

Frequency Diversity Radar

SeaFalcon

Vessel Traffic Monitoring Application
Coastal Surveillance Application

25kw ★
50kw ★

In its long experience within radar field, **GEM elettronica** has always committed itself to extensive research activities and projects, investing knowledge and money to explore the advantages that latest technologies and innovative theories can bring. Among these, Frequency Diversity is proving itself extremely effective in increasing radar detection capability both in the land-based systems and in marine applications.

The main advantage of **GEM elettronica** approach is the usage of state-of-the-art electronics, bringing a very powerful signal processing applied to the dual frequency correlation task. The equipment is designed for the most critical missions in coastal surveillance and VT-MIS field; a suitable configuration has also been developed for onboard applications, yielding always the best performance according to the specific requirements.



X-Band 12 - 19 feets and S-Band 21 feets ARRAY



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SeaFalcon 25 kW 50 kW

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DATA COMMUNICATION SPECIFICATIONS

Interface type	nr. of channels	Standard
Serial	4	RS232 / RS422
LAN	2	10 base-T / 100 base-TX / 1000 base-T Gigabit Ethernet

TRANSMISSION DATA

Magnetron Peak Power	25 kW (nominal)	50 kW (nominal)
TX frequencies [MHz]	f1: 9250 f2: between 9410 and 9460	f1: 9470 ± 30 MHz f2: 9230 ± 30 MHz
Modulator	High Power	

	25 kW (nominal)		50 kW (nominal)	
	PW	PRF	PW	PRF
Short Pulse (SP)	50-190 ns	3120-4000 Hz	50-190 ns	3120-4000 Hz
Medium Pulse (MP)	200-490 ns	1475-3008 Hz	200-490 ns	1475-3008 Hz
Long Pulse (LP)	500-990 ns	785-1450 Hz	500-990 ns	785-1450 Hz
Very Long Pulse (VLP)	1000-1200 ns	650-778 Hz	1000 ns	778 Hz

ANTENNA AZIMUTH ENCODER INPUT

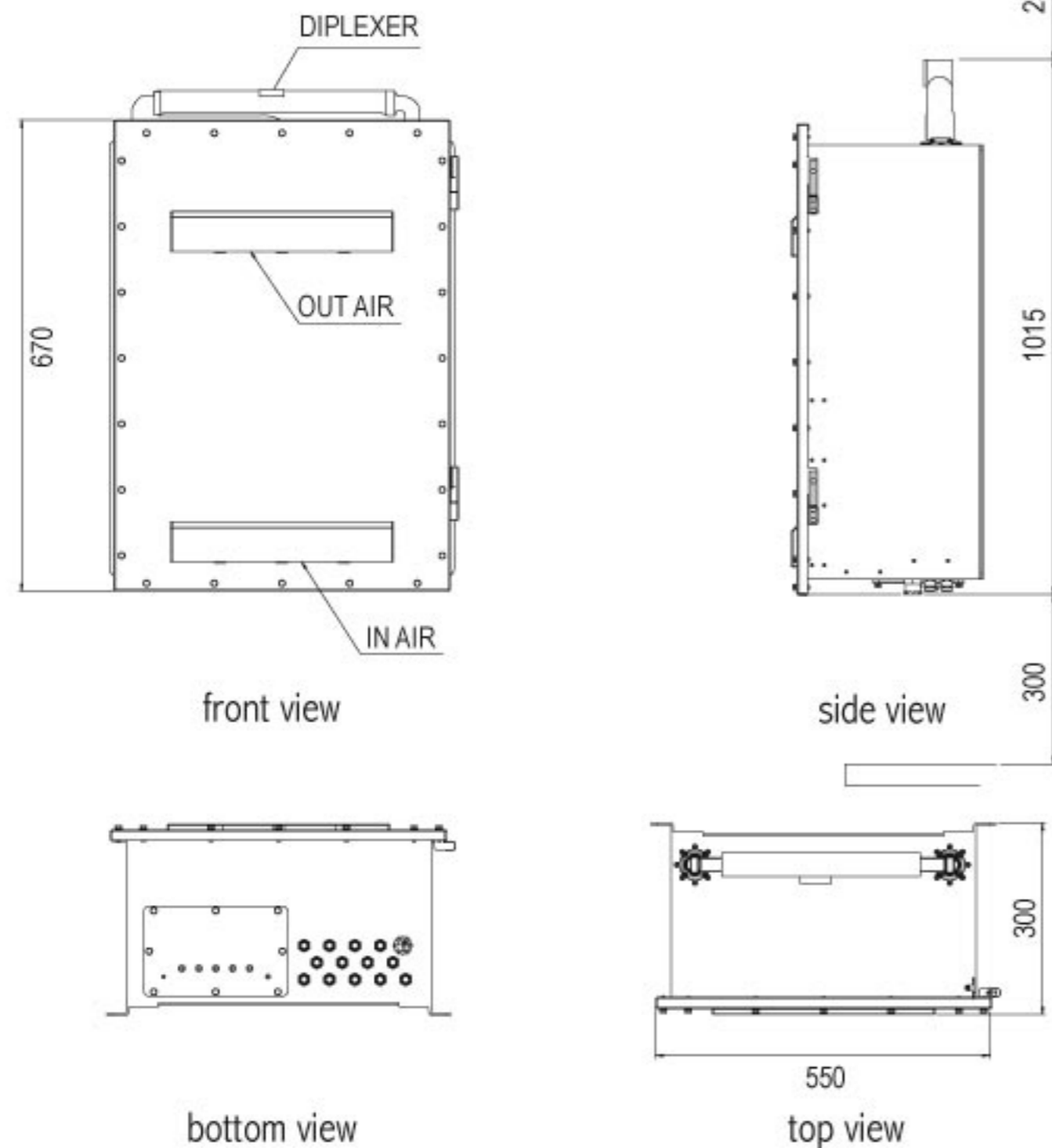
Antenna rotation rate	6 - 60 RPM ± 10 % (25 kW) - 12 - 22 RPM ± 10 % (50 kW)
Pulses per revolution	4096 or 8192 or 16384 ACP/rev. (antenna clock pulse/revolution) + 1 ARP (azimuth reference pulse)
Pulse widths	ACP ≥ 10 μs, ARP ≥ 10 μs
Format	2 * balanced line, RS-422
Encoder Supply	+ 5 V +/- 5 %, 500 mA max, diode coupled and protected against short circuit

