



17716A

**Features**

- True RMS value (V and A)
- Leakage Current Measurement at 10µA Resolution
- Harmonic Analysis (V and A) to the 99th Order
- Better Understanding of High Frequency Harmonic Analysis (up to 5/6 KHz)
- Non-interrupted Harmonic Analysis
- Analysis of Total Harmonic Distortion (%THD-F)
- Analysis of Crest Factor (C.F.)
- Fast Peak Function (33µs for 60Hz & 39µs for 50Hz)
- Programmable CT Ratio (1 to 250)
- W, KW, HP, VA, KVA, VAR, KVAR
- PF, Phase Angle (Φ)
- Energy (mWH, WH, KWH)
- Analysis of Standby Power Consumption
- Balanced 3 Phase Power Quality
- Balanced 3 Phase Sequence
- Max., Min. & Data Hold Function
- Active Power in HP

**General Specifications**

- Jaw Opening** : Cable Dia 30mm (approx.)
- Battery Type** : 1.5V SUM-3 x 2
- Display** : 4+2+2 digits LCD
- Auto-Power-Off** : 30 minutes
- LCD update rate** : 2 times / sec.
- Operating Temperature** : -10°C to 50°C
- Storage Temperature** : -20°C to 60°C
- Option** : Alligator clips
- Power Consumption** : 10mA (approx.)
- No. of Samples/Period** : 512 (V & A), 256 (W)
- Operating Humidity** : < 85% relative
- Storage Humidity** : < 75% relative
- Weight** : 210gms Including Battery (approx.)
- Dimension** : 210 x 72 x 36 mm
- Accessories** : Test Leads, Carry Bag, Users Manual, Batteries (installed)

**Specifications (23°C ± 5°C)**

Harmonics of AC Current in % & Magnitude (1 - 99th order)				
Range	Resolution in %	Accuracy in %	Resolution in Magnitude	Accuracy in Magnitude
1 - 10th	0.1 %	±0.7% of reading ± 1%	0.01mA 0.1mA 0.001A 0.01A	± 1% of reading ± 2mA ± 1% of reading ± 0.3A
11 - 20th		± 2% of reading ± 1%		± 7% of reading ± 2mA ± 7% of reading ± 0.3A
21 - 50th (A range)		± 5% of reading ± 1%		± 15% of reading ± 0.3A
21 - 50th (mA range)		± 10% of reading ± 1%		± 15% of reading ± 3mA
51 - 99th		± 35% of reading ± 1%		± 35% of reading ± 3mA ± 35% of reading ± 0.3A

Harmonics of AC Voltage in % & Magnitude (1 - 99th order)				
Range	Resolution in %	Accuracy in %	Resolution in Magnitude	Accuracy in Magnitude
1 - 10th	0.1 %	±0.7% of reading ± 1%	0.1V	±0.7% of reading ± 7 dgts
11 - 20th		± 2% of reading ± 1%		± 2% of reading ± 7 dgts
21 - 50th		± 5% of reading ± 1%		± 5% of reading ± 7 dgts
51 - 99th		± 35% of reading ± 1%		± 35% of reading ± 7 dgts

AC Watt (50 or 60Hz, PF 0.6 to 1. CT = 1, Accuracy of Readings)			
Range	Resolution	Accuracy (0 - 60A)	Accuracy (60 - 100A)
0.050 - 9.999W	0.001W	± 2% ± 0.025W	± 2% of VA ± 5 dgts
10.00 - 99.99W	0.01W	± 2% ± 0.25W	
100.0 - 999.9W	0.1W	± 2% ± 2.5W	
1.000 - 9.999KW	0.001KW	± 2% ± 0.025KW	
10.00 - 99.99KW	0.01KW	± 2% ± 0.25KW	
100.0 - 999.9KW	0.1KW	± 2% ± 2.5KW	
1000 - 9999KW	1KW	± 2% ± 25KW	

