

INSTALLATION INSTRUCTION FOR F3 VSR4

(Micro controller Based Voltage Scanner, 3 Ph 3W/4W)

INTRODUCTION:

Thank you for selecting & purchasing Minilec make Voltage Scanner F3 VSR4 [3 Phase – 3 Wire/ 4 Wire].

The following installation instruction would guide you in installing F3 VSR4 & making the best use of it.

F3 VSR4 has a micro controller based design for monitoring Phase – Phase or Phase-Neutral voltages with a digital LCD display to indicate system supply voltage.

Now you have the power & convenience to monitor & view the 3 Phase supply and disconnect the load if it becomes abnormal.

FEATURES F3 VSR4 :

- LCD Display.
- Touch Key-pad for parameters settings.
- Password protection for an unauthorized access.
- Wide range Aux. Supply.
- Digital readout of system supply voltages.
- Under Voltage, Over Voltage, Voltage Unbalance protection with variable trip setting.
- Single phasing (SP) and Reverse phasing (RP) protections.
- Individual Trip time delay setting.
- Individual protection bypass for UV, OV, UB, RP trip fault.
- Auto / Manual reset operation facility.
- In – built TEST/RESET facility for easy field testing.
- RS 232 Serial communication (optional).

MOUNTING:

F3 VSR4 is flush mounting type device that can be mounted on front panel door.

(See fig. 2 for mounting, cutout & overall dimensions).

CAUTION:

For proper functioning & reliability ensure that F3 VSR4 is

- Not installed near any heat sources like burner, sunlight, electric arc etc.
- Not subjected to abnormal vibrations.
- Not subjected to direct rains, stormy wind & dust.

FUNCTIONING:

F3 VSR4 has facility for selection of phase to phase or phase to neutral system supply for monitoring.

It monitors system supply voltage and displays it on LCD screen with 1 sec updation time.

Normally, unit will be operating in run mode and supply voltages will be kept displayed on LCD display.

It gives protection against Under Voltage, Over Voltage, Voltage Unbalance & Single Phasing with individual trip time delay setting. Setting of these parameters can be done using keyboard on front plate, by an authorized user.

Reverse phase sequence protection is provided throughout the program with an instantaneous trip delay.

Under Voltage, Over Voltage, Voltage Unbalance, Reverse phasing can be bypassed or made active in setting mode.

Manual TEST (simultaneous press - ESC & UP keys) and RESET (simultaneous press - UP & DOWN keys) operations can simulated through front keypad.

See fig. 3 for timing diagram of functional working, fig.1 for electrical connections of the unit.

Voltage unbalance is calculated as :

$$\% \text{UNBALANCE} = \frac{\text{Max. Deviation of voltage w.r. To average voltage}}{\text{Average voltage}} \times 100$$



TECHNICAL SPECIFICATIONS OF F3 VSR4:

