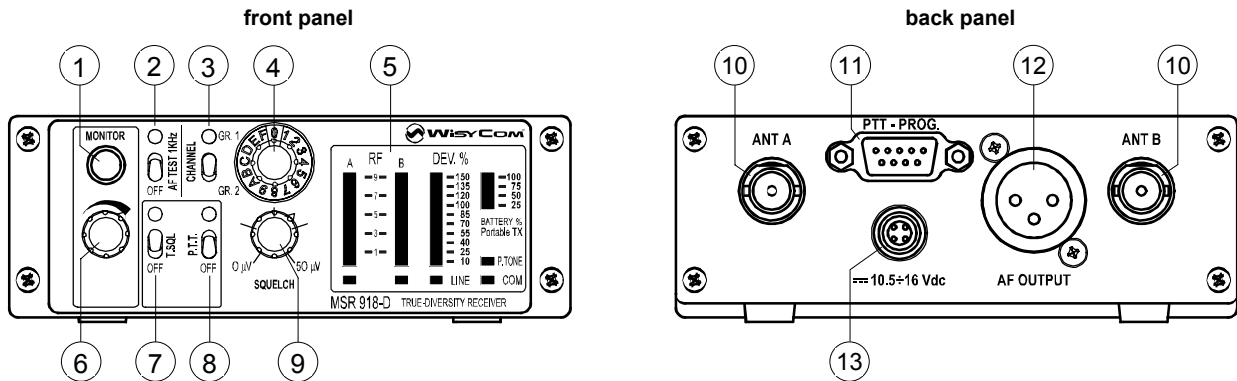


WIRELESS-MICROPHONE SYSTEMS

MSR 918-D - TRUE-DIVERSITY RECEIVER MODULE

for “desktop” & “in 19”/1U rack” use



The MSR 918-D receiver module is the result of the most advanced wireless-microphone technology, necessary when working in the new DVB-T era. Besides the very high sensitivity and superb sharp selectivity, it presents also an outstanding freedom from intermodulation and interferences. It allows the remote monitoring of the TX battery lifetime and it is endowed with the “digital sub-carrier tone-squelch”. These features are obtained by a special sub-carrier, digitally modulated in word, that is generated by the last-generation Wisycom transmitters in order to send out to the relevant receiver important working information, like the battery-status and the pushing on the PTT button. This telemetry technology operates without affecting the audio signal's quality or bandwidth. The MSR 918-D receiver,

if provided with the optional, built-in, ITC 918 interface, will give to the reporter the possibility to talk directly and “off air” to the technicians of its team. Every time the reporter pushes the (optional) PTT push-button of the MTH200 Handheld Transmitter the audio output line of the receiver is switched from the “main line” to the auxiliary “intercom line”. Correlated with this intercom output line activation, on the MSR 918-D Receiver is also available a GPI (General Purpose Interface) relays dry-contact output, suitable to be connected with other external equipments. The GPI contact becomes closed every time the reporter operates the PTT push-button. The MSR 918-D is endowed also with a 1 kHz calibrating tone-generator, that allows to test easily the audio line output and the mixer input.

- 1) CONNECTOR: **Monitor Output**.
Standard ¼” (6.3 mm) stereo jack, mono wired.
- 2) SWITCH: **Calibrating Tone Generator** [On / Off] (red Led).
- 3) SWITCH: **Channel Group** [GR.1 / GR.2] (green Led).
- 4) SWITCH: **Channel** [0 ÷ F] with back-light.
- 5) MULTIFUNCTION DISPLAY for:
 - “A” & “B” antennas RF-signal [A & B bargraph]
 - “A” or “B” antenna selected [A] or [B] Led
 - TX deviation (%) [DEV bargraph]
 - “Line” AF output is active [LINE]
 - “Intercom” AF output is active [COM]
 - TX % Battery lifetime [100%, 75%, 50%, 25%, 12%]
 - Pilot sub-carrier is present [P.TONE]
- 6) MONITOR VOLUME
- 7) SWITCH: **Tone Squelch** function [On / Off] (yellow Led).
- 8) SWITCH: **PTT** function [On / Off] (yellow Led). (optional).
See table #1.
- 9) ADJUSTMENT: **Signal-squelch threshold**.
- 10) CONNECTOR: **Antenna** (BNC-F type).
- 11) CONNECTOR: **PTT outputs** (D9-F type).
(Present only with optional “ITC 928 - PTT Interface”).
 - pin 1 = COM-A
 - pin 6 = COM-B
 - pin 2 = ground
 - pin 7 = GPI-A
 - pin 3 = GPI-B
 - pin 8 = ACK-TONE (must be factory pre-set)
 - pins 4, 5, 9 = frequency re-programming (optional).
- 12) CONNECTOR: **AF output** (XLR3-F type).
 - pin 1 = ground; • pin 2 = LINE-A; • pin 3 = LINE-B
- 13) CONNECTOR: **DC power input** (Hirose HR10A-F type).
 - pin 1 = ground; • pin 4 = +Vdc (10.5 ÷ 16 Vdc).

The MSR 918-D Receiver complies the ETSI norms: EN 300 422, EN 300 445.



