Ziegler

Redefine Innovative Metering

Technical Datasheet

ZAM PVIF

VAF METER

ZAM PVIF

VAF METER

ZAM PVIFmeasures 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 & many more.

Product Features

- **User selectable CT Secondary 5A/1A :**The secondary of external Current Transformer (CT) can be programmed on site to either 5Aor 1Ausing 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
- **On site programmable PT/CT ratios:** It is possible to program primary of external potentialTransformer (PT), primary of external Current Transformer (CT) on site via front panel keys by entering into Programming mode
- **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

- **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
- **Parameter screen recall :**In case of power failures, instrument memorizes the lst displayed screen
- **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 55mm (without output options)
- **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.

ZAM PVIF

VAF METER

Technical Specifications

Display	
Display type	1 Line (20mm display with alphanumeric display)
Dimensions	96 x 96 x 55mm (without options)
Display update rate	1 sec aprrox.
Interface	
Relay (optional)	1 output (240 VDC,5 A)
Conforms standards	
EMC	IEC 61326
Immunity	IEC 61000-4-3 10V/m min – Level 3 industrial Low level
Safety	IEC 61010-1-2001Permanently connected use
IP for water & dust	IEC60529
Pollution degree	2
Installation category	III
High Voltage Test	3510V AC r.m.s, for 1 minute between Enclosure Vs Power supply + All measuring input Power supply Vs All measuring input 2210V AC r.m.s, for 1 minute between Input Voltage Vs Input Current Input Current Vs Input Current

Model	**ZAM PVIF**
Number of parameters measured	18
System	3Ph 4W / 3Ph 3W / 1Ph 2W
Input Details	
Input Voltage	
Nominal input voltage (AC RMS)	100 VL-L - 500 VL-L (57.7 VL-N - 290 VL-N)
PT primary values	100 VLL to 799 kVLL programmable on site
Pt secondary values	100 VLL to 500 VLL programmable on site
Maximum continuous input voltage	120% of nominal value
Input Current	
Nominal input current	1A/5A AC RMS
CT secondary values	1A & 5A (on-site programmable)
CT primary values	1A to 799kA on-site programmable
Maximum continuous input current	120% of nominal value
Operating Measuring Range	
Voltage Range	10...120% of nominal value
Current Range	5...120% of nominal value

ZAM PVIF

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Frequency	45...65Hz
Auxiliary Supply	
AC/DC Auxiliary supply range	40 V – 300V AC-DC (± 5 %) 45…65Hz
	20 V – 40V AC / 20 V – 60V DC
VA Burden (approx.)	
Nominal input voltage burden	< 0.3 VA approx. per phase
Nominal input current burden	< 0.2 VA approx. per phase
Auxiliary supply burden	< 4 VA approx.
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
Accuracy	
Voltage	±1.0% of range
Current	±1.0% of range
Frequency	0.5% of mid frequency
Reference Conditions for Accuracy	
Reference temperature	23°C +/- 2°C
Input frequency	50/60 Hz ± 2%
Current	10... 100% of Nominal value
Voltage	20... 100% of Nominal value
Auxiliary supply frequency	Rated Value ± 1%
Auxiliary supply voltage	Rated Value ± 1%
Environmental	
Operating temperature	-10 to +50°C
Storage temperature	-20°C to +65°C
Relative humidity	0... 90% (non condensing)
Warm up time	Minimum 3 minute
Vibrations	10... 150 ... 10 Hz, 0.15mm amplitude
Shock	15g in 3 planes
Enclosure	IP54 (Front side)
Influence of Variations	
Temperature coefficient :	0.05%/°C

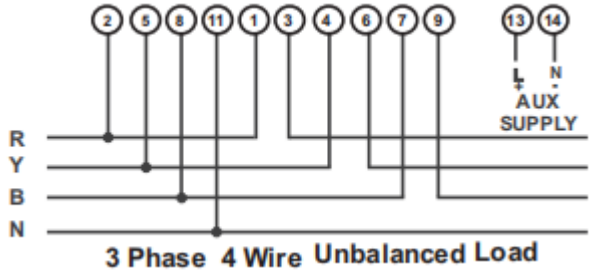
ZAM PVIF

VAF METER

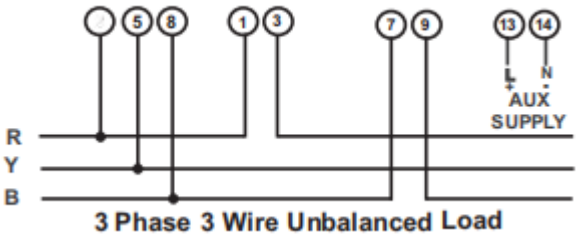
Parameter Measurement

System-wise parameter measurement				
Sr.No.	**Parameter**	**3Ph 4W**	**3Ph 3W**	**1Ph 2W**
1	System Volts	√	√	√
2	System Current	√	√	√
3	Volts L1 – N (phase voltage for single phase system)	√	–	√
4	Volts L2 – N	√	–	–
5	Volts L3 – N	√	–	–
6	Volts L1 – L2	√	√	–
7	Volts L2 – L3	√	√	–
8	Volts L3 – L1	√	√	–
9	Current L1 (phase current for single phase system)	√	√	√
10	Current L2	√	√	–
11	Current L3	√	√	–
12	Frequency	√	√	√
13	RPM	√	√	√
14	Max (System Voltage / System Current)	√	√	√
15	Min (System Voltage / System Current)	√	√	√
16	Hour Run	√	√	√
17	On Run	√	√	√
18	Number of auxiliary interrupt	√	√	√

