



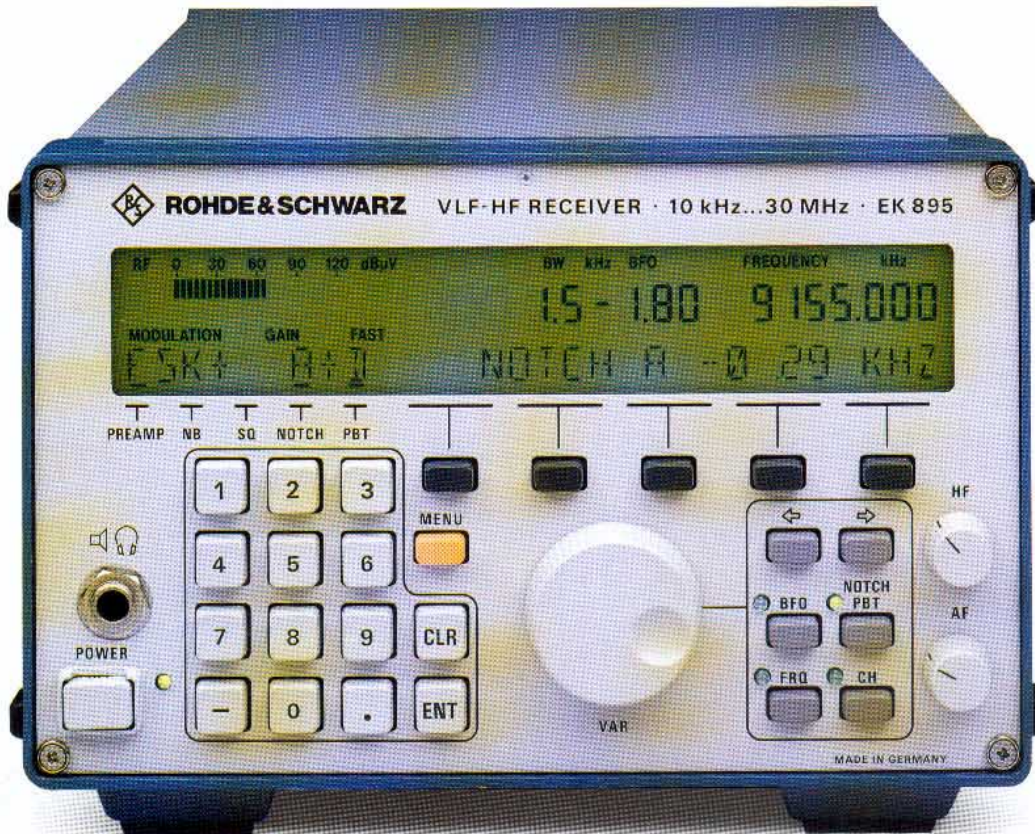
Digital VLF-HF Receivers EK895/EK896

For all shortwave applications from 10 kHz to 30 MHz

- Compact DSP-based receivers for
 - radiomonitoring and radio detection
 - radiocommunications
 - search operation, DF systems
 - as front-end for HF intelligence tasks
- Digital signal processing (DSP) for comfortable and versatile operation
- 2 different models:
 - half-rack receiver EK895
 - search receiver EK896
- Real-time remote control or master-slave mode
- Well-proven system concept
- Excellent price/performance ratio
- Extremely reliable operation under harsh environmental and EMC conditions



ROHDE & SCHWARZ



VLF-HF Receiver EK895 with Control Panel

Digital VLF-HF Receivers EK895/EK896

Special features

- Excellent large-signal behaviour, 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 (quasicontinuous 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 (basic model EK 895), therefore little self-heating
- Powerful microprocessor for bus interfacing, menus and user programs
- Dual receiver as 19" bench or rack models
- Free slots for retrofitting of options
- Integrated self-test down to module level with plain-language result display
- Available with operator front panel or remote-control-only front panel
- Highly compact, width $\frac{1}{2}$ 19" (EK 895) or 19" (EK 896)