- 1.SYSTEM SUPPLY : 415 VAC (+ 20% - 30%) / 110 VAC (+ 20% - 30%)
(3Ø-3W, 3Ø-4W SELECTABLE)
- 2.AUX. SUPPLY : 90 – 270 VAC/ DC
- 3.FREQUENCY : 50 Hz / (60Hz) ± 3%
- 4.POWER CONSUMPTION : 8 VA max.
- 5.OUTPUT RELAY CONTACTS : 2 CO
- 6.OUTPUT CONTACT RATING : 5 Amp, 240 VAC [RESISTIVE]
- 7.MONITORING : PH- PH VOLTAGES OR PH - N VOLTAGES
(SOFTWARE SELECTABLE)
- 8.POWER ON DELAY : 3.5 ± 1.5 SEC.
- 9.SETTINGS : BY MEANS OF KEYBOARD [4 KEYS]
- 10.TEST FACILITY : SIMULTANEOUS PRESS OF ESC & UP KEYS.
11. REVERSE PHASING TRIP DELAY: INSTANTANEOUS
(LESS THAN 1 SEC.)
12. SETTING ACCURACY : ± 2 % OF SET PARAMETER
13. TIME ACCURACY : ± 5 % OF SETTING
(±1SEC FOR 1 TO 10 SEC RANGE)
14. DISPLAY : LCD [16 X 2 CHAR. TYPE WITH BACKLIGHT]
15. DISPLAY VOLTAGE RESOLUTION : 1 VOLT
16. DISPLAY ACCURACY : ± (1% + 5 VOLTS) OF ACTUAL VOLTAGE.
17. RESETTING : AUTO / MANUAL [SIMULTANEOUS
PRESS OF UP & DOWN KEYS]
18. RESET GAP FOR AUTO RESET FACILITY:
A) UV RESET GAP : 3 % ± 1 % OF TRIP SETTING.
B) OV RESET GAP : 3 % ± 1 % OF TRIP SETTING
C)UNBALANCE RESET GAP : 20 % ± 5 % OF TRIP SETTING.
19. LED INDICATIONS
P. ON (GREEN) : POWER ON
OV (RED) : OVER VOLTAGE
UV (RED) : UNDER VOLTAGE
UB/SP (RED) : UNBALANCE / SINGLE PHASING
/ REVERSE PHASING
- 20.ENCLOSURE : 96 X 96 TYPE ENCLOSURE
- 21.DIMENSIONS :
OVERALL [mm] : 96 X 96 X 80 mm [H X W X D]
CUTOUT [mm] : 92 X 92 [+ 1/- 0] mm
- 22.MOUNTING : FLUSH MOUNTING
- 23.OPERATING CONDITIONS
TEMPERATURE : 0° TO 60° C
HUMIDITY : UP TO 95% Rh
- 24.WEIGHT [gms.] : 800 (Approx.)
- 25.OPTIONAL FEATURE : RS232 PORT FOR PC INTERFACE WITH
MINILEC PC SIDE SOFTWARE. (WINDOWS
BASED)

NOTE :In case of 3 phase - 4 wire system, for Neutral fail protection, tap Aux. supply (Phase & Neutral) from system supply sensing terminals (R or Y or B & N) & do not connect separate Aux. Supply (AC/DC). In case of 110V model if separate aux. supply not available then tap aux. supply from any two phases & not from phase & neutral.

WARRANTY

AGAINST ALL MANUFACTURING DEFECTS FOR 18 MONTHS FROM DATE OF SUPPLY OR 12 MONTHS FROM INSTALLATION WHICHEVER IS EARLIER.

Manufactured By:-

MINILEC (INDIA) PVT. LTD.

1073/1-2-3, AT POST: PIRANGOOT, TAL: MULSHI, DIST:PUNE (INDIA), PIN -412111, WEBSITE: www.minilecgroup.com
VER - 02 (DT. 25.03.15)

