



Page 22-8

ENERGY METERS

- Single phase, three phase with neutral, three phase with or without neutral
- Direct connection or by current transformers
- MID certified versions
- Data concentrator.



Page 22-14 and 22

DIGITAL LCD MULTIMETERS AND POWER ANALYZERS

- Graphic LCD or touch screen
- Remote display
- Expandable versions.



Page 22-16 to 24

LED MEASURING INSTRUMENTS

- Voltmeters, ammeters, frequency meters, cosphi meters and wattmeters.

DIGITAL LED MULTIMETERS

- Basic version, with energy meters, with 2 programmable outputs, for use with generating sets and with data-logger.



Page 22-30

CURRENT TRANSFORMERS

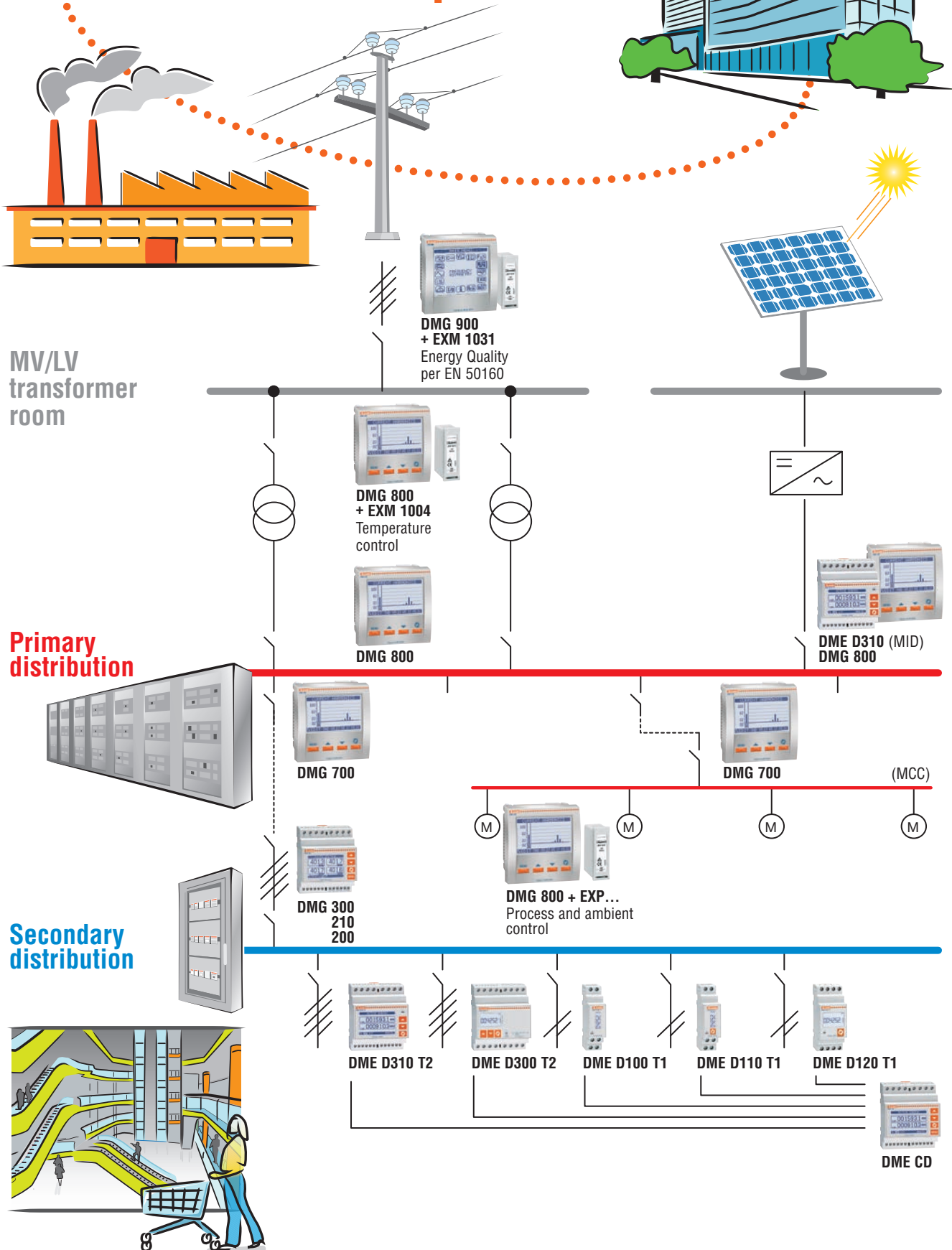
- Primary current: 50-4,000A
- Secondary current: 5A.



- Digital voltmeters, ammeters, wattmeters, frequency meters and cosphi meters
- Digital multimeters and power analyzers, expandable, with graphic LCD
- Connection to single, two, three phase systems
- Ideal for distribution systems, co-generation energy systems, stand-by generating sets and on-board machinery installation
- High measurement accuracy
- Totally programmable digital outputs
- RS485, RS232, USB, Ethernet, Profibus DP serial interface for remote control and data-logger.

	SEC. - PAGE
Energy meters	
Single phase, non expandable	22 - 8
Single phase, non expandable, MID certified	22 - 9
Three phase with neutral, non expandable	22 - 10
Three phase with or without neutral, expandable	22 - 10
Three phase with neutral, non expandable, MID certified	22 - 11
Three phase with or without neutral, expandable, MID certified	22 - 11
Expansion modules	22 - 13
Software and accessories	22 - 13
Data concentrator	22 - 12
Expansion modules	22 - 13
Software and accessories	22 - 13
Digital metering instruments	
Flush mount LCD multimeters, expandable	22 - 14
Flush mount touch-screen LCD power analyzers, expandable	22 - 15
Flush mount LED measuring instruments	22 - 16
Flush mount LED multimeters, non expandable	22 - 20
Modular LCD multimeters, non expandable	22 - 22
Modular LCD multimeters, expandable	22 - 23
Modular LED measuring instruments	22 - 24
Modular LED multimeters, non expandable	22 - 26
Expansion modules	22 - 28
Software and accessories	22 - 29
Current transformers	22 - 30
 Dimensions	 22 - 32
Wiring diagrams	22 - 34
Technical characteristics	22 - 38

Installation supervision



ENERGY COUNTERS

kWh	00000053.13	IMP
kvarh	00000000.05	IMP

TARIFFS

kvarh	00000000.00	IMP
kWh	00000000.00	IMP

TREND GRAPH

kvarh	0000	1.63
kvarh	0000	0.98
kvarh	0000	0.32
kvarh	0000	0

AVG ACTIVE POWER

Time axis: -20:00, -12:00, -04:00 PM

Device screen display: 2354.00

The screenshot displays the PicoScope software interface with several panels:

- WEEKLY ENERGY QUALITY:**
 - VHI: 0.0%
 - VLO: 60.0%
- EN. QUALITY COUNTERS:**
 - THD: [blank]
 - ASV: [blank]
 - FHI: [blank]
 - FLO: [blank]
 - DIP: 5
 - SWELL: 1
- OFFICES:**
 - INTERR. >
 - VOLT. OUT N
 - FREQ. OUT N
- OFFICES:**
 - Jun-16-10
 - W- W- LAS
- START DATE:** 06/16/10 09:
- EQ. WAVEFORM CAPTURE:** A graph showing a waveform with a peak and a trough.
- CAPTURE N.:** 1
- 29/06/10 11:54:53**
- LA L2 L3 1.10**

BOOLEAN LOGIC

L1M1	☐		
AND	☐		
INP1	☐		
OR	☐		
B001	☒	B001 =	1
OR NOT	☐		
REV1	☐		

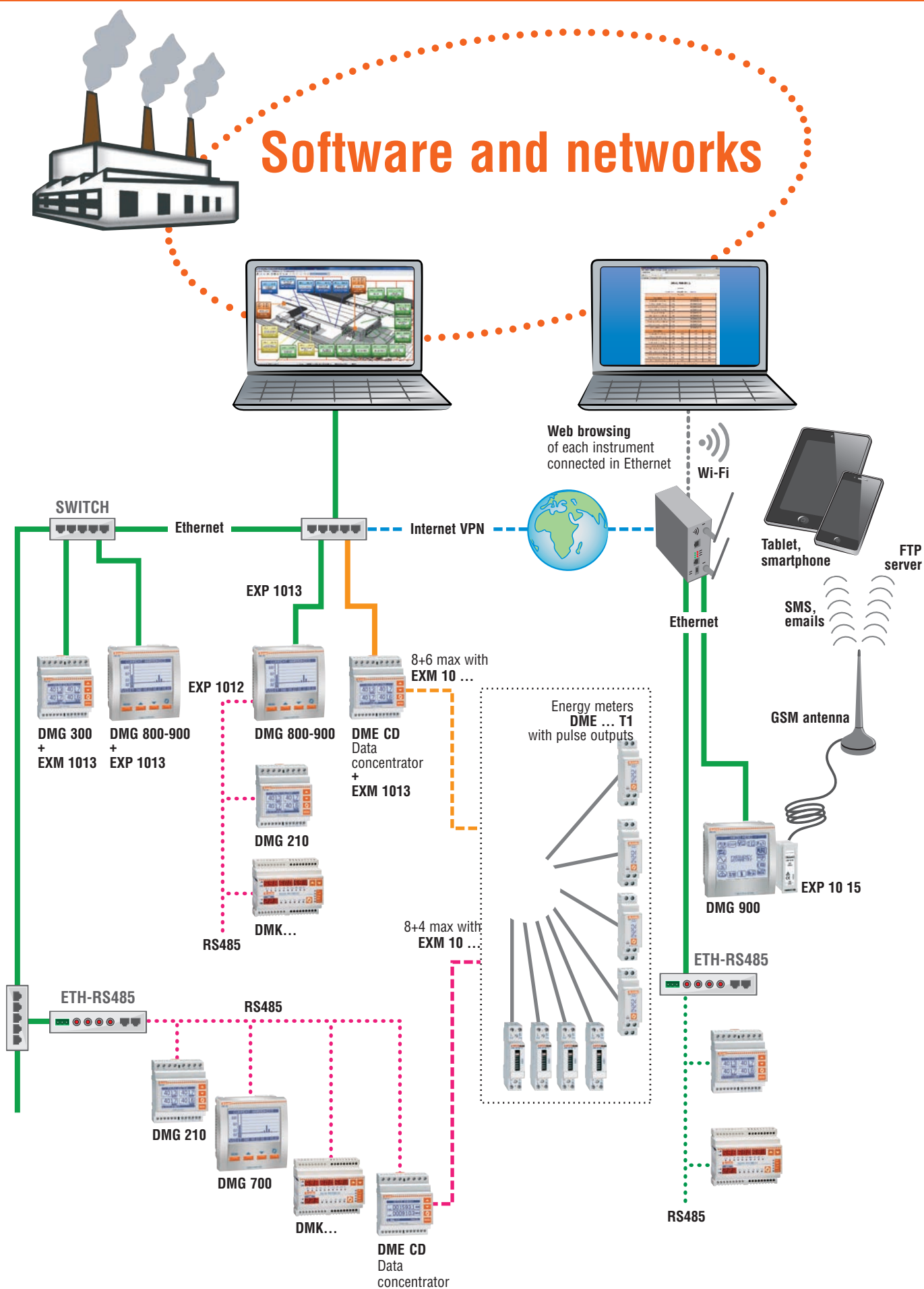
SEL B001 1...8

Micro PLC:

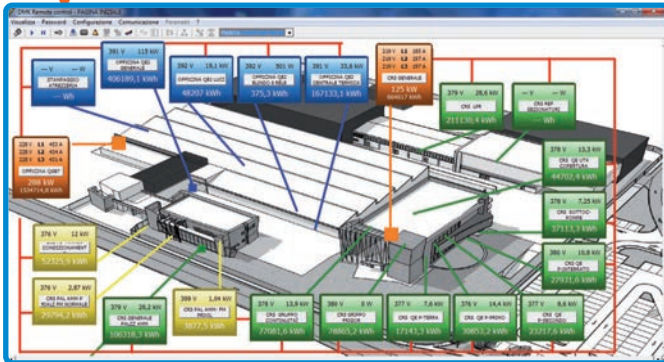
The image displays a variety of sensors and actuators arranged on a light green circular background. At the top left, there are two digital displays: one for 'COUNTERS' showing 'Water consumption' with a value of '00000008:29:35' and a unit of 'm³', and another for 'HOURS METERS' showing 'Air pressure' with a value of '1.40' and a unit of 'Bar'. To the right of these are two more digital displays: one for 'COUNTERS' showing 'Gas consumption' with a value of '000030842' and a unit of 'm³', and another for 'COUNTERS' showing 'Gas consumption' with a value of '000030842' and a unit of 'm³'. Below these are four analog devices: a blue pressure gauge with a scale from 0 to 60 mbar, an orange digital display showing '31957' with a unit of 'm³', a vertical thermometer with a red bulb, and a blue robotic arm with a gripper. The entire collection is surrounded by a light blue circular border.

Voltage and frequency control relay

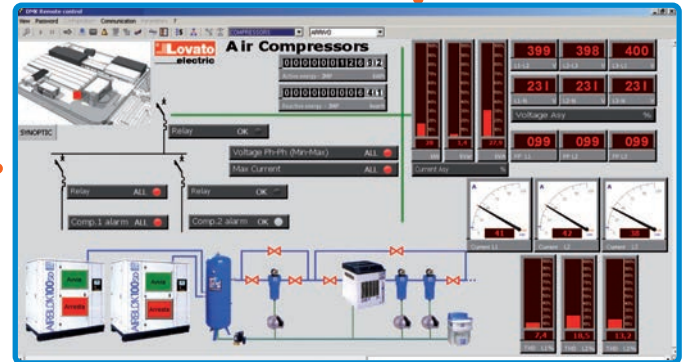
Software and networks



Remote control software



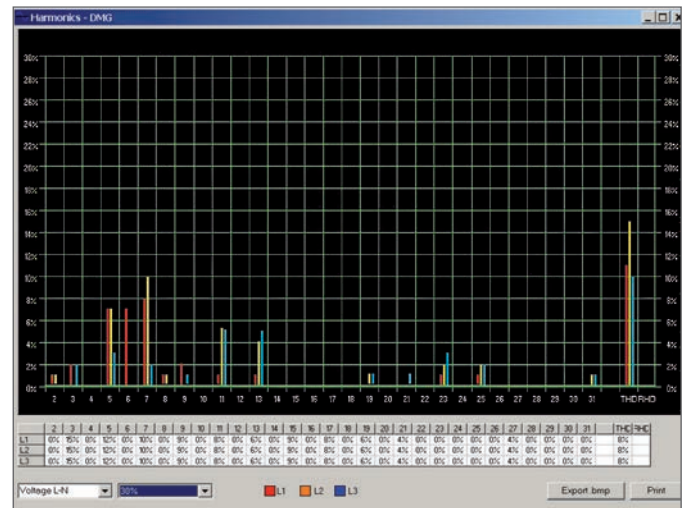
Main plant synoptic view



Detailed pages of each user with status monitoring and command sending



View trend lines



Harmonic analysis in bar-graph and table format

Q-statlog (360 records)

Date	Hour	PHASE VOLTAGE	EQUIV. ALARM 3: PANEL QE2	LIMIT 2: PANEL QE2	BOOLEAN 1: BOOLEAN QE2	EQUIV. ACTIVE POWER EQUIVALENT	EQUIV. CURRENT EQUIVALENT
20/10/2011	13:33:42	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:33:45	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:33:48	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:33:51	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:33:54	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:33:56	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:00	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:02	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:05	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:07	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:10	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:13	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:16	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:19	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:22	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:25	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:28	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:31	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:34	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:37	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:40	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:43	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:46	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:49	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:52	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:55	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:34:58	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:01	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:04	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:07	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:10	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:13	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:16	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:19	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:22	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:25	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:28	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:31	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:34	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:37	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:40	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:43	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:46	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:49	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:52	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:55	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:35:58	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:01	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:04	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:07	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:10	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:13	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:16	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:19	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:22	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:25	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:28	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:31	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:34	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:37	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:40	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:43	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:46	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:49	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:52	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:55	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:36:58	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:01	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:04	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:07	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:10	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:13	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:16	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:19	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:22	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:25	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:28	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:31	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:34	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:37	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:40	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:43	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:46	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:49	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:52	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:55	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:37:58	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:01	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:04	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:07	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:10	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:13	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:16	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:19	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:22	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:25	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:28	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:31	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:34	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:37	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:40	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:43	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:46	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:49	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:52	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:55	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:38:58	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:01	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:04	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:07	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:10	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:13	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:16	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:19	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:22	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:25	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:28	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:31	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:34	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:37	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:40	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:43	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:46	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:49	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:52	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:55	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	13:39:58	231.13	OFF	OFF	ON	27.90	40.4320
20/10/2011	14:00:00	231.13	OFF	OFF	ON	27.90	40.4320

From: 20/10/2011 00:00:00 To: 21/10/2011 00:00:00

Select period View all Export Delete

20/10/2011 13:33:42

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:33:45

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:33:48

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:33:51

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:33:54

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:33:56

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:00

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:02

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:05

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:07

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:10

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:13

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:16

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:19

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:22

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:25

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:28

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:31

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:34

231.13

OFF

OFF

ON

27.90

40.4320

20/10/2011 13:34:37

231.13

OFF

OFF

ON

27.90

40.4320

20/1

Digital multimeters and power analyzers with graphic LCD



SINGLE, TWO, THREE PHASE WITH OR WITHOUT NEUTRAL	DIGITAL MULTIMETERS		DIGITAL POWER ANALYZERS	
	DMG 700	DMG 800	DMG 900	DMG 900T
Graphic LCD	●	●	●	
Touch screen display			●	
Measurement transducer				●
Voltage measurements	●	●	●	●
Current measurements	●	●	●	●
Power measurements	●	●	●	●
Power factor measurements	●	●	●	●
Frequency measurements	●	●	●	●
Active energy measurements	●	●	●	●
Reactive energy measurements	●	●	●	●
THD (Total Harmonic Distortion analysis)	●	●	●	●
Detailed harmonic analysis		●	●	●
Expandable (In/Out, USB, RS232, RS485, Ethernet, Profibus-DP slave, memory)	●③	●	●	●
IEC protection degree	IP65	IP65	IP65	IP65
Page	22-14		22-15	

③ Analog inputs/outputs, Ethernet, Profibus-DP slave and memory excluded.