AC Current (50 or 60Hz, True RMS)		
Range	Resolution	Accuracy
00.50 - 60.00mA	0.01mA	± 0.5% ± 5 dgts
60.00 - 100.0mA	0.01/0.1mA	± 0.5% ± 50 dgts
100.0 - 600.0mA	0.1mA	± 0.5% ± 5 dgts
0.050 - 3.000A	0.001A	
3.000 - 30.00A	0.001/0.01A	
30.00 - 90.00A	0.01A	± 1.0% ± 5 dgts

Power Factor & Phase Angle		
Range	Resolution	Accuracy
0.000 - 1.000	0.001	± 0.04
-180° to 180° & 0° to 360°	0.1°	± 2°

Total Harmonic Distortion (THD-F, 1 - 50th order)		
Range	Resolution	Accuracy
0.0 - 20.0%	0.1%	± 2%
20.0 - 100%	0.1%	± 3% of reading ± 5%
100 - 999.9%	0.1%	± 10% of reading ± 10%

AC Voltage (50 or 60Hz, True RMS)		
Range	Resolution	Accuracy
5 - 250V	0.1 V	± 0.5% ± 5 dgt
250 - 600V		

Crest Factor (C.F., Accuracy of Readings)		
Range	Resolution	Accuracy
1.00 - 99.99	0.01	± 5% ± 30 dgt

Note: Specifications are subject to change.

**Tesca Technologies Pvt. Ltd.**

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17716B

**Power Analysis**

- W, KW, HP, VA, KVA, VAR, KVAR ● PF, Phase Angle (Φ) ● Energy (WH, KWH)
- Balanced 3Phase Power Quality ● Balanced 3Phase Sequence ● Programmable CT Ratio (1 to 250) ● Dual Displays (W + PF, VA + KVAR...)
- Active Power in HP ● Resistance and Continuity with Beeper

**Harmonic Analysis**

- True RMS value (V and A) at 0.5% basic accuracy ● 1500A AC ● Harmonic Analysis (V and A) to the 99th Order in % and in magnitude ● Better Understanding of High Frequency Harmonic Analysis (up to 5/6 KHz) ● Non-interrupted Harmonic Analysis ● Analysis of Total Harmonic Distortion (%THD-F) ● Analysis of Crest Factor (C.F.) ● Fast Peak Function (33μs for 60Hz and 39μs for 50Hz)
- Max, Min and Data Hold Function

**General Specifications**

- Jaw Opening** : Cable Dia 55mm (approx.), 64 x 24mm (Bus Bar)
- Battery Type** : 1.5V SUM-3 x 2
- Display** : 4 + 4 digits LCD
- Auto-Power-Off** : 30 minutes
- LCD update rate** : 2 times / sec.
- Operating Temperature** : -10°C to 50°C
- Storage Temperature** : -20°C to 60°C
- Option** : alligator clips
- Power Consumption** : 10mA (approx.)
- No. of Samples/Period** : 512 (V & A), 256 (W)
- Operating Humidity** : < 85% relative
- Storage Humidity** : < 75% relative
- Weight** : 650gms Including Battery (approx.)
- Dimension** : 271 x 112 x 46 mm
- Accessories** : Test Leads, Carry Bag, Users Manual, Batteries (installed)

**Specifications** (23°C ± 5°C)

Harmonics of AC Current in % & Magnitude (1 - 99th order)				
Range	Resolution in %	Accuracy in %	Resolution in Magnitude	Accuracy in Magnitude
1 - 20th	0.1%	± 2%	0.1A	± 2% of reading ± 0.4A
21 - 49th		4% of reading ± 2.0%		± 4% of reading ± 0.4A
50 - 99th		6% of reading ± 2.0%		± 6% of reading ± 0.4A

Harmonics of AC Voltage in % & Magnitude				
Range	Resolution in %	Accuracy in %	Resolution in Magnitude	Accuracy in Magnitude
1 - 20th	0.1%	± 2%	0.1V	± 2% ± 0.5V
21 - 49th		4% of reading ± 2.0%		± 4% of reading ± 0.5V
50 - 99th		6% of reading ± 2.0%		± 6% of reading ± 0.5V

