

Specifications

Test conditions: Supply voltage 13.8V, temperature 20C, antenna output terminated with 50ohm dummy load

General:

Size: Cabinet: H 80mm; W 200mm; D 194mm (H 3.2"; W 7.9"; D 7.6")
Overall: H 90mm; W 200mm; D268mm (H 3.5"; W 7.9"; D 10.6")
(including optional fan cradle)

Weight 2.670kg (5.9lbs.) (including optional fan cradle and weighted tuning knob)

Construction Rigid steel bottom and top covers. Molded front panel. Aluminum back and heatsink.
Budwig collapsible tilt stand and rubber feet.

Supply voltage 10.5 – 14.5VDC

Current drain Receive 0.65A with RX preamp ON
Transmit 10.5A typical @ 50W output power
Current alarm at 12A

Radio topology Single conversion superheterodyne receiver/transmitter with 9MHz IF

Oscillators First LO – Silicon Labs SI-570 low phase noise programmable XO/VCXO
Second generator – BFO/ PITCH/BEEP tones – SI5351 CMOS clock generator/VCXO

Frequency drift

Less than 50Hz total from cold start at 20°C; Thermo compensation built in
Frequency steps
1Hz, 10Hz, 100Hz, 1kHz. Frequency direct entry via keypad

Main encoder tuning rate

512/256 ppr.
Speed of tuning - 5.12kHz when 10Hz step is selected

RIT/XIT range ±5kHz with step of 10Hz

Bands, MHz* Basic kit: 3.5-4.0, 7.0-7.3, 10.1-10.15, 14.0-14.35,
18.068-18.168, 21.0-21.45, 24.89-24.99, 28.0-29.7
160m option: 1.8-2.0
60m option: 5.25 – 5.45

Working modes

LSB, USB, CW, CW-R

Antenna impedance

unbalanced 50 ohm

Display

LCD type - FSTN positive
149 segments
4 common lines
Polarizer type – transfective

USB UART interface

FTDI chipset. Speed 9600-56300bps

Receiver

Sensitivity (MDS)

-135dBm (preamplifier On; VBF filter 2)

-129dBm (preamplifier Off; VBF filter 2)

Selectivity

Crystal 8 pole 2.7kHz first roofing filter at 9MHz

0.2-2.7kHz second variable filter Johnson type 9MHz

Crystal 2-pole IF noise filter 9MHz

Dynamic range

Two tones close spaced (2kHz):

96db (Preamplifier On; VBF filter 2)

99db (Preamplifier Off; VBF filter 2)

Audio

2W at 8 ohms internal speaker

Rear panel 3.5mm (1/8") jack for external speaker

Front panel jack 3.5mm (1/8") for headphones 8 – 32 ohms

IF frequency

9MHz (Other frequencies can be used. Firmware calculate frequencies of LO&BFO)

Crystal filters

Three filters can be used – First roofing filter – 8 pole 9MHz; second (optional) 4 pole variable bandwidth filter Johnson type 9MHz; third 2 pole noise filter 9MHz

Noise Blanker

NB is optional plug-in accessory. IF type. 50db blanking range

Audio Filter

AF is optional plug-in accessory. Follows selected bandwidth

Transmitter

Power output

50W on CW; 40W PEP on SSB. Adjustable output 5 – 50W by steps of 1W

T/R switching

Clickless quiet diode switching. PTT/VOX on SSB; QSK/Delay (10ms – 1.2s) on CW

CW sidetone

Internally generated – Pure sinusoid signal formed same manner as the CW signal
Adjustable frequency (400-800Hz) and volume independent from AF volume

SSB method

Balanced modulator with suppressed carrier, 2.7kHz ladder type 8 pole crystal filter
(Same filter used on RX). Tracking ALC scheme holds the PEP power in assigned limits

Microphone

Standard electret microphone with bias

Carrier suppression

45dB minimum

Sideband suppression

50db minimum

Spurious products

less than -47dBc

Harmonic content

less than -45dBc

Intermodulation distortion IMD3 products on SSB @ 40W

-29dBc on 28MHz

-31dBc on 14MHz

Duty cycle 50W - 50%; 20W – 100% (with optional fan cradle)

Load mismatch VSWR<2 safe operation

VSWR>2 fold back procedure is initiated

VSWR>3 Forward power is turned down to 20W or less and current to 6A maximum

Optional Fans Mounted on metal bracket screwed to back heatsink. Variable speed control for quiet and optimal operation. Fans run above 33°C and switch off at 31°C

METER Various parameters during TX can be showed and measured: Current, Forward and Reflected power (SWR), LPF reverse voltage, ALC level.

Keyer

Keying modes Iambic – Curtis A and CMOS B modes

Straight key

USB keying via DTR and RTS lines (on/off in menu)

Speed range 5 – 45 WPM

CW memory 4 locations 128 bytes each; CW beacon function

*Performance of RGO ONE transceiver degrades significantly outside HAM bands although reception and tuning is continuous.