



The Synchronization Experts.



## SETUP GUIDE

### DCF600USB

#### USB Radio-Controlled Clock/DCF77 Receiver

November 29, 2021

Meinberg Funkuhren GmbH & Co. KG



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# 1 Imprint

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## 2 Introduction

This Setup Guide provides you with step-by-step guidance on how to set up your Meinberg product for the first time.

The individual chapters address topics such as the general features of the DCF600USB, the proper installation procedure, and the main technical specifications. This Setup Guide also describes the main parameters needed to quickly set up and configure your product using the Meinberg Monitoring Utility (MbgMon).

### 2.1 How the DCF600USB Works

This compact unit is integrated into a plastic housing which also includes receiver and power supply components. Four LEDs are used to provide status information such as the successful demodulation of time markers and the synchronization status.

The DCF600USB radio-controlled clock is designed to be operated on a USB interface and can therefore be used to synchronize the clock of the PC to which it is connected. This is especially useful on PCs that have no RS-232 interface and no available PCI slot. The USB port is used to supply the module with the necessary power, eliminating the need for an external power supply.

The signal from the DCF77 transmitter is received by the integrated ferrite antenna and passed to a narrowband direct receiver, which in turn transfers the demodulated time markers to the DCF600USB's microcontroller. The microcontroller decodes the time markers provided by the receiver circuit and uses this data to generate accurate date and time information. If the integrity check of this time information is successful, the information is also subjected to a plausibility check using two consecutive time strings. If this plausibility check is also successful, the internal software clock is adjusted to the decoded time.

## 2.2 General Information about DCF77

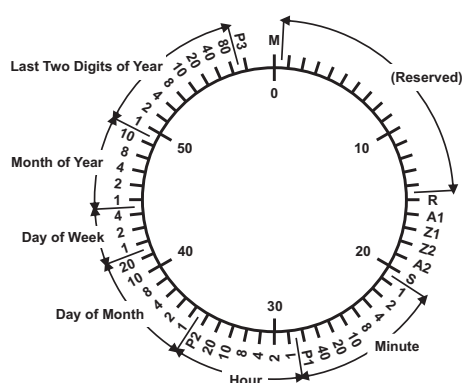
The radio-controlled clocks manufactured by Meinberg receive their signal from the DCF77 long-wave transmitter, which is installed in Mainflingen near Frankfurt in Germany and transmits the reference time of the Federal Republic of Germany. This time reference will either be Central European Time (CET) or Central European Summer Time (CEST), depending on the time of year.

The transmitter is controlled by the atomic clocks of the PTB, Germany's national metrology institute located in Braunschweig, and transmits the current time of day, date of the month and day of the week in coded pulse signals once a second. A complete record of the current time is transmitted once each minute as a 59-bit signal.

This signal is transmitted over the high-precision 77.5 kHz carrier frequency. At the start of each second, the amplitude of the carrier wave is lowered to around 15 % for 0.1 or 0.2 seconds. These amplitude reductions constitute one-per-second markers that contain the binary-coded time information; a marker lasting 0.1 seconds represents a binary "0", while a marker lasting 0.2 seconds represents a binary "1". The information on the time of day and the date as well as a number of parity and status bits are provided in the markers from 17 seconds to 58 seconds in each minute. The absence of the 59-second marker is used to signal the start of a new minute.

The radio-controlled clocks that we produce can receive this high-precision time information from anywhere in Germany, and also fully reliably in Germany's neighbouring countries, with reception documented as far afield as Bilbao in Spain or the town of Umeå in northern Sweden. DCF77 clock modules adjust to summertime and wintertime changes (Daylight Saving Time) automatically. The provision of this time signal is a public service that does not require payment of a license fee or registration.

You should generally ensure that the receiver antenna is positioned in such a way as to receive the best possible signal. It should be pointed at a 90° angle from the direction of the transmitter (Frankfurt) and be placed at least 1 meter away from your computer and 20 cm away from any steel structures, metal plates, etc.