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 thanks to long MTBF and short MTTR
- Easy to adapt to special requirements by means of optional plug-in modules and standardized interfaces

Overview

General characteristics of EK895

With the 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 basic model EK890. Due to the advantages of digital signal processing, embedded in the improved receiver versions EK 895/EK 896 a number of additional features and operational comfort are added. A clearly organized, menu-guided selection and programming of the receiving settings ensure excellent processing and handling of the received signal content. The compact design results from the use of large-scale-integration SMDs. Thanks to their full system compatibility, the receivers provide the basis for extremely economical customer-specific solutions.

Due to the excellent RF characteristics and the uncomplicated and full remote-control capability via standardized data interfaces, the EK890 family is suitable for all civil, administrative and military shortwave applications.

These receivers are an ideal choice for receiving systems which 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 detached receivers in master-slave operation. On the EK895/896, two wired and bus-integrated slots for plug-in modules are provided for extensions, eg BCD interface or input filters.

Uses

The comprehensive sequence control can be used for all demanding short-wave 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 EK890 family thus fulfills the requirements for versatile use in voice receiving and any kind of data communication systems as well as for all radio-monitoring, radio detection and radio intelligence (COMINT) applications. For application in DF systems an EK895 is used as the master (controlling synthesizer), its LOs being brought out for external amplification, distribution and phase-locked application to all other receivers.

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 nevertheless additionally possible. Due to their excellent characteristics regarding dynamic range, low synthesizer noise and gain control range, the receivers are ideal high-performance front ends for subsequent signal processing.

Two independent EK895 Receivers with remote-control panel in a 19" rackmount adapter.



Search Receiver EK896

The EK896 has been designed with a particular view to complex tasks of radio detection and search reception, its operating principle and configuration matching perfectly the relevant requirements. Basically it is fitted with panel controls and LCD displays for local and remote-control operation since with radiomonitoring manual optimization of receive parameters is practically always necessary.

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 EK896 is the optimal operator's position in modern radiomon-

Design

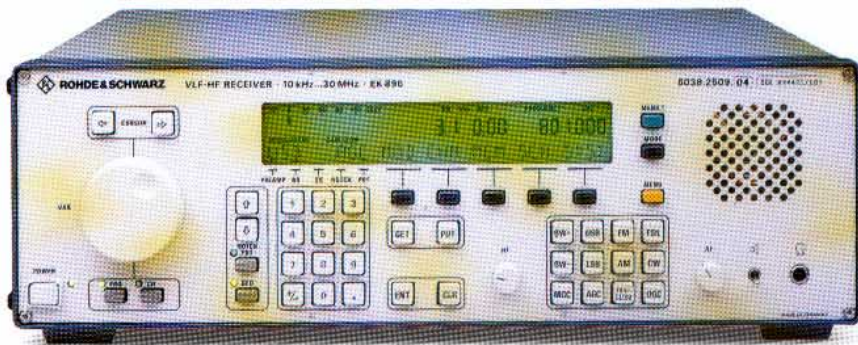
RF unit

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 into 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 provides for rejection of the second image frequency. A fixed frequency of 40 MHz is used for conversion into the second IF of 1.44 MHz.

IF/AF processor (DSP)

The 2nd IF is converted to the third IF of 25 kHz using a 5.66-MHz fixed frequency. After digitization of the 3rd IF in a 16-bit A/D converter, the processor assumes all signal generation and processing tasks (DSP) including

- 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 analog IF from 0 to 40 kHz, digital IF as serial data and I/Q data stream.



Search Receiver EK896 with front panel for local/remote control

itoring 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 EK896 is ideal for use as a stand-alone receiver. All EK895 options can be fitted.

The high-performance mixer at the receiver input ensures excellent large-signal behaviour. The intercept points are typically +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.

