlight, harmonic analysis, auxiliary supply 100...440/110...250VDC, expandable with modules series EXP...			
DMG600	Front optical port, multilanguage❶	1	0.300
DMG610	Front optical port, built-in RS485 serial port, multilanguage❶	1	0.350
DMG611R0100	Front optical port, built-in RS485 serial port, multilanguage❶. Current reading through 3 Rogowski coils included, max current 100A	1	0.350
DMG611R0500	Front optical port, built-in RS485 serial port, multilanguage❶. Current reading through 3 Rogowski coils included, max current 500A	1	0.350
DMG611R3000	Front optical port, built-in RS485 serial port, multilanguage❶. Current reading through 3 Rogowski coils included, max current 3000A	1	0.350
DMG611R6300	Front optical port, built-in RS485 serial port, multilanguage❶. Current reading through 3 Rogowski coils included, max current 6300A	1	0.350
DMG615	Front optical port, built-in RS485 serial port, multilanguage❶. class 0.5s	1	0.350
DMG620	Front optical port, built-in Ethernet port, multilanguage❶. class 0.5s	1	0.350

❶ Italian, English, French, Spanish and Portuguese.

Expansion modules

EXP10...

Order code	Description
EXPANSION MODULES Inputs and outputs.	
EXP1000	4 opto-isolated digital inputs
EXP1001	4 opto-isolated static outputs
EXP1002	2 digital inputs and 2 static outputs, opto-isolated
EXP1003	2 relay outputs rated 5A 250VAC
EXP1008	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports.	
EXP1010	Opto-isolated USB interface
EXP1011	Opto-isolated RS232 interface
EXP1012	Opto-isolated RS485 interface
EXP1013	Opto-isolated Ethernet interface

Communication devices

CX01

CX02

Order code	Description	Qty per pkg	Wt
		n°	[kg]
CX01	USB/optical device with PC ↔ LOVATO Electric product connecting cable, for programming, data download, diagnostics and firmware upgrade	1	0.090
CX02	Wi-Fi device for PC ↔ LOVATO Electric product programming, data download, diagnostics and cloning	1	0.090

General characteristics
DMG6... digital multimeters are capable of viewing the measurements with high accuracy on the wide icon LCD, which allow to control energy distribution networks.
They are available with a flush-mount housing, (96x96mm/3.78"x3.78") and 1 expansion slot to fit plug-in expansion modules, suitable for numerous applications.
The main features include an extended power supply voltage range, high measurement accuracy, expandability and icon interactive interface for simple use.
They are equipped with a front optical port for programming via USB (CX01) or WI-Fi (CX02) communication devices to allow:
- Configuration of parameters
- Parameters copy
- Cloning of stored data.

Main measurements:
- Voltage: phase, line and system values
- Current: phase values (neutral current calculated)
- Power: apparent, active and reactive phase and total values
- P.F.: Power Factor per phase and total
- Frequency of measured voltage value
- HIGH-LOW-AVERAGE value functions for all measurements
- Maximum demand of power and current values
- Voltage and current asymmetry
- Total harmonic distortion (THD): voltage and current
- Harmonic analysis of voltage and current up to the 15° order
- Energy meters for active, reactive, apparent partial and total values
- Hour counter for programmable total and partial hours.

Operational characteristics
- Auxiliary supply voltage range:
  - 100...440VAC / 110...250VDC❷
- Voltage measurement range:
  50...720VAC L-L
- Usage in medium and high voltage systems with voltage transformers
- Rated input current: By external CT 5A or 1A
- Current reading through Rogowski coils for DMG611...
- Frequency measurement range 45...66Hz, 360...440Hz
- True RMS measurements: for voltage and current
- Measurement accuracy:
  - Voltage: ±0.5% (50...720VAC)
  - Current: ±0.5% (0.1...1.1In)
  - Power: ±1% f.s.
  - Frequency: ±0.05%
  - Active energy: Class 1 (IEC/EN/BS 62053-21)
  - Reactive energy: Class 2 (IEC/EN/BS 62053-23)
- Measurement accuracy DMG615/620::
  - Voltage: ±0.2% (50...720VAC)
  - Current: ±0.2% (0.1...1.1In)
  - Power: ±0.5% f.s.
  - Frequency: ±0.05%
  - Active energy: Class 0.5 (IEC/EN/BS 62053-22)
  - Reactive energy: Class 2 (IEC/EN/BS 62053-23)
- Non-volatile memory for data storage
- Communication protocol Modbus-RTU, ASCII and TCP
- Compatible Synergy and Xpress software
- Flush-mount housing 96x96mm/3.78"x3.78"
- EN degree of protection: IP54 on front.

Synergy supervision and energy management software
See Section 36.

Xpress configuration and remote control software
See Section 36.

EXP series expansion modules
See page 35-2.

Certifications and compliance
Certifications obtained: cULus (except DMG611... and DMG620), EAC, RCM; UL listed for USA and Canada (cULus – File E93601), as Auxiliary Devices – Multimeters.
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61010-2-030, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3, UL 61010-1, CSA C22.2 n° 61010-1, UL 61010-2-030, CSA 22.2 n° 61010-2-030.

❷ Consult Technical support about versions with supply 12...48VDC

Modular LED instruments single-phase, non expandable

DMK80R1

DMK81R1

Order code	Displayed measurements	Relay output	Qty per pkg	Wt
	n°	n°	n°	[kg]
Voltmeter.				
DMK80R1❶	1 voltage value 1 max voltage value 1 min voltage value	1	1	0.268
Ammeter.				
DMK81R1❶	1 current value 1 max current value 1 min current value	1	1	0.268

❶ Relay output with control and protection functions.

General characteristics
The DMK8... instruments are available with modular housing, 3 module size.
Measurements are True RMS values and provide for reliable operation even in the presence of harmonics.

Operational characteristics
– Auxiliary supply voltage: 220...240VAC
– Operating frequency: 50...60Hz
– True RMS measurements
– Max and min measurement storage
– 1 relay output with 1 changeover contact (SPDT)
– Modular DIN 43880 housing, 3 modules
– Terminals: 4mm^2
– EN degree of protection: IP40 on front; IP20 on terminals.

DMK80R1
– Voltage measurement range: 15...660VAC
– Operating frequency range: 45...65Hz
– Programmable VT ratio: 1.00...500.00
– Accuracy: ±0.25% f.s. ±1 digit

DMK81R1
– Current measurement range: 0.05...5.75A
– Operating frequency range: 45...65Hz
– Programmable CT ratio: 5...10,000
– Accuracy: ±0.5% f.s. ±1 digit

Control and protection functions
DMK80R1
– Voltage loss or failure: OFF/5...85%
– Maximum voltage: OFF/102...120%
– Minimum voltage: OFF/70...98%
– Time delay for max-min voltage or voltage loss ❷: 0.0...900.0 seconds.

DMK81R1
– Current loss: OFF/2...100%
– Maximum current: OFF/102...200%
– Maximum current instantaneous tripping: OFF/110...600%
– Minimum current: OFF/5...98%
– Time delay for max-min current or current loss ❷: 0.0...900.0 seconds.

Certifications and compliance
Certifications obtained: EAC.
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3.

❷ Independent adjustable delays.

Modular LED instruments three-phase, non expandable

DMK70R1

DMK71R1

DMK75R1

Order code	Displayed measurements	Relay output	Qty per pkg	Wt
	n°	n°	n°	[kg]
Voltmeter.				
DMK70R1❷	3 phase voltage values 3 phase to phase voltage values 3 max phase voltage values 3 max phase to phase voltage values 3 min phase voltage values 3 min phase to phase voltage values	1	1	0.264
Ammeter.				
DMK71R1❷	3 phase current values 3 max phase current values 3 min phase current values	1	1	0.272
Combined voltmeter, ammeter and wattmeter.				
DMK75R1❶❷	3 phase voltage values 3 phase to phase voltage values 3 phase current values 4 active power values, phase and total 3 maximum phase voltage values 3 maximum phase to phase voltage values 3 maximum phase current values 4 max active power, phase and total 3 minimum phase voltage values 3 minimum phase to phase voltage values 3 minimum phase current values 4 min active power, phase and total	1	1	0.280

❶ Connection also to single-phase.
❷ Relay output with control and protection functions.