M	Start of Minute (0.1 s)
R	RF Transmission via Secondary Antenna
A1	Announcement of a Change in Daylight Saving Time
Z1, Z2	Time Zone Identification
	Z1, Z2 = 0, 1: Daylight Saving Time Disabled
	Z1, Z2 = 1, 0: Daylight Saving Time Enabled
A2	Announcement of a Leap Second
S	Start of Time Code Information
P1, P2, P3	Even Parity Bits

## 3 Important Safety Information

### 3.1 Important Safety Instructions and Protective Measures

The following safety instructions must be observed whenever the device is being installed or operated. Failure to observe safety instructions and other special warnings and operating instructions in the product manuals constitutes improper usage and may violate safety standards and the manufacturer's requirements.



Depending on the configuration of your device or installed options, some information may not specifically apply to your device.



The device satisfies the requirements of the following EU regulations: EMC Directive, Low Voltage Directive, RoHS Directive and—where applicable—the Radio Equipment Directive.

If a procedure is marked with the following signal words, you may only proceed with it if you have understood and fulfilled all requirements. Hazard notices and other relevant information are classified and indicated as such in this manual according to the following system:



#### **DANGER!**

This signal word indicates a hazard with a high risk level. Such a notice refers to a procedure or other action that will very likely result in serious injury or even death if not observed or if improperly performed.



#### **WARNING!**

This signal indicates a hazard with a medium risk level. Such a notice refers to a procedure or other action that may result in serious injury or even death if not observed or if improperly performed.



#### **CAUTION!**

This signal word indicates a hazard with a low risk level. Such a notice refers to a procedure or other action that may result in minor injury if not observed or if improperly performed.















#### **ATTENTION!**

This signal word refers to a procedure or other action that may result in product damage or the loss of important data if not observed or if improperly performed.

## 3.2 Used Symbols

The following symbols and pictograms are used in this manual. Pictograms are used in particular to indicate potential hazards in all hazard categories.

Symbol	Beschreibung / Description
	IEC 60417-5031 Gleichstrom / <i>Direct current</i>
	IEC 60417-5032 Wechselstrom / <i>Alternating current</i>
	IEC 60417-5017 Erdungsanschluss / <i>Earth (ground) terminal</i>
	IEC 60417-5019 Schutzleiteranschluss / <i>Protective earth (ground) terminal</i>
	ISO 7000-0434A Vorsicht / <i>Caution</i>
	IEC 60417-6042 Vorsicht, Risiko eines elektrischen Schlages / <i>Caution, risk of electric shock</i>
	IEC 60417-5041 Vorsicht, heiße Oberfläche / <i>Caution, hot surface</i>
	IEC 60417-6056 Vorsicht, Gefährlich sich bewegende Teile / <i>Caution, moving parts</i>
	IEC 60417-6172 Trennen Sie alle Netzstecker / <i>Disconnect all power connectors</i>
	IEC 60417-5134 Elektrostatisch gefährdete Bauteile / <i>Electrostatic Discharge Sensitive Devices</i>
	IEC 60417-6222 Information generell / <i>General information</i>
	2012/19/EU Dieses Produkt fällt unter die B2B Kategorie. Zur Entsorgung muss es an den Hersteller übergeben werden. <i>This product is handled as a B2B-category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it must be returned to the manufacturer.</i>



The product manuals are provided on a USB flash drive delivered with the system. The manuals can also be downloaded from the Meinberg website at <https://www.meinbergglobal.com>, where you can enter your system name into the search box at the top of the page to find the relevant manual. Alternatively, contact Meinberg Support for further assistance.



This manual contains important safety instructions for the installation and operation of the device. Please read this manual thoroughly before using the device.

This device may only be used for the purpose described in this manual. In particular, the specified operating limits of the device must be heeded. The person setting up the device is responsible for safety matters in relation to any larger system in which the device is installed!

Failure to observe these instructions may have an adverse impact on device safety!

Please keep this manual in a safe place.

