METRALINE DM 61/62

Analog-Digital Multimeter

3-447-012-03
2/6.18

- Voltage: DC / AC 100 µV ... 1000 V
- Current: DC / AC: 10 µA ... 660.0 mA (DM 61) / 10.00A (DM 62)
- Clip function 1000:1 for current transformers (DM 61 only)
- Resistance: 100 mΩ... 60.00 MΩ
- Capacitance: 1 pF ... 40.00 mF (DM 62 only)
- Frequency: 10.00 Hz ... 10.00 MHz (DM 62 only)
- Diode / Continuity
- Duty cycle (%) measurement (DM 62 only)
- Temperature TC with K-type: 0 ... 1300 °C
- TRMS bandwidth: 2 kHz (DM 62 only)
- Hold / Peak / Min-Max / Relative (Zero)
- Auto / Manual ranging
- Dual digital display with analog scale and backlight
- ABS Automatic Blocking Sockets
- 3 year warranty

Features

Automatic Blocking Sockets (ABS) *

Automatic blocking sockets prevent incorrect connection of measurement cables and inadvertent selection of the wrong measured quantity. This significantly reduces danger to the user, the instrument and the system under test, and eliminates it entirely in many cases.

Automatic / Manual Measuring Range Selection

Measured quantities are selected with the rotary switch. The measuring range is automatically matched to measured values. The measuring range can be selected manually as well with the help of the AUTO/MAN key.

Display of Negative Values at the Analog Scale

Negative values are also displayed at the analog scale for zero-frequency quantities, allowing for observation of measured quantity fluctuation around the zero-point.

Storage of Measured Values

By pressing the **HOLD**/MIN/MAX key, the currently displayed measurement value can be „frozen“ in the display.
The minimum and maximum values which were present at the input of the measuring instrument after activation of the MIN/MAX mode can be selectively "retained" with the MIN/ MAX function. The most important application is the determination of the minimum or maximum value during long-term observation of measurement quantities. MIN/MAX has no effect on the analog display; it continues to display the current measurement value.

Continuity Test

Allows for the detection of short-circuits and interrupted conductors. In addition to displaying test results, an acoustic signal can also be generated if desired.

Power Saving Circuit

The device is switched off automatically if the measured value remains unchanged for a period of approximately 15 minutes, and if none of the controls are activated during this time. Automatic shutdown can be deactivated.

Protective Cover for Harsh Conditions

The instrument is protected against damage in the event of impacts or dropping by means of a soft rubber cover with tilt stand. The rubber material also assures that the instrument does not wander if it is set up on a vibrating surface.

Duty Cycle Measurement – Square-Wave Signals

This function makes it possible to test circuits and transmission cables by measuring the frequency and the duty cycle of pulses.

Voluntary Manufacturer's Warranty

36 months for material and workmanship

* Patented (patent no. EP 1801 598, US 7,439,725)

宇宏企業股份有限公司
台北：三重區重新路五段 609巷 16號 5樓之7
TEL:02-22782269 FAX:02-22782059
新竹：新竹縣竹北市台元 26 號 4 樓之 10
TEL:03-552-6779 FAX:03-552-6739
http://www.radiotek.com.tw/
E-mail : salesmag1@radiotek.com.tw

