



## **PHOBOS® - 2 to 18GHz Threat Warner/RESM System**

The Phobos® Threat Warner/RESM is an extremely compact, affordable, end-to-end integrated EW sensor system comprising: Antennas, RF Processing, Digital Processing, De-interleaving & Emitter ID/Library Matching, and Operator Interface. The system design employs a high degree of RF & digital signal processing integration, (based on established Teledyne RR017 and QR020 PHOBOS products), enabling the full 2-18GHz frequency coverage and 360° azimuth coverage to be achieved in a very small and light-weight unit. A key feature of the Phobos-R is that there are no external RF cables and no positional alignment requirements during set-up, making it extremely easy to deploy and operate on a wide variety of small platforms of all types, including those not thought previously feasible for such protection on the grounds of size, weight, power or cost. Only two external cables are required for system operation; DC power (9v-36v) and a network cable for data output/system control.

The system includes options for both WiFi & quad band GSM interfaces, enabling either local or remote location of the sensor unit relative to the user interface. The sensor system incorporates established waveform based processing algorithms enabling the creation of a user interface which is both robust in dense signal environments and requires minimal operator workload or training. Simple to use hand-held ruggedised PDA MMI display & full ESM MMI running on a ruggedised laptop or conventional displays are also available. MIL-STD 2525 symbology ensures ease of object recognition. The rapid threat warning response (<1 sec) also facilitates use of the system in conjunction with self-protection measures such as automatically set-on responsive jammers (ECM / EA) and it can also be used in conjunction with CESM as a frequency extension for low cost combined EW sensor suites.

### **FEATURES**

- 2-18GHz Instantaneous Frequency Range Full 360° Azimuth Coverage
- Bearing Accuracy <10° rms Extremely small Size & Weight
- Very Low Power Consumption (<25Watt) Rapid Threat Warning (Emitter ID < 1sec) No External RF Cables
- Simple to Deploy & Operate
- Built in auto-positioning (Compass / GPS) Minimal Operator Workload
- Network enabled connectivity

### **APPLICATIONS**

- Unmanned Aerial Vehicles
- Man Portable / Deployable Sensors Remote Sensing (Unmanned) Armoured Fighting Vehicles
- Fast Patrol Boats – Littoral / EEZ Operations Reconnaissance Vehicles
- Light Utility Aircraft (FW & RW) Low Cost Combined Sensor Suites

*See restrictions on published datasheets at [www.teledynedefence.co.uk/](http://www.teledynedefence.co.uk/)*

## PERFORMANCE DATA

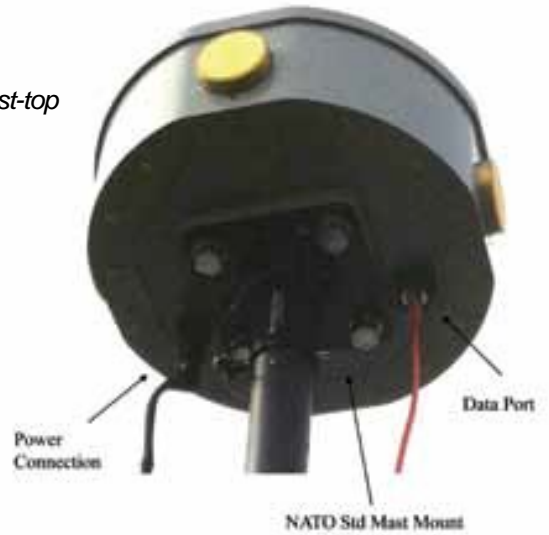
Frequency Range:	2.0GHz to 18GHz	(instantaneous coverage)
Frequency Measurement:	25MHz resolution	(accuracy < 10MHz rms)
Azimuth Coverage:	360 Degrees	(4 switched 90 degree sectors)
Bearing Measurement:	< 10 Degrees	(typical rms accuracy with small antennas)
Amplitude Measurement:	0.2 dB	(resolution of the measurement process)
System Sensitivity:	-57dBm -60dBmi	(minimum sensitivity at Rx I/P) (typical sensitivity performance at Antenna boresight)
Dynamic Range:	62dB 42dB	(Auto attenuation selected) (Auto attenuation off)
Minimum Pulse Width:	75ns	(Max Pulse Width is 650 µs / CW)
Time Of Arrival :	10ns	(measurement resolution)
Recovery Time:	500ns max	(from max high power signal)
Environment Pulse Density:	> 1 million pulses per sec	
Emitter Library Capacity:	5,000 emitter mode lines	(capable of expansion)
Track Table:	500 simultaneous tracks	(capable of expansion)
Track Display:	500 simultaneously displayed	(30 with a Handheld PDA display)
Full ESM MMI Display Modes:	Map with emitter LOB overlay / polar LOB mode /	Track Table, Platform data, Weapon data, 2D Graph mode System Control
System Response Time:	< 1 second	(antenna to display)
Operating Voltage Range:	9 VDC to 36 VDC	(any DC power source in the range)
Power Consumption:	24 Watt typical	(in full operating mode)
Standby Mode:	< 10 Watt	(low power standby mode)
Size:	320mm x 320mm x 105mm	(inc antennas)
Volume:	< 8.5 litres	(inc antennas)
Weight:	< 7.2kg	(inc antennas)
Operating Temperature Range:	-20 Deg C to + 85 Deg C	(optional heating element down to -40 Deg C)
Operating Altitude:	60,000 feet maxA38:G60D51A39:GA37:G60	

## SYSTEM OPTIONS

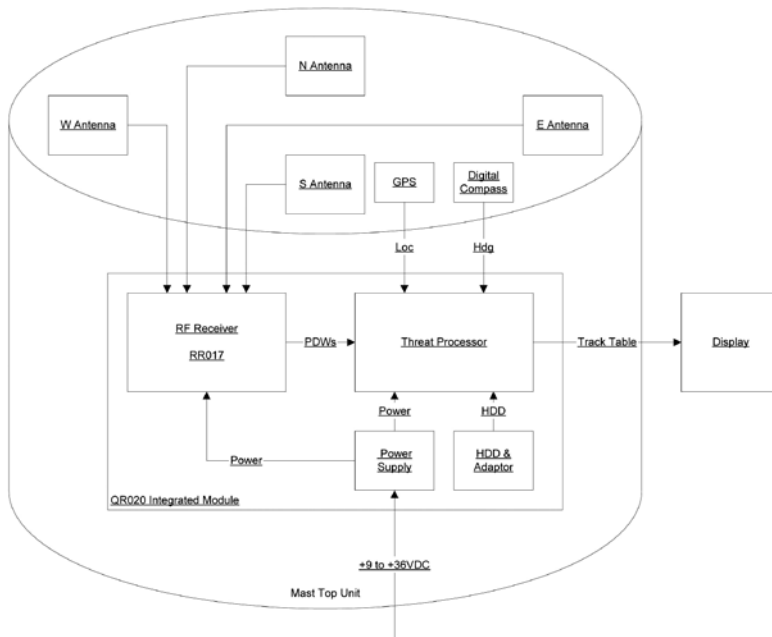
8-Port Antenna configuration	for higher bearing accuracy / larger platform distributed antenna fits
Raw Pulse Data Capture	for off-line ELINT analysis
Higher System Sensitivity	using alternative platform mounted antennas
MMI Display	Hand Held PDA, Rugged Laptop (HCI) or conventional display
Extended Frequency Coverage	0.5 to 18GHz achievable with DR063 unit / above 18GHz also available
Increased frequency performance	12.5 MHz resolution and 6.25 MHz resolution
RF Front-End interference rejection	custom filtering solutions available to suit requirements
Solar Power Pack	For unattended remote operation without local infrastructure
Remote operation	WiFi & Quad-Band GSM

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Phobos<sup>®</sup> integrated Sensor mounted on mast-top



Colour MMI Display on rugged lap-top



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