MAINS POWER SUPPLY

Voltage	115/220 VAC ± 10% mono- phase
Frequency	50/60 Hz ± 5%
Power	Max 600 VA (excluding Antenna Motor Power)

WEIGHT AND DIMENSIONS

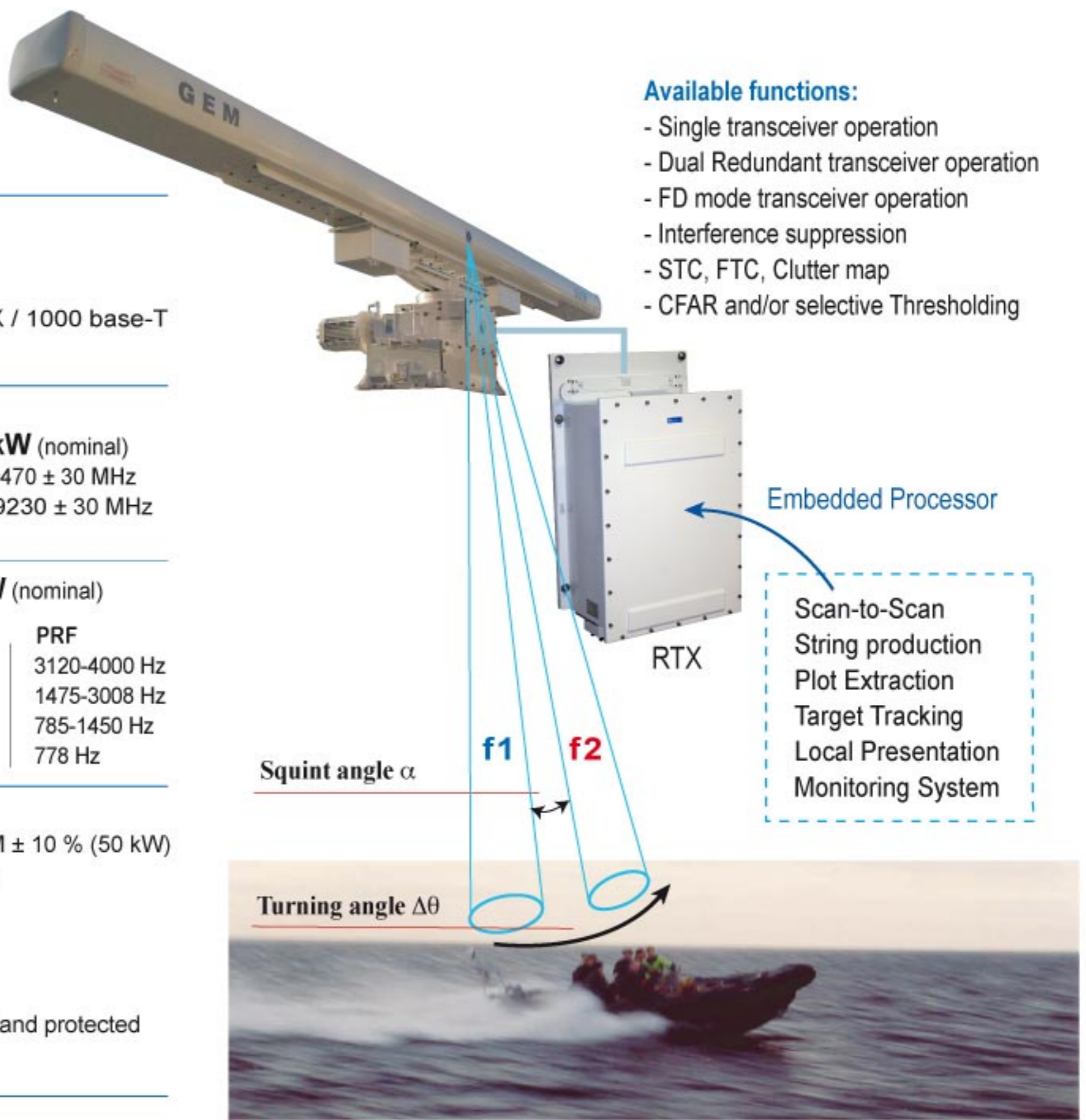
Double Transceiver	25 kW version	50 kW version	dimensions in mm.
Weight:	44 kg.	65 kg.	
Length:	670 mm	840 mm	
Width:	550 mm	940 mm	
Depth:	300 mm	300 mm	



dimensions in mm.

Available functions:

- Single transceiver operation
- Dual Redundant transceiver operation
- FD mode transceiver operation
- Interference suppression
- STC, FTC, Clutter map
- CFAR and/or selective Thresholding



RECEIVER DATA

Type	Solid-state logarithmic.
Intermediate Frequency (IF)	60 MHz
Dynamic range including RF STC	≥ 125 dB
Noise Figure	< 2.0 dB (1.5 dB typical)
IF Bandwidth	20 MHz (PW 50-190 ns) 5 MHz (PW 200-490 ns) 2 MHz (PW 500-990 ns) 2 MHz (PW 1000-1200 ns)

SECTOR BLANKING

Number of sectors selectable:	10
Sector bearing:	0-359°
Sector width:	10-360°
Resolution:	1°

Output for VDU (Video Distribution Unit)

Master Trigger (M.T.):	As defined in MIL-STD par 5.1.1.: width 20 ± 5 Vpp, positive polarity, 75 Ohm impedance
Video signal	- As defined in MIL-STD-751 par. 5.3: width 2 ± 0,5 Vp, positive polarity, 75 Ohm impedance
Angular information clock	- 4096 or 8192 or 16384 ACP/rev. (antenna pulse/revolution) + HL (heading line) 1/rev - Standard RS 422

ENVIRONMENTAL PERFORMANCES

Temperature:	from 0° to +50°C (Radar Processor) from -25° to +65°C (Transceiver)
Humidity:	95% at 40° C
Salinity:	As requested in MIL-STD-2036 par. 5.1.2.12.2
Vibrations:	As requested in MIL-STD-167-1
Drip proof:	As requested in MIL-STD-108 E
E.M.C.	As requested in MIL-STD-461C methods CE03, RS03, CS02 and CS06.
Safety:	As requested in MIL-STD-2036 par. 4.10

This brochure should not be considered a contractual offer to sell. The specifications given herein may be changed by the manufacturer, GEM elettronica S.r.l., without notice.