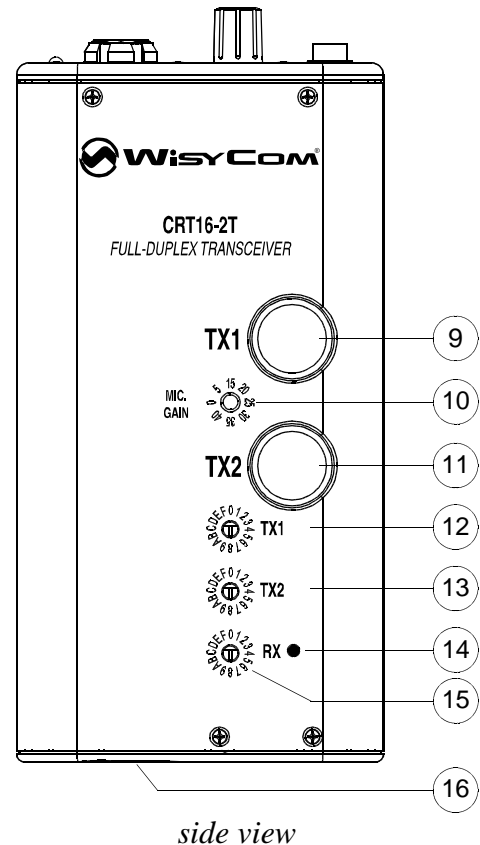
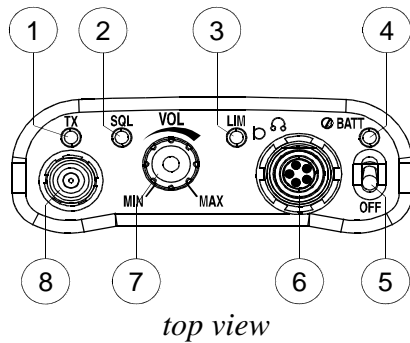


## WIRELESS COMMUNICATION SYSTEMS

### CRT 16 - UHF FULL-DUPLEX BELT TRANSCIVER



- 1) Led indicator: transmitter power on (red/green led – **TX**) (red = **TX1**/main frequency, green = **TX2**/secondary frequency)
- 2) Led indicator: opened squelch (yellow led – **SQL**)
- 3) Led indicator: peak-modulation limiter status (blue led – **LIM**).

It offers a convenient way to adjust the optimum AF input sensitivity through the selector [10]. With the optimum microphone sensitivity adjustment, the blue led [3] must flash just under modulation peaks.

- 4) Led indicator: power on & low battery status (blinking) (green led – **BATT**).

⇒turned on when the unit is power-on.

⇒blinking when battery level is below the 15% the full capacity.

- 5) Power on/off switch (**OFF**).
- 6) Connector: micro/headphone set (please see on page 3 of this operating manual for the relevant connections and internal preset). The unit can be factory preset for different types of microphone according to the custom requirements.  
The AF-output is balanced and referred to ground; consequently both headphone wires must be kept isolated from ground.
- 7) Receiver volume knob (**VOL**).
- 8) Connector: antenna (type Lemo coax-00).
- 9) Transmission button - **red**: main transmission frequency (**TX1**).

In standard preset, the transmitter will be activated just while the PTT (Push-To-Talk) button is pressed. If the function is enabled, a double-click on the button activate the transmitter in hands-free operation (continuously transmitting and listening in the same time), until the same button is pressed again. The transmission frequency can be selected using the **TX1** rotating switch [12].

The double-click operation can be enabled/disabled by keeping pressed the red button for a second while the unit is turned-on, then releasing it. The selected working preset will be saved in the internal memory.

If the DRX option (dual channel receiver) is present and enabled, a single pressure on this button syntonize the receiver to the main channel, selected with the rotating switch **RX** [15]. The received channel indicator [14] becomes red.

- 10) Screwdriver selector: transmitter microphone sensitivity (7 steps of 5 dB each, for a total range of 35 dB). With the optimum microphone sensitivity adjustment, the blue led [3] must flash just under sound peaks.

- 11) Transmission button - **green**: secondary transmission frequency (**TX2**).

In standard preset, the button operation is the same as for the main transmission button. The transmission frequency can be selected using the **TX2** rotating switch [13].

If the DRX option (dual channel receiver) is present and enabled, a single pressure on this button syntonize the receiver to the secondary channel, which is next respect the selected one with the rotating switch **RX** [15]. The received channel indicator [14] becomes green.

The DRX option, when present, can be enabled/disabled by keeping pressed the green button for a second while the unit is turned-on, then releasing it. The selected working preset will be saved in the internal memory.

- 12) Screwdriver selector: transmitter's main frequency (**TX1**).

- 13) Screwdriver selector: transmitter's secondary frequency (**TX2**).

- 14) Led indicator (red / green): selected receiver channel indicator (only with DRX option).

