Data sheet

R&S®EK895/R&S®EK896 Digital VLF-HF Receivers

For all shortwave applications from 10 kHz to 30 MHz

- Compact DSP-based receivers for the following applications:
  - Radiomonitoring and radio detection
  - Radiocommunications
  - Search operation, DF systems
  - Frontend for HF intelligence tasks
- Digital signal processing (DSP) for convenient and versatile operation
- Two models:
  - R&S®EK895 half-rack receiver
  - R&S®EK896 search receiver
- Realtime remote control or master-slave mode
- Tried and tested system concept
- Excellent price/performance ratio
- Extremely reliable operation under harsh environmental and EMC conditions

ROHDE&SCHWARZ

R&S®EK895 VLF-HF receiver with control panel

Operational features

- Easy to operate via terminal, computer or front panel
- High rejection of strong interfering signals
- 1000 programmable channel memory locations
- Scan mode for programmable frequency ranges and any desired channel sequences
- Remote control of all settings – over any distance when using modems
- Ideal handoff receivers in stationary, mobile and remote receiving systems
- High availability owing to long MTBF and short MTTR
- Easy to adapt to special requirements by means of optional plug-in modules and standardized interfaces

R&S®EK895/R&S®EK896 digital VLF-HF receivers

Special features

- Excellent large-signal behavior, very good intercept points
- High resolution of tuning frequency down to 1 Hz
- Fast and low-noise synthesizer
- Demodulators for AM, CW, LSB, USB, ISB, FM, FSK, AFSK and FAX included in basic configuration
- 13 bandwidths from 150 Hz to 8 kHz (quasi-continuous on request)
- RF preamplifier, switchable (noise figure $8kT_0$)
- Double notch filter
- Noise blanker
- DATA LINK reception (option)
- Passband tuning
- Syllabic squelch
- Special RTTY (FSK/AFSK) mark and space filters, matched to the selected shift
- Digital data output
- Maximum input voltage protection up to 100 V EMF
- Control interface fully complying with international standards
- Low power consumption <25 VA (R&S®EK895 basic model), therefore little self-heating
- Powerful microprocessor for bus interfacing, menus and user programs
- Dual receiver as 19" desktop or rack models
- Free slots for retrofitting of options
- Integrated self-test down to module level with plain-text result display
- Available with operator front panel or remote-control-only front panel
- Highly compact; width ½19" (R&S®EK895) or 19" (R&S®EK896)

Overview

General characteristics of the R&S®EK895

With the R&S®EK890 family, Rohde&Schwarz is presenting a powerful generation of VLF-HF receivers which are top-end products benefiting from many years of experience in this field. All members of this family are based on the R&S®EK890 basic model. Due to the advantages of digital signal processing, embedded in the improved R&S®EK895/R&S®EK896 receiver versions a number of additional features and operational convenience have been added. Straightforward, menu-guided selection and programming of the receiving settings ensure excellent processing and handling of the received signal content. The compact design is due to the use of large-scale-integration SMDs. Featuring full system compatibility, the receivers provide the basis for extremely economical customer-specific solutions.

With its excellent RF characteristics and clearcut, full remote-control capability via standardized data interfaces, the R&S®EK890 family is suitable for all civil, administrative and military shortwave applications. These receivers are an ideal choice for receiving systems that have to fulfill extremely high reliability requirements, in particular under harsh environmental and EMC conditions.

Operation is possible via an ASCII terminal, a computer (PC) or via the front panel. Using line drivers, a master receiver can control up to 99 remote receivers in master-slave operation. On the R&S®EK895/R&S®EK896, two wired and bus-integrated slots for plug-in modules are provided for extensions, e.g. BCD interface or input filters.

Uses

The comprehensive sequence control can be used for all demanding shortwave reception tasks. Due to flexible programming of the processor, the following operating modes are possible:

- Manual operation
- Remote control or master-slave operation
- Channel scanning, sequential and programmable
- Frequency scan
- Channel reception
- Password-protected channel reception

The R&S®EK890 family thus fulfills the requirements for versatile use in voice receiving and any kind of data communications system as well as for all radiomonitoring, radio detection and radio intelligence (COMINT) applications.

The built-in memory has capacity for nonvolatile storage of 1000 complete channel settings so that channel management and control by an external computer are not required but are nevertheless additionally possible. Due to their excellent characteristics regarding dynamic range, low synthesizer noise and gain control range, the receivers are ideal high-performance frontends for subsequent signal processing.