Crest Factor (C.F., Accuracy of Readings)		
Range	Resolution	Accuracy
1.00 - 99.99	0.01	± 5% ± 30 dgt

AC Watt (50 or 60Hz)		
Range	Resolution	Accuracy
10.0 - 999.9W	0.1W	± 2% ± 20 dgt (> 20V & > 20A)
1.000 - 9.999KW	0.001KW	
10.00 - 99.99KW	0.01KW	± 2% ± 40 dgt (< 20V or < 20A)
100.0 - 999.9KW	0.1KW	
1000 - 9999KW	1KW	

Power Factor & Phase Angle		
Range	Resolution	Accuracy
0.000 - 1.000	0.001	± 0.04
-180° to 180° & 0° to 360°	0.1°	± 2°

AC Current (50 or 60Hz, True RMS)		
Range	Resolution	Accuracy
10.0 to 1500.0A	0.1A	± 2% ± 5 dgts

Total Harmonic Distortion ( THD-F, 1 to 50th order)		
Range	Resolution	Accuracy
0.0 - 20%	0.1%	± 2%
20 - 100%		± 6% of reading ± 1%
100 - 999.9%		± 10% of reading ± 1%

AC Voltage (50 or 60Hz, True RMS)		
Range	Resolution	Accuracy
10.0 to 600.0V	0.1V	± 0.5% ± 5 dgts

Resistance (Ω) and Continuity (Beep if less than 50Ω)		
Range	Resolution	Accuracy
* 7.0 - 999.9Ω	0.1Ω	± 5Ω
1000 - 1200Ω	1Ω	

\* If reading is less than 7Ω, it is displayed as 0Ω

Note: Specifications are subject to change.

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17716 Series

Under BEE's PAT Scheme (Perform, Achieves & Trade) it is mandated to compulsorily improve their Energy Efficiency by adopting all the available measures including replacement of their old Equipments with New and Energy Efficient Equipments

Versatile Handy instrument using micro controller technology and easy to use software program for recording and downloading.

Useful for time to time monitoring of Power Parameters, Energy and Presence of Harmonics at several Location / Machines.

Cost Effective & Efficient Tool for Energy Auditor, Maintenance Persons, Service Providers, Site / Plant Engineers.

Power and Harmonics Analyser can Analyze, Measure, Monitor & Data Log values of Power Quality & Consumption (Energy). Capable of analyzing IT standby power consumption to the maximum demand of factory. It comes with a user friendly application software that increases the utility & performance of this instrument. The analyzer is ideal for an any Engineer / Inspector for carrying out Periodic Visits, Maintenance of Plant, Vigilance checks, Surveys and Energy Audits for checking at Industrial and Consumers end.

**Features:**

- Analysis of 3P4W, 3P3W, 1P2W, 1P3W Systems
- Display of 35 Parameters in one screen (3P4W)
- Programmable CT (1 to 600) and PT (1 to 3000) Ratios
- Graphic Phasor Diagram
- RMS, PEAK Value & Crest Factor
- True RMS value, Active Power, Apparent & Reactive Power (KVA, KVAR)
- Power Factor, Phase Angle (Φ) & Energy (WH, KWH, KVARH, PFH)
- Average / Maximum Demand (KW, MW, KVA, MVA) with Programmable Period
- Display of 50 Harmonics in one Screen with Wave form with Peak value (1024 Sample / Period)
- Analysis of total Harmonic Destoration (THD-F)
- Capture 28 Transient Events with Programmable Threshold (%) (DIP, SWELL & OUTAGE)
- Built in timer & Calander for Data Logging
- Facility to retrieve Power Data & Harmonics on Meter Screen
- 512K Memory with Programmable Interval (2 to 3000 seconds, 17000 records for 3P4W System)
- Optical Isolated RS-232C ~ USB Interface
- Software for easy download of Recorded Data & Transient events
- Calculated Unbalanced Current through Neutral line