Characteristic Values

Meas. Function	Measuring Range	DM61	DM62 (TRMS)	Resolution	Input Impedance	Digital display Inherent deviation at reference condition +(...%rdg +...digits)	Overload capacity 1) Overload values	Overload duration
V(DC)	660.0 mV	•	•	100 µV	>100 MΩ // <40pF	0.7 + 5	1000 V DC AC eff/rms Sine wave	Cont.
	6.600 V	•	•	1 mV	11 MΩ //<40pF	0.4 + 5		
	66.00 V	•	•	10 mV	10 MΩ // <40pF	0.4 + 5		
	660.0 V	•	•	100 mV	10 MΩ // <40pF	0.4 + 5		
	1000 V	•	•	1 V	10 MΩ // <40pF	0.4 + 5		
V(AC)	660.0 mV	•	•	100 µV	>100 MΩ // <40pF	1.2 + 5		
	6.600 V	•	•	1 mV	11 MΩ //<40pF	1.0 + 3		
	66.00 V	•	•	10 mV	10 MΩ // <40pF			
	660.0 V	•	•	100 mV	10 MΩ // <40pF			
	1000 V	•	•	1 V	10 MΩ // <40pF			
A(DC)					Voltage Drop			
	66.00 mA	•	•	10 µA	66.00 mV	0.8 + 5	0.7 A	Cont.
	660.0 mA	•	•	100 µA	66.00 mV	0.8 + 5		
	10.00 A	—	•	10 mA	10.00 mV	1.5 + 5	12 A	Cont.
A(AC)	66.00 mA	•	•	10 µA	66.00 mV	0.8 + 5	0.7 A	Cont.
	660.0 mA	•	•	100 µA	66.00 mV	0.8 + 5		
	10.00 A	—	•	10 mA	10.00 mV	1.5 + 5	12 A	Cont.
(AC) 5)	66.00 A	•	—	10 mA	66.00 mV	0.8 + 5	0.7 A	Cont.
	660.0 A	•	—	100 mA	66.00 mV	0.8 + 5		
Ω					No load Voltage			
	660.0 Ω	•	•	100 mΩ	–3.3 V	0.8 + 5	1000 V DC AC eff/rms Sine wave	max. 10 s
	6.600 kΩ	•	•	1 Ω	–1.08 V	0.8 + 5		
	66.00 kΩ	•	•	10 Ω	–1.08 V	0.8 + 5		
	660.0 kΩ	•	•	100 Ω	–1.08 V	0.8 + 5		
	6.600 MΩ	•	•	1 kΩ	–1.08 V	1.0 + 5		
	66.00 MΩ	•	•	10 kΩ	–1.08 V	2.0 + 5		
	660.0 Ω	•	•	100 mΩ	–3.3 V	0.8 + 5	1000 V DC AC eff/rms Sine wave	max. 10 s
DIODE	2.000 V	•	•	1 mV	3.3 V	2.0 + 10		
F	6.600 nF	—	•	1 pF	—	3.0 + 40		
	66.00 nF	—	•	10 pF		2.0 + 10		
	660.0 nF	—	•	100 pF		2.0 + 10		
	6.600 µF	—	•	1 nF		2.0 + 10		
	66.00 µF	—	•	10 nF		2.0 + 10		
	660.0 µF	—	•	100 nF		5.0 + 10		
	6.600 mF	—	•	1 µF		5.0 + 10		
	40.00 mF	—	•	10 µF		5.0 + 10		
Hz	66.00 Hz	—	•	0.01 Hz	10 Hz (f min)	0.2 + 2 2)		
	660.0 Hz	—	•	0.1 Hz				
	6.600 kHz	—	•	1 Hz				
	66.00 kHz	—	•	10 Hz				
	660.0 kHz	—	•	100 Hz				
	6.600 MHz	—	•	1 kHz				
	10.00 MHz	—	•	10 kHz				
%	1.0 ... 98.90%	—	•	0.01 %	0.9% (% min)	10 Hz ... 1 kHz ±5 Digit 3) 1...10 kHz; ±5 Digit/kHz		
°C/°F	0 ... 1300 °C	•	•	1 °C	—	2.0 + 3 4)		

1) At 0 °C ... + 40 °C
2) At input > 3.5 Vrms, typical 5 Vp-p, square wave, bipolar inputs
3) For < 10 kHz at 5 Vp-p, square wave, bipolar inputs
4) Without sensor
5) Display with current transformers 1000 : 1