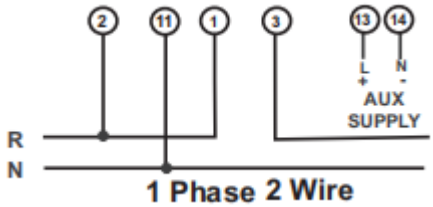
Connection Diagram and Installation



3 Phase 4 Wire Unbalanced Load



3 Phase 3 Wire Unbalanced Load



1 Phase 2 Wire

Dimensions& Installation

ZAM PVIF

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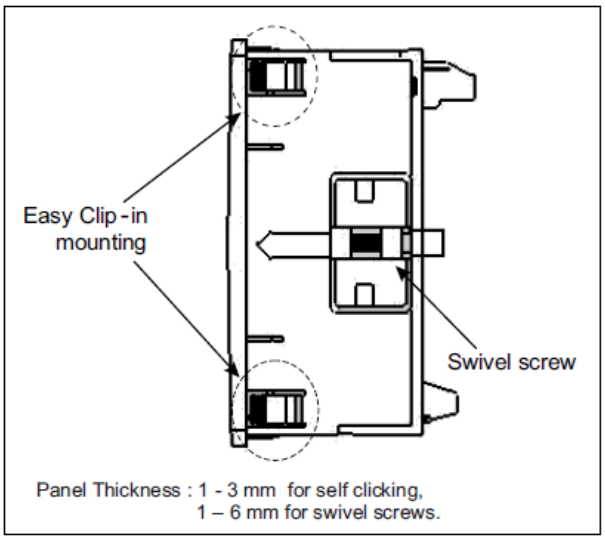

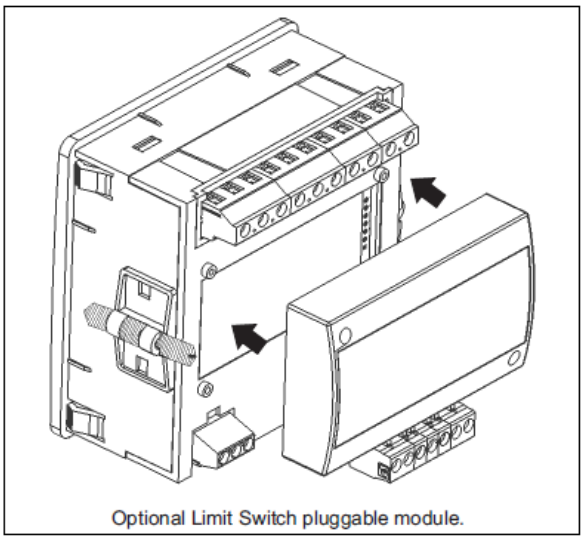

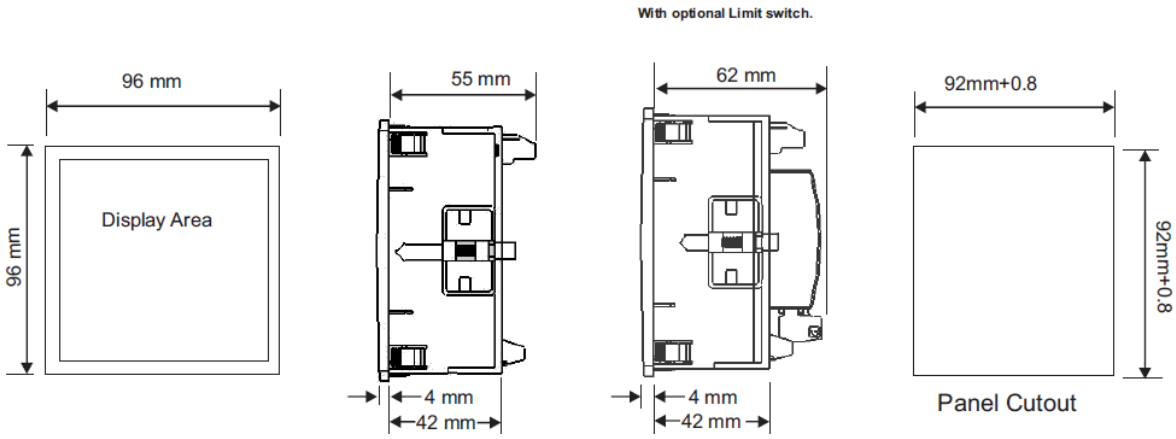

Ordering Information

ModelZAM PVIF	**(✓)**
System Type	
3 Phase (programmable as 4 Wire or 3 Wire on site)	
1 Phase	
Auxiliary Supply	
40 - 300 V AC DC + 5%	
20 - 40 V AC / 20 - 60 V DC	
Limit switch (Relay) - Optional	
With Limit switch	
Without Limit switch	

ZAM PVIF Three Phase, higher aux (40V – 300V AC/DC + 5%), with Limit Output

Ziegler

Redefine Innovative Metering

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Redefine Innovative Metering

Technical Datasheet

ZAM PSAF

DIGITAL MONITORING METER

ZAM PSAF

DIGITAL MONITORING METER

ZAM PSAF 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 & many more.

Product Features

- **User selectable CT Secondary 5A/1A :** The secondary of external Current Transformer (CT) can be programmed on site to either 5Aor 1Ausing 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
- **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 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
- **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
- **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 55mm (without output options)
- **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.