This manual is only intended to be used by qualified electricians, or by persons who have been appropriately instructed by a qualified electrician and who are familiar with applicable national standards and with safety rules & regulations. This device may only be installed, set up, and operated by qualified personnel.

### 3.3 Safety during Installation



#### **WARNING!**

##### Pre-Operation Procedures and Preparation for Use

This device has been designed and examined in accordance with the requirements of the standard IEC 62368-1 "Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements".

The device has been developed for use in the industrial sector or in home environments and may only be used in such environments. In environments at risk of high environmental conductivity ("high pollution degree" according to IEC 60664-1), additional measures such as installation of the device in an air-conditioned electrical cabinet may be necessary.

##### Transport, Unpacking, Installation

If the unit has been brought into the usage area from a cold environment, condensation may develop; in this case, wait until the unit has adjusted to the temperature and is completely dry before setting it up.

When unpacking & setting up, and before operating the equipment, be sure to read the information on installing the hardware and the specifications of the device. These include, for example, dimensions, electrical characteristics, or necessary environmental conditions.

Fire safety standards must be upheld with the device in its installed state.

The device must not be damaged in any way when mounting it. In particular, holes must not be drilled into the housing.

The device must be protected against mechanical & physical stresses such as vibration or shock.



#### Connecting Data Cables

Do not connect or disconnect data cables during a thunderstorm, as doing so presents a risk in the event of a lightning strike.

The device cables must be connected or disconnected in the order specified in the user documentation for the device. Cables should always be held by the connector body when connecting or disconnecting them. Never pull a connector out by pulling on the cable. Doing so may cause the plug to be detached from the cable or cause damage to the plug itself.

Cables must be installed so that they do not represent a health & safety hazard (e.g., tripping) and are not at risk of damage (e.g., kinks).

### 3.4 Cleaning and Care



#### **ATTENTION!**

Never clean the device using liquids! Water ingress is a significant safety risk for the user (e.g., electric shock).

Liquids can cause irreparable damage to the electronics of the device! The ingress of liquids into the device chassis may cause short circuits in the electronic circuitry.

Only clean with a soft, dry cloth. Never use solvents or cleaners.

## 3.5 Return of Electrical and Electronic Equipment



### ATTENTION!

**WEEE Directive on Waste Electrical and Electronic Equipment 2012/19/EU**  
(WEEE Waste Electrical and Electronic Equipment)

#### Waste Separation

Product Category: According to the device types listed in Annex I of the WEEE Directive, this product is classified as "IT and Telecommunications Equipment".



This product satisfies the labeling requirements of the WEEE Directive. The product symbol on the left indicates that this electronic product must not be disposed of in domestic waste.

#### Return and Collection Systems

When disposing of your old equipment, please use the national return or collection systems available to you. Alternatively, you may contact Meinberg, who will provide further assistance.

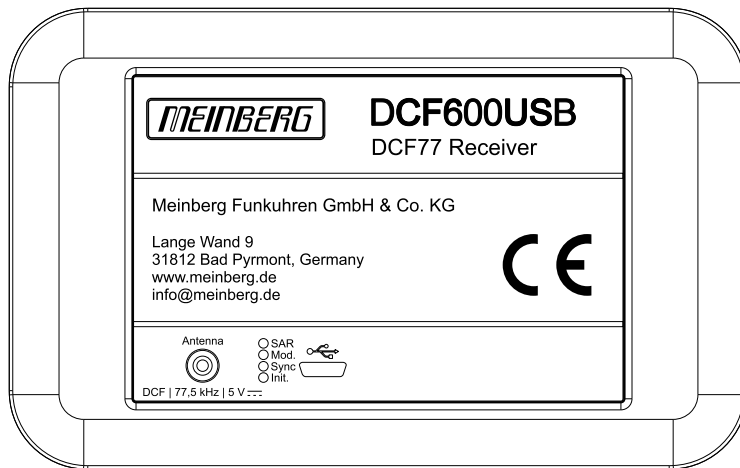
The return of electronic waste may not be accepted if the device is soiled or contaminated in such a way that it potentially presents a risk to human health or safety.

