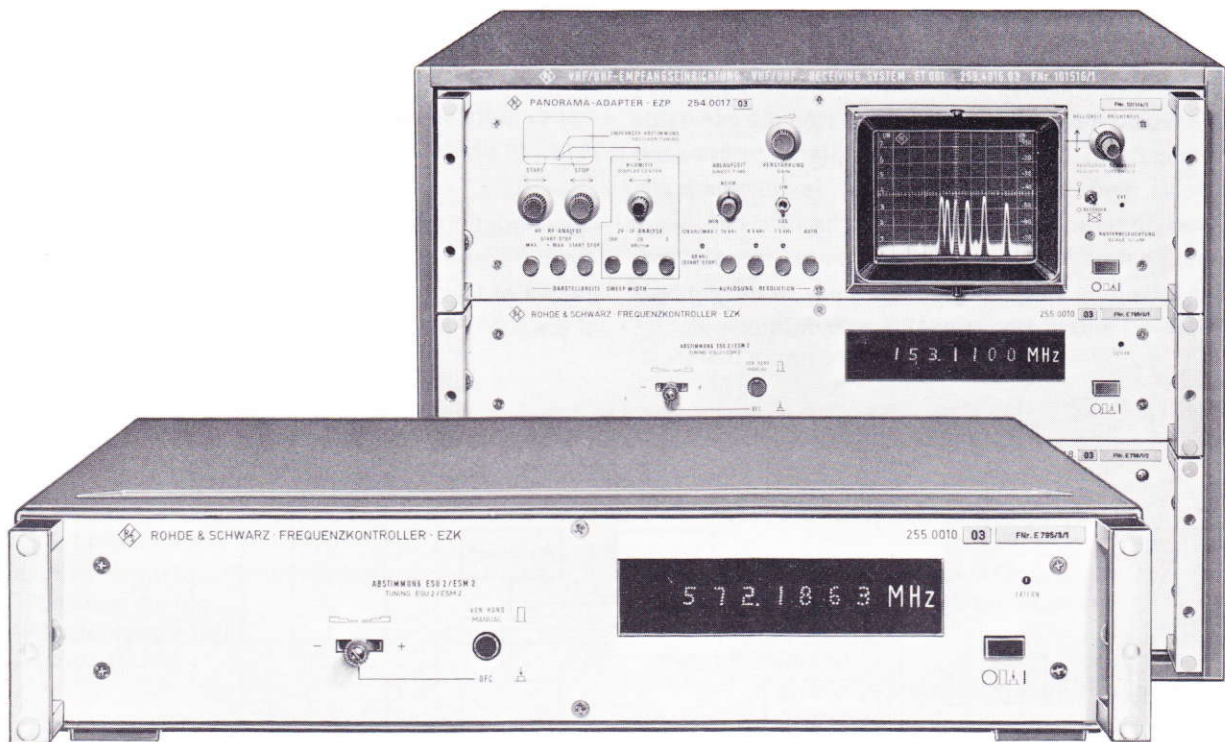


FREQUENCY CONTROLLER

0 to 1000 MHz



(Background) VHF-UHF Receiving System ET 001 with Frequency Controller EZK

19.242,-

Control unit for communications and test receivers

Manual or external receiver operation

Fully automatic range selection and tuning – frequency entry in BCD code – setting accuracy 100 Hz

Quasi-continuous tuning without reversal of sense of rotation – three selectable speeds – manual or external control

Digital readout of receive frequency – also with manual tuning

Built-in precision crystal oscillator (class of accuracy 10^{-9})

Characteristics and Uses

The Frequency Controller EZK in conjunction with a receiver, such as ESM 2 or ESU 2 – and a Panoramic Adapter EZP, if desired – performs a variety of functions:

1. Measures manually set receive frequency (25 to 1000 MHz), which is displayed as a frequency marker on the EZP.
2. Keeps receive frequency constant.
3. Features quasi-continuous digital tuning.
4. Permits adjusting the receiver (range selection and tuning) to digitally programmed receive frequency (BCD code).
5. Enables master-slave operation.