ZAM PSAF

DIGITAL MONITORING METER

Technical Specifications

Display	
Display type	3 Line 4 Digit LED or 1 Line (20mm display with alphanumeric display)
Dimensions	96 x 96 x 55mm (without options)
Interface	
Relay (optional)	1 output (240 VDC,5 A ; 1NO+1NC)
Conforms standards	
EMC	IEC 61326-1: 2005
Safety	IEC 61010-1-2001 Permanently connected use
IP for water & dust	IEC60529
Pollution degree	2
Installation category	III
High Voltage Test	3.3 kV AC, 50Hz for 1 minute between Aux. and measuring inputs
Model	**ZAM PSAF**
Number of parameters measured	18
System	3Ph 4W / 3Ph 3W / 1Ph 2W
Input Details	
Input Voltage	
Nominal input voltage (AC RMS)	290V L-N (Phase-Neutral), 500V L-L (Line-Line)
PT primary values	100VLL to 692kVLL programmable on site
Pt secondary values	100VLL to 500VLL programmable on site
Maximum continuous input voltage	120% of nominal value
Input Current	
Nominal input current	5A AC RMS
CT secondary values	1A & 5A (on-site programmable)
CT primary values	1A...9999A
Maximum continuous input current	120% of nominal value
Operating Measuring Range	
Voltage Range With External Aux	10...120% of nominal value
Voltage Range With Self Power	80...120% of nominal value
Current Range	10...120% of nominal value
Frequency	45...66Hz
Auxiliary Supply	
AC/DC Auxiliary supply range	40 V – 300V AC-DC (± 5 %) 45…65Hz
DC Auxiliary supply range	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)
VA Burden (approx.)	
Nominal input voltage burden	< 0.3 VA approx. per phase (For external auxiliary meter)
Nominal input current burden	< 0.2 VA approx. per phase
Auxiliary supply burden	3 VA approx (AC)
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
Accuracy	
Voltage	±1.0% of range (20... 100% of Nominal value)
Current	±1.0% of range (10... 100% of Nominal value)
Frequency	0.5% of mid frequency
Reference Conditions for Accuracy	
Reference temperature	23°C +/- 2°C
Input frequency	50/60 Hz ± 2%
Input Waveform	Sinusoidal(distortion factor 0.005)
Auxiliary supply frequency	Rated Value ± 1%
Auxiliary supply voltage	Rated Value ± 1%
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
Vibrations	10... 55 Hz, 0.15mm amplitude
Shock	15g in 3 planes
Enclosure	IP 20 (Terminal side) and IP50(Front side)
Influence of Variations	
Temperature coefficient : (for rated value range of use (0…50°C))	0.025%/°C for Voltage 0.05%/°C for Current

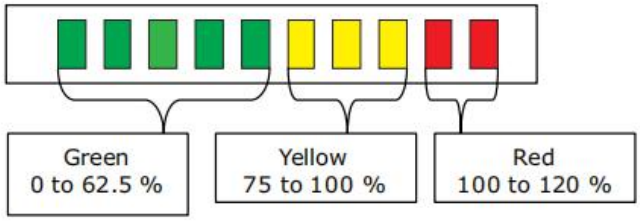
Parameter Measurement

System-wise parameter measurement				
Sr.No.	**Parameter**	**3Ph 4W**	**3Ph 3W**	**1Ph 2W**
1	System Volts	√	√	√
2	System Current	√	√	√
3	Volts L1 – N (phase voltage for single phase system)	√	–	√
4	Volts L2 – N	√	–	–
5	Volts L3 – N	√	–	–
6	Volts L1 – L2	√	√	–
7	Volts L2 – L3	√	√	–
8	Volts L3 – L1	√	√	–
9	Current L1 (phase current for single phase system)	√	√	√
10	Current L2	√	√	–
11	Current L3	√	√	–
12	Frequency	√	√	√
13	RPM	√	√	√
14	Max (System Voltage / System Current)	√	√	√
15	Min (System Voltage / System Current)	√	√	√
16	Hour Run	√	√	√
17	On Run	√	√	√
18	Number of auxiliary interrupt	√	√	√