General characteristics
The DMK7... instruments are available with modular housing, 3 module size.
Measurements are True RMS values and provide for reliable operation even in the presence of harmonics.

Operational characteristics
– Auxiliary supply voltage: 220...240VAC
– Operating frequency: 50...60Hz
– True RMS measurements
– Max and min measurement storage
– 1 relay output with 1 changeover contact (SPDT)
– Modular DIN 43880 housing, 3 module
– Terminals: 4mm^2
– EN degree of protection: IP40 on front; IP20 on terminals.

DMK70R1
– Voltage measurement range: 15...660VAC
– Operating frequency range: 45...65Hz
– Programmable VT ratio: 1.00...500.00
– Accuracy: ±0.25% f.s. ±1 digit

DMK71R1
– Current measurement range: 0.05...5.75A
– Operating frequency range: 45...65Hz
– Programmable CT ratio: 5...10,000
– Accuracy: ±0.5% f.s. ±1 digit

DMK75R1
– Voltage measurement range: 35...660VAC
– Current measurement range: 0.05...5.75A
– Frequency measure range: 45...65Hz
– Programmable VT ratio: 1.00...500.00
– Programmable CT ratio: 5...10,000
– Accuracy: Voltage ±0.25% f.s. ±1 digit
– Accuracy: Current ±0.5% f.s. ±1 digit

Control and protection functions
DMK70R1
– Phase loss or failure: OFF/5...85%
– Maximum voltage: OFF/102...120%
– Minimum voltage: OFF/70...98%
– Asymmetry: OFF/2...20%
– Phase sequence: OFF/L1-L2-L3/L3-L2-L1
– Maximum frequency: OFF/101...110%
– Minimum frequency: OFF/90...99%
– Time delay for max-min voltage, phase loss, asymmetry and min-max frequency ❸: 0.0...900.0 seconds.

DMK71R1
– Current loss: OFF/2...100%
– Maximum current: OFF/102...200%
– Maximum current instantaneous tripping: OFF/110...600%
– Minimum current: OFF/5...98%
– Asymmetry: OFF/2...20%
– Time delay for max-min current or current loss and asymmetry ❸: 0.0...900.0 seconds.

DMK75R1
Voltage
– Phase loss or failure: OFF/5...85%
– Maximum voltage: OFF/102...120%
– Minimum voltage: OFF/70...98%
– Asymmetry: OFF/2...20%
– Phase sequence: OFF/L1-L2-L3/L3-L2-L1
Current
– Current loss: OFF/2...100%
– Maximum current: OFF/102...200%
– Maximum current instantaneous tripping: OFF/110...600%
– Minimum current: OFF/5...98%
– Asymmetry: OFF/2...20%
Power
– Rated power: 1...10,000
– Maximum power: OFF/101...200%
– Maximum power instantaneous tripping: OFF/110...600%
– Minimum power: OFF/10...99%
Frequency
– Maximum frequency: OFF/101...110%
– Minimum frequency: OFF/90...99%
– Time delay for max-min voltage, max-min current or current loss, phase loss, asymmetry and min-max power ❸: 0.0...900.0 seconds.

Certifications and compliance
Certifications obtained: EAC.
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3.

❸ Independent adjustable delays.

Flush-mount LED instruments single-phase, non expandable

DMK0...

Order code	Displayed measurements	Relay output	Qty per pkg	Wt
	n°	n°	n°	[kg]
Voltmeter.				
DMK00R1❷	1 voltage value 1 max voltage value 1 min voltage value	1	1	0.323
Ammeter.				
DMK01R1❷	1 current value 1 max current value 1 min current value	1	1	0.323
Voltmeter or ammeter.				
DMK02❶	1 voltage or current value 1 maximum voltage or current value 1 minimum voltage or current value	–	1	0.290

❶ The DMK02 can operate as a voltmeter or ammeter. It is duly equipped with two front plates (V and A) which must be fitted by the user depending on which instrument is required and on the wiring scheme used.

❷ Relay output for control and protection functions.

General characteristics
The DMK0... instruments are available with flush-mount housing, 96x48mm/3.78x1.89".
Measurements are True RMS values and provide for reliable operation even in the presence of harmonics.

Operational characteristics
- Auxiliary supply voltage: 220...240VAC;
- Operating frequency: 50...60Hz
- True RMS measurements
- Max. and min. measurement storage
- 1 relay output with 1 changeover contact (for DMK...R1 only)
- Housing: flush-mount 96x48mm/3.78x1.89"
- Terminals: 4mm^2
- Degree of protection: IP54 on front; IP20 at terminals.

DMK00R1
- Voltage measurement range: 15...660VAC
- Operating frequency range: 45...65Hz
- Programmable VT ratio: 1.00...500.00
- Accuracy: ±0.25% f.s. ±1 digit

DMK01R1
- Current measurement range: 0.05...5.75A
- Operating frequency range: 45...65Hz
- Programmable CT ratio: 5...10,000
- Accuracy: ±0.5% f.s. ±1 digit

DMK02
- Voltage measurement range: 1...660VAC
- Current measurement range: 0.05...5.75A
- Operating frequency range: 45...65Hz
- Programmable VT ratio: 1.00...500.00
- Programmable CT ratio: OFF/5...10,000
- Accuracy: Voltage ±0.25% f.s. ±1 digit
  Current ±0.5% f.s. ±1 digit

Control and protection functions
DMK00R1
- Voltage loss or failure: OFF/5...85%
- Maximum voltage: OFF/102...120%
- Minimum voltage: OFF/70...98%
- Time delay for max-min voltage or voltage loss❸: 0.0...900.0 seconds.

DMK01R1
- Current loss: OFF/2...100%
- Maximum current: OFF/102...200%
- Maximum current instantaneous tripping: OFF/110...600%
- Minimum current: OFF/5...98%
- Time delay for max-min current or current loss❸: 0.0...900.0 seconds.

Certifications and compliance
Certifications obtained: UL Listed, for USA and Canada (cULus - File E93601), as Auxiliary Devices-Multimeters; EAC.
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3, UL508, CSA C22.2 n° 14.

❸ Independent adjustable delays.

Flush-mount LED instruments three-phase, non expandable

DMK1...

Order code	Displayed measurements	Relay output	Qty per pkg	Wt
	n°	n°	n°	[kg]
Voltmeter.				
DMK10R1❷	3 phase voltage values 3 phase to phase voltage values 3 maximum phase voltage values 3 maximum phase to phase voltage values 3 minimum phase voltage values 3 minimum phase to phase voltage values	1	1	0.330
Ammeter.				
DMK11R1❷	3 phase current values 3 maximum phase current values 3 minimum phase current values	1	1	0.336
Voltmeter, ammeter and wattmeter.				
DMK15R1❶❷	3 phase voltage values 3 phase to phase voltage values 3 phase current values 4 active power values, phase and total 3 maximum phase voltage values 3 maximum phase to phase voltage values 3 maximum phase current values 4 maximum active power values, phase and total 3 minimum phase voltage values 3 minimum phase to phase voltage values 3 minimum phase current values 4 minimum active power values, phase and total	1	1	0.350

❶ Connection also to single-phase.
❷ Relay output for control and protection functions.

General characteristics
The DMK1... instruments are available with flush-mount housing, 96x48mm/3.78x1.89".
Measurements are True RMS values and provide for reliable operation even in the presence of harmonics.