Digital measuring instruments with LED display



SINGLE PHASE	DMK 00 DMK 00 R1	DMK 01 DMK 01 R1	DMK 02	DMK 03 DMK 03 R1	DMK 04 DMK 04 R1		
THREE PHASE	DMK 10 DMK 10 R1	DMK 11 DMK 11 R1				DMK15 DMK 15 R1	DMK 16 DMK 16 R1
Voltmeter	●		●②			●	●
Ammeter		●	●②			●	●
Frequency meter				●			●
Cosphi meter					●		
Wattmeter						●	●
Energy measurement							●
Programmable output relay for control/protection functions	●①	●①		●①	●①	●①	●①
Page	22-16 and 17					22-17	22-18 and 19

① For DMK...R1 version only.

② The instrument is configurable and used as voltmeter or as ammeter.

Digital multimeters with LED display



SINGLE, TWO, THREE PHASE WITH OR WITHOUT NEUTRAL	DMK 20	DMK 21	DMK 22	DMK 25	DMK 26	DMK 30	DMK 31	DMK 32	DMK 40
47 electrical parameters	●	●	●	●	●				
251 electrical parameters						●	●	●	●
THD (Total Harmonic Distortion analysis)						●	●	●	●
Harmonic analysis						●	●	●	●
Basic version	●					●			
With energy meters		●	●			●	●	●	●
Opto-isolated RS232 port									●
Opto-isolated RS485 port			●					●	●
For generating sets				●	●				
Programmable outputs							●	●	
Page	22-20					22-21			

Energy meters



SINGLE PHASE	DME M100	DME M100 T1	DME D100 T1	DME D110 T1	DME D120 T1		
THREE PHASE WITH NEUTRAL						DME D300 T2	
THREE PHASE WITH OR WITHOUT NEUTRAL							DME D310 T2
Mechanical display	●	●					
Digital display			●	●	●	●	●
Direct connection	●	●	●	●	●	●	
Connection by CT							●
Programmable digital input						●	●
Pulse outputs		●	●				
Programmable static outputs				●	●	●	●
Multi-measurements				●	●	●	●
Active energy measurements	●	●	●	●	●	●	●
Partial active energy measurements				●	●	●	●
Reactive energy measurements				●	●	●	●
Expandable (In/Out, USB, RS232, RS485, Ethernet, memory)							●
Page	22-8 and 9					22-10 and 11	

Digital multimeters with graphic LCD



SINGLE, TWO, THREE PHASE WITH OR WITHOUT NEUTRAL	DMG 200	DMG 210	DMG 300
Graphic LCD	●	●	●
Voltage-current measurements	●	●	●
Frequency-power measurements	●	●	●
Power factor measurements	●		●
Active-reactive energy measurements	●	●	●
THD (Total Harmonic Distortion) analysis	●	●	●
Harmonic analysis			●
Opto-isolated RS485 port		●	
Expandable (In/Out, USB, RS232, RS485, Ethernet, memory)			●
Page	22-22		22-23

Digital measuring instruments with LED display



- ① For DMK...R1 versions only.
② The instrument is configurable and used as voltmeter or as ammeter.

SINGLE PHASE	DMK 80	DMK 81	DMK 82	DMK 83	DMK 84	
	DMK 80 R1	DMK 81 R1		DMK 83 R1	DMK 84 R1	
THREE PHASE	DMK 70	DMK 71				DMK 75
	DMK 70 R1	DMK 71 R1				DMK 75 R1
Voltmeter	●		●②			●
Ammeter		●	●②			●
Frequency meters				●		
Cosphi meter					●	
Wattmeter						●
Programmable output relay for control/protection functions	●①	●①		●①	●①	●①
Page	22-24 and 25		22-24		22-25	

Digital multimeters with LED display



SINGLE, TWO, THREE PHASE WITH OR WITHOUT RELAY	DMK 50	DMK 51	DMK 52	DMK 60	DMK 61	DMK 62
47 electrical parameters	●	●	●			
251 electrical parameters				●	●	●
Basic version	●			●		
With energy meters		●	●	●	●	●
THD (Total Harmonic Distortion) analysis				●	●	●
Harmonic analysis				●	●	●
Opto-isolated RS485 port			●			●
For generating sets				●	●	
Programmable outputs					●	●
Page	22-26			22-27		

Single phase, non expandable



DME M100



DME D110 T1...



DME D120 T1...

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Mechanical meter.			
DME M100	32A direct connection	1	0.084
DME M100 T1	32A direct connection, 1 pulse output	1	0.088
Digital meter.			
DME D100 T1	40A direct connection, 1 pulse output, 220-240VAC	1	0.086
new DME D100 T1 A120	40A direct connection, 1 pulse output, 110-120VAC	1	0.086
DME D110 T1	40A direct connection, 1 programmable static output, multi-measurements ❶, 220-240VAC	1	0.090
new DME D110 T1 A120	40A direct connection, 1 programmable static output, multi-measurements ❶, 110-120VAC	1	0.090
DME D120 T1	63A direct connection, 1 programmable static output, multi-measurements ❶, 220-240VAC	1	0.148
new DME D120 T1 A120	63A direct connection, 1 programmable static output, multi-measurements ❶, 110-120VAC	1	0.148

❶ Multi-measurements:

- Total active energy
- Partial active energy
- Total reactive energy
- Partial reactive energy
- Voltage
- Current
- Active power
- Reactive power
- Power factor
- Frequency
- Total hour counter
- Partial hour counter
- Average active power (calculation on every last 15 minutes)
- Maximum demand.

General characteristics

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

Operational characteristics

DME M... (mechanical display)

- Rated supply voltage: 230VAC -20...+15%
- Direct connection
- 32A maximum current
- Active energy measurements
- Active energy accuracy: Class 1 (IEC/EN 62053-21)
- Mechanical meter with 6+1 digit count
- Flashing LED for consumption indication
- Static pulse output for DME M100 T1 only
- Modular DIN 43880 housing, 1-module
- Sealable terminals, standard supplied
- IEC degree of protection: IP40 on front; IP20 at terminals.

DME D100 T1 - DME D110 T1

- Rated supply voltage:
 - 220-240VAC for DME D100 T1 - DME D110 T1
 - 110-120VAC for DME D100 T1 A120 and DME D110 T1 A120
- Voltage range:
 - 187-265VAC 50/60Hz for DME D100 T1-DME D110 T1
 - 102-132VAC 60 Hz for DME D100 T1 A120 and DME D110 T1 A120
- Direct connection
- 40A maximum current
- Active measurement energy accuracy: Class 1 (IEC/EN 62053-21)
- Reactive measurement energy accuracy: Class 2 (IEC/EN 62053-23) for DME D110 T1 and DME D110 T1 A120 types only
- LCD meter with 5+1 digit count
- Metrological LED with pulse emission for consumption indication
- Static pulse output which is programmable for DME D110 T1 and DME D110 T1 A120
- Modular DIN 43880 housing, 1-module
- Sealable terminals, standard supplied
- IEC/UL/CSA protection degree: IP51 on front; IP20 at terminals.

DME D120 T1

- Rated supply voltage:
 - 220-240VAC for DME D120 T1
 - 110-120VAC for DME D120 T1 A120
- Voltage range:
 - 187-265VAC 50/60Hz for DME D120 T1
 - 102-132VAC 60Hz for DME D120 T1 A120
- Direct connection
- 63A maximum current
- Active and reactive energy measurement
- Partial energy measurements are clearable
- Active energy accuracy: Class 1 (IEC/EN 62053-21)
- Reactive energy accuracy: Class 2 (IEC/EN 62053-23)
- LCD meter with 6+1 digit count
- Metrological LED with pulse emission for consumption indication
- 1 programmable static output
- Modular DIN 43880 housing, 2-module
- Sealable terminals, standard supplied
- IEC degree of protection: IP51 on front; IP20 at terminals.

Certifications and compliance

Certifications obtained: UL Listed, for USA and Canada (File E346886), as Electrical Process Control Equipment - Energy meters, for DME D... types.

Compliant with standards: IEC/EN 61010-1, IEC/EN 61326-1 for DME M... type; EN 50470-1, IEC/EN 61010-1, UL 61010-1, CSA C22.2 n°61010-1 for DME D... types.

Single phase, non expandable, MID certified

MID



DME D110 T1 MID



DME D120 T1 MID



Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter.			
DME D100 T1 MID	40A direct connection, 1 pulse output, 230VAC	1	0.086
DME D110 T1 MID	40A direct connection, 1 programmable static output, multi-measurements ❶, 230VAC	1	0.090
DME D120 T1 MID	63A direct connection, 1 programmable static output, multi-measurements ❶, 230VAC	1	0.148

❶ Multi-measurements:

- Total active energy
- Partial active energy
- Total reactive energy
- Partial reactive energy
- Voltage;
- Current;
- Active power;
- Reactive power;
- Power factor
- Frequency
- Total hour counter
- Partial hour counter
- Average active power (calculation on every last 15 minutes)
- Maximum demand.

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 systems.

Operational characteristics

DME D100 T1 - DME D110 T1

- Rated supply voltage: 230VAC
- Voltage range: 187-265VAC 50Hz
- Direct connection
- 40A maximum current
- Measurement of 14 electrical parameters for DME D110 T1 MID only
- Active energy measurement accuracy: Class B (EN 50470-3)
- Reactive energy measurement accuracy: Class 2 (IEC/EN 62053-23) for DME D110 T1 MID only
- LCD meter with 5+1 digit count
- Metrological LED with pulse emission for consumption indication
- Static pulse output which is programmable for DME D110 T1 MID only
- Modular DIN 43880 housing, 1-module
- Sealable terminals, standard supplied
- EN degree of protection: IP51 on front; IP20 at terminals.

DME D120 T1

- Rated supply voltage: 230VAC
- Voltage range: 187-265VAC 50Hz
- Direct connection
- 63A maximum current
- Active and reactive energy measurement
- Partial energy measurements are clearable
- Active energy measurement accuracy: Class B (EN 50470-3)
- Reactive energy measurement accuracy: Class 2 (IEC/EN 62053-23)
- LCD meter with 6+1 digit count
- Metrological LED with pulse emission for consumption indication
- 1 programmable static output
- Modular DIN 43880 housing, 2-module
- Sealable terminals, standard supplied
- EN protection degree: IP51 on front; IP20 at terminals.

Certifications and compliance

Certifications obtained: MID Class B, certifications per module B (type tests) and per module D (production conformity).

Compliant with standards: EN 50470-1, EN 50470-3.

Three phase with neutral, non expandable



DME D300 T2

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter.			
DME D300 T2	63A direct connection, 2 programmable static outputs, multi-measurements ❶	1	0.360

- ❶ Multi-measurements:
- Total active energy
 - Partial active energy
 - Total reactive energy
 - Partial reactive energy
 - Voltage
 - Current
 - Active power
 - Reactive power
 - Power factor
 - Frequency
 - Total hour counter
 - Partial hour counter
 - Average active power (calculation on every last 15 minutes)
 - Maximum demand.

Three phase with or without neutral, expandable



DME D310 T2

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter.			
DME D310 T2	Connection with CT /5A secondary, 2 programmable static outputs, multi-measurements ❶, expandable	1	0.332

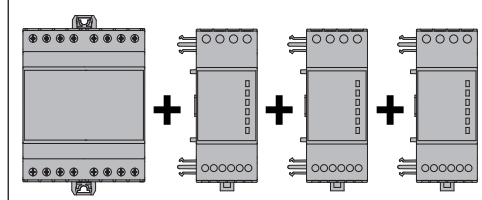
- ❶ Multi-measurements:
- Total active energy
 - Partial active energy
 - Total reactive energy
 - Partial reactive energy
 - Voltage
 - Current
 - Active power
 - Reactive power
 - Power factor
 - Frequency
 - Total hour counter
 - Partial hour counter
 - Average active power (calculation on every last 15 minutes)
 - Maximum demand.



EXM 10 10

Order code	Description
DME D310 T2 EXPANSION MODULES.	
Inputs and outputs.	
EXM10 00	2 digital inputs and 2 static outputs, opto-isolated
EXM10 01	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports.	
EXM10 10	Opto-isolated USB interface
EXM10 11	Opto-isolated RS232 interface
EXM10 12	Opto-isolated RS485 interface
EXM10 13	Ethernet interface with Web server function
EXM10 20	Opto-isolated RS485 interface and 2 relay outputs rated 5A 250VAC
EXM10 30	Data storage, clock-calendar (RTC) with backup battery for data logging

Maximum combination



General characteristics

The energy meters are digital meters/analyzers of electric energy for systems with direct three-phase connection or by CT.
Expandable with up to 3 EXM10 series interfaced by infrared beam.

Operational characteristics

- Rated supply voltage: 220-240VAC (L-N); 380-425VAC (L-L)
- Voltage range: 187-264VAC (L-N); 323-456VAC (L-L) - 50/60Hz
- Direct connection up to 63A for DME D300 T2 only
- Connection by CT /5A for DME D310 T2 only
- Active energy accuracy: Class 1 (IEC/EN 62053-21)
- Reactive energy accuracy: Class 2 (IEC/EN 62053-23)
- LCD multifunction meter
- Metrological LED with pulse emission for consumption indication
- Partial active energy measurement is clearable
- 1 programmable digital input
- 2 programmable static outputs
- Optical interface port for EXM10... expansion modules with DME 310 T2 only
- Modular DIN 43880 housing, 4-module
- Sealable terminals, standard supplied
- IEC protection degree: IP51 on front; IP20 at terminals.

EXM10 series expansion modules and accessories

See page 22-13.

Reference standards

Compliant with standards: EN 53470-1, IEC/EN 61010-1.

Three phase with neutral, non expandable, MID certified

MID



DME D300 T2 MID



Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter.			
DME D300 T2 MID	63A direct connection, 2 programmable static outputs, multi-measurements ❶	1	0.360

❶ Multi-measurements:

- Total active energy
- Partial active energy
- Total reactive energy
- Partial reactive energy
- Voltage
- Current
- Active power
- Reactive power
- Power factor
- Frequency
- Total hour counter
- Partial hour counter
- Average active power (calculation on every last 15 minutes)
- Maximum demand.

Three phase with or without neutral, expandable, MID certified

MID



DME D310 T2 MID



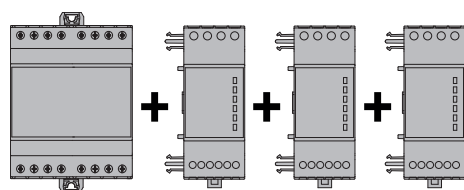
Order code	Description	Qty per pkg	Wt
		n°	[kg]
Digital meter.			
DME D310 T2 MID	Connection with CT /5A secondary, 2 programmable static outputs, multi-measurements ❶, expandable	1	0.332

❶ Multi-measurements:

- Total active energy
- Partial active energy
- Total reactive energy
- Partial reactive energy
- Voltage
- Current
- Active power
- Reactive power
- Power factor
- Frequency
- Total hour counter
- Partial hour counter
- Average active power (calculation on every last 15 minutes)
- Maximum demand.

Order code	Description
DME D310 T2 MID EXPANSION MODULES.	
Inputs and outputs.	
EXM10 00	2 digital inputs and 2 static outputs, opto-isolated
EXM10 01	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports.	
EXM10 10	Opto-isolated USB interface
EXM10 11	Opto-isolated RS232 interface
EXM10 12	Opto-isolated RS485 interface
EXM10 13	Ethernet interface with Web server function
EXM10 20	Opto-isolated RS485 interface and 2 relay outputs rated 5A 250VAC
EXM10 30	Data storage, clock-calendar (RTC) with backup battery for data logging

Maximum combination



EXM 10 10

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 or CT connected three-phase systems. Expandable with up to 3 EXM10 series interfaced by infrared beam.

Operational characteristics

- Rated supply voltage: 230VAC (L-N); 400VAC (L-L)
- Voltage range: 187-264VAC (L-N); 323-456VAC (L-L) - 50Hz
- Direct connection up to 63A for DME D300 T2 MID only
- Connection by CT /5A for DME D310 T2 MID only
- Active energy accuracy: Class B (EN 50470-3)
- Reactive energy accuracy: Class 2 (IEC/EN 62053-23)
- LCD multifunction meter
- Metrological LED with pulse emission for consumption indication
- Partial active energy measurement is clearable
- 1 programmable digital input
- 2 programmable static outputs
- Optic interface port for EXM10... expansion modules for DME 310 T2 MID only
- Modular DIN 43880 housing, 4-module
- Sealable terminals, standard supplied
- EN protection degree: IP51 on front; IP20 at terminals.

EXM10 series expansion modules and accessories

See page 22-13.

Certifications and compliance

Certifications obtained: MID Class B, certifications per module B (type tests) and per module D (production conformity).

Compliant with standards: EN 50470-1, EN 50470-3.

Expandable



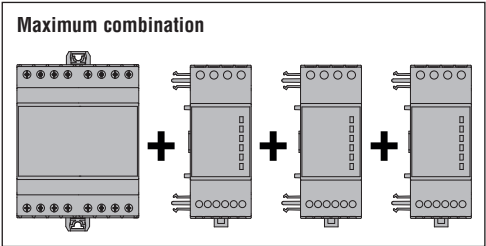
DME CD



EXM 10 10

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Data concentrator.			
DME CD	For DME M100 T1 and DME D... types, 8 energy meters can be connected, RS485 interface, expandable	1	0.337

Order code	Description
DME CD EXPANSION MODULES. Inputs and outputs.	
EXM10 00	2 digital inputs and 2 static outputs, opto-isolated
EXM10 01	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports.	
EXM10 10	Opto-isolated USB interface
EXM10 11	Opto-isolated RS232 interface
EXM10 12	Opto-isolated RS485 interface
EXM10 13	Ethernet interface with Web server function
EXM10 20	Opto-isolated RS485 interface and 2 relay outputs, rated 5A 250VAC
EXM10 30	Data storage, clock-calendar (RTC) with backup battery for data logging



General characteristics

The data concentrator DME CD has been designed in combination with energy meters DME M100 T1 and DME D...

It is capable of pulse counting coming in from the static outputs of the connected energy meters, storing data and viewing it on the display or directly on a PC through the built-in RS485 port, using the DMK SW software.

Expandable with up to 3 EXM10 series interfaced by infrared beam.