ZAM PSAF

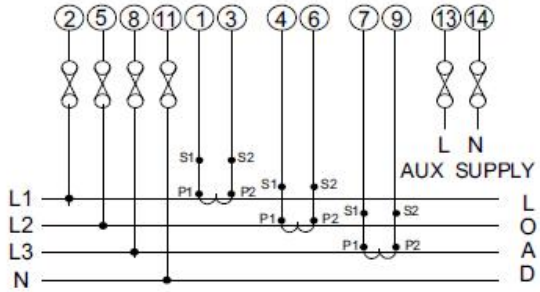
DIGITAL MONITORING METER

Load Manager Indication

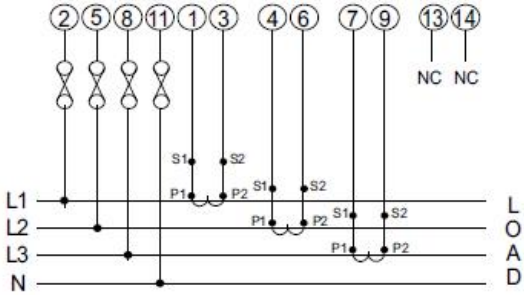


Connection Diagram and Installation

3 phase 4 wire unbalanced load

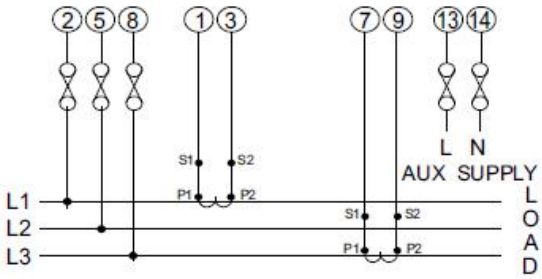


External Aux Powered



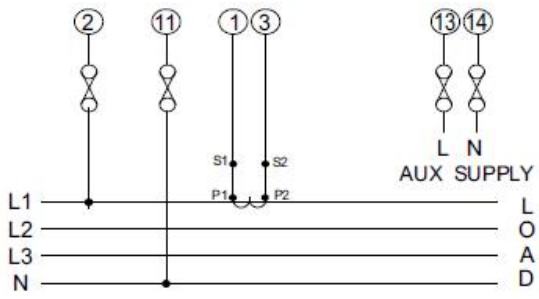
Self Powered

3 phase 3 wire unbalanced load

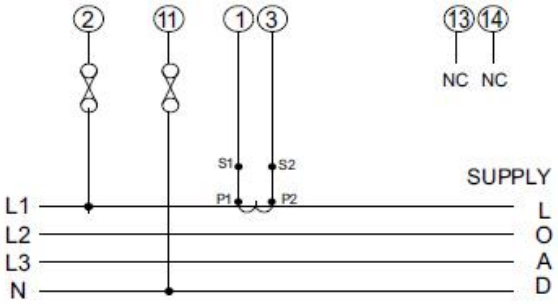


External Aux Powered

1 phase 2 wire load



External Aux Powered

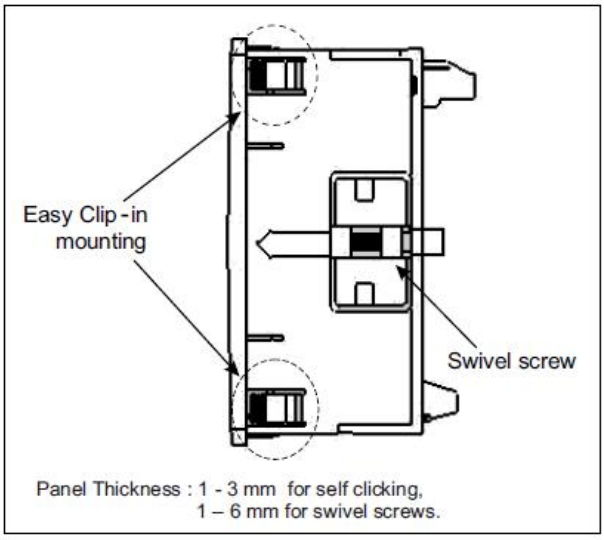


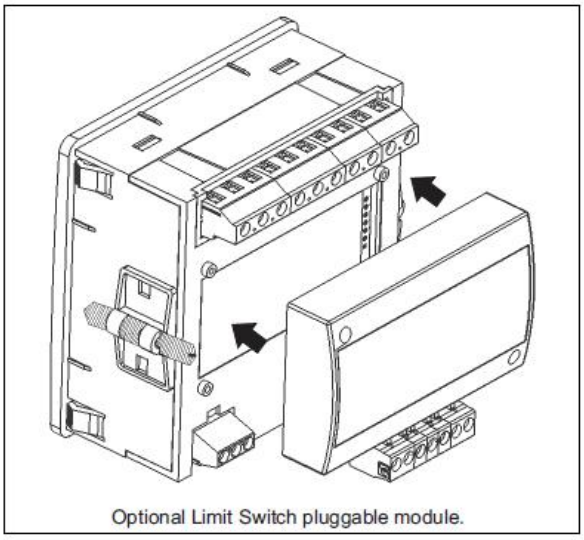
Self Powered

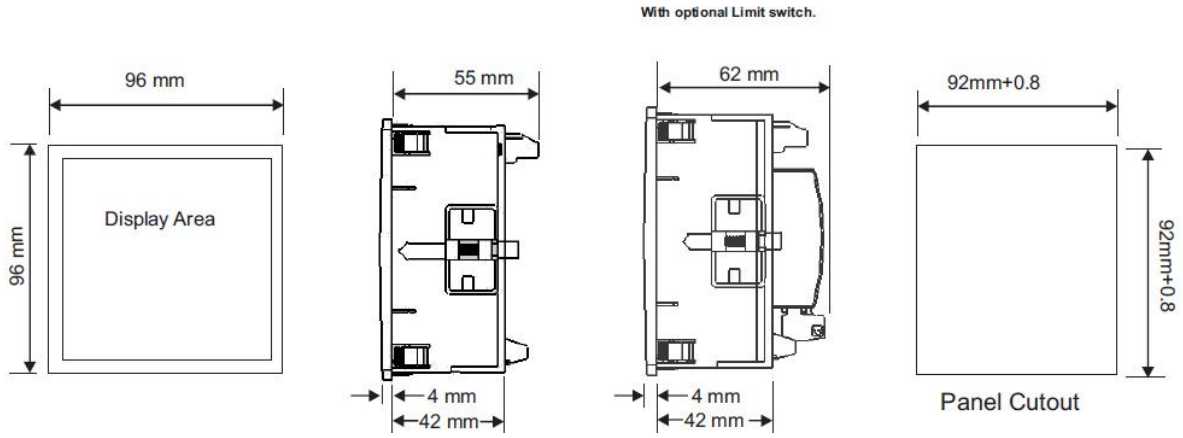
ZAM PSAF

DIGITAL MONITORING METER

Dimensions







Ordering Information

Model ZAM PSAF	(✓)
Display	
3 Line 4 Digit LED	
1 Line (20mm display with alphanumeric display)	
Auxiliary Supply	
Self Aux	
12 V – 48V DC	
40 V – 300V AC/DC	
Limit switch (Relay) - Optional	
With Limit switch	
Without Limit switch	

ZAM PSAF with self auxiliary supply without limit switch

Ziegler

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Redefine Innovative Metering

Technical Datasheet

ZAM PLEI

DIGITAL POWER MONITORING METER

ZAM PLEI

DIGITAL POWER MONITORING METER

ZAM PLEI is a Power Monitoring meter that measures basic AC electrical parameters in 1Ø and 3Ø systems. It displays electrical parameters like AC voltage, current, frequency, power.

Product Features

- True RMS measurement
- Fast & Easy Installation on panel with self clicking
- On site Programmable CT/PT Ratios
- Hour Run, ON Hour, Number of Interruptions
- Storage of Minimum and Maximum values
- User selectable 3Ø 3wire / 3Ø 4wire / 1Ø 2wire Network
- IP 50 protection for front
- Low back depth of 55mm without output option
- Compliance to International safety standard IEC 61010-1-2001
- Optional feature of limit switch output

Technical Specifications

Display	
Display type	3 Line 4 Digits ultra bright LED Display (up to 9999)
Dimensions	96 x 96 x 55mm
Update Rate	1 sec approx
Interface	
Relay (optional)	1 output (240 VDC,5 A ; 1NO+1NC)
Conforms standards	
EMC	IEC 61326-1: 2005
Safety	IEC 61010-1-2001 Permanently connected use
IP for water & dust	IEC60529
Pollution degree	2
Installation category	III
High Voltage Test (for 1 minute)	3510V AC r.m.s - Enclosure Vs Power supply + All measuring input Power supply Vs All measuring input 2210V AC r.m.s - Input Voltage Vs Input Current Input Current Vs Input Current
Model	**ZAM PLEI**
Number of parameters measured	38
System	3Ph 4W / 3Ph 3W / 1Ph 2W
Input Details	
Input Voltage	
Nominal input voltage (AC RMS)	290V L-N (Phase-Neutral), 500V L-L (Line-Line)
PT primary values	100VLL to 692kVLL programmable on site
Maximum continuous input voltage	120% of nominal value
Input Current	
Nominal input current	1A/5A AC RMS
CT secondary values	1A & 5A (on-site programmable)

