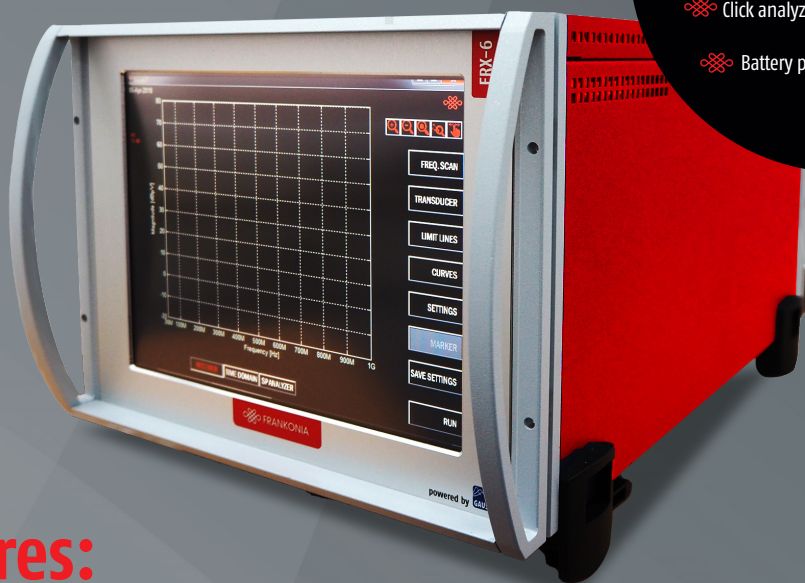




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ERX-6 DATASHEET



AVAILABLE OPTIONS

- Frequency-extension up to 7 GHz
- Integrated tracking generator (9kHz - 6 GHz)
- Click analyzer function acc. to CISPR 14
- Battery pack for mobile operation

Key Features:

- ✓ Frequency range 10 Hz to 6 GHz
- ✓ Traditional EMI-receiver mode acc. to CISPR 16-1
- ✓ Ultra-fast FFT-based (time domain)
- ✓ EMI-receiver-mode acc. to CISPR 16-1-1, Ed. 3.1
- ✓ Real-time Spectrum-Analyzer mode
- ✓ About 6000 times faster than traditional receivers
- ✓ Oscilloscope mode, 1 GHz bandwidth
- ✓ Quasi-Peak, Peak, Average, RMS, RMS-AVG detectors
- ✓ Remote control of the receiver, antenna mast and turntable by using our „EM-LAB“ software
- ✓ Measurements acc. to CISPR, MIL, DO, VG, and ETSI-standards
- ✓ Excellent noise floor: 120 kHz (Band C/D), Typ. -15 dB μ V
1 MHz (Band E), Typ. <- 3dB μ V

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DESCRIPTION

The ERX-6 combines the advantages of a traditional EMI-receiver with the ultra-fast FFT-technology (time domain).

Further more it offers the full functionality of a realtime Spectrum Analyzer, which is very helpful to see immediate results of modifications on an EUT and an Oscilloscope mode with 1 GHz bandwidth.

Optional available are a frequency extension up to 7 GHz, an integrated tracking generator (9 kHz - 6 GHz), a click analyzer function acc. to CISPR 14 and a battery pack for mobile operation

No external PC is required!



FRONT VIEW

CONTROL SOFTWARE

The scope of delivery already includes a comprehensive control software that can be operated either via the touch screen of the ERX-6 or by means of mouse and keyboard, that can be connected to the ERX-6.

The easy-to-use software allows you to perform all functions of the ERX-6, with easy switching between the functions in the main menu. Furthermore this software offers a library for selecting the most common limit lines acc. to international standards, an input option for various correction factors (for e.g. antennas or RF-cables), the ability to create your own limit lines and a reporting function.

For the automation of measuring processes by means of turntable and antenna mast, we recommend our optionally available control software "EM-LAB" (please see also our separate brochure).