Two independent R&S®EK895 receivers with remote-control panel in a 19" rackmount adapter

R&S®EK896 search receiver

The R&S®EK896 has especially been designed for complex tasks of radio detection and search reception, its operating principle and configuration perfectly matching the relevant requirements. Basically it is fitted with panel controls and LC displays for local and remote-control operation.

High-speed and reliable radiomonitoring is supported by temporary storage of a complete receiver setup and its transfer to or readout from the connected slave. The R&S®EK896 is the optimal operator's position in modern radiomonitoring systems. In the usual master-slave mode, a master receiver can control up to 99 slave receivers via additional line drivers to handle simultaneous radiomonitoring or specific radio detection tasks. Due to its outstanding characteristics, the R&S®EK896 is ideal for use as a standalone receiver. All R&S®EK895 options can be fitted.

Design

RF unit

The antenna signal is routed via a low-pass filter, which is provided for rejecting image frequencies and suppressing oscillator reradiation, and applied to the input mixer where it is converted to the first IF of 41.44 MHz by means of an oscillator variable in 1 Hz steps. The crystal filter that follows determines the maximum receiving bandwidth of 10 kHz and rejects the second image frequency. A fixed frequency of 40 MHz is used for conversion to the second IF of 1.44 MHz.

The high-performance mixer at the receiver input ensures excellent large-signal behavior. The intercept points are typ. +70 dBm (IP2) and +35 dBm (IP3); the crossmodulation transfer is 10% for an interfering signal of +21 dBm. In most cases, additional filters such as suboctave filters are therefore not required.

IF/AF processor (DSP)

The second IF is converted to the third IF of 25 kHz using a 5.66 MHz fixed frequency. After digitization of the third IF in a 16-bit A/D converter, the processor assumes all signal generation and processing tasks (DSP) including the following:

- Automatic, remote or manual control (AGC, DGC, MGC)
- Measurement of received levels
- Filtering with 13 fixed or quasi-continuously adjustable bandwidths
- Demodulation, passband tuning, double notch filter
- Noise blanker, syllabic squelch
- Generation of BFO frequency as analog IF from 0 Hz to 40 kHz, digital IF as serial data and I/Q data stream