Operational characteristics

- Rated supply voltage: 100-240VAC/110-250VDC
- Voltage range: 85-264VAC 50/50Hz/93.5-300VDC
- Backlight graphic LCD
- 8 inputs, expandable with EXM10... modules up to 14
- Built-in RS485 communication interface
- Modbus®-RTU ASCII and TCP communication protocol
- Multifunction display
- Total and partial energy meter, can be cleared for each channel
- Programmable general counters
- Calculation of derivative average values
- Mathematical operations among meters
- Sealable terminals, standard supplied
- IEC protection degree: IP51 on front; IP20 at terminals.

EXM10 series expansion modules and accessories

See page 22-13.

Certifications and compliance

Certifications obtained: UL Listed, for USA and Canada (File E346886), as Electrical Process Control Equipment - Data concentrator.

Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 61010-1, CSA C22.2 n°61010-1.

Expansion modules for energy meters and data concentrator



EXM 10 10

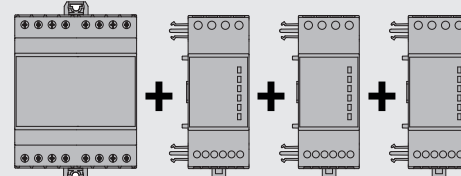
Order code	Description	Qty per pkg	Wt
		n°	[kg]
DME D310 T2 and DME CD EXPANSION MODULES. Inputs and outputs.			
EXM10 00	2 digital inputs and 2 static outputs, opto-isolated	1	0.137
EXM10 01	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC	1	0.147
Communication ports.			
EXM10 10	Opto-isolated USB interface	1	0.140
EXM10 11	Opto-isolated RS232 interface	1	0.125
EXM10 12	Opto-isolated RS485 interface	1	0.140
EXM10 13	Ethernet interface with Web server function	1	0.140
EXM10 20	Opto-isolated RS485 interface and 2 relay outputs rated 5A 250VAC	1	0.140
EXM10 30	Data storage, clock-calendar (RTC) with backup battery for data logging	1	0.140

General characteristics

EXM10 series expansion modules add extra functions to DME series multimeters, such as:

- Digital inputs
- Relay outputs
- Static outputs
- Communication interface
- Memory modules.

Maximum combination



Certifications and compliance

Certifications obtained: UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Listed Accessory. Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 61010-1, CSA C22.2 n° 61010-1.

Software and accessories for energy meters and data concentrator



DMK SW10



51 C4



4 PX1

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Software.			
DMK SW	Remote control software for PC ↔ DME D310 T2 and DME CD, complete with 51 C4 connecting cable	1	0.246
DMK SW 10	Data-logger software for DME D310 T2, DME CD. Complete with 51 C2 connecting cable Remote control and supervision software for PC ↔ DME D310 T2 and DME CD, complete with 51 C4 connecting cable	1	0.400
Accessories.			
51 C2	PC ↔ RS232 connecting cable 1.8m/2yd long, when using EXM10 11 module with DME D310 T2 or DME CD	1	0.090
51 C4	PC ↔ 4 PX1 converter drive connecting cable, 1.8m/2yd long, when using EXM10 20 module with DME D310 T2 or DME CD	1	0.147
4 PX1	RS232/RS485 converter drive, opto-isolated, 220-240VAC ①	1	0.600

① RS232/RS485 opto-isolated analog modem, 38,400 Baud rate maximum, automatic or manual TRANSMIT line supervision, 220-240VAC ±10% (110-120VAC supply on request).

General characteristics

DMK SW

Remote control software and supervision for DME D310 T2 and DME CD.

This software is capable of controlling a maximum of 250 digital multimeters remotely connected to one RS485 bus or Ethernet.

The DMK SW is subdivided into modules which warrant simple and easy use:

- Main synoptic page which includes the most important in-coming data of the various DMEs connected
- Detailed page with data related to the selected DME unit
- Data log which consents to store sampled measurements on disk (max 128 measurements)
- Events / alarms log with alarm data acquisition of the various DMEs as well as the elaborated analysis
- Trend graphs to control status of electric parameters
- Energy count to periodically view energy meters of the various instruments and monitor power usage.

DMK SW 10

Data-logger and remote control for DME D310 T2 and DME CD with memory modules.

The DMK SW 10 includes the data-logger software and the remote control DMK SW software, two applications with separate installation.

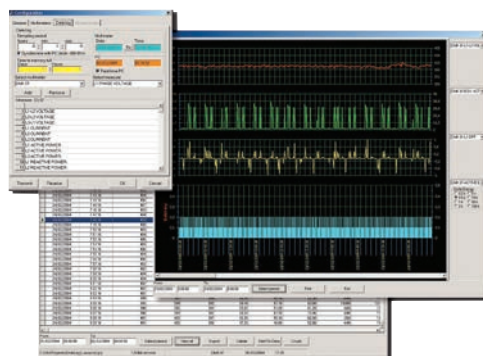
The data-logger software consents:

- To configure multimeter parameters, for the data logging
- To view and print acquired data from the multimeter storage memory in table or trend graph format. No data-logger configuration or stored data viewing is obtainable on the unit front
- To download data in ACCESS, EXCEL or TEXT file
- To program the multimeter clock-calendar (RTC - Real Time Clock) to automatically manage daylight saving time
- To directly connect or via modem to the multimeters.

Reference standards

Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 61010-1, CSA C22.2 n° 61010-1.

Example of remote control software DMK SW and DMK SW 10 viewing



Flush mount LCD multimeters, expandable



DMG 700 - DMG 800...

new



DMG M3 800...

new



DMG M3 KIT

new



EXP 10...

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMG 700	Graphic 128x80 pixel LCD, auxiliary supply 100-440VAC/110-250VDC. Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.510
DMG 700 L01	Graphic 128x80 pixel LCD, auxiliary supply 100-440VAC/110-250VDC. Multilanguage: English, Czech, Polish, German and Russian	1	0.510
DMG 800	Graphic 128x80 pixel LCD, harmonic analysis, auxiliary supply 100-440VAC/110-250VDC. Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.510
DMG 800 L01	Graphic 128x80 pixel LCD, harmonic analysis, auxiliary supply 100-440VAC/110-250VDC. Multilanguage: English, Czech, Polish, German and Russian	1	0.510
DMG 800 D048	Graphic 128x80 pixel LCD, with harmonic analysis, auxiliary supply 12-24-48VDC	1	0.520
DMG M3 800 01	DMG 800 portable unit in M3N housing, prewired, with USB integrated interface and carry handle	1	3.300
DMG M3 800 02	DMG 800 portable unit in M3N housing, prewired EXP10 04 and EXP10 30 expansion modules, USB integrated interface and carry handle	1	3.400
Cable kit for DMG M3 800... types			
DMG M3 KIT 01	Kit of cables with 3 current clamps 1000/1 ratio, and 4 alligator clip cables for voltage measurement	1	6.900

Order code	Description
DMG 700 AND DMG 800 EXPANSION MODULES	
Inputs and outputs.	
EXP10 00	4 digital opto-isolated inputs
EXP10 01	4 static opto-isolated outputs
EXP10 02	2 digital inputs and 2 static outputs, opto-isolated
EXP10 03	2 relay outputs rated 5A 250VAC
EXP10 04	2 analog opto-isolated inputs 0/4-20mA or PT100 or 0-10V or 0...±5V for DMG 800
EXP10 05	2 analog opto-isolated outputs 0/4-20mA or 0-10V or 0...±5V for DMG 800
Communication ports.	
EXP10 10	Opto-isolated USB interface
EXP10 11	Opto-isolated RS232 interface
EXP10 12	Opto-isolated RS485 interface
EXP10 13	Opto-isolated Ethernet interface with Web server function for DMG 800
EXP10 14	Opto-isolated Profibus-DP interface for DMG 800
EXP10 30	Data storage, clock-calendar (RTC) with backup battery for data logging for DMG 800

General characteristics

DMG 700 and DMG 800 digital multimeters are capable of viewing the measurements with high accuracy on the wide graphic LCD, which allow to control energy distribution systems.

They are available with a flush-mount housing, 96x96mm size, and 4 expansion slots 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 graphic interactive interface for simple use.

Main measurements and functions include:

- 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 31° order with DMG 800 only
- Energy meters for active, reactive, apparent partial and total values with programmable tariff functions
- Hour counter for programmable total and partial hours
- Pulse counter for general use: pulse counting for water, gas, etc. consumption with expansion module only.

Caratteristiche di impiego

- Auxiliary supply voltage range:
90-484VAC / 93.5-300VDC for DMG 700 and DMG 800;
9-70VDC for DMG 800 D048
- Voltage measurement range:
20-830VAC phase-to-phase
10-480VAC phase-neutral
- Use in medium and high-voltage systems with voltage transformers
- Rated input current: by external CT 5A for DMG 700;
5A or 1A for DMG 800... up to 10,000A
- Frequency measurement range: 45-66Hz
- True RMS measurements; for voltage and current
- Accuracy for DMG 700:
• Voltage: ±0.5% (50-830VAC)
• Current: ±0.5% (0.1-1.1 In)
• Power: ±1% f.s.
• Frequency: 0.05%
- Active energy: Class 1 (IEC/EN 62053-21)
• Reactive energy: Class 2 (IEC/EN 62053-23)
- Accuracy for DMG 800...:
• Voltage: ±0.2% (50-830VAC)
• Current: ±0.2% (0.1-1.1 In)
• Power: ±0.5% f.s.
• Power factor: ±0.5%
• Frequency: 0.05%
- Active energy: Class 0.5S (IEC/EN 62053-22)
• Reactive energy: Class 2 (IEC/EN 62053-23)
- Non-volatile memory for data storage
- Communication protocol Modbus®-RTU, ASCII and TCP with communication expansion modules only
- Programming and remote control by software with communication expansion modules only
- Housing: flush mount 96x96mm/3.8x3.8in
- IEC protection degree: IP65 on front; IP20 for housing and at terminals.

EXP10 series expansion modules and accessories

See pages 22-28 and 29.

Overall M3N housing dimensions: See page 4-15.

Certifications and compliance

Certifications obtained: GOST and UL Listed, for USA and Canada (File E93601), as Auxiliary devices - Multimeter for DMG... units excluding DMG M3... types.

Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22-2 n° 14.

Flush mount LCD touch-screen power analyzers, expandable



DMG 900...



DMG 900T...



DMG 900RD



EXP 10...



Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMG 900	Graphic 128x112 pixel touch-screen LCD, harmonic analysis, 4 channels, auxiliary supply 100-440VAC/110-250VDC. Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.566
DMG 900 L01	Graphic 128x112 pixel touch-screen LCD, harmonic analysis, 4 channels, auxiliary supply 100-440VAC/110-250VDC. Multilanguage: English, Czech, Polish, German and Russian	1	0.566
DMG 900 D048	Graphic 128x112 pixel touch-screen LCD, harmonic analysis, auxiliary supply 12-24-48VDC	1	0.580
DMG 900T	Measurement transducer, harmonic analysis, 4 channels, auxiliary supply 100-440VAC/110-250VDC, RS232/RS485 port	1	0.570
DMG 900T D048	Measurement transducer, harmonic analysis, 4 channels, auxiliary supply 12-24-48VDC, RS232/RS485 port	1	0.590
Remote display for DMG 900T...			
DMG 900RD	Graphic 128x112 pixel touch screen LCD, with 3m/9.8ft long connecting cable	1	0.396

Order code	Description
DMG 900 and DMG 900 T EXPANSION MODULES. Inputs and outputs.	
EXP10 00	4 digital opto-isolated inputs
EXP10 01	4 static opto-isolated outputs
EXP10 02	2 digital inputs and 2 static outputs, opto-isolated
EXP10 03	2 relay outputs rated 5A 250VAC
EXP10 04	2 analog opto-isolated inputs 0/4-20mA or PT100 or 0-10V or 0...±5V
EXP10 05	2 analog opto-isolated outputs 0/4-20mA or 0-10V or 0...±5V
Communication ports.	
EXP10 10	Opto-isolated USB interface
EXP10 11	Opto-isolated RS232 interface
EXP10 12	Opto-isolated RS485 interface
EXP10 13	Opto-isolated Ethernet interface with Web server function
EXP10 14	Opto-isolated Profibus-DP interface
EXP10 15	GPRS/GSM modem
EXP10 30	Data storage, clock-calendar (RTC) with backup battery for data logging
EXP10 31	Data storage, with Energy Quality (EN 50160), clock-calendar (RTC) with backup battery for data logging

General characteristics

DMG 900... expandable digital power analyzers are available with a flush-mount housing, 96x96mm/3.8x3.8in size. The wide graphic touch screen display provides extremely simple interacting between the instrument and the user.

The high performance of the power analyzers gives very accurate measurements and can control energy distribution systems, to detect and prevent energy problems which could compromise quality and supply.

The main features include an extensive power supply voltage range, high measurement accuracy, expandability up to 4 plug in expansion modules.

There also is available the DMG 900T measurement transducer which can be used with the DMG 900RD remote display. The DMG 900T, without display, is arranged for mounting inside the panel board, on 35mm DIN rail, and is an ideal solution for installations where the measurements of various multimeters must be remotely viewed.

The DMG 900RD remote display connected to the DMG 900T transducer can display the measurements on the panel front while power connections remain inside the panel.

Main measurements and functions include:

- Voltage: phase, line and system values (neutral-earth too)
- Supply voltage value for the DC supply type only
- Current: phase values
- Neutral current calculated and true values
- Power: apparent, active and reactive phase and total values
- P.F.: Power Factor per phase and total
- Cosφ per phase and total
- Frequency of measured voltage value
- Voltage and current asymmetry
- Total harmonic distortion (THD) of voltage and current
- Harmonic analysis of voltage and current up to the 63rd order
- HIGH-LOW-AVERAGE value functions for all measurements
- Maximum demand of power and current values
- Flow direction of harmonic power values
- Energy meters for active, reactive, apparent partial and total values with programmable tariff functions
- Hour counter for programmable total and partial hours
- Pulse counter for general use: pulse counting for water, gas, etc. consumption with expansion module only
- Energy quality analysis to EN 50160 with expansion module only.

Operational characteristics

- Auxiliary supply voltage range:
 - 90-484VAC / 93.5-300VDC for DMG 900 and DMG 900T;
 - 9-70VDC for DMG 900 D048 and DMG 900T D048
- Voltage measurement range:
 - 20-830VAC phase-to-phase
 - 10-480VAC phase-neutral
- Use in medium and high-voltage systems with voltage transformers
- Rated input current: 5A or 1A by CT
- Current measurement range: 0.01-10A or 0.002-1.2A
- Current measurement range with CT up to 10,000A
- Frequency measure range: 45-66Hz / 360-440Hz
- True RMS measurements for voltage and current values
- 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 62053-22)
 - Reactive energy: Class 2 (IEC/EN 62053-23)
- Non-volatile memory for data and event (last 100) storage
- Communication protocol Modbus[®]-RTU, ASCII and TCP with communication expansion modules only
- Programming and remote control by software with communication expansion modules only
- Housing:
 - Flush mount 96x96mm/3.8x3.8in for DMG900... and DMG 900RD
 - 35mm DIN rail (IEC/EN 60715) fixing for DMG 900T
- IEC protection degree: IP65 on front for DMG 900... and DMG 900RD; IP20 at terminals for DMG 900... - DMG 900T.

EXP10 series expansion modules and accessories

See pages 22-28 and 29.

Certifications and compliance

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

Flush-mount instruments single phase



DMK 0...

Order code	Displayed measurements	Output relay	Qty per pkg	Wt
	n°	n°	n°	[kg]
Voltmeter.				
DMK 00	1 voltage value	—	1	0.290
DMK 00 R1②	1 max voltage value 1 min voltage value	1	1	0.323
Ammeter.				
DMK 01	1 current value	—	1	0.290
DMK 01 R1②	1 max current value 1 min current value	1	1	0.323
Voltmeter or ammeter.				
DMK 02①	1 voltage or current value 1 maximum voltage or current value 1 minimum voltage or current value	—	1	0.290
Frequency meter.				
DMK 03	1 frequency value	—	1	0.290
DMK 03 R1②	1 max frequency value 1 min frequency value	1	1	0.323
Cosphi meter.				
DMK 04	1 cosphi value	—	1	0.290
DMK 04 R1②	1 power factor value	1	1	0.323

① 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.

② Relay output for control and protection functions.

General characteristics

The DMK 0... instruments are available with flush-mount housing, 96x48mm/3.8x1.9in size. Measurements are True RMS values and provide for reliable operation even in presence of harmonics.

Operational characteristics

- Auxiliary supply voltage: 220-240VAC standard; 24VAC, 110-127VAC or 380-415AC type on request
- Operating frequency: 50-60Hz
- True RMS measurements
- HIGH and LOW measurement storage
- 1 relay output with 1 changeover contact (SPDT) for DMK...R1 only
- Housing: flush mount 96x48mm / 3.8x1.9in
- Terminals: 4mm²
- IEC protection degree: IP54 on front; IP20 at terminals.

DMK 00 - DMK 00 R1

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

DMK 01 - DMK 01 R1

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

DMK 02

- Voltage measurement range: 15-660VAC
- 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 $\pm 0.25\%$ f.s. ± 1 digit
Current $\pm 0.5\%$ f.s. ± 1 digit

DMK 03 - DMK 03 R1

- Measurement input: 15-660VAC
- Frequency measurement range: 15-65Hz
- Accuracy: ± 1 digit

DMK 04 - DMK 04 R1

- Cosphi measurement error: $\pm 0.5^\circ \pm 1$ digit
- Cosphi measurement in 4 quadrants
- Accuracy: $\pm 1^\circ \pm 1$ digit

Control and protection functions

DMK 00 R1

- 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, phase loss ③: 0.0-900.0 seconds.

DMK 01 R1

- 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 ③: 0.0-900.0 seconds.

DMK 03 R1

- Maximum frequency: OFF/101-110%
- Minimum frequency: OFF/90-99%
- Time delay for min-max frequency ③: 0.5-900.0 seconds.

DMK 04 R1

- Minimum-maximum cos ϕ thresholds in 4 quadrants
- Minimum-maximum PF thresholds in 4 quadrants
- Delay time for max or min threshold ③: 1-9,000 seconds.

Certifications and compliance

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

③ Independent adjustable delays.

Flush-mount LED instruments three phase



DMK 1...