MSR 918-D - TRUE-DIVERSITY RECEIVER, for WIRELESS-MICROPHONE SYSTEMS

TECHNICAL SPECIFICATIONS:

- Switchable channels : 16 + 16 preset in the 150 ÷ 250 MHz (VHF) or 470 ÷ 880 MHz (UHF) range (others on request).
- Channel groups : 2, externally selectable.
- Switching-window : 15 MHz (VHF); 32MHz (UHF).
- Frequencies : microprocessor controlled PLL frequency synthesizer circuit, with 25 KHz minimum step.
They can be easily user-reprogrammed by PC and optional "UPK32 Programming kit".
- Frequency error : ± 5 ppm, in the rated temperature range.
- Temperature range : -10 ÷ +55 °C.
- Modulation : FM, with 50 μ s de-emphasis. • Nominal deviation = ± 40 KHz @ 1 kHz (Max. deviation = ± 75 KHz).
- "A" / "B" antenna inputs : with BNC-F connectors. • RF input impedance = 50 ohm (SWR < 1:2; typ. 1:1.4).
- Sensitivity (ENR) : $\Rightarrow < 2 \mu$ V (+6 dB μ V), for SND/N = 84 dB [1],
 $\Rightarrow < 10 \mu$ V (+20 dB μ V), for SND/N = 96 dB [1], in the whole switching-range.
- Amplitude response : < 0.2 dB (for RF input signal between +4 dB μ V ÷ +120 dB μ V).
- Co-channel rejection : > -3.5 dB @ 2 μ V RF; > -1.5 dB @ 100 μ V RF.
- Adjacent chan. selectivity : > 90 dB (for channel spacing \geq 400 kHz).
- Spurious rec. rejection : > 93 dB.
- IF image rejection : > 98 dB.
- Intermodul. rejection : > 76 dB. • IIP3 (Input 3^o-order Intercept Point) = +9 dBm.
- Spurious emissions : < 10pW (typ. = 0.1 pW).
- Squelch : \Rightarrow *field-strength*: with externally adjustable threshold and adaptive-mode working (the receiver adapts itself to the different situations of medium signal-strength levels and fading-speeds).
 \Rightarrow *tone-squelch*: with decoding of the matching sub-carrier, digitally modulated, generated by the relevant transmitter. This function can be switched-off for the compatibility with other brand TXs.
- "Noise reduction" system : compander circuit, can be internally pre-set to (or eventually switched off) on following modes:
 \Rightarrow ENR (Wisycor Extended-NR; \Rightarrow NR (standard NR), to be compatible with other systems.
- LINE / COM AF outputs : transformer balanced, floating. • Output impedance = < 50 ohm.
- AF output level : +10 dBu (2450 mVrms), @ nominal deviation.
- AF bandwidth : 20 Hz ÷ 20 kHz. • Frequency response = ± 0.5 dB (± 0.2 dB typ.) in the 30 Hz ÷ 20 kHz range.
- Distortion : < 0.3 % (0.15 % typ.) at nominal deviation (< 0.5 % at peak deviation).
- SND/N ratio (ENR) : > 105 dB (115 dB typ.) [1].
- Monitor output : 1/4" (6.3 mm) stereo jack connector, mono wired, on the front panel.
- Monitor output level : max 7 Vrms / 200 ohm, with volume control. • Monitor output impedance = 35 ohm.
- Diversity technology : true-diversity (Twin receiver circuits, with high-speed and low-noise electronic switching).
- Bar-graph meters : \Rightarrow RF field strengths (both "A" and "B" antennas at the same time)
 \Rightarrow TX deviation (-20 ÷ +12 dB, relative to the nominal deviation).
 \Rightarrow TX battery lifetime, 5 steps: **100%, 75%, 50%, 25%, 12%** (the last Led blinks).
- Led indications : \Rightarrow diversity switching ("A" / "B" antenna)
 \Rightarrow "main-line" AF output is active (**LINE**)
 \Rightarrow "intercom-line" AF output is active (**COM**) (Optional)
 \Rightarrow matching sub-carrier is present (**P.TONE**)
 \Rightarrow channel **Group 1** selected (**GR.1**)
 \Rightarrow 1 KHz calibrating tone On
 \Rightarrow "tone-squelch" function On (see Table #1)
 \Rightarrow "intercom" function On (Optional) (see Table #1).
 \Rightarrow apparatus ON (channel-selector back-light).
- Optional outputs : \Rightarrow "intercom" AF output line, for PTT function
 \Rightarrow GPI output, for PTT function (dry contact of solid-state relais)
 \Rightarrow "reporter acknowledgment" tone output (800 Hz, intermittent). Only on request.
- Calibrat. tone generator : 1 kHz, +10 dBu, on both outputs main-line / intercom-line (optional).
- Powering : $\Rightarrow 10.5 \div 16$ Vdc / 4 W (typ.: 350 mA @ 12 Vdc), negative ground
- Dimensions - Weight : 123 x 49 x 327 mm - 1.7 Kg approx.

Note [1]: RMS value, unweighted, 22 Hz / 22 kHz, and referred to the peak deviation.

Table #1: outputs activation by PTT push-button, with different presettings of the functions

Transmitter PTT push-button	Tone-squelch switch [7]	PTT Function switch [8]	LINE AF line output	COM AF line output	GPI output
NOT pushed	OFF	OFF	ON	OFF	OFF
Pushed	OFF	OFF	ON	OFF	OFF
NOT pushed	ON	OFF	ON	OFF	OFF
Pushed	ON	OFF	OFF	OFF	OFF
NOT pushed	ON	ON	ON	OFF	OFF
Pushed	ON	ON	OFF	ON	ON
NOT pushed	OFF	ON	ON	OFF	OFF
Pushed	OFF	ON	ON	ON	ON

OPTIONALS:

ITC928 - Additional output connections: "AF intercom line", "GPI dry contact" and "ACK signal" (only on request)