



## FLEET MANAGEMENT

# FM3 Hardware Specification

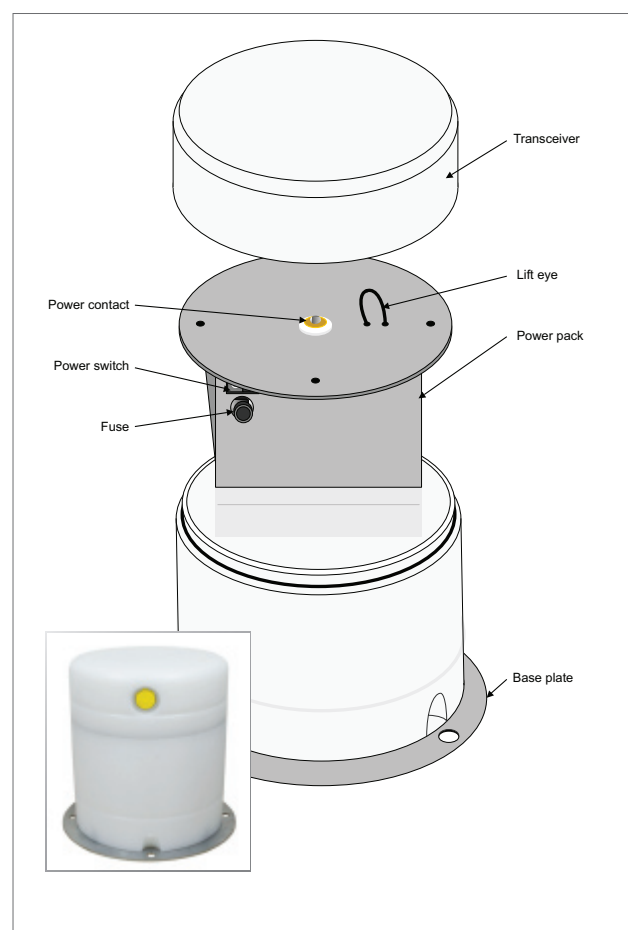
For ship operators who require low-cost and reliable tracking for their unpowered assets, Pole Star has developed the dedicated FM3 unit.

Fully integrated with the Fleet Management service, the FM3 unit has been designed to extend the use of Fleet Management so that the operator can monitor both powered and unpowered vessels on one software platform. This may be required when a powered vessel is being monitored using its Inmarsat C or IsatM2M transceiver and is towing an unpowered vessel (or vessel with no suitable power supply) that also requires tracking to ensure safety and security of assets. FM3 is programmed to provide a fixed four position reports per day.

The FM3 unit comes fully equipped with integral power pack that guarantees twelve months' operations under normal circumstances before a replacement pack will need to be fitted.

### Key benefits

- Can be installed by crew
- Supplied with marine grade stainless steel mounting plate
- No cabling required; integral power pack
- Guaranteed twelve months' operation at fixed four reports per day
- User replaceable power pack
- IsatM2M network provides low message latency
- Automatic ocean region switching enhances performance



## FM3 TECHNICAL SPECIFICATION

PHYSICAL	
Overall dimensions	Diameter: 190 mm x Height: 180 mm
Weight	4.8kg
Hardware	Two part polyethylene enclosure (IP67); Inmarsat IsatM2M transceiver; integral power pack; marine grade stainless steel base plate; four marine grade stainless steel hex head securing bolts; four mounting collars; Allen key

ENVIRONMENTAL	
Operating temperature range	-25° to +70° C
Storage temperature range	-40° to +85° C
Humidity	95% Relative Humidity at 30° C
Vibration	5-20 Hz: 1.92 m <sup>2</sup> /s <sup>3</sup> random noise 20-500Hz: -3dB octave random noise
Shock (survival)	Half sine 6ms, 300m/s <sup>2</sup>
Transceiver environmental rating	IP56

ELECTRICAL	
Power consumption (typ. @ 12Vdc)	Receive: 0.9W; Idle: 0.25W; GPS active: +1.0W; Transmit: 10W; Sleep mode: 6mW

SATELLITE	
Coverage	Global, four overlapping regions
Frequency range	Rx: 1525.0 to 1559.0 MHz Tx: 1626.5 to 1660.5 MHz
Sensitivity	>-25dB/K
EIRP	0 dBW to 9 dBW (0dBW at < 5 degrees)
Elevation angle range	0 to 90 degrees
Modulation	Forward channel: 32-ary FSK, 20bps Reverse channel: binary FSK, 4-128bps
Forward error correction	Forward channel: Reed-Solomon (31,15) Reverse channel: Half-rate convolutional (k=7)

GPS	
Frequency	1575.42 MHz
Channels	16 parallel

CERTIFICATIONS	
	Inmarsat D+ Type Approval CEMark EMC requirements of IEC60945:2002

Please note: FM3 is not certified as suitable for use onboard SOLAS compliant vessels