PROGRAMMABLE PARAMETERS

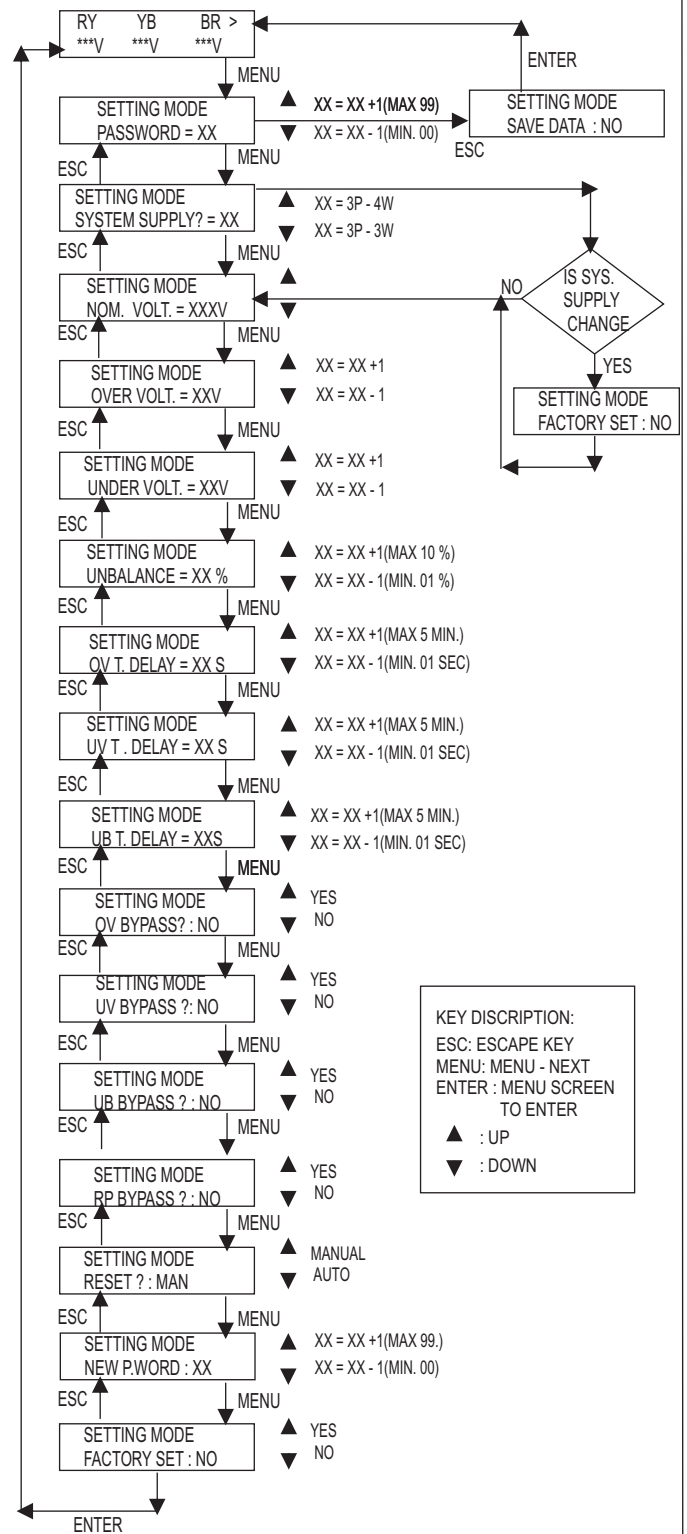
1) FOR 380 / 415 / 440VAC SYSTEM SUPPLY MODEL

PARAMETER	FOR 3 PH - 3 WIRE SELECTION			FOR 3 PH - 4 WIRE SELECTION		
	PROGRAMMABLE SPECIFICATIONS	RESOLUTION	FACT. SET	PROGRAMMABLE SPECIFICATIONS	RESOLUTION	FACT. SET
NOMINAL VOLTAGE	380/415/440 VAC	N.A.	415VAC [PH-PH]	220/230/240/250VAC	10V	230VAC [PH-N]
UNDER VOLTAGE	1 TO 80 V BELOW NOMINAL VOLTAGE	1 V	60 V	1 TO 50 V BELOW NOMINAL VOLTAGE	1 V	40 V
OVER VOLTAGE	1 TO 80 V ABOVE NOMINAL VOLTAGE	1 V	50 V	1 TO 25 V ABOVE NOMINAL VOLTAGE	1 V	20 V
UNBALANCE	1 TO 20% OF AVG. MONITORING	1 %	10 %	1 TO 20% OF AVG. MONITORING	1 %	10 %
INDIVIDUAL TRIP DELAY FOR UV,OV, UB,	1 TO 59 SEC.OR	1 SEC	3 SEC	1 TO 59 SEC.OR	1 SEC	3 SEC
	1 TO 5 MINUTE	1 MIN		1 TO 5 MINUTE	1 MIN	
UV,OV,UB,RP PROTECTION BYPASS	YES/ NO	N.A	NO.	YES/ NO	N.A	NO.
RESET	AUTO / MANUAL	N.A.	MANUAL	AUTO / MANUAL	N.A.	MANUAL
PASSWORD	00 TO 99 (TWO DIGITS)	1	03	00 TO 99 (TWO DIGITS)	1	03
FACTORY SET	YES/ NO	N.A.	NO	YES/ NO	N.A.	NO

