

RT-200/400 FAMILY

BLOS AIRBORNE
TRANSCIVERS 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 CHARACTERISTICS

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



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_0 > 5\%f_0$
Carrier suppression	Better than 50 dB below PEP (SSB mode)
Undesired sideband	Better than 60 dB below PEP attenuation
Duty cycle With forced: w/o forced air cooling (RT-200 only)	Continuous for both RT-200/400 air cooling 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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