

# MM2000™

## REFRIGERANT GAS LEAK DETECTION

MM2000™ is an intelligent addressable gas detection system designed to provide refrigerant gas detection on ships under MARPOL Annex VI Regulation 12-Ozone Depleting Substances, 5.5 Leak Monitoring Systems.

Refrigerant gases are monitored continuously by fixed gas sensors installed in the vicinity of refrigeration and air conditioning machinery.

Class societies advocate the use of fixed leak detection systems for environmental protection (e.g. Lloyds EP Notation) The MM2000™ system operates on a single 4-core cable having the capacity to monitor from 1 to 32 addressable sensors.

The control system provides local indication of the measured parameters and alarm conditions together with relay contacts to shut down air conditioning or refrigeration plants as necessary.

- TYPE APPROVED
- LOOP SENSOR CABLE FOR LOW COST INSTALLATION
- NO MOVING PARTS
- CONTINUOUS MONITORING OF ALL SENSORS



# SPECIFICATIONS

## MM2000™ CONTROLLER

<b>Sensor Points</b>	1 to 32	<b>Local Alarm</b>	Internal buzzer for alarm/fault with mute
<b>Power</b>	24V dc, 110V/ 220V ac 50/ 60Hz	<b>Cable Details</b>	Main network – 4-core (2power - 2comms) 1.5mm <sup>2</sup> screened max < 500m
<b>Inputs</b>	Refrigerant sensors: CFC, HCFC, HFC	<b>Environmental Testing</b>	Complies with Class Criteria
<b>Display</b>	4 line alphanumeric LCD	<b>Panel Dimensions</b>	315mm (W) x 260mm (H) x 75mm (D)
<b>Power</b>	Twin Green LED's	<b>Fixing Detail</b>	4 x M4 on 228mm (H) x 278mm (D) On rectangular template
<b>Alarm</b>	Twin Red LED's	<b>Weight</b>	3.4 kg
<b>Fault</b>	Twin Amber LED's	<b>Cable Entry</b>	Top, bottom, or rear
<b>User Interface</b>	Menu driven via LCD and 6No. panel mounted membrane pushbuttons with security	<b>Lloyds Type Approval</b>	Certificate 04/00079
<b>Outputs</b>	3 alarm levels per channel. 16 user programmable volt-free SPCO relays for shutting down air conditioning or other machinery as required N/E or N/DE, latched or unlatched. Common fault relay SPCO N/E or N/DE. Mains fail relay SPCO N/E or N/DE 9way D- type connector ASC11RS232 comms		

## MM1000™ REFRIGERANT GAS DETECTORS

<b>Range</b>	Varies between 0-1000ppm (Alarm 300ppm)	<b>Housing Material</b>	Galvanised cast iron
<b>SCS Cert No.</b>	EX98EII87X / 03ATEX1176X	<b>Dimensions</b>	126mm (diameter) x 86mm (D)
<b>Operation</b>	Continuous diffusion	<b>Fixing Details</b>	2 x M6 appropriate fasteners
<b>Housing Material</b>	316 stainless steel / Polymer	<b>Cable Entry</b>	Top M20 x 1.5P
<b>Dimensions</b>	33mm (DIA) X 33mm (L)	<b>Weight</b>	2kg
<b>Weight</b>	165g	<b>Sensor cable</b>	4 core 1.5mm <sup>2</sup> screened & unarmoured marine approved
<b>Accessories</b>	Dust & spray protector, duct mount kit		

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