If the receiver's channel led indicator [14] is turned off, or if the DRX option is enabled and the led is red, the received channel is the selected one. If the led is green, the received channel is the next respect the selected one.

- 15) Screwdriver selector: receiver's frequency (**RX**).

- 16) Compartment for the battery-pack. CRT16 is powered by an interchangeable battery-pack, with nr. 4 - size-AA elements, either alkaline or rechargeable Ni-Mh, that can be separately recharged using Wisycom ACM16 charger. A slide-selector in the battery compartment must be pre-set according to the chosen power source.

Note: A belt-clip is placed on the back side of the unit that can be easily removed with a screwdriver.

## CRT 16, CRT 16-2T - UHF FULL-DUPLEX BELT TRANSCEIVER for WIRELESS-INTERCOM SYSTEMS

### TECHNICAL SPECIFICATIONS:

- Switchable channels : 16 RX + 16 TX in the 380 ÷ 550 MHz range (others on request).
- Switching-window : ⇒ 5 MHz in the 400 ÷ 470 MHz range  
⇒ 7 MHz in the 470 ÷ 550 MHz range (others on request).
- TX / RX frequency spacing : 10 MHz min. & 40 MHz max. (others on request).
- Frequencies : with microprocessor controlled PLL frequency synthesizer. The frequencies are easily user-reprogrammable by PC and optional "UPK 100 Programming kit".
- Channel spacing : 12.5 or 20 or 25 or 50 KHz (according to local regulations)
- Frequency error : < ± 2 ppm, in the rated temperature range.
- Temperature range : -10 ÷ +55 °C.
- Antenna : single flexible wire-antenna, connector-interchangeable (Impedance = 50 ohm).
- Operating mode : full-duplex, with or without use of PTT (Push To Talk) push-buttons.  
The transceiver can operate also in continuous transmission by a "double click" on one PTT button (this function can be inhibited by internal setting).
- Modulation : FM (nominal deviation = ±1.7, ±2.5, ±3.3 or ±5.5 KHz, depending on the channel spacing).
- Spurious emissions : < 1 nW (50 pW typ.).
- NR system : compander circuit on both RX & TX channels, set in NR-mode (Wisyscom NR).
- AF bandwidth : ⇒ 300 Hz ÷ 2.5 KHz (-3 dB), for 12.5 KHz channel spacing;  
⇒ 300 Hz ÷ 3.3 KHz (-3 dB), for 20 KHz channel spacing;  
⇒ 300 Hz ÷ 4.5 KHz (-3 dB), for 25 KHz channel spacing;  
⇒ 300 Hz ÷ 8 KHz (-3 dB), for 50 KHz channel spacing.
- Distortion : < 2%, CCITT measured (< 1% @ 50 KHz channel spacing).
- SND/N ratio : > -80 dB (-86 dB typ.), CCITT measured (for 25 kHz channel spacing).
- RX sensitivity : < 0.25 µV, for SND/N = 20 dB (CCITT measured), for 25 kHz channel spacing.
- RX selectivity : > 76 dB to the adjacent channel (for 25 kHz channel spacing).
- RX intermod. rejection : > 73 dB.
- RX audio-output : balanced. Level = 4 Vrms max., with volume control. Impedance = 10 ohm.
- RX squelch : internally adjustable (and excludable).
- TX output power : 50 mW, ± 1 dB.
- TX audio-input : internally pre-settable (and externally adjustable) for following microphone types:  
⇒ dynamic  
⇒ electret (2-wire or 3-wire type)  
⇒ active.
- TX coder : CTCSS (sub-audio tone-squelch).
- LED indications : Apparatus On (green Led **BATT** is on)  
⇒ Low-battery (green Led **BATT** blinks)  
⇒ Squelch is open (yellow Led **SQL** is on)  
⇒ Transmitter On (red Led **TX1** or green Led **TX2** is on)  
⇒ Modulation peak (blue Led **LIM** is on)
- Powering : n. 4 size-AA battery elements (alkaline or Ni-Mh rechargeable elements).
- Battery lifetime : ⇒ 15 hours ca., continuous receiving.  
⇒ 6 hours ca., continuous receiving and transmitting.
- Size (body) / Weight : 143 x 75 x 26 mm / 310 g ca.

CRT 16 and CRT 16-2T comply with the following ETSI specifications:

- ⇒ ETS 300 086: versions with 12.5, 20 or 25 KHz channel spacing;
- ⇒ ETS 300 422: version with 50 KHz channel spacing (for frequency-ranges above 470 MHz).

### SUPPLIED ACCESSORIES:

- AWF 16 - UHF flexible antenna
- BCL 18 - Belt clip (removable)
- CNS 12 - Wisyscom AF connector (for customer's microphone/headphones-set wiring)

### OPTIONALS:

- CNT 12 - Wisyscom AF connector and its mounting on the customer's microphone/headphones set. (Optimum factory-presetting of the transceiver included).
- UPK 100 - Working frequencies user programming kit (DOS-PC running interface + software)
- MCU xx - Microphone/headphones-set, on request (with Wisyscom AF connector)
- CPR 30 - Talk-back UHF pocket receiver, with 32 frequencies reprogrammable PLL synthesizer.