**General Specification : 17716 Series**

<b>Battery Type</b>	1.5V SUM-3 x 8	<b>Operating Condition</b>	-10°C to 50°C ≤ 85% RH
<b>External DC Input</b>	Power supply adapter 12 Volts. DC	<b>Storage Condition</b>	-20°C to 60°C ≤ 75% RH
<b>Display</b>	Dot Matrix LCD (240x128) with backlight	<b>Dimension</b>	257 x 155 x 57 mm
<b>LCD Update Rate</b>	1 time / second	<b>Weight</b>	1160 g (Batteries included)
<b>Power Consumption</b>	140mA (approx.)	<b>Accessories</b>	Voltage Test Leads x 4 (3 meter long )
<b>No. Of Samples</b>	1024 samples / period		Alligator Clips (Voltage) x 4 (R.Y.B.N.)
<b>Data Logging Files</b>	85		Carrying Bag x 1
<b>Max. File Capacity</b>	17474 records (3P4W, 3P3W)		Batteries 1.5V DC x 8
	26210 records (1P3W)		External DC Adaptor x 1
	52420 records (1P2W)		Software CD x 1
	4096 records (50 Harmonics / record)		Users Manual x 1
<b>Sampling Time</b>	2 to 3000 seconds for data logging		Software Manual x 1
<b>Low battery Indication</b>	<input type="checkbox"/> B		Optical USB Cable x 1
<b>Overload Indication</b>	OL		Current Clamps x 3 (Any One CT Set)

Note: Specifications are subject to change.

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Data Logging on Meter & PC



Data Retrieval for Energy Study & Audit




**Ordering Information**

Order Code : 17716C = 17716 Series 17716AA1  
Order Code : 17716D = 17716 Series 17716AA2

Order Code : 17716E = 17716 Series 17716AA3  
Order Code : 17716F = 17716 Series 17716AA4




Order Code : 17716AA1  
3 pcs (R,Y,B) Clamp - On CTs  
Conductor Size : 30mm (approx.)  
Range : 1 / 10 / 100A



OR

Order Code : 17716AA2  
3 pcs (R,Y,B) Clamp - On CTs  
Conductor Size : 55mm (approx.) Busbar 64 x 24mm  
Range : 10 / 100 / 1000A



OR

Order Code : 17716AA3  
3 pcs Flexible CTs  
Probe Length : 24" / 610mm (approx.)  
Minimum bending Diameter : 35mm  
Conector Diameter : 23mm  
Cable Diameter : 14mm  
Cable Length from Probe to Box : 1700mm  
Cable Length from Box to Output : 1700mm  
Range : 300 / 3000A



OR

Order Code : 17716AA4  
3 pcs Flexible CTs  
Probe Length : 18" / 460mm (approx.)  
Minimum bending Diameter : 35mm  
Conector Diameter : 23mm  
Cable Diameter : 14mm  
Cable Length from Probe to Box : 1700mm  
Cable Length from Box to Output : 1700mm  
Range : 120 / 1200A



Note: Specifications are subject to change.

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**Specifications :** (23°C ± 5°C)

**AC Current**

(50Hz or 60Hz, Auto Range, True RMS, Crest Factor < 4, CT = 1)

Order Code : 17716C (100A) (Overload Protection AC 200A)

Range	Resolution	Accuracy of Readings
0.04 - 1A	1mA	± 0.5% ± 0.05A
0.4 - 10A	0.01A	± 0.5% ± 0.05A
4 - 100A	0.1A	± 1.0% ± 0.5A

Order Code : 17716D (1000A) (Overload Protection AC 2000A)

Range	Resolution	Accuracy of Readings
10.00A	0.001A / 0.01A	-
5A - 100.0A	0.01A / 0.1A	± 0.5% ± 0.5A
40A - 1000.0A	0.1A / 1A	± 0.5% ± 5A