2) FOR 110 VAC SYSTEM SUPPLY MODEL

PARAMETER	FOR 3 PH - 3 WIRE SELECTION			FOR 3 PH - 4 WIRE SELECTION		
	PROGRAMMABLE SPECIFICATIONS	RESOLUTION	FACT. SET	PROGRAMMABLE SPECIFICATIONS	RESOLUTION	FACT. SET
NOMINAL VOLTAGE	110 VAC	N.A.	110 VAC [PH - PH]	63VAC	NA	63 VAC [PH - N]
UNDER VOLTAGE	1 TO 15 V BELOW NOMINAL VOLTAGE	1 V	15 V	1 TO 15 V BELOW NOMINAL VOLTAGE	1 V	15 V
OVER VOLTAGE	1 TO 35 V ABOVE NOMINAL VOLTAGE	1 V	20 V	1 TO 25 V ABOVE NOMINAL VOLTAGE	1 V	20 V
UNBALANCE	1 TO 20% OF AVG. MONITORING	1 %	10 %	1 TO 20% OF AVG. MONITORING	1 %	10 %
INDIVIDUAL TRIP DELAY FOR UV,OV, UB,	1 TO 59 SEC.OR	1 SEC	3 SEC	1 TO 59 SEC.OR	1 SEC	3 SEC
	1 TO 5 MINUTE	1 MIN		1 TO 5 MINUTE	1 MIN	
UV,OV,UB,RP PROTECTION BYPASS	YES/ NO	N.A	NO.	YES/ NO	N.A	NO.
RESET	AUTO / MANUAL	N.A.	MANUAL	AUTO / MANUAL	N.A.	MANUAL
PASSWORD	00 TO 99 (TWO DIGITS)	1	03	00 TO 99 (TWO DIGITS)	1	03
FACTORY SET	YES/ NO	N.A.	NO	YES/ NO	N.A.	NO

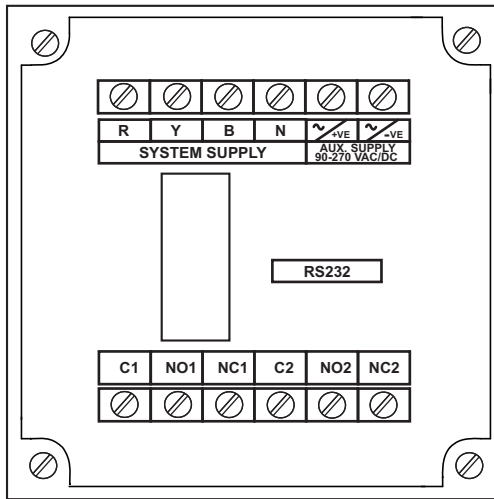
DETAILS OF SETTING MODE



AUTO EXIT : In setting mode if any key not press for 10 Sec. Then unit automatically come in RUN mode showing message "LOADED OLD VALUE"

ELECTRICAL CONNECTIONS:

(FIG.1)



TERMINAL DETAILS:

- R,Y,B :PHASE VOLTAGE SENSING POINTS
- N :NEUTRAL (FOR 3Ph - 4W)