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, 5 or 10 MHz).

Control functions

Processor and software

The modern 16-bit microprocessor using power-saving CMOS technology is what makes the high-performance, compact, reliable and user-friendly concept of the 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

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
- read out channel

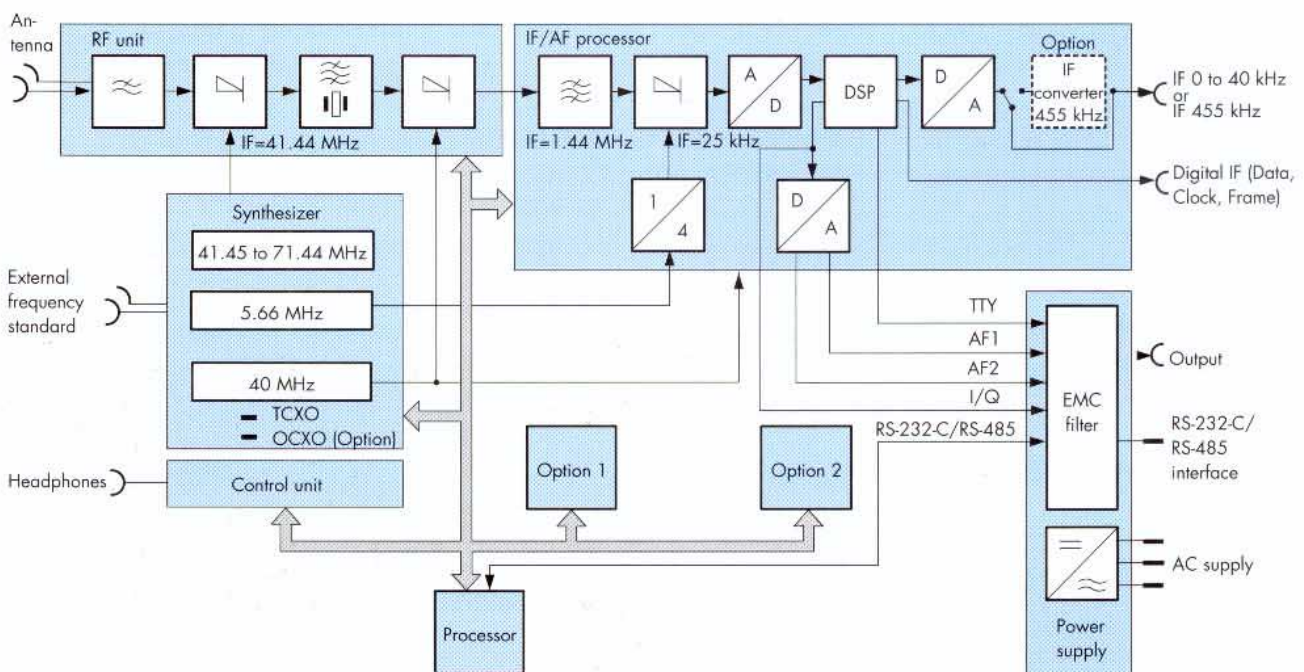
special operations

- 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

Block diagram of VLF-HF Receiver EK895/896



Various configurations

Receivers with control panel

In the standard version, the receiver EK 895 is available with an operator front panel, which can also be retrofitted. This front panel permits also 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 stand-alone unit (standard with EK896).

The operator interface provides for a combination of hardkey and softkey entries. Parameters that are frequently handled, ie receive frequency, channel, BFO frequency and passband tuning (PBT), can be entered directly via a separate keypad. All current receiver settings are continuously indicated in large high-contrast characters on a backlit LCD. An additional bargraph indicator allows indication of either the receive level (0 to 120 dB μ V, 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 EK 895/EK 896, 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).

Remote Control Unit GB 899 (model 03)

This option is an EK895 reduced to control functions plus a Control Panel GB890. It is used for real-time remote control of handoff receiving equipment, over long distances preferably via additional modems.

