


VAF433-T

Operating Manual



sub-zero

Precision Control, always

Introduction

The VAF is a panel mounted 96 x 96mm Digital Panel Meter for the measurement of important electrical parameters like AC Voltage, AC Current, RPM, Frequency and Power Factor VAF can be configured and Programmed On site for the following :

PT Primary, PT Secondary, CT Primary, CT Secondary (5A or 1A) and System Type 3 phase 3W or 4W or single phase system.

The front panel has Four keys using which the user can scroll through different screens and configure the product.

Caution for your Safety

WIRING: The probe and its corresponding wires should never be installed in a conduit next to control or power supply lines. The electrical wiring should be done as shown in the diagram. The power supply circuit should be connected to a protection switch. The terminals admit wires of upto 2.5sq mm.

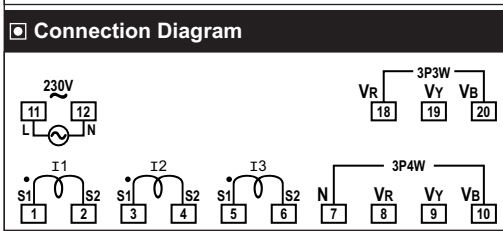
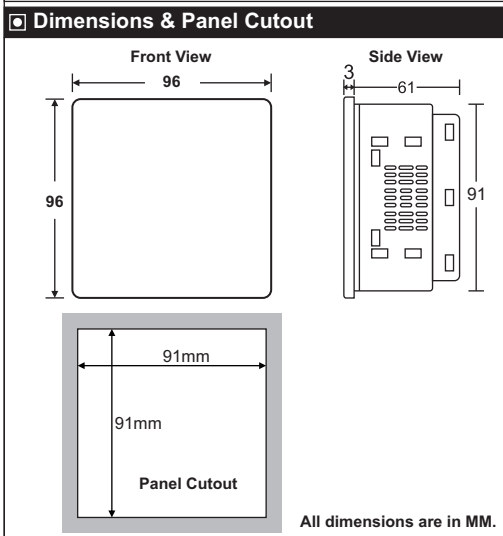
WARNING: Improper wiring may cause irreparable damage and personal injury. Kindly ensure that wiring is done by qualified personnel only.

Maintenance: Cleaning: Clean the surface of the controller with a soft moist cloth. Do not use abrasive detergents, petrol, alcohol or solvents.

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Controller :Controller should be installed in a place protected by vibration, water and corrosive gasses and where ambient temperature does not exceed the values specified in the technical data.

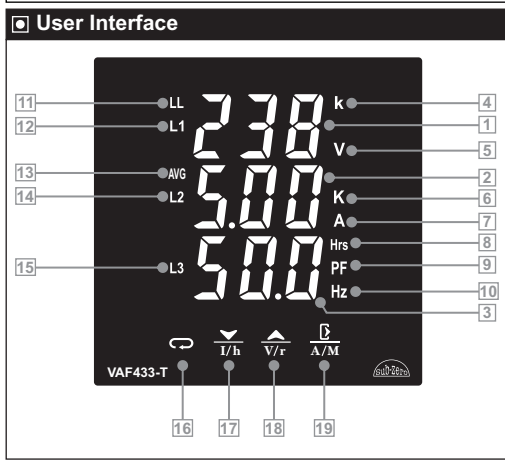
Probe :To give a correct reading, the probe must be installed in a place protected from thermal influences, which may affect the temperature to be controlled.



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Sr. No.	Para.	Description
		Technical Specification.
		User Interface.
		Home Page Screen Description
1		Parameter setting mode.
2	545	Network selection either 3P-3W and 3P-4W.
3	CT.P	Select CT primary ratio.
4	PT.P	Select PT primary ratio.
5	PT.S	Select PT secondary ratio.

Index		
Sr. No.	Para.	Description
6	n.o. Pol	Select number of poles.
7	r.Hr	Clear run hours.
8	r.F.Lt	Restore factory defaults
		Error Messages

