



Product Features

- Mitigates Electric Shock Drowning (ESD) per ABYC E-11
- Dual power and fault status indicators
- Provides identification of a ground fault vs. short circuit trip
- Enclosure is Chemical and U.V. resistant
- Trip level sensing device <30mA at trip time of <100mS per ABYC E-11
- Meets environmental considerations of ABYC S-31
- Protection range and operating voltage: 0-50Amps, 120VAC, 120/240VAC, 230VAC (Europe)
- Accommodates up to 3 wires, 6AWG, with no twisting of the wires required

Product Overview

The LineGard PGFM product family provides ELCI (equipment leakage) ground fault sensing and is designed and manufactured by North Shore Safety, a leader in innovative safety products. The PGFM series operates in tandem with a Sensata™ LEL series, UL 489 listed circuit breaker, with shunt trip and auxiliary switch manufactured by Sensata Technologies.

The combined assembly of the PGFM and LEL series meets the requirements of **ABYC E-11** for ground fault protection and main shore power circuit protection as well as the **ABYC proposed S-31** document (environmental considerations for systems and components onboard boats).

The PGFM constantly monitors the current balance of the conductors (wires / cables) supplying power to the boat. When a ground fault of 27mA nominal (30 mA max) occurs, the PGFM uses the LEL's shunt trip coil to signal the breaker to trip.

Product Specifications

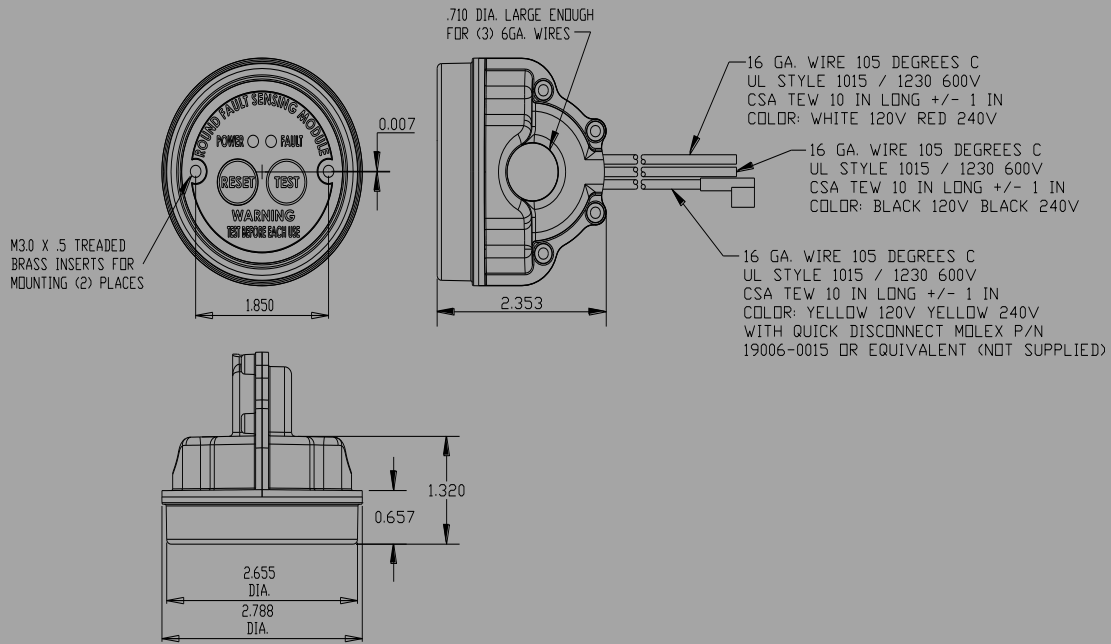
Type:	ABYC E-11 GFP-referencing UL 943 and UL 1053
Operating Voltage Range:	120VAC, 230VAC (Europe), 240VAC, 120/240VAC
Interrupting Voltage:	Voltage rating of UL 489 circuit breaker
Sensing Coil Voltage Limit:	264VAC max
Phase Interrupter:	120VAC, 240VAC, 120/240VAC, and 230VAC Europe
Interrupting Current:	120VAC, 50A, 5K AIC; 240VAC, 50A, 5K AIC; 120/240VAC, 50A, 5K AIC; 230VAC, 50A, 5K AIC
Trip Time of Combined Assembly:	100mS or less (60mS nominal)
Trip Level:	27mA +/- 2mA
Frequency:	50/60Hz
Operating Temperature:	-35°C to 66°C
Reset Type:	Automatic on power up
Enclosure:	Meets or exceeds NEMA 4X, (unit is entirely potted)
Salt Fog:	ASTM B117
Shock:	33CFR183.534 – modified to supply 5,000 shocks @25G, instead of test standard of 1,000 shocks
Vibration:	MIL-STD-810 (random vibrate 4G RMS), IEC 6945 (sine sweep 5 to 100Hz for low frequency) SAE J1171 (UL1500)
Ignition Protection:	SAE J1171 (UL1500)
S-31 Insulation Resistance:	Meets insulation resistance test per S-31
S-21 Emissions:	3.6.9 meets CISPR radiated emissions 3.6.10 meets CISPR conducted emissions
S-31 Immunity:	31.6.2.1.1 immunity to conducted low frequency interface 31.6.2.1.2 immunity to conducted high frequency interface 31.6.2.1.3 immunity to radiated radio frequency fields 31.6.2.1.4 immunity to fast, low energy transients – bursts 31.6.2.1.5 immunity to slow high energy transients 31.6.2.1.6 immunity to electrostatic discharge (ESD)



