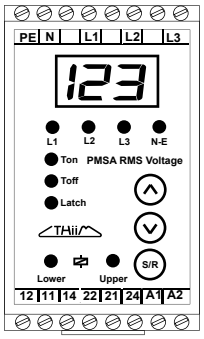
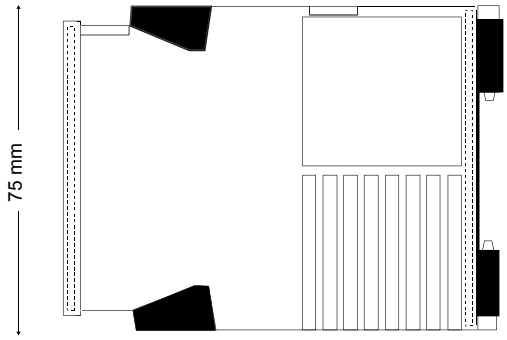




45 mm

100 mm

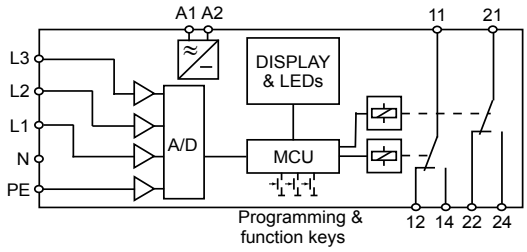
RMS VOLTAGE MONITORING RELAY

Type: PMSA

FEATURES

- **ALL IN ONE UNIT:**
  Multi Range from 50 to 830 Volt for use in Single-phase, Two-phase or Three-phase systems with or without Neutral and Ground
- **True RMS voltage measurement**
- *** Measures Neutral to Ground voltage and 3 x Phase to Phase or 3 x Phase to Neutral**
- **Over and Under voltage monitoring with individual relays or window function with 2 C/O contacts**
- **One Relay can be dedicated to the Neutral to Ground monitoring**
- **Easy set-up by keying in actual parameters or through a RS 232 interface**
- **Time delay - On and Off - can be set individually**
- **Latched Relay function can be selected**
- **LEDs indicate the status of the relay, latch, timing and display information**
- **Extremely compact and low power consumption**

FUNCTION DIAGRAM



Contact information:

Relay programmed to Type 1: If enabled. Neutral to Ground plus
Under voltage: 1 C/O, terminal 11-12-14
Over voltage: 1 C/O, terminal 21-22-24

Relay programmed to Type 2: If enabled. Neutral to ground plus
Voltage Window 2 C/O, terminal 11-12-14 , 21-22-24

Relay programmed to Type 3:
Under- or Over voltage or Window func.: 1 C/O, term. 11-12-14
Neutral to Ground voltage: 1 C/O, terminal 21-22-24

Description:
The RMS voltage monitoring relay PMSA is a universal 2, 3, 4 and 5 wire Multi-voltage unit that measures under as well as over voltages in star or delta configuration. The PMSA is designed to fulfill the demand for one unit for all applications in order to reduce overall costs. The PMSA is build with a strong MCU that can handle 40000 13 bit voltage samples/sec for a precise and true RMS conversion.
The two internal relays can be used for Phase and Neutral to Ground voltage measurements, or one relay can be used for Phase measurements and the other relay dedicated for Neutral to Ground measurement.

Operation:
Star connection:
1, 2 or 3 phase with Neutral and an optional Ground. The PMSA is measuring the voltage of each phase against Neutral, or in a 3 phase system an "Internal Neutral" made by a resistor star coupling. Phase to Neutral voltages are individually monitored for under as well as over voltage. Both voltages and differential can be set indvidually. If the Ground "PE" is connected PMSA can monitor the voltage between Neutral and PE and activate an alarm signal if it exceeds a preset limit.
Delta connection:
2 or 3 phase with an optional Neutral and Ground. The PMSA is measuring the voltage of each phase against the other phase(s). The phase to phase voltages are individually monitored for under as well as over voltage. Both voltages and the differential can be set individually. If the Neutral and Ground "PE" is connected PMSA can monitor the voltage between Neutral and PE and activate an alarm signal if it exceeds a preset limit.
General:
The PMSA has two relays working in fail-safe mode. They can be used for an individual over and under voltage alarm or in parallel where they are both pulled in if the phase voltages are within the set limits. If the voltages are within the limits the relays will pull in after the power-up and the on-delay period has elapsed. If a voltage come outside the set limits the relays drop out after the off-delay period has elapsed.
Latch function:
If the relays are set to Latch they will pull in immediately at power-up and remain in until the PMSA after the power-up delay measures a fault and the off-delay has elapsed. After dropping out they will remain out until the PMSA have been reset manually by pressing the S/R button on the unit or by turning off the power supply.