REAR VIEW



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TECHN. SPECIFICATIONS	GENERAL DATA
Level	<ul style="list-style-type: none"> • Display range displayed noise floor up to +30 dBm • Maximum DC input level, pulse 6 V (0dB Att) • RF-CW signal 120 dBV
Intermodulation	<ul style="list-style-type: none"> • 1dB Compression Point of Mixer <ul style="list-style-type: none"> f < 1 GHz f > 1 GHz • Third order Intercept Point (TOI) <ul style="list-style-type: none"> 10 Hz – 6 GHz Typ. > 20dBm • Second Harmonic Intercept Point (SHI) <ul style="list-style-type: none"> 10 Hz – 6 GHz Typ. > 55dBm
Displayed Average Noise Level RF attenuation OdB, normalized to 1 Hz RBW, mean marker (typ.)	<ul style="list-style-type: none"> • 9 kHz – 150 kHz: 130 dBm • 150 kHz – 1 MHz: 154 dBm • 1 MHz – 30 MHz: 161 dBm • 30 MHz – 1000 MHz: 163 dBm (LNA off) 169 dBm (LNA on) • 1000 MHz – 6 GHz: 164 dmb (LNA off) 170 dBm (LNA on)
Noise Indication RF attenuation OdB, RBW acc. to CISPR 16-1-1, mean marker (typ.)	<ul style="list-style-type: none"> • 9 kHz – 150 kHz: < 0 dBuV • 150 kHz – 1 MHz: < -5 dBuV • 1 MHz – 30 MHz: < -18 dBuV • 30 MHz – 1000 MHz: < -6 dBuV (LNA off) < -12 dBuV (LNA on) • 1000 MHz – 6 GHz: < 4 dBuV (LNA off) < -3 dBuV (LNA on)
CISPR Indication Range	<ul style="list-style-type: none"> • 6 dB margin to noise floor over complete amplitude range according to CISPR 16-1-1 Ed. 3.1 • Quasi-peak indication according to CISPR 16-1-1: All pulse repetition frequencies • Peak, Average, CISPR-AVG indication according to CISPR 16-1-1 in all modes • CISPR-RMS indication according to CISPR 16-1-1 • Maximum deviation for sinusoidal signals according to CISPR 16-1-1: 2dB (9 kHz – 6 GHz)



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TECHN. SPECIFICATIONS	ERX-6
Frequency range	10 Hz to 6 GHz (7 GHz optional)
Operating modes	<ul style="list-style-type: none">• EMI-receiver (traditional)• EMI-receiver (FFT-based measuring instrument)• Spectrum analyzer• Oscilloscope
Detectors	Quasi-Peak, Average, RMS, RMS-Average, CISPR-AVG, CISPR-RMS
Reference Oscillator	<ul style="list-style-type: none">• Reference oscillator OCXO Aging < +/- 3.5 ppm / 15 years Temperature drift (0 – 60° C) < +/- 1 x 10e-8 SSB phase noise (1 Hz BW): 1 Hz -95 dBc/Hz (12.8 MHz) 10 Hz -120 dBc/Hz 100 Hz -140 dBc/Hz 1 kHz -145 dBc/Hz <ul style="list-style-type: none">• Frequency resolution 0.01 Hz
Spectral purity	<ul style="list-style-type: none">• SSB phase noise frequency = 500 MHz, carrier offset• 100 Hz < -100 dBc (1 Hz)• 1 kHz < -107 dBc (1 Hz)• 10 kHz < -101 dBc (1 Hz)• 100 kHz < -126 dBc (1 Hz)• 1 MHz < -146 dBc (1 Hz)• 10 MHz < -150 dBc (1 Hz) (nom.)• Residual FM frequency = 500 MHz, RBW = 1 kHz, Sweep time = 100 ms < 3 Hz (nom.)



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EMI-RECEIVER FFT-BASED MEASURING INSTRUMENT	ERX-6
Frequency segment processed in parallel	<ul style="list-style-type: none">RBW = 10 Hz 0.08 MHzRBW = 100 Hz 0.8 MHzRBW = 200 Hz 1.6 MHzRBW = 1 kHz 8.1 MHzRBW = 9 kHz 81 MHzRBW = 10 kHz 81 MHzRBW = 120 kHz 162.5 MHzRBW = 100 kHz 162.5 MHzRBW = 1 MHz 162.5 MHz
Scanning speed (Receiver mode) typ.	<ul style="list-style-type: none">• Band A, Quasi-peak, dwell time 1 s : 3 s• Band B, Quasi-peak, dwell time 1 s : 3 s• Band C/D Quasi-peak, dwell time 1 s : 50 s• Band E (1 GHz – 6 GHz), dwell time 100 ms : 3,5 s
FFT-Overlapping Factor	<ul style="list-style-type: none">• according to CISPR 16-1-1 and CISPR 16-3• Overlapping factor typ > 95% 1
SPECTRUM ANALYZER	ERX-6
Spectrum Analyzer	<ul style="list-style-type: none">• Sweep time range span = 0 Hz, 1 μs to 16000 s• Span 10 Hz, swept 1 μs to 16000 s• Span 10 Hz, FFT based measuring instrument 1 μs to 16000 s• Sweep time accuracy span = 0 Hz \pm0.1 % (nom.)
IF Bandwidths	<ul style="list-style-type: none">• Span 10 Hz, swept \pm1 % (nom.)• 3dB bandwidth: 1 Hz – 30 MHz• 1, 2, 3, 5 steps• Small step size (145 steps) for channel measurements• 6dB bandwidths CISPR: 200 Hz, 9 kHz, 120 kHz, 1 MHz• 6dB bandwidths MIL/D0: 10 Hz, 100 Hz, 1 kHz, 100 kHz, 1 MHz



