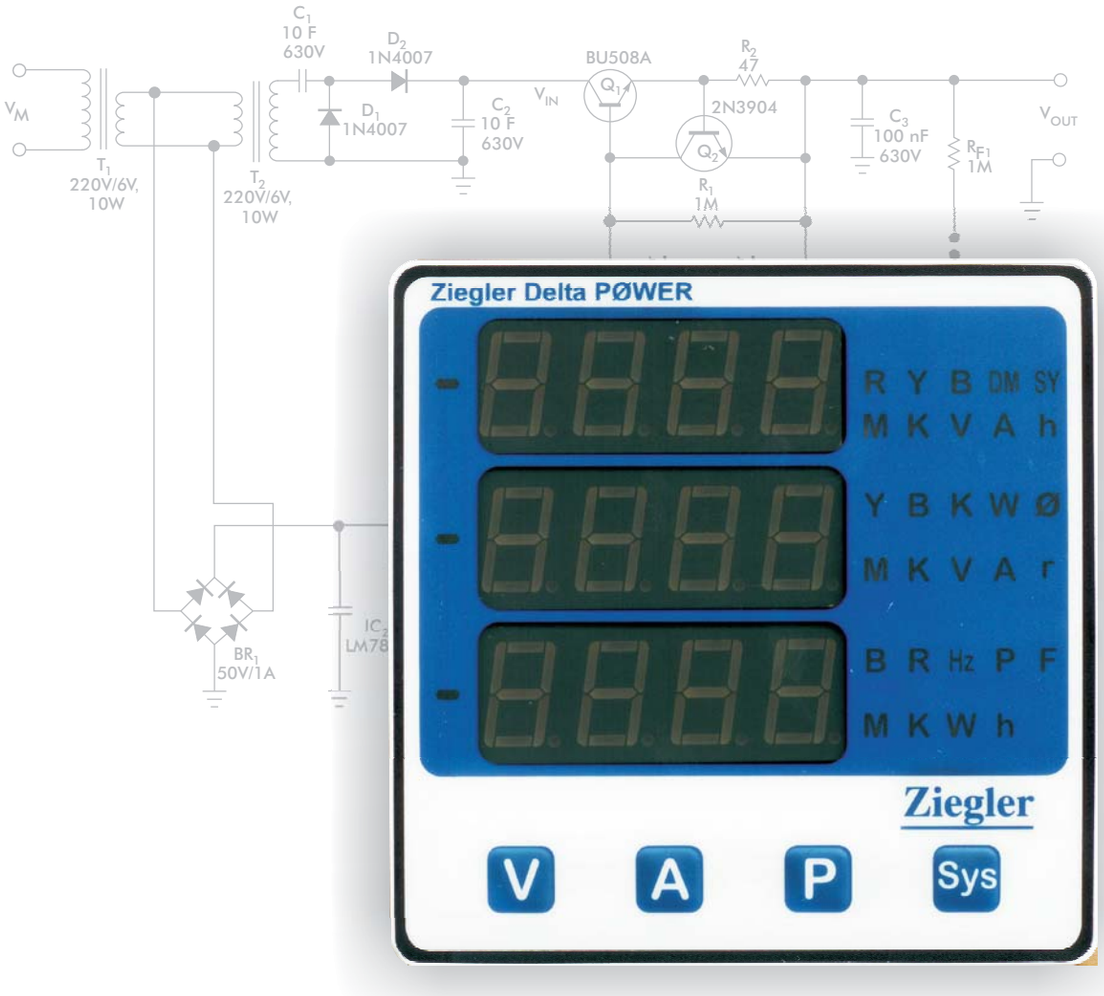
ZIEGLER Delta PØWER

Digital Multifunction Instrument



Application

Ziegler Delta PØWER measures important electrical parameters in 3 phase 4 Wire and 3 phase 3 Wire Network & replaces the multiple analog panel meters. It measures electrical parameters like AC Voltage,AC Current, Frequency, Active, Reactive, Apparent Power & many more.

Salient Features

- Fast & Easy Installation on panel with self clicking.
- True RMS measurement.
- Limit Switch (optional).
- 3 Line 4 Digits ultra bright LED Display (up to 9999).
- On site Programmable CT/PT Ratios.
- User selectable CT Secondary 1A/5A.
- User selectable PT Secondary from 100 VLL to 500 VLL.
- User selectable 3ph3wire / 3ph4wire / single phase Network.
- Two auxillary Power Supply available 40V – 300V AC DC or 12V-48V DC.
- Storage of MIN / MAX values.
- Measurement & Display of RPM, Run hours, On hours, No. of interruption.