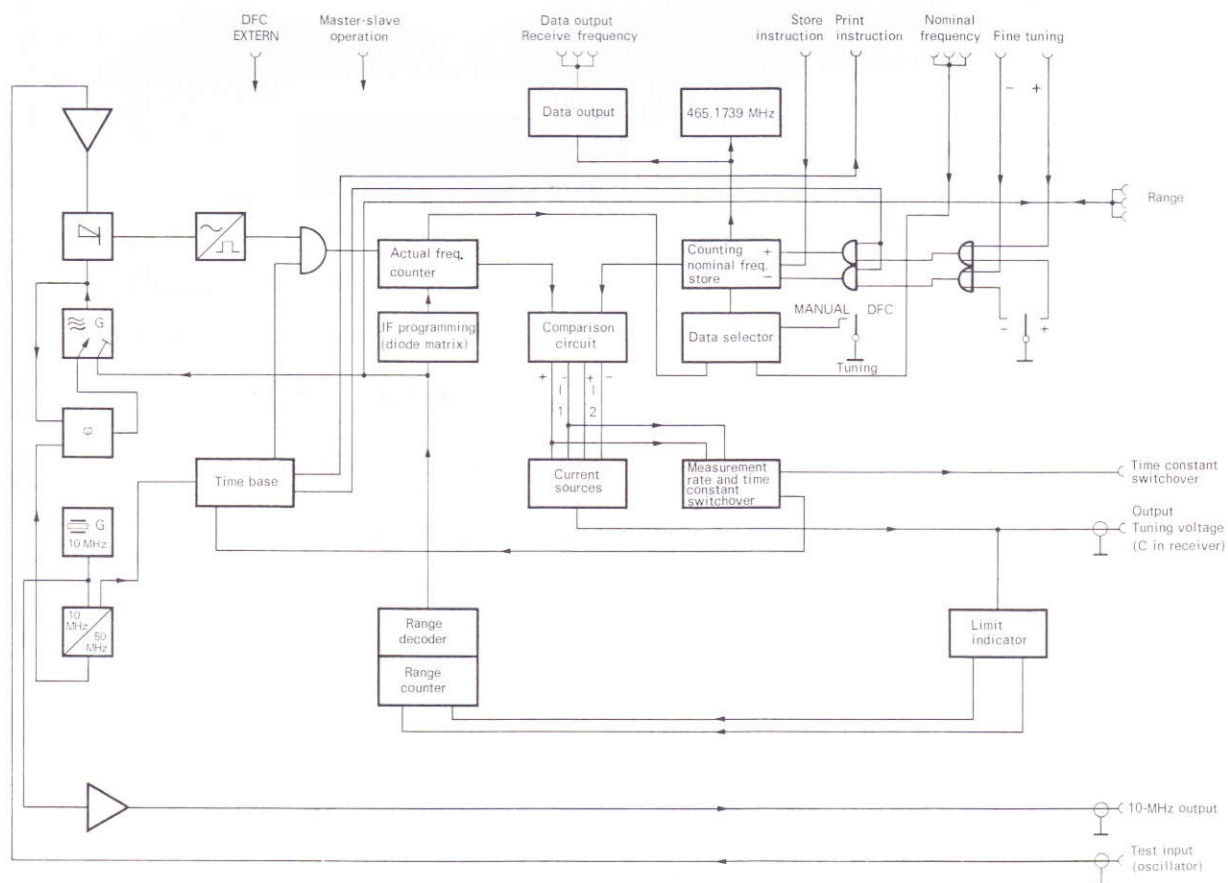
For the performance of function 1, the EZK operates as a digital frequency meter, measuring the oscillator frequency of the receiver. The difference between receive and oscillator frequency is automatically taken into consideration according to the intermediate frequency of the receive range selected. The result – the receive frequency – is digitally displayed and is also available at a data output.

For the performance of functions 2 to 5, the EZK contains, in addition to the above-mentioned presettable frequency meter, an adjustable reversible counter, which serves as a nominal value store, and a comparison circuit. The latter selects the range and tunes the receiver such that the difference between the nominal and the actual value becomes approximately zero (< 100 Hz).

The EZK can be remote controlled in the BCD code. It operates in three modes: MANUAL, INT DFC (digital frequency control) and EXT DFC (remote control).

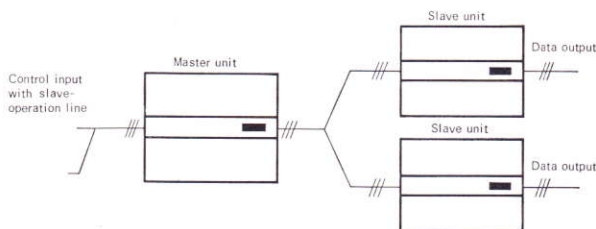
In **MANUAL operation**, the range is selected and the tuning is carried out on the receiver. The frequency setting is read out on the EZK in six digits and is available at a data output in the BCD code. In the **INT DFC mode**, the EZK keeps the receive frequency constant and in the **EXT DFC mode**, the frequency information supplied is entered by external command. In these two cases, the frequency is read out in seven digits.

Quasi-continuous tuning in 100-Hz steps for searching purposes or fine adjustment is possible in all modes at three different speeds (progressive action of the tuning lever) – also beyond range limits.