Operational characteristics
- Auxiliary supply voltage: 220...240VAC;
- Operating frequency: 50...60Hz
- True RMS measurements
- Max and min measurement storage
- 1 relay output with 1 changeover contact
- Housing: flush-mount 96x48mm/3.78x1.89"
- Terminals: 4mm^2
- Degree of protection: IP54 on front; IP20 at terminals.

DMK10R1
- Voltage measurement range: 15...660VAC
- Operating frequency range: 45...65Hz
- Programmable VT ratio: 1.00...500.00
- Accuracy: ±0.25% f.s. ±1 digit.

DMK11R1
- Current measurement range: 0.05...5.75A
- Operating frequency range: 45...65Hz
- Programmable CT ratio: 5...10,000
- Accuracy: ±0.5% f.s. ±1 digit.

DMK15R1
- Voltage measurement range: 35...660VAC
- Current measurement range: 0.05...5.75A
- Frequency measure range: 45...65Hz
- Programmable VT ratio: 1.00...500.00
- Programmable CT ratio: 5...10,000
- Accuracy: Voltage ±0.25% f.s. ±1 digit
  Current ±0.5% f.s. ±1 digit
  Power ±1% f.s. ±1 digit.

Control and protection functions
DMK10R1
- Phase loss or failure: OFF/5...85%
- Maximum voltage: OFF/102...120%
- Minimum voltage: OFF/70...98%
- Asymmetry: OFF/2...-20%
- Phase sequence: OFF/L1-L2-L3/L3-L2-L1
- Frequency
  - Maximum frequency: OFF/101...110%
  - Minimum frequency: OFF/90...99%
  - Time delay for max-min voltage, phase loss, asymmetry and min-max frequency ❸: 0.5...900.0 seconds.

DMK11R1
- Current loss: OFF/2...100%
- Maximum current: OFF/102...200%
- Maximum current instantaneous tripping: OFF/110...600%
- Minimum current: OFF/5...98%
- Asymmetry: OFF/2...20%
- Time delay for max-min current or current loss and asymmetry ❸: 0.5...900.0 seconds.

DMK15R1
- Voltage
  - Phase loss or failure: OFF/5...85%
  - Maximum voltage: OFF/102...120%
  - Minimum voltage: OFF/70...98%
  - Asymmetry: OFF/2...20%
  - Phase sequence: OFF/L1-L2-L3/L3-L2-L1
- Current
  - Current loss: OFF/5...85%
  - Maximum current: OFF/102...200%
  - Maximum current instantaneous tripping: OFF/110...600%
  - Minimum current: OFF/5...98%
  - Asymmetry: OFF/2...20%
- Power
  - Rated power: 1...10,000
  - Maximum power: OFF/101...200%
  - Max. power instantaneous tripping: OFF/110...600%
  - Minimum power: OFF/10...99%
- Frequency
  - Maximum frequency: OFF/101...110%
  - Minimum frequency: OFF/90...99%
  - Time delay for max-min voltage, max-min current or current loss, phase loss, asymmetry and min-max power ❸: 0.0...900.0 seconds.

Certifications and compliance
Certifications obtained: UL Listed, for USA and Canada (cULus - File E93601), as Auxiliary Devices-Multimeters; EAC.
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3, UL 508, CSA C22.2 n° 14.

❸ Independent adjustable delays.

Flush-mount LED multimeter three-phase, non expandable

DMK16R1

Order code	Displayed measurements	Relay output	Qty per pkg	Wt
	n°	n°	n°	[kg]
DMK16R1 ❶	3 phase voltage values 3 phase to phase voltage values 3 phase current values 4 active power values, phase and total 4 reactive power values, phase and total 4 apparent power values, phase and total 3 phase power factor values 1 frequency value 1 active energy value in kWh 1 reactive energy value in kvarh 1 hour counter 3 maximum phase voltage values 3 maximum phase to phase voltage values 3 maximum phase current values 4 maximum active power values, phase and total 4 maximum reactive power values, phase and total 4 maximum apparent power values, phase and total 3 minimum phase voltage values 3 minimum phase to phase voltage values 3 minimum phase current values 4 minimum active power values, phase and total 4 minimum reactive power values, phase and total 4 minimum apparent power values, phase and total 2 minimum and maximum power factor values	1	1	0.353

❶ Connection also to single-phase.

General characteristics
The DMK16R1 multimeter is available with flush-mount housing, 96x48mm/3.78x1.89”
Measurements are True RMS values and provide for reliable operation even in the presence of harmonics.

Operational characteristics
– Auxiliary supply voltage: 220...240VAC
– Operating frequency: 50...60Hz
– True RMS measurements
– Accuracy: Voltage ±0.25% f.s. ±1 digit
Current ±0.5% f.s. ±1 digit
– Active energy accuracy: Class 2 (IEC/EN/BS 62053-21 and IEC/EN/BS 62053-23)
– Max and min measurement storage
– Voltage measurement range: 35...660VAC
– Current measurement range: 0.05...5.75A
– Frequency measurement range: 45...65Hz
– Programmable VT ratio: 1.00...500.0
– Programmable CT ratio: 5...10,000
– 1 relay output with 1 changeover (SPDT) contact
– Housing: flush-mount 96x48mm/3.78x1.89”
– Terminals: 4mm²
– EN degree of protection: IP54 on front; IP20 at terminals.

PROGRAMMABLE RELAY OUTPUT
– Voltage
• Phase loss or failure: OFF/5...85%
• Maximum voltage: OFF/102...120%
• Minimum voltage: OFF/70...98%
• Asymmetry: OFF/2...20%
• Phase sequence: OFF/L1-L2-L3/L3-L2-L1
– Current
• Protection inhibition max current: OFF/2...100%
• Maximum current: OFF/102...200%
• Maximum current instantaneous tripping: OFF/110...600%
• Minimum current: OFF/5...98%
• Asymmetry: OFF/2...20%
– Power factor
• Maximum power factor: 0.10...1.00
• Minimum power factor: 0.10...1.00
– Time delay for max-min voltage, max-min current or current loss, phase loss, asymmetry and min-max power factor ❷: 0.0...900.0 seconds.

Certifications and compliance
Certifications obtained: UL Listed, for USA and Canada (cULus - File E93601), as Auxiliary Devices-Multimeters; EAC.
Compliant with standards: IEC/EN/BS 61010-1, IEC/EN/BS 61000-6-2, IEC/EN/BS 61000-6-3, UL508, CSA C22.2 n° 14.

❷ Independent adjustable delays.

Communication devices

CX01

CX02

CX03

Order code	Description	Qty per pkg	Wt
		n°	[kg]
CX01	USB/optical device with PC ↔ LOVATO Electric product connecting cable, for programming, data download, diagnostics and firmware upgrade	1	0.090
CX02	Wi-Fi device for PC ↔ LOVATO Electric product programming, data download, diagnostics and cloning	1	0.090
CX03	GSM/GPRS penta-band antenna (850/900/1800/1900/2100Mhz)	1	0.090

General characteristics
For general characteristics of these accessories see section 35.

Protection covers

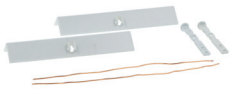
PA96X48

Order code	Description	Qty per pkg	Wt
		n°	[kg]
PA96X48	Front protection cover, IEC IP65 for DMK0/1...	1	0.048

General characteristics
When a higher front IP protection degree is needed, the covers can be installed on the corresponding devices and also provide a sealing feature.

Accessories

EXP8000



EXM8004

DMXP03

DMXP04

Order code	Description	Qty per pkg	Wt
		n°	[kg]
EXP8000	Plastic insert for customising label fixing for DMG6...	10	0.005
EXM8004	Set of sealable terminal covers for DMG100/110/200/210/300	1	0.020
DMXP03	Panel mounting plate adapter for DMK7... and DMK8...	1	0.052
DMXP04	Panel mounting plate adapter for DMED3... and DMG1..., DMG2... and DMG3...	1	0.054

Gateway data loggers

EXCGLB...