- C1-NO1-NC1 :OUTPUT RELAY CONTACT
- C2-NO2-NC2 :OUTPUT RELAY CONTACT

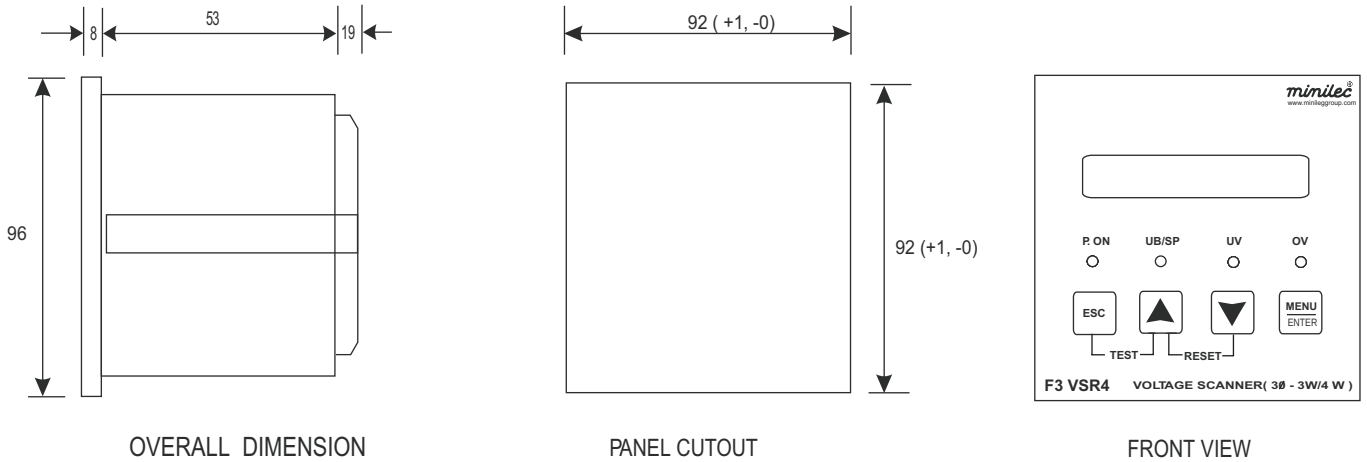
INDICATIONS:

- P.ON(GREEN): POWER ON
- UB/SP (RED) : UNBALANCE/ SINGLE PHASING/ REVERSE PHASING
- UV (RED) : UNDER VOLTAGE
- OV (RED) : OVER VOLTAGE

MOUNTING DIMENSION:

(FIG.2)

ALL DIMENSION ARE IN mm



OPERATIONAL & TIMING DIAGRAM:

(FIG.3)

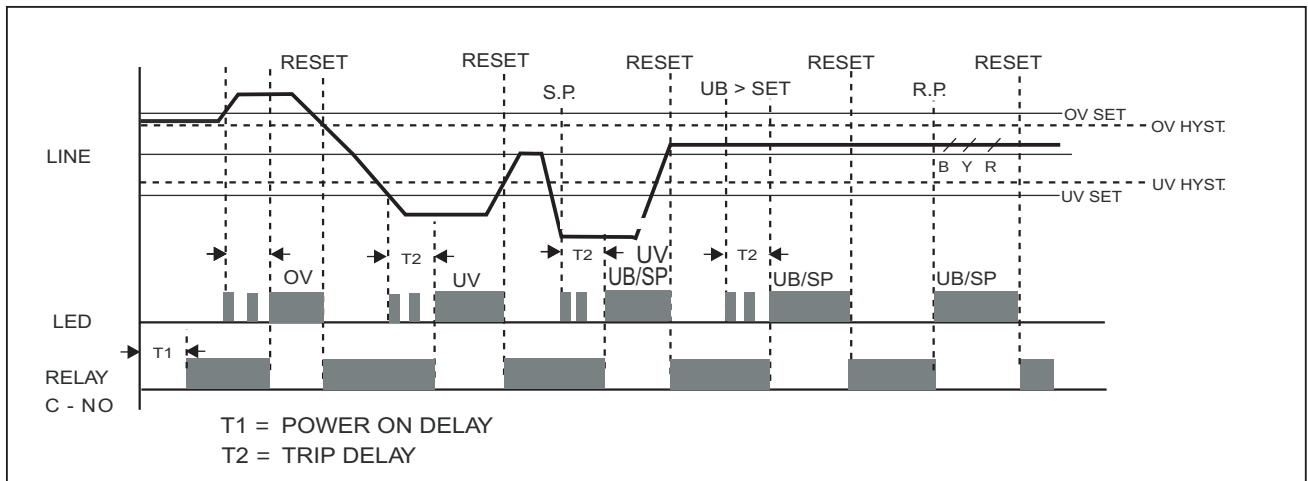


FIG.4

TESTING PROCEDURE

