

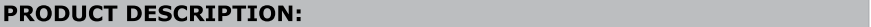
DIGITAL SUPPLY MONITORING RELAY

Series SM 800

DMS110

DMS120

DMA220



Digital supply monitoring relay (Series SM 800) monitors Over voltage, under voltage, over frequency, under frequency, phase loss, Phase asymmetry, Phase sequence & neutral fail in 3 phase system.

- Monitor under-over voltage & frequency in 3 phase systems for line/Phase voltage.
- Monitoring of phase loss, phase sequence, Phase asymmetry & neutral fail.
- Measure true RMS AC voltage.
- Self & auxiliary power devices.
- Configurable Power on delay, off delay & On delay.
- Faults can be individually Enable/Disable for individual relays.
- Configurable output contact for Energise to trip & De-energise to trip.
- Relay Latch mode can be individually Enable/Disable (Manual / Auto mode).
- Digital LCD display for real time monitoring.
- Instantaneous faults can be viewed on LCD window.
- Stores last five fault history.
- Backlit functioning is based on Fault & Relay status.
- Configurable backlit.
- Password protection.
- Sealable transparent dust cover.
- Din rail/Base mount.
- CE & RoHS compliance.

- Do not touch the terminals while power is being supplied.
- Tighten terminal screws with the specified torque.
- Always follow instructions stated in product leaflet.
- Before installation, check to ensure that specifications agree with intended application.
- During installation, keep 10mm distance on both sides of product from adjacent devices.
- Suitable dampers should be provided in the event of excessive vibrations.
- Only qualified persons are authorized to install the product.
- Use slow blow fuse of 250mA rating in series with product supply.
- Device should be kept away from wet, dust & humidity environments.
- Device manufacturer will not be responsible if any incident occur due to negligence of cautions.

These are products with Auto reset, hence never use the products for an application involving significant risk to life without ensuring that the system as a whole has been designed to address the risks and that our products are properly rated and installed for the intended use within the entire system or equipment.

The technical information provided in this document was correct at the time of publish.

➤ Product innovation being a continuous process, we reserve the right to alter specifications without any prior notice.

<p>A. Voltage Asymmetry : If measured any, exceeds asymmetry threshold then device will declare it as asymmetry fault.</p> <p>Note : Due to locking between threshold & hysteresis, in case of absolute asymmetry, maximum value of hysteresis will be less than equal to -8V of asymmetry threshold while in case of % asymmetry, maximum value of hysteresis will be less than equal to -4% of asymmetry threshold.</p> <p>• Percent Asymmetry :</p> <p>Find out max line voltage , min line voltage and average line voltage .</p> <p>Calculate two differences as D1 and D2 :</p> <p>D1 = Max line voltage – Average line voltage & D2 = Average line voltage – Min line voltage</p> <p>% Asymmetry Calculation :</p> <p>if (D1 > D2) then D = D1 otherwise D = D2.</p> <p>% Asymmetry = (D / Average) × 100.</p> <p>• Absolute Asymmetry :</p> <p>Find out max line voltage and min line voltage .</p> <p>Absolute Asymmetry = Max line voltage – Min line voltage.</p>	
<p>B. Neutral Fail :</p>	<p>In run time or at power on, if neutral connection open then device detect it as Neutral fail fault.(Applicable to 3P-4W only).</p>
<p>C. On Delay :</p>	<p>ON delay is time duration between fault recovery and relay action. ON delay is applicable for recovery of all type of faults.</p> <p><i>Note: If fault occur again during ON delay, then device reload ON delay.</i></p>
<p>D. Off Delay :</p>	<p>OFF delay is time duration between fault detection and relay action.</p>
<p>E. Mode:</p>	<p>Each relay mode can be configured as Auto or Manual (Latch). At this time of fault recovery, Auto mode relay recovers automatically. However Manual mode relay requires to press Reset key for recovery.</p>
<p>F. History:</p>	<p>History saving is done when any relay is tripped by any fault. Eg. If multiple faults are present while tripping then history will be logged for only one fault for which the relay has tripped first. In history saving total last five faults are logged in the data flash memory including Relay 1 & 2. If multiple faults occur on same instant then it will log only one fault due to which it was tripped.</p>
<p>G.</p>	<p>During power fault and interruption fault, Non-fail safe relay state does not change, hence no fault displayed.</p>
<p>H. Critical Faults :</p>	<p>Interruption, Neutral Fail, High cut-off & Low cut-off faults are critical faults hence for application safety in the event of any of these faults both relays are immediately tripped irrespective of their setting.</p>