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
EXCGLB01	Gateway data logger, 1 RS485 port, 1 Ethernet port, Wi-Fi connection	1	0.190
EXCGLB02	Gateway data logger, 1 RS485 port, 1 Ethernet port, LTE connection, GNSS (GPS)	1	0.190
EXCGLB03	Gateway data logger, 1 RS485 port, 2 Ethernet ports, 4G (LTE) connection	1	0.190

General characteristics
For general characteristics of these accessories see section 34.

Gateway

EXCM4G01

Order code	Description	Qty per pkg	Wt
		n°	[kg]
EXCM4G01	4G Gateway with RS485 and Ethernet port, Modbus RTU/TCP protocol	1	0.300

General characteristics
For general characteristics of these accessories see section 34.

Converter

EXCCON02

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
EXCCON02	RS485/Ethernet converter, 9...48VDC, with Modbus RTU/TCP protocol conversion functionality	1	0.400

General characteristics
For general characteristics of these accessories see section 34.

Remote control and monitoring GSM modem via SMS

Compliant with Italian CEI 0-16 Standard, paragraph 8.8.6.5 and annex M, resolution 421/2014 of the ARERA

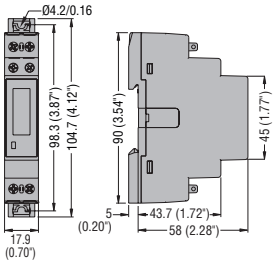
EXCGSM01

Order code	Description	Qty per pkg	Wt
		n°	[kg]
GSM Modem (modular - 4U). IP69K outside aerial with 2.5 m cable. RJ45-USB programming cable (included).			
EXCGSM01	100...240VAC, 1 digital input, 1 analog input (0...10V, 0...20mA, NTC), 1 relay output, receiving and sending SMS messages for remote controls and alarm signals	1	0.340

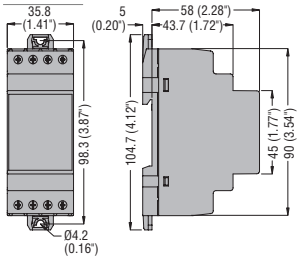
General characteristics
For general characteristics of these accessories see section 34.

ENERGY METERS

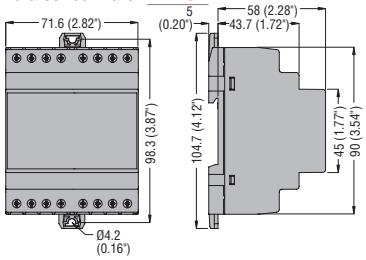
Digital meter **DMED100T1... - DMED110T1... - DMED111... - DMED112...**



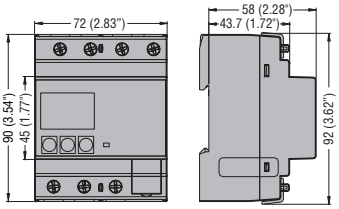
Digital meter **DMED115T1 - DMED120T1... - DMED121... - DMED122...**



Digital meter **DMED305T2... - DMED330... - DMED332... - DMED310T2**
Data concentrator **DMECD**

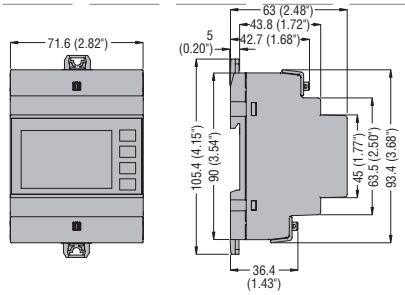


DMED300T2... - DMED311... - DMED302... - DMED341MID7

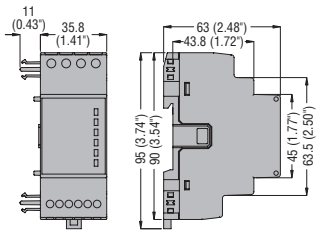


MULTIMETERS

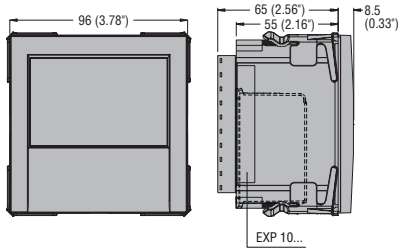
DMG100 - DMG110 - DMG200 - DMG210 - DMG300



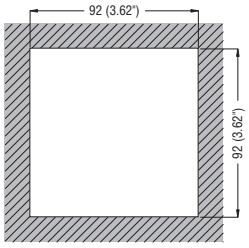
Expansion modules **EXM...**



DMG6...

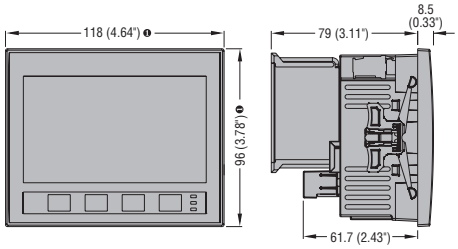


Cutout

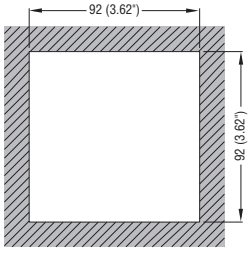


POWER ANALYZERS

DMG7000 - DMG7500 - DMG8000 - DMG9000...



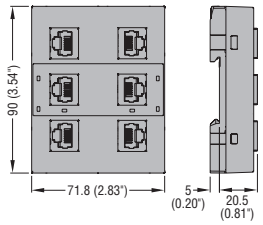
Cutout



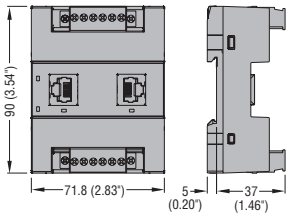
❶ Dimensions with gasket: 122x100mm/4.80x3.94".

CURRENT MEASURING MODULES

EXS4000

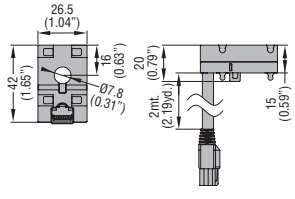


EXS4001

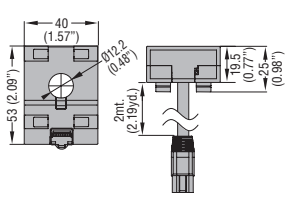


ELECTRONIC CURRENT TRANSFORMERS

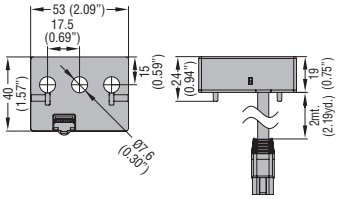
EXS1032 - EXS1063



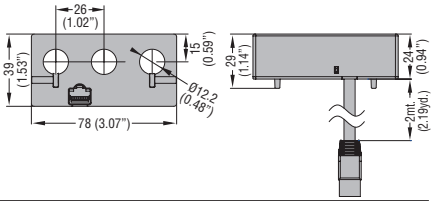
EXS1080 - EXS1125



EXS3032 - EXS3063

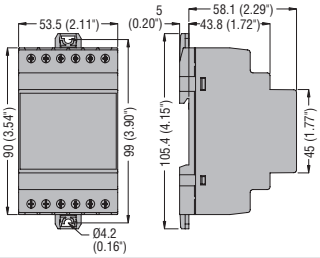


EXS3080 - EXS3125



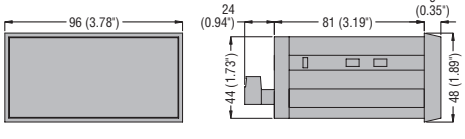
MODULAR DIGITAL METERING INSTRUMENTS

DMK7... - DMK8...

