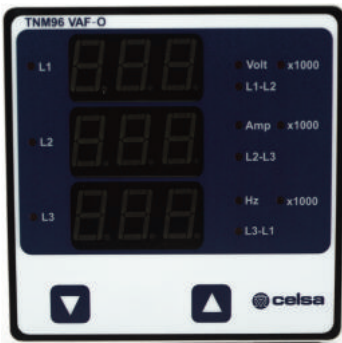


TNM 96 VAF-O - Multimeter



- True RMS measurement
- On site Programmable
- Limit Switch output
- Low Back Depth
- 3 Line ultra bright LED Display
- Run hours / On hour indication

TNM96 VAF-O measures important electrical parameters in 3 phase 4 Wire, 3 phase 3 Wire and 1 phase Network and replaces the multiple analog panel meters. It measures electrical parameters like AC Voltage, AC Current, Frequency and many more. The instrument also has an optional limit switch.

Product Features

True RMS measurement

Measures distorted waveform up to 15th Harmonic.

Onsite programmable

- Onsite Programmable System Configuration 3PH4W / 3PH3W and Single phase.
- Onsite Programmable CT ratios and PT ratios

Limit Switch (Optional)

Potential free, very fast acting relay contact configurable as limit (alarm) switch. The instrument will trip the relay if the programmed parameter exceeds the programmed Trip Limits.

3 line 3 digits Ultra Bright LED display

Simultaneous display of 3 different parameters.

Run Hour, ON Hour, Number of Interruptions

Run Hour records the number of hours load is connected. ON Hour is the period for which the auxiliary supply is ON. Number of Interruptions indicates the number of times the auxiliary supply was interrupted.

RPM Measurement

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

Storage of Parameters possible

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

Low Back Depth

The instrument has very low back depth (behind the panel) of less than 55 mm.

Parameter Screen recall

In case of power failure, the instrument memorizes the last displayed screen.

Onsite selection of Auto scroll / Fixed Screen

User can set the display in auto scrolling mode or fixed screen mode locally via front panel keys by entering into Programming mode.

Enclosure Protection for dust and water

Conforms to IP 54 (front face) as per IEC60529.

Compliance to International Safety standards

Compliance to International Safety standard IEC 61010-1- 2010.

EMC Compatibility

Compliance to International standard IEC 61326.

UNIVERSAL MEASURING INSTRUMENTS

Technical Specifications

Input Voltage

Nominal input voltage (AC RMS)	100 VL-L - 500 VL-L (57.7 VL-N - 290 VL-N)
System PT primary values	100 VLL to 799 kVLL programmable on site.
System PT secondary values	100 VLL to 500 VLL programmable on site.
Max continuous input voltage	120% of Nominal value

Input Current

Nominal input current	1A / 5A AC RMS
System CT primary values	From 1A up to 799 kA programmable on site.
System CT secondary values	1A / 5A Programmable at site.
Max continuous input current	120% of Nominal value

Auxiliary supply

External Auxiliary	40 V - 300V AC-DC ($\pm 5\%$) or 20 V - 40V AC / 20 V - 60V DC
Aux supply frequency	45 to 65 Hz range

VA Burden

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

Operating Measuring Ranges

Current	5... 120% of Nominal value
Voltage	10... 120% of Nominal value
Frequency	45 - 65 Hz

Reference conditions for Accuracy

Reference Temperature	23°C +/- 2°C
Input Frequency	50/60 Hz $\pm 2\%$
Current	10... 100% of Nominal value
Voltage	20... 100% of Nominal value
Auxiliary Supply Voltage	Nominal Value $\pm 1\%$
Auxiliary Supply Frequency	Nominal Value $\pm 1\%$

Accuracy

Voltage	$\pm 1.0\%$ of Nominal Value
Current	$\pm 1.0\%$ of Nominal Value
Frequency	$\pm 0.5\%$ of Mid Frequency

Overload withstand

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

Influence of variations

Temperature coefficient	0.05%/°C
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Applicable standards

EMC	IEC 61326	
Immunity	IEC 61000-4-3. 10V/m min - Level 3 industrial Low level	
Safety	IEC 61010-1-2010 , Permanently connected use	
IP for water and 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

Display update rate

Response time to step up	1 sec approx.
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Environmental

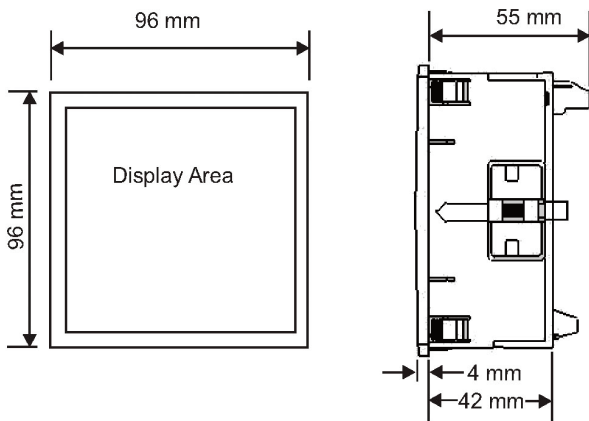
Operating temperature	-10 to +55°C
Storage temperature	-20 to +65°C
Relative humidity	0... 90% non condensing
Warm up time Minimum	3 minute
Shock	15g in 3 planes
Vibration	10... 150 ... 10 Hz, 0.15mm amplitude