Reset	Enter key long press for 1sec (applicable for "Manual Mode (Latch")
Password Protection	Configurable(Enable/Disable) 3 Digit Password (Default : Disable)
Fault Memory	Log of previous 5 no's of Fault
Relay Output Type	Configurable :Fail safe-Yes (De-Energise to trip) (Default : Yes) No (Energise to trip - Non fail safe) (Applicable for shunt trip coil)
Timing Function	
Power ON Delay Setting	1sec to 999sec (Default : 5sec)(750ms Hardware initialization delay) If power on delay set to 0sec then ON delay time will be applicable to respective relay. Note: Power ON Delay is not applicable for Non fail safe mode.
Off Delay Setting	0.1 to 999sec (Default : 5sec) Configurable for faults UV, OV, UF, OF & Asymmetry. Phase rev./3 ph interruption:<100ms, High/Low cutoff:<200ms, Neutral Loss:<500ms. Phase fail:<100ms (In non fail safe mode phase fail duration is <500ms).
On delay setting	0.5 to 999 sec (Default :5sec)
Mechanical Parameter :	
Operating Mode	Continuous Operation
Degree of Protection	IP-20 for Enclosure & Terminals, IP-40 with Front Facia for Dust cover
Housing	UL94-00
Mounting	Base/On
Dimension (WxHxD)	36 x 90 x 66.5 mm
Weight	132 g Approx.(Unpacked)
Approval	CE & RoHS

Connection	Eurostyle Wire Terminal Connector
Wire size	1 x 2.5 sq. mm. (24 to 12 AWG)
Stripping Length	7-8 mm
Screw Tightening Torque	0.5 Nm / 4.4 lb.in.

Standard	IEC 60255-1	
Harmonic Current Emission	IEC 61000-3-2	CLASS A
Voltage Flicker and Fluctuations	IEC 61000-3-3	CLASS A
ESD	IEC 61000-4-2	LEVEL II
Radiated Susceptibility	IEC 61000-4-3	LEVEL III
Electrical Fast Transients	IEC 61000-4-4	LEVEL IV
Surge	IEC 61000-4-5	LEVEL IV
Conducted Susceptibility	IEC 61000-4-6	LEVEL III
Voltage Dips and Interruptions (AC)	IEC 61000-4-11	
Voltage Dips and Interruptions (DC)	IEC 61000-4-29	
Conducted Emission	CISPR 11	CLASS A
Radiated Emission	CISPR 11	CLASS A

Test Voltage Between I/P & O/P	IEC 60947-5-1	2KV
Test Voltage Between all Terminals & Enclosure	IEC 60947-5-1	2.5KV
Impulse Voltage Between I/P & O/P	IEC 60947-5-1	4KV
Insulation Resistance	UL508	> 50KOhm
Leakage Current	UL508	<3mA
Single Fault	IEC 61010-1	
Pollution Degree	II	

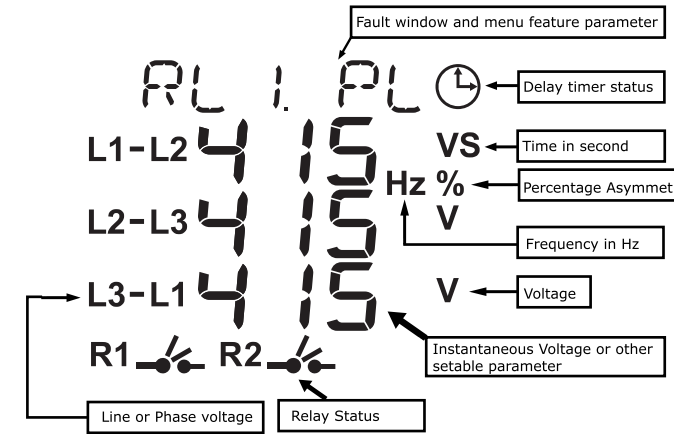
Operating Temperature	-10°C to + 60°C
Storage Temperature	-20°C to + 70°C
Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6 5g (10 - 50Hz)
Relative Humidity	95% RH (Without condensation)
Max. Operating Altitude	2000 meters