Application:
Generally where humans and equipment have to be protected against unexpected voltages caused by broken wires - especially the Neutral - or voltages that are not within acceptable limits for the connected equipment.

SPECIFICATIONS

INPUT AC voltage. 45 to 66 Hz

Range	
Connection type 1-3	50 to 480V N-Phase
Connection type 4-5	86 to 830V Phase-Phase
Input resistance	
N-L1, N-L2, N-L3, N-PE	1Mohm

PERFORMANCE PARAMETERS

DISPLAY RESOLUTION	
Voltage	1 V
Time	1 sec
TIMING	
Measuring Response time	< 100msec. (50 to 90msec.)
Time range	Separate On and Off delay setting 0 - 99 sec.
ELECTRICAL	
Temp. dependence	A/D conversion Typ. ± 0.02 % / °C

OUTPUT

RELAY	2 C/O or 2 x 1 C/O for separate Over & Under voltage monitoring or 1 C/O dedicated for Neutral to Ground monitoring
Contact rating	6 A, 250 VAC, 1500 W, AgNi
Mechanical life	30 million operations

SUPPLY

Range	18 - 288 VAC, 20-400 VDC
Fuse	Internal 400 mA in A1
	Breaking capacity 100 A / 250 Vdc/ac
Power consumption	Max 4 W

GENERAL

Temperature range	- 25 °C to + 55 °C ambient
Humidity	Up to 90 % RH non-condensing
Dieletric test voltage	Coil to relay contacts 4000 VAC
Pole to pole	2500 VAC
Weight	0.17 kg

CE

	International Standards
EMC	EN50263 Product standard for measuring relays and protection equipment
Safety	EN60255 Insulation coordination for measuring relays and protection equipment