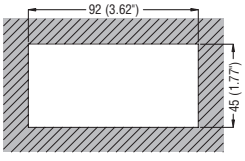


DIGITAL FLUSH-MOUNT METERING INSTRUMENTS

Instruments **DMK0... - DMK1...**

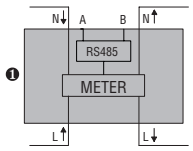


Cutout

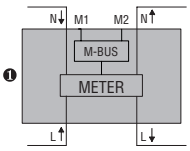


ENERGY METERS

DMED111...

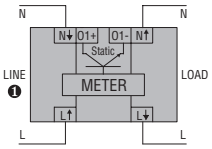


DMED112...

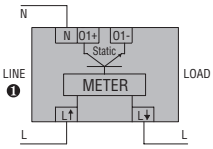


❶ 110-240VAC DMED111, DMED112...

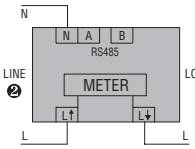
Digital meters DMED100T1... - DMED110T1...



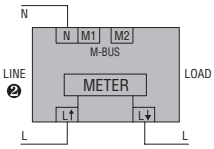
DMED115T1 - DMED120T1...



DMED121...

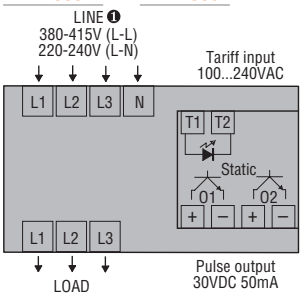


DMED122...

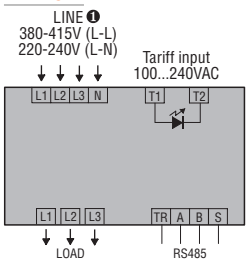


❶ 110-120VAC DMED...A120; 220-240VAC DMED...; 230V 50Hz DMED... T1 MID.
❷ 110-240VAC DMED121, DMED122...

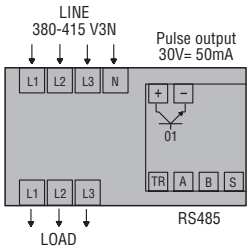
DMED300T2... - DMED300F



DMED311...

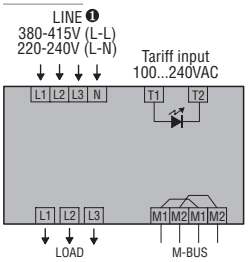


DMED341MID7...



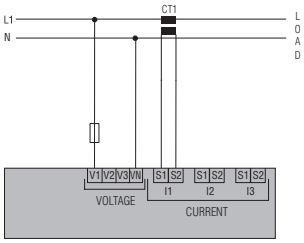
❶ 230V 50Hz (L-N), 400V 50Hz (L-L) DMED... T2 MID / DMED... F.

DMED302

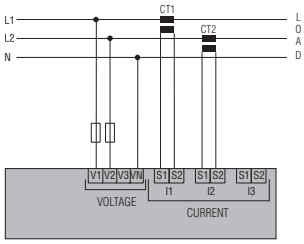


DMED305T2 - DMED330 - DMED332

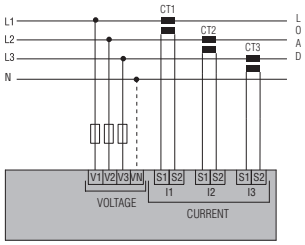
Single-phase



Two-phase

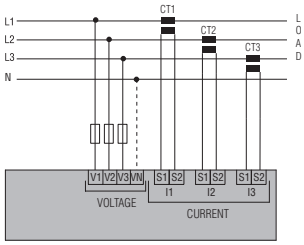


Three-phase with or without neutral

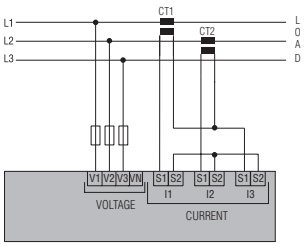


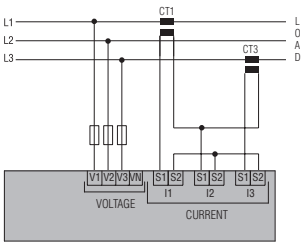
DMED310T2

Three-phase with or without neutral



Three-phase without neutral in ARON connection

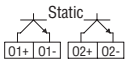




Tariff input

100...240VAC

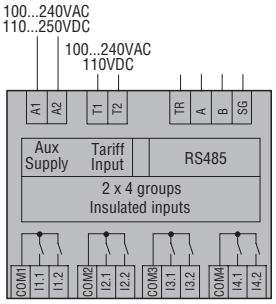
Pulse output 30VDC 50mA for DMED305T2 - DMED310T2



RS485 for DMED330

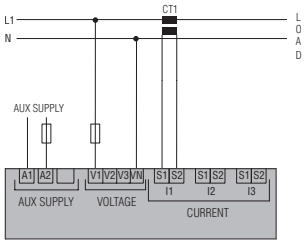
M-BUS for DMED332

Data concentrator **DMECD**

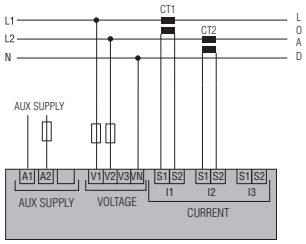


MULTIMETERS **DMG...**

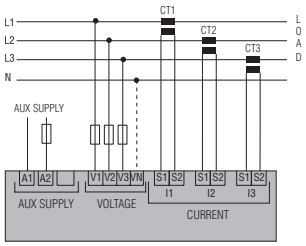
Single-phase



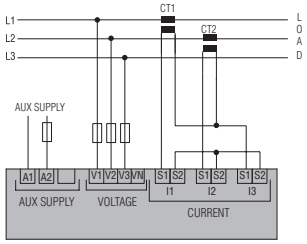
Two-phase

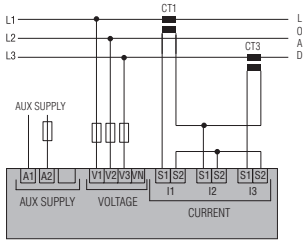


Three-phase with or without neutral

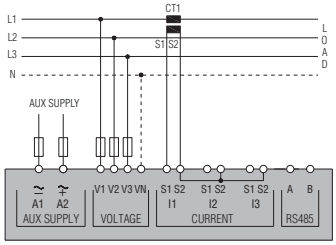


Three-phase without neutral in ARON connection





Balanced 3-phase connection with or without neutral



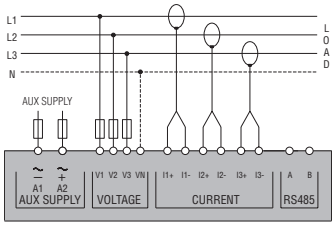
CODE	AUX SUPPLY
DMG100-110-200-210-300	100...240VAC 110...250VDC
DMG6...	100...440VAC 110...250VDC
DMG7000-7500-8000-9000	100...240VAC 110...250VDC