Interfaces

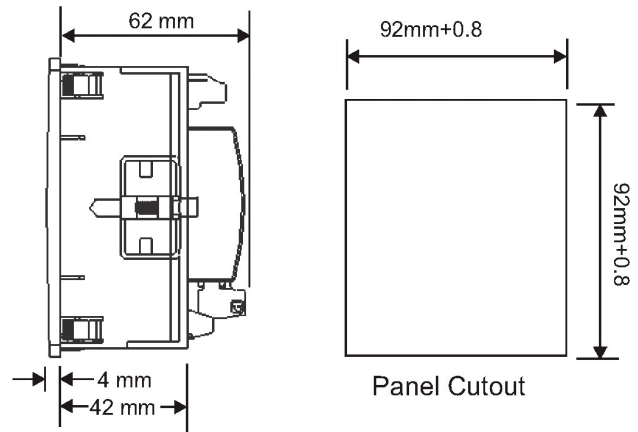
Relay(Optional)	240 VAC ,5 A. Configured as Limit Switch
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UNIVERSAL MEASURING INSTRUMENTS

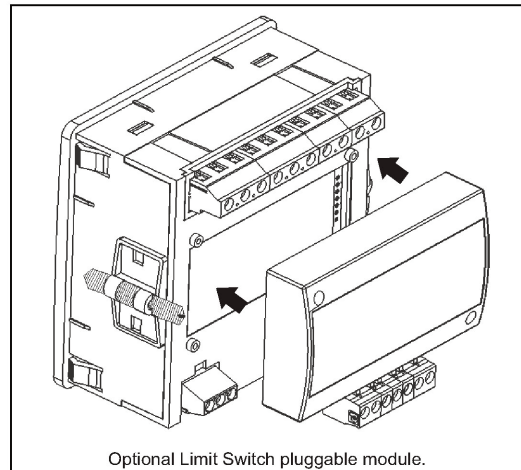
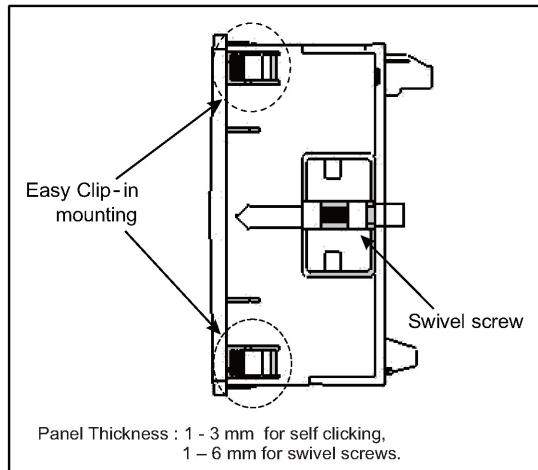
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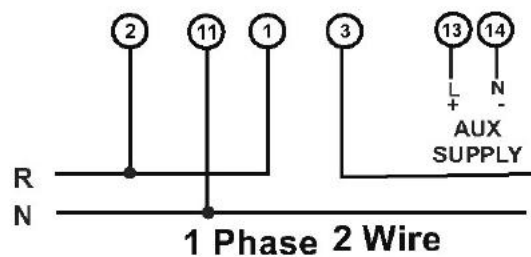
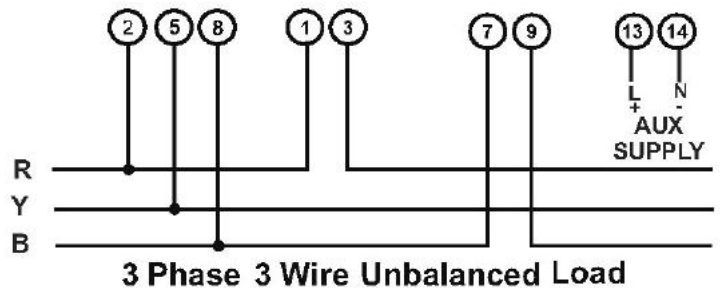
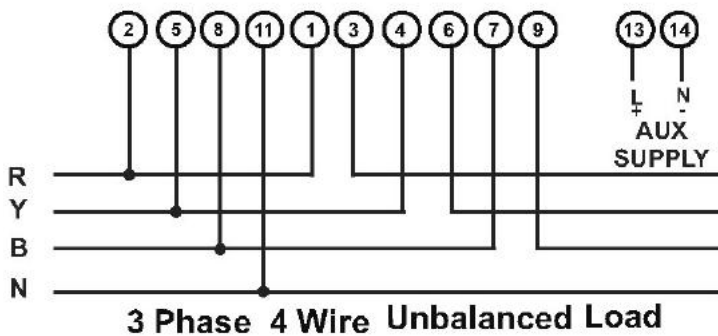
With optional Limit switch.



Installation:



Electrical connections:



UNIVERSAL MEASURING INSTRUMENTS

No.	Parameter	3 Phase 4 Wire	3 Phase 3 Wire	1 Phase 2 Wire
1.	System Voltage	●	●	-
2.	Voltage L1 - N	●	-	●
3.	Voltage L2 - N	●	-	-
4.	Voltage L3 - N	●	-	-
5.	Voltage L1 - L2	●	●	-
6.	Voltage L2 - L3	●	●	-
7.	Voltage L3 - L1	●	●	-
8.	System Current	●	●	-
9.	Current L1	●	●	●
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 Hour	●	●	●
18.	Number of auxiliary interrupt	●	-	●

● : Available

- : Not available

Ordering Information	Ordering Code
	TNM96 VAF-O
System Type (connection network)	
3 Phase	-3
(programmable as 4 Wire or 3 Wire on site)	
1 Phase	-1
Auxiliary supply voltage	
40 - 300 V AC DC + 5%	-HA
20 - 40 V AC / 20 - 60 V DC	-LA
Optional	
With Limit output	-L
Without Limit output	-NL

Order Code Example:

TNM96 VAF-O -3-HA-L

TNM96 VAF-O, 3Phase 3Wire, external higher aux (40V - 300V AC/DC ± 5%) and with Limit output