Influencing Quantities and Influence Error

Influencing Quantity	Range of Influence		Measured Quantity/ Measuring Range	Influence Error 1) ±(... % of rdg. + ... digits)
Temperature	0 °C ... +21 °C and +25 °C ... +40 °C		V DC, V AC	1 x Intrinsic uncertainty/K
			A DC, A AC	
			Ω	
			Diode	
			F, Hz, %, °C	
Measured Quantity Frequency	20 Hz ... < 50 Hz		660 mV~	1.0 + 3
	> 50 Hz ... 200 Hz			5.0 + 3
	20 Hz ... < 50 Hz		66 ... 1000 V~	1.0 + 3
	> 50 Hz ... 2 kHz			5.0 + 7
	> 50 Hz ... 200 Hz		A~	1.0 + 3
	20 Hz ... < 2 kHz			5.0 + 3
	Crest Factor CF	1 ... 1.4	V~3), A~3)	±1% of rdg
		1.4 ... 5 2)		±5% of rdg
Battery Voltage	4) ... < 2.49 V > 2.49 V ... 3 V		V DC	5 Digit
			V~, A DC	10 Digit
			A AC	6 Digit
			660 Ω	4 Digit
			6.600 kΩ ... 66.00 MΩ	3 Digit
			nF, F, mF, Hz, %	5 Digit
Relative Humidity	75% 3 days Meter off		V~, V DC A~, A DC Ω F Hz °C %	1 x intrinsic uncertainty

1) With temperature: Error data apply per 10 K change in temperature. With frequency: Error data apply to a display from 300 digits onwards.
2) With unknown waveform (crest factor CF > 2), measure with manual range selection
3) With the exception of sinusoidal waveform.
4) After the „ “ symbol is displayed.

Influencing Quantity	Range of Influence	Measuring Range	Attenuation
Common Mode Interference Voltage	Noise quantity max. 1000 V ⎓	V ⎓	> 100 dB
		V ∼	> 100 dB
	Noise quantity max. 1000 V ∼ 50 Hz, 60 Hz sinusoidal	V ⎓	> 100 dB
		V ∼	> 50 dB
Normal Mode Interference Voltage	Noise quantity: V ∼ , value of the measuring range at a time max. 1000 V ∼, 50 Hz, 60 Hz sinusoidal	660 mV, 6.6 V, 660 V, 1000 V DC	> 43 dB
		66 V DC	> 35 dB
	Noise quantity max. 1000 V —	V ∼	> 45 dB

Display

Liquid crystal display (58 mm x 31.4 mm) with analog indication and digital display and with display of the unit of measured quantity, function and various special functions.

Analog

Indication	LCD scale with bar graph
Scale length	55 mm
Scaling	65 scale divisions during all the measurement
Polarity indication	With automatic reversal
Overrange indication	By triangle
Sampling rate	28 times/s

Digital

Height of Main Display numerals	7 segment numerals: 12 mm
Height of Sub Display numerals	7 segment numerals: 7 mm
Number of counts	4 digit: 6600 steps
Overrange display	„OL“ is shown
Polarity display	„–“ sign is shown, When positive pole connected to „⊥“
Sampling rate	2.8 times/s

Power supply

Battery	2 AA size batteries alkaline manganese cells as per IEC LR6.
Service life	for METRALINE DM 61: 600 hrs. for V DC, A DC 300 hrs. for V AC, A AC for METRALINE DM 62: 400 hrs. for V DC, A DC 200 hrs. for V AC, A AC
Battery test	Automatic display of „▭“ symbol when battery voltage falls below following value: approx. 2.4 V.

Electromagnetic compatibility (EMC)

Emission	EN 61326: 2013 Class B
Immunity	IEC 61000-4-2: 8 kV atmosphere discharge 4 kV contact discharge IEC 61000-4-3: 3 V/m

Short-term measured value deviation may occur during electromagnetic interference thus reducing the specified operating quality.

Safety:	**IEC 61010-1-2010**
Measuring category	600 V CAT III, 300 V CAT IV
High Voltage Test	6.7 kV (IEC 61010-1-2010)

Fuses

Fuse for up to 660 mA ranges

FF (UR) 1.6 A / 1000 V AC/DC; 6.3 mm X 32 mm; rating 10 kA with 1000 VAC/DC and ohmic load; in conjunction with power diodes, protects all current measuring ranges up to 660 mA.

