

ST-5000/M
ST-10000



Defence Communications Systems

ST-5000/M, ST-10000/SSM HF BLOS HIGH POWER RADIOS SECURE MARITIME COMMUNICATIONS SYSTEMS

HF BLOS High Power Transmitter Radios are secure 'all-solid-state' boosted communication systems for use in the Maritime domain, ashore or aboard vessel, in conjunction with HF Receiver/Exciter SP2295. They mainly support ship external communications by enabling effective and secure long range 5kW or 10kW radio links. HF BLOS High Power Transmitter Radios are specifically designed to meet the needs of a wide variety of vessels so enabling the digitization of the maritime battlespace.

Our company is a proven and reliable partner in supplying maritime communication systems thanks to secular heritage of when the first communications systems were supplied to Italian and Royal Navy ships.

Our company is also a major source of innovation across the demanding naval systems domains. We delivered communications systems into naval programmes in Italy, the UK and over 40 countries resulting in more than 250 naval platforms fitted with our equipment.

Modular design of ST-family Transmitters provides great flexibility in adapting to new HF demanding applications, such as integration in strategic communications networks to provide voice and high-speed data. In addition, a suitable system design easily upgrade ST-family radios to transmitter "gateway" functionalities in terms of multilevel modulation, higher data rate, expanded HF channel bandwidth and STANAG 5066 "IP over HF" capabilities.

KEY BENEFITS

- HF Frequency Range (1.5Mhz to 30Mhz)
- Two configurations
 - ST-5000/M at 5kW
 - ST-10000/SSM at 10kW
- Meets the need of a wide variety of applications
- Modular, scalable, flexible and reconfigurable
- Interoperable with military and civilian systems
- Secure System Enabler (NATO and National Encryption)
- Designed according to military standards.

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A Broadband RF amplification, designed through the removal of tunable elements, provides the Transmitters with the frequency agility capability required to support Automatic Link Establishment over the whole HF band and Electronic Protective Measures as specified by STANAG 4444.

Main components of ST-Family Transmitters are:

- The HF Exciter, which processes the input baseband information into a low-level RF signal at the selected frequency and operational mode. The Exciter can be also programmed to operate as a Receiver/Exciter to realize a transceiver.
- The RF amplification stages, which amplify the Exciter's low-level signal to the nominal RF output power.

The 5kW Tx power of the ST-5000/M is provided by combining four 1.5kW boosters.



The 10kW Tx power of the ST-10000/SSM is obtained through high-power combination of two ST-5000/M.



The ST-10000/SSM can be optionally set-up to operate as two independent 5kW transmitters (or transceivers).

Robust light-weight assembling in standard 19" cabinets make HF Transmitters suitable for defense applications, both in fixed strategical and shipboard installations to meet the ship-to-shore and ship-to-ship multimode communication requirements of the maritime environment.



MAIN FEATURES

- High data rate operation through embedded (optional) or external modem
- Capability to interface a telephone network for integrated radio/wire operation (optional)
- ALE operation according to MIL-STD-188-141 A/B – Annex A (optional)
- EPM functionality according to STANAG 4444 (optional)
- Compatibility with standard voice/data encryption device
- Powerful BITE routines (PBIT, CBIT, IBIT)
- Local control capability through Receiver/Exciter (SP-2295)
- Remote control capability through RS-232/RS-422, RS-485 or IP interface (optional).
- Availability of the software copy of the Human Computer Interface for integration in NMS
- Superior cosite performance through embedded Pre/Post Selector filter module (optional)
- Capability of operation with external Line Flattener (ATU-5000) to enhance the VSWR of the associated HF wide band antenna.



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GENERAL	ST-5000/M	ST-10000/SSM
Frequency range	1.5MHz to 30MHz	
Tuning step	1Hz minimum	
Frequency stability	±1 x 10exp ⁸ over 24h (optional ±5 x 10exp ⁸ over 1 year)	
Preset channels	1000	
Operating modes	J3E (USB/LSB): SSB suppressed carrier telephony A3E (AM): AM telephony A1A (CW): CW-keyed carrier B7D (ISB): data on ISB mode (optional) B9D (ISB): telephony and telegraphy on ISB mode F2B/F1B: FSK (optional) Link 11 via Link11 external modem High Speed Data Transmission up to 9600bps via external data modem	
Audio frequency response	Within 3dB in the 300Hz to 3300Hz band	
Audio lines	600Ω Balanced, with -20dBm to +10dBm input level	
Remote control	RS-232, RS-422, RS-485 and IP Port (optional)	
TRANSMISSION		
RF output power	5kW ±1dB PEP and average, adjustable to -31dB in 0.5dB step	10kW ±1dB PEP and average, adjustable to -31dB in 0.5dB step
RF output impedance	50Ω unbalanced	
Harmonic attenuation	>50dB	
WSVR	According to MIL-STD-188-141B With the optional Line Flattener, the Transmitter is able to provide the RF full rated power level up to 3.0:1 WSVR level	According to MIL-STD-188-141B With the optional Line Flattener, the Transmitter is able to provide the RF full rated power level up to 3.5:1 WSVR level
Intermodulation distortion (IMD)	the IMD products generated by two in-band audio tones of equal level are 36dB below PEP	
Spurious level	according to MIL-STD-188-141B with Pre/Post Selector filter option inserted	
Harmonics attenuation	>53dB	
In-band noise	Better than 50dB below the PEP	
Hum	Better than 50dB below the PEP	
Carrier rejection	Better than 60dB below the PEP	
Sideband suppression	Better than 60dB below the PEP	
INSTALLATION AND ENVIRONMENT		
Dimensions (W x D x H)	600mm x 900mm x 2050mm	600x900x2050 mm (each rack), two racks in total
Weight	350kg	350kg (each rack), two racks in total
Operating temperature	0/+50 °C	
Humidity	95% at +40 °C not condensing	
Primary power	380Vac ±10% three phase "delta" connection, 47-63Hz	
Power consumption	<15kW on CW at full rated power <600W on KEY-UP <100W on STAND-BY	<30kW on CW at full rated power <600W on KEY-UP <100W on STAND-BY
Electromagnetic compatibility	MIL-STD-461E	