Ziegler

Redefine Innovative Metering

Technical Datasheet

ZCM 3A | 10 A

AC CLAMP METER

www.ziegler-instrument.com

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AC CLAMP METER

ZCM 3A/10A is 3¾ digit 1000A/300A Clamp meter measures AC current, at awkward positions of bus-bars, conductors difficult to access. It allows uninterrupted measurement of current in circuits. It offers distinctive features which helps user to take easy and reliable measurement, in remote areas of applications.

Product Features

- AC Current measurement upto 300A for ZCM 3A & 1000 A for ZCM 10A
- Large jaw opening of 41mm for ZCM 3A & 51 mm for ZCM 10A
- For user safety, Trigger is located at back side, as it increases distance from load
- Unique rotatable jaw facility to take measurements in difficult to access places
- Double mould casing for firm grip
- Auto Power OFF, Data hold & Min-Max function
- Null zero correction for Resistance, Capacitance & Low Batt indication
- Voltage measurement upto 1000V AC/DC
- CAT III 1000V & CAT IV 600V protection
- Comfortable operation of push buttons and function selector switch, in adverse field conditions
- Digital display with backlight & Analog bar graph
- Auto & Manual ranging modes
- Backlit facility
- Temperature measurement facility

Fact Sheet

Display	
Number of digits	3 (¾) digits
Maximum count	3100 counts
Over range indication	"OL" is displayed
Polarity indication	"–" sign is displayed for DC functions, when positive pole at "⊥"
Analog Scale	Updates at the rate 20 times/sec to observe fluctuations in input
Applicable Standards	
EMC	IEC 61326: Class B
Immunity	IEC 61000-4-2 : 8 KV atmosphere discharge, 4 KV contact discharge
	IEC 61000-4-3 : 3 V/m
Safety	IEC 61010-1-2001
IP for water & dust	IEC 60529
Pollution degree	2
Installation category:	CAT IV 600V, CAT III 1000V
High Voltage Test	6.7 kV AC 50Hz for 1 min between housing and input 3.7 kV AC 50Hz for 1 min between housing jaws and input

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Technical Specifications

Measuring Function	Measuring Range	Resolution	Input Impedance	Intrinsic error of digital display ±(...% of dg+...digit) at reference condition	Overload Capacity [1]	
					Overload Value	Overload Duration
V dc	30mV	10µV	>10 GΩ// < 40pF	0.5+3 [2]	1000 V AC DC Eff/ rms Sine wave	Continuously
	300 mV	100 µV	>10 GΩ// < 40pF	0.5+3		
	3V	1 mV	11 MΩ// < 40pF	0.25+1		
	30V	10mV	10 MΩ// < 40pF	0.25+1		
	300V	100mV	10 MΩ// < 40Pf	0.25+1		
	1000V	1V	10 MΩ// < 40pF	0.35+1		
V ~	3V	1mV	10 MΩ// < 40Pf	0.75+2 (10....300digits) 0.75+1 >300 digits		
	30V	10mV	11 MΩ// < 40pF			
	300V	100mV	10 MΩ// < 40Pf			
	1000V	1V	10 MΩ// < 40pF			
Ω	NO LOAD VOLTAGE					
	30 Ω	10 mΩ	Max. 3.2V	0.5+3 [2]	1000 V AC DC Eff/ rms Sine wave	10 min
	300 Ω	100 mΩ	Max. 3.2V	0.5+3		
	3 KΩ	1 Ω	Max. 1.25V	0.4+1		
	30 KΩ	10 Ω	Max. 1.25V	0.4+1		
	300 KΩ	100 Ω	Max. 1.25V	0.4+1		
	3 MΩ	1k Ω	Max. 1.25V	0.6+1		
	30 MΩ	10k Ω	Max. 1.25V	2.0+1		
⊣▷⊢	2 V	1mV	Max. 3.2V	0.25+1		
A ~	300 A	0.01A	-	1.5 % of range +5 digits	1100*A/ 360A	Continuously
	1000 A*	0.1A	-	1.5 % of range +5 digits		

Measuring function	Measuring range		Resolution	Discharge resistance	U0 max.	Intrinsic error of digital display ± (...% of rdg + ...digit) at reference condition	Over load capacity [1]	
							Over load value	Overload duration
F	30.00 nF		10 pF	250 KΩ	2.5 V	1.0 + 3 [2]	1000 V DC AC eff / rms Sine	10 min
	300.0 nF		100 pF	250 KΩ	2.5 V	1.0 + 3		
	3.000 µF		1 nF	25 KΩ	2.5 V	1.0 + 3		
	30.00 µF		10 nF	25 KΩ	2.5 V	3.0 + 3		
Hz				f min V dc	f min V ~			
	300.0 Hz		0.1 Hz	1 Hz	45 Hz	0.5 + 1 [3]	≤ 3 kHz 1000 V 30 kHz; 300 V 100 kHz 30 V	Continuously
	3.000 KHz		1 Hz	1 Hz	45 Hz			
	30.00 KHz		10 Hz	10 Hz	45 Hz			
	100.0 KHz		100 Hz	100 Hz	100 Hz			
%	2.0....98.0%		0.1 %	2 Hz	--	2 Hz... 1kHz ± 5 Digit [4] 1 kHz ... 10 kHz; ± 5 Digit / kHz [4]		
ºC	Pt 100	-200.0... +200.0 °C	0.1 °C	–	--	2 Kelvin + 5 Digit [5]	1000 V DC AC eff / rms Sine	10 min
		+200.0... +850.0 °C	0.1 °C			1.0 + 5 [5]		
	Pt 1000	-100.0... +200.0 °C	0.1 °C			2 Kelvin + 2 Digit [5]		
		+200.0... +850.0 °C	0.1 °C	–	--	1.0 + 2 [5]		