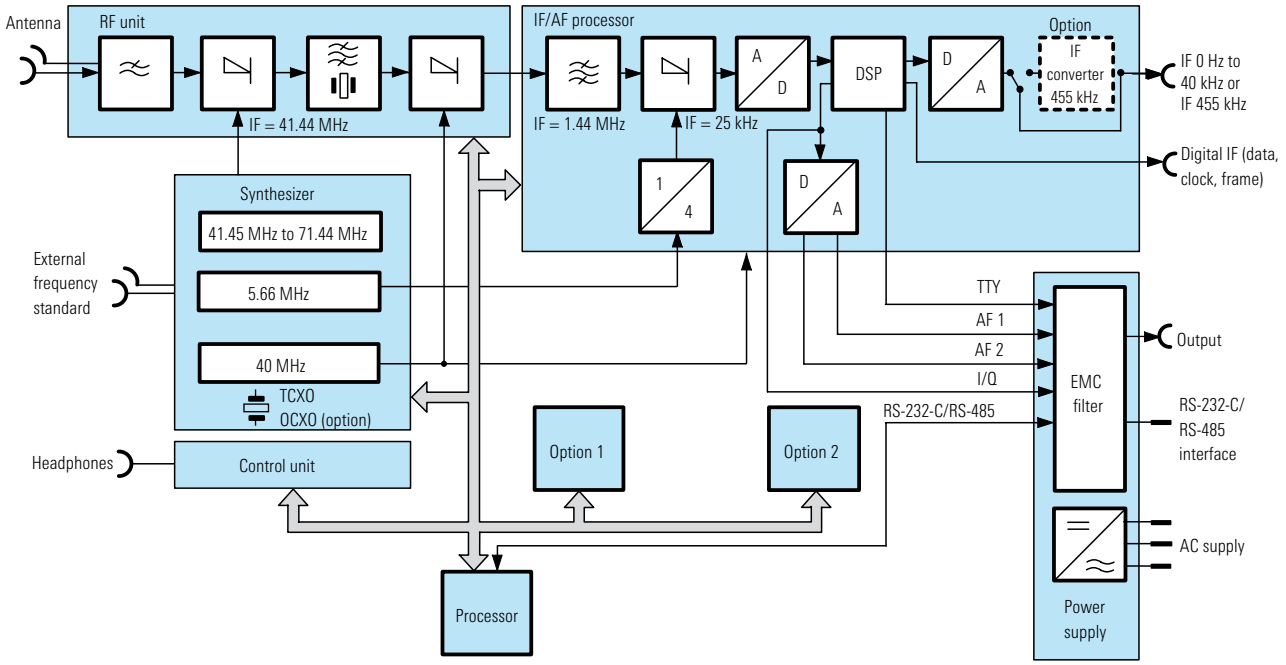
Synthesizer

The synthesizer supplies all the conversion frequencies required for the RF and the IF demodulator units. Due to direct digital frequency synthesis, the first conversion oscillator can be varied in 1 Hz steps. The settling time of the oscillator is 5 ms for any frequency variation. Two phase-locked loops (PLLs) produce the 40 MHz and 5.66 MHz fixed frequencies. The operation of the total of four PLLs in the synthesizer is continuously monitored.

In the basic version, all the frequencies are derived from a temperature-compensated crystal oscillator. Higher accuracy requirements can be fulfilled by including a heated crystal oscillator (optional OCXO) or using an external frequency standard (1 MHz, 5 MHz or 10 MHz).

R&S®EK896 search receiver with front panel for local/remote control

Block diagram of the R&S®EK895/R&S®EK896 digital VLF-HF receivers



Control functions

Processor and software

The 16-bit microprocessor using power-saving CMOS technology is what makes the high-performance, compact, reliable and user-friendly concept of the R&S®EK895 possible. The microprocessor is not only responsible for setting and managing the module functions, it also communicates with the outside world via the panel controls and the data interface, executes the internal programs and ensures the high operational reliability through various routines:

- Nonvolatile storage of all settings
- Continuous testing of CPU, RAM and PROM functions
- Continuous monitoring (CM) of synthesizer
- BIT (built-in test) for module testing

The simple and logical ASCII command syntax for controlling the receiver via the serial interface includes control commands for the following:

Basic settings

- Frequency
- BFO
- Bandwidth
- Demodulation modes
- Gain control mode
- Digital threshold
- Passband tuning

Search operations

- Frequency scanning
- Channel scanning
- Hold time
- Dwell time
- Stop criterion

Test operations

- Read CM status
- BIT start
- BIT readout

System operations

Readout of:

- Software version
- Options
- Error messages
- Signal level
- Deviation

Channel operations

- Channel manipulations
- Store channel
- Erase channel
- Select channel
- Readout channel

Special operations

- Master-slave operation
- Complete erasure of channel memory

In addition, the following functions can be selected on the front panel:

- Display of interface configuration
- Fast channel storage
- Channel buffer storage
- Default settings on/off
- Password for channel service
- Local/remote mode
- Knob increments

Various configurations

Receivers with control panel
In the standard version, the R&S®EK895 receiver is available with an operator front panel, which can also be retrofitted. This front panel also permits manual control and display of all functions while full remote-control capability is maintained. This version is particularly suitable for use as a master receiver in receiving systems or as a standalone unit (standard with the R&S®EK896).

The operator interface allows for a combination of hardkey and softkey entries. Parameters that are frequently handled, i.e. receive frequency, channel, BFO frequency and passband tuning (PBT), can be entered directly via a separate keypad. All current receiver settings are continuously displayed in large high-contrast characters on a backlit LCD. An additional bargraph indicator allows display of either the receive level (0 dBµV to 120 dBµV, in 5 dB steps), the DGC or MGC settings or the frequency offset (as a tuning aid and deviation indication).

Receivers with remote-control panel
Optionally, the receivers are remote-controlled by ASCII command sequences via a multistandard interface (RS-232-C, RS-485, RS-422/423, 2-/4-wire). In the simplest case, a terminal can be used as the control unit. For more convenience, a computer can be used to handle complex tasks and to create special user interfaces. A demo program for generating a virtual front panel is available if desired.

The features newly incorporated into the R&S®EK895/R&S®EK896, such as preamplifier (PREAMP), noise blanker (NB), squelch (SQ), notch filter (NOTCH) and passband tuning (PBT), are selected in submenus using softkeys. If one of these features is active, a bargraph appears on the display above the relevant inscription (PREAMP, NB, SQ, NOTCH, PBT).

