



Professional VHF Transceiver

GS5910

Air Traffic Control/Professional Base Station



The BECKER GS5910 Ground Station is designed for operation in civil and military control towers, air traffic control centers, control shelters or on ships. The GS5910 is equipped with a receiver guard channel scan mode.

The frequency range extends from 118 to 144 MHz VHF in 25 kHz / 12.5 kHz, or 8.33 kHz channel spacing. The channel spacing is given by the frequency. The equipment automatically switches to the right selectivity and audio frequency bandwidth.

Up to 98 preset channels are available which can be programmed by the operator. To each channel the output power (high or low), the squelch threshold level and offset frequency can be stored. The guard frequency is stored in the 99th channel at any desired value.

In addition to microphone and headphones connectors, speaker and radio status indicators, the operator's control interface is composed of a keyboard and a 4-lines / 20- characters-per-line LCD, operated in "menus" oriented mode.

In addition, the transceiver is provided with a serial data link and the required input/output signals for total remote control. The rear panel has separate RF connectors for transmitter and receiver section, and also a location for a coaxial relay, allowing the use of one common T/R antenna, or separate T and R antennas according the installation.

The transceiver, is 19" wide and 3U high, and can be supplied in rack mounting or desk version.

Two power supplies are available: 24 V DC voltages and 85-265 V AC mains voltage.

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General data:

- Frequency range: 118-144 MHz
- Channel spacing: 25 kHz (12.5 kHz), 8.33 kHz automatic selection according to the frequency coding (ICAO annex 10)
- Preset channels : 99 preset channels with frequency, offset frequency, bandwidth, power level, squelch threshold level parameters
- Frequency accuracy: 1 ppm
- Remote control: By series link RS 485, under JBUS protocol 3 wires parallel access (channels 1 to 8)
- Radio squelch: Locking of a loop to the ground to forbid transmission
- Dimensions (L x H x D): 483 mm (19..) x 132 mm (3 U) x 465 mm (rack version)
- Power supply: a.c.: 85-265 V, 47-63 Hz
d.c.: 21-31 V (rated 24 V)
- Operating temperature: -20°C to +55°C
- Humidity: 95% at 40°C (without condensation)

Transmitter data:

- Offset carrier transmission (channels at 25 kHz): Acc. to annex of ICAO, compatible 2, 3 or 4 carriers
- Output power:
 - Rated power on 50 Ω : > 25 W / > 50 W
 - Reduced power: Adjustable down to 5 W
 - Reduced power on load mismatch:
 - Normal oper. up to VSWR = 2
 - Power reduction for VSWR > 2
 - No damage on infinite VSWR
- Modulation:
 - Type: A3E (voice)
 - Input: 600 Ω balanced line
 - Input sensitivity: Adjustable between -30 and 0 dBm for compressor threshold level
 - Rate: > 85%
 - Variation of the modulation rate: < 0.5 dB for a 30 dB step of the input signal above the compression threshold
 - Limiter: By clipping circuit at about 95%
 - Bandwidth at -3 dB (reference 1000 Hz): 25 kHz/12.5 kHz channel spacing: 300-3400 Hz, 8.33 kHz channel spacing: 300-2500 Hz, < -35 dB at 3200Hz
 - Distortion: < 5% in 300-3400 Hz frequency range with an input level 10 dB above the compression threshold
 - Residual modulation: \leq -50 dB (reference 80% mod. at 1000 Hz)

Transmitter data:

- Duty cycle: The equipment is designed to operate at rated power up to 50°C with 1/2 transmit/receive ratio (transmit time = 1 mn). For worse operational condition, a reduction of the output power may happen. A control for external cooling fan allows permanent Tx.
- Spurious: < -36 dBm for $\Delta F > 100$ kHz
- Harmonics: < -36 dBm

Receiver data:

- Wide band noise: < -106 dBm/Hz for $\Delta F > 1$ MHz
- Guard channel watch: Main operation + 9 channels max.
- Sensitivity: (S+N)/N > 10 dB for 1.5 μ V signal 30% modulated at 1000 Hz (CCITT weighting)
- Selectivity:
 - 25 kHz channel spacing: > ± 8 kHz at -6 dB
 $\leq \pm 18.5$ kHz at -60 dB
 - 8.33 kHz channel spacing: > ± 3.5 kHz at -6 dB
 $\leq \pm 8$ kHz at -60 dB
- Image rejection: > 80 dB
- 3rd order intermodulation: > 80 dB for 2 signals, 0.5 and 1 MHz apart (ref. 0.5 μ V)
- Crossmodulation: > 95 dB for an interfering signal 0,5 MHz apart (ref. 1.5 μ V)
- Intermediate frequency: 21.4 MHz
- Local oscillator radiation: \leq -75 dBm
- Squelch: Adjustable (locally or through remote control) from 1 to 15 μ V
- Reception AF:
 - Output line: 600 Ω balanced
 - Line output level: Adjustable up to +10 dBm
 - A.G.C.: ≤ 3 dB variation of AF level between 1.5 μ V and 500 mV
 - Audio bandwidth at -4 dB (ref. 1000 Hz): 25 kHz channel spacing: 300-3400 Hz, 8.33 kHz channel spacing: 300-2500 Hz
 - AF distortion: $\leq 5\%$ at 1 kHz for 60% mod.
 - Output power on loudspeaker: 2 W
 - Transmit side tone: Yes. May be disabled.
 - Recorder output: 600 Ω source, 1.55 V emf

Available version

- | | | |
|-------------------|---------|-----------------------|
| • GS5910-25-(01): | 25 Watt | power supply: DC |
| • GS5910-25-(02): | 25 Watt | power supply: AC / DC |
| • GS5910-50-(01): | 50 Watt | power supply: DC |
| • GS5910-50-(02): | 50 Watt | power supply: AC / DC |

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