IF bandwidth configuration

The EK895/896 is available with 13 bandwidths from 150 Hz to 8 kHz as standard and optionally with quasi-continuous tuning in 128 steps.

Input Filter Unit FK890H1 (option)

The input filter module comprises a low-pass filter, a bandpass filter and eight suboctave filters which are automatically selected with the receive frequency.

BCD Interface GC890 (option)

A plug-in BCD interface is available for controlling frequency-dependent add-on units with parallel interfaces, eg a selective antenna.

TTY Line Current Source GH890 (option)

For the operation of older teletype units which require line current (single/double current), a TTY line current source requiring no extra slot can be accommodated.

Converter UX895 (option)

IF Converter UX895 can be supplied as a submodule for incorporation into the IF/AF processor. Instead of the analog IF output signal of 0 to 40 kHz, it performs a linear conversion of the set receive parameters into the IF of 455 kHz.

Digital Selection FK896 (Option for EK896 only)

This option comprises the modules Digital Selection FK2010 which together with a control interface are integrated into EK896. The automatically tracking selection circuit comprises the following functions:

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

Digital Selection FK896 is recommended for use in an environment with strong RF interference (collocation problems). It improves input selection by the automatic tracking of the receive frequency and, at the same

Rear-panel view of EK 895



Main menu: MOD GAIN BW SCA MORE		
		Indication at 2nd 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, eg 62), read out or vary slave settings	ADR62 GET PUT
SYS	Systemstatus 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; indicate 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

Setting possibilities of EK 895 down to second menu level

time, considerably increases the input-voltage protection (overload protection).

Broadband Output GM893 (option)

The optional broadband output (plug-in module) supplies a 1-MHz broad output signal at the first IF of 41.44 MHz (related to a receive frequency of ± 500 kHz). To avoid an 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, Spectrum Display

EPZ513 can be connected to this broadband output.

Digital Data Output (option)

For further digital signal processing of the received signal a separate Digital IF Interface (connector X 69 at rear side) is available, delivering the digital „DATA, CLOCK FRAME“-outputs (0 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 on request.

1.44 MHz IF Output, Unregulated (option)

For connection and operation of an external IF spectrum display, e. g. **Digital Spectrum Display EP 090**, an unregulated IF-output at 1.44 MHz is available. This option uses the HF-Unit (Var. 03) and has to be ordered along with the basic receiver.

Operating concept

The EK890 family has a suitable operating mode for every application (see 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 radio-monitoring system from the receiver front panel instead from a computer can use the receivers of the EK 890 family as a master receiver or install the Remote Control Unit GB899.

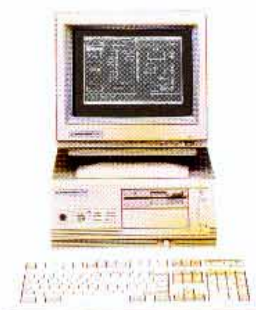
The softkey-menu operator interface provides the ergonomic advantage of clean front panel layout as well as access to a large number of setting parameters. When you insert extension modules, they are automatically detected and incorporated in the software BIT and the menu system. The clear operating concept of the EK890 family has 5 menu levels which allow 50 logically structured operating routines to be called up by softkeys. In spite of the multitude of functions, the operating convenience is high, eg each type of modulation is assigned a default setting with all relevant parameters, which can be also individually programmed.

The table to the left shows all setting possibilities down to the second menu level.

For fast access to the setting parameters the EK896 has 12 additional hardkeys, eg for standard types of modulation, bandwidth variation, etc.