#### Return of Used Batteries

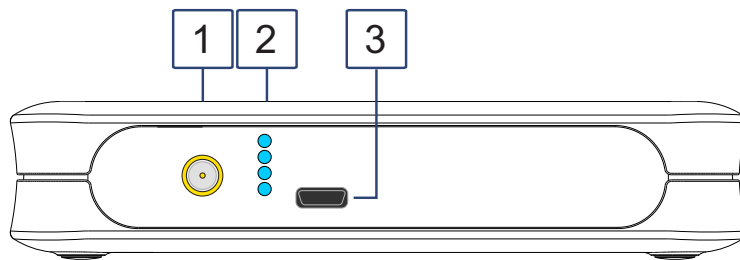
The EU Battery Directive prohibits the disposal of batteries marked with the WEEE trashcan symbol above in household waste.

## 4 DCF600USB: Connectors and LEDs

Top View

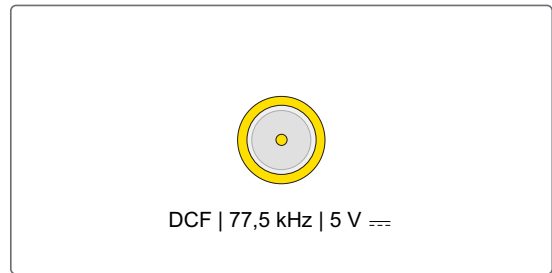


Side View



## 4.1 Antenna Input: DCF77 Reference Clock

Receiver Type:	Narrowband direct receiver with gain control for optimized processing of a DCF77 signal
Reception Frequency:	77.5 kHz
Bandwidth:	Approx. 40 Hz
Impedance:	50 $\Omega$
Signal Level:	50 $\mu$ V–5 mV
Supply Voltage:	3.5 V–5 V
Connector Type:	SMB, Male
Cable Type:	Coaxial Cable, Shielded
Cable Length:	Typically 300 m with RG58 Coaxial Cable



### WARNING!

Do not work on the antenna system during thunderstorms!



### Danger of death from electric shock!

- Do not carry out any work on the antenna system or the antenna cable if there is a risk of lightning strike.
- Do not carry out any work on the antenna system if it is not possible to maintain the prescribed safe distance to exposed lines and electrical substations.

## 4.2 Status LEDs

### Status Indicators

"SAR" LED:	Sync After Reset
"Mod." LED:	DCF Signal Reception
"Sync" LED:	Synchronization Status
"Init" LED:	Initialization Status

The LEDs are used to signal the following status conditions:

#### SAR:

Red: DCF600USB not yet synchronized after reset (or may not yet have acquired an updated time)

Green: DCF600USB synchronized after reset

#### Mod.:

Green, Flashing (once a second): DCF signal reception

#### Sync:

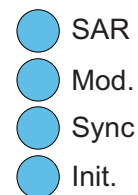
Green: DCF600USB is synchronized

Red: DCF600USB is not synchronized (clock running solely off internal oscillator)

#### Init:

Blue: During initialization process

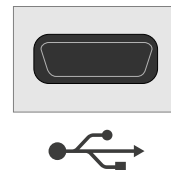
Green: Initialization successful



## 4.3 USB 2.0 High-Speed Interface

Power Supply: 5 V DC via USB

Connection Type: Micro-USB Type B



## 5 Before You Start

### 5.1 Unboxing

The DCF600USB as shipped includes the following:

1. 1 x DCF600USB
2. 1 x USB Interface Cable (USB-A - Micro-USB Type B)
3. 1 x USB Flash Drive (Driver Software and Documentation)

**Optionally:**

4. 1 x RG174 Cable (SMB Female - BNC Female)
5. 1 x AW02 Antenna

Unpack the DCF600USB carefully and place the parts to one side. Check the contents of the delivery against the enclosed packing list to ensure that no parts are missing. If any of the listed items are missing, please contact Meinberg Funkuhren.