Order code	Displayd measurements	Output relay	Qty per pkg	Wt [kg]
	n°	n°	n°	
Voltmeter.				
DMK 10	3 phase voltage values	–	1	0.297
DMK 10 R1②	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.				
DMK 11	3 phase current values	–	1	0.292
DMK 11 R1②	3 maximum phase current values 3 minimum phase current values	1	1	0.336
Combined voltmeter, ammeter and wattmeter.				
DMK 15	3 phase voltage values	–	1	0.332
DMK 15 R1②③	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

① Connection also to single phase.

② Relay output for control and protection functions.

General characteristics

The DMK 1... instruments are available with flush-mount housing, 96x48mm/3.8x1.9in size. Measurements are TRMS values and provide for reliable operation even in presence of harmonics.

Operational characteristics

- Auxiliary supply voltage: 220-240VAC standard; 24VAC, 110-127VAC or 380-415VAC type on request
- Operating frequency: 50-60Hz
- TRMS measurements
- HIGH and LOW measurement storage
- 1 relay output with 1 changeover contact (SPDT) for DMK...R1 only
- Housing: flush mount 96x48mm / 3.8x1.9in
- Terminals: 4mm²
- IEC protection degree: IP54 on front; IP20 at terminals.

DMK 10 - DMK 10 R1

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

DMK 11 - DMK 11 R1

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

DMK 15 - DMK 15 R1

- 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 $\pm 0.25\%$ f.s. ± 1 digit
Current $\pm 0.5\%$ f.s. ± 1 digit
Power $\pm 1\%$ f.s. ± 1 digit.

Control and protection functions

DMK 10 R1

- 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 Ⓜ: 0.5-900.0 seconds.

DMK 11 R1

- 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 Ⓜ: 0.5-900.0 seconds.

DMK 15 R1

- 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 Ⓜ: 0.0-900.0 seconds.

Certifications and compliance

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

Ⓜ Independent adjustable delays.

Flush-mount LED multimeter three phase



DMK 16

Order code	Displayed measurements	Qty per pkg	Wt
		n°	[kg]
DMK 16	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	1	0.350

General characteristics

The DMK 16 multimeter is available with flush-mount housing, 96x48mm/3.8x1.9in size. Measurements are True RMS values and provide for reliable operation even in presence of harmonics.

Operational characteristics

- Auxiliary supply voltage: 220-240VAC standard; 24VAC, 110-127VAC or 380-415VAC type on request
- Operating frequency: 50-60Hz
- True RMS measurements
- Accuracy: Voltage $\pm 0.25\%$ f.s. ± 1 digit
Current $\pm 0.5\%$ f.s. ± 1 digit
- Active energy accuracy: Class 2 (IEC/EN 62053-21 and IEC/EN 62053-23)
- HIGH and LOW measurement storage
- Voltage measurement range: 35-660VAC
- Current measurement range: 0.05-5.75A
- Operating frequency range: 45-65Hz
- Programmable VT ratio: 1.00-500.0
- Programmable CT ratio: 5-10,000
- Housing: flush mount 96x48mm / 3.8x1.9in
- Terminals: 4mm²
- IEC protection degree: IP54 on front; IP20 at terminals.

Certifications and compliance

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

Flush-mount LED multimeter three phase



DMK 16 R1

Order code	Displayed measurements	Output relay	Qty per pkg	Wt
	n°	n°	n°	[kg]
DMK 16 R1①	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 minimum and maximum active power values, phase and total 4 minimum and maximum reactive power values, phase and total 4 minimum and maximum apparent power values, phase and total 2 minimum and maximum power factor values	1	1	0.353

① Connection also to single phase.

General characteristics

The DMK 16 R1 multimeter is available with flush-mount housing, 96x48mm/3.8x1.9in size. Measurements are True RMS values and provide for reliable operation even in presence of harmonics.

Operational characteristics

- Auxiliary supply voltage: 220-240VAC standard; 24VAC, 110-127VAC or 380-415VAC type on request
- Operating frequency: 50-60Hz
- True RMS measurements
- Accuracy: Voltage $\pm 0.25\%$ f.s. ± 1 digit
Current $\pm 0.5\%$ f.s. ± 1 digit
- Active energy accuracy: Class 2 (IEC/EN 62053-21 and IEC/EN 62053-23)
- HIGH and LOW 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 / 3.8x1.9in
- Terminals: 4mm²
- IEC protection degree: 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 ②: 0.0-900.0 seconds.

Certifications and compliance

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

② Independent adjustable delays.

Flush mount LED multimeters non expandable 47 electrical parameters



DMK 2...

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMK 20	Basic version, auxiliary supply 208-240VAC	1	0.434
DMK 21	Version with energy meters included, auxiliary supply 208-240VAC	1	0.477
DMK 22	Version with energy meters and RS485 port included, auxiliary supply 208-240VAC	1	0.477
DMK 25	Version for generating set duty, auxiliary supply 12-24VDC	1	0.350
DMK 26	Version for generating set duty with maximum current demand, voltage and current imbalance, auxiliary supply 12-24VDC	1	0.350

General characteristics

DMK 2... digital multimeters are available with flush-mount housing, 96x96mm/3.8x3.8in size. They monitor and view reliable readings of electrical parameters, even in presence of critical operating conditions, such as voltages and currents with high harmonic content and variable frequency. The total and partial hour counter feature provides an interesting feature for electric panels of emergency generating sets.

The diversified and accurate measurements give the multimeters valuable technical and cost effective advantages respect to traditional analog instrumentation.

DMK2... digital multimeters view 47 electrical parameters:

- Voltage: phase, line and system values
- Battery voltage: 9-32VDC for DMK 25 and DMK 26 only
- Current: phase values
- Power: apparent phase, active and reactive values
- P.F.: power factor per phase
- Frequency (measured voltage frequency)
- HIGH/LOW: instantaneous minimum and maximum values of each phase voltage and current, total active power (ΣW), total reactive power (Σvar) and total apparent power (ΣVA) values
- Total hours: non-volatile clearable log for DMK 20, DMK 25 and DMK 26 only
- Partial hours: non-volatile configurable log for DMK 20, DMK 25 and DMK 26 only
- Active and reactive energy meters for DMK21 and DMK22 only.

Operational characteristics

- Auxiliary supply voltage range:
 - 154-288VAC for DMK 20
 - 177-264VAC for DMK 21-DMK 22
 - 9-32VDC for DMK 25-DMK 26
- Voltage measurement range: 60-830VAC phase-phase
30-480VAC phase-neutral
- Current measurement range: 0.05-6A
- Frequency measurement range: 45-65Hz
- Programmable CT ratio: 1.0-2,000
- Voltage accuracy: Class 0.5 $\pm 0.35\%$ f.s. (830V)
- Current accuracy: Class 0.5 $\pm 0.5\%$ f.s. (6A)
- Active energy accuracy: Class 2
- Non-volatile total and partial hour counter with separate clearing; used as maintenance interval with alarm display in DMK 20 - DMK 25 - DMK 26 only
- HIGH and LOW value functions to read and log instantaneous voltage, current and power values
- Delayed automatic resetting of default measurements
- Averaging function to slow down repetitive fluctuations to obtain more stable readouts
- Current connection in ARON configuration by 2 current transformers (CTs) only
- Single, two, three phase, with or without neutral, and balanced three-phase connection
- TRMS measurements up to 22nd harmonic order
- Housing: flush mount 96x96mm / 3.8x3.8in
- IEC protection degree: IP54 on front; IP 20 at rear.

Certifications and compliance

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

Flush mount LED multimeters non expandable 251 electric parameters



DMK 3...
DMK 40

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMK 30	Basic version, auxiliary supply 100-240VAC / 110-250VDC	1	0.410
DMK 31	Version with 1 relay and 1 static programmable outputs, auxiliary supply 100-240VAC / 110-250VDC	1	0.480
DMK 32	Version with 1 relay and 1 static programmable outputs and RS485 opto-isolated port, auxiliary supply 100-240VAC / 110-250VDC	1	0.490
DMK 32 D048	Version with 1 relay and 1 static programmable outputs and RS485 opto-isolated port, auxiliary supply 24-48VDC	1	0.485
DMK 40	Version with data-logger, RS232 and RS485 opto-isolated ports, auxiliary supply 100-240VAC / 110-250VDC	1	0.470

General characteristics

DMK3... and DMK40 digital multimeters are available with flush-mount housing, 96x96mm/3.8x3.8in size. They comprise excellent features so distorted waveform conditions, such as very disturbed supply lines having voltage and currents with high harmonic content and variable frequency, do not influence the high accuracy of DMK multimeter readouts, because of the rigorous design in addition to the use of the latest generation of microprocessor technology. Measurement of the phase angle ($\cos\phi$) in addition to power factor, harmonic analysis and HIGH-LOW-MAX DEMAND functions are just a few of those which are difficult to find on higher category equipment. The DMK 40 version includes a reliable data-logger system, extremely easy to use. DMK 3... and DMK 40 multimeters can display 251 measurements; a few of these are listed below:

- Voltage: phase, line and system values
- Current: phase and system values
- Power: active, reactive, apparent phase and total values
- Energy: import, export, active and reactive values
- P.F.: power factor per phase
- $\cos\phi$: angle displacement, i.e. power factor related to the harmonic fundamental only
- Frequency of measured voltage value
- Harmonics (HARM.): residual and total harmonic content for each harmonic order up to the 22° per phase, both for voltage and current values
- HIGH / LOW: maximum / minimum values of phase voltage and current and ΣW , Σvar and ΣVA power
- Maximum demand (MAX): maximum current and total active power values, both calculated on programmable integration time.

The technical features of the DMK 40 data-logger are:

- 2Mbyte (MB) non-volatile memory for data logging
- Real Time Clock (RTC) with replaceable back-up lithium battery
- Sampling time, 1s to 24h configurable
- Number of sampling measurements, 1 to 32 configurable at a time
- Communication protocols: Modbus®-RTU and Modbus®-ASCII
- Data logging of one electrical parameter in continuous format or with begin-end by programmable thresholds
- Suspension of data acquisition at full memory or refreshing oldest data.

Operational characteristics

- Operating auxiliary voltage range: 85-265VAC / 93.5-300VDC; 18-70VDC for DMK32 D048
- Voltage measurement range: 20-830VAC phase-phase; 10-480VAC phase-neutral
- VT ratio programming: 1.0-5,000
- Current measurement range: 0.02-6A
- Frequency measurement range: 45-65Hz
- CT ratio programming: 1.0-2,000
- Voltage accuracy: $\pm 0.25\%$ f.s. (830V)
- Current accuracy: $\pm 0.35\%$ f.s. (6A)
- Frequency and harmonic distortion accuracy: ± 1 digit
- Active energy accuracy: Class 1
- HIGH and LOW value functions to detect and log instantaneous voltage, current and power values
- Averaging function to slow down repetitive fluctuations to obtain more stable readouts
- Current connection in ARON configuration by 2 current transformers only
- Single, two, three phase, with or without neutral, and balanced three-phase connection by 1 current transformer only
- Usage with voltage transformers for voltages >830VAC
- Operating frequency range: 45-65Hz
- True RMS measurements up to 22° harmonic order, class 1 accuracy
- Power factor and $\cos\phi$ measurements
- Voltage and current harmonic analysis per phase up to 22° harmonic order
- Active energy meters (import-export)
- Reactive energy meters (import-export)
- Housing: flush mount 96x96mm / 3.8x3.8in
- IEC protection degree: IP54 on front; IP 20 at rear.

Certifications and compliance

Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Multimeters. Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, EN 55011, UL 508, CSA C22.2 n° 14.

Modular LCD multimeters non expandable



DMG 200 - DMG 210

new

new

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMG 200	Graphic 128x80 pixel LCD, auxiliary supply 100-240VAC/110-250VDC. Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.294
DMG 200 L01	Graphic 128x80 pixel LCD, auxiliary supply 100-240VAC/110-250VDC. Multilanguage: English, Czech, Polish, German and Russian	1	0.294
DMG 210	Graphic 128x80 pixel LCD, RS485 port included, auxiliary supply 100-240VAC/110-250VDC. Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.300
DMG 210 L01	Graphic 128x80 pixel LCD, RS485 port included, auxiliary supply 100-240VAC/110-250VDC. Multilanguage: English, Czech, Polish, German and Russian	1	0.300

General characteristics

DMG 200... and DMG 210 digital multimeters are available with a modular housing, 4-module size, and are equipped with a graphic backlit 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.

The DMG 210 version is supplied with RS485 opto-isolated built-in interface.

Main measurements and functions include:

- 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
- Total harmonic distortion (THD) of voltage and current values
- Energy meters for active, reactive and apparent values
- Hour counter for programmable total and partial hours.

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
- Current measurement range with CT up to 10,000A
- Frequency measurement range: 45-66Hz
- True RMS measurements for voltage and current values
- Accuracy:
 - Voltage: $\pm 0.5\%$ (50-830VAC)
 - Current: $\pm 0.5\%$ (0.1-1.1 In)
 - Power: $\pm 1\%$ f.s.
 - Frequency: 0.05%
 - Active energy: Class 1 (IEC/EN 62053-21)
 - Reactive energy: Class 2 (IEC/EN 62053-23)
- Non-volatile memory for data storage
- Communication protocol Modbus®-RTU and ASCII for DMG 210 only
- Programming and remote control by software for DMG 210 only
- Modular DIN 43880 housing, 4-module
- IEC protection degree: IP40 on front; IP20 at terminals.

Certifications and compliance

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

Modular LCD multimeters expandable



DMG 300



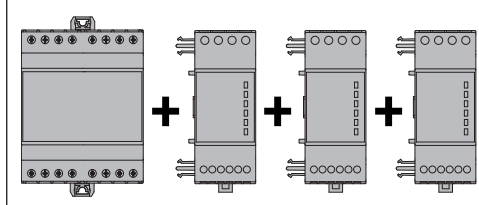
Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMG 300	Graphic 128x80 pixel LCD, harmonic analysis, auxiliary supply 100-240VAC/110-250VDC. Multilanguage: Italian, English, French, Spanish and Portuguese	1	0.320
DMG 300 L01	Graphic 128x80 pixel LCD, harmonic analysis, auxiliary supply 100-240VAC/110-250VDC. Multilanguage: English, Czech, Polish, German and Russian	1	0.320



EXM 10 10

Order code	Description
DMG 300 EXPANSION MODULES. Inputs and outputs.	
EXM10 00	2 digital inputs and 2 static outputs, opto-isolated
EXM10 01	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC
Communication ports.	
EXM10 10	Opto-isolated USB interface
EXM10 11	Opto-isolated RS232 interface
EXM10 12	Opto-isolated RS485 interface
EXM10 13	Ethernet interface with Web server function
EXM10 20	Opto-isolated RS485 interface and 2 relay outputs rated 5A 250VAC
EXM10 30	Data storage, clock-calendar (RTC) with backup battery for data logging

Maximum combination



General characteristics

DMG300 digital multimeters are available with a modular housing, 4-module size, and are equipped with a graphic backlit 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 EXM10 series interfaced by infrared beam.

Main measurements and functions include:

- 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: pulse counting for water, gas, etc. consumption 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
- True RMS measurements for voltage and current values
- Accuracy:
 - Voltage: $\pm 0.2\%$ (50-830VAC)
 - Current: $\pm 0.2\%$ (0.1-1.1 In)
 - Power: $\pm 0.5\%$ f.s.
 - Power factor: $\pm 0.5\%$
 - Frequency: 0.05%
 - Active energy: Class 0.5S (IEC/EN 62053-22)
 - Reactive energy: Class 2 (IEC/EN 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)
- Modular DIN 43880 housing, 4-module
- IEC protection degree: IP40 on front; IP20 at terminals.

EXM10 series expansion modules and accessories

See pages 22-28 and 29.

Certifications and compliance

Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Multimeter.

Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 508, CSA C22.2 n° 14.

Modular LED instruments single phase



DMK 80

DMK 80 R1



DMK 81

DMK 81 R1



DMK 82

DMK 82



DMK 83

DMK 83 R1



DMK 84

DMK 84 R1

Order code	Displayed measurements	Output relay	Qty per pkg	Wt [kg]
	n°	n°	n°	[kg]

Voltmeter.

DMK 80	1 voltage value	–	1	0.237
DMK 80 R1	1 max voltage value 1 min voltage value	1	1	0.268

Ammeter.

DMK 81	1 current value	–	1	0.237
DMK 81 R1	1 max current value 1 min current value	1	1	0.268

Voltmetro oppure amperometro.

DMK 82	1 voltage or current value 1 maximum voltage or current value 1 minimum voltage or current value	–	1	0.241
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Frequency meter.

DMK 83	1 frequency value	–	1	0.237
DMK 83 R1	1 max frequency value 1 min frequency value	1	1	0.268

Cosphi meter.

DMK 84	1 cosphi value	–	1	0.241
DMK 84 R1	1 power factor value	1	1	0.272

❶ The DMK82 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 with control and protection functions.

General characteristics

The DMK 8... instruments are available with modular housing, 3-module size. Measurements are True RMS values and provide for reliable operation even in presence of harmonics.

Operational characteristics

- Auxiliary supply voltage: 220-240VAC standard; 24VAC, 110-127VAC or 380-415VAC type on request
- Operating frequency: 50-60Hz
- True RMS measurements
- HIGH and LOW measurement storage
- 1 output relay with 1 changeover contact for DMK...R1 version only
- Terminals: 4mm²
- Modular DIN 43880 housing, 3 modules
- Degree of protection: IP40 on front; IP20 on terminals.

DMK 80 - DMK 80 R1

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

DMK 81 - DMK 81 R1

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

DMK 82

- Voltage measurement range: 15-660VAC
- 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 $\pm 0.25\%$ f.s. ± 1 digit
Current $\pm 0.5\%$ f.s. ± 1 digit

DMK 83 - DMK 83 R1

- Measurement input: 15-660VAC
- Frequency measurement range: 50-60Hz $\pm 10\%$
- Measurement accuracy: ± 1 digit
- Accuracy: $1^\circ \pm 1$ digit

DMK 84 - DMK 84 R1

- Cosphi measurement error: $\pm 0.5^\circ \pm 1$ digit
- Cosphi measurement in 4 quadrants
- Accuracy: $\pm 1^\circ$ digit

Control and protection functions

DMK 80 R1

- 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, phase loss ❸: 0.0-900.0 seconds.

DMK 81 R1

- 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 ❸: 0.0-900.0 seconds.

DMK 83 R1

- Maximum frequency: OFF/101-110%
- Minimum frequency: OFF/90-99%
- Time delay for min-max frequency ❸: 0.5-900.0 seconds.