RS485 for DMG110 and DMG210

RS485 for DMG610

RS485 for DMG7500 and DMG9000

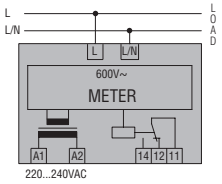
MULTIMETERS **DMG611...**



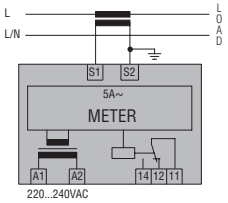
RS485 for DMG611

METERING INSTRUMENTS

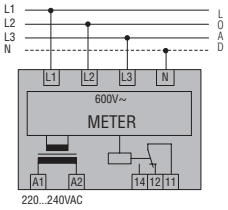
DMK80R1



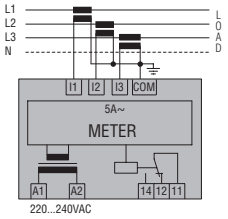
DMK81R1



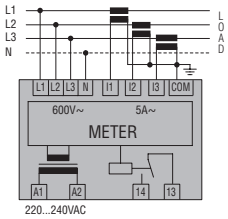
DMK70R1



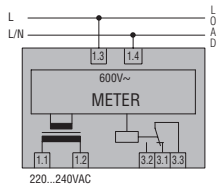
DMK71R1



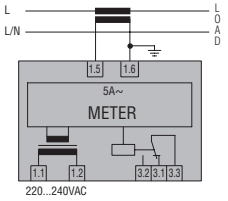
DMK75R1



DMK00R1

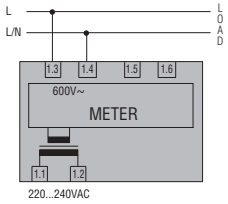


DMK01R1

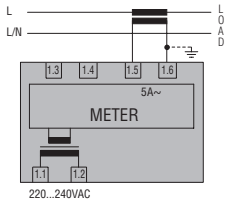


DMK02

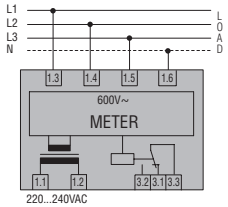
Voltmeter



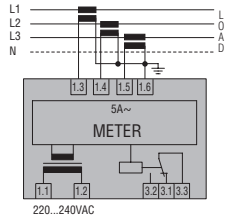
Ammeter



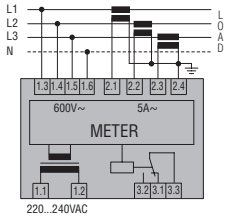
DMK10R1



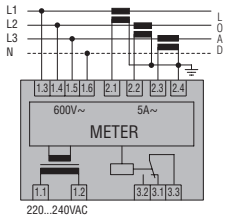
DMK11R1



DMK15R1



DMK16R1



TYPE	DMED100T1	DMED100T1MID	DMED110T1	DMED111/112	DMED110T1MID DMED111MID/MID7 DMED112MID	
	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase	
AUXILIARY SUPPLY						
Rated voltage(Ue)	220...240VAC	230VAC	220...240VAC	110...240VAC	230VAC	
Operating voltage range	187...264VAC	187...264VAC	187...264VAC	93...264VAC	187...264VAC	
Rated frequency	50/60Hz	50Hz	50/60Hz	50/60Hz	50Hz	
Maximum power consumption	7VA			1VA	7VA	
Maximum power dissipation	0.45W			0.4W	0.45W	
CURRENT						
IEC maximum current (Imax)	40A			40A		
IEC minimum current (Imin)	0.25A			0.25A		
IEC rated current (Iref-Ib)	5A			5A		
IEC start current (Ist)	20mA			20mA		
Transition current (Itr)	0.5A			0.5A		
ACCURACY						
Active energy (per IEC/EN/BS 62053-21)	Class 1	Class B (EN 50470-3)	Class 1	Class 1/B	Class B (EN 50470-3)	
OUTPUTS						
LED rate	1000 flash/kWh			1000 flash/kWh		
Pulse rate	1000 pulses/kWh			1000 pulses/kWh		
Pulse duration	30ms			30ms		
STATIC OUTPUTS						
Pulse rate	10 pulses/kWh		1-10-100-1000 pulses/kWh programmable	1-10-100-1000 pulses/kWh programmable (only for DMED...T1...)		
Pulse duration	100ms			100ms		
External voltage	10...30VDC			10...30VDC		
Maximum current	50mA			50mA		
INSULATION						
IEC rated insulation voltage Ui	250VAC			250VAC		
IEC rated impulse withstand voltage Uimp	6kV			6kV		
IEC power frequency withstand voltage	4kV			4kV		
SUPPLY/MEASUREMENT CONNECTION CIRCUIT						
Type of terminals	Fixed			Fixed		
Conductor section (min...max)	1.5...10mm^2 (16...6AWG)			1.5...10mm^2 (16...6AWG)		
Maximum tightening torque	1.5Nm (14lb.in)			1.5Nm (14lb.in)		
CONNECTION (PULSE OUTPUT/RS485/M-BUS)						
Type of terminals	Fixed			Fixed		
Conductor section (min...max)	0.2...4mm^2 (24...12AWG)			0.2...4mm^2 (24...12AWG)		
Maximum tightening torque	0.8Nm (7lb.in)			0.8Nm (7lb.in)		
AMBIENT CONDITIONS						
Operating temperature	-25...+55°C			-25...+55°C (MID7: -25...+70°C)		
Storage temperature	-25...+70°C			-25...+70°C		
Relative humidity	<80%			<80%		
Maximum pollution degree	2			2		
Mechanical environment	Class M1			Class M1		
Magnetic environment	Class E2			Class E2		
HOUSING						
Material	Polyamide			Polyamide		

	DMED115T1	DMED120T1	DMED120T1MID DMED121MID DMED122MID	DMED121
	Single-phase	Single-phase	Single-phase	Single-phase
	220...240VAC	220...240VAC	230VAC	110...240VAC
	187...264VAC	187...264VAC	187...264VAC	88...264VAC
	50/60Hz	50/60Hz	50Hz	50/60Hz
	7VA			4.8VA
	0.45W			1.4W
	40A	63A		63A
	0.5A			0.5A
	10A			10A
	40mA			40mA
	1A			1A
	Class 1		Class B (EN 50470-3)	Class 1
	1000 flash/kWh			1000 flash/kWh
	1000 pulses/kWh			1000 pulses/kWh
	30ms			30ms
	1-10-100-1000 pulses/kWh programmable (only for DMED...T1...)			–
	100ms			–
	10...30VDC			–
	50mA			–
	250VAC			250VAC
	6kV			6kV
	4kV			4kV
	Fixed			Fixed
	2.5...16mm^2 (14...6AWG; 14...10AWG)			2.5...16mm^2 (14...6AWG; 14...10AWG)
	2Nm (26.5lb.in)			2Nm (26.5lb.in)
	Fixed			Fixed
	0.5...4mm^2 (20...11AWG)			0.5...4mm^2 (20...11AWG)
	1.3Nm (12.1lb.in)			1.3Nm (12.1lb.in)
	-25...+55°C (MID7: -25...+70°C)			
	-25...+70°C			-25...+70°C
	<80%			<80%
	2			2
	Class M1			Class M1
	Class E2			Class E2
	Polyamide			Polyamide