## CRT 16, CRT 16-2T - UHF FULL-DUPLEX BELT TRANSCIVER for WIRELESS-INTERCOM SYSTEMS

### AUDIO INPUT - MICROPHONE CONNECTIONS AND JUMPERS PRE-SETTING

MICROPHONE TYPE	CONNECTIONS	JUMPERS
• 2-wire electret mic:	HD1.1 = n.c. HD1.2 = AF input HD1.3 = ground	J2 = closed J3 = open J4 = open
• 3-wire electret mic:	HD1.1 = +5V (mic feeding) HD1.2 = AF input HD1.3 = ground	J2 = open J3 = closed J4 = closed
• dynamic mic:	HD1.1 = n.c. HD1.2 = AF input HD1.3 = ground	J2 = open J3 = closed J4 = open

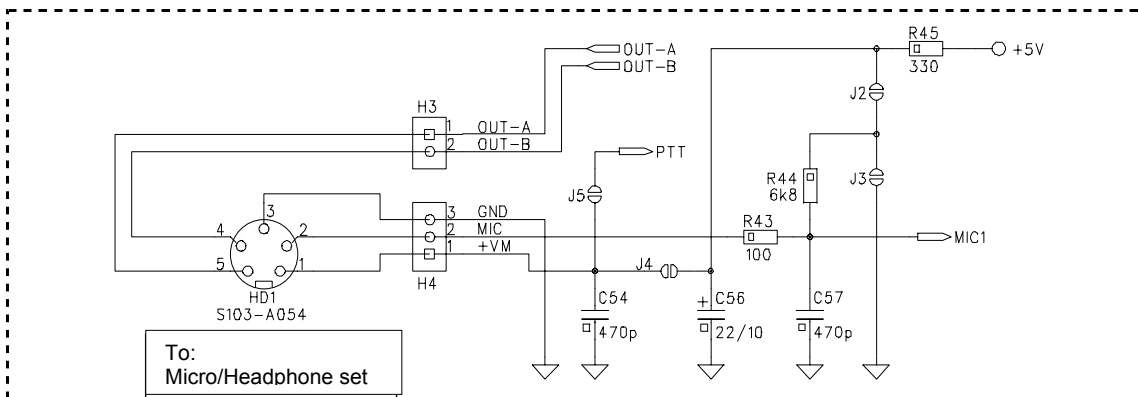
### AUDIO OUTPUT - HEADPHONE CONNECTION

- All types of headphones: HD1.4 = AF output B; HD1.5 = AF output A

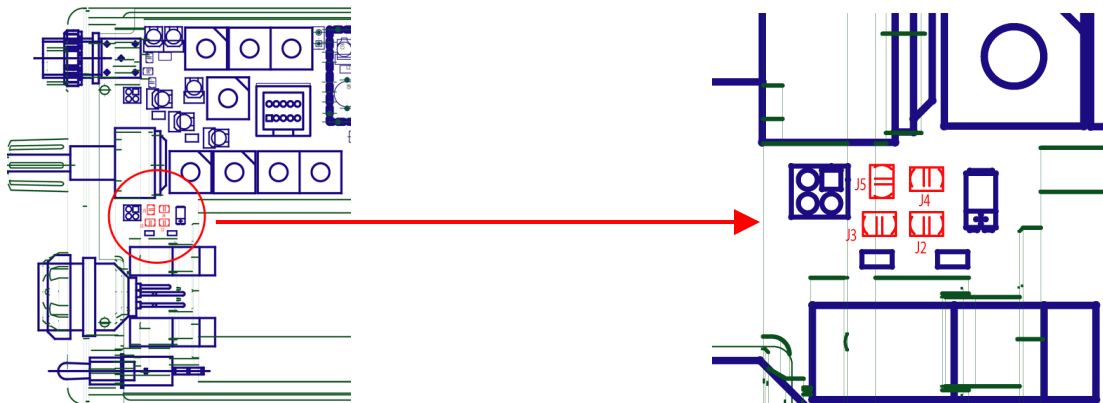
The AF output is balanced and referred to ground, therefore both AF wires must be ground-isolated.

**NOTE:** it is possible to remote the PTT push-button by an external wire (it must be ground-shorted in order to operate the **TX1** transmitter) connected to HD1.1 pin. In this case, J4 must be open and J5 closed (and therefore only dynamic and 2-wire electret microphones can be used).

### CRT 16 & CRT 16-2T - MICRO/HEADPHONE SET INTERFACE SIMPLIFIED DIAGRAM



### CRT 16 & CRT 16-2T - PRINTED CIRCUIT BOARD, TOP-VIEW (open Unit)



Our laboratory is available for special custom-made products.