

Ziegler

Redefine Innovative Metering

Technical Datasheet

ZDM 114

DIGITAL MULTIMETER

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Ziegler ZDM 114 digital multimeter is suited for universal, general applications in the electrical and electronics fields, as well as in radio and television service, training and education. The protective cover, which is provided as standard equipment, can be opened at an angle for convenient reading from the workbench.

Product Features

- Direct and alternating voltages from 100 μ A ... 1000 V
- Direct and alternating currents from 10 μ A ... 10.00 A
- Resistance from 1 Ω ...40 M Ω with zero correction
- Capacitance from 1pF ... 200.00 μ F with zero correction
- Frequencies from 10.00 Hz ... 500 kHz
- Diode measurement and continuity testing
- Hold Measurement
- Relative Measurement
- Duty cycle (%) measurement
- Temperature measurement with K Type Thermocouple
- Backlit facility
- Auto power off facility
- Automatic terminal blocking facility which prevents incorrect connection
- Separate battery compartment
- Mounting clip at back side for hanging the meter



Fact Sheet

Display

LCD display field 58 mm X 31.4 mm with digital display, analog scale and with display of measurement unit, and Various special functions.

Digital

Display	7 segment
Character height	Main Display Character: 15mm
Number of digits/Counts	3 ¾ digits 3999 steps
Over range display	“OL” is displayed
Polarity display	“-” sign is displayed when positive pole at “⊥”
Sampling rate	3 measurements/s V , I , Ω , Capacitance , Frequency , Duty cycle measurement

Applicable Standards

EMC Immunity	IEC 61326-1:2012 Table A.1
Emission	IEC 61000-4-2 : 8kV atmosphere discharge , 4kV contact discharge
	IEC 61000-4-3 : 3V/m Short term measured value deviation may occur during electromagnetic interference thus reducing the specified operating quality
Safety	IEC 61010-1-2010
IP for water & dust	IEC 60529
Installation category:	600 V CAT III / 1000 V CATII
High Voltage Test	3.5 kV (IEC 61010-1-2010)

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Technical Specifications

Meas. Function	Measuring Range	Resolution	Input Impedance V (AC)/V (DC)	Digital display inherent deviation at reference condition $\pm(\dots\% \text{ of rdg.} + \dots\text{digits})$	Overload capacity	
					Overload value	Overload Duration
V (DC)	400.0mV	100 μ V	>20M Ω	0.75+2	1050 V (DC)	Continuous
	4.000V	1mV	11 M Ω	0.5+2		
	40.00V	10mV	10 M Ω			
	400.0V	100mV	10 M Ω			
	1000V	1V	10 M Ω			
V (AC)	400.0mV	100 μ V	>20M Ω	1.5+5	1050 V(AC) rms	Continuous
	4.000V	1mV	11 M Ω	1+5		
	40.00V	10mV	10 M Ω			
	400.0V	100mV	10 M Ω			
	1000V	1V	10 M Ω			
			Approx. voltage drop at max. meas. current			
A (DC)	40.00mA	10 μ A	450mV	0.8+2	480mA	Continuous
	400.0mA	100 μ A	4.2V	1.5+5	4)	4)
	10.00A	10mA	750mV			
A(AC)	40.0mA	10 μ A	450mV	1.5+5	480mA	Continuous
	400.0mA	100 μ A	4.2V	2+5	4)	4)
	10.00A	10mA	750mV			
			Open - circuit voltage			
Ω	400.0 Ω	100m Ω	approx. 0.45V	0.8+5	500V DC/AC rms	10 min
	4.000K Ω	1 Ω		0.8+2		
	40.00K Ω	10 Ω				
	400.0K Ω	100 Ω				
	4.00M Ω	1K Ω				
40.00M Ω	10K Ω	2+5				
BUZZER	400.0 Ω	100m Ω		Acoustic signal for 0...< 75 Ω (approx.)		
DIODE	1.000V	1mV	approx. 1V	2+10		
F	5.000 nF	1pF		3+40 ²⁾	500V DC/AC rms	10 min
	50.00 nF	10pF		2+10 ²⁾		
	500.0 nF	100pF		0.5+3 ²⁾		
	5.000 μ F	1nF		1+2 ²⁾		
	50.00 μ F	10nF		1.5+2 ²⁾		
	200.0 μ F	100nF		5+10 ³⁾		
			fmin			
Hz ⁵⁾	10.000Hz	0.001Hz	1Hz	0.2+2	\leq 1kHz: 1000V	Continuous
	100.00Hz	0.01Hz	1Hz			
	1.0000KHz	0.1Hz	1Hz			
	10.000KHz	1Hz	1Hz			
	100.00KHz	10Hz	10Hz			
	500.0KHz	100Hz	100Hz			
%	2.0...98%	0.1 %	-	10 Hz...1kHz		
				+5D 1 kHz...10 kHz +5D/kHz		
			sensor			
$^{\circ}$ C	0...+1300 $^{\circ}$ C	1 $^{\circ}$ C	K NiCr-Ni	2+3	500 V DC/AC rms	10min

1) At 0 $^{\circ}$ C ... + 40 $^{\circ}$ C

2) With zero adjustment "REL".