Block diagram of Frequency Controller EZK

Master-slave operation, e.g. in DF systems, is possible by connecting the output of the master unit to the input of a slave unit. The slave units – additional VHF-UHF Receiving Systems ET 001 or Receiver ESM 2 or ESU 2 + Frequency Controller EZK combinations – track with the frequency of the master unit as long as the slave-operation line at the control input of the master unit is connected to chassis.



Master-slave operation with two slave units connected in parallel

When the slave-operation line is released again, the frequency information is maintained by the slave unit in the INT DFC mode. Additional frequency correction is provided by the quasi-continuous tuning feature of the slave unit. In the MANUAL mode the slave unit switches over to the frequency set on the receiver. Master and slave units can be operated in any desired mode.

The slave units may be connected in series with normal cables or in parallel (see illustration) with special cables or distributors. Use of a distributor permits setting the slave units to different receive frequencies by switching over the EXT DFC line (see above).

Specifications

Frequency range	0 to 1000 MHz
Subranges when using the ESM 2 or ESU 2 (automatic range selection on EZK)	20 to 42/40 to 70/67 to 110/100 to 175/170 to 270/265 to 420/410 to 605/595 to 805/ 800 to 999.9 MHz
Warmup period of crystal oscillator	≤ 13 min for an error ≤ 2 x 10 ⁻⁷ ≤ 20 min for an error ≤ 2 x 10 ⁻⁸
Aging of crystal after 30 days of operation	≤ 2 x 10 ⁻⁹ /d
 Modes	
Local operation	
Receive frequency measurement	front-panel switch in position MANUAL
Receiver tuning	by means of crank-type knob on receiver
Measurement rate	≥ 10 measurements/s
Readout	6-digit LED display (blanked and receive frequency stored in broadband display RF analysis)
Resolution	1 kHz
Holding receive frequency constant	to within ± 100 Hz with front-panel switch in position DFC
Quasi-continuous receiver tuning (INT DFC)	by means of Kellog switch on the EZK front panel
Range	freely selectable about instantaneous frequency
Tuning rate (increase and decrease)	1 kHz/s, 10 kHz/s, 100 kHz/s
Measurement rate	≥ 10 measurements/s
Readout	7-digit LED display (blanked and receive frequency stored in broadband display RF analysis)
Resolution	100 Hz
Error limits (error of crystal oscillator)	± 100 Hz (1 digit)
 Remote control	
Setting, regulation and tuning of digitally programmed receive frequency (EXT DFC)	programmable via control input
Triggering	via control line DFC EXTERN at control input; front-panel switch disabled
Nominal frequency input	BCD (parallel); by store instruction

FREQUENCY CONTROLLER

Setting time at minimum bandwidth when using the ESM 2 or ESU 2	typical 0.5 s (including automatic range selection)
Measurement rate	40 measurements/s; including setting ≥ 10 measurements/s
Readout	7-digit LED display (blanked and receive frequency stored in broadband display RF analysis)
Resolution	100 Hz
Error limits (error of crystal oscillator)	±100 Hz (1 digit)
Quasi-continuous receiver tuning	by connecting control lines to chassis; otherwise same as for local operation

Master-slave operation	by connecting data output of master unit to control input of slave unit
Triggering	control line for permanent parallel connection (front-panel switch disabled) or frequency transfer (< 150 ms); thereupon selected mode becomes effective again
Data output	after each measurement; output controlled by print instruction
Master-slave operation using several receivers	parallel or cascaded

Inputs, outputs

Control input	50-pole socket 018.5927.00; 7 decades, BCD; TTL, positive logic (adaption to negative logic by changing soldered connections)
Data output	50-pole socket 018.5927.00; 7 decades, BCD; TTL, positive logic (adaption to negative logic by changing soldered connections)

General data

Nominal temperature range	0 to +40 °C
Operating temperature range	0 to +40 °C
Shelf temperature range	-40 to +70 °C
AC supply	115/125/220/235 V +10/-15%, 47 to 440 Hz (50 VA)

Overall dimensions (W x H x D); weight	
19" rackmount	483 mm x 88 mm x 506 mm, seated depth d: 427 mm, 12.3 kg
19" bench model (System 80)	492 mm x 116 mm x 514 mm, 13.3 kg



Engravings	German + English
----------------------	------------------

Order designation

19" rackmount	255.0010.03	► Frequency Controller EZK
19" bench model	255.0010.02	

Accessories supplied

Power cord	025.2365.00
Cable for connection to ESM 2 or ESU 2	251.9494.00
Manual	

Recommended extras

Mating plug for multipoint input or output socket	018.5904.00
---	-------------