Check that the product has not been damaged in transit. If the product is damaged or fails to operate upon set-up, contact Meinberg Funkuhren immediately. Only the recipient (the person or company receiving the system) may file claims or complaints against the forwarder for damage caused in transit.

Meinberg recommends that you keep the original packaging materials in case the product needs to be shipped again at a later date.



## 5.2 Disposal of Packaging Materials



The packaging materials we use are fully recyclable:

Material	Use for	Disposal
Cardboard	Shipping, packaging of accessories	Paper recycling
Plastic Wrapping	Shipping, packaging of accessories	Household waste or recycling depot

## 5.3 Downloading the Monitoring Utility (MbgMon)

The DCF600USB is both configured and its status monitored using the Meinberg Monitoring Utility "MbgMon".

### Windows:

MbgMon can be downloaded free of charge from the Meinberg website:

<https://www.meinbergglobal.com/english/sw/#win>

### Users of Linux-Based Operating Systems:

When using a Linux-based operating system (a "Linux distribution"), you can download the most up-to-date Linux drivers from the link below:

<https://www.meinbergglobal.com/english/sw/#linux>

## 6 Installation of the DCF77 Antenna



### WARNING!

Do not mount the antenna without an effective fall arrester!

### Danger of death from falling!

- Ensure that you work safely when installing antennas!
- Never work without an effective fall arrester!



### WARNING!

Do not work on the antenna system during thunderstorms!



### Danger of death from electric shock!

- Do not carry out any work on the antenna system or the antenna cable if there is a risk of lightning strike.
- Do not carry out any work on the antenna system if it is not possible to maintain the prescribed safe distance to exposed lines and electrical substations.

## Selection of the Antenna Location

Before installing any antenna, first consider carefully where to best position it. The location is a key factor in reception quality and thus in the availability of the DCF77 signal. If the antenna is not precisely aligned, signal reception and time accuracy will suffer as a result.

The DCF antenna must be aimed towards Mainflingen, near Frankfurt am Main, Germany, in accordance with the installation conditions provided below.

### Alignment of DCF77 Antenna

The length of the DCF77 antenna (e.g., AI01, AW02) (see **arrow direction**) should be facing the transmission tower.

#### DCF77 Antenna

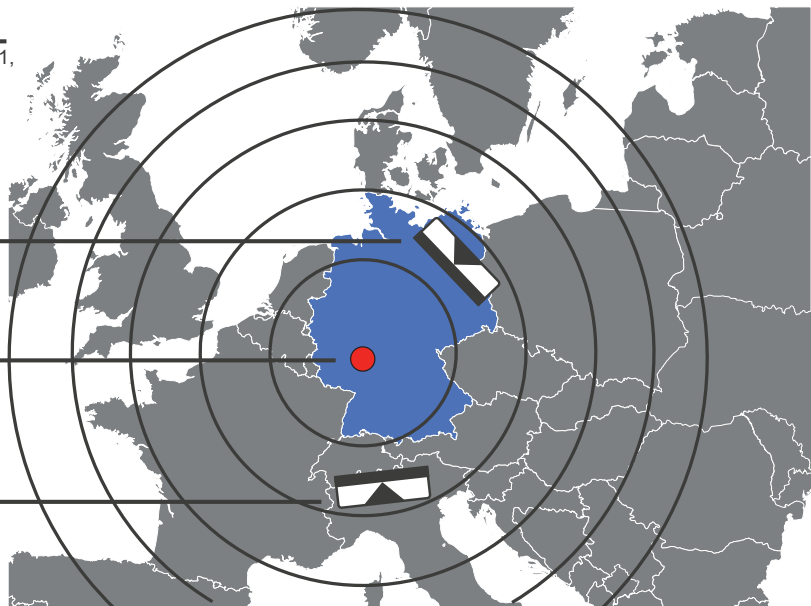
Location: Berlin

#### DCF77 Transmission Tower

Location: Mainflingen, near  
Frankfurt am Main  
Signal: DCF77 Long Wave

#### DCF77 Antenna

Location: Milan



*Illustration: Installation of a Meinberg AW02 Antenna Aligned with the DCF77 Transmitter Mast in Mainflingen, Germany (near Frankfurt am Main).*

DCF77 reception inside buildings is possible, but reception quality may be impaired by the shielding and attenuation effects of the walls.