Remote control

... via PC or ASCII terminal



EK890/895 with front panel for remote control

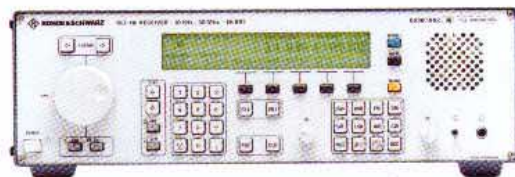


... via Remote Control Unit GB899, model 03

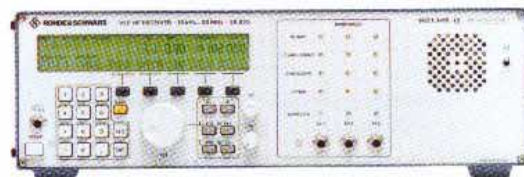


Local control

EK890/895 with control panel as a stand-alone unit or as a master receiver in systems



Search Receiver EK891/EK 896



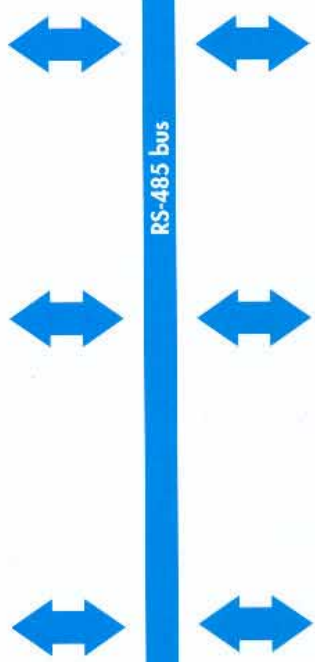
Triple VLF-HF Receiver EK893 with control unit

Master-slave operation

Slave receivers (max. 99 addressable)



Triple slave receivers (max. 33 addressable)



Specifications

Frequency range	10 kHz to 30 MHz	
Resolution	1 Hz	
Frequency drift	-10 to +45 °C aging/year	
Frequency standard	5 x 10 ⁻⁷	1 x 10 ⁻⁶
Oven-controlled frequency standard	1 x 10 ⁻⁷	1 x 10 ⁻⁷
External frequency standard	1/5/10 MHz, 0.2 to 1 V _{rms}	
Antenna input	BNC connector, 50 Ω	
VSWR	<3	
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 acc. to 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
Quasicontinuous bandwidth (opt. for EK 895)	128 steps, 100 Hz to 9 kHz	
Sensitivity (for S/N=10 dB, f=0.1 to 30 MHz)		
A1A (CW)	0.4 μV EMF (-121 dBm), BW=300 Hz	
J3E (SSB), J7B	1.0 μV EMF (-113 dBm), BW=2.7 kHz	
H3E (AME), 1 kHz, m=60% with preamplifier, f=0.2 to 30 MHz	2.7 μV EMF (-104 dBm), BW=6 kHz	
A1A (CW)	0.2 μV EMF (-127 dBm), BW=300 Hz	
J3E (SSB), J7B	0.4 μV EMF (-121 dBm), BW=2.7 kHz	
H3E (AME), 1 kHz, m=60%	1.0 μV EMF (-113 dBm), BW=6 kHz	
Immunity to interference, non-linearities		
Intermodulation (1.5 to 30 MHz; Δf ≥30 kHz; interfering signal 0 dBm)		
IP ₂	>60 dBm (typ. 70 dBm)	
IP ₃	>30 dBm (typ. 35 dBm)	
Crossmodulation (0.1 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 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 to 120 dBμV EMF in 1-dB steps
BFO	-5.00 to +5.00 kHz
Resolution	10 Hz
AFSK/FSK demodulator	transfer rate (50 to 600 baud) and deviation range (±42.5 to ±425 Hz) adjustable; V.28 interface and audible tone circuit
Diplex telegraphy demodulator (F7B)	2 x 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 to 38,400 baud
Outputs	
AF output 1, AF (I)	0.3 to 3.4 kHz; floating; Z _{out} =600 Ω
Settling range	-10 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 to 3.4 kHz, floating, Z _{out} =600 Ω
Settling range	-10 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)	BW [-3 dB]: ≥10 kHz; Gain: (18 ±2) dB, 50 Ω
IF output (analog)	0 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	
Control Panel GB890 (model 03)	with controls and indicators for complete receiver setup; connector for loudspeaker or headphones (max. 1 W into 8 Ω)
Remote Control Unit GB899 (mod. 03) (on request)	Control Panel GB890 plus EK895 reduced to control functions, using RS-232-C with a transfer rate of 50 to 19,200 baud; for distances beyond about 100 m modem operation is recommended
Input Filter Unit FK890H1	lowpass filter 0 to 0.5 MHz bandpass filter 0.5 to 1.5 MHz 8 suboctave filters 1.5 to 30 MHz
BCD Interface GC890	frequency information, 22 bit parallel (CMOS, 5 V)
Line Current Source GH890	single current: 40 mA/60 V double current: ±20 mA/±30 V
IF Converter (on request)	455 kHz, 0 dBm into 50 Ω, BNC female
Digital Selection FK896 (EK896 only)	
Frequency range	0 to 30 MHz, at f <1.5 MHz as LPF
Stopband attenuation	≥20 dB at 10% spacing from center frequency (f = 1.5 to 30 MHz)
Gain	0 to +2 dB
Tuning time	<10 ms
Inband IP ₃	≥34 dBm
Noise figure	typ. 13 dB
RF input voltage protection	≥200 V EMF (Z _{in} =50 Ω)
Response threshold	>10 V EMF or >4 A
Broadband Output GM893 (.03)	
Output frequency	41.44 MHz
3-dB bandwidth	>1 MHz
Attenuation	<10 dB related to antenna input
Impedance	50 Ω
Oven-controlled frequency standard	aging/day ≤1 x 10 ⁻⁹ (OCXO)

