

**RK 300 - HIGH-POWER,  
FULL-DUPLEX REPORTER SYSTEM**

**RPU 300**



**High-power, full-duplex  
reporter portable unit**

**RPU 300**

- **Main channel TX** (broadband):
  - 16 switchable frequencies in either of following ranges:
    - ⇒ VHF (130 ÷ 250 MHz) - **RPU 300-VU**
    - ⇒ UHF (470 ÷ 880 MHz) - **RPU 300-UU**
- **Talk-back channel RX** (narrowband):
  - 16 switchable frequencies in following range:
    - ⇒ UHF (400 ÷ 520 MHz)
 (It is necessary to keep the minimum distance from TX).
- Easy PC frequency-reprogramming by the user (in the pre-set switching-window).
- Rapid factory frequency re-allocation (in the whole working range).
- Exceptional compact size.
- Very easy and friendly to operate.
- High transmitter power output.
- Long battery-lifetime, its precise measuring and also remote indication.
- Optional PTT push-button allowing the reporter to remote-switch the stationary receiver AF line-output and speak off-line with the base station.
- *Wisycom* exclusive digital sub-carrier technology prevent any degrading of the modulation quality or reduction of the audio bandwidth for the features:
  - ⇒ remote TX battery monitoring
  - ⇒ tone-squelch (or "intercom" PTT) operating.
- Exceptional sturdiness and absolute reliability.
- The most advanced RF and AF technologies assures the maximum connecting security even with weak and interferred signals.

## HIGH-POWER (3W), FULL-DUPLEX REPORTER PORTABLE UNIT

### RPU 300



### FULL-DUPLEX PORTABLE TRANSCEIVER

#### MAIN TRANSMITTER SECTION:

- Switchable channels : 16, preset in the ranges: **[1]**  
⇒ VHF (130 ÷ 250 MHz) - **RPU 300-VU**  
⇒ UHF (470 ÷ 880 MHz) - **RPU 300-UU**
- Switching window : ⇒ 10 MHz - **RPU 300-VU**  
⇒ 25 MHz - **RPU 300-UU**
- Frequencies : microprocessor controlled PLL synthesizer circuit, with 25 kHz min. step.  
They can be easily reprogrammed by DOS-PC and optional "UPK 32 Programming kit".
- Frequency error : < ±5 ppm, in the rated temperature range.
- RF output power : switchable between 3 W / 300 mW (± 1 dB) **[1]**.
- Spurious emissions : complying with the ETSI specifications ETS 300 454
- Antenna connector : TNC type.
- Output impedance : 50 ohm.
- Modulation : FM, with 50 µs pre-emphasis
- Nominal deviation : ±40 kHz (Peak deviation = ±56 kHz).
- Audio input : transformer balanced, floating (XLR-3F connector).
- Audio input level : *Micro / Line* switchable, and adjustable (for nominal deviation) between:  
⇒ *Micro* = -52 ÷ -22 dBu ( 2 ÷ 60 mVrms)  
⇒ *Line* = -22 ÷ +8 dBu (60 ÷ 1950 mVrms)
- Audio peak-limiter : automatic, with > 20 dB overload capability over the nominal modulation.
- Noise-Reduction system : compander circuit, can be internally pre-set between:  
⇒ ENR (*Wisycom* Extended-NR)  
⇒ NR (Standard-NR), to be compatible with other systems.
- AF bandwidth : 20 Hz ÷ 20 kHz.
- Frequency response : ± 0.5 dB (± 0.25 dB typ.)  
in the 40 Hz ÷ 19 kHz range.
- Distortion : < 0.3 % (0.15 % typ.).
- SND/N ratio : > 110 dB (115 dB typ.) **[2]**.
- LED indications : ⇒ transmitter On (green LED is on)  
⇒ low-power TX (green LED flashes)  
⇒ limiter-on status (yellow LED is on)  
⇒ battery lifetime (**100% - 75% - 50% - 25%** residual lifetime). When the battery lifetime goes under 12%, the **25%** LED blinks.

RPU 300-xx (main transmitter section) complies with ETSI specs: ETS 300 454.

#### UHF COMMUNICATION RECEIVER SECTION:

- Switchable channels : 16, preset in the 400 ÷ 520 MHz range **[1]**.
- Switching-window : > 5 MHz (others on request).
- Frequencies : with microprocessor controlled PLL frequency synthesizer circuit. They can be easily reprogrammed by DOS-PC and optional "UPK 32 Programming kit".
- Frequency error : < ±2 ppm, in the rated temperature range.
- Channel raster : 25, 20 or 12.5 kHz **[1]**.
- Antenna connector : BNC type.
- Input impedance : 50 ohm.
- Modulation : FM (nom. deviation = ±3.3, ±2.7 or ±1.7 kHz, depending on the channel-raster).
- De-emphasis : 750 µs (internally excludable - default).