DMK 84 R1

- Minimum-maximum cos ϕ thresholds in 4 quadrants
- Minimum-maximum PF thresholds in 4 quadrants
- Delay time for max or min threshold ❸: 1-9,000 seconds.

Certifications and compliance

Certifications obtained: GOST.
Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3.

❸ Independent adjustable delays.

Modular LED instruments three phase



DMK 70



DMK 70 R1



DMK 71



DMK 71 R1



DMK 75



DMK 75 R1

Order code	Displayed measurements	Output relay	Qty per pkg	Wt [kg]
	n°	n°	n°	[kg]

Voltmeter.

DMK 70	3 phase voltage values	–	1	0.233
DMK 70 R1 ^②	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.

DMK 71	3 phase current values	–	1	0.241
DMK 71 R1 ^②	3 max phase current values 3 min phase current values	1	1	0.272

Combined voltmeter, ammeter and wattmeter.

DMK 75	3 phase voltage values	–	1	0.271
DMK 75 R1 ^②	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

① Connection also to single phase.

② Relay output with control and protection functions.

General characteristics

The DMK 7... instruments are available with modular housing, 3-module size. Measurements are True RMS values and provide for reliable operation even in presence of harmonics.

Operational characteristics

- Auxiliary supply voltage: 220-240VAC standard; 24VAC, 110-127VAC or 380-415VAC type on request
- Operating frequency: 50-60Hz
- True RMS measurements
- HIGH and LOW measurement storage
- 1 output relay with 1 changeover contact for DMK...R1 version only
- Terminals: 4mm²
- Modular DIN 43880 housing, 3-module
- Degree of protection: IP40 on front; IP20 on terminals.

DMK 70 - DMK 70 R1

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

DMK 71 - DMK 71 R1

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

DMK 75 - DMK 75 R1

- 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 $\pm 0.25\%$ f.s. ± 1 digit
Current $\pm 0.5\%$ f.s. ± 1 digit

Control and protection functions

DMK 70 R1

- 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 ^③: 0.0-900.0 seconds.

DMK 71 R1

- 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 ^③: 0.0-900.0 seconds.

DMK 75 R1

- 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 ^③: 0.0-900.0 seconds.

Certifications and compliance

Certifications obtained: GOST.
Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3.

^③ Independent adjustable delays.

Starter kits



DMKKIT 75 060
DMKKIT 75 080
DMKKIT 75 100



DMKKIT 75 150
DMKKIT 75 200
DMKKIT 75 250

Order code	Description	Qty per pkg	Wt [kg]
		n°	[kg]
DMKKIT 75 060	Kit composed of one DMK 75 instrument and three DM1T 0060 current transformers	1	0.871
DMKKIT 75 080	Kit composed of one DMK 75 instrument and three DM1T 0080 current transformers	1	0.871
DMKKIT 75 100	Kit composed of one DMK 75 instrument and three DM1T 0100 current transformers	1	0.871
DMKKIT 75 150	Kit composed of one DMK 75 instrument and three DM2T 0150 current transformers	1	0.661
DMKKIT 75 200	Kit composed of one DMK 75 instrument and three DM2T 0200 current transformers	1	0.661
DMKKIT 75 250	Kit composed of one DMK 75 instrument and three DM2T 0250 current transformers	1	0.661

Modular LED multimeters non expandable 47 electric parameters



DMK 5...

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMK 50	Basic version, auxiliary supply 208-240VAC	1	0.398
DMK 51	Version with energy meter included, auxiliary supply 208-240VAC	1	0.420
DMK 52	Version with energy meters and RS485 included, auxiliary supply 208-240VAC	1	0.420

General characteristics

DMK 5... digital multimeters are available with modular housing, 6-module size. They monitor and view reliable readings of electric parameters, even in presence of critical operating conditions, such as voltages and currents with high harmonic content and variable frequency.

The total and partial hour counter feature provides an interesting feature for electric panels of emergency generating sets.

The diversified and accurate measurements give the multimeters valuable technical and cost effective advantages respect to traditional analog instrumentation. The digital multimeters DMK 5... view 47 electric parameters:

- Voltage: phase, line and system values
- Current: phase values
- Power: apparent phase, active and reactive values
- P.F.: power factor per phase
- Frequency of measured voltage value
- HIGH/LOW: instantaneous minimum and maximum values of each phase voltage and current, total active power (ΣW), total reactive power (Σvar) and total apparent power (ΣVA) values
- Total hours: non-volatile clearable log for DMK 50 only
- Partial hours: non-volatile configurable log for DMK 50 only
- Active and reactive energy meters for DMK 51 and DMK 52 only.

Operational characteristics

- Auxiliary supply voltage range:
 - 154-288VAC for DMK 50
 - 177-264VAC for DMK 51-DMK 52
- Voltage measurement range: 60-830VAC phase-phase; 30-480VAC phase-neutral
- Frequency measurement range: 45-65Hz
- Programmable CT ratio: 1.0-2,000
- Accuracy: Voltage-class $0.5 \pm 0.35\%$ f.s. (830V)
Current-class $0.5\% \pm 0.5\%$ f.s. (6A)
- Active energy accuracy: Class 2
- Non-volatile total and partial hour counter with separate clearing; used as maintenance interval with alarm display in DMK 50 only
- HIGH and LOW value functions to read and log instantaneous voltage, current and power values
- Delayed automatic resetting of default measurements
- Averaging function to slow down repetitive fluctuations to obtain more stable readouts
- Current connection in ARON configuration by 2 current transformers (CTs) only
- Single, two, three phase with or without neutral
- True RMS measurements up to 22° harmonic order
- Modular DIN 43880 housing, 6 modules
- IEC degree of protection: IP41 on front; IP 20 on terminals.

Certifications and compliance

Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Multimeters for DMK5... types, in the starter kits as well. Compliant with standards, IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 508, CSA C22.2 n° 14.

Starter kits



DMKKIT 51 060
DMKKIT 51 080
DMKKIT 51 100



DMKKIT 51 150
DMKKIT 51 200
DMKKIT 51 250

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMKKIT 51 060	Kit composed of one DMK 51 multimeter and three DM1T 0060 current transformers	1	1.020
DMKKIT 51 080	Kit composed of one DMK 51 multimeter and three DM1T 0080 current transformers	1	1.020
DMKKIT 51 100	Kit composed of one DMK 51 multimeter and three DM1T 0100 current transformers	1	0.810
DMKKIT 51 150	Kit composed of one DMK 51 multimeter and three DM2T 0150 current transformers	1	0.810
DMKKIT 51 200	Kit composed of one DMK 51 multimeter and three DM2T 0200 current transformers	1	0.810
DMKKIT 51 250	Kit composed of one DMK 51 multimeter and three DM2T 250 current transformers	1	8.210

Modular LED multimeters non expandable 251 electric parameters



DMK 6...

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMK 60	Basic version, auxiliary supply 100-240VAC/110-250VDC	1	0.290
DMK 61	Version with 1 relay and 1 static programmable outputs, auxiliary supply 100-240VAC / 110-250VDC	1	0.300
DMK 62	Version with 1 relay and 1 static programmable outputs, and RS485 opto-isolated ports, auxiliary supply 100-240VAC / 110-250VDC	1	0.320

General characteristics

DMK6... digital multimeters are available with modular housing, 6-module size. They comprise excellent features, superior to devices of the same category currently on the marketplace. Distorted waveform conditions, such as very disturbed electric lines having voltage and currents with high harmonic content and variable frequency, do not influence the high accuracy DMK multimeter readouts because of rigorous design in addition to the use of the latest generation of microprocessor technology. Measurement of the phase angle ($\cos\varphi$) in addition to power factor, harmonics analysis and HIGH-LOW-MAX functions are just a few of those which are difficult to find on higher category equipment.

DMK 6... digital multimeter can display 251 measurements; a few of these are listed below.

- Voltage: phase, line and system values
- Current: phase and system values
- Power: active, reactive, apparent phase and total values
- Energy: import, export, inductive and capacitive values
- P.F.: power factor per phase
- $\cos\varphi$: angle displacement, i.e. power factor related to the harmonic fundamental only
- Frequency of measured voltage value
- Harmonics (HARM.): residual and total harmonic content for each harmonic order up to the 22° per phase, both for voltage and current values
- HIGH / LOW: maximum / minimum values of phase voltage and current and ΣW , Σvar and ΣVA power
- Maximum (MAX): maximum current and total active power values, both calculated on programmable integration time.

Operational characteristics

- Auxiliary supply voltage range: 85-265VAC/93.5-300VDC
- Voltage measurement range: 20-830VAC phase-phase 10-480VAC phase-neutral
- VT ratio programming: 1.0-5,000
- Current measurement range: 0.02-6A
- Frequency measurement range: 45-65Hz
- CT ratio programming: 1.0-2000
- Accuracy: Voltage $\pm 0.25\%$ f.s. (830V)
Current $\pm 0.35\%$ f.s. (6A)
Frequency and harmonic distortion ± 1 digit
- Active energy accuracy: Class 1
- HIGH and LOW value functions to detect and log instantaneous voltage, current and power values
- Averaging function to slow down repetitive fluctuations to obtain more stable readouts
- Current connection in ARON configuration via 2 current transformers only
- Single, two, three phase with or without neutral and balanced three-phase connection via 1 current transformer only
- Usage with voltage transformers for voltages $> 830VAC$
- True RMS measurements up to 22° harmonic order, class 1 accuracy
- Power factor and $\cos\varphi$ measurement
- Voltage and current harmonic analysis per phase up to 22° harmonic order
- Active energy meters (import-export)
- Reactive energy meters (import-export)
- Modular DIN 43880 housing, 6 modules
- IEC degree of protection: IP41 on front; IP 20 on terminals.

Certifications and compliance

Certifications obtained: cULus, GOST.
Compliant with standards, IEC/EN 61010-1, IEC/EN 61000-6-2, CISPR11/EN 55011, UL 508, CSA C22.2 n° 14.

Expansion modules for multimeters and power analyzers



EXP 10...



EXM 10 10

Order code	Description	Qty per pkg	Wt
		n°	[kg]

EXPANSION MODULES FOR DMG 700, DMG 800, DMG 900 and DMG 900 T.
Inputs and outputs.

EXP10 00	4 digital opto-isolated inputs	1	0.060
EXP10 01	4 static opto-isolated outputs	1	0.054
EXP10 02	2 digital inputs and 2 static outputs, opto-isolated	1	0.058
EXP10 03	2 relay outputs rated 5A 250VAC	1	0.050
EXP10 04	2 analog opto-isolated inputs 0/4-20mA or PT100 or 0-10V or 0...±5V for DMG 800, DMG 900, DMG 900T	1	0.056
EXP10 05	2 analog opto-isolated outputs 0/4-20mA or 0-10V or 0...±5V for DMG 800, DMG 900, DMG 900T	1	0.064

Communication ports.

EXP10 10	Opto-isolated USB interface	1	0.060
EXP10 11	Opto-isolated RS232 interface	1	0.040
EXP10 12	Opto-isolated RS485 interface	1	0.050
EXP10 13	Opto-isolated Ethernet interface with webserver function for DMG 800, DMG 900, DMG 900T	1	0.060
EXP10 14	Opto-isolated Profibus-DP interface for DMG 800, DMG 900, DMG 900T	1	0.080
EXP10 15	GPRS/GSM modem for DMG 900, DMG 900T	1	0.080
EXP10 30	Data storage, clock-calendar (RTC) with backup battery for data logging for DMG 800, DMG 900, DMG 900T	1	0.050
EXP10 31	Data storage with Energy Quality (EN 50160), clock-calendar (RTC) with backup battery for data logging for DMG 900 and DMG 900T	1	0.060

EXPANSION MODULES FOR DMG 300.

Inputs and outputs.

EXM10 00	2 digital inputs and 2 static outputs, opto-isolated	1	0.137
EXM10 01	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC	1	0.147

Communication ports.

EXM10 10	Opto-isolated USB interface	1	0.140
EXM10 11	Opto-isolated RS232 interface	1	0.125
EXM10 12	Opto-isolated RS485 interface	1	0.140
EXM10 13	Ethernet interface with Web server function	1	0.140
EXM10 20	Opto-isolated RS485 interface and 2 relay outputs rated 5A 250VAC	1	0.140
EXM 10 30	Data storage, clock-calendar (RTC) with backup battery for data logging	1	0.140

General characteristics

EXP10 and EXM10 series expansion modules increase additional functionality to the DMG series multimeters:

- Digital inputs
- Relay outputs
- Static outputs
- Analog inputs
- PT100 temperature sensor inputs
- Analog outputs
- Communication interface
- Memory log modules.

For additional information, refer to section 26, pages 2 to 5.

Certifications and compliance

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



Software



DMK SW10

Accessories



51 C4



4 PX1



Order code	Description	Qty per pkg	Wt
		n°	[kg]
Software.			
DMK SW	Remote control software for PC ↔ DMK 22/32/40/52/62 and DMG 210/300/700/800/900/900T having Modbus®-RTU and ASCII protocols, complete with 51 C4 connecting cable	1	0.246
DMK SW 10	Data-logger software complete with 51 C2 connecting cable. Remote control and supervision software for PC↔DMK / DMG (as above) having Modbus®-RTU and ASCII protocols, complete with 51 C4 connecting cable	1	0.400
Terminal covers.			
EXM80 04	Sealable set of terminal covers for DMG 200, DMG 210 and DMG 300	1	0.020
Accessories.			
CX 03	GSM quad-band antenna (800/900/1800/1900MHz) for EXP10 15 module	1	0.090
51 C2	PC ↔ multimeter RS232 connecting cable, 1.8m/2yd long	1	0.090
51 C4	PC ↔ 4 PX1 converter drive connecting cable, 1.8m/2yd long	1	0.147
51 C5	Multimeter RS232 ↔ analog modem connecting cable, 1.8m/2yd long	1	0.111
51 C9	4 PX1 ↔ analog modem connecting cable, 1.8m/2yd long	1	0.137
4 PX1	RS232/RS485 converter drive, opto-isolated, 220-240VAC ①	1	0.600
PA 96X48	IP65 front protective cover for DMK 0..., DMK 1...	1	0.048
31 PA96X96	IP54 front protective cover for DMK 2..., DMK 3... and DMK 40	1	0.077

① RS232/RS485 opto-isolated analog modem, 38,400 Baud rate maximum, automatic or manual TRANSMIT line supervision., 220-240VAC ±10% (110-120VAC supply on request).

General characteristics

DMK SW

Remote control software for DMK 22, DMK 32, DMK 40, DMK 52, DMK 62, DMG 210, DMG 300, DMG 700, DMG 800, DMG 900 and DMG 900T.

This software is capable of controlling a maximum of 250 digital multimeters remotely connected to one RS485 bus.

The DMK SW is subdivided into modules which warrant simple and easy use:

- Main synoptic page which includes the most important in-coming data of the various DMK/DMG connected
- Detailed page with data related to the selected DMK/DMG unit
- Data log which consents to store sampled measurements on disk (max 128 measurements)
- Events / alarms log with alarm data acquisition of the various DMKs/DMGs as well as the elaborated analysis
- Trend graphs to control electric parameters status
- Harmonic content analysis bar graph
- Energy count to periodically view energy meters of the various instruments and monitor power usage.

DMK SW 10

Data-logger and remote control for DMK 40 and DMG... with memory modules.

The DMK SW 10 includes the data-logger software and the remote control DMK SW software, two applications with separate installation.

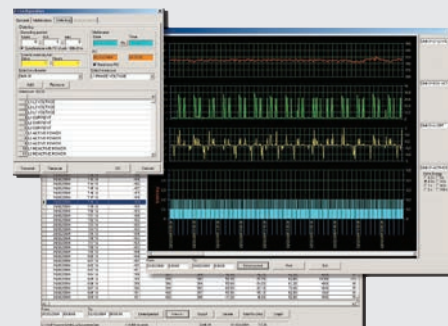
The data-logger software permits:

- To configure multimeter parameters for data logging
- To configure parameters for installation (DMK40 only)
- To view and print acquired data from the multimeter storage memory in table or trend graph format. No data-logger configuration or stored data viewing is obtainable on the unit front
- To download data in ACCESS, EXCEL or TEXT file
- To view all actual electric parameter measurements on a virtual multimeter display (DMK only)
- To program the multimeter clock-calendar (RTC - Real Time Clock) to automatically manage daylight saving time
- To directly connect or via modem to the multimeters.

Reference standards

Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 508, CSA C22.2 n° 14.

Example of remote control software DMK SW and DMK SW 10 viewing



Solid-core



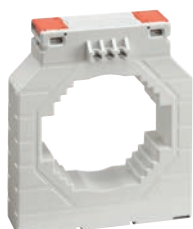
DM1T...



DM2T...



DM3T...



DM4T...



Order code	Primary current	Burden		Qty per pkg	Weight
	I_p	cl. 0.5	cl. 1		
	/5 [A]	[VA]	[VA]	n°	[kg]

For Ø22mm cable.

DM1T 0050	50	—	1.5	1	0.200
DM1T 0060	60	—	2	1	0.200
DM1T 0080	80	—	2.5	1	0.200
DM1T 0100	100	—	2.5	1	0.200
DM1T 0150	150	—	2.5	1	0.200

For Ø23mm cable.

For 30x10mm, 25x12.5mm, 20x15mm busbars.

DM2T 0060	60	—	1	1	0.130
DM2T 0080	80	—	1	1	0.130
DM2T 0100	100	—	1.5	1	0.130
DM2T 0150	150	—	1.5	1	0.130
DM2T 0200	200	—	2.5	1	0.130
DM2T 0250	250	—	2.5	1	0.130
DM2T 0300	300	1.5	3	1	0.130
DM2T 0400	400	2	3	1	0.130

For Ø30mm cable.

For 40x10mm, 30x20mm, 25x25mm busbars.