CT primary values	1A...9999A
Maximum continuous input current	120% of nominal value
Operating Measuring Range	
Voltage Range With External Aux	10...120% of nominal value
Voltage Range With Self Power	80...120% of nominal value
Current Range	10...120% of nominal value
Frequency	45...66Hz
Power Factor	0.5 Lag...1...0.5 Lead
Auxiliary Supply	
AC/DC Auxiliary supply range	40 V – 300V AC-DC (± 5 %) 45…65Hz
DC Auxiliary supply range	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)
VA Burden (approx.)	
Nominal input voltage burden	< 0.3 VA approx. per phase (For external auxiliary meter)
Nominal input current burden	< 0.2 VA approx. per phase
Auxiliary supply burden	3 VA approx (AC) 3 W approx (DC)
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
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
Reference Conditions for Accuracy	
Reference temperature	23°C +/- 2°C
Input frequency	50/60 Hz ± 2%
Input Waveform	Sinusoidal(distortion factor 0.005)
Auxiliary supply frequency	50/60 Hz ± 1%
Current Range	10... 100% of Nominal Value
Voltage Range	20... 100% of Nominal Value
Power factor/Phase Angle	40... 100% of Nominal Current & 20... 100% of Nominal Voltage
Power	Cos phi / sin phi = 1 for Active / Reactive Power respectively. 10... 100% of Nominal Current & 20... 100% of Nominal Voltage
Environmental	
Operating temperature	0 to +50°C
Storage temperature	-25°C to +70°C
Relative humidity	0... 90% (non condensing)

ZAM PLEI

DIGITAL POWER MONITORING METER

Warm up time	Minimum 3 minute
Vibrations	10... 55 Hz, 0.15mm amplitude
Shock	15g in 3 planes
Enclosure	IP 20 (Terminal side) and IP50(Front side)

Parameter Measurement

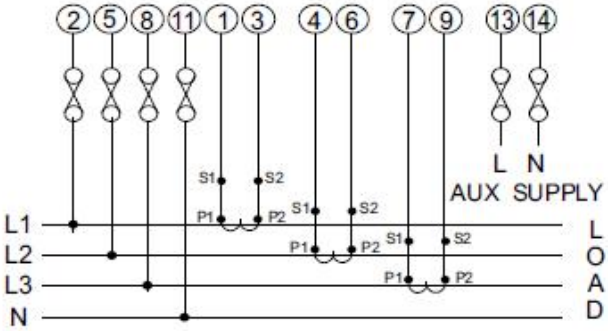
System-wise parameter measurement				
Sr.No.	**Parameter**	**3Ph 4W**	**3Ph 3W**	**1Ph 2W**
1	System Volts	√	√	√
2	System Current	√	√	√
3	Volts L1 – N (phase voltage for single phase system)	√	–	√
4	Volts L2 – N	√	–	–
5	Volts L3 – N	√	–	–
6	Volts L1 – L2	√	√	–
7	Volts L2 – L3	√	√	–
8	Volts L3 – L1	√	√	–
9	Current L1 (phase current for single phase system)	√	√	√
10	Current L2	√	√	–
11	Current L3	√	√	–
12	Frequency	√	√	√
13	System Active Power (kW)	√	√	√
14	Active Power L1 (kW)	√	–	–
15	Active Power L2 (kW)	√	–	–
16	Active Power L3 (kW)	√	–	–
17	System Re-active Power (kVAr)	√	√	√
18	Re-active Power L1 (kVAr)	√	–	–
19	Re-active Power L2 (kVAr)	√	–	–
20	Re-active Power L3 (kVAr)	√	–	–
21	System Apparent Power (kVA)	√	√	√
22	Apparent Power L1 (kVA)	√	–	–
23	Apparent Power L2 (kVA)	√	–	–
24	Apparent Power L3 (kVA)	√	–	–
25	System Power Factor	√	√	√
26	Power Factor L1	√	–	–
27	Power Factor L2	√	–	–
28	Power Factor L3	√	–	–
29	System Phase Angle	√	√	√
30	Phase Angle L1	√	–	–
31	Phase Angle L2	√	–	–
32	Phase Angle L3	√	–	–
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	√	√	√