- RX sensitivity : < 0.3 µV, for SND/N = 20 dB (CCITT measured).
- Adjacent ch. selectivity : > 73 dB **[3]**.
- Intermod. rejection : > 85 dB.
- IIP3 : +10 dBm (Input 3<sup>o</sup> order Intercept Point).
- Desensitisation : > 91 dB.
- Co-channel rejection : > -2 dB.
- Amplitude characterist. : < 0.5 dB  
(for input signal between: +6 ÷ +110 dBµV).
- Spurious emissions : < 0.2 nW.
- Audio output level : max. 3.8 Vrms, with external volume control.
- AF output impedance : 10 ohm.
- AF output connector : 1/4" (6.3 mm) standard stereo-jack connector.
- Noise-Reduction system : compander circuit, with "NR" (Standard-NR) setting (internally excludable).
- AF bandwidth : 250 Hz ÷ 4.5 kHz (-3 dB) **[3]**.
- Distortion : < 3 %.
- SND/N ratio : > 90 dB (95 dB typ.), excluded de-emphasis, included NR system (CCITT measured) **[3]**.
- Squelch : internally adjustable (or excludable).
- LED indication : ⇒ receiver On (green LED is on)  
⇒ open squelch (yellow LED is on).

RPU 300-xx (communications receiver section) complies with ETSI specifications: ETS 300 086.

#### COMMON SPECIFICATIONS:

- Temperature range : -10 ÷ +55 °C.
- Power : ⇒ dry-cell battery-pack, 10 x IEC-LR14 (1.5V alkaline) batteries (standard supply);  
⇒ rechargeable battery-pack (optional);  
⇒ external-feeding adapter (9 ÷ 15 Vdc / 900 mA max., negative ground) (optional).
- Battery lifetime : approx. 4 hours continuous working (with dry-cell).  
The battery lifetime heavily depends on the dry-cell quality.
- Dimensions : 160 x 50 x 280 mm
- Weight : 2,7 Kg approx, including battery pack.

NOTE **[1]**: according to local regulations.

NOTE **[2]**: RMS value, unweighted, 22 Hz / 22 kHz and referred to peak-deviation.

NOTE **[3]**: for 25 kHz channel raster.

#### STANDARD ACCESSORIES:

- AWB 300 - UHF miniflex antenna, for RX-section.
- AWT 300 - UHF whip antenna, for TX-section.
- DBP 300 - Dry battery power-pack (10 x 1,5 alkaline IEC LR14 batteries).
- SLP 300 - Shoulder-belt leather pouch.

#### OPTIONAL ACCESSORIES:

- AMB 05 - UHF magnetic-base antenna, for RX section (5 m cable).
- AMT 05 - UHF magnetic-base antenna, for TX section (5 m cable).
- CDE 150 - External 9 ÷ 15 Vdc feeding adapter (150 cm cable, open wire).
- DLP 300 - Lead rechargeable-battery power-pack.
- PTT 300 - Intercom-operating reporter PTT push-button (Option ITC300 in the base Unit is needed).
- UPK 32 - Working-frequencies user programming kit (interface + software).



## RBK 302

### True-diversity receiving, full-duplex base unit

- **Main channel RX** (broadband):  
16 switchable frequencies in either of following ranges:  
⇒ VHF (150 ÷ 250 MHz) - **RBK 302-VU**  
⇒ UHF (470 ÷ 880 MHz) - **RBK 302-UU**
- **Talk-back channel TX** (narrowband):  
16 switchable frequencies in following range:  
⇒ UHF (400 ÷ 490 MHz)  
(It is necessary to keep the minimum distance from TX).
- True-diversity receiving system.
- Full modular architecture allows to build customized units.
- Very easy and friendly to operate.
- Optional switching device (remote-controlled by PTT push-button on the Portable Unit) allowing the reporter to remote-switch the stationary receiver AF output-line between the "main" and the auxiliary "intercom" output.
- Wisycom exclusive digital sub-carrier technology prevents any degrading of the modulation quality or reduction of the audio bandwidth for the features:  
⇒ remote TX battery monitoring  
⇒ tone-squelch (or "intercom" PTT) operating.
- Easy PC frequency-reprogramming by the user (in the pre-set switching-window).
- Rapid factory frequency re-allocation (in the whole working range).
- Exceptional sturdiness and absolute reliability.

