

BECKER ATC

AIR TRAFFIC CONTROL



BECKER GS 5930 – Professional UHF transceiver

The **BECKER GS 5930** Ground Station is designed for operation in civil and military control towers, air traffic control centers, control shelters or on ships. The GS 5930 is equipped with a receiver guard channel scan mode.

The frequency range extends from 225 to 400 MHz UHF in 25 kHz / 12.5 kHz, or 8 channel spacing. The channel spacing is given by the frequency. The equipment automatically switches to the right selectivity and audio frequency bandwidth.

Up to 99 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.

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.

BECKER GS 5930 UHF transceiver

GENERAL DATA

- **Frequency range:** 225-400 MHz
- **Channel spacing:** 25 kHz (12.5 kHz)
- **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 Tx inhibit:** Locking of a loop to the ground to forbid transmission
- **Dimensions (Length x Height x Depth):** 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):** According to annex of ICAO, compatible 2, 3 or 4 carriers
- **Output power:**
 - *Rated power on 50 Ω:* > 30 W
 - *Reduced power:* Adjustable down to 6 W
 - *Reduced power on load mismatch :* Normal operation up to VSWR = 2
Power reduction for VSWR > 2
No damage on infinite VSWR
- **Modulation:**
 - *Modulation type:* A3E (voice)
 - *Modulation input:* 600 Ω balanced line
 - *Modulation input sensitivity:* Adjustable between -30 and 0 dBm for compressor threshold level
 - *Modulation rate:* > 80 %
 - *Variation of the modulation rate:* Variation < 0.5 dB for a 30 dB step of the input signal above the compression threshold.
 - *Modulation limiter:* By clipping circuit at about 95%
 - *Modulation 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
 - *Modulation distortion:* < 5 % in 300-3400 Hz frequency range with an input level 10 dB above the compression threshold.
 - *Residual modulation:* ≤ -50 dB (reference 80% mod. at 1000 Hz)

- **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. Two cooling fans allow permanent Tx (2 speeds according temp.).
- **Spurious:** < -36 dBm for ΔF > 100 kHz
- **Harmonics:** < -36 dBm

Receiver Data

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

Available version

| Type: | RF power: | Power Supply: |
|-----------------|-----------|---------------|
| GS 5930-30-(01) | 30 Watt | DC |
| GS 5930-30-(02) | 30 Watt | AC / DC |

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