TYPE	DMED300T2... DMED311 DMED302	DMED300T2MID DMED311MID7 DMED302MID	DMED341MID7...	DMED310T2 DMED305T2	DMED305T2MID	DMED330 DMED332	DMED330MID DMED332MID
	3 phase with neutral	3 phase with neutral	3 phase with neutral	3 phase with and without neutral	3 phase with neutral	3 phase with and without neutral	3 phase with neutral
AUXILIARY SUPPLY							
Rated voltage (Ue)	380...415VAC (3ph-N) DMED...UL: 120VAC (LN) - 240VAC (L-L)	400VAC (3ph-N)	400VAC (3ph-N)	380...415VAC (3ph-N)	400VAC (3ph-N)	380...415VAC (3ph-N)	400VAC (3ph-N)
Voltage range	187...264VAC phase-neutral / 323...456VAC phase-phase						
Rated frequency	50/60Hz (UL: 60Hz)	50Hz	50Hz	50/60Hz	50Hz	50/60Hz	50Hz
Maximum power consumption	2.5VA (2.4VA DMED311...)		2.4VA	3.5VA			3.5VA
Maximum power dissipation	1W (0.8W DMED311...)		0.8W	2.7W			2.7W
CURRENT							
IEC maximum current (Imax)	80A		80A	5A		5A	5A
IEC minimum current (Imin)	0.75A		0.75A	0.05A		0.05A	0.05A
IEC rated current (Iref-Ib)	15A		15A	5A		5A	5A
IEC start current (Ist)	60mA		60mA	0.005A		0.005A	0.005A
IEC transition current (Itr)	1.5A		1.5A	0.25A		0.25A	0.25A
ACCURACY							
Active energy	Class 1	Class B (EN50470-3)	Class B (EN50470-3)	Class 0.5s DMED305T2 Class 1 DMED310T2	Class B (EN50470-3)	Class 0.5s	Class B (EN50470-3)
TARIFF CIRCUIT INPUT							
Rated voltage (Uc)	100...240VAC		—	100...240VAC			
Voltage range	85...264VAC		—	85...264VAC			
Frequency	50/60Hz		—	50/60Hz			
Maximum power consumption	0.9VA		—	0.25VA			
Maximum power dissipation	0.6W		—	0.18W			
LED							
Pulse rate	1000 pulses/kWh (2000 pulses/kWh DMED311...)		2000 pulses/kWh	1000 pulses/kWh			
Pulse duration	30ms						
STATIC OUTPUTS							
Pulse rate	1-10-100-1000 pulses/kWh programmable (except DMED311/302)		1-10-100 pulses/kWh	0,1-1-10-100 pulses/kWh programmable		—	—
Pulse duration	100ms for 1-10-100 pulses (except DMED311/302) 60ms for 1000 pulses (except DMED311/302)		100ms	100ms		—	—
External voltage	10...30VDC (except DMED311/302)		10...30VDC	10...30VDC		—	—
Maximum current	50mA (except DMED311/302)					—	—
INSULATION							
IEC rated insulation voltage Ui	250VAC (300VAC DMED311...)		300VAC	250VAC			
IEC rated impulse withstand voltage Uimp	6kV						
IEC power frequency withstand voltage	4kV						
SUPPLY/MEASURMENT CIRCUIT CONNECTIONS							
Type of terminals	Fixed			Fixed			
Conductor section (min...max)	2.5...16mm² (16...6AWG)			0.2...4mm² (24...12AWG) for supply/voltage measurement; 0.2...2.5mm² (24...12AWG) for current measurement			
Maximum tightening torque	2Nm (14lb.in)		3Nm (26.5lb.in)	0.8Nm (7lb.in)			
TARIFF CONTROL CIRCUIT CONNECTIONS							
Type of terminals	Fixed			Fixed			
Conductor section (min...max)	0.2...2.5mm² (24...12AWG)			0.2...4mm² (24...12AWG)			
Maximum tightening torque	0.49Nm (4.4lb.in)			0.8Nm (7lb.in)			
CONNECTIONS (PULSE OUTPUT/RS485)							
Type of terminals	Fixed			Fixed			
Conductor section (min...max)	0.2...1.3mm² (24...16AWG)			0.2...2.5mm² (24...12AWG)			
Maximum tightening torque	0.15Nm (1.7lb.in)			0.44Nm (4lb.in)			
AMBIENT CONDITIONS							
Operating temperature	-25...+55°C (MID7: -25...+70°C)						
Storage temperature	-25...+70°C						
Relative humidity	<80% non condensing						
Maximum pollution degree	2		2	2		2	
Mechanical environment	Class M1		Class M1	Class M1		Class M1	
Magnetic environment	Class E2		Class E2	Class E2		Class E2	
HOUSING							
Material	Polyamide						

TYPE	DMECD
AUXILIARY SUPPLY	
Rated voltage (Us)	100...240VAC/110...250VDC
Voltage range	85...264VAC/93.5...300VDC
Rated frequency	50/60Hz
Maximum power consumption	8.8VA
Maximum power dissipation	3.6W
ENERGY METER INPUTS	
Number of inputs	8
Input separations	1 common for every 2 inputs (insulated between each pair 500VRMS)
Type of input	Negative (NPN)
Maximum voltage at inputs	15VDC
Maximum input current	18mA (15mA typical)
High input signal	≥7.6V
Low input signal	≤2V
Maximum frequency	2000Hz
TARIFF CONTROL CIRCUIT	
Rated voltage (Uc)	100...240VAC/110VDC
Voltage range	85...264VAC/93.5...140VDC
Frequency	50/60Hz
Maximum power consumption	0.25VA
Maximum power dissipation	0.18W
RS485 SERIAL INTERFACE	
Baud-rate	Programmable 1200...38400bps
Insulation	1500VAC towards energy meter inputs. Double insulation towards supply and tariff inputs
INSULATION	
IEC rated insulation voltage Ui	250VAC
IEC rated impulse withstand voltage Uimp	6.5kV
IEC power frequency withstand voltage	3.6kV
SUPPLY CIRCUIT CONNECTIONS	
Type of terminals	Fixed
Conductor section (min...max)	0.2...4mm^2 (24...12AWG)
Maximum tightening torque	0.8Nm (7lb.in)
TARIFF INPUT CIRCUIT CONNECTIONS	
Type of terminals	Fixed
Conductor section (min...max)	0.2...4mm^2 (24...12AWG)
Maximum tightening torque	0.8Nm (7lb.in)
RS485 CONNECTION	
Type of terminals	Fixed
Conductor section (min...max)	0.2...4mm^2 (24...12AWG)
Maximum tightening torque	0.8Nm (7lb.in)
ENERGY METER INPUT CONNECTIONS	
Type of terminals	Fixed
Conductor section (min...max)	0.2...2.5mm^2 (24...12AWG)
Maximum tightening torque	0.44Nm (4lb.in)
AMBIENT CONDITIONS	
Operating temperature	-20...+60°C
Storage temperature	-30...+80°C
Relative humidity	<90%
Maximum pollution degree	2
HOUSING	
Material	Polyamide

TYPE	DMG100 - DMG110❶	DMG200	DMG210	DMG300	
AUXILIARY SUPPLY					
Rated voltage Us	100...240VAC/ 110...250VDC				
Voltage range	85...264VAC/ 93.5...300VDC				
Frequency range	45...66Hz, 360...440Hz				
Maximum power consumption	3.5VA	3.5VA	4.5VA	3.2VA	
Maximum power dissipation	1.2W	1.2W	1.7W	1.3W	
Microbreaking immunity	≥50ms	≥50ms	≥50ms	≥50ms	
VOLTAGE INPUTS					
Type of input	Three-phase + neutral				
Maximum rated voltage Ue	690VAC phase-phase (400VAC phase-neutral)				
Measurement range	20...830VAC phase-phase (10...480VAC phase-neutral)				
Frequency range	45...66Hz, 360...440Hz				
Method of measurement	True RMS				
Method of connection	Single, two, three-phase with or without neutral, balanced three-phase systems				
CURRENT INPUTS					
Rated current Ie	1A/5A	5A	5A	1A/5A	
Current reading through Rogowski coils	–	–	–	–	
Measurement range	0.025...1.2A / 0.025...6A	0.01...6A	0.01...6A	0.01...1.2A / 0.01...6A	
Method of measurement	True RMS				
Overload capacity	+20% Ie through external CT with 5A secondary				
Overload peak	50A for 1s				
INSULATION					
IEC rated insulation voltage Ui	690VAC				
IEC rated impulse withstand voltage Uimp	9.5kV				
IEC power frequency withstand voltage	5.2kV				
SUPPLY CIRCUIT/VOLTAGE MEASUREMENT CONNECTIONS					
Type of terminal	Fixed				
Conductor section (min...max)	0.2...4.0mm^2 (24...12AWG)				
Maximum tightening torque	0.8Nm (7lb.in)				
CURRENT MEASUREMENT CIRCUIT AND RS485❶					
Type of terminal	Fixed				
Conductor section (min...max)	0.2...2.5mm^2 (24...12AWG)				
Maximum tightening torque	0.44Nm (4lb.in)				
AMBIENT CONDITIONS					
Operating temperature	-20...+60°C				
Storage temperature	-30...+80°C				
Relative humidity	<90%				
Maximum pollution degree	2				
Measurement class	III				
HOUSING					
Material	Polyamide				

❶ RS485 communication port for DMG110, DMG210, DMG610 and DMG611 only.

