



## Meinberg Radio Clocks

Lange Wand 9  
31812 Bad Pyrmont, Germany  
Phone: +49 (5281) 9309-0  
Fax: +49 (5281) 9309-30  
<https://www.meinbergglobal.com>  
[info@meinberg.de](mailto:info@meinberg.de)

## TCR180USB-EL: IRIG Time Code Reader for the Universal Serial Bus (USB)

The TCR180USB-EL is a time code reader with USB interface for decoding modulated and unmodulated IRIG, AFNOR and IEEE time codes and is used for time synchronization of computers where no serial interface or PCI slot is available. It is also suitable for checking time code outputs.

### Key Features

- Universal Serial Bus (USB 2.0)
- Reception status indicated by LED
- Buffered Real Time Clock
- Powered by USB (no extra power supply required)
- Signal input connectors for IRIG AM and IRIG DCLS
- Compact soft case

## Description

The TCR180USB-EL provides a professional solution to your time synchronization requirements in mobile applications like field data acquisition with a laptop/notebook and can be deployed whenever you need to synchronize a standalone PC, laptop or server when no PCI or serial port is available.

With this device a technician can check the quality and validity of an IRIG signal in the field, due to the compact package and simple cabling (only one USB connection for both power and data is required).

With modulated codes, the time information is transmitted by modulating the amplitude of a sine wave carrier. Unmodulated IRIG codes transmit the time information by varying the width of pulses.

The automatic gain control of the receiver for modulated codes allows the decoding of IRIG signals with an amplitude of the sine carrier of 800 mVpp to 8 Vpp. The potential-free signal input via SMB connector has an impedance of 600 Ohm.

The input for unmodulated or DCLS (DC Level Shift) time codes also has an SMB connector. The receiver circuit of the TCR180USB-EL is galvanically isolated from the signal input via an integrated optocoupler.

The **Windows** driver package includes a time synchronization service which runs in the background and adjusts the Windows system time continuously and invisibly. This package also includes a monitor program to enable the user to check the status of the device and time adjustment service. If the monitor program is run with administrator rights, it can also be used to modify configurable parameters.

The **Linux** and **FreeBSD** driver packages include a kernel driver which allows the product to be used as a reference time source for the NTP daemon included in most Unix-like operating systems. This also allows the computer to be used as an NTP time server to provide accurate time to NTP clients on the network. Some command line tools can be used to modify configurable parameters and monitor the status of the clock in use.

The Meinberg Single-Driver-Concept simplifies driver installation dramatically - there is only one driver who supports all Meinberg PCI and USB devices and if you use our free API to access your Meinberg timing device from within your own applications, you can use the same source code for both PCI and USB devices.

## Characteristics

<b>Receiver Type</b>	Integrated IRIG time code reader, supports modulated (AM) and unmodulated (DCLS) IRIG signals
<b>Synchronization Time</b>	Less than one minute after connecting an IRIG input signal
<b>Accuracy free run</b>	Automatic switching to crystal time base, accuracy approximately $2 \cdot 10^{-9}$ if decoder has been synchronous for more than 1h.
<b>IRIG Time Code Input</b>	IRIG - A132/A133, A002/A003, B122/B123, B002/B003, B126/B127, B006/B007, IEEE 1344, AFNOR NFS 87-500 and C37.118 (other codes on request)
<b>Precision of timebase</b>	$\pm 1 \mu\text{sec}$ compared to IRIG reference marker Required accuracy of time code source: $\pm 100 \text{ ppm}$
<b>Physical Dimensions</b>	73 mm x 117 mm x 24 mm (L x W x H)
<b>Input signal connector</b>	SMB-Subminiature-coaxial-connector
<b>Current Draw</b>	max 50 mA
<b>Ambient Temperature</b>	0 ... 50 °C / 32 ... 122 °F
<b>Humidity</b>	Max. 85 %
<b>Contents of Shipment</b>	Timecode Reader, 1.8 m USB cable
<b>Warranty</b>	Three-year warranty
<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 category product. For disposal, it must be returned to the manufacturer to ensure WEEE compliance. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will cover the costs for the waste disposal itself.

### Manual

The English manual is available as a PDF file: [1][Download \(PDF\)](https://www.meinbergglobal.com/download/docs/manuals/english/tcr180usb-el.pdf)

### Links:

[1] <https://www.meinbergglobal.com/download/docs/manuals/english/tcr180usb-el.pdf>