ORDERING INFORMATION

EXAMPLE: PMSA P A 4 C

TYPE
RMS Voltage Relay — PMSA

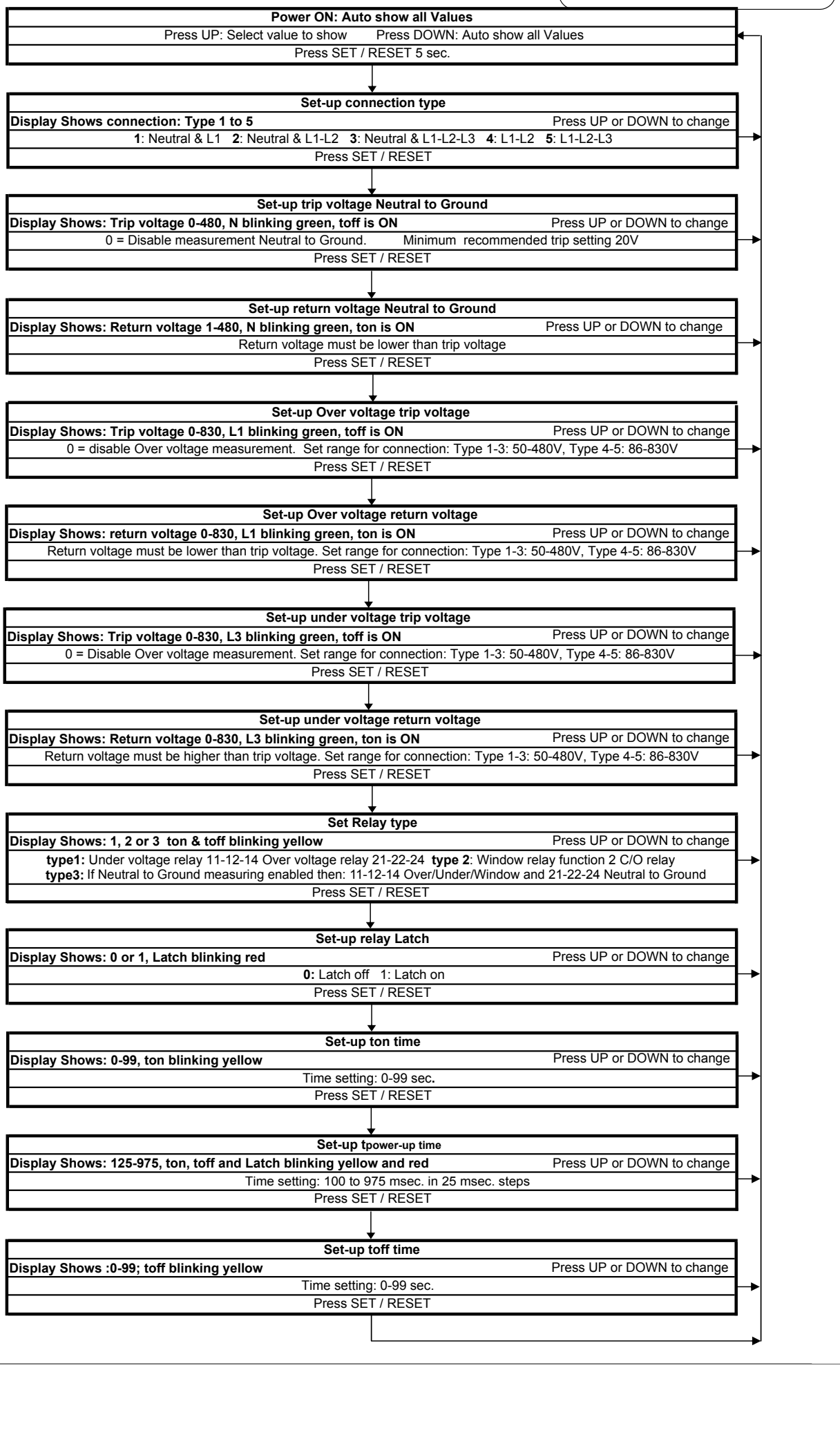
ADJUSTMENT
Programmed — P

HOUSING
Rail mounting — A

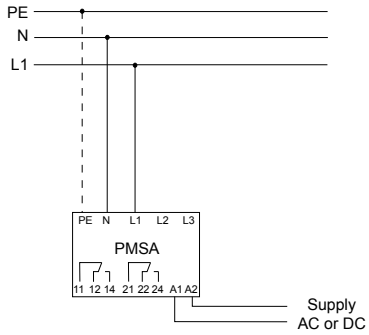
SIZE
45 mm. - — 4

CODE
Code end — C
Extended code — E

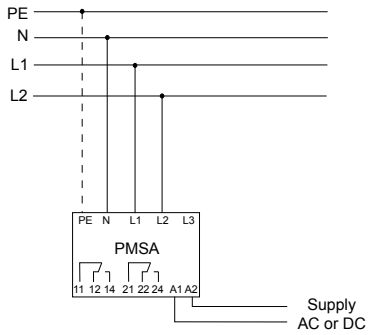
PMSA Set-up parameters



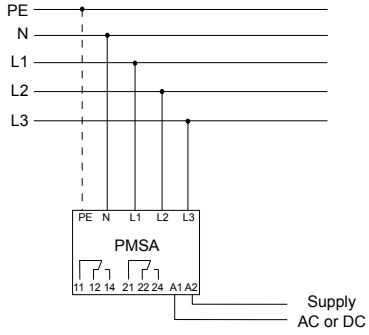
PMSA various connection types 1-5



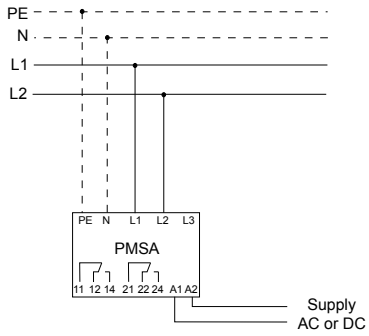
CONNECTION TYPE 1:
TRMS Voltage is measured from: L1 to N
and if enabled from N to PE



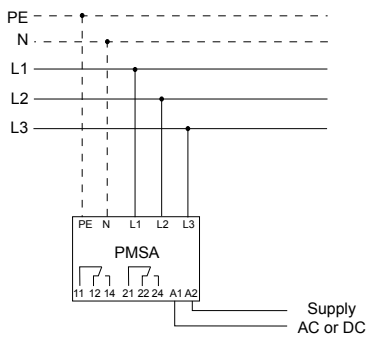
CONNECTION TYPE 2:
TRMS Voltage is measured from: L1 to N & from L2 to N
and if enabled from N to PE



CONNECTION TYPE 3:
TRMS Voltage is measured from: L1 to N & from L2 to N & from L3 to N
and if enabled from N to PE



CONNECTION TYPE 4:
TRMS Voltage is measured from: L1 to L2
and if enabled from N to PE



CONNECTION TYPE 5:
TRMS Voltage is measured from: L1 to L2 & from L2 to L3 & from L3 to L1
and if enabled from N to PE. If the Neutral is not connected an internal artificial Neutral will be used for the measurement N to PE