DMS110	DMS120	DMA220

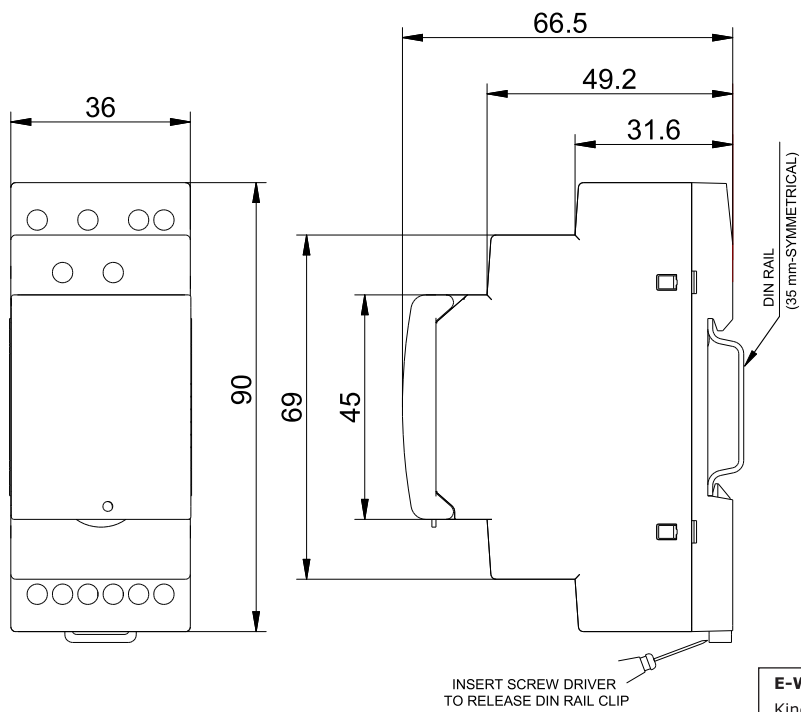
KEY FUNCTIONS:

1	ESCAPE(↵)	<ul style="list-style-type: none">To enter in setup menu(Long press > 1Sec)To return to main screen or previous menu while in edit or view modeTo abort changed value or parameter
2	UP(▲)	<ul style="list-style-type: none">To scroll parameters upwardTo change/increment parameter value in edit modeTo enter into Run mode menu and view instantaneous measurement values frequency, Asymmetry & voltages (Key press < 500ms)
3	DOWN(▼)	<ul style="list-style-type: none">To scroll parameters downwardTo change/decrement parameter value in edit modeTo enter into History menu mode & view fault log history(Key press < 500ms).
4	ENTER(↵)	<ul style="list-style-type: none">To select and save parameter value in edit modeTo reset the product from latch mode (Long press > 1Sec)
5	ESCAPE(↵) + ENTER(↵)	<ul style="list-style-type: none">Combine key press to view read only setup menu (Long press > 1Sec).

LCD DISPLAY CONTENT & SYMBOLS:



DIMENSION DETAILS:

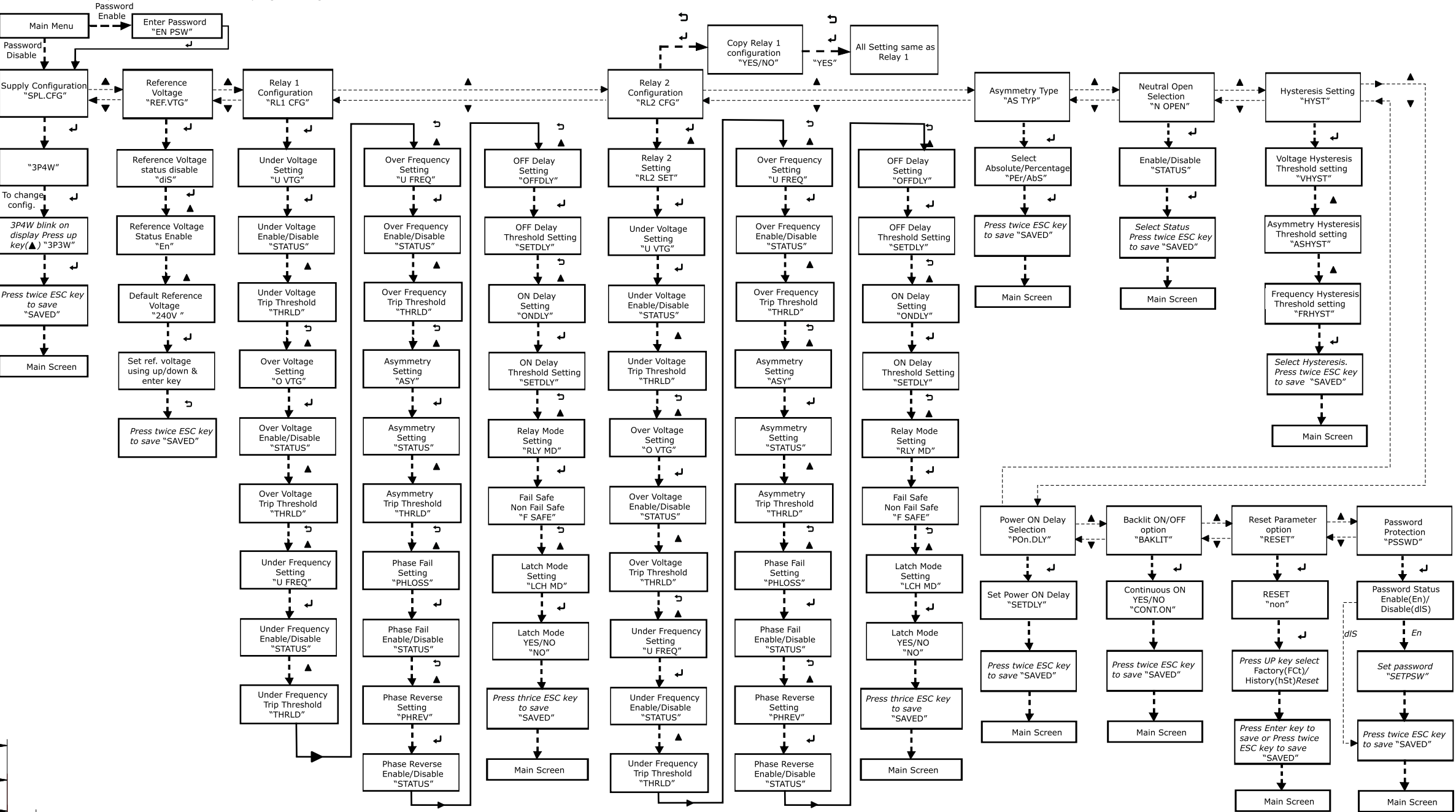


RELAY CONTACT STATUS:

Relay Mode	Device Healthy Condition	Device Faulty Condition
Fail Safe	15 & 25 (Pole) 18 & 28 (NO)	15 & 25 (Pole) 18 & 28 (NO)
Non Fail Safe	15 & 25 (Pole) 18 & 28 (NO)	15 & 25 (Pole) 18 & 28 (NO)

EDIT MENU STRUCTURE:

Press & hold ESC key(↵) for > 1sec. to enter in programming mode.



DISPLAY OF FAULTS:

Display	Meaning
"FLT.INT"	Voltage Interruption
"FLT.NF"	Neutral Open
"FLT.LC"	Low Cut off
"FLT.HC"	High Cut off
"RLx.PL"	Phase Loss
"RLx.PR"	Phase Reverse
"RLx.ASY"	Voltage Asymmetry
"RLx.OF"	Over Frequency
"RLx.UF"	Under Frequency
"RLx.OV"	Over Voltage
"RLx.UV"	Under Voltage
"RLx.LCH"	Relay Latch Mode

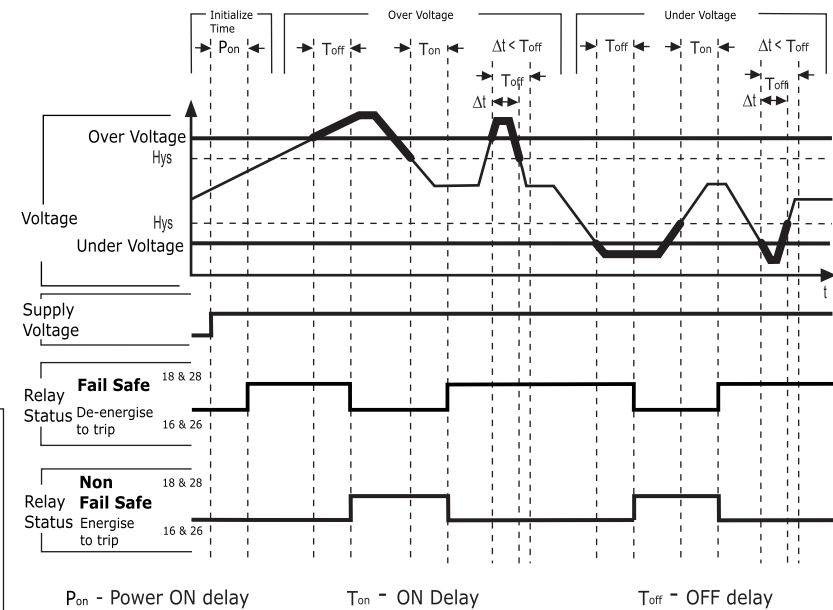
Note: RLx indicate RL1 & RL2

E-Waste Regulatory notice:

Kindly treat, recycle or dispose of this equipment in an environmentally sound manner after End of Life, as per WEEE (Waste Electrical and Electronic Equipment) regulations or as per local norms or hand it over to General Industrial Controls Pvt. Ltd, through website <https://www.gicindia.com/get-in-touch/>



TIMING DIAGRAM: VOLTAGE MONITORING



TIMING DIAGRAM: PHASE LOSS, PHASE SEQUENCE, ASYMMETRY