Order Code : 17716E (3000A) (Overload Protection AC 3000A)

Range	Resolution	Accuracy of Readings
10.0 - 300.0A	0.1A	± 1% of range
300.0 - 3000A	0.1A / 1A	

Order Code : 17716F (1200A) (Overload Protection AC 1200A)

Range	Resolution	Accuracy of Readings
6.0 - 120.0A	0.1A	± 1% of range
120.0 - 1200A	0.1A / 1A	

**Harmonic of AC Voltage in Percentage**

Range	Resolution	Accuracy
1 - 20th	0.1%	± 2%
21 - 49th		± 4% of reading ± 2.0%
50 - 99th		± 6% of reading ± 2.0%

**Harmonic of AC Current in Percentage**

Order Code : 17716C (100A)

Range	Resolution	Accuracy
1 - 10th	0.1%	± 0.2% of reading ± 1%
11 - 20th		± 2% of reading ± 1%
21 - 50th (A range)		± 5% of reading ± 1%
21 - 50th (mA range)		± 10% of reading ± 1%
51 - 99th		± 35% of reading ± 1%

Order Code : 17716D (1000A)

Range	Resolution	Accuracy
1 - 20th	0.1%	± 2%
21 - 49th		± 4% of reading ± 2.0%
50 - 99th		± 6% of reading ± 2.0%

Order Code : 17716E (3000A) & 17716F (1200A)

Range	Resolution	Accuracy
1 - 20th	0.1%	± 2%
21 - 50th		± 6%
51 - 99th		± 10%

**AC Watt**

(50Hz or 60Hz, PF 0.5 ~ 1, CT = 1, continuous waveform)

Order Code : 17716C (100A)

Range (0 to 100A)	Resolution	Accuracy of Readings
5.0 - 999.9W	0.1W	± 1% ± 0.8W
1.000 - 9.999KW	0.001KW	± 1% ± 8W
10.00 - 99.99KW	0.01KW	± 1% ± 80W
100.0 - 999.9KW	0.1KW	± 1% ± 0.8KW
1000 - 9999KW	1KW	± 1% ± 8KW

Order Code : 17716D (1000A)

Range (0 to 1000A)	Resolution	Accuracy of Readings
5.0 - 999.9W	0.1W	± 1% ± 0.8W
1.000 - 9.999KW	0.001KW	± 1% ± 8W
10.00 - 99.99KW	0.01KW	± 1% ± 80W
100.0 - 999.9KW	0.1KW	± 1% ± 0.8KW
1000 - 9999KW	1KW	± 1% ± 8KW
0.000 - 9.999MW	0.001MW	± 1% ± 80KW

Order Code : 17716E (3000A)

Order Code : 17716F (1200A)

Range (0 to 3000A or 0 to 1200A)	Resolution	Accuracy of Readings	
		> 20V & > 30A	< 20V or < 30A
10.0 - 999.9W	0.1W	± 1% of range	± 2% of range
1.000 - 9.999KW	0.001KW		
10.00 - 99.99KW	0.01KW		
100.0 - 999.9KW	0.1KW		
1000 - 9999KW	1KW		

**AC Voltage**

(50Hz or 60Hz, Auto Range, True RMS, Crest Factor < 4, Input Impedance 10MΩ, VT (PT) = 1, Overload Protection AC 800V)

Range	Resolution	Accuracy of Readings
20.0V - 500.0V (Phase to Neutral)	0.1V	± 0.5% ± 5dpts
20.0V - 600.0V (Phase to Phase)		

**Power Factor (PF)**

Order Code : 17716C (100A) & Order Code : 17716D (1000A)

Range	Resolution	Accuracy
0.00 - 1.00	0.01	± 0.04

Order Code : 17716E (3000A) & Order Code : 17716F (1200A)

Range	Resolution	Accuracy	
		> 20V & > 30A	< 20V or < 30A
0.000 - 1.000	0.001	± 0.04	± 0.1

Note: Specifications are subject to change.

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