Products Features

On site programmable PT/CT ratios:

It is possible to program primary of external potential Transformer (PT), primary of external Current Transformer (CT) on site via front panel keys by entering into Programming mode.

User selectable CT Secondary 5A/1A

The secondary of external Current Transformer (CT) can be programmed on site to either 5A or 1A using front panel keys.

User selectable PT Secondary

The secondary of external Potential Transformer (PT) can be programmed on site from 100VLL to 500VLL using front panel keys.

User can set the display in auto scrolling mode or fixed screen mode using front panel keys.

Onsite selection of Auto scroll / Fixed Screen

User can set the display in auto scrolling mode or fixed screen mode using front panel keys.

Low back depth:

The instrument has very low back depth (behind the panel) of less than 55 mm(Without output option).

True RMS measurement

The instrument measures distorted waveform up to 15th Harmonic.

RPM Measurement: The instrument display Rotation per minutes for generator applications. Number of poles can be set on site depending upon application requirement.

Optional Limit switch (Relay):

The instrument will trip the relay if the programmed parameter exceeds the programmed Trip Limits.

3 line 4 digits LED display:

Simultaneous display of 3 Parameters.

User selectable 3 phase 3Wire or 4Wire or Single phase Network

User can program on site the network connection as either 3 Phase 3 Wire or 4 Wire or single phase network using front panel keys.

In case of self powered Ziegler Delta only either 3 Phase 4 wire or single phase network are available.

Storage of parameters possible

The instrument stores minimum and maximum values for System Voltage, System Current, Run Hour, ON Hour & number of Interrupts. Every 60 sec stored values are updated.

Four function keys:

Using the four function key, it is possible to go desired parameter screen instantly.

Enclosure Protection for dust and water
Conforms to IP 50 (for front face) & IP 20 (for back)
IP 65 (for front with seal) as per IEC60529.

EMC Compatibility
Compliance to International standard IEC 61326.

☐ Interference Emission	IEC 61326-1 : 2005, Class A
☐ Interference Immunity	IEC 61326-1 : 2005
☐ Electrostatic discharge contact/air. (ESD)	IEC 61000-4-2 -- 4kV/8kV
☐ EM Field	IEC 61000-4-3 -- 10 V/m (80 MHz to 1 GHz) – 3 V/m (1.4 Ghz to 2 GHz) -- 1 V/m (2 GHz to 2.7 GHz)
☐ Burst	IEC 61000-4-4 -- 2 kV (5/50 ns, 5 kHz)
☐ Surge	IEC 61000-4-5 -- 1 kVLL / 2 kVLN.
☐ Conducted RF	IEC 61000-4-5 -- 3 V (150 kHz to 80 MHz)
☐ Rated Power Frequency magnetic Field	IEC 61000-4-8 -- 30 A/m
☐ Voltage dip	IEC 61000-4-11 -- 0% during 1 cycle. -- 40% during 10/12 cycles. -- 70% during 25/30 cycles.
☐ Short interruptions cycles.	IEC 61000-4-11 -- 0% during 25/30 cycles. 25 cycles for 50 Hz test. 30 cycles for 60 Hz test.

Technical Specifications

Input Voltage

Nominal input voltage (AC RMS)	Phase –Neutral 290V L-N , Line-Line 500V L-L
Max continuous input voltage	120% of rated value
Nominal input voltage burden	< 0.3 VA approx. per phase (For external auxiliary meter)
System PT secondary values	100VLL to 500VLL programmable on site.
System PT primary values	100VLL to 692kVLL programmable on site.

Input Current

Nominal input current	5A / 1A AC RMS
System CT secondary values	1A & 5A programmable on site.
System CT primary values	From 1A up to 9999A (for 1 or 5 Amp)
Max continuous input current	120% of rated value
Nominal input current burden	< 0.2 VA approx. per phase

Auxiliary Supply

AC DC External Aux	40 V – 300V AC-DC (± 5 %)
DC Auxiliary Supply	12V- 48V DC
Self powered	input voltage range from 80% to 100% of Rated value. (Self powered meter is available only in 3Phase 4 Wire and Single Phase network.) Auxiliary input is derived from Phase 1 (R phase)
Frequency range	45 to 65 Hz
VA burden	3 VA Approx.
DC burden	3W

Overload Withstand

Voltage	2 x rated value for 1 second, repeated 10 times at 10 second intervals
Current	20x rated value for 1 second, repeated 5 times at 5 min intervals