R&S®GB899 remote control unit (model .03)
This option is an R&S®EK895 reduced to control functions plus an R&S®GB890 control panel. It is used for realtime remote control of handoff receiving equipment, over long distances preferably via additional modems.

IF bandwidth configuration
The R&S®EK895/R&S®EK896 features 13 bandwidths from 150 Hz to 8 kHz. Quasi-continuous tuning in 128 steps is available as an option.

R&S®FK890H1 input filter unit (option)
The input filter module comprises a lowpass filter, a bandpass filter and eight suboctave filters that are automatically selected with the receive frequency.

R&S®GC890 BCD interface (option)
A plug-in BCD interface is available for controlling frequency-dependent add-on units with parallel interfaces, e.g. a selective antenna.

R&S®GH890 TTY line current source (option)
For the operation of older teletype units that require line current (single/double current), a TTY line current source requiring no extra slot can be accommodated.

R&S®UX895 IF converter (option)
The R&S®UX895 IF converter can be supplied as a submodule for incorporation into the IF/AF processor. Instead of the analog IF output signal of 0 Hz to 40 kHz, it linearly converts the set receive parameters to the IF of 455 kHz.

R&S®FK896D digitally tuned RF selector (option for R&S®EK896 only)
This option considerably improves the input selectivity of the receiver. Two versions are available for 20 dB or 40 dB stopband attenuation. The automatically tracking selection circuit includes the following functions:

- 7-circuit lowpass (0 Hz to 30 MHz)
- 5-circuit lowpass (0 Hz to 1.5 MHz) for rejection of strong shortwave interfering signals
- Tracking single-circuit filter (1.5 MHz to 30 MHz) with a stopband attenuation of >20 dB (40 dB) at 10 % spacing from the center frequency
- Switch on/off by remote control
- Input voltage protection of ≥200 V EMF

Rear view of the R&S®EK895

Main menu: MOD GAIN BW SCA MORE ↓		Second menu level
MOD	**Demodulation modes** MORE: for further modes	AM CW LSB USB MORE
GAIN	**Control modes** Auto, manual, auto+manual, auto+digital MORE: fast or slow control	AGC MGC A+M A+D MORE
BW	**Bandwidth**	BW ↓ BW ↑
SCA	**Scan mode** Frequency sweep, channel sweep (any sequence), channel sweep (incremental), stop or continue sweep, program sweep	FRQ CHP CHS S/C PRO
MORE: M/S SYS SPEC CHM MEM ↓		
M/S	**Master-slave operation** Address slave (indicate slave address, e.g. 62), read out or vary slave settings	ADR 62 GET PUT
SYS	**System status** Read out firmware version, built-in options, error messages; start self-test; MORE: total reset	VERS OPT CM BIT MORE
SPEC	**Special functions** Rotary knob: step size on/off; level setting for threshold-controlled external switching signal; show serial interface setting; switch to remote control; default settings on/off	KNOB LEV SER REM DEF
CHM	**Channel memory parameters** Channel memory indication and channel-specific parameter variation without interrupting reception	MOD GAIN BW THLD
MEM	**Channel memory operations** Clear all memory, clear certain memory, store to certain memory, use next free memory	CLA CLCH STCH STO

The R&S®FK896D digitally tuned RF selector is recommended for use in environments with strong RF interference (collocation problems). It improves input selection by automatically tracking the receive frequency and, at the same time, considerably increases input-voltage protection (overload protection).

R&S®GM893 broadband IF output (option)

The optional broadband output (plug-in module) supplies a 1 MHz output signal at the first IF of 41.44 MHz (relative to a receive frequency of ±500 kHz). To prevent impairment of the receiver sensitivity of the main channel (message channel), the path to the broadband channel is decoupled by approx. 10 dB. For broadband spectrum analysis, a spectrum display can be connected to this broadband output.

Digital data output

For further digital signal processing of the received signal, a separate digital IF interface (connector X 69 at rear) is available, delivering the digital DATA, CLOCK FRAME outputs (0 Hz to 40 kHz, sampling rate 100 ksps).

DATA LINK option

If DATA LINK operation (MIL-STD-188-203-1A) is required, special receiver versions are available.

1.44 MHz IF output, unregulated (option)

For connecting and operating an external IF spectrum display, an unregulated IF output at 1.44 MHz is available. This option uses the HF unit (model .03) and has to be ordered along with the basic receiver.