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EMI-RECEIVER	ERX-6
Frequency readout (Analyzer mode)	<ul style="list-style-type: none">• Marker resolution 0.5 Hz• Uncertainty $\pm(\text{marker frequency} \times \text{reference accuracy} + 10\% \times \text{resolution bandwidth} + \frac{1}{2} (\text{span}/(\text{sweep points} - 1)) + 0.5 \text{ Hz})$• Spectrum analyzer 1 to 8 000 000• EMI measurement 1 to 8 000 000• Marker tuning frequency step size marker step size = sweep points span/(sweep points - 1)• Marker step size = standard span / (default sweep points - 1)• Frequency counter resolution 0.001 Hz• Count accuracy $\pm (\text{frequency} \times \text{reference accuracy} + \frac{1}{2} (\text{last digit}))$• Display range for frequency axis 0 Hz, 10 Hz to max. frequency• Resolution 0.1 Hz• Max. span deviation $\pm 0.1\%$
Receiver scan	<ul style="list-style-type: none">• Scan scan with max. 100 subranges with different settings• Scan modes normal scan, FFT-based measuring instrument according to CISPR 16-1-1• Measurement time superhet scan, per frequency 1 μs to >100 s• Measurement time FFT-based measuring instrument, per frequency 1 μs to >100 s• Number of trace points up to 8 000 000• Frequency step size normal scan min. 1 Hz• Frequency step size FFT-based measuring instrument min. 1 Hz



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EMI-RECEIVER FFT-BASED MEASURING INSTRUMENT	ERX-6
Video filter	0 MHz – 162.5 MHz 162.5 MHz – 325 MHz 325 MHz – 487.50 MHz 487.50 MHz – 650 MHz 650 MHz – 812.50 MHz 812.50 MHz – 975 MHz 975 MHz – 1 GHz
Detectors (Video filter off / 3 RBW)	<ul style="list-style-type: none">• MaxPeak, MinPeak, Sample• Dynamic requirements according to CISPR 16-1-1 (Peak, AVG)
FFT-BASED MEASURING INSTRUMENT ACC. TO CISPR 16-1-1, MIL461 AND OTHER EMC STANDARDS (TIME DOMAIN SCAN)	
Preselection and Preamplifier structure	Multiple paths with fixed filters
Analog Preselection	10 Hz – 9 kHz 9 kHz – 150 kHz 150 kHz – 30 MHz 30 MHz – 325 MHz 325 MHz – 1 GHz 1 GHz – 3 GHz 3 GHz – 6 GHz
Preamplifier	<ul style="list-style-type: none">• Located between preselection and ADC & mixer• Individual pre-amps for different frequency ranges• Gain: Typ. 20 dB, full overrange detection and auto attenuation• Noise figure: Typ 3.5 dB, Frequency range: 10 Hz – 6 GHz
Digital Preselection	0 MHz – 162.5 MHz 162.5 MHz – 325 MHz 325 MHz – 487.50 MHz 487.50 MHz – 650 MHz 650 MHz – 812.50 MHz 812.50 MHz – 975 MHz 975 MHz – 1 GHz
Low noise Amplifier	30 MHz – 1 GHz, Noise Figure < 4dB



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TECHN. SPECIFICATIONS	GENERAL DATA
Absolute level uncertainty	<ul style="list-style-type: none">• Signal level : 40 – 60 dBuV (15 MHz) < 0.3 dB (= 0.1)• Frequency response (9 kHz – 6 GHz) < 0.5 dB (= 0.15)• Attenuator switching uncertainty (15 MHz) < 0.2 dB (= 0.15)• Total measurement uncertainty CW signal, S/N > 20 dB 95 % confidence level: 0.5 dB
Spurious Response	<ul style="list-style-type: none">• Residual spurious response RF attenuation = 0 dB• f 1 MHz < -107 dBm • f 1 MHz < -117 dBm • f > 1 MHz < -112 dBm• Image frequency < -80 dBc (nom.)
Time Domain Analysis (RF)	<ul style="list-style-type: none">• 1 GHz bandwidth• 2.6 GS/s sampling rate• Acquisition memory: 32000 samples• Trigger edge, post- and pre-trigger function, Amplitude trigger
Attenuator	<ul style="list-style-type: none">• 0 – 50 dB, 10 dB steps
Inport Ports RF Input	<ul style="list-style-type: none">• N type connector, 50 Ohm • 0 dB attenuator: VSWR < 2.0 (9 kHz – 1 GHz)• 10 dB attenuator: VSWR < 3.0 (1 GHz – 6 GHz)
Remote Control	Remote control command set according to SCPI standard
Interfaces	Ethernet/LAN, USB, VGA, HDMI, Audio
Display, User Interface	Resolution 800 x 600 Pixel, 8,4" , TrueColor (16.78 Mio. colors), Touchscreen
PC	<ul style="list-style-type: none">• Mobile Dual Core processor, 4 GByte RAM, >35 GByte Solid State Disc, Winows® 7, 64Bit
Power Supply	+11 V .. +14 V DC, 230 V +/-20 % 50 Hz or 110 V +/- 10% 60 Hz Max. power consumption approx. 60 W
Weight	approx. 8 kg



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