RGO ONE V6 — HF Transceiver

CAT Operation Manual

**This manual describes features that are implemented in firmware version 1.08 and higher. If you are using RGO ONE transceiver with lower version, please check in menu 37 and update if needed!*

RGO ONE V6 supports TS-480SAT compatible CAT (Computer Aided Transceiver) protocol over a standard USB connection. A virtual COM port installation must be done on your PC. Besides USB connection there is second TTL UART port wired to rear DB15 connector. Line connections are as follows:

- pin 4 – TTL CAT port ground
- pin 5 – TTL CAT port TX line
- pin 6 – TTL CAT port RX line

Communication speed in menu 22 affects only auxiliary TTL CAT port. Available COM speeds are 9600 kbits/s, 19200 kbits/s, 38400 kbits/s, 57600 kbits/s. This second CAT port can either communicate independently or also responds to the commands sent to USB port (Slave mode). This feature can be set in menu 3 “ttLPrt” with parameters: “nor” or “SYnC”.

CAT commands consist of function and parameter parts. Function part is usually two letters. Parameter part consists of digits of various length. All commands are terminated with a semicolon (;). Commands can read the current state by sending the command code alone, or write a new value by appending parameters.

Access to EX commands from 070 to 083 is possible only if service menu (menu 70 – menu 82) and band plan (menu 79) are enabled (To enable service and band plan menus hold down enc.1 and enc.2 buttons while switching on the radio).

Function	Description	Parameter values
AC	Sets or reads internal antenna tuner status Set: ACP1P2P3;	P1 = 1 always P2 = 0 menu 34 off

Function	Description	Parameter values
	Read: AC; Answer: ACP1P2P3;	P2 = 1 menu 34 on (ATU board required) P3 = 0 stop tuner P3 = 1 start tuning (tuning active)
AI	Sets or reads the Auto-Info function ON/OFF Set: AIP1; Read: AI; Answer: AIP1;	P1 = 0 AI off P1 = 1 sends if freq/mode/band is changed P1 = 2 sends IF every 1.5 sec P1 = 3 sends IF in both formats
BD	Moves frequency down one band (action only) Set: BD;	No parameters No response
BU	Moves frequency up one band (action only) Set: BU;	No parameters No response
EX	Sets or reads extended menu parameters Set: EXP1P1P1P2P2P2P2P3; Read: EXP1P1P1P2P2P2P2; Answer: EXP1P1P1P2P2P2P2P3;	P1 – menu number, 3 – digit format. The menu numbers are from 000 to 083. P2 – for menu number 079 it varies from 0000 to 1010. For the other menu numbers P2 is always 0000. P3 – menu parameter. It consists of 1 to 5 digits.
EX000 – EX078; EX080 – EX082;	Sets or reads extended menu parameters Set: EXP1P1P1P2P2P2P2P3; Read: EXP1P1P1P2P2P2P2; Answer: EXP1P1P1P2P2P2P2P3; Note: Menu entries 8, 14, 15, 16, 17, 37, 38, 39, 40 and 82 cannot be set/read	P1 = 000 – 078; 080 – 082; P2 = 0000; P3 – can be one, two, three or four digit. Boolean parameters are only one digit – 0 or 1, 0, 1 or 2, 0, 1, 2 or 3.

Function	Description	Parameter values
EX079	Sets or reads extended menu parameters Set: EXP1P1P1P2P2P2P2P3; Read: EXP1P1P1P2P2P2P2; Answer: EXP1P1P1P2P2P2P2P3;	P1 = 079; P2 – the first two digits are band number; second two digits are: 00 – band low limit; 10 – band high limit. For example: P2 = 0100 – band 2; low limit P2 = 0101 – band 2; high limit P3 = 03500 – frequency, 5 digit format
EX083	Sets or reads extended menu parameters Set: EXP1P1P1P2P2P2P2P3; Read: EXP1P1P1P2P2P2P2; Answer: EXP1P1P1P2P2P2P2P3;	P1 = 083; P2 = 0000; P3 = 00000 – 65535; Encoded in binary format. First 8 MSB bits encode capacitance C, bit 9 encodes HiZ/LoZ. Last 7 LSB encodes inductance L.
FA	Sets or reads VFO A frequency Set: FAP1; Read: FA; Answer: FAP1;	P1 = frequency in Hz, 11 - digit format. Example: FA00014000000;
FB	Sets or reads VFO B frequency Set: FBP1; Read: FB; Answer: FBP1;	P1 = frequency in Hz, 11 - digit format. Example: FB00007074000;
FR	Sets or reads the RX VFO Set: FRP1; Read: FR; Answer: FRP1;	P1 = 0 VFO A P1 = 1 VFO B
FS	Sets or reads fine tuning status Set: FSP1; Read: FS;	P1 = 0 fine tuning OFF P1 = 1 fine tuning ON (step = 1 Hz)

