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PZF180: DCF77 Correlation Receiver (Eurocard)

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

Key Features

- Pulses per second and per minute
- Four RS232 Interfaces
- Reception status indicated by LED
- 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 PZF180 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 PZF180 are pulses per second (PPS) and per minute (PPM), four RS232 interfaces and IRIG timecode outputs.

Characteristics

Receiver Type	Two seperate receiver channels for signal conversion and best aquisition and tracking of the DCF77 signal (AM + PZF).
Status Indicators	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
Type of Antenna	Active ferrite antenna AW02
Synchronization Time	2
Accuracy free run	Accuracy in case of lost reception: ±1·10E-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: ±5·10-9 (standard frequencies and synthesizer up to 10 kHz) ±2.35 mHz for synthesizer frequency > 10 kHz Holdover: ±1·10-8 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 µsec, max 50 µsec Time shift of successive pulses: max 1.5 µsec
Interface	Four independent serial RS-232 interfaces, menu configurable
Serial Time String Output	Baudrate: 300, 600, 1200, 2400, 4800, 9600, 19200 baud Framing: 7N2, 7E1, 7E2, 7O1, 7O2, 8E1, 8N1, 8N2, 8O1 Output string: 32 ASCII characters with date, time and status information
PWM Time Code Output	TTL-level
AM Time Code Output	IRIG AM sine wave signal: 3Vpp (MARK), 1Vpp (SPACE) into 50 ohm

Supported Timecode Formats	**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 **IRIG B006:** 100 pps, DCLS Signal, no carrier, BCD time-of-year, year **IRIG B126:** 100 pps, AM sine wave signal, 1 kHz carrier frequency, BCD time-of-year, Year **IRIG B007:** 100 pps, DCLS Signal, no carrier, BCD time-of-year, year, SBS time-of-day **IRIG B127:** 100 pps, AM sine wave signal, 1 kHz carrier frequency, BCD time-of-year, 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 Functions segment **C37.118:** Like IEEE1344 - with inverted sign bit for UTC offset **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	4HP/3U (20mm x 128mm)
Electrical Connectors	64-pin rear VG edge connector DIN 41612 SMB male connector
Backup Battery Type	When main power supply fails, hardware clock runs free on quartz basis, life time of lithium battery min. 10 years
Cable Type	Coaxial cable RG58 indoor or outdoor usage (BNC-, N-Norm-connector)
Operating Voltage	+5 V DC
Firmware	Flash-EPROM, bootstrap loader
Current Draw	approx. 230 mA
Board type	Eurocard
Board Dimensions	160 mm x 100 mm, 1,5 mm Epoxy
Supported Temperature	Operational: 0 - 50 °C (32 - 122 °F) Storage: -20 - 70 °C (-4 - 158 °F)
Supported Humidity	Max. 85 % (non-condensing) at 40 °C
Contents of Shipment	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).
Warranty	Three-year warranty
Options	Several oscillator versions (see [1]oscillator list).

RoHS Status of Product	This product is fully RoHS-compliant.
WEEE Status of Product	This product is handled as a B2B (Business to Business) category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it can be returned to the manufacturer. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself.

Manual

The English manual is available as a PDF file: [2]Download (PDF)

Links:

[1] https://www.meinbergglobal.com/english/specs/gpsopt.htm
[2] https://www.meinbergglobal.com/download/docs/manuals/english/pzf180.pdf