

**TELERAD**

Aeronautical and Maritime Radiocommunication Systems

**TRANSCEIVERS**  
**50W VHF | 32W UHF**

**EMRY904A - EMRY904B**



**OVERVIEW**

The EMRY904 unit is a V-UHF GROUND, derived directly from TELERAD's components of the 900 series, series whose reliability has been widely tested and proved.

**MAIN FEATURES**

The set, designed for voice communications, was conceived mainly to be operated from its front panel in the control towers, control cabins or in Navy ships. In addition, it offers all the required accesses for remote operation. The EMRY904 can be mounted in a 19" cabinet in which it occupies a 3-unit height. The rack cabinet integration is facilitated by the forced ventilation of the operating equipment, ventilation with a 3-gear speed, controlled by the temperature of the transmitter's amplifiers. In the basic version, the equipment operates in amplitude modulation, in simplex mode, in the VHF frequency range from 118 to 144 MHz and UHF from 225 to 400 MHz, with 25 kHz and 12.5 kHz frequency spacing (8.33 kHz in VHF). The associated steps and parameters of the bandwidth are automatically determined by the value of the displayed frequency, in agreement with the annex 10 of the ICAO's recommendations. During transmission, the operator can, at any time, choose between two power levels: the nominal power or the reduced power pre-set between 0 and -7 dB of the nominal power. The user disposes of 99 channels presets that are individually programmable in frequency as well as the power level (normal or reduced), as well as the squelch threshold level. The EMRY904 unit allows different types of installation.

Principally destined to be operated from its ergonomic front panel by an air traffic controller, the set also disposes of all the necessary accesses for an operation at distance (by means of remote control unit). A keyboard and a display of 4 lines of 20 characters allow the radio's programming from its front panel. Several microphone and headset hook-up possibilities are available: either with 5.25 and 6.35 mm standard jacks, or with a 7-pin DIN outlet. The front panel also includes a loudspeaker, a listening volume adjustment, as well as a set of indicators that are relative to the functioning.

The rear panel includes antenna accesses that are separated for transmission and reception. Locations of coaxial relays are planned in order to allow the following antenna configurations:

- 1 VHF transmission-reception antenna + 1 UHF transmission-reception antenna,
- 1 V-UHF transmission antenna + 1 V-UHF reception antenna,
- 1 V-UHF transmission-reception antenna.

**Finally the EMRY904 set is available in two main versions:**

- EMRY904 A with dual power supply, mains voltage and constant rated voltage of 24 V<sub>DC</sub>,
- EMRY904 B with a single power supply under constant rated voltage of 24 V<sub>DC</sub>.

■ **GENERAL CHARACTERISTICS**

**Frequency range:**

VHF: 118-144 MHz / UHF: 225-400 MHz

**Frequency spacing:**

- V/UHF: 25 kHz and 12.5 kHz
- VHF: 8.33 kHz

**Memorized channels:**

99 memorized presets channels with frequency parameters, bandwidth, offset carrier, output power level, squelch threshold level

**Frequency precision:**

± 1 ppm

**Remote control:**

Via RS485 serial link, under JBUS protocol

**Radio silence:**

Closing of the loop to the ground in order to prohibit the transmission

**Power supply:**

- AC: 85-265 V<sub>AC</sub>, 47-63 Hz
- DC: nominal 24 V<sub>DC</sub>, negative to the ground.  
Operation guaranteed between 21 and 31 V<sub>DC</sub>

■ **TRANSMISSION CHARACTERISTICS**

**Transmission in offset carrier modes (channels at 25kHz):**

According to the annex 10 of the ICAO compatible with 2, 3 or 4 carriers

**Output power:**

- Rated power into 50Ω and 24V, ≥ 50W in VHF, ≥ 32W in UHF
- Power reduction for power supply < 24 V
- Reduced power, adjustable till 10W in VHF and 7W in UHF
- Power of unmatched charge:  
Normal functioning until SWR = 2. Above this, progressive reduction of power versus SWR value.  
Functioning without damage on SWR = infinite.

**Modulation:**

- A3E modulation type (voice transmission)
- Modulation entry on symmetrical line 600 Ω
- Sensitivity of entry modulation line: adjustable between -30 and 0 dBm at the compressor's functioning threshold
- Modulation rate > 85 %
- Adjustment of modulation rate: by compressor circuit, variation < 0.5 dB for 30 dB of variation of the entry signal above the compression's threshold
- Modulation limiter: by peak clipper circuit at approximately 95 %
- Modulation bandwidth at -3 dB, reference 1000 Hz, channels at 25kHz/12.5kHz: 300-3400Hz, channels at 8.33kHz: 300-2500Hz, < -35dB to 3200Hz.
- Modulation distortion: < 5% in the 300-3400Hz band for entry level 10 dB higher than the compression threshold
- Residual modulation: < -50 dB (ref. 80% mod at 1000Hz)

**Duty cycle:**

The unit operates in permanent transmission. A progressive power reduction with the temperature protects the transmitter.

**Transmission consumption (1 kHz 85 % mod.):**

- 24 V<sub>DC</sub> : < 12 A
- 230 V<sub>AC</sub> : < 2 A
- 115 V<sub>AC</sub> : < 4 A

**Reception consumption:**

- 24 V<sub>DC</sub> : 1,5 A
- 230 V<sub>AC</sub> : < 0,5 A
- 115 V<sub>AC</sub> : < 0,8 A

**Operating temperature:**

- -20 °C to +55 °C
- 95 % relative humidity at +40 °C (non-condensing)

**Dimensions (Width x Height x Depth):**

483 mm (19" x 132 mm (3U) x 540 mm

**Weight:**

19 kg

■ **RECEPTION CHARACTERISTICS**

**Sensitivity:**

(S + N)/N ≥ 10 dB for a signal of 1.5 μV modulated at 30 % at 1000 Hz (CCITT weight)

**Global selectivity:**

- Channels at 25 kHz : ≥ ± 11 kHz at -6 dB  
≤ ± 25 kHz at -60 dB
- Channels at 8.33 kHz : ≥ ± 3.5 kHz at -6 dB  
≤ ± 8 kHz at -60 dB

**Squelch:**

Adjustable (locally or via remote control) from 1 to 15 μV

**AF reception :**

- Outgoing line 600 Ω symmetrical
- Output line's level adjustable until +10 dBm
- AGC ≤ 3 dB variation of the AF level between 1.5 μV and 500 mV
- Modulation bandwidth at -4 dB, reference 1000 Hz, channels at 25 kHz: 300-3400 Hz, channels at 8.33 kHz: 300-2500 Hz
- AF distortion ≤ 5% at 1 kHz with 60% mod
- Output power on loudspeaker: 2 W
- Auto-listen transmission: adjustable level
- Recorder outlet: 600 ohms source, 1.55 V emf

■ **OPTIONS - VERSIONS**

**Coaxial relays:**

Coaxial relay sets that allow then adaptation to the following antenna configurations:

- 1 VHF transmission-reception antenna + 1 UHF transmission-reception antenna,
- 1 V-UHF transmission antenna + 1 V-UHF reception antenna,
- 1 single V-UHF transmission-reception antenna.

**Accessories:**

- Microphones, headsets, micro-headsets
- Control units for remote operation

**Different versions:**

- EMRY904 A with dual power supply, mains voltage and constant rated voltage of 24 V<sub>DC</sub>,
- EMRY904 B with a single power supply under constant rated voltage of 24 V<sub>DC</sub>