ZAM PLEI

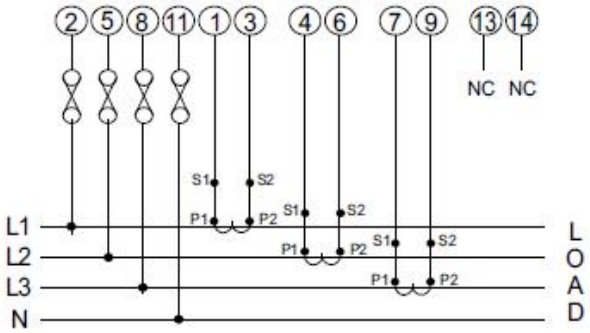
DIGITAL POWER MONITORING METER

Connection Diagram and Installation

3 phase 4 wire unbalanced load

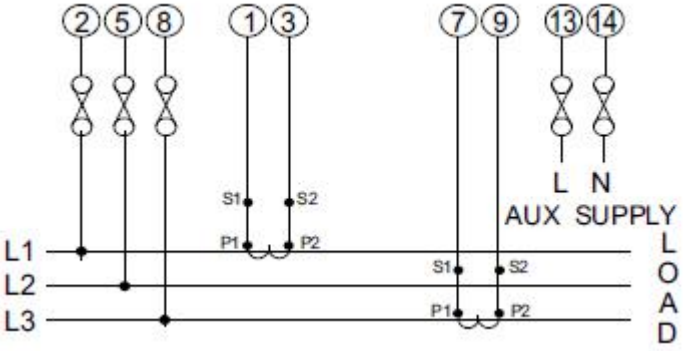


External Aux Powered



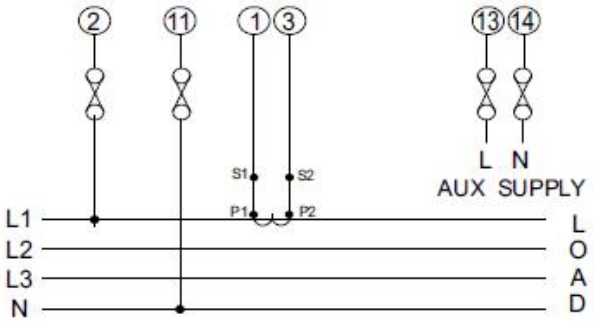
Self Powered

3 phase 3 wire unbalanced load

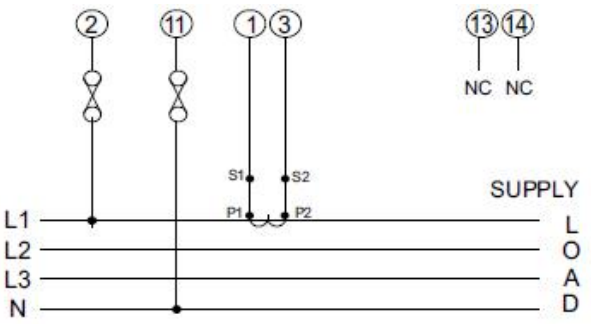


External Aux Powered

1 phase 2 wire load



External Aux Powered

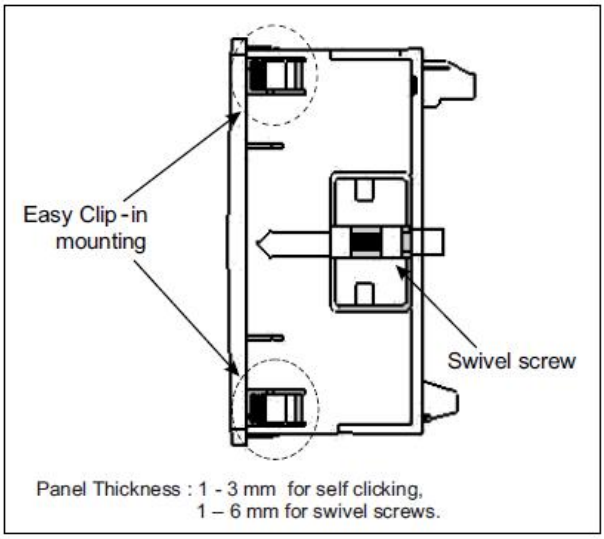


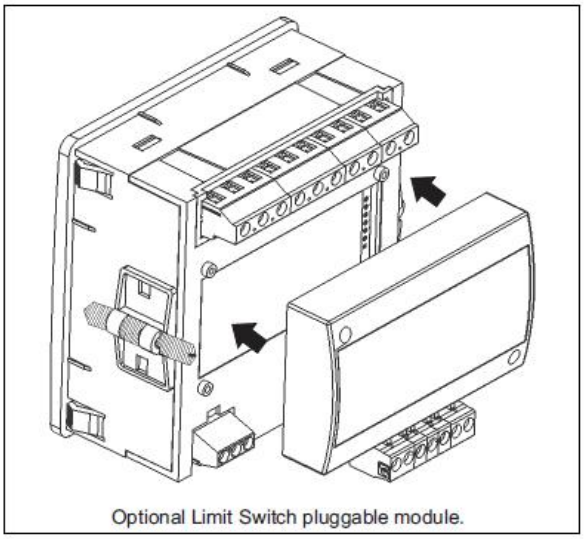
Self Powered

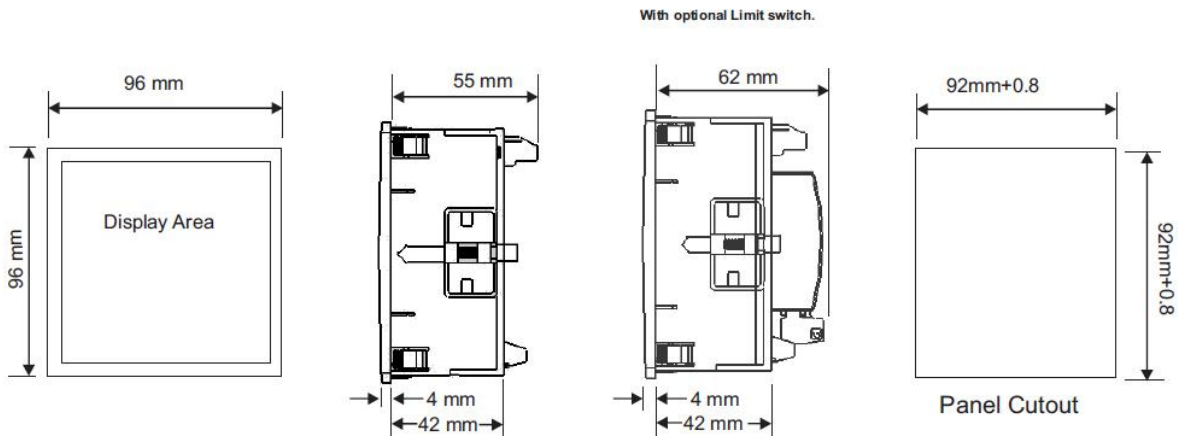
ZAM PLEI

DIGITAL POWER MONITORING METER

Dimensions







Ordering Information

Model	(✓)
ZAM PLEI	
Auxiliary Supply	
Self Aux	
External Aux	
12 V – 48V DC	
40 V – 300V AC/DC	
Limit switch (Relay) - Optional	
With Limit switch	
Without Limit switch	

ZAM PLEI with self auxiliary supply without limit switch

Ziegler

Redefine Innovative Metering

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Technical Datasheet

ZAM ENEO

DIGITAL ENERGY MONITORING METER

ZAM ENEO

DIGITAL ENERGY MONITORING METER

Power Monitoring meter that measures basic AC electrical parameters in 1Ø and 3Ø systems. It displays electrical parameters like AC voltage, current, frequency, power.