Technical Specifications

Operating Measuring Ranges

Voltage Range With External Aux	10… 120% of rated value
Voltage Range With Self Power	80… 120% of rated value
Current Range	10 … 120% of rated value
Frequency	45…65 Hz
Power Factor	0.5 Lead ... 1 ... 0.5 Lag

Reference conditions for Accuracy

Reference temperature	23°C +/- 2°C
Input waveform	Sinusoidal (distortion factor 0.005)
Input frequency	50 or 60 Hz ±2%
Auxiliary supply voltage	Rated Value ±1%
Auxiliary supply frequency	Rated Value ±1%
Voltage Range	20... 100% of Nominal Value.
Current Range	10... 100% of Nominal Value.
Power	Cos phi / sin phi = 1 for Active / Reactive Power respectively. 10... 100% of Nominal Current & 20... 100% of Nominal Voltage.
Power Factor / Phase Angle	40... 100% of Nominal Current & 20... 100% of Nominal Voltage.

Accuracy

Voltage	±1.0% of Nominal value
Current	±1.0% of Nominal value
Frequency	0.5% of mid frequency
Active Power	±1% of Nominal value
Re-Active Power	±1% of Nominal value
Apparent Power	±1% of Nominal value
Power Factor	2 % of Unity
Phase angle	2 % of range

Measurement error is normally much less than error specified above.
Variation due to influence quantity is less than twice the error allowed for reference condition.

Limit Switch (Relay)

Switching Voltage & Current for Relay	240 VDC ,5 A (1NO+1NC)

Influence of Variations

Temperature coefficient (for rated value range of use (0…50°C)) 0.05%/°C for Current	0.025%/°C for Voltage

Display update rate

Response time to step input	1 sec approx.

Applicable Standards

EMC	IEC 61326-1: 2005
Safety	IEC 61010-1-2001 , Permanently connected use
IP for water & dust	IEC60529

Technical Specifications

Safety

Pollution degree:	2
Installation category:	III
High Voltage Test	3.7 kV AC, 50Hz for 1 minute between Aux. and measuring inputs

Environmental

Operating temperature	0 to +50°C
Storage temperature	-25°C to +70°C
Relative humidity	0... 90% non condensing
Warm up time	Minimum 3 minute
Shock	15g in 3 planes
Vibration	10... 55 Hz, 0.15mm amplitude

Enclosure

Front	IP 50.
Front with seal (Option)	IP 65.
Back	IP 20.

Dimensions and Weights

Bezel size	96 mm x 96 mm DIN 43 718.
Panel cut-out	92 +0.8 mm x 92 + 0.8 mm.
Overall depth	55 mm.(without output option)
Panel Thickness	1 - 3 mm for self clicking, 1 – 6 mm for swivel screws.
Weight	320 gm. Approx.(with output option)

Parameter measurement and Display

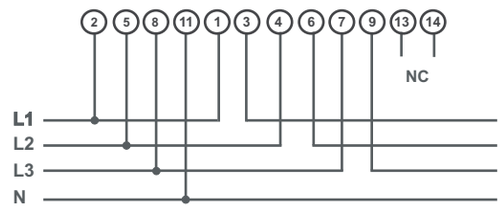
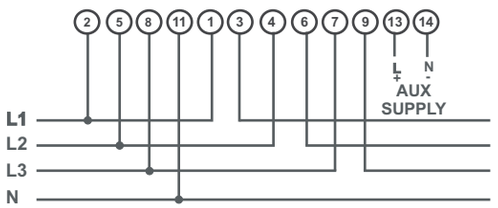
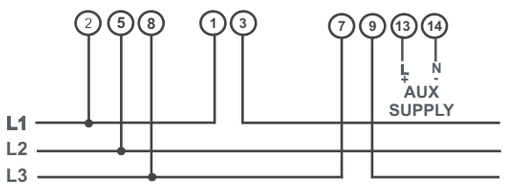
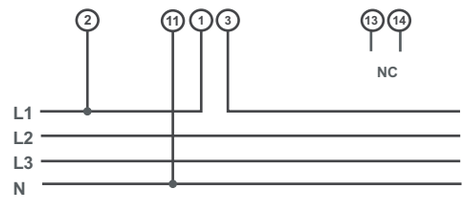
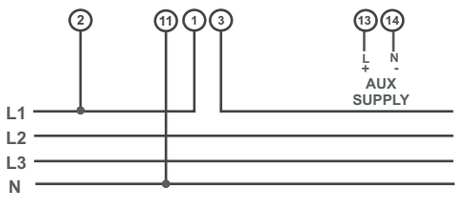
Sr No	Parameter	3 Phase 4 Wire	3 Phase 3 Wire	1 Phase 2 Wire
1	System Volts	✓	✓	✓
2.	System Current	✓	✓	✓
3.	Volts R–N (Phase Voltage for Single phase)	✓	×	✓
4.	Volts Y–N	✓	×	×
5.	Volts B–N	✓	×	×
6.	Volts R-Y	✓	✓	×
7.	Volts Y–B	✓	✓	×
8.	Volts B–R	✓	✓	×
9.	Current R (Phase Current for Single phase)	✓	✓	✓
10.	Current Y	✓	✓	×
11.	Current B	✓	✓	×
12.	Frequency	✓	✓	✓
13.	System Active Power (kW)	✓	✓	✓
14.	Active Power R (Phase Power for Single phase) (kW)	✓	×	✓
15.	Active Power Y (kW)	✓	×	×
16.	Active Power B (kW)	✓	×	×
17.	System Re-active Power (kVAr)	✓	✓	✓
18.	Re-active Power R (Phase Power for Single phase) (kVAr)	✓	×	✓
19.	Re-active Power Y (kVAr)	✓	×	×
20.	Re-active Power B (kVAr)	✓	×	×
21.	System Apparent Power (kVA)	✓	✓	✓

