

RT-200/400 FAMILY

ELECTRONICS DIVISION

BLOS AIRBORNE TRANSCEIVERS FOR FIXED-WING AIRCRAFT AND HELICOPTERS



Extensive research and development activities carried out in the HF field have led to design and production a new family of advanced HF/SSB transceivers for fixedwing and rotary-wing avionic platforms.

These transceivers provide voice/data communications over the 2-30 MHz frequency range with ALE 2G/3G (automatic link establishment) according to MIL-STD 188-141B (App. A, B, C) / Stanag 4538. Designed to meet the most severe requirements, the family is composed by 2 systems with different outputs power (200 or 400 Watts) and a wide range of voice/data services in the USB/LSB/AME and CW modes.

Data communications capabilities include MIL-STD 188-110B Serial Tone Modem, High Data Rate (MIL 188-110B App. C) and Stanag 4285 Modem. The transceivers are also Stanag 5511 (Link 11) compliant.

The RT-200/400 combine high flexibility and simplified operations in reduced size and weight package, achieved through innovative electrical and mechanical design.

The RT-200, including receiver/exciter, pre-post selector and RF amplifier, is assembled into a single 1/2 ATR short sized LRU. The RT-400 includes all the RT-200 characteristics with a 400 W amplifier into a single 3/4 ATR short sized LRU.

A patented company technology reduces TX power consumption by more than 40% respect previous designs, reducing heat dissipation and greatly improving reliability. Both these transceivers can be interfaced with all the family of Antenna Tuning Units (ATU) matching any kind of existing Antennae (Loop, Wire or Notch).

MAIN FEATURES

- › Voice and Data operations
- › Automatic Link Establishment (ALE) 2G/3G
- › Embedded Data modem
- › High efficiency power amplifier
- › Embedded Pre-Post Selector
- › Use of wire, loop or structural antennae by using appropriate ATU
- › Modern SW Architecture, able to install future applications.

TECHNICAL SPECIFICATIONS

GENERAL

› Frequency range	2 to 29.9999 MHz in 100 Hz step
› Tuning Time	Typical 1s (including ATU) 50 ms on pre-stored channels
› Modes of operations	Half Duplex on any available channel
› Modulation	USB and LSB voice and data, ISB data, CW, AME voice
› Embedded Data Mode	MIL-STD-188-110B STM
›	MIL-STD-188-110B HDR (app. C)
›	MIL-STD-188-110B Narrow/Wide
›	Shift FSK
›	STANAG 4539 ISB
›	STANAG 4285
›	STANAG 4529
› Data interfaces	MIL-STD 188-114/RS232/RS422 selectable
› Automatic Link	MIL-STD-188-141B App. A (2G)
› Establishment (ALE)	STANAG 4538 (3G)
› Frequency stability	1e-8 per day
› Power supply	RT-200: 28 VDC
›	RT-400: 115 Vac/400Hz 3-phase
› Power Consumption	RT-200: Rx 60 W max Tx 350 W max
›	RT-400: Rx 60 W max Tx 900 W max
› Dimension and mass	RT-200 ½ ATR short 8.7 Kg RT-400 ¾ ATR short 15 Kg
› MTBF	RT-200 6000 h AIC RT-400 4500 h AIC

ENVIRONMENTAL CONDITIONS

› General	In accordance with DO-160F
› Operating temperature	-40°C to 70°C
› Altitude	Up to 50000 ft



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TRANSMISSION

› RF Output Power	RT-200 200W PEP / 100W avg.
›	RT-400 400W PEP / 400W avg.
› RF Power Selection	¼, ½, full RF power
› Intermodulation (linearity)	Better than 30 dB below either tone
›	Two equal tone test
› Harmonic attenuation	Below -63 dBc
› Spurious suppression	Better than -80 dBc for f-f _o > 5%fo
› Carrier suppression (SSB mode)	Better than 50 dB below PEP
› Undesired sideband attenuation	Better than 60 dB below PEP
› Duty cycle With forced air cooling	Continuous for both RT-200/400
› w/o forced air cooling (RT-200 only)	1 min. TX, 5 min. RX
› Baseband input	0 dBm 600/150 ohm (selectable)
› RF output Protection	Automatic protection against short or open circuit and over temperature

RECEPTION

› Input Impedance	50 ohm (nominal) unbalanced
› Sensitivity for 10 dB (S+N)/N	
› CW/SSB	Better than -113 dBm (1 µV emf)
› AM	Better than -99 dBm (5 µV emf)
› Selectivity	Between 3dB from (fo+300 Hz) to (fo+3050 Hz)
› Image rejection	Better than 100 dB
› IF rejection	Better than 100 dB
› Desensitisation	100 dB for 1 dB degradation (f-f _c greater than 5% f _c)
› In Band Intermodulation	Better than 35 dB below either tone
› AGC (figure of merit)	
› Voice	+/- 3dB max for input variation between -103 dBm to 13 dBm
› Data	According to MIL-STD188-110B
› AGC time constants	
› Voice	Attack time less than 30 msec Decay time between 800 msec and 1.2 sec
› Data	According to MIL-STD188-110B For QAM data modulation voice time constants applies
› Audio Output	0 dBm 600/150 ohm
› THD	More than 25 dB below the rated output level
› Squelch	Adjustable 10 to 25 dB SINAD

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