DECISION TABLE

<u>Product Type</u>		PGFM - 1 1 1 - B - A1 - 188*			<u>Physical Shape</u>
					188 Round configuration
<u>Operating Voltage</u>	<u>Configuration</u>	<u>Reset Type</u>	<u>Assembly Options</u>	<u>Installation Kit</u>	
1 120VAC 2 240VAC 3 230VAC (Europe)	1 Shunt w/ Aux. Switch	1 Automatic (power up)	B Default	A1 Default	

*Decision table part number shown is a 120VAC, Shunt with auxiliary switch, Automatic Power Up, with up to a 3 pole Sensata UL 489 circuit breaker, Round configuration marine module



Product Overview

The LineGard PGFM ELCI module used in tandem with the Sensata™ LEL type circuit breaker meets the requirements of the ABYC (American Boat and Yacht Council) E-11 standard covering AC and DC systems on boats. This standard states the following:

11.11.1 An Equipment Leakage Circuit Interrupter (ELCI) shall be installed with or in addition to the main shore power disconnect circuit breaker(s) or at the additional overcurrent protection as required by E-11.10.2.8.3, whichever is closer to the shore power connection.

11.11.1.1 This device shall meet the requirements of UL 1053 Standard for Safety for Ground-Fault Sensing and Relaying Equipment and the requirements of UL 943 Ground fault Circuit Interrupters with the exception of trip level and trip time. Trip level shall be set at a maximum of 30mA. The trip time shall be set at a maximum of 100mS.

AIRPAX LEL SERIES CIRCUIT BREAKER PRODUCT SPECIFICATIONS

Type:	Sensata™ LEL circuit breaker
Voltage:	120VAC, 120/240VAC (per UL 489) or 230VAC (Europe)
Current:	0.05 to 50 Amps (per UL 489)
Frequency:	50/60Hz (per UL 489)
Short Circuit:	5000 Amps AIC (per UL 489)
Poles:	1 to 3 (per UL 489)
Moisture Resistance:	MIL-STD-202, method 106
Salt Spray:	MIL-STD-202, method 101
Shock:	MIL-STD-202, method 213, test condition I with 100% rated current applied
Vibration:	MIL-STD-202, method 204, test condition A with 100% rated current applied
Approvals:	UL 489 listed, CSA certified, VDE approved, CCC approved, CE compliant