

FEATURES

Three phase monitoring for overvoltage, undervoltage, phase failure, phase sequence and asymmetry
3-Digit numeric display for all voltages: V_{rn} , V_{sn} , V_{tn} , V_{rs} , V_{st} and V_{tr}
True RMS voltage measurement
Digital presettable thresholds for overvoltage, undervoltage and asymmetry
Presettable response delays to overvoltage, undervoltage and asymmetry
Presettable ON delay timer
Three push buttons for selecting display voltage and accessing the menu
Colored status indicators
Wide operating voltage range
Wiring through plug in connector
Case conforms to DIN 43 880 of the British Standard
Fits onto 35mm symmetric DIN rail to BS5584 (EN 50 022, DIN 46277-3)
Humidity class, DIN 40040
Environmental protection, DIN 40 050

ABSOLUTE MAXIMUM RATINGS

Supply voltage (line-to-line)	570volts
Auxiliary contact	8A ac1
Operating temperature	0 to 70°C

OPERATION

True RMS voltage is measured and displayed. The up and down push buttons are used to scroll between voltages of V_{rn} , V_{sn} , V_{tn} , V_{rs} , V_{st} and V_{tr} . When a new voltage is selected, the display will briefly indicate the newly selected voltage (rn, Sn, tn, rS, St and tr). Following is a description of the operation of the PH3D:

- Normal condition:** This condition is indicated by green led labeled TIMER. Output relay energizes after elapse of time set in **ond**. Yellow led labeled RELAY ON lights simultaneously.
- Undervoltage on any phase:** This condition is signaled by the red led labeled LOW when voltage on any phase drops below value set in **uuS**. Output relay deenergizes after the elapse of the time set in **uud**. Undervoltage status persists until voltage on the three phases increases to 10 volts above setting.
- Overvoltage on any phase:** This condition is signaled by the red led labeled HIGH when voltage on any phase increases above value set in **ouS**. Output relay deenergizes after the elapse of the time set in **oud**. Overvoltage status persists until voltage on the three phases drops to 3 volts below setting.
- Failure of any phase:** Signaled by red led labeled LOW when any line-to-neutral voltage drops below 100 volts or when the difference between any two line-to-line voltages exceeds 120 volts. Output relay deenergizes immediately. This status persists until all line-to-neutral voltages increase above 120 volts and the difference between all line-to-line voltages drops below 100 volts.
- Wrong sequence of phases:** Signaled by red led labeled REVERSE. This status persists until any two phases are interchanged.
- Asymmetry:** Signaled by the blinking of red led labeled REVERSE when the difference between any two line-to-line voltages exceeds the value set in **SyS**. Output relay deenergizes after the elapse of the time set in **Syd**. Asymmetry status persists until the difference between all line-to-line voltages drops to 3 volts below setting.
- A **neutral disconnection** is always detected.

SETTING

Press the push button on the right to access the parameters menu. The up and down push buttons are used to scroll up and down respectively in the menu list. Pressing the push button on the right will edit the value of the parameter displayed. Use the up and down push buttons to respectively increase and decrease the value. Press the push button on the right to save new value. Following is a description of the parameters:

Display	Description	Range	Factory setting
ouS	Overvoltage threshold setting in volts	0 to 999	253 volts
oud	Overvoltage response delay in seconds	0 to 25.5	2 sec
uuS	Undervoltage threshold setting in volts	0 to 255	187 volts
uud	Undervoltage response delay in seconds	0 to 25.5	6 sec
SyS	Asymmetry threshold setting in volts.	0 to 255	50 volts
Syd	Asymmetry response delay in seconds	0 to 25.5	5 sec
ond	ON delay setting in seconds	0 to 600	10 sec
SEq	Phase sequence detection control	EnA/diS	EnA
FST	Load factory setting	-	-
out	Exit menu	-	-

SPECIFICATION

Operating voltage (line-to-line)	150 to 500 volts
Auxiliary contact rating	5A 250V ac1 – 2A 415V ac1

INSTALLATION

Connect terminals 1, 2 and 3 to lines R, S and T respectively.
Connect terminal 4 to the neutral (mandatory since the voltage sensing is performed between line and neutral).
Connect terminals 5, 6 and 7 as desired to disconnect the circuit when an abnormal condition is detected.