DM3T 0200	200	—	5	1	0.260
DM3T 0250	250	—	5	1	0.260
DM3T 0300	300	2.5	5	1	0.260
DM3T 0400	400	2.5	5	1	0.260
DM3T 0500	500	2.5	5	1	0.260
DM3T 0600	600	5	10	1	0.260
DM3T 0800	800	5	10	1	0.260
DM3T 1000	1000	5	10	1	0.260

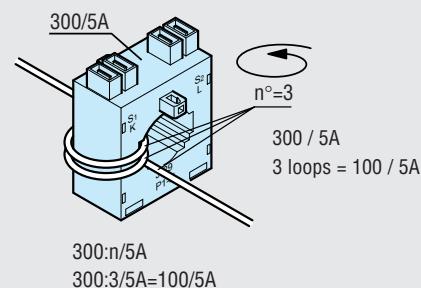
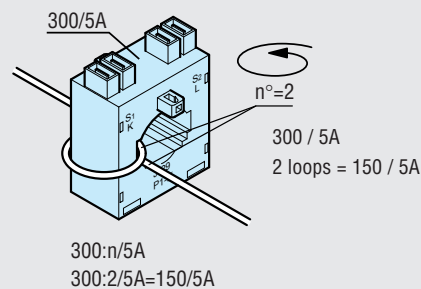
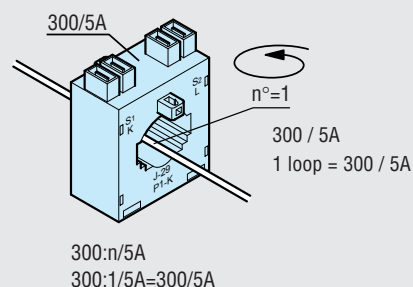
For Ø86mm cable.

For 100x30mm, 80x50mm, 70x60mm busbars.

DM4T 1200	1200	15	30	1	0.700
DM4T 1250	1250	15	30	1	0.760
DM4T 1500	1500	30	30	1	0.760
DM4T 1600	1600	30	30	1	0.800
DM4T 2000	2000	45	45	1	0.840
DM4T 2500	2500	45	45	1	0.900
DM4T 3000	3000	45	45	1	0.900
DM4T 3500	3500	50	50	1	0.900
DM4T 4000	4000	50	50	1	0.900

General characteristics

The DM... series current transformers (CT) are installed in electric systems to reduce the line current to a secondary value of 5A, which is compatible with current inputs of digital multimeters or protection relays. These are without primary winding and are used for high primary current values from 50A upward. The number of loops of the primary cable does not modify the accuracy but converts the primary current value proportional to secondary current.



Operational characteristics

- Operating frequency: 50-60Hz
- Secondary output current: 5A
- Overload withstand: 120% I_p
- IEC rated insulation voltage U_i : 720V
- IEC rated short-time thermal current I_{th} : 40-60 I_{pn} for 1 second
- IEC rated dynamic current I_{dyn} : 2.5 I_{th} for 1 second
- Insulation (dry type): class E
- IEC degree of protection: IP30
- Ambient conditions
 - Operating temperature: -25 ... +50°C
 - Storage temperature: -40 ... +80°C.
 - Relative humidity, non condensing: 90%.

Reference standards

Compliant with standards: IEC/EN 60044-1.

Split-core



DM1TA...



DM2TA...



DM3TA...



DM4TA...



Order code	Primary current Ip	Burden		Qty per pkg	Weight
		cl. 0.5	cl. 1		
	/5 [A]	[VA]	[VA]	n°	[kg]
For 50x60mm busbar.					
DM1TA 0250	250	1	2	1	0.900
DM1TA 0300	300	1.5	3	1	0.900
DM1TA 0400	400	1.5	3	1	0.900
DM1TA 0500	500	2.5	5	1	0.900
DM1TA 0600	600	2.5	5	1	0.900
DM1TA 0750	750	3	6	1	0.900
DM1TA 0800	800	3	7.5	1	0.900
DM1TA 1000	1000	5	10	1	0.900
For 80x80mm busbar.					
DM2TA 0250	250	1	2	1	1.050
DM2TA 0300	300	1.5	3	1	1.050
DM2TA 0400	400	1.5	3	1	1.050
DM2TA 0500	500	2.5	5	1	1.050
DM2TA 0600	600	2.5	5	1	1.050
DM2TA 0750	750	3	6	1	1.050
DM2TA 0800	800	3	7.5	1	1.050
DM2TA 1000	1000	5	10	1	1.050
For 80x120mm busbar.					
DM3TA 0500	500	—	4	1	1.250
DM3TA 0600	600	—	5	1	1.250
DM3TA 0750	750	2.5	6	1	1.250
DM3TA 0800	800	3	7.5	1	1.250
DM3TA 1000	1000	5	10	1	1.250
DM3TA 1200	1200	6	12.5	1	1.250
DM3TA 1250	1250	7.5	15	1	1.250
DM3TA 1500	1500	8	17	1	1.250
For 80x160mm busbar.					
DM4TA 2000	2000	15	20	1	3.160
DM4TA 2500	2500	15	20	1	3.340
DM4TA 3000	3000	20	25	1	3.500
DM4TA 4000	4000	20	25	1	3.760

General characteristics

The DM... series current transformers (CT) are installed in electric systems to reduce the line current to a secondary value of 5A, which is compatible with current inputs of digital multimeters or protection relays. These are without primary winding and are used for high primary current values from 250A upward.

Operational characteristics

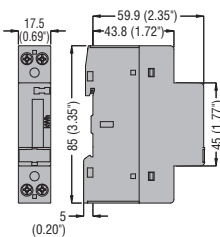
- Operating frequency: 50-60Hz
- Secondary output current: 5A
- Overload withstand: 120% Ip
- IEC rated insulation voltage Ui: 720V
- IEC rated short-time thermal current Ith: 40-60 Ipn for 1 second
- IEC rated dynamic current Idyn: 2.5 Ith for 1 second
- Insulation (dry type): class E
- IEC degree of protection: IP30
- Ambient conditions
 - Operating temperature: -25 ... +50°C
 - Storage temperature: -40 ... +80°C.
 - Relative humidity, non condensing: 90%.

Reference standards

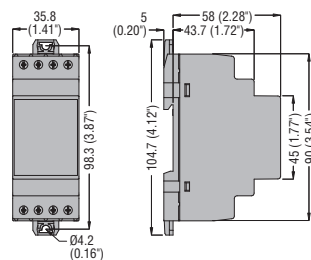
Compliant with standards: IEC/EN 60044-1.

ENERGY METERS

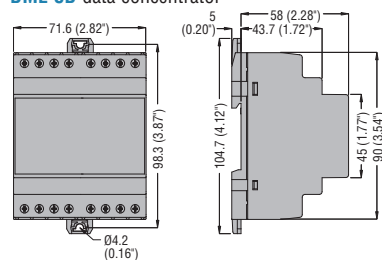
DME M100... mechanical meter
DME D100... - **ME D110...** digital meters



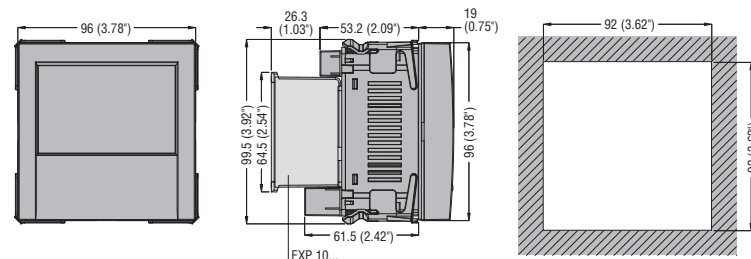
DME D120 T1... digital meter



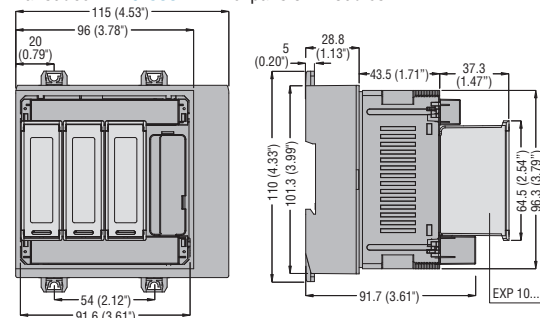
DME D300 T2... - **DME D310 T2...** digital meters
DME CD data concentrator



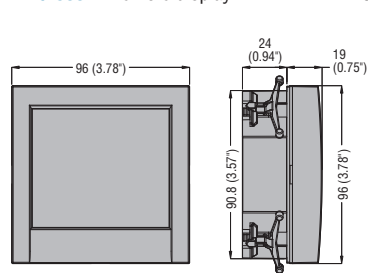
DMG 700 - **DMG 800...** - **DMG 900...** with expansion modules **EXP...**



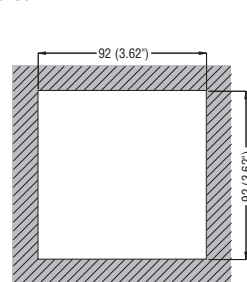
Transducer **DMG 900T** with expansion modules **EXP...**



DMG 900RD remote display

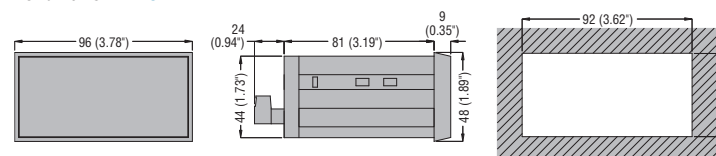


Cutout

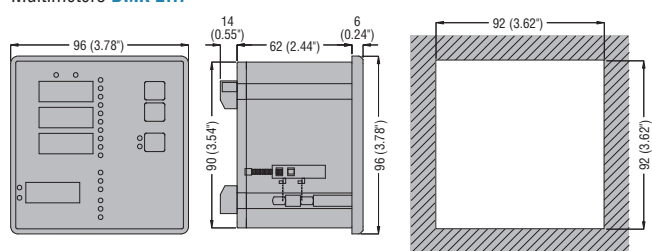


DIGITAL METERING INSTRUMENTS

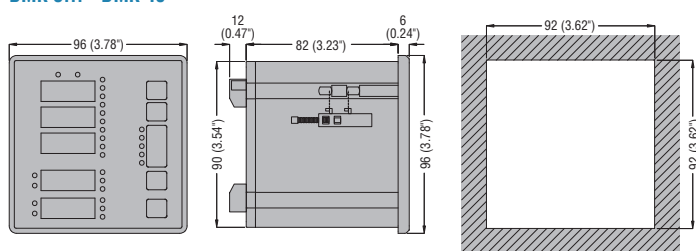
Instruments **DMK 0...** - **DMK 1...**



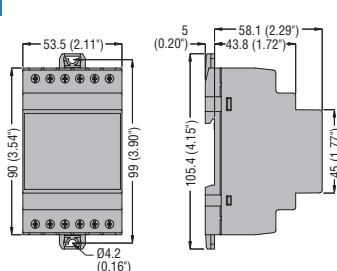
Multimeters **DMK 2...**



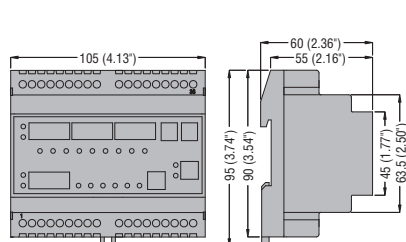
Multimeters **DMK 3...** - **DMK 40**



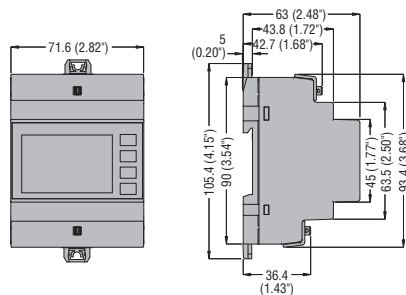
Instruments **DMK 7...** - **DMK 8...**



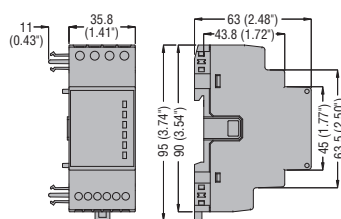
Multimeters **DMK 5...** - **DMK 6...**



MULTIMETERS **DMG 200 - DMG 210 - DMG 300**

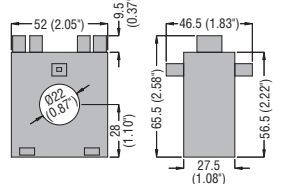


EXPANSION MODULES **EXM...**

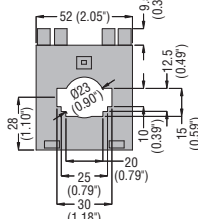


CURRENT TRANSFORMERS

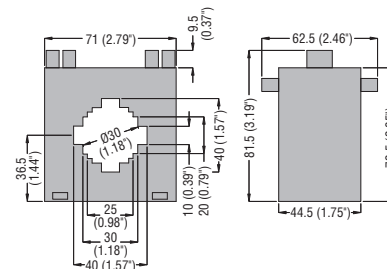
Solid core **DM1T...**



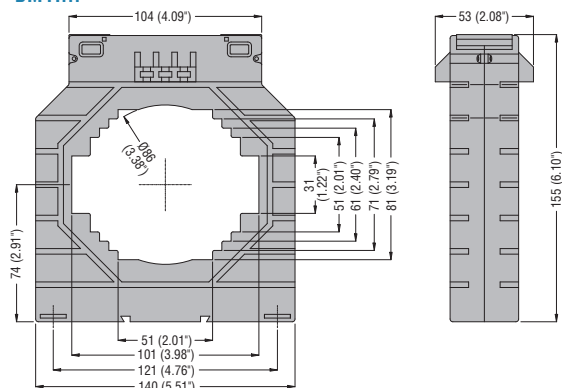
DM2T...



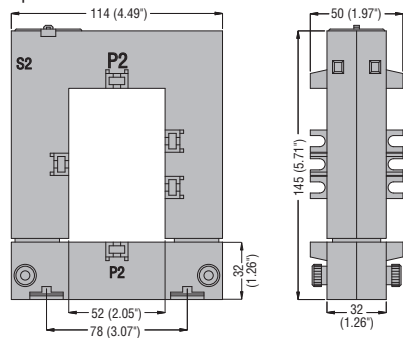
DM3T...



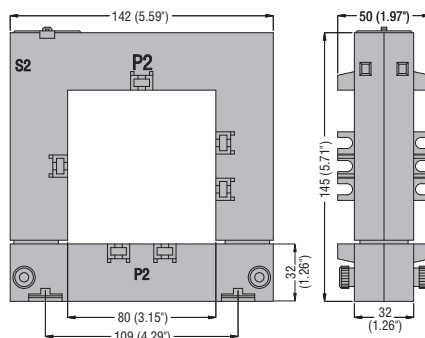
DM4T...



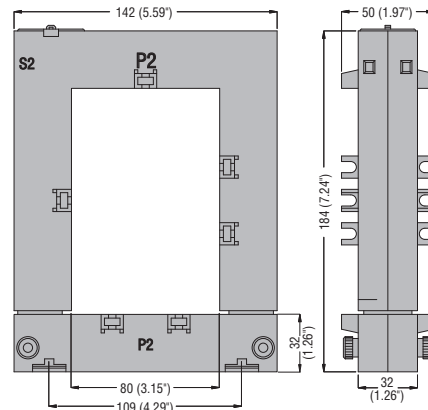
Split core **DM1TA...**



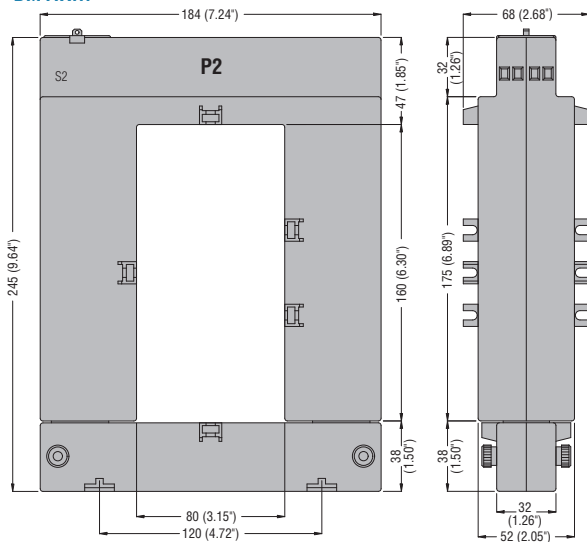
DM2TA...



DM3TA...

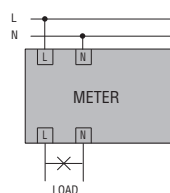


DM4TA...

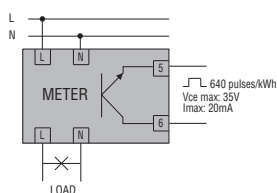


ENERGY METERS

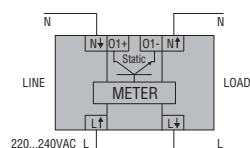
Mechanical **DME M100**



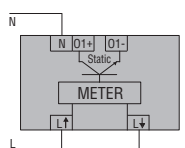
DME M100 T1



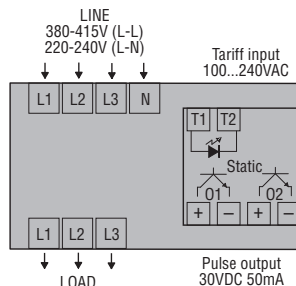
Digital **DME D100 T1... - DME D110 T1...**



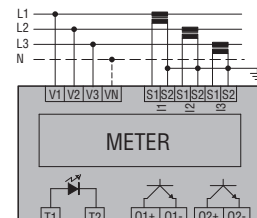
DME D120 T1...



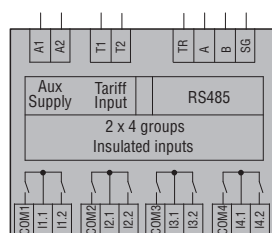
DME D300 T2...



DME D310 T2...



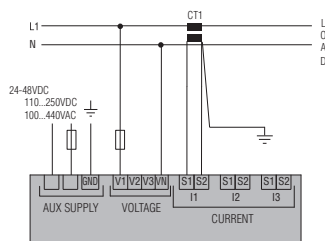
DME CD data concentrator



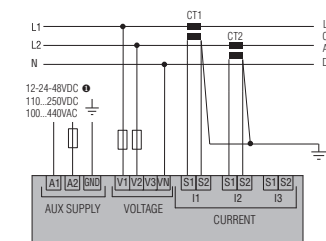
MULTIMETERS

DMG 700 - DMG 800...