Operating concept

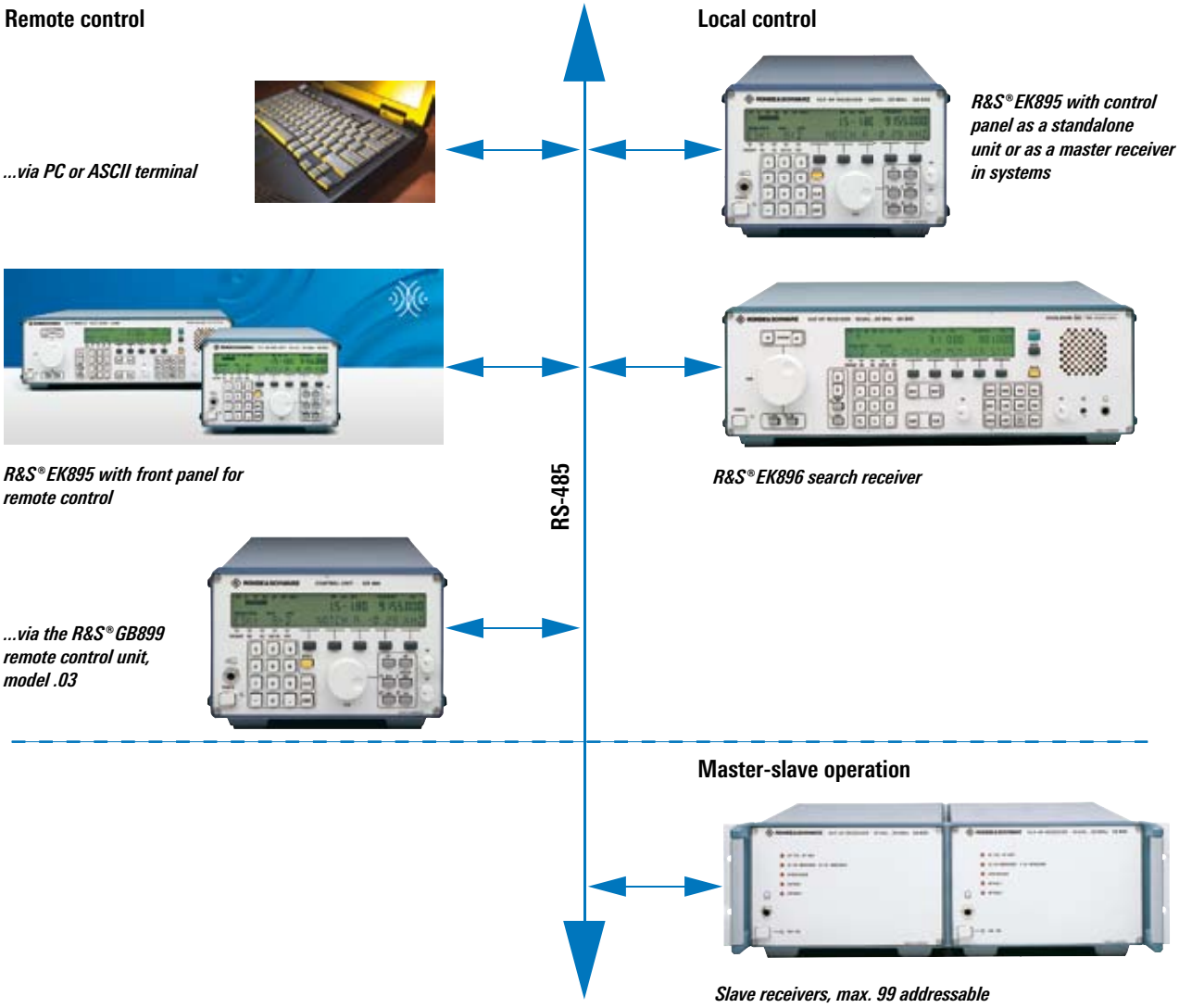
The R&S®EK890 family has a suitable operating mode for every application (see also page 8). The remote-control interface is configured to the RS-485 standard and is bus-compatible for system operation. Users who want to control their radiomonitoring system from the receiver front panel rather than from a computer can use the receivers of the R&S®EK890 family as a master receiver or install the R&S®GB899 remote control unit.