	DMG6...	DMG7000	DMG7500	DMG8000	DMG9000
	100...440VAC 120...250VDC	100...240VAC 120...250VDC			100...240VAC 120...250VDC 12-48VDC (DMG9000D048)
	90...484VAC 93.5...300VDC	90...264VAC 93.5...300VDC			90...264VAC 93.5...300VDC 9...70VDC (DMG9000D048)
	45...66Hz, 360...440Hz	45...66Hz, 360...440Hz			
	9.5VA	15VA			
	3.5W	6W			
	≥50ms	≥50ms			
	Three-phase + neutral	Three-phase + neutral			
	600VAC phase-phase (300VAC phase-neutral)	600VAC phase-phase (300VAC phase-neutral)			
	50...720VAC phase-phase (30...360VAC phase-neutral)	50...720VAC phase-phase (30...360VAC phase-neutral)			
	45...66Hz, 360...440Hz	45...66Hz, 360...440Hz			
	True RMS	True RMS			
	Single, two, three-phase with or without neutral, balanced three-phase systems				
	1A/5A	1A/5A			
	20...6300A (for DMG611...)	–			
	0.025...6A	0.004...6A			
	True RMS	True RMS			
	+20% Ie by external CT with 5A secondary				
	50A for 1s				
	600VAC	600VAC			
	9.5kV	9.5kV			
	5.2kV	5.2kV			
	Removable				
	0.2...2.5mm^2 (24...12AWG)				
	0.5Nm (4.5lb.in)				
	Fixed	Removable			
	0.2...1.5mm^2 (24...12AWG)	0.2...2.5mm^2 (24...12AWG)			
	0.8Nm (7lb.in)	0.5Nm (4.5lb.in)			
	-20...+60°C				
	-30...+80°C				
	<90%				
	2				
	III				
	Polyamide				

TYPE		DMK10R1 DMK70R1	DMK11R1 DMK71R1	DMK15R1 DMK75R1	DMK16R1
AUXILIARY SUPPLY					
Rated voltage Us		220...240VAC			
Operating voltage range		0.85...1.1 Us			
Rated frequency		50...60Hz ±10%			
Maximum power consumption		3.6VA	3.6VA	3.6VA	3.9VA
Maximum power dissipation		1.8W	1.8W	1.8W	2.1W
VOLTAGE INPUTS					
Rated voltage Ue	phase-phase	600VAC	—	600VAC	600VAC
	phase-neutral	347VAC	—	347VAC	347VAC
Operating voltage range	phase-phase	15...660VAC	—	35...660VAC	35...660VAC
	phase-neutral	10...382VAC	—	20...382VAC	20...382VAC
Rated frequency		50...60Hz ±10%	—	50...60Hz ±10%	50...60Hz ±10%
Method of measuring		True RMS	—	True RMS	True RMS
CURRENT INPUTS					
Rated current Ie		—	5A	5A	5A
Measuring range		—	0.05...6A	0.05...5.75A	0.05...5.75A
Rated frequency		—	50...60Hz ±10%	50...60Hz ±10%	50...60Hz ±10%
Type of input		—	Shunts connected by external low voltage CT 5A max		
Type of measuring		—	True RMS	True RMS	True RMS
Overload capacity		—	+20% Ie	+20% Ie	+20% Ie
MEASURING ACCURACY					
Measurement conditions (Temperature +23°C ±1°C) (Relative humidity 45 ±15% R.H.)	voltage	±0.25% f.s. ±1 digit	—	±0.25% f.s. ±1 digit	±0.25% f.s. ±1 digit
	current	—	±0.5% f.s. ±1 digit	±0.5% f.s. ±1 digit	±0.5% f.s. ±1 digit
	power	—	—	1% f.s. ±1 digit	1% f.s. ±1 digit
	energy	—	—	—	Class 2
	frequency	—	—	±1 digit	±1 digit
RELAY OUTPUT					
Number and type of contact		1 changeover	1 changeover	1 changeover❶	1 changeover
Rated voltage		250VAC	250VAC	250VAC	250VAC
IEC/EN/BS 60947-5-1 designation		AC1 8A 250VAC / B300	AC1 8A 250VAC / B300	AC1 8A 250VAC / B300	AC1 8A 250VAC / B300
Electrical life (ops.)		10^5	10^5	10^5	10^5
Mechanical life (ops.)		$30x10^6$	$30x10^6$	$30x10^6$	$30x10^6$
INSULATION					
Rated insulation voltage Ui		600VAC	415VAC	600VAC	600VAC
CONNECTIONS					
Type of terminals		Removable (DMK1...); fixed (DMK7...)			
Maximum tightening torque		0.5Nm (4.5lb.in) for DMK1...; 0.8Nm (7lb.in) for DMK7...			
Conductor section (min...max)		0.2...2.5mm² (24...12AWG) for DMK0... 0.2...4.0mm² (24...12AWG) for DMK7...			
AMBIENT CONDITIONS					
Operating temperature		-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C
Storage temperature		-30...+80°C	-30...+80°C	-30...+80°C	-30...+80°C
HOUSING					
Material		Thermoplastic (DMK1...) / Polyamide (DMK7...)			

❶ One contact NO for DMK75R1.

TYPE		DMK00R1 DMK80R1	DMK01R1 DMK81R1	DMK02
AUXILIARY SUPPLY				
Rated voltage Us		220...240VAC		
Operating voltage range		0.85...1.1 Us		
Rated frequency		50...60Hz ±10%		
Maximum power consumption		3.6VA		
Maximum power dissipation		1.8W		
VOLTAGE INPUTS				
Rated voltage Ue		600VAC	—	600VAC
Operating voltage range		15...660VAC	—	15...660VAC
Operating voltage range, phase-phase		—	—	—
Rated frequency		50...60Hz ±10%	—	50...60Hz ±10%
Method of measuring		TRMS	—	TRMS
CURRENT INPUTS				
Rated current Ie		—	5A	5A
Measuring range		—	0.05...5.75A	0.05...5.75A
Rated frequency		—	50...60Hz ±10%	50...60Hz ±10%
Type of input		—	Shunts connected by external low voltage CT 5A max	
Type of measuring		—	True RMS	True RMS
Overload capacity		—	+20% Ie	+20% Ie
MEASURING ACCURACY				
Measurement conditions (Temperature +23°C ±1°C) (Relative humidity 45 ±15% R.H.)	cosφ	—	—	—
	voltage	±0.25% f.s. ±1 digit	—	±0.25% f.s. ±1 digit
	current	—	±0.5% f.s. ±1 digit	±0.5% f.s. ±1 digit
	frequency	—	—	—
ADDITIONAL ERRORS				
Relative humidity		±1 digit 60%...90% R.H..		
Temperature		±1 digit -20...+60°C		
RELAY OUTPUT FOR DMK... R1 TYPES ONLY				
Number and type of contact		1 changeover		
Rated voltage		250VAC		
IEC/EN/BS 60947-5-1 designation		AC1 8A 250VAC / B300		
Electrical life (ops.)		10^5		
Mechanical life (ops.)		$30x10^6$		
INSULATION				
Rated insulation voltage Ui		600VAC	415VAC	600VAC
CONNECTIONS				
Type of terminals		Fixed (DMK8...); Removable (DMK0...)		
Maximum tightening torque		0.8Nm (7lb.in) for DMK0... / 0.5Nm (4.5lb.in) for DMK8...		
Conductor section (min...max)		0.2...2.5mm² (24...12AWG) for DMK0... 0.2...4.0mm² (24...12AWG) for DMK8...		
AMBIENT CONDITIONS				
Operating temperature		-20...+60°C		
Storage temperature		-30...+80°C		
HOUSING				
Material		Thermoplastic (DMK0...) / Polyamide (DMK8...)		