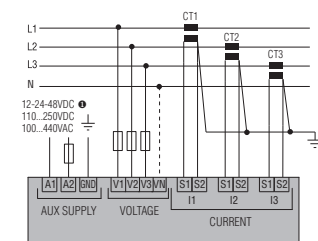
Single phase



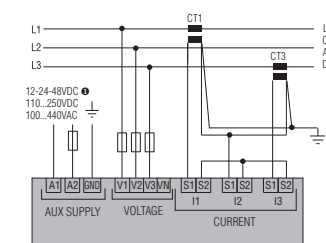
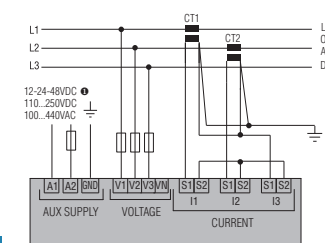
Two phase



Three phase with or without neutral



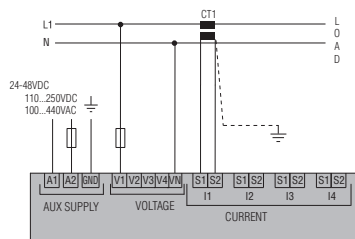
Three phase without neutral with ARON connection



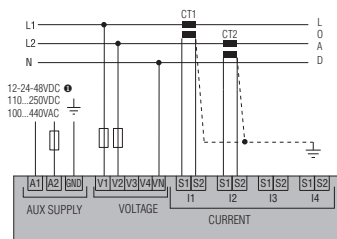
● For DMG 800 D048 only.

POWER ANALYZERS DMG 900...

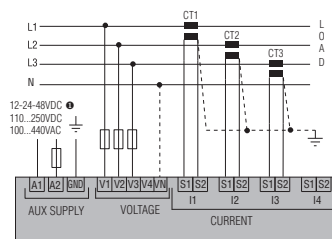
Single phase



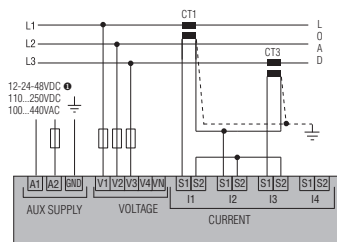
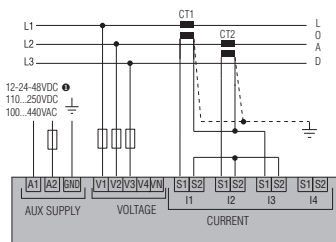
Two phase



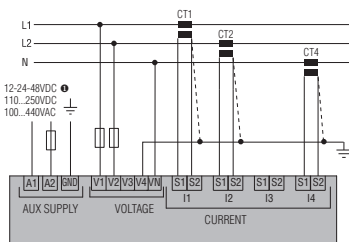
Three phase with or without neutral



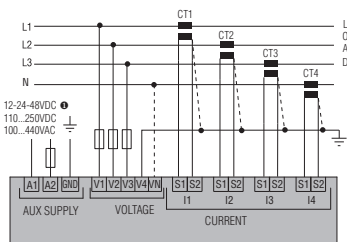
Three phase without neutral with ARON connection



Two phase with neutral. Measurement of neutral current and neutral-earth voltage



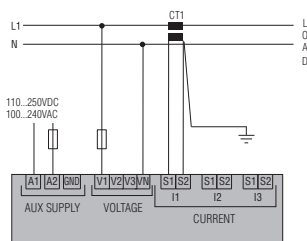
Three phase with neutral. Measurement of neutral current and neutral-earth voltage



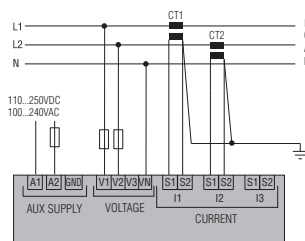
⚡ For DMG 900... D048 only.

MULTIMETERS DMG 200 - DMG 210 - DMG 300

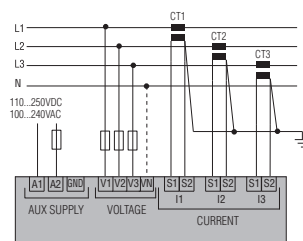
Single phase



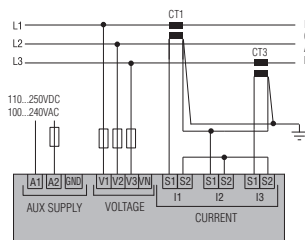
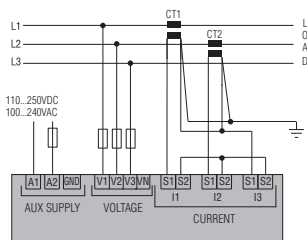
Two phase



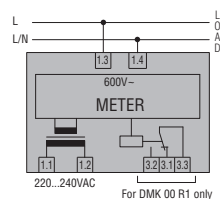
Three phase with or without neutral



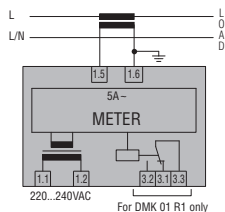
Three phase without neutral with ARON connection



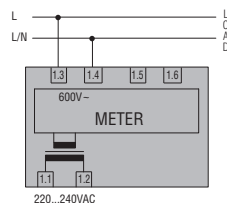
INSTRUMENTS DMK 00 - DMK 00 R1



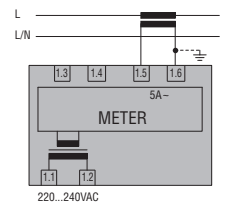
DMK 01 - DMK 01 R1



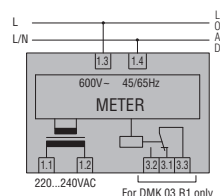
DMK 02 Voltmeter



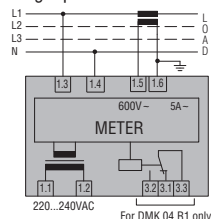
Ammeter



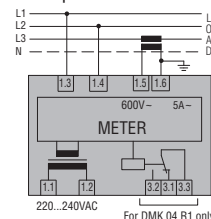
DMK 03 - DMK 03 R1



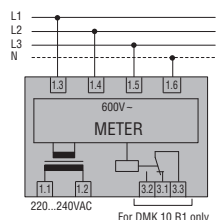
DMK 04 - DMK 04 R1 Single phase



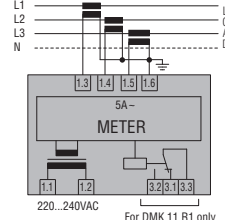
Three phase



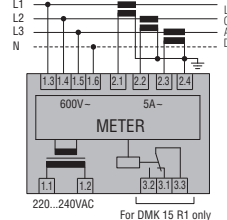
DMK 10 - DMK 10 R1



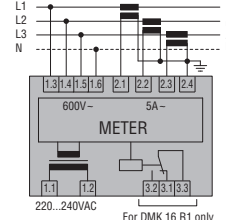
DMK 11 - DMK 11 R1



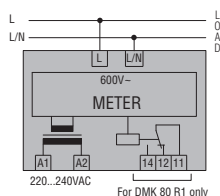
DMK 15 - DMK 15 R1



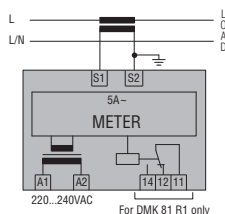
DMK 16 - DMK 16 R1



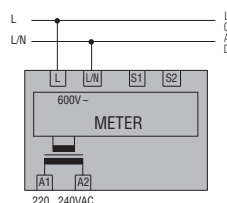
DMK 80 - DMK 80 R1



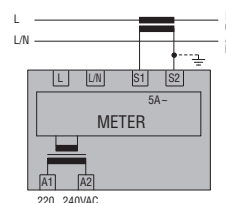
DMK 81 - DMK 81 R1



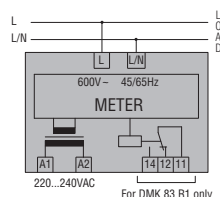
DMK 82 Voltmeter



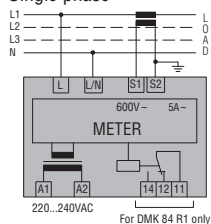
Ammeter



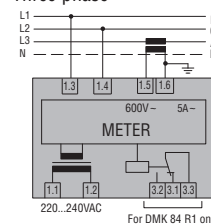
DMK 83 - DMK 83 R1



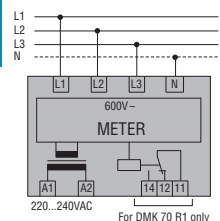
DMK 84 - DMK 84 R1 Single phase



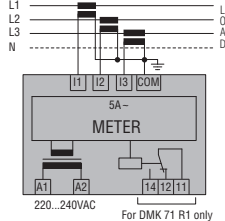
Three phase



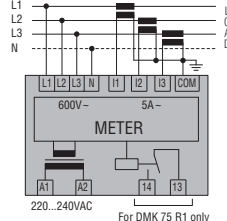
DMK 70 - DMK 70 R1



DMK 71 - DMK 71 R1

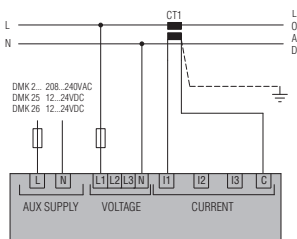


DMK 75 - DMK 75 R1

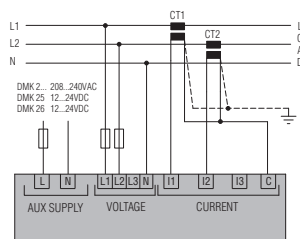


MULTIMETERS DMK2...

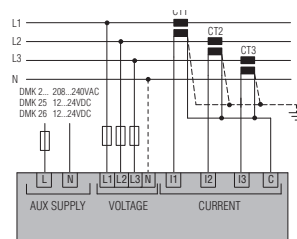
Single phase



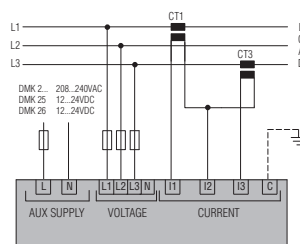
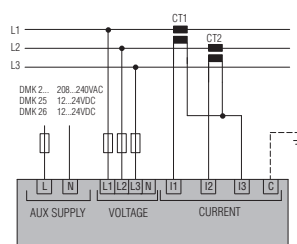
Two phase



Three phase with or without neutral

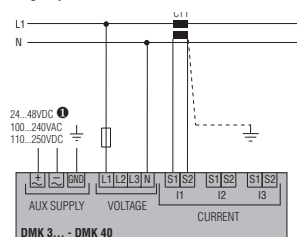


Three phase without neutral with ARON connection

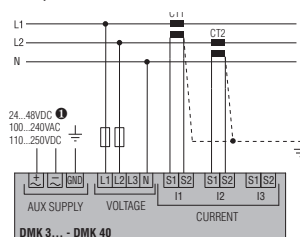


DMK3... - DMK40 - DMK6...

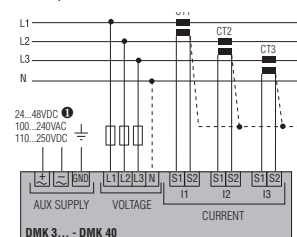
Single phase



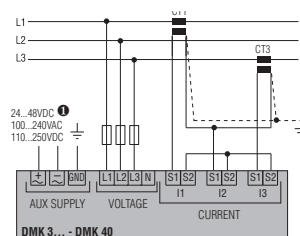
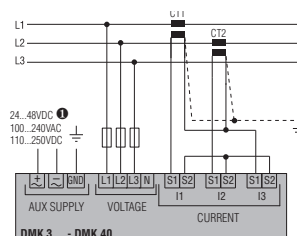
Two phase



Three phase with or without neutral



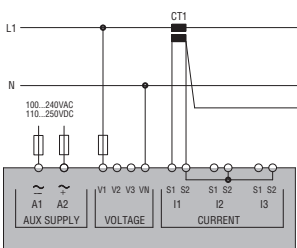
Three phase without neutral with ARON connection



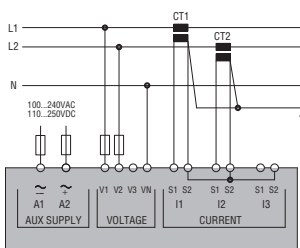
① For DMK 32 D048 only.

DMK5...

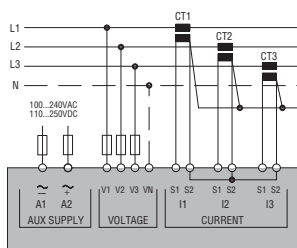
Single phase



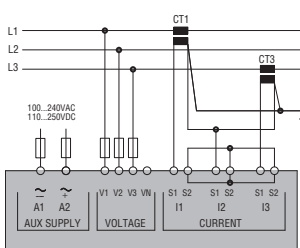
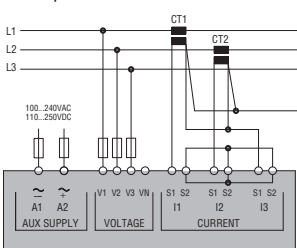
Two phase



Three phase with or without neutral



Three phase without neutral with ARON connection



TYPE	DME M100...	DME D100 T1	DME D100 T1 A120	DME D100 T1 MID	
	Single phase mechanical	Single phase digital	Single phase digital	Single phase MID certified	
AUXILIARY SUPPLY					
Rated voltage Ue	230VAC	220...240VAC	110...120VAC	230VAC	
Operating voltage range	184-253VAC	187-264VAC	93-132VAC	187-264VAC	
Rated frequency	50/60Hz	50/60Hz	60Hz	50Hz	
Maximum power consumption	<7VA		7VA		
Maximum power dissipation	–		0.45W		
CURRENT					
Maximum current I _{max}	32A		40A		
Minimum current I _{min}	–		0.25A		
Rated current I _{ref} /I _b	5A		5A		
Start current I _{st}	20mA		20mA		
Transition current I _{tr}	–		0.5A		
ACCURACY					
Active energy (per IEC/EN 62053-21)	Class 1		Class 1	Class B (per EN 50470-3)	
OUTPUTS					
LED rate	640 flashes/kWh		1000 flashes/kWh		
Pulse rate	640 pulses/kWh (V _{ce} =35V I _{max} =20mA) DME M...T1 only		1000 pulses/kWh		
Pulse duration	–		30ms		
STATIC OUTPUTS					
Pulse rate	–		10 pulses/kWh		
Pulse duration	–		100ms		
External voltage	–		10-30VDC		
Maximum current	–		50mA		
INSULATION					
Rated insulation voltage U _i	–		250VAC		
Rated impulse withstand voltage U _{imp}	–		6kV		
Power frequency withstand voltage	–		4kV		
SUPPLY/MEASUREMENT CONNECTION CIRCUIT					
Type of terminals	Fixed		Fixed		
Conductor section min - max	2.5-6mm ²		1.5-10mm ² (16-6 AWG)		
Maximum tightening torque	1.2Nm		1.5Nm (14lbin)		
PULSE OUTPUT CONNECTION					
Type of terminals	Fixed		Fixed		
Conductor section min-max	1-1.5mm ² for DME M100 T1 only		0.2-4mm ² (24-12 AWG)		
Maximum tightening torque	0.6Nm		0.8Nm (7lbin)		
AMBIENT CONDITIONS					
Operating temperature	-25...+55°C		-25...+55°C		
Storage temperature	-30...+80°C		-25...+70°C		
Relative humidity	–		<80%		
Maximum pollution degree	2		2		
Mechanical environment	–	–	–	Class M1	
Magnetic environment	–	–	–	Class E1	
HOUSING					
Material	Polyamide		Polyamide		

	DME D110 T1	DME D110 T1 A120	DME D110 T1 MID	DME D120 T1	DME D120 T1 A120	DME D120 T1 MID
	Single phase digital	Single phase digital	Single phase MID certified	Single phase digital	Single phase digital	Single phase MID certified
	220-240VAC	110-120VAC	230VAC	220-240VAC	110-120VAC	230VAC
	187-264VAC	93-132VAC	187-264VAC	187-264VAC	93-132VAC	187-264VAC
	50/60Hz	60Hz	50Hz	50/60Hz	60Hz	50Hz
	7VA			7VA		
	0.45W			0.45W		
	40A			63A		
	0.25A			0.5A		
	5A			10A		
	20mA			40mA		
	0.5A			1A		
	Class 1		Class B (per EN 50470-3)	Class 1		Class B (per EN 50470-3)
	1000 flashes/kWh			1000 flashes/kWh		
	1000 pulses/kWh			1000 pulses/kWh		
	30ms			30ms		
	1-10-100-1000 pulses/kWh programmable			1-10-100-1000 pulses/kWh programmable		
	100ms			100ms		
	10-30VDC			10-30VDC		
	50mA			50mA		
	250VAC			250VAC		
	6kV			6kV		
	4kV			4kV		
	Fixed			Fixed		
	1.5...10mm ² (16...6AWG)			2.5...16mm ² (14...6AWG stranded; 14...10AWG solid)		
	1.5Nm (14lbin)			2Nm (26.5lbin)		
	Fixed			Fixed		
	0.2...4mm ² (24...12AWG)			0.5...4mm ² (20...11AWG)		
	0.8Nm (7lbin)			1.3Nm (12.1lbin)		
	-25...+55°C			-25...+55°C		
	-25...+70°C			-25...+70°C		
	<80%			<80%		
	2			2		
	-	-	Class M1	-	-	Class M1
	-	-	Class E1	-	-	Class E1
	Polyamide			Polyamide		