Parameter measurement and Display

Sr No	Parameter	3 Phase 4 Wire	3 Phase 3 Wire	1 Phase 2 Wire
22.	Apparent Power R (Phase Power for Single phase) (kVA)	✓	×	✓
23.	Apparent Power Y (kVA)	✓	×	×
24.	Apparent Power B (kVA)	✓	×	×
25.	System Phase Angle	✓	✓	✓
26.	System Power Factor	✓	✓	✓
27.	Power Factor R	✓	×	✓
28.	Power Factor Y	✓	×	×
29.	Power Factor B	✓	×	×
30.	Phase Angle R	✓	×	✓
31.	Phase Angle Y	✓	×	×
32.	Phase Angle B	✓	×	×
33.	RPM	✓	✓	✓
34.	Max (System Voltage / System Current)	✓	✓	✓
35.	Min (System Voltage / System Current)	✓	✓	✓
36.	Hour Run	✓	✓	✓
37.	ON Hour	✓	✓	✓
38.	Number of auxiliary interrupt	✓	✓	✓

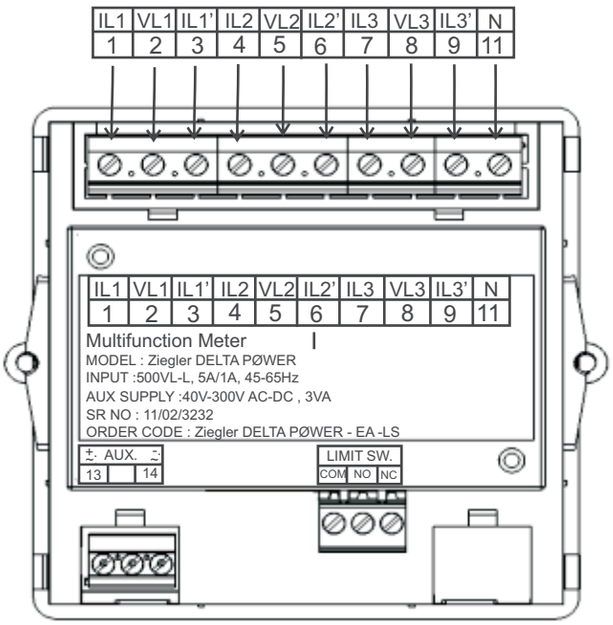
✓- Available × - Not available

Electrical Connections

	Self Powered Aux	External Power ed Aux
3 Phase 4 Wire Unbalanced Load		
3 Phase 3 Wire Unbalanced Load	**Not Applicable**	
1 Phase 2 Wire		

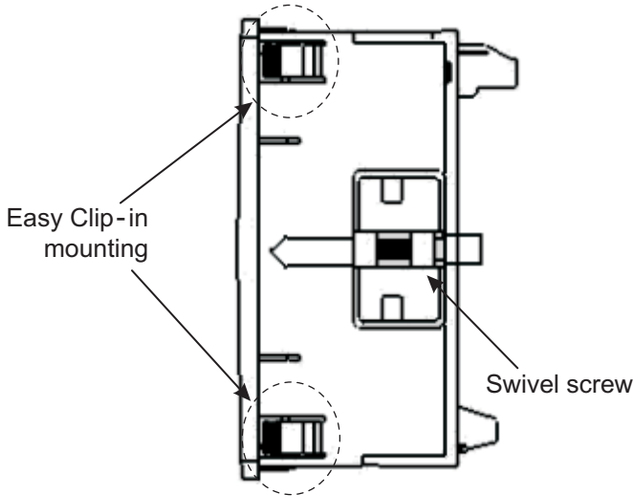
*Note: For Measurement of parameters, Voltage must be present between terminal 2 & 11 for single phase or 3 phase 4 wire network and between terminal 2 & 5 or 2 & 8 for 3 phase 3 wire network.