Product Features

- True RMS measurement
- Fast & Easy Installation on panel with self clicking
- On site Programmable CT/PT Ratios
- Hour Run, ON Hour, Number of Interruptions
- Storage of Minimum and Maximum values
- MODBUS (Rs485) Communication (optional)
- User selectable 3Ø 3wire / 3Ø 4wire / 1Ø 2wire Network
- IP 50 protection for front
- Low back depth of 55mm without output option
- Compliance to International safety standard IEC 61010-1-2001
- Optional feature ofPulse / limit switch output
- Programmable Energy format & Energy rollover count

Technical Specifications

Display	
Display type	3 Line 4 Digits ultra bright LED Display (up to 9999)
Dimensions	96 x 96 x 55mm
Update Rate	1 sec approx
Interface	
Relay (optional)	1 output (240 VDC,5 A; 1NO+1NC)
Modbus (optional)	RS485 Modbus
Conforms standards	
EMC	IEC 61326-1: 2012, Table 2
Safety	IEC 61010-1-2001 Permanently connected use
IP for water & dust	IEC60529
Pollution degree	2
Installation category	III
High Voltage Test	4.7 kV DC, 50Hz for 1 minute between Aux. and measuring inputs
Model	**ZAM ENEO**
Number of parameters measured	51
System	3Ph 4W / 3Ph 3W / 1Ph 2W
Input Details	
Input Voltage	
Nominal input voltage (AC RMS)	290V L-N (Phase-Neutral), 500V L-L (Line-Line)
PT primary values	100VLL to 692kVLL programmable on site
Maximum continuous input voltage	120% of nominal value
Input Current	
Nominal input current	1A/5A AC RMS

CT secondary values	1A & 5A (on-site programmable)
CT primary values	1A...9999A
Maximum continuous input current	120% of nominal value
Operating Measuring Range	
Voltage Range With External Aux	10...120% of nominal value
Voltage Range With Self Power	80...120% of nominal value
Current Range	10...120% of nominal value
Frequency	45...66Hz
Power Factor	0.5 Lag...1...0.5 Lead
Auxiliary Supply	
AC/DC Auxiliary supply range	40 V – 300V AC-DC (± 5 %) 45…65Hz
DC Auxiliary supply range	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)
VA Burden (approx.)	
Nominal input voltage burden	< 0.3 VA approx. per phase (For external auxiliary meter)
Nominal input current burden	< 0.2 VA approx. per phase
Auxiliary supply burden	< 4 VA approx
Overload Withstand	
Voltage	2 x rated value for 1 second, repeated 10 times at 10 second intervals
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
Active Energy	±1%
Re-Active Energy	± 1%
Apparent Energy	± 1%
Power Factor	2 % of Unity
Phase Angle	2 % of range
Reference Conditions for Accuracy	
Reference temperature	23°C +/- 2°C
Input frequency	50/60 Hz ± 2%
Input Waveform	Sinusoidal(distortion factor 0.005)
Auxiliary supply frequency	Rated Value ± 1%
Auxiliary supply voltage	Rated Value ± 1%
Current Range	10... 100% of Nominal Value
Voltage Range	20... 100% of Nominal Value
Power factor/Phase Angle	40... 100% of Nominal Current & 20... 100% of Nominal Voltage
Power	Cos phi / sin phi = 1 for Active / Reactive Power & Energy 10... 100% of Nominal Current & 20... 100% of Nominal Voltage

ZAM ENEO

DIGITAL ENERGY MONITORING METER

Environmental	
Temperature coefficient : (for rated value range of use (0…50°C)) 0.05%/°C for Current	0.025%/°C for Voltage
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
Vibrations	10... 55 Hz, 0.15mm amplitude
Shock	15g in 3 planes
Enclosure	IP 20 (Terminal side) and IP50(Front side)
Dimensions & Weight	
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)

Pulsed Output Option:

Energy (can be programmed for different energy parameters simultaneously):
Relay contact : (1NO+1NC)
Switching Voltage & current for Relay : 240 VDC ,5 A

Default pulse rate divisor : 1 per Wh (up to 3600W) 1 per kWh (up to 3600kWh) 1 per MWh (above 3600kW)
Other Pulse rate divisors (applicable only when Energy on RS485 is in **W**)

10	1 per 10 Wh (up to 3600W)	1 per 10 kWh (up to 3600kWh)	1 per 10 MWh (above 3600kW)
100	1 per 100 Wh (up to 3600W)	1 per 100 kWh (up to 3600kWh)	1 per 100 MWh (above 3600kW)
1000	1 per 1000 Wh (up to 3600W)	1 per 1000 kWh (up to 3600kWh)	1 per 1000 MWh (above 3600kW)

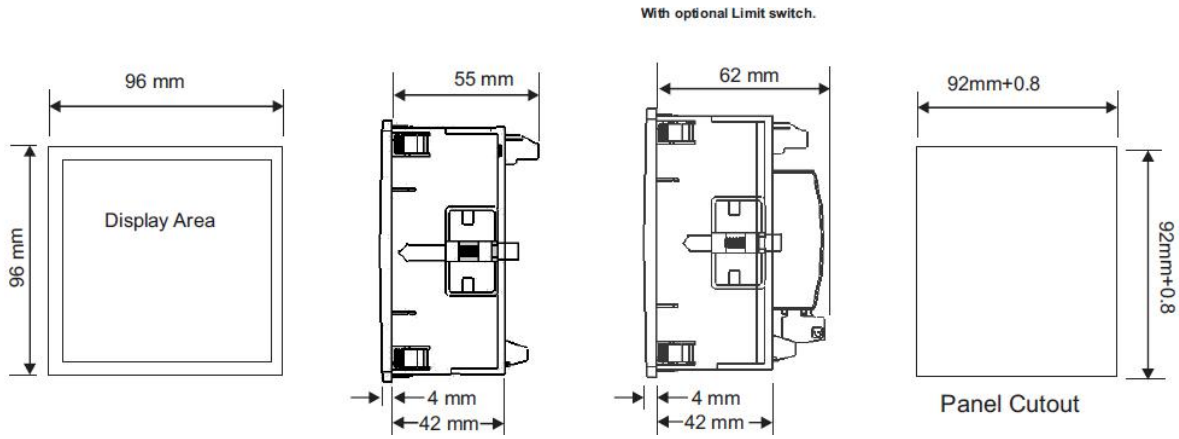
Pulse Duration : 60 msec, 100 msec, 200 msec.
Above options are also applicable to Apparent and Reactive Energy.