The softkey-menu operator interface provides the ergonomical advantage of clean front panel layout as well as access to a large number of setting parameters. When you insert extension modules, they are automatically detected and incorporated in the software BIT and the menu system. The clearcut operating concept of the R&S®EK890 family has five menu levels which allow 50 logically structured operating routines to be called up by softkeys. In spite of the multitude of functions, operation is highly convenient, e.g. each type of modulation is assigned a default setting with all relevant parameters, which can also be individually programmed.

The table shows all possible settings down to the second menu level.

For fast access to the setting parameters, the R&S®EK896 has 12 additional hardkeys, e.g. for standard types of modulation, bandwidth variation, etc.

Control concepts of the R&S®EK895/R&S®EK896 digital VLF-HF receivers



Certified Quality System ISO 9001 DQS REG. NO 1954 QM

Certified Environmental System ISO 14001 DQS REG. NO 1954 UM

Certified Quality System AS 9100 DQS REG. NO 1954 AS

Certified Quality System AQAP-110 Audit report GP Q2-NO 96.07

Specifications

Frequency range	10 kHz to 30 MHz	
Resolution	1 Hz	
Frequency drift Frequency standard Oven-controlled frequency standard	**–10 °C to +45 °C** 5×10^{-7} 1×10^{-7}	**aging/year** 1×10^{-6} 1×10^{-7}
External frequency standard	1/5/10 MHz, 0.2 V to 1 V rms	
Antenna input	BNC connector, 50 Ω	
VSWR	typ. <1.5 with preamplifier for f > 250 kHz typ. <3 without preamplifier for f > 5 MHz otherwise typ. <4	
Max. input voltage (≤30 MHz)	100 V EMF	
Oscillator reradiation into 50 Ω termination	≤10 µV	
Demodulation modes	CW/MCW (A1A, A1B, A2A, A2B), FAX1 (F1C) AM/AME (A3E, H2A, H2B, H2E), USB/LSB (R2A, R3E, J2A, J3E) ISB (B8E) FSK/AFSK (F1A, F1B), F6 (F7B) FAX2 (F3C), FM (F3E) DATA LINK in line with MIL-STD-188-203-1A (on request)	
IF bandwidth (standard values)	**3 dB**	**60 dB**
	±75 Hz	±150 Hz
	±150 Hz	±225 Hz
	±300 Hz	±430 Hz
	±500 Hz	±770 Hz
	±750 Hz	±990 Hz
	±1050 Hz	±1600 Hz
	±1200 Hz	±1760 Hz
	±1350 Hz	±1900 Hz
	±1550 Hz	±2100 Hz
	±2000 Hz	±3400 Hz
	±2400 Hz	±3700 Hz
	±3000 Hz	±4200 Hz
	±4000 Hz	±5200 Hz
Quasi-continuous bandwidth (option for R&S®EK895)	128 steps, 100 Hz to 9 kHz	
Sensitivity		
For S/N = 10 dB, f = 0.1 MHz to 30 MHz		
A1A (CW)	0.4 µV EMF (–121 dBm), bandwidth = 300 Hz	
J3E (SSB), J7B	1.0 µV EMF (–113 dBm), bandwidth = 2.7 kHz	
H3E (AME), 1 kHz, m = 60 %	2.7 µV EMF (–104 dBm), bandwidth = 6 kHz	
With preamplifier, f = 0.2 MHz to 30 MHz		
A1A (CW)	0.2 µV EMF (–127 dBm), bandwidth = 300 Hz	
J3E (SSB), J7B	0.4 µV EMF (–121 dBm), bandwidth = 2.7 kHz	
H3E (AME), 1 kHz, m = 60 %	1.0 µV EMF (–113 dBm), bandwidth = 6 kHz	
Immunity to interference, non-linearities		
Intermodulation (1.5 MHz to 30 MHz; Δf ≥ 30 kHz; interfering signal 0 dBm)		
IP2	>60 dBm, typ. 70 dBm	
IP3	>30 dBm, typ. 35 dBm	
Crossmodulation (0.1 MHz to 30 MHz, interfering signal 5 V EMF (+21 dBm); Δf ≥ 30 kHz; m = 0.3; f = 1 kHz; signal level 10 mV EMF (–33 dBm))	≤10 % modulation transfer	