Technical Specification	
Housing	: Front Cover: Polycarbonate Plastic Back Cover: ABS Plastic
Dimensions	: Frontal : 96 X 96mm, Depth : 61mm
Panel Cutout	: 91 X 91mm
Mounting	: Flush panel mounting with Fasteners
Protection	: IP65 Front
Connections	: Terminal connectors. ≤ 2.5sq mm terminal only with U-type lugs.
Display	: 3 X 17mm 7 segment White display, 15 Iconic LEDs for Indication
Data storage	: Non-volatile flash memory
Operating temp.	: 0°C to 60°C (non-condensing)
Operating humidity	: 20% to 85% (non-condensing)
Storage temp	: -25°C to 60°C (non-condensing)
Power Input	: 240 Vac ±20 %, 50/60Hz Standard.
Wiring Input	: 3ø-4W, 3ø-3W system.
Measuring Range	
Input Rated Voltage	: 11 to 500 V AC (L-N) : 19 to 865 V AC (L-L)
Input Rated Current	: Nominal 5AAC
CT Primary	: 5 A to 10 kA
CT Secondary	: 5 A
PT Primary	: 100 V to 500 kV
PT Secondary	: 100 to 500 V AC (L-L)
Electrical Connection	: 3ø-4W, 3ø-3W, 2ø-3W, 1ø-2W.
Resolution	
Current / Voltage	: Resolution depends upon CT, PT Primary settings
RPM	: 0.1
Run Hour	: 0.1 Hr
Accuracy	
Voltage	: ± 0.5% of F.S. ± 2 digits.
Current & Average Current	: ± 1% of F.S. ± 2 digits
Frequency	: ± 0.1 Hz ± 1 digit
Run Hour	: ± 1%
RPM	: ± 0.5%
Display Scrolling	: Automatic or Manual (Programmable)
Power Consumption	: 1.5VA Max
RPM	: 1350 to 1950 Pole: 0 (Range: 0-98, selectable in steps of 2)
Frequency	: 45-65 Hz
Run Hours	: 0 to 99999.9 Hrs
Burden	: 0.5VA @5A per phase



Sr. No.	Description
1	Electrical parameters like AC Voltage, AC Current, RPM, Frequency and Power Factor will be seen as Per screen no and auto or manual mode.Kindly refer Home Page Descriptor.
2	
3	
4	k Unit KiloVolts
5	V Unit Volts
6	K Kilo Ampere
7	A Ampere
8	Hrs Unit for Run Hours

9	PF Power Factor
10	Hz Frequency units Hertz
11	LL Line to Line value of corresponding parameter
12	L1 Line to Neutral value of First Phase
13	AVG Average value of corresponding parameter
14	L2 Line to Neutral value of Second Phase
15	L3 Line to Neutral value of Third Phase
16	Next key : In Manual Mode: To scroll for Next Screen. In Program Mode: To scroll to Next Parameter. Note: Kindly refer 'Home Page Screen Description' for further details.
17	Down key/ I/h : In Normal Mode (Auto/Manual): Press this key for 1 second, the First Screen Displays phase current of three phases. Line to neutral and line to line voltage of three phases are displayed one by one. Press this key for 3 seconds, to display Run Hours (for non zero poles). In Program Mode: To increase Parameter value. Note: To return back to current page, press I/h for 3 seconds.
18	Up key : In Normal Mode (Auto/Manual): Press this key for 1 second. The First Screen displays line to neutral voltage of three phases. The Second Screen displays line to line voltage of three phases. Press this key for 3 seconds. Displays rpm for non zero poles. In Program Mode: To increase Parameter value. Note: To return back to current page, press V/r for 3 seconds.
19	Exit key : In Normal Mode: Press this key for 4 seconds to toggle between Automatic/Manual Mode. In Program Mode: To save the changed Parameter and exit to Normal mode. Note: Kindly refer 'Home Page Screen Description' for further details.

Home Page Screen Description	
Automatic Mode / Manual Mode Settings :	
Press A/M mode for 4 seconds to toggle between Automatic/Manual Mode. Note : By Default unit operates in automatic mode. In automatic mode online pages scroll automatically at the rate of 5 sec per page.In automatic mode if any key is pressed,unit temporarily switched to manual mode and the appropriate page is displayed.	
In Automatic Mode :	
1. Display Descriptions in 3Ø – 4W :	
1st Screen	Displays Line to Neutral voltage of all 3 Phase
2nd Screen	Displays Line to Line voltage of all 3 Phase
3rd Screen	rpm
4th Screen	Displays current of all 3 Phase
5th Screen	Displays Run Hours
6th Screen	Displays Power Factor of Line to Line Voltage.
7th Screen	Displays Line to Neutral voltage, current and frequency of first Phase
8th Screen	Displays line to neutral voltage, current and frequency of second Phase
9th Screen	Displays line to neutral voltage, current and frequency of third Phase
10th Screen	Displays average line to neutral voltage, average current of three phase and frequency.
11th Screen	Displays average line to line voltage, average current of three phases and frequency of present phase.

