

# Ziegler

Redefine Innovative Metering

# Technical Datasheet

ZDM 2x6 Series

---

DIGITAL MULTIMETER

# ZDM 2x6 Series

## DIGITAL MULTIMETER

[ZDM 216](#) | [ZDM 226](#) | [ZDM 236](#) | [ZDM 246](#)

ZDM 2X6 Series are rugged, functionally enhanced dual display portable multimeter, a perfect tool for wide range of applications. Ziegler Digital Multimeters are designed to offer accuracy in measurement complimented with Reliability.

### Product Features

- Available in 4 digits & 6600 counts
- Basic accuracy of 0.4%
- Enhanced Dual display with backlit & Mounting clip at back side
- Trms measurement in ZDM 246
- Direct and alternating voltages from 100  $\mu$ V ... 1000 V
- Direct and alternating currents from 10  $\mu$ A ... 10.00 A
- Resistance from 100 m $\Omega$ ... 60.00 M $\Omega$  with zero correction
- Capacitance from 1pF ... 40.00 mF with zero correction
- Frequencies from 10.00 Hz ... 10 MHz
- Diode measurement and continuity testing
- Min/Max, Hold, Peak hold facility
- Duty cycle (%) measurement
- Temperature measurement with K Type Thermocouple
- Current measurement upto 16A in ZDM 226
- Current measurement upto 660A in ZDM 216 with external clip on CT
- Auto power off facility & Auto ranging and manual ranging facility
- Automatic terminal blocking facility which prevents incorrect connection



### Fact Sheet

<b>Display</b>	
LCD display field 58 mm X 31.4 mm with digital display, analog scale, display of measurement unit, and various special functions	
<b>Digital</b>	
Display	7 segment
Character height	Main Display Character: 12mm Sub Display Character : 7mm
Number of digits/Counts	4 digits 6600 steps
Over range display	"OL" is displayed.
Polarity display	"-" sign is displayed when positive pole at "┴"
Sampling rate	2.8 times /sec
<b>Analog</b>	
Indication	LCD scale Analog Bar graph
Scale length	55 mm
Scaling	0 to 60 with 66 scale divisions
Polarity Indication	"-" sign on scale digits
Over range indication	By triangle
Sampling rate	28 times/sec
<b>Applicable Standards</b>	
EMC	IEC 61326-1: 2012. Table A.1 *
Immunity	IEC 61000-4-2 : 8 KV atmosphere discharge, 4 KV contact discharge IEC 61000-4-3 : 3 V/m
Safety	IEC 61010-1-2010
IP for water & dust	IEC 60529
Installation category:	CATIII 1000 V CATIII / CATIV 600 V (for 246, 236, 216), 1000 V CATII / 600 V CATIII (for 226)
High Voltage Test	6.7 kV (IEC 61010-1-2010) (for 246, 236, 216), 3.5 kV (IEC 61010-1-2010) (for 226)