The RBK 302 system (standard supply) is composed by:

- ⇒ MSR 918 - VHF or UHF receiver module
- ⇒ CST 910 - UHF transmitter module
- ⇒ PSS 902 - mains power-supply module
- ⇒ RPT 923 - portable minirack (3 modules)
- ⇒ AGN 10-x - VHF or UHF antenna (or other type),  
2 pieces for RX
- ⇒ AGN 10 - UHF antenna (or other type),  
one piece for TX.

### EXAMPLE OF "CUSTOMIZED" MAIN UNIT (2 x MSR 918 receiver modules are employed)

The illustrated system is composed by:

- ⇒ MSR 918 - VHF or UHF receiver module (2 pieces)
- ⇒ CST 910 - UHF transmitter module
- ⇒ PSS 902 - mains power-supply module
- ⇒ RPT 924 - portable minirack (4 modules)
- ⇒ AGN 10-x - VHF or UHF antenna (or other type),  
2 pieces for RX
- ⇒ AGN 10 - UHF antenna (or other type),  
one piece for TX
- ⇒ ITC 928 - PTT interface. Auxiliary AF-Intercom  
& GPI outputs for MSR 918-D receiver.



## TRUE DIVERSITY RECEIVING, FULL-DUPLEX BASE UNIT



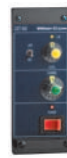
### MSR 918 TRUE-DIVERSITY RECEIVER MODULE

- Switchable channels : 16 + 16, preset in the ranges: **[1]**  
⇒ VHF (150 ÷ 250 MHz) **or**  
⇒ UHF (470 ÷ 880 MHz).
- Switching window : ⇒ 10 MHz (VHF version)  
⇒ 25 MHz (UHF version).
- Channel groups : 2, externally selectable.
- Frequencies : microprocessor controlled frequency synthesizer circuit, with 25 kHz minimum step. They can be easily reprogrammed by DOS-PC and optional "UPK 100 Programming Kit".
- Frequency error : < ± 5 ppm, in the rated temperature range.
- Temperature range : -10 ÷ +55°C.
- Modulation : FM, with 50 µs de-emphasis.
- Nominal deviation : ±40 kHz @ 1 kHz (Peak deviation = ±75 kHz).
- "A" / "B" antenna inputs : through multi-pole rear connector.
- Antenna input imped. : 50 ohm (SWR < 1:2; typ. 1:1.4).
- Sensitivity : ⇒ < 2 µV (+6 dBµV), for SND/N = 84 dB;  
⇒ < 10 µV (+20 dBµV), for SND/N = 96 dB, in the whole switching-range **[2]**.
- Amplitude response : < 0.2 dB (for input signal: +4 dBµV ÷ 120 dBµV).
- Co-channel rejection : > -3.5 dB @ 2µV; > -1.5 dB @ 100µV.
- Adjacent ch. selectivity : > 90 dB (for channel spacing ≥ 300 kHz).
- Spurious rec. rejection : > 93 dB.
- IF image rejection : > 98 dB.
- IIP3 : > +9 dBm (Input 3°-order Intercept Point).
- Spurious emissions : < 10 pW.
- NR system : compander circuit, internally pre-settable to:  
⇒ ENR (Wisycom Extended-NR),  
⇒ NR (Standard-NR), to be compatible with other systems.
- AF line output : transformer balanced, floating
- AF line output impedance : < 50 ohm.
- AF output level : internally pre-settable between (@ nom.Dev):  
⇒ Line = +10 dBu (2450 mV)  
⇒ Micro = -30 dBu (24.5 mV).
- 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.) @ nominal deviation.
- SND/D ratio : > 105 dB (115 dB typ.) **[2]**.
- Monitor output : 1/4" (6.3 mm) stereo jack conn. on the front panel.
- Monitor output level : max 7 Vrms / 600 ohm, with volume control.
- Diversity technique : true-diversity.
- Bar-graph meters : ⇒ RF field strengths (both "A" and "B" inputs)  
⇒ AF output level (-20 ÷ +12 dBu) .  
⇒ TX battery lifetime (**100%, 75%, 50%, 25%**)
- LED indications : ⇒ diversity switching ("A" / "B" input)  
⇒ squelch (**ON**).  
⇒ tone-squelch signal received (**TSQ**).  
⇒ channel group selected (**GR.1**).  
⇒ calibrating tone On  
⇒ tone-squelch operating  
⇒ intercom facility operating  
⇒ apparatus ON (channel-selector back-light)
- Auxiliary outputs for : ⇒ reporter intercom AF-output  
⇒ reporter side-tone output (800 Hz)  
⇒ high-quality AF output for optional AES/EBU converter.
- Calibrat. tone generator : ⇒ 1 kHz, +10 dBu.
- Power : ⇒ 10.5 ÷ 16 Vdc / 4 W, negative ground.
- Size - Weight : 123 x 49 x 327 mm - 1.7 kg approx.