3) Time requirement for measurement approximately 60 sec.

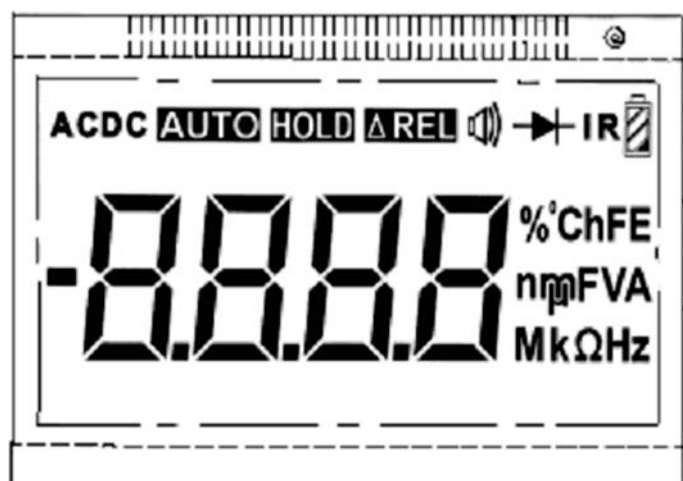
4) 12 A/5 min, 16 A/30s

5) Indication of the frequency measurement expanded to upto 9999 Digits

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Fuse	
Fuse for ranges up to 400 mA	1.6 A / 600V; 6.3 mm x 32 mm
Fuse for 10 A range	16 A / 600V; 6.3 mm x 32 mm
Mechanical design	
Protection	Instruments: IP 52 Connector sockets: IP 20
Dimensions	
With Holster	W x H x D 86 mm x 188 mm x 53 mm
Without Holster	79 mm x 174 mm x 38 mm
Weight	Approx. 0.480 Kg with battery
Reference conditions for accuracy	
Reference Temperature	23°C ± 2K
Relative Humidity	45%...55% RH
Waveform of measured quantity	Sinusoidal
Input frequency	50 Hz
Battery Voltage	3 V ± 0.1 V
Environmental conditions	
Operating temperature	-10 to +50°C
Storage temperature	- 25 to +70°C (without battery)
Relative humidity	45%.....75%
Terminal Protection	IP 52 for instrument and IP20 for terminals.
Altitude	Up to 2000 m
Battery	
Battery Voltage	2 X 1.5 V Cells
Battery type	Alkaline manganese Dioxide cells.
Battery Life	Alkaline manganese dry cells : Approx. 600 hours.
Battery test	Automatic display of  symbol when battery voltage drops below approx. 2.4V



Analog Display

- 1 Digital display with dot and polarity
- 2 Low battery indication
- 3 Display for "REL" and "HOLD"
- 4 Continuity test display: Buzzer symbol appears when acoustic signal is switched on
- 5 Display for diode measurement
- 6 Measurement unit display
- 7 Display for automatic measuring range selection
- 8 Display for selected type of Voltage/Current (AC or DC)
- 9 Display for overload value " OL"

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Influence Quantities

Influence Quantity	Range of Influence	Measured Quantity/ Measuring Range	Variation ¹⁾ ± (% of rdg. + digits)
Temperature	0 °C...+21 °C and +25 °C...+50°C	VDC	1 X Intrinsic error / K
		VAC	
		ADC	
		AAC	
		Ω	
		Diode	
		F	
		Hz	
		% °C	
Frequency of the Measured quantity	20 Hz.....< 50 Hz	400mV~,1000V~	2.0+3
	> 50Hz... 500 Hz		
	20 Hz.....< 50 Hz	4V~,40V~,400V~	2.0+3
	> 50Hz... 1 kHz		
Relative Humidity	55.....75%	V~,VDC	1 x intrinsic error
		A~,ADC	
		Ω	
		F	
		Hz	
		°C	
		%	

Influence Quantity	Range of Influence	Measured Quantity/ Measuring Range	Attenuation
Common Mode interference voltage	Noise quantity max. 1000 V dc	VDC	>100 dB
		V~	>100 dB
	Noise quantity max. 1000 V ~ 50 Hz, 60 Hz sinusoidal	400mV~,4V~,40V~	>55 dB
		400V~ 1000V~	> 43 dB >23 dB
Normal Mode interference voltage	Noise quantity V ~ Value of the measuring range at a time Max. 1000V~,50Hz, 60Hz Sinusoidal	VDC	>43 dB
	Noise quantity max. 1000 V dc	V~	> 55 dB

Standard Scope of Supply

- 1 Multimeter
- 1 Cable set
- 1 Copy Operating Instructions
- 1 Protective Case (Holster)
- 2 Battery 1.5V

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Ziegler Instrumentation UK Ltd.

Central Buildings, Woodland close old woods Trading Estate, Torquay Devon, TQ2 7BB, United Kingdom
+441803 616 800 | info@ziegler-instrument.com | ziegler-instrument.com