

HF Transceiver Family



R&S® XK 2000

Antenna Tuning Units (ATU) R&S®FK2100 and R&S®FK2100M

For automatic matching of all commonly used antennas



Antenna Tuning Unit (ATU) R&S®FK2100

Brief description

The Antenna Tuning Unit R&S®FK2100 belongs to the R&S®XK2000 equipment family. It automatically matches antennas, in particular very short antennas, to the 150 W HF Transceiver R&S®XK2100. The sturdy and water-proof plastic casing of R&S®FK2100 is shock- and UV-resistant and thus ideally suited for mobile applications. The R&S®FK2100M, which is a seawater- and drop-resistant version of the R&S®FK2100, is especially designed for shipboard applications and can match antennas with very low ohmic resistance.

Particular attention was paid to obtaining effective lightning protection. Both ATUs are fully arc-protected against direct lightning strokes. They are tested to withstand arcs of 10 kV/10 kA. An automatic BIT (built-in-test) is provided for fault detection and reporting to the R&S®XK2100 transceiver.

Tuning functionality

For the R&S®FK2100, a maximum of 100 customer-defined channels can be stored in a non-volatile memory. The stored channels can be even called up in silent mode, i.e. without emission of RF power.

The R&S®FK2100M offers silent tuning capability over the full frequency range of 1.5 MHz to 30 MHz.

Before the ATU can be used for an application, it must be connected to an antenna to “learn” its characteristic. Learning takes place in a user-defined frequency range in the HF band (1.5 MHz to 30 MHz).

The ATU “learns” the antenna characteristic by receiving tuning data for a maximum of 1500 predefined frequencies. Once the tuning data for these frequencies is known and stored, the typical ATU setting time is less than 30 ms. The advantage for the user is the low probability of intercept (LPI), since ATU frequency setting takes place very quickly and without any emission of RF power.

With a single cable between transceiver and ATU carrying RF, supply voltage and all bidirectional control data, the R&S®FK2100M is very installation-friendly.

Shockmount R&S®KS2110

(for R&S®FK2100 and R&S®FK2100M)

For extremely harsh environmental operating conditions, a rugged shockmount is available for the ATU.

Typical applications of the R&S®KS2110 are installations on board small ships or in armored vehicles.

Specifications of the R&S®FK2100M

Frequency range	1.5 MHz to 30 MHz
Antennas	lengths
Whip antennas	from 5 m to 8 m
Rod antennas	from 7 m to 12 m
Long-wire antennas	up to 15 m
Shortest antenna	3 m whip with duty cycle 1:1
Tuning time	<30 ms
ATU control cable	1 coax cable carrying RF, control information and supply voltage
VLF output	N connector

General data

Environmental conditions	
Operating temperature range	−30 °C to +65 °C in line with MIL-STD-810D, meth. 501.2/502.2
Storage temperature range	−40 °C to +85 °C in line with MIL-STD-810D, meth. 501.2/502.2
Vibration	6 g rms, 3 minutes per axis in line with MIL-STD-810E, meth. 514.4, proc. 1, cat. 10, Figure 514.4-16, MIL-STD-810D, meth. 514.3, proc. 1, Figures 514.4-3-34 and 514.4-3-36 and BV 0440, diagram 1
Shock	40 g, 18 shocks in 2 × 3 axes in line with MIL-STD-810E, meth. 516.4, proc. 1, Figure 516.4-1 40 g/11 ms, 18 shocks in 2 × 3 axes, ½ sine in line with MIL-STD-810C, meth. 516.2, proc. III, Figure 516.2-2
Safety class	IP 40050/IP 56
EMC, emission, immunity	in line with EN 50081-1, EN 50082-1
Lightning protection	VG 96903, T76
Solar radiation	in line with MIL-STD-810E, meth. 505.3, proc. II
Salt fog	in line with MIL-STD-810D, meth. 509.2, proc. II
Fully seawater-proof (partly submersible)	
Fungus-protected	

Ordering information

Designation	Type	Order No.
Antenna Tuning Unit	R&S®FK 2100	6046.8948.02
Antenna Tuning Unit	R&S®FK 2100M	6046.9550.02
Shockmount	R&S®KS 2110	6090.5905.02



More information at
www.rohde-schwarz.com
(search term: FK2100/FK2100M)



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