### Factors that can impair reception:

- Installation of the antenna near metallic objects (e.g., reinforced concrete walls, metallic wall coverings, thermal insulation, glazing, etc.)
- Installation of the antenna near televisions or computer monitors
- Installation of the antenna under or near power lines

Meinberg Funkuhren recommends installing the antenna outdoors. Doing so will generally have the advantage of maximizing the distance of the antenna from sources of interference, thus improving the signal-to-noise ratio and significantly increasing the chances of successful synchronization.

### Installation conditions for optimum operation:

- The antenna should be installed horizontally
- The length of the DCF77 antenna unit should be perpendicular to the direction of the transmission tower (see example map on previous page and label on AW02 antenna)
- The antenna should be at least 30 cm away from any metal objects



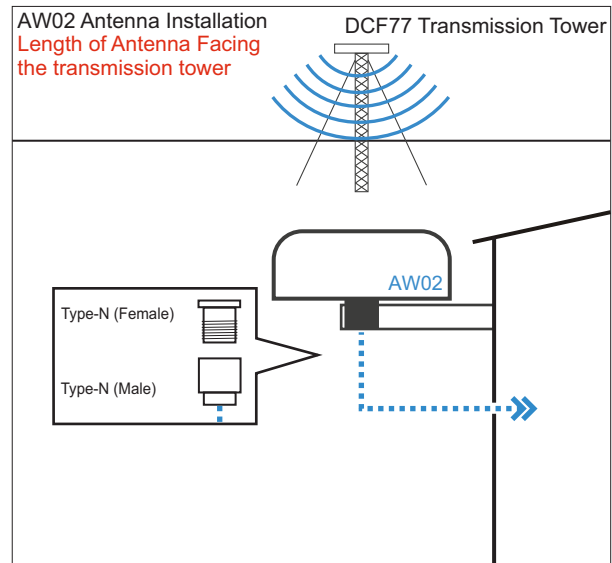
If these installation criteria cannot be met, signal reception may be impaired.

## Installation

### 1.

Mount the antenna directly onto a wall in a location in accordance with the aforementioned criteria, using the installation kit included in the delivery.

Then connect the antenna cable to the Type-N female connector of the antenna.



## Determining Reception Quality:

The DCF600USB reception quality is indicated visually by the modulation LED ("Mod."). The modulation indicator is also displayed in the management utility MbgMon (under "Mod."), which also allows a sound signal to be activated so that the signal rhythm is audible.



## Procedure for Antenna Alignment - DCF77 Antenna (AW02)

Meinberg Funkhrehn recommends that the alignment and signal reception testing be done with the assistance of a second person. An effective method for aligning and testing a long-wave antenna is to have person 1 (who is aligning the antenna) actively communicate with person 2 (who monitors the receiver).

### Step 1

Person 1 rotates the antenna until person 2 sees the "Mod" LED flash on the receiver unit (even if it is not yet flashing rhythmically every second). This determines the approximate direction.

### Step 2

Person 1 rotates the antenna slowly in an anticlockwise direction until person 2 sees that signal strength is at maximum (in MbgMon) or the "Mod" LED flashes rhythmically once a second without erratic flickering.

If no such signal can be found, the antenna should be turned slowly in a clockwise direction from the approximate direction until person 2 sees that signal strength is at maximum (in MbgMon) or the "Mod" LED flashes rhythmically once a second without erratic flickering.

Please note that a high signal level alone is no guarantee of good reception, as it can also be caused by electrical noise in the associated frequency range.

With good reception, the connected DCF reference clock will synchronize within three minutes after initialization.

Successful synchronization is signaled by the "Sync" LED turning from red to green. Reception problems are signaled by the "Sync" LED turning red again. If the clock is running off the oscillator alone for more than 12 hours, the "Sync" LED will begin to flash.