Parameter Measurement

System-wise parameter measurement				
Sr.No.	**Parameter**	**3Ph 4W**	**3Ph 3W**	**1Ph 2W**
1	System Volts	√	√	√
2	System Current	√	√	√
3	Volts L1 – N (phase voltage for single phase system)	√	–	√
4	Volts L2 – N	√	–	–
5	Volts L3 – N	√	–	–
6	Volts L1 – L2	√	√	–
7	Volts L2 – L3	√	√	–
8	Volts L3 – L1	√	√	–
9	Current L1 (phase current for single phase system)	√	√	√
10	Current L2	√	√	–

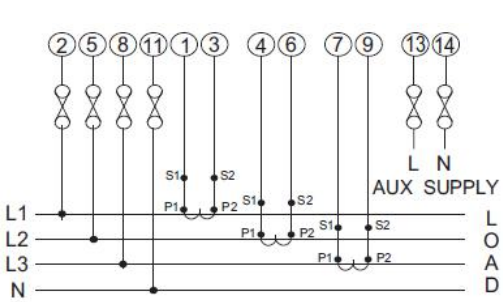
11	Current L3	√	√	–
12	Frequency	√	√	√
13	System Active Power (kW)	√	√	√
14	Active Power L1 (kW)	√	–	–
15	Active Power L2 (kW)	√	–	–
16	Active Power L3 (kW)	√	–	–
17	System Re-active Power (kVAr)	√	√	√
18	Re-active Power L1 (kVAr)	√	–	–
19	Re-active Power L2 (kVAr)	√	–	–
20	Re-active Power L3 (kVAr)	√	–	–
21	System Apparent Power (kVA)	√	√	√
22	Apparent Power L1 (kVA)	√	–	–
23	Apparent Power L2 (kVA)	√	–	–
24	Apparent Power L3 (kVA)	√	–	–
25	System Power Factor	√	√	√
26	Power Factor L1	√	–	–
27	Power Factor L2	√	–	–
28	Power Factor L3	√	–	–
29	System Phase Angle	√	√	√
30	Phase Angle L1	√	–	–
31	Phase Angle L2	√	–	–
32	Phase Angle L3	√	–	–
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	√	√	√
39	Active Energy Import (kWh)	√	√	√
40	Active Energy Export (kWh)	√	√	√
41	Reactive Energy Import (kVArh)	√	√	√
42	Reactive Energy Export (kVArh)	√	√	√
43	Apparent Energy (kVAh)	√	√	√
44	Current Demand	√	√	√
45	kVA Demand	√	√	√
46	kW Demand Import	√	√	√
47	kW Demand Export	√	√	√
48	Max Current Demand	√	√	√
49	Max kVA Demand	√	√	√
50	Max kW Demand Import	√	√	√
51	Max kW Demand Export	√	√	√

Dimensions

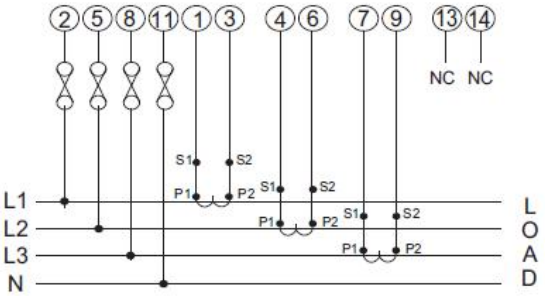


Connection Diagram

3 phase 4 wire unbalanced

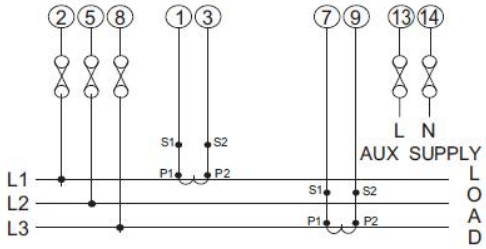


External Aux



Self Powered

3 phase 3 wire unbalanced

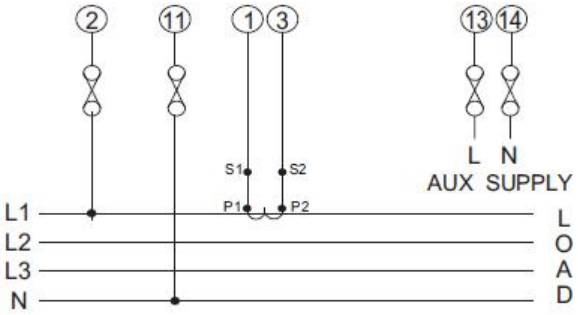


External Aux

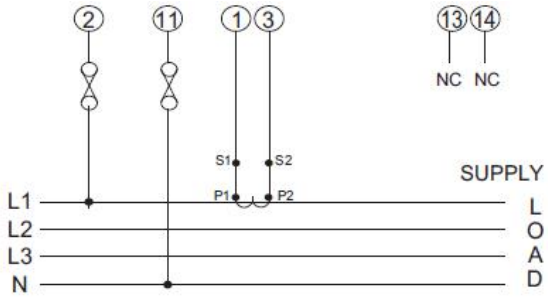
ZAM ENEO

DIGITAL ENERGY MONITORING METER

1 phase 2 wire



External Aux



Self Powered

Ordering Information

Model	(✓)
ZAM ENEO	
Auxiliary Supply	
Self Aux	
External Aux	
12 V – 48V DC	
40 V – 300V AC/DC	
Limit switch (Relay) - Optional	
With Limit switch (Pulse)	
Without Limit switch (Pulse)	
Modbus RS485	

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