NOTE **[1]**: According to local regulations.

NOTE **[2]**: RMS value, unweighted, 22 Hz / 22 kHz and referred to the peak deviation.

MSR 918 complies with ETSI specifications: ETS 300 422.



### CST 910 UHF TRANSMITTER MODULE

- Switchable channels : 16, preset in the 400 ÷ 490 MHz range **[1]**  
(others on request).
- Switching-window : > 5 MHz (others on request).
- Frequencies : microprocessor controlled PPL synthesizer circuit. They can be easily reprogrammed by DOS-PC and optional "UPK 100 Programming kit".
- Channel raster : 25, 20 or 12.5 kHz **[1]**.
- Frequency error : < ±2 ppm, in the rated temperature range.
- Temperature range : -10 ÷ +55 °C.
- RF output power : switchable between: 300 mW / 2 W (± 1 dB) **[1]**.
- RF output impedance : 50 ohm (type N-F connector).
- Modulation : FM, (nom. deviation: ±3.3, ±2.7 or ±1.7 kHz, depending on the channel raster).
- Audio input : transformer balanced, floating.
- Audio input level : Micro / Line switchable, and adjustable:  
⇒ Micro = -54 ÷ -23 dBu (1.5 ÷ 55 mVrms).  
⇒ Line = -23 ÷ +8 dBu (55 ÷ 1950 mVrms).
- Audio input imped. : ⇒ Micro = > 2 kohm ⇒ Line = > 10 Kohm.
- Peak-limiter : automatic, with > 30 dB overload capability over the nominal modulation.
- NR system : compander circuit, pre-set in "NR" mode.
- AF bandwidth : 300 Hz ÷ 4.4 kHz (-3 dB) **[2]**.
- Distortion : < 0.5 % (0.25% typ.) **[2]**.
- SND/D ratio : > 80 dB (83 dB typ.), CCITT measured **[2]**.
- LED indications : ⇒ Transmitter On (red LED);  
⇒ Limiter On (yellow LED).
- Power : ⇒ 10.5 ÷ 16 Vdc, 700 mA max, (neg. ground).
- Size - Weight : 49 x 123 x 300 mm. - 1.4 kg approx.

NOTE **[1]**: According to local regulations.

NOTE **[2]**: for 25 kHz channel raster.

CST 910 complies with ETSI specifications: ETS 300 086.

#### PSS 902 - MAINS POWER SUPPLY MODULE

- Power : 230 Vac / 50 VA max.
- Output power : 12 Vdc / 2.4 A max (receiver system feeding)  
12 Vdc / 0.5 max (RX active-antennas feeding).
- Size / Weight : 49 x 123 x 300 mm. / 1.9 kg approx.

#### RPT 923 - PORTABLE MINIRACK (3 modules)

- Power : ⇒ 230 Vac (by means of PSS 900 power supply)  
⇒ 10.5 ÷ 16 Vdc, 1.1 A max, negative ground.
- Size / Weight : 160 x 140 x 390 mm. / 3.5 kg approx.

#### AGN 10 - UHF GROUNDPLANE ANTENNA

- Radiation / Polarization : omnidirectional / vertical.
- Connector : N-F type
- Size / Weight [\*] : diameter = 78 mm max, length = 73 mm  
0.4 kg ca.
- Mounting system : 3/8" standard screw
- Supplied cable : RG213 type (10 m) with N-M connectors.

Note [\*]: except radiant elements.

#### OPTIONAL ACCESSORIES:

- ABN 10 - UHF groundplane active antenna, for multi-RX system (10 m cable).
- AGN 10 - UHF groundplane antenna, for RX or TX (10 m coax cable).
- ITC 928 - Reporter intercom auxiliary AF-output (includes warning-tone circuit for main TX).
- RPT 924 - Portable minirack, 4 modules, with built-in VHF or UHF RX-antenna signal splitter [n° 2 x MSR 914 + CST 900 + PSS 900].
- RPT 9xx - Portable minirack, custom executed.
- UPK 100 - Working frequencies user programming kit.