General data

Environmental conditions	to MIL-STD-810 D
Rated temperature range	-10 to +45 °C
Operating temperature range	-25 to +55 °C
Storage temperature range	-40 to +80 °C
Humidity (non-condensing)	max. 95% at +40 °C
Vibration test	10 to 55 Hz; 0.4 mm double amplitude
Shock test	30 g, 11 ms
EMC	to MIL-STD-461/462
MTBF	>14 000 h
Power supply	100/120/220/240 V -15/+10%, 47 to 420 Hz (approx. 25 bis 75 VA, depending on model)
Dimensions (W x H x D), weight	
EK895	211 mm x 132 mm x 460 mm, approx. 8 kg
EK896	426 mm x 132 mm x 460 mm, approx. 11 kg

Ordering information

	EK895 with control panel for local/remote control	EK895 with front panel for remote control	EK896 with control panel for local/remote control
Standard receiver (with TCXO)	6057.8996.12	6057.8996.02	6038.2509.12
With oven controlled frequency standard [OCXO]	6057.8996.14	-	6038.2509.14

Accessories supplied

manual

Recommended extras

Control Panel	GB890	6007.7709.03
Remote Control Unit	GB899	6037.3501.03
19" Adapter Kit	ZZA-98	0827.4533.00
19" Adapter Kit for 2 EK895	KA890 L1	6041.6699.03
Repair manual		
EK895		6045.6712.62
EK896		6045.7783.62
Line Current Source	GH890	6007.6054.02
Plug-in modules		
Input Filter Unit	FK890 H1	6007.7750.02
BCD Interface	GC890	6007.7809.02
Broadband output (module)	GM893	6051.8494.03
IF Converter (submodul of IF/AF processor)	UX895	6077.0261.02
Quasi-continuous IF-Bandwidth Control ¹⁾	EK895-S7	6077.0510.02
Digital Selection	FK896	6077.2264.02
New: 1.44 MHz IF Output, unregul. (comes along with HF-Unit Var. 03)	EK895/896	6007.4400.03
Remote Control Software	EK895-S2	6073.2260.02

¹⁾ Only for EK895, standard in EK896.



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