



Meinberg Radio Clocks

Auf der Landwehr 22
31812 Bad Pyrmont, Germany
Phone: +49 (5281) 9309-0
Fax: +49 (5281) 9309-30
<http://www.meinberg.de>
info@meinberg.de

PZF511: DCF77 Correlation Receiver (Eurocard)

High accuracy DCF77 correlation receiver for generation of standard frequencies and pulses

Key Features

- Pulses per second and per minute
- Alphanumeric display
- Three RS232 Interfaces
- Receiver status LEDs
- Buffered hardware clock
- DDS frequency synthesizer
- DCF77-simulation
- Timecode Outputs (DC and AM)
- Standard frequency outputs
- Flash-EPROM with bootstrap loader

Description

By evaluating the pseudo-random sequence (PZF), which is part of the DCF77 signal in addition to the amplitude modulation, the PZF511 is capable to reproduce a time pattern in the range of microseconds. This allows generation of high precision pulses and an accurate adjustment of the main oscillator of the system. Besides various standard frequencies, the board provides a programmable frequency output. Additional features of PZF511 are pulses per second (PPS) and per minute (PPM), three RS232 interfaces and IRIG timecode outputs.

Characteristics

Type of receiver	Narrowband DCF77 quadrature receiver with automatic gain control, bandwidth: approx. 20Hz
Type of antenna	Modified active ferrite antenna AW02
Display	8 digits alphanumeric dot matrix display, digit size 5 mm
Cable type	Coaxial cable RG58 indoor or outdoor usage (BNC-, N-Norm-connector)
Status info	Indication of a DCF-signal with at least minimum field strength by 'Feld'-LED 'Syn.'-LED indicates the calculation of an insufficient correlation coefficient (strong interference or loss of reception) The 'Freil.'-LED indicates that the internal hardware clock is not synchronized by DCF77
Synchronization time	2-3 minutes after correct DCF77 signal reception
Accuracy free run	Accuracy in case of lost reception: $\pm 1 \cdot 10^{-8}$ for one hour
Frequency outputs	100 kHz, 155 kHz, 1 MHz and 10 MHz standard frequencies, TTL-level DDS-frequency synthesizer with TTL, sine wave and open drain outputs, 1/3 Hz...9.999 MHz
Accuracy of frequency outputs	Short term stability: $\pm 5 \cdot 10^{-9}$ (standard frequencies and synthesizer up to 10 kHz) ± 2.35 mHz for synthesizer frequency > 10 kHz Holdover: $\pm 1 \cdot 10^{-8}$ for one hour
Pulse outputs	High and low active pulses per second and per minute (TTL-level), pulse duration 200 msec
Accuracy of pulse outputs	Time delay between two systems with max. distance of 50 km: typ. 20 μ sec, max 50 μ sec Time shift of successive pulses: max 1.5 μ sec
Interface	Two independent serial RS232-interfaces, menu configurable
Data format of interfaces	Baudrate: 600, 1200, 2400, 4800, 9600 und 19200 baud Framing: 7N2, 7E1, 7E2, 8N1, 8N2, 8E1, 7O2 and 8O1 Output string: 32 ASCII characters with date, time and status information
Unmodulated time code output	TTL-level

Modulated time code output	IRIG AM sine wave signal: 3Vpp (MARK), 1Vpp (SPACE) into 50 ohm
Generated time codes	IRIG B002: 100pps, DCLS signal, no carrier, BCD time of year IRIG B122: 100pps, AM sine wave signal, 1 kHz carrier, BCD time of year IRIG B003: 100pps, DCLS signal, no carrier, BCD time of year, SBS time of day IRIG B123: 100pps, AM sine wave signal, 1kHz carrier, BCD time of year, SBS time of day IEEE1344: Code according to IEEE1344-1995, 100pps, AM sine wave signal, 1kHz carrier, BCD time of year, SBS time of day, IEEE1344 expansion for date, time zone, daylight saving and leap second in Control Funktionen Segment AFNOR: Code according to NFS-87500, 100pps, AM sine wave signal, 1kHz carrier, BCD time of year, complete date, SBS time of day
Dimensions of the front panel	12HP/3U (60mm x 128mm)
Electrical connectors	64-pin rear VG edge connector DIN 41612 SMB male connector
Current consumption	approx. 230 mA
Backup battery type	When main power supply fails, hardware clock runs free on quartz basis, life time of lithium battery min. 10 years
Firmware	Flash-EPROM, bootstrap loader
Board type	Eurocard
Board dimensions	160mm x 100mm , 1,5mm Epoxy
Power supply	+5V DC
Ambient temperature	0 ... 50°C / 32 ... 122°F
Humidity	Max. 85%
Scope of supply	Scope of supply includes a modified active ferrite antenna AW02, 10m of RG58 coaxial cable with type-N female connectors and a 1m RG174 patch cord (type-N to SMB).
Options	several oscillator versions
RoHS-Status of the product	This product is fully RoHS compliant
WEEE status of the product	This product is handled as a B2B category product. In order to secure a WEEE compliant waste disposal it has to be returned to the manufacturer. Any transportation expenses for returning this product (at its end of life) have to be incurred by the end user, whereas Meinberg will bear the costs for the waste disposal itself.

Manual

The english manual is available as a PDF file: [[1\]Download \(PDF\)](#)

Links:

[1] <http://www.meinberg.de/download/docs/manuals/english/pzf511.pdf>