Metering instruments and current transformers

Technical characteristics Three-phase energy meters

TYPE	DME D300 T2		DME D300 T2 MID		DME D310 T2		DME D310 T2 MID	
	3 phase with neutral		3 phase with neutral		3 phase c/w and w/o neutral		3 phase c/w and w/o neutral	
AUXILIARY SUPPLY								
Rated voltage Ue	220-240VAC phase-neutral 380-415VAC phase-phase		230VAC phase-neutral 400VAC phase-phase		220-240VAC phase-neutral 380-415VAC phase-phase		230VAC phase-neutral 400VAC phase-phase	
Voltage range	187-264VAC phase-neutral 323-456VAC phase-phase							
Rated frequency	50/60Hz		50Hz		50/60Hz		50Hz	
Maximum power consumption	20VA				2.1VA			
Maximum power dissipation	1.35W				0.8W			
CURRENT								
Maximum current Imax	63A				5A			
Minimum current Imin	0.5A				0.05A			
Rated current Iref/Ib	10A				5A			
Start current Ist	40mA				0.01A			
Transition current It)	1A				0.25A			
ACCURACY								
Active energy (per IEC/EN 62053-21)	Class 1		Class B (per EN 50470-3)		Class 1		Class B (per EN 50470-3)	
TARIFF CIRCUIT INPUT								
Rated voltage Uc	100-240VAC				100-240VAC			
Voltage range	85-264VAC				85-264VAC			
Frequency	50/60Hz				50/60Hz			
Maximum power consumption	0.25VA				0.25VA			
Maximum power dissipation	0.18W				0.18W			
OUTPUTS								
LED rate	1000 flashes/kWh				10000 flashes/kWh			
Pulse rate	1000 pulses/kWh				10000 pulses/kWh			
Pulse duration	30ms				30ms			
STATIC OUTPUTS								
Pulse rate	Programmable 1-10-100-1000 pulses/kWh				Programmable 0.1-1-10-100 pulses/kWh			
Pulse duration	100ms for 1-10-100 pulse rates; 60ms for 1000 pulse rate				100ms			
External voltage	10-30VDC				10-30VDC			
Maximum current	50mA							
INSULATION								
Rated insulation voltage Ui	250VAC				250VAC			
Rated impulse withstand voltage Uimp	6kV				6kV			
Power frequency withstand voltage	4kV				4kV			
SUPPLY/MEASURMENT CIRCUIT CONNECTIONS								
Type of terminals	Fixed				Fixed			
Conductor section min-max	2.5-16mm ² (16-6 AWG)				0.2-4mm ² (24-12 AWG) for supply/voltage measurement; 0.2-2.5mm ² (24-12 AWG) for current measurement			
Maximum tightening torque	2Nm (14lbin)				0.8Nm (7lbin)			
TARIFF CONTROL CIRCUIT CONNECTIONS								
Type of terminals	Fixed				Fixed			
Conductor section min-max	0.2-2.5mm ² (24-12 AWG)				0.2-4mm ² (24-12 AWG)			
Maximum tightening torque	0.49Nm (4.4lbin)				0.8Nm (7lbin)			
PULSE OUTPUT CONNECTIONS								
Type of terminals	Fixed				Fixed			
Conductor section min-max	0.2-1.3mm ² (24-16 AWG)				0.2-2.5mm ² (24-12 AWG)			
Maximum tightening torque	0.15Nm (1.7lbin)				0.44Nm (4lbin)			
AMBIENT CONDITIONS								
Operating temperature	-25...+55°C				-25...+55°C			
Storage temperature	-25...+70°C				-25...+70°C			
Relative humidity	<80% non condensing				<80% non condensing			
Maximum pollution degree	2				2			
Mechanical environment	-	Class M1		-	Class M1		Class M1	
Magnetic environment	-	Class E1		-	Class E1		Class E1	
HOUSING								
Material	Polyamide				Polyamide			

TYPE	DME CD
AUXILIARY SUPPLY	
Rated voltage U_s	100-240VAC/110-250VDC
Operating 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 separation	2 for 4 pairs (insulated between each pair 500VRMS)
Type of input	Negative (NPN)
Maximum voltage at inputs	15VDC
Maximum input current	18mA (15mA typical)
High input signal	$\geq 7.6V$
Low input signal	$\leq 2V$
Maximum frequency	2000Hz
TARIFF CONTROL CIRCUIT	
Rated voltage U_c	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	
Rated insulation voltage U_i	250VAC
Rated impulse withstand voltage U_{imp}	6.5kV
Power frequency withstand voltage	3.6kV
SUPPLY CIRCUIT CONNECTIONS	
Type of terminals	Fixed
Conductor section min-max	0.2-4mm ² (24-12 AWG)
Maximum tightening torque	0.8Nm (7lbin)
TARIFF INPUT CIRCUIT CONNECTIONS	
Type of terminals	Fixed
Conductor section min-max	0.2-4mm ² (24-12 AWG)
Maximum tightening torque	0.8Nm (7lbin)
RS485 CONNECTION	
Type of terminals	Fixed
Conductor section min-max	0.2-4mm ² (24-12 AWG)
Maximum tightening torque	0.8Nm (7lbin)
ENERGY METER INPUT CONNECTIONS	
Type of terminals	Fixed
Conductor section min-max	0.2-2.5mm ² (24-12 AWG)
Maximum tightening torque	0.44Nm (4lbin)
AMBIENT CONDITIONS	
Operating temperature	-20...+60°C
Storage temperature	-30...+80°C
Relative humidity	<90%
Maximum pollution degree	2
HOUSING	
Material	Polyamide

Metering instruments and current transformers

Technical characteristics

LCD multimeters and power analyzers

TYPE	DMG 200	DMG 210	DMG 300	
AUXILIARY SUPPLY				
Rated voltage Us	100-240VAC 110-250VDC			
Voltage range	85-264VAC 93.5-300VDC			
Frequency range	45-66Hz			
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			
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	5A	5A	1A / 5A	
Measurement range	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			
SUPPLY CIRCUIT/VOLTAGE MEASUREMENT CONNECTIONS				
Type of terminal	Fixed			Fixed
Conductor section min-max	0.2-4.0mm² (24-12 AWG)			
Maximum tightening torque	0.8Nm (7lbin)			
CURRENT MEASUREMENT CIRCUIT AND RS485➊ CONNECTIONS				
Type of terminal	Fixed			Fixed
Conductor section min-max	0.2-2.5mm² (24-12 AWG)			
Maximum tightening torque	0.44Nm (4lbin)			
AMBIENT CONDITIONS				
Operating temperature	-20...+60°C			
Storage temperature	-30...+80°C			
Relative humidity	<90%			
Maximum pollution degree	2			
Measurement class	3			
HOUSING				
Material	Polyamide			

① RS485 communication port for DMG 210 only.

② For DMG 800 D048, DMG 900 D048 and DMG 900T D048 only.

Metering instruments and current transformers

Technical characteristics

LCD multimeters and power analyzers

	DMG 700	DMG 800	DMG 900	DMG 900 T
	100-440VAC 110-250VDC (12-48VDC🔌)			
	90-484VAC 93.5-300VDC (9...70VDC🔌)			
	45-66Hz			
	Three phase + neutral			
	690VAC phase-phase (400VAC)			
	20-830VAC phase-phase (10-480VAC phase-neutral)			
	45-66Hz		45-66Hz and 360-440Hz	
	True RMS			
	Single, two, three phase with or without neutral, balanced three phase systems			
	5A	1A/5A	1A/5A	
	0.01-6A	0.01-1.2A / 0.01-6A	0.002-1.2A / 0.01-10A	
	True RMS			
	+20% I _e by external CT with 5A secondary			
	50A for 1s			
	Removable / Plug-in			
	0.2-2.5mm² (24-12 AWG)			
	0.5Nm (4.5lbin)			
	Fixed			
	0.5-4mm² (26-10 AWG)			
	0.8Nm (7lbin)			
	-20...+60°C			
	-30...+80°C			
	<90%			
	2			
	3			
	Polyamide			

TYPE	DMK 80 - DMK 80 R1 DMK 00 - DMK 00 R1	DMK 81 - DMK 81 R1 DMK 01 - DMK 01 R1	DMK 82 DMK 02	DMK 83 - DMK 83 R1 DMK 03 - DMK 03 R1	DMK 84 - DMK 84 R1 DMK 04 - DMK 04 R1
AUXILIARY SUPPLY					
Rated voltage Us			24VAC❶ 110-127VAC❶ 220-240VAC 380-415VAC❶		
Operating voltage range			0.85-1.1 Us		
Rated frequency			50-60Hz ±10%		
Maximum power consumption	3.3VA (DMK...) 3.6VA (DMK... R1)		3.3VA	3.3VA (DMK...) 3.6VA (DMK... R1)	
Maximum power dissipation	1.5W (DMK...) 1.8W (DMK... R1)		1.5W	1.5W (DMK...) 1.8W (DMK... R1)	
VOLTAGE INPUTS					
Rated voltage Ue	600VAC	—	600VAC	—	600VAC
Operating voltage range	15-660VAC	—	1-660VAC	—	—
Operating voltage range, phase-phase	—	—	—	—	15-660VAC (DMK...) 25-660VAC (DMK... R1)
Rated frequency	50-60Hz ±10%	—	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 (DMK...) 0.1-5.75A (DMK... R1)
Rated frequency	—	50-60Hz ±10%		—	50-60Hz ±10%
Type of input	—	Shunts connected by external low voltage CT 5A max		—	Shunts connected by external low voltage CT 5A max
Type of measuring	—	TRMS		—	—
Overload capacity	—	+20% Ie		—	+20% Ie
FREQUENCY INPUTS					
Measuring range	—	—	—	15-65Hz ±10%	—
Voltage range	—	—	—	15-660VAC	—
Input rated voltage	—	—	—	600VAC	—
MEASURING ACCURACY					
Measurement conditions (Temperature +23°C ±1°C) (Relative humidity 45 ±15% R.H.)	cosφ	—	—	—	± 1° ±1 digit
	voltage	±0.25% f.s. ±1 digit	—	±0.25% f.s. ±1 digit	—
	current	—	±0.5% f.s. ±1 digit		—
	frequency	—	—	—	±1 digit
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 tyoe of contact			1 changeover (SPDT)		
Rated voltage			250VAC		
UL/CSA and IEC/EN 60947-5-1 designation			8A 250VAC in AC1 / B300		
Electrical life			10 ⁵		
Mechanical life			30×10 ⁶		
INSULATION					
Rated insulation voltage Ui	600VAC	415VAC (DMK81) 600VAC (DMK81 R1)	600VAC		
CONNECTIONS					
Type of terminals			Fixed (DMK 8...); Removable (DMK 0...)		
Maximum tightening torque			0.8Nm (7lbin)		
Conductor section min-max			0.2-4.0mm ² (24-12 AWG)		
AMBIENT CONDITIONS					
Operating temperature			-20...+60°C		
Storage temperature			-30...+80°C		
HOUSING					
Material	Polyamide (DMK 8...) / Thermoplastic (DMK 0...)				

❶ on specific request.

TYPE		DMK 70 - DMK 70 R1 DMK 10 - DMK 10 R1	DMK 71 - DMK 71 R1 DMK 11 - DMK 11 R1	DMK 75 - DMK 75 R1 DMK 15 - DMK 15 R1	DMK 16 DMK 16 R1
AUXILIARY SUPPLY					
Rated voltage Us		24VAC❶ 110-127VAC❶ 220-240VAC 380-415VAC❶			
Operating voltage range		0.85-1.1 Us			
Rated frequency		50-60Hz ±10%			
Maximum power consumption		3.3VA (DMK...) 3.6VA (DMK... R1)	3.3VA (DMK...) 3.6VA (DMK... R1)	3.3VA (DMK...) 3.6VA (DMK... R1)	3.6VA (DMK...) 3.9VA (DMK... R1)
Maximum power dissipation		1.5W (DMK...) 1.8W (DMK... R1)	1.5W (DMK...) 1.8W (DMK... R1)	1.5W (DMK...) 1.8W (DMK... R1)	1.8W (DMK...) 2.1W (DMK... R1)
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
Frequency range		50-60Hz ±10%	—	50-60Hz ±10%	50-60Hz ±10%
Method of measuring		TRMS	—	TRMS	TRMS
CURRENT INPUTS					
Rated current Ie		—	5A	5A	5A
Measuring range		—	0.05-6A	0.05-5.75A	0.05-5.75A
Frequency range		—	50-60Hz ±10%	50-60Hz ±10%	50-60Hz ±10%
Type of input		—	Shunts connected by external low voltage CT 5A max		
Type of measuring		—	TRMS	TRMS	TRMS
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	—	—	—	Classe 2
	frequency	—	—	±1 digit	±1 digit
RELAY OUTPUT FOR DMK... R1 TYPES ONLY					
Number and type of contact		1 changeover (SPDT)	1 changeover (SPDT)	1 changeover (SPDT) ❷	1 changeover (SPDT)
Rated voltage		250VAC	250VAC	250VAC	250VAC
UL/CSA and IEC/EN 60947-5-1 designation		AC1 8A 250VAC / B300	AC1 8A 250VAC / B300	AC1 8A 250VAC / B300	AC1 8A 250VAC / B300
Electrical life		10 ⁵	10 ⁵	10 ⁵	10 ⁵
Mechanical life		30x10 ⁶	30x10 ⁶	30x10 ⁶	30x10 ⁶
INSULATION					
Rated insulation voltage Ui		600VAC	415VAC	600VAC	600VAC
CONNECTIONS					
Type of terminals		Fixed (DMK 7...); Removable (DMK 1...)			
Maximum tightening torque		0.8Nm (7lbin)	0.8Nm (7lbin)	0.8Nm (7lbin)	0.8Nm (7lbin)
Conductor section min-max		0.2-4.0mm ² (24-12 AWG)	0.2-4.0mm ² (24-12 AWG)	0.2-4.0mm ² (24-12 AWG)	0.2-4.0mm ² (24-12AWG)
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		Polyamide (DMK 7...) / Thermoplastic (DMK 1...)			

❶ On specific request.

❷ One N/O (SPST) contact for DMK 75 R1.

TYPE		DMK 20 - DMK 21 - DMK 22	DMK 25 - DMK 26
AUXILIARY SUPPLY			
Rated supply voltage U_s		208-240VAC	12-24VDC from battery
Operating voltage range		154-288VAC for DMK 20 177-264VAC for DMK 21 - DMK 22	9-32VDC
Frequency		45...65Hz	—
Maximum power consumption		5.5VA ($U_s=240V$) for DMK 20 - DMK 21 6VA ($U_s=240$) for DMK 22	1.1W maximum
Maximum power dissipation		2.5W ($U_s=240V$) for DMK 20 - DMK 21 2.8W ($U_s=240$) for DMK 22	1.1W maximum
Immunity time of microbreakings		20ms	500ms
VOLTAGE INPUTS			
Maximum rated voltage U_e		690VAC phase-phase (400VAC phase-neutral)	
Operating voltage range		60-830V phase-phase (30-480VAC phase-neutral)	
Frequency range		45-65Hz	
Method of measuring		True RMS value	
Measuring input impedance		>1.1M Ω phase-phase and >570k Ω phase-neutral	
Method of connections		Single phase, two-phase, three-phase or balanced three-phase system	
Measuring error		$\pm 0.25\%$ full scale ± 1 digit (Class 0.5)	
CURRENT INPUTS			
Rated current I_e		Standard 5A (1A on request)	
Measuring range		0.05...6A	
Method of measuring		True RMS value	
Overload capacity		+20% I_e by external CT with 5A secondary	
Overload peak		50A for 1s	
Dynamic peak		125A for 10ms	
Power consumption		<0.6W per phase	
Measuring error		Class 0.5 $\pm 0.25\%$ f.s. ± 1 digit	
MEASURING ACCURACY			
Measurement conditions (Temperature $+23^\circ\text{C} \pm 1^\circ\text{C}$ Humidity $45 \pm 15\%$ R.H.)	voltage	Class 0.5 $\pm 0.35\%$ f.s. (830V)	
	current	Class 0.5 $\pm 0.5\%$ f.s. (6A)	
	active energy	Class 2	
	frequency	—	
	harmonic distortion	—	
OUTPUTS			
Relay		—	
Static		—	
INSULATION			
Rated insulation voltage U_i		690V	
CONNECTIONS			
Type of terminals		Removable	
Maximum tightening torque		0.5Nm (4.5lbin)	
Conductor section min-max		0.2-2.5mm ² (24-12 AWG)	
AMBIENT CONDITIONS			
Operating temperature		-20...+60°C	
Storage temperature		-30...+80°C	
Relative humidity		<90%	
Maximum pollution degree		2	
HOUSING			
Material		Self-extinguishing black plastic	

❶ For DMK 32D 048 only.

	DMK 30 - DMK 31 - DMK 32	DMK 40	DMK 50 - DMK 51 - DMK 52	DMK 60 - DMK 61 - DMK 62
	24-48VDC❶/100-240VAC/110-250VDC		208-240VAC	100-240VAC/110-250VDC
	18-70VDC❷ 85-265VAC/93.5-300VDC		154-288VAC for DMK 50 177-264VAC for DMK 51 - DMK 52	85-265VAC/93.5-300VDC
	45-450Hz		45-65Hz	45-450Hz
	10VA/4W		5.5VA (Us=240V) for DMK 50 - DMK 51 6VA (Us=240) for DMK 52	10VA/4W
	3W (DMK 30) 4W (DMK 31 - DMK 32)	4W	2.5W (Us=240V) for DMK 50 - DMK 51 2.8W (Us=240) for DMK 52	3W for DMK 60 4W for DMK 61 - DMK 62
	20ms			
	690VAC phase-phase (400VAC phase-neutral)			
	20-830V phase-phase (10-480VAC phase-neutral)		60-830V phase-phase (30-480VAC phase-neutral)	20-830V phase-phase (10-480VAC phase-neutral)
	45...65Hz			
	True RMS value			
	>1.1MΩ phase-phase and >570kΩ phase-neutral			
	Single phase, two-phase, three-phase systems with or without neutral		Single phase, two-phase, three-phase or balanced three-phase system	Single phase, two-phase, three-phase systems with or without neutral
	Class 0.5 ±0.25% full scale ±1digit			
	standard 5A (1A on request)			
	0.02-6A		0.05-6A	0.02-6A
	True RMS value			
	+20% Ie by external CT with 5A secondary			
	50A for 1s			
	125A for 10ms			
	<0.3VA		<0.6W per phase	<0.3VA
	Class 0.5 ±0.25% full scale ±1digit			
	0.25% f.s. (830V) 0.35% f.s.(6A)		Class 0.5 ±0.35% f.s. (830V) Class 0.5 ±0.5% f.s.(6A)	0.25% f.s. (830V) 0.35% f.s.(6A)
	Class 1		Class 2	Class 1
	±1 digit		—	±1 digit
	±1 digit		—	±1 digit
	5A - 250VAC in AC1 for DMK 31 - DMK 32	—	—	5A - 250VAC in AC1 for DMK 61 - DMK 62
	55mA - 60VAC/DC in AC1 for DMK 31 - DMK 32	—	—	55mA - 60VAC/DC in AC1 for DMK 61 - DMK 62
	690V			
	Removable 0.5Nm (4.5lbin) 0.2-2.5mm² (24-12AWG)		Fixed 0.45Nm (4lbin) 0.2-1.5mm² (24-16 AWG)	
	-20...+60°C			
	-30...+80°C			
	<90%			
	2			
	Self-extinguishing black plastic		Self-extinguishing grey plastic	