2. Display Descriptions in 3Ø – 3W :

1st Screen	Displays Line to line voltage of all 3 Phase
2nd Screen	rpm
3rd Screen	Displays Line to line current of all 3 Phase
4th Screen	Displays run hours
5th Screen	Displays Power Factor of Line to Line Voltage
6th Screen	Displays Line to line voltage, current and frequency of first Phase
7th Screen	Displays line to line voltage, current and frequency of second Phase
8th Screen	Displays line to line voltage, current and frequency of third Phase
9th Screen	Displays average line to line voltage, average current of three phase and frequency

In Manual Mode :

To scroll through next screen press key.





1. Display Descriptions in 3Ø – 4W :

1st Screen	Displays Line to Neutral voltage, current and frequency of first Phase.
2nd Screen	Displays line to neutral voltage, current and frequency of second Phase
3rd Screen	Displays line to neutral voltage, current and frequency of third Phase
4th Screen	Displays average line to neutral voltage, average current of three phase and frequency
5th Screen	Displays average line to line voltage, average current of three phases and frequency of present phase.
6th Screen	Displays Power Factor of Line to Line Voltage.

2. Display Descriptions in 3Ø – 3W :

1st Screen	Displays Line to line voltage, current and frequency of first Phase
2nd Screen	Displays line to line voltage, current and frequency of second Phase
3rd Screen	Displays line to line voltage, current and frequency of third Phase
4th Screen	Displays average line to line voltage, average current of three phase and frequency
5th Screen	Displays Power Factor of Line to Line Voltage

Parameter Setting Mode

1	Program Mode	Function: To enter into Program Mode.						
Press & hold  key for 4 second.								
Press & hold  key for 4 seconds to enter into Program Mode. When release the key, second display will flash 555.								
Press UP/DOWN keys to modify the set value and to go to the next parameter by pressing  key.								
Press the  key to save the set value and to come out of parameter setting after changing the set value.								
2	555 Parameter	Function: Network selection.						
Network selection ie, either 3 Phase 3 wire or 3 Phase 4 wire.								
<table><tr><td>Min</td><td>Max</td><td>Fac.</td></tr><tr><td>3P4</td><td>3P3</td><td>3P4</td></tr></table>			Min	Max	Fac.	3P4	3P3	3P4
Min	Max	Fac.						
3P4	3P3	3P4						
3	CTP Parameter	Function: To select CT Primary ratio.						
To select CT Primary ratio.								
<table><tr><td>Min</td><td>Max</td><td>Fac.</td></tr><tr><td>5 A</td><td>10 kA</td><td>5 A</td></tr></table>			Min	Max	Fac.	5 A	10 kA	5 A
Min	Max	Fac.						
5 A	10 kA	5 A						
4	PTP Parameter	Function: To select PT Primary ratio.						
PT Primary: To select PT Primary ratio.								
<table><tr><td>Min</td><td>Max</td><td>Fac.</td></tr><tr><td>100 V</td><td>500 kV</td><td>350 V</td></tr></table>			Min	Max	Fac.	100 V	500 kV	350 V
Min	Max	Fac.						
100 V	500 kV	350 V						

5	P_{T5} Parameter	Function: To select PT Secondary ratio.	
PT Secondary: To select PT Secondary ratio.			
	Min	Max	Fac.
	100 V	500 V	350 V
6	n_{ol} P_{ol} Parameter	Function: To select no. of Poles.	
To select number of poles.			
	Min	Max	Fac.
	0	98	0
7	r_{St} r_{Hr} Parameter	Function: To clear run hours.	
If selected yes run hours will be cleared			
	Min	Max	Fac.
	n_{ol}	YES	n_{ol}
8	r_{St} F_{Ll} Parameter	Function : To restore default settings of the controller.	
When set to YES all parameters are programmed to factory values.			
Useful to debug setting related problems.			
	Min	Max	Fac.
	n_{ol}	YES	n_{ol}

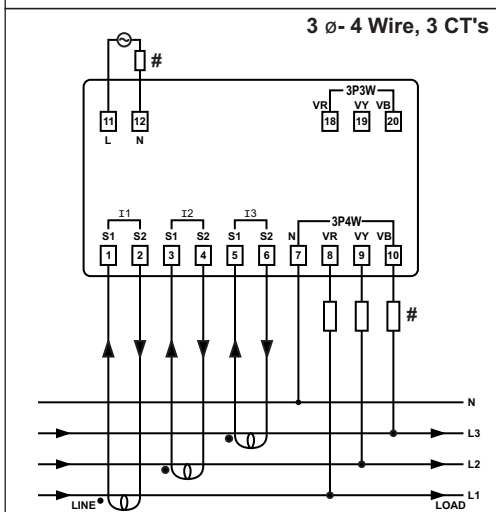
Error Messages

Message	Description
- - -	Power factor of corresponding phase shows this error message when input of corresponding is open.
Or	It indicates corresponding parameter reach above specified measuring range.