Fuse for up to 10 A ranges (METRALINE DM 62)

FF (UR)10 A / 1000 V AC/DC; 10 mm x 38 mm; rating 30 kA with 1000 VAC/DC and ohmic load; protects the 10 A ranges up to 1000 V AC/DC.

Defective fuses are not displayed.

Response Time (after manual range selection)

Measured Quantity/ Measuring Range	Response Time		Transient response for step function of the measured quantity
	Analog Display	Digital Display	
V ⎓, V ∼, °C	0.1 s	1 s	from 0 to 80% of the upper range limit
A ⎓, A ∼	0.1 s	1 s	from 0 to 50% of the upper range limit
660 Ω ... 6.6 MΩ	0.1 s	1 s	
66 MΩ	0.2 s	2 s	
⊸⊢	0.1 s	1 s	from 0 to 80% of the upper range limit
6.6 nF ... 66 µF	0.7 s	max. 1 s	
660 µF ... 6.6 mF	1.4 s	max. 3 s	
66 mF	7.0 s	max. 15 s	
660 Hz, 6.6 kHz	2.0 s	max. 2 s	
66 kHz, 660 kHz, 1 MHz	0.5 s	max. 1 s	
% (≥ 10 Hz)	0.7 s	max. 2.5 s	

Reference conditions

Ambient temperature	23 °C+ 2 K
Relative humidity	45% ... 55 % RH
Frequency of measured quantity	50 or 60 Hz ±2%
Waveform of the measured quantity	sinusoidal
Battery voltage	3 V ±0.1 V

Environmental conditions

Functional temperature range	0 °C ... +50 °C
Storage temperature range	–25 °C ... +70 °C (without batteries)
Relative humidity	45 ... 75 %
Altitude	up to 2000 m

Mechanical configuration

Protection for the meter	IP50
Pollution degree	2
Connection sockets	IP20 according to EN 60529 / DIN VDE 0470-1
Dimensions	with holster: 86 mm x 188 mm x 53 mm without holster: 79 mm x 174 mm x 38 mm
Weight	480 g approx., including battery and holster

Applicable Regulations and Standards

IEC 61010-1/EN 61010-1/ VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use
EN 60529 VDE 0470, Part 1	Test instruments and test procedures Protection provided by enclosures (IP code)
DIN EN 61326-2-1 VDE 0843-02-2-1	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 2-1: Particular requirements for sensitive test and measurement equipment
DIN EN 60529 DIN VDE 0470 Part 1	Test Instruments and test procedures – Degree of protection provided by enclosures (IP code)

METRALINE DM 61/62

Analog-Digital Multimeter

Standard Equipment

1 Multimeter
1 Rubber holster with carrying strap
1 Cable set
1 Battery set
1 Operating instructions

Order Information

Description	Type	Article Number
Clipping multimeter, clip factor 1:1000 for current measurement with optional clamp WZ1001 as accessory	METRALINE DM 61 *	M194A
TRMS Multimeter	METRALINE DM 62	M197A
Accessories		
AC clamp 1000:1	WZ1001 *	Z194A

* in preparation

For additional information on accessories, please refer to

- our „Measuring Instruments and Testers“ catalogue
- our website www.gossenmetrawatt.com

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GOSSEN METRAWATT

GMC-I Messtechnik GmbH
Südwestpark 15
90449 Nürnberg • Germany

Phone +49 911 8602-111
Fax +49 911 8602-777
E-Mail info@gossenmetrawatt.com
www.gossenmetrawatt.com

宇宏企業股份有限公司
台北：三重區重新路五段 609巷 16號 5樓之7
TEL:02-22782269 FAX:02-22782059
新竹：新竹縣竹北市台元 26 號 4 樓之 10
TEL:03-552-6779 FAX:03-552-6739
http://www.radiotek.com.tw/
E-mail : salesmag1@radiotek.com.tw