Blocking (0.1 MHz to 30 MHz; interfering signal 6.3 V EMF (+23 dBm); Δf ≥ 30 kHz; signal level 1 mV EMF (–53 dBm); m = 0.3; f = 1 kHz)	≤1 dB signal attenuation
Desensitization (interfering signal 300 mV EMF; Δf ≥ 30 kHz; signal level 30 µV EMF; bandwidth 3.1 kHz)	≥20 dB SINAD
Inherent spurious signals (f > 100 kHz)	<–113 dBm (nominal –124 dBm)
Image frequency rejection	>90 dB
IF rejection	>90 dB
Weighted S/N ratio for 1 mV EMF	>46 dB SINAD
Gain control	automatic (AGC), manual (MGC) or remote (DGC)
AGC error	typ. ≤3 dB (1 µV to 1 V EMF)
Time response constants	
Attack time	<15 ms
Decay time	25/150/500 ms, 1 s, 3 s
DGC range	0 dBµV to 120 dBµV EMF in 1 dB steps
BFO	–5.00 kHz to +5.00 kHz
Resolution	10 Hz
AFSK/FSK demodulator	transfer rate (50 baud to 600 baud) and deviation range (±42.5 Hz to ±425 Hz) adjustable; V.28 interface and audible tone circuit
Diplex telegraphy demodulator (F7B)	2 × V.28 interface
Channel memory	for 1000 channels, nonvolatile, storage of complete receiver setup for each channel
Data interface	RS-232-C, RS-485 (bus-compatible)
Transfer rate	50 baud to 38 400 baud
Outputs	
AF output 1, AF (I)	0.3 kHz to 3.4 kHz; floating; Z_{out} = 600 Ω
Settling range	–10 dBm to +10 dBm
AF (Q)	480 mV rms, Z_{out} ≈ 100 Ω
FAX1 (F1C)	1.9 kHz ± 150 Hz in VLF range (f < 500 kHz) 1.9 kHz ±400 Hz in HF range (f ≥ 500 kHz)
FAX2 (F3C)	1.9 kHz modulated
FM (F3E)	NBFM (3 dB bandwidth: ±4 kHz)
AF output 2 (LSB in ISB mode)	0.3 kHz to 3.4 kHz, floating, Z_{out} = 600 Ω
Settling range	–10 dBm to +10 dBm
Monitoring output	500 mV, Z_{out} = 332 Ω
FM video output	1 V/kHz, Z_{out} = 1 kΩ
IF (1.44 MHz) output (unregulated) Bandwidth (–3 dB) Gain	 ≥10 kHz (18 ±2) dB, 50 Ω
IF output (analog)	0 Hz to 40 kHz in 100 Hz steps, 0 dBm into 600 Ω or 455 kHz, 0 dBm into 50 Ω (optional)
IF output (digital)	serial data (clock, data, frame), 100 ksps
I/Q output (digital)	baseband signal, multiplexed, 5 V CMOS

Options

R&S®GB890 control panel (model .03)	with controls and indicators for complete receiver setup; connector for loudspeaker or headphones (max. 1 W into 8 Ω)
R&S®GB899 remote control unit (model .03, on request)	R&S®GB890 control panel plus R&S®EK895 reduced to control functions, using RS-232-C with a transfer rate of 50 baud to 19200 baud; modem operation recommended for distances beyond approx. 100 m
R&S®FK890H1 input filter unit	lowpass filter 0 Hz to 0.5 MHz bandpass filter 0.5 MHz to 1.5 MHz 8 suboctave filters 1.5 MHz to 30 MHz
R&S®GC890 BCD interface	frequency information, 22 bit parallel (CMOS, 5 V)

R&S®GH890 TTY line current source	single current: 40 mA/60 V double current: ±20 mA/±30 V
R&S®UX895 IF converter (on request)	455 kHz, 0 dBm into 50 Ω, BNC female
R&S®FK96D digitally tuned RF selector (R&S®EK896 only)	
Frequency range	0 Hz to 30 MHz, at f < 1.5 MHz as LPF
Stopband attenuation	≥20 dB (>40 dB: R&S®FK896D, model .04) at 10 % spacing from center frequency (f = 1.5 MHz to 30 MHz)
Gain	0 to +2 dB
Tuning time	<10 ms
Inband IP3	≥34 dBm (≥30 dBm: R&S®FK896D, model .04)
Noise figure	typ. 13 dB
RF input voltage protection	≥200 V EMF, Z_{in} = 50 Ω
Response threshold	>10 V EMF or >4 A
R&S®GM893 broadband IF output (model .03)	
Output frequency	41.44 MHz (unlevelled)
3 dB bandwidth	>1 MHz
Attenuation	<10 dB relative to antenna input
Impedance	50 Ω
Oven-controlled frequency standard	aging/day ≤1 × 10^{-9} (OCXO)