Rear Connection

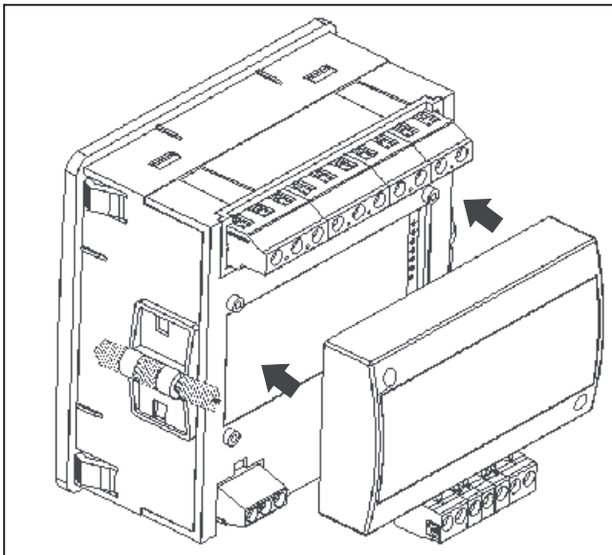


Installation

Easy Clip in Installation on Panel.



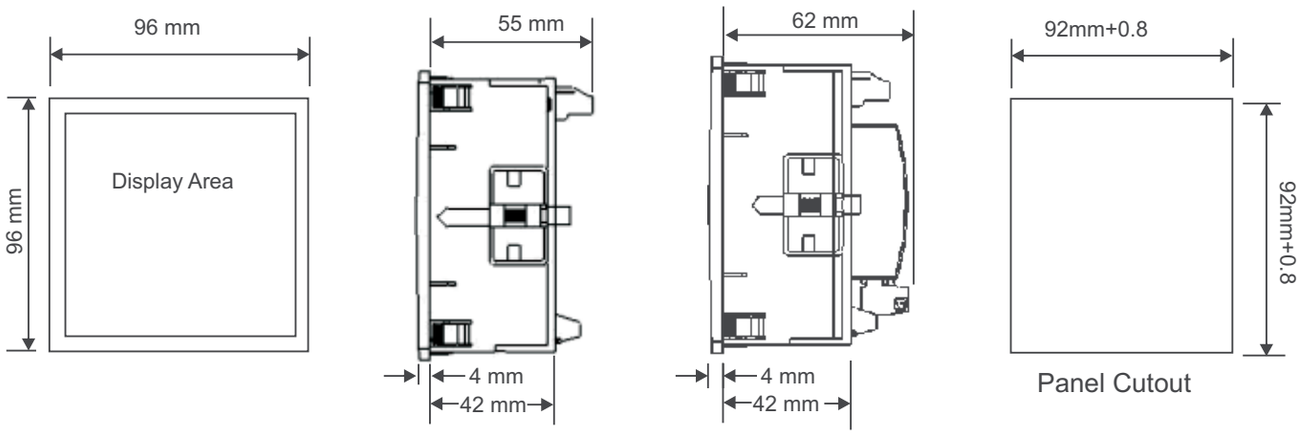
Panel Thickness : 1 - 3 mm for self clicking,
1 – 6 mm for swivel screws.



Optional Limit Switch pluggable module.

Dimension Details

With optional Limit switch.



Ordering information	Ordering Code
	Ziegler Delta PØWER
Auxiliary Supply	
Self Aux*	SA
External Aux	
40 V – 300V AC/DC	EA
12 V – 48V DC	DC
Limit switch (Relay) - Optional	
With Limit switch	LS
Without Limit switch	Z

Order Code Example:

Ziegler Delta **POWER**– **EA - LS**

Ziegler Delta **POWER**, external aux (40V – 300V AC/DC)**,** with limit switch.

***NOTE:** Self Auxiliary meter is available only in 3Phase 4 Wire and Single Phase network.
Auxiliary input is derived from Phase 1 (R phase).
In case of external auxiliary meter all three networks are available
(3Phase 4Wire / 3Phase 3Wire / Single Phase)

Ziegler Instruments always tries for innovation and therefore product specifications are subject to change without notice

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Ziegler
Redefine Innovative Metering