1) At 0° .... + 40 °C

2) With zero adjustment, without zero adjustment + 35 digits

3) Range :

3 V ac/dc: Ue = 1.5 V eff/rms ... 100 V eff/rms 30 V

ac/dc: Ue = 15 V eff/rms ... 300 V eff/rms 300 V

ac/dc: Ue = 150 V eff/rms ... 1000 V eff/rms

4) On the range 3 V dc, square – wave signal positive on one side 5 ... 15 V, f = const., not 163.84 Hz or integral multiple.

5) Without sensor

* applicable for 1000A

Reference conditions for accuracy	
Reference Temperature	23°C ± 2K
Relative Humidity	45%...55% RH
Waveform of measured quantity	Sinusoidal
Input frequency	50 or 60 Hz ±2%
Battery Voltage	8V ± 0.1 V
Environmental conditions	
Operating temperature	-10 to +55°C
Storage temperature	- 20 to +70°C
Relative humidity	0……90% non-condensing
Terminal Protection	IP 50 for housing and IP20 for terminals.
Battery	
Battery Voltage	9 V DC
Battery type	Manganese Dioxide Cell as per IEC6F22 , alkaline manganese cell as per IEC 6LR 61
Battery Life	Min 220 hrs on Vdc , Aac 80 hrs on Vac, Aac
Mechanical	
Weight	0.6 kg
Dimensions	90 x 270 x 70 mm

Influence Quantities

Influence Quantity	Range of Influence	Measured Quantity/ Measuring Range	Variation [1] ± (…. % of rdg. + ….digits)
Temperature	0 °C +21 °C and +25 °C…+40°C	30/300 mV dc	1.0 + 3
		3…300 V dc	0.15 + 1
		1000 V dc	0.2 + 1
		V ~	0.4 + 1
		30 Ω [2]	0.15 + 2
		300 Ω	0.25 + 2
		3kΩ - 3MΩ	0.15 + 1
		30 MΩ	1.0 + 1
		30nF [2] - 3 µF	0.5 + 2
		30 µF	2.0 + 2
		Hz	0.5 + 1
		%	± 5 digits
		-200…+200 °C	0.5 K + 2
		+200…….850°C	0.5 + 2
		A ~	0.75% of range + 1
Frequency of the measured quantity	15 Hz. …..<30 Hz	3…300 V ~	--
	30 Hz. …..<45 Hz		--
	> 65 Hz…400 Hz		2.0 + 3
	>400 Hz…1 KHz		2.0 + 3
	>1 KHz…20 KHz		--
	15 Hz…<30 Hz	1000 V ~	--
	30Hz…..<45Hz		--
	>65 Hz … 1 kHz		3.0 + 3
	15 Hz…<30 Hz	A ~	--
	30Hz …<45 Hz		--
	>66 Hz… 1 kHz		2.0% of range + 1

Influence Quantity	Range of Influence		Measured Quantity/ Measuring Range	Variation [1] ± (…. % of rdg. + ….digits)
Wave form of the measured quantity [3]	Crest factor CF	1….3	V ~ [4] A ~ [4]	
		1….5		
Battery Voltage	…[5] < 7.9 V > 8.1 V …10.0 V		V DC	2 Digit
			V~	4 Digit
			A~	6 Digit
			30Ω / 300 Ω/°C	4 Digit
			3 kΩ – 30MΩ	3 Digit
			nF, µF	1 Digit
			Hz	1 Digit
			%	1 Digit
Relative humidity	75% 3 Days Meter off		V~, VDC A~ Ω F Hz % °C	1 x intrinsic error
HOLD	-		--	± 1 digits
MIN/MAX	-		V ac/dc , A ~	± 2 digits

1) With temperature: Error data apply per 10 K change in temperature
   a. For Aac/Adc error data apply per K change in temperature
2) With frequency: Error data apply to a display from 300 digits onwards
3) With zero adjustment
4) With unknown waveform (crest factor CF > 2), measure with manual range selection
5) With the exception of sinusoidal waveform
6) After the " " symbol is displayed

Response Time

Influence Quantity	Range of Influence	Measuring Ranges	Attenuation
Common Mode interference voltage	Noise quantity max. 1000 V	V dc	> 120 dB
	Noise quantity max. 1000 V ~ 50 Hz, 60 Hz sinusoidal	3V~ 30 V~ 300 V~	> 70 dB
		1000 V~	> 60 dB
Normal Mode interference voltage	Noise quantity V ~ Value of the measuring range at a time Max. 1000V~ ,50Hz, 60Hz sinusoidal	V dc	> 50dB
	Noise quantity max. 1000 V-	V~	>110dB

Standard Scope of Supply

1 Clamp Meter
1 Cable set
1 Copy Operating Instructions
1 Carrying Bag
1 Battery 9V

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