

# RT-200/400 FAMILY

BLOS AIRBORNE  
TRANSCIVERS FOR  
FIXED-WING AIRCRAFT  
AND HELICOPETRS



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

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

## ENVIRONMENTAL CONDITIONS

<b>General</b>	In accordance with DO-160F
<b>Operating temperature</b>	-40°C to 70°C
<b>Altitude</b>	Up to 50000 ft



## TRANSMISSION

<b>RF Output Power</b>	RT-200 200W PEP / 100W avg. RT-400 400W PEP / 400W avg.
<b>RF Power Selection</b>	¼, ½, full RF power
<b>Intermodulation (linearity)</b>	Better than 30 dB below either tone Two equal tone test
<b>Harmonic attenuation</b>	Below -63 dBc
<b>Spurious suppression</b>	Better than -80 dBc for  f-f0  > 5%f0
<b>Carrier suppression</b>	Better than 50 dB below PEP (SSB mode)
<b>Undesired sideband</b>	Better than 60 dB below PEP attenuation
<b>Duty cycle With forced: w/o forced air cooling (RT-200 only)</b>	Continuous for both RT-200/400 air cooling 1 min. TX, 5 min. RX
<b>Baseband input</b>	0 dBm 600/150 ohm (selectable)
<b>RF output Protection</b>	Automatic protection against short or open circuit and over temperature

## RECEPTION

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

For more information:  
airborneandspace@leonardocompany.com

Electronics Division  
Via dell'Industria, 4-00040 Pomezia (RM)-Italy  
T +39 06 91853

This publication is issued to provide outline information only and is supplied without liability for errors or omissions.  
No part of it may be reproduced or used unless authorised in writing.  
We reserve the right to modify or revise all or part of this document without notice.

2022 © Leonardo S.p.A.

MM08236 02-20



leonardo.com

