



## Meinberg Radio Clocks

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## GEN170: DCF77 Code Generator

The time code generator GEN170 has been designed to generate all signals required to control or simulate a DCF77 compatible long wave transmitter, or provide the reference time for an NTP server.

All output signals are based on one 10MHz reference frequency. This reference frequency is either generated by the on board quartz oscillator (TCXO, optional: OCXO) or applied externally. The beginning of a second can be synchronized with an external signal.

### Important Note

This product is no longer available and may have been replaced by a newer product. We will, of course, continue to provide support for units that have already been purchased and are still in use. Please contact our [1][Sales Department](#) for further details.

This product has been discontinued and has been replaced with: [2]

### Key Features

- Leap Second Capability
- Daylight Saving Capability
- Amplitude Modulation and Phase Modulation
- TCXO Reference Frequency

## Description

### Generated Signals:

- \* 77.5 kHz carrier frequency
- \* Second marks to modulate the carrier's amplitude
- \* PRN sequence and PRN window to modulate the carrier's phase
- \* Pulse-per-Second (PPS) output

Additionally, an IRIG or AFNOR time code signal is generated, and a serial time string can be transmitted which includes the generated absolute date and time.

All signals are derived from a single 10 MHz reference frequency. That frequency can either be generated by a high quality on-board oscillator, or it can be supplied externally. The frequency source is selected by a jumper on the printed circuit board. The leading edge of the second marks can be synchronized by an external PPS input signal.

Internal date and time is always based on UTC. A configurable time offset can be applied to the UTC time base to compute a local standard time. Beginning and end of a period of daylight saving time can either be computed year by year based on a simple, configurable algorithm, or can be configured for the current year. GEN170 generates the proper changeover announcement flags as required by the DCF77 coding scheme.

Additionally, a date for insertion of a leap second can be configured. Actually, leap seconds are only inserted at UTC midnight. GEN170 automatically generates the coding sequences to announce the leap second as required for DCF77 and NTP, and also inserts the leap second correctly.

## Characteristics

<b>Display</b>	LC Display, 4 x 16 characters
<b>Control Elements</b>	Shows time/date and other information of the system. Also several user parameters can be controlled and changed with 4 keys. Parameter Setting: Changeover of daylight saving is generated automatically. Beginning and ending of daylight saving may either be defined by exact dates for a single year or using an algorithm which allows the generator to recompute the effective dates year by year. The date of insertion of a leap second can be edited, too. GEN77 generates the announcement of the leap second as well as the leap second itself. The length of the time marks 0 to 15 can be controlled by 16 TTL inputs.
<b>Interface</b>	Single serial RS-232 interface
<b>Serial Time String Output</b>	Baudrate: 300, 600, 1200, 2400, 4800, 9600, 19200 baud Framing: 7N2, 7E1, 7E2, 8E1, 8N1, 8N2
<b>Dimensions of the front panel</b>	21HP/3U (106 mm x 128 mm), with integrated membrane keyboard
<b>Electrical Connectors</b>	64 pin rear VG edge connector DIN 41612
<b>Power Consumption</b>	1,5 W
<b>Operating Voltage</b>	+5V, +12V only when using OCXO)
<b>Current Draw</b>	+5V, @300mA +12V, @50mA (only when using OCXO)
<b>Board type</b>	Eurocard
<b>Board Dimensions</b>	160 mm x 100 mm, 1,5 mm Epoxy
<b>Supported Temperature</b>	Operational: 0 - 50 °C (32 - 122 °F) Storage: -20 - 70 °C (-4 - 158 °F)
<b>Supported Humidity</b>	Max. 85 % (non-condensing) at 40 °C
<b>Warranty</b>	Three-year warranty
<b>Options</b>	Also available as ready installed complete system GEN77TGP.
<b>RoHS Status of Product</b>	This product is fully RoHS-compliant.
<b>WEEE Status of Product</b>	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: [3][Download \(PDF\)](#)

### Links:

[1] <mailto:sales@meinberg.de>

[2] <https://www.meinbergglobal.com/english/products/gen182.htm>

[3] <https://www.meinbergglobal.com/download/docs/manuals/english/gen170.pdf>