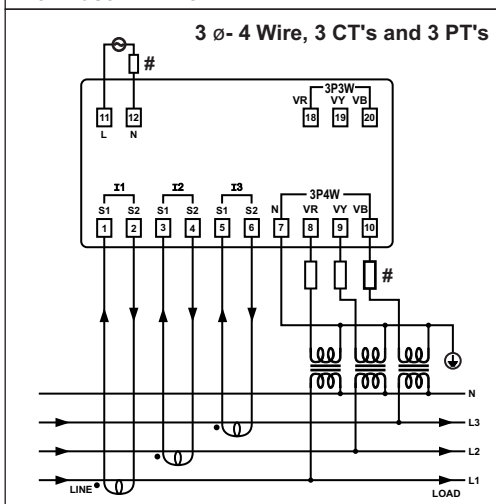
Typical Wiring Diagram

NOTE : # All fuse types : 0.5A class CC UL type ;
0.5A fast acting 600V

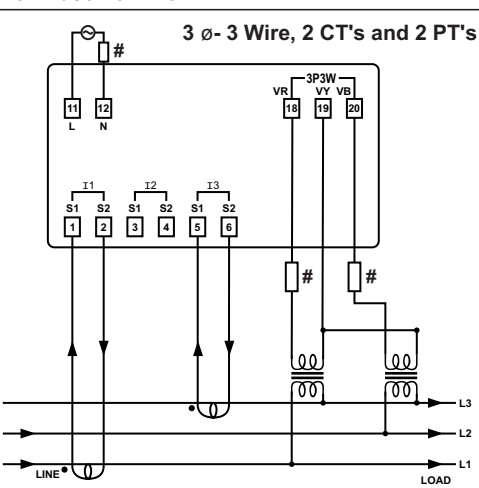
3 Phase - 4 Wire



3 Phase - 4 Wire

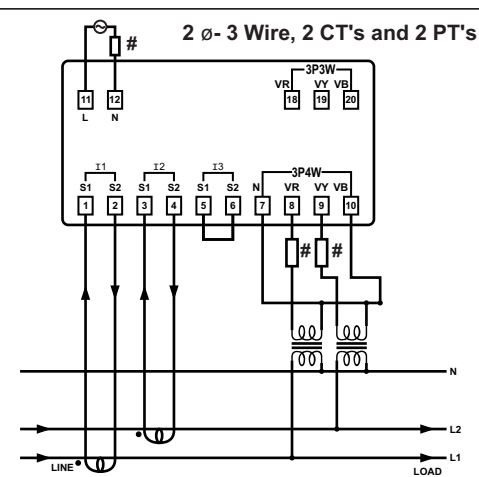


3 Phase - 3 Wire

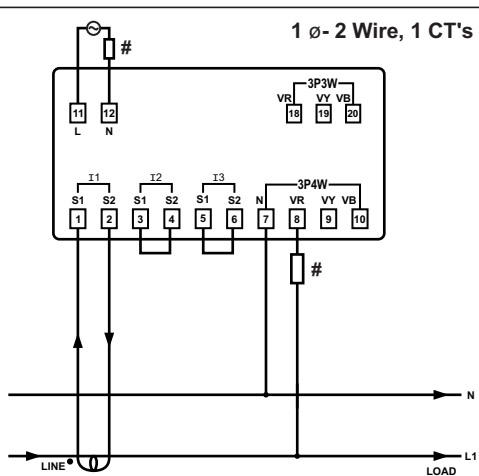


Note : Do not use 7, 8, 9 & 10 connector for 3P 3W.

2 Phase - 3 Wire



1 Phase - 2 Wire



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OUR OTHER PRODUCTS



Precision Control, always

- Digital Panel Meter
- Timer , PLC , HMI
- Power Analyzer
- Data Logger

REV0 / 26.09.2020