# ZDM 2x6 Series

## DIGITAL MULTIMETER

### Technical Specifications

Meas. Func.	Meas. Range	216	226	236	246 TRMS	Resolution	Input impedance	Digital display inherent deviation at ref cond. +(...%rdg+..digit)	Overload capacity			
									overload values	overload duration		
V (DC)	660.0mV	•	•	•	•	100 µV	>100 MΩ // <40pF	0.7 + 5	1000 V DC AC eff/rms sine wave	Cont.		
	6.600V	•	•	•	•	1mV	11 MΩ // <40pF	0.4 + 5				
	6.600V	•	•	•	•	10mV	10 MΩ // <40pF	0.4 + 5				
	660.0V	•	•	•	•	100mV	10 MΩ // <40pF	0.4 + 5				
	1000V	•	•	•	•	1V	10 MΩ // <40pF	0.4 + 5				
V (AC)	660.0mV	•	•	•	•	100 µV	>100 MΩ // <40pF	1.0 + 3			1000 V DC AC eff/rms sine wave	Cont.
	6.600V	•	•	•	•	1mV	11 MΩ // <40pF					
	66.00V	•	•	•	•	10mV	10 MΩ // <40pF					
	660.0V	•	•	•	•	100mV	10 MΩ // <40pF					
	1000V	•	•	•	•	1V	10 MΩ // <40pF					
						Voltage Drop						
A DC	66.00mA	•	•	•	•	10 µA	66.00mV	0.8 + 5	0.7A 12A	Cont.		
	660.0mA	•	•	•	•	100 µA	66.00mV	0.8 + 5				
	10.00A		16A	•	•	10mA	10.00mV	1.5 + 5				
A(AC)	66.0mA	•	•	•	•	10 µA	66.00mV	0.8 + 5	0.7A 12A	Cont.		
	660.0mA	•	•	•	•	100 µA	66.00mV	0.8 + 5				
	10.00A		16A	•	•	10mA	10.00mV	1.5 + 5				
>C AC	66.00A	•				10mA	66.00mV	0.8 + 5	0.7A	Cont.		
	660.0A	•				100mA	66.00mV	0.8 + 5				
							no load voltage					
Ω	660.0Ω	•	•	•	•	100mΩ	-3.3V	0.8 + 5	1000 V DC AC eff/rms sine wave	10Sec.		
	6.600KΩ	•	•	•	•	1Ω	-1.08V	0.8 + 5				
	66.00KΩ	•	•	•	•	10Ω	-1.08V	0.8 + 5				
	660.0KΩ	•	•	•	•	100Ω	-1.08V	0.8 + 5				
	6.600MΩ	•	•	•	•	1KΩ	-1.08V	1.0 + 5				
	66.00MΩ	•	•	•	•	10KΩ	-1.08V	2.0 + 5				
BUZZER	660.0Ω	•	•	•	•	100mΩ	-3.3V	0.8 + 5				
DIODE	2.000V	•	•	•	•	1mV	3.3V	2.0 + 10				
F	6.600nF			•	•	1pF		3.0+40			1000 V DC AC eff/rms sine wave	10Sec.
	66.00nF			•	•	10pF		2.0+10				
	660.0nF			•	•	100pF		2.0+10				
	6.600µF			•	•	1nF		2.0+10				
	66.00µF			•	•	10nF		2.0+10				
	660.0µF			•	•	100nF		5.0+10				
	6.600mF			•	•	1µF		5.0+10				
	40.00mF			•	•	10µF	—	5.0+10				
Hz	66.00Hz			•	•	0.01Hz	10 Hz(Fmin)	0.2 + 2 <sup>2)</sup> 10 Hz... 1kHz ± 5 Digit <sup>3)</sup> 1 kHz...10 kHz ± 5 digit/ kHz <sup>3)</sup>				
	660.0Hz			•	•	0.1Hz						
	6.600KHz			•	•	1Hz						
	66.00KHz			•	•	10Hz	—					
	660.0KHz			•	•	100Hz						
	6.600MHz			•	•	1KHz						
10.00MHz			•	•	10KHz							
%	1.0...98.90%			•	•	0.01%						
C / F	0...1300 °C	•	•	•	•	1 °C	—	2.0+3 <sup>4)</sup>				
Peak (V AC / A AC)		•	•	•	•			3.0+300	—	—		


1) At 0°C ... + 40 °C

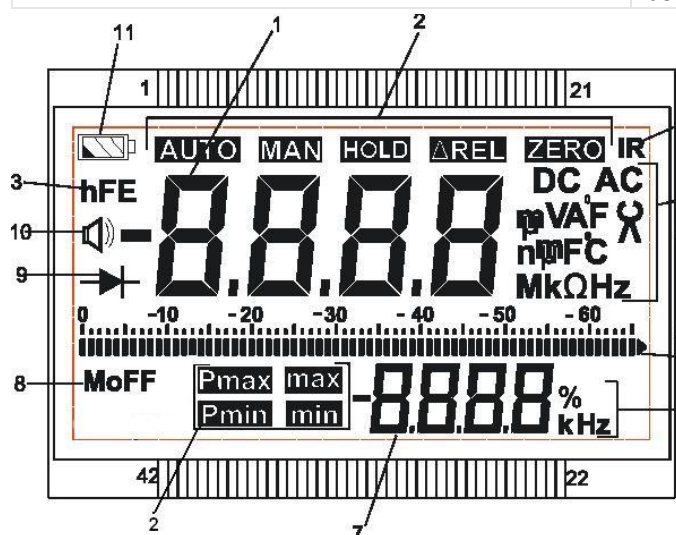
3) For <10 KHz, Square wave, Bipolar inputs