General data

Environmental conditions	in line with MIL-STD-810D
Operating temperature range	–10 °C to +45 °C
Permissible temperature range	–25 °C to +55 °C
Storage temperature range	–40 °C to +80 °C
Humidity (non-condensing)	max. 95 % at +40 °C
Vibration test	10 Hz to 55 Hz; 0.4 mm double amplitude in line with DIN EN 60068-2-6
Shock test	30 g, 11 ms in line with MIL-STD-810D, meth. 516.3, proc I
EMC	in line with MIL-STD-461C, CE01, CE03, CE06, CS01, CS02, CS06, RE01, RE02, RS01, RS02, RS03
Electrical safety	in line with ETSI EN 60950-1
CE conformity mark	in line with DIN EN 60945, ETSI EN 300373-1/2/3 (with restrictions)[1)]
MTBF	>14 000 h
Power supply	100/120/230/240 V –15/+10 %, 47 Hz to 420 Hz (approx. 25 VA to 75 VA, depending on model)
Dimensions (W × H × D), weight	
R&S®EK895	211 mm × 132 mm × 460 mm (8.31 in × 5.20 in × 18.11 in), approx. 8 kg (approx. 17.64 lb)
R&S®EK896	426 mm × 132 mm × 460 mm (16.77 in × 5.20 in × 18.11 in), approx. 11 kg (approx. 24.25 lb)

1) ETSI EN 300373-1/2/3, operating temperature range (–10 °C to +45 °C)
ETSI EN 300373-1,7.6.

More information at
www.rohde-schwarz.com
(search term: EK895, EK896)

Ordering information

Designation	Type	Order No.
Digital VLF-HF Receiver	**R&S®EK895**	
Remote control via serial interface		6057.8996.02
With control panel; for local and remote control		6057.8996.12
With control panel; for local and remote control; with built-in OCXO		6057.8996.14
With control panel; for local and remote control; with built-in OCXO; LINK11 reception		6057.8996.17
With control panel; for local and remote control; LINK11 reception; for use with external frequency standard		6057.8996.37
With control panel; for local and remote control; with 1.44 MHz IF output		6057.8996.63
Digital VLF-HF Search Receiver	**R&S®EK896**	
Control panel with loudspeaker; for local and remote control		6038.2509.12
Control panel with loudspeaker; for local and remote control; with built-in OCXO		6038.2509.14
With control panel; for local and remote control; with built-in OCXO; LINK11 reception		6038.2509.17
With control panel; for local and remote control; LINK11 reception; for use with external frequency standard		6038.2509.37
Plug-in modules (R&S®EK895, R&S®EK896)		
Preselection Unit	R&S®FK890H1	6007.7750.02
Digitally Tuned RF Selector Stopband attenuation 20 dB; for R&S®EK896 only	R&S®FK896D	6077.3019.02
Digitally Tuned RF Selector Stopband attenuation 40 dB; for R&S®EK896 only	R&S®FK896D	6077.3019.04
BCD Interface	R&S®GC890	6007.7809.02
Broadband IF Output	R&S®GM893	6051.8494.03
Recommended extras (R&S®EK895, R&S®EK896)		
Transfer Software Package	R&S®EK890S3	6015.4492.02
Quasi-Continuous IF Bandwidth Control	R&S®EK895S7	6077.0510.02
Loudspeaker Unit	R&S®GA890L1	6041.6199.02
Remote Control Unit	R&S®GB899	6037.3501.03
TTY Line Current Source	R&S®GH890	6007.6054.02
Service Kit	R&S®KA890C1	6030.9004.02
19" Assembling Kit for two R&S®EK895 Desktop model For rack installation	R&S®KA890L1	 6041.6699.02 6041.6699.03
High-Precision Oven-Controlled Master Quartz Oscillator		6007.3255.03
IF Conversion to 455 kHz	R&S®UX895	6077.0261.02
19" Adapter Kit For R&S®EK896	R&S®ZZA-93	0396.4892.00
19" Adapter Kit For one R&S®EK895 and one blank panel	R&S®ZZA-98	0827.4533.00

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