

4 Technical Specification

4.1 X-Band Scanner Unit

Operating frequency: 9410 MHz \pm 30 MHz

Specification	Aperture Size		
	1.2 m (4 ft)	1.8 m (6 ft)	2.4 m (8 ft)
Horizontal Beam Width, -3 dB (maximum)	2.0°	1.3°	1.0°
Vertical Beam Width, -3 dB (nominal)	24°	24°	24°
Sidelobes within 10° of Beam (minimum)	-23 dB	-23 dB	-23 dB
Sidelobes outside 10° of Beam (minimum)	-30 dB	-30 dB	-30 dB
Gain (nominal)	29 dB	30 dB	31 dB
Polarisation	Horizontal	Horizontal	Horizontal
Limiting Relative Wind Speed	100 kt	100 kt	100 kt

The rotational speeds given below apply to all sizes of X-Band antenna.

Rotational Speed	rpm
Standard	28 rpm
High	45 rpm

4.2 Transceiver Specification

4.2.1 Mounting Arrangements

Option	X-Band
Masthead	Aloft within Turning Unit
Bulkhead	Waveguide feed to Turning Unit

4.2.2 Transmitter

Parameter	X-Band
Magnetron Frequency	9410 MHz \pm 30 MHz
Magnetron Peak Power	10 kW nominal or 25 kW nominal
Pulse Length/PRF	0.05 μ s/1800 Hz nominal (Short Pulse) 0.25 μ s/1800 Hz nominal (Medium Pulse) 0.75 μ s/785 Hz nominal (Long Pulse)
Pulse Generator	Solid-state with pulse forming network driving the magnetron.

4.2.3 Receiver

Parameter	Detail
Type	Logarithmic, with Low Noise Front End (LNFE)
Tuning	AFC/Manual
IF (Intermediate Frequency)	Centred at 60 MHz
IF Bandwidth	20 MHz on short and medium pulses (nominal) 3 MHz on long pulse (nominal)
Noise Factor	5.0 dB nominal
Dynamic Range	80 dB nominal

4.3 Performance Monitor (optional with non Type Approved systems)

Parameter	Detail
Performance Monitored	Separate monitors for Radar System and Radar Receiver
Type	Transponder
Presentation	Four concentric arcs on Display Unit. Arcs are of reducing brightness outwards, showing degradation in performance (including antenna) in 5 dB increments relative to inner arc.

4.4 Power Supplies

4.4.1 Power Supply (AC)

Parameter	Detail	
Input voltage range	92 - 276V RMS	
Input voltage frequency range	47 to 64 Hz.	
Maximum Input Power	X-Band Scanner (Including Transceiver and Motor)	
	Standard Speed Unit	250 VA
	High Speed Unit	370 VA
Transient protection	Overvoltage transient of up to 40 % above nominal input voltage with maximum duration of one second. Pulse transient of up to ± 1200 V peak, with a rise time of 2 to 10 μ s and duration up to 20 μ s.	
Protection facilities	Output short circuit. High and low input voltage. Output overvoltage. Slow start.	
High voltage multiphase operation	Via a suitable transformer.	

4.4.2 Power Supply (DC)

Parameter	Detail
Input voltage range	22 to 32 V DC
Maximum Input Power	X-Band Scanner (Including Transceiver and Motor) 250W
Transient Protection	Symmetrical (line-line) 500 V of duration 10 μ s (100 μ s rise/fall time). Line to ground 500 V of duration 60 μ s (1 μ s rise/fall time)
Protection Facilities	Output short circuit. High and low input voltage. Slow start.

4.5 Mechanical Specification

4.5.1 Weights and Dimensions

Component	Height (mm)	Depth (mm)	Width (mm)	Weight (kg)
X-Band Scanner Unit with 1.2 m Antenna	440	586	1305*	49
X-Band Scanner Unit with 1.8 m Antenna	440	586	1914*	52
X-Band Scanner Unit with 2.4 m Antenna	440	586	2550*	55
X-Band Bulkhead Transceiver Unit	607	327	370	23

*Antenna Turning Circle

4.6 Compass Safe Distances

Component	Type No.	Standard	Steering
X-Band Scanner Unit 10 kW	65810M	1.4 m	0.8 m
X-Band Scanner Unit 25 kW	65825M	3.3 m	2.0 m
X-Band Scanner Unit (without Transceiver)	65801B	0.4 m	0.3 m
X-Band Bulkhead Transceiver 10 kW	65810A	1.3 m	0.7 m
X-Band Bulkhead Transceiver 25 kW	65825A	3.3 m	2.0 m

4.7 Environmental Specification

To the requirements of the International Standard for Marine Navigational Equipment CEI/IEC 945 (1988) and Amendment 1 (1992).