2) At input >3.5Vrms, Square wave, Bipolar inputs. 4) Without sensor

# ZDM 2x6 Series

## DIGITAL MULTIMETER

<b>Fuse</b>	
Fuse for ranges up to 660 mA	1.6 A / 1000V; 6.3 mm x 32 mm
Fuse for 10 A range	16 A / 1000V; 10 mm x 38 mm
<b>Mechanical design</b>	
Protection	Instruments: IP 50 Connector sockets: IP 20
<b>Dimensions</b>	
With Holster	<b>W x H x D</b> 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
<b>Ambient conditions</b>	
Operating temperature range	0 <sup>0</sup> C ... + 50 <sup>0</sup> C
Storage temperature range	- 25 <sup>0</sup> C .... + 70 <sup>0</sup> C (without batteries)
Relative humidity	45 ... 75 %
Elevation	up to 2000 m
<b>Reference conditions for accuracy</b>	
Reference Temperature	23°C ± 2K
Relative Humidity	45%...55% RH
Waveform of measured quantity	Sinusoidal
Input frequency	50 or 60 Hz ±2%
Battery Voltage	3 V ± 0.1 V
<b>Environmental conditions</b>	
Operating temperature	0°C to +50°C
Storage temperature	- 25°C to +70°C
Relative humidity	<75% non-condensing
Terminal Protection	IP 50 for instrument and IP20 for terminals.
Elevation	Up to 2000 m
<b>Battery</b>	
Battery Voltage	2 X 1.5 V Cells
Battery type	Alkaline manganese Dioxide cells.
Battery Life	for 216, 226, 236: 600 hrs. for VDC, ADC 300 hrs. for VAC, AAC
	for 246: 400 hrs. for VDC, ADC 200 hrs. for VAC, AAC
Battery test	Automatic display of  symbol when battery voltage drops below approx. 2.4V




### Multimeter Display


- 1 Digital Main display with decimal point and polarity
- 2 Display for Automatic manual range Selection, HOLD, Relative, Zero Peak, Max, Min
- 3 Measurement unit of main display
- 4 Display for IR mode indication
- 5 Display for Analog scale
- 6 Measurement unit of Sub display
- 7 Digital Sub display with decimal point and polarity
- 8 Display for Auto off indication (After 15 Min meter will turn OFF)
- 9 Diode test Display
- 10 Continuity test display Speaker symbol appears when acoustic signal is switched on
- 11 Low battery indication

# ZDM 2x6 Series

## DIGITAL MULTIMETER

### Influence Quantities

Influence Quantity	Range of Influence	Measured Quantity/ Measuring Range	Variation <sup>1)</sup> ± (% of rdg. + digits)
<b>Temperature</b>	0 °C...+21 °C and +25 °C...+40°C	VDC	1 X Intrinsic error / K
		VAC	
		ADC	
		AAC	
		Ω	
		Diode	
		F	
		Hz	
		% °C	
<b>Frequency of the Measured quantity</b>	20 Hz ..... < 50 Hz	660mV~	1.0+3
	> 50Hz... 200 Hz		5.0+3
	20 Hz ..... < 50 Hz	6.6... 1000V~	1.0+3
	> 50Hz... 2 KHz		5.0+7
	20 Hz..... < 50 Hz	A~	1.0+3
	> 50Hz... 2 KHz		5.0+7
<b>Waveform of the Measured quantity</b> <sup>2)</sup>	Crest Factor CF	V~ <sup>3)</sup> , A~ <sup>3)</sup>	± 1 % of rdg
			± 5 % of rdg
<b>Battery Voltage</b>	 <sup>4)</sup> ...< 2.49 V > 2.49 V ...3V	VDC	5 Digit
		V~,ADC	10 Digit
		AAC	6 Digit
		600 Ω	4 Digit
		6.600 K Ω –66 M Ω	3Digit
		nF, μF, mF	5 Digit
		Hz	5 Digit
		%	5 Digit
<b>Relative Humidity</b>	75% 3 Days Meter off	V~,VDC A~,ADC	1 x intrinsic error
		Ω	
		F	
		Hz	
		°C	
		%	

- 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

# ZDM 2x6 Series

## DIGITAL MULTIMETER

### Influence Quantities

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	VDC	>100 dB
		V~	> 50 dB
Normal Mode interference voltage	Noise quantity V ~ Value of the measuring range at a time Max. 1000V~ ,50Hz, 60Hz Sinusoidal	660mVDC, 6.6VDC, 660VDC,1000VDC	> 43 dB
		66 VDC	> 35 dB
	Noise quantity max. 1000 V dc	V~	> 45 dB

### Response time after manual range selection

Measured Quantity/ Measured range	Response Time		Attenuation
	Of analog indication	Of digital indication	
VDC ,VAC, °C	0.1S	1.0S	From 0 to 80 % of upper range limit
A~,ADC	0.1S	1.0S	From 0 to 50 % of upper range limit
660Ω...6.6 MΩ	0.1S	1.0S	
66 MΩ	0.2S	2.0S	
Diode	0.1S	1.0S	From 0 to 80 % of upper range limit
6.6nF... 66μF	0.7S	Max.1S	
660μF...6.6 mF	1.4S	Max.3S	
66 mF	7.0S	Max.15S	
660 Hz,6.6KHz	2.0S	Max.2S	
66 KHz,660 Khz,1MHz	0.5S	Max.1S	
% ( 10 Hz)	0.7S	Max.2.5S	

### Standard Scope of Supply

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

# Ziegler

Redefine Innovative Metering

**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](mailto:info@ziegler-instrument.com) | [ziegler-instrument.com](http://ziegler-instrument.com)