Function	Description	Parameter values
	Answer: FSP1;	
FT	Sets or reads the TX VFO Set: FTP1; Read: FT; Answer: FTP1;	P1 = 0 VFO A P1 = 1 VFO B
FW	Reads the radio firmware version Read: FW; Answer: FWXXXX;	Returns radio FW version Example answer: FW0108;
GT	Sets or reads AGC speed Set: GTP1P1P1; Read: GT; Answer: GTP1P1P1;	P1 = 000 AGC off P1 = 001 fast P1 = 002 slow
ID	Reads the radio ID model number (for RGO ONE V6 – 006) Read: ID; Answer: IDXXX;	Returns radio model version Example answer: ID006;
IF	Retrieves full transceiver status in one block Read: IF; Answer: IF<P1..P15>;	P1–P15 as per TS-480 protocol Encodes: VFO freq, RIT/XIT offset, RIT/XIT on/off, TX state, mode, etc.
KS	Sets or reads electronic keyer speed Set: KSP1P1P1; Read: KS; Answer: KSP1P1P1;	P1 = 005 (min) to 045 (max) WPM
KY	Converts characters into Morse code (as per TS-480 protocol) Set: KYP1P2; Read: KY;	P1 = 0 keyer buffer empty P1 = 1 keyer buffer full (busy) P2 – 24 symbols fixed format parameter. “ ” (space) character must be used for the unused characters. These space characters will not be

Function	Description	Parameter values
	Answer: KYP1;	converted. If all P2 parameter characters are spaces, the transceiver stops sending the message.
LK	Sets or reads the key lock function Set: LKP1P2; Read: LK; Answer: LKP1P2;	P1 = 0 unlock P1 = 1 lock P2 = 0 always
MC	Recalls or reads memory channel Set: MCP1P2P2; Read: MC; Answer: MCP1P2P2;	P1 = 0 P2 = 00 - 99
MD	Sets or reads the operating mode Set: MDP1; Read: MD; Answer: MDP1;	P1 = 1 LSB P1 = 2 USB P1 = 3 CW P1 = 4 FM P1 = 5 AM P1 = 6 Digi (FSK/Data) P1 = 7 CW-R (reverse CW)
MG	Sets or reads microphone gain Set: MGP1P1P1; Read: MG; Answer: MGP1P1P1;	P1 = 000 to 010
ML	Sets or reads TX monitor level (for current operating mode CW or SSB) Set: MLP1P1P1; Read: ML; Answer: MLP1P1P1;	P1 = 000 TX monitor off P1 = 001–010 monitor level
MR	Reads Memory channel data Read: MRP1P2P3P3; Answer: MRP1P2P3P3P4P5P6P7P8P9P10P11;	P1 = 0 RX; P1 = 1 TX P2 = 0 P3 = 00 – 99 Channel number P4 – Frequency 11 digits P5 – Mode (sends MD command)

Function	Description	Parameter values
		P6 = 0/1/2/3 Step 1/10/100Hz, 1kHz P7 = 0/1 NB OFF/ON P8 = 0/1 PRE OFF/ON P9 = 0/1 ATT OFF/ON P10 = 2/3 AGC F/S P11 = 0/1 FIL OFF/ON
MW	Store data to the Memory channel Set: MWP1P2P3P3P4P5P6P7P8P9P10P11	P1 = 0/1 RX/TX frequency P2 = 0 P3 = 00 – 99 Channel number P4 – Frequency 11 digits P5 – Mode (sends MD command) P6 = 0/1/2/3 Step 1/10/100Hz, 1kHz P7 = 0/1 NB OFF/ON P8 = 0/1 PRE OFF/ON P9 = 0/1 ATT OFF/ON P10 = 2/3 AGC F/S P11 = 0/1 FIL OFF/ON
NB	Sets or reads Noise Blanker (NB) status Set: NBP1; Read: NB; Answer: NBP1;	P1 = 0 NB off P1 = 1 NB on (NB board required)
NL	Sets or reads Noise Blanker level Set: NLP1P1P1; Read: NL; Answer: NLP1P1P1;	P1 = 000 to 016 (NB board required)
PA	Sets or reads receiver pre-amplifier status Set: PAP1; Read: PA; Answer: PAP1P2;	P1 = 0 Preamp off P1 = 1 Preamp on P2 = 0 always

Function	Description	Parameter values
PB	Plays or reads CW/SSB memory messages Set: PBP1; Read: PB; Answer: PBP1P2P2P2;	P1 = 0 stop playing P1 = 1 play channel 1 P1 = 2 play channel 2 P1 = 3 play channel 3 P1 = 4 play channel 4 P2 - playback queue buffer status, 3 – digit format 000 = inactive 111 = playing CH1 222 = playing CH2 333 = playing CH3 444 = playing CH4
PC	Sets or reads RF output power Set: PCP1P1P1; Read: PC; Answer: PCP1P1P1;	P1 = 000 to 050 Example: PC050 - maximum output (50 W)
PL	Sets or reads speech processor level Set: PLP1P1P1P2P2P2; Read: PL; Answer: PLP1P1P1P2P2P2;	P1 = 000–010 input level P2 = 000–010 output level P2 = 000 compressor off
RA	Sets or reads receiver attenuator status Set: RAP1; Read: RA; Answer: RAP1P2;	P1 = 00 attenuator off P1 = 01 attenuator on P2 = 00 always
RC	Clears the RIT offset frequency (action only) Set: RC;	No parameters Resets RIT offset to 0 Hz No response
RD	Moves RIT offset frequency DOWN (or reads current offset if no param)	P1 = 00000–00500 with 10Hz step (0 – 5kHz) (if no param: moves one step down)

Function	Description	Parameter values
	Set: RD; or RDP1P1P1; Read: RDP2; Answer: RDP2;	P2 = 0 (read response)
RG	Sets or reads RF gain Set: RGP1; Read: RG; Answer: RGP1;	P1 = 000–100 RG097 - 97% gain (typical default)
RM	Sets or reads the meter function Set: RMP1; Read: RM; Answer: RMP1P2P2P2P2;	P1 = 0 RF power meter P1 = 1 ALC meter P1 = 2 SWR meter P1 = 3 COMP meter P2 = 0000–0015 (meter reading)
RT	Sets or reads RIT on/off status Set: RTP1; Read: RT; Answer: RTP1;	P1 = 0 RIT off P1 = 1 RIT on
RU	Moves RIT offset frequency UP (or reads current offset if no param) Set: RU; or RUP1P1P1P1P1; Read: RU; Answer: RUP2;	P1 = 00000–00500 with 10Hz step (0 – 5kHz) (if no param: moves one step up) P2 = 0 (read response)
RX	Sets the transceiver to receive mode Set: RX;	Action command — forces RX state
SD	Sets or reads CW break-in delay Set: SDP1P1P1P1; Read: SD; Answer: SDP1P1P1P1;	P1 = 0000–1200 (milliseconds) P1 = 0000 - QSK (full break-in) mode
SM	Reads S-meter signal level	P1 = 0 (always)

Function	Description	Parameter values
	Read: SMP1; Answer: SMP1P2P2P2P2;	P2 = 0000–0015 (signal level) P2 = 0000 - no signal P2 = 0015 - maximum S9+
SN	Reads the radio main microcontroller serial number Read: SN; Answer: SNXXXXXXXX XXXXXXXX XXXXXXXX;	Returns microprocessor serial number (3 space-separated 8 – digit numbers) Needed for software unlock and software code generation. Example answer: ID20303656 32435012 0030002B;
TX	Sets the transceiver to transmit mode Set: TXP1;	P1 = 0 normal TX (mic/key) P1 = 2 TUNE transmission
UN	Unlocks transceiver software features. Used for service/manufacture purposes. Set: UNP1P1P1P1P1P1;	P1 = 6 – digit passcode for the transceiver software unlocking.
VD	Sets or reads VOX delay time (SSB) Set: VDP1P1P1P1; Read: VD; Answer: VDP1P1P1P1;	P1 = 0000–1200 (milliseconds)
VG	Sets or reads VOX gain Set: VGP1P1P1; Read: VG; Answer: VGP1P1P1;	P1 = 000–010 P1 = 000 VOX function off
XT	Sets or reads XIT on/off status Set: XTP1; Read: XT; Answer: XTP1;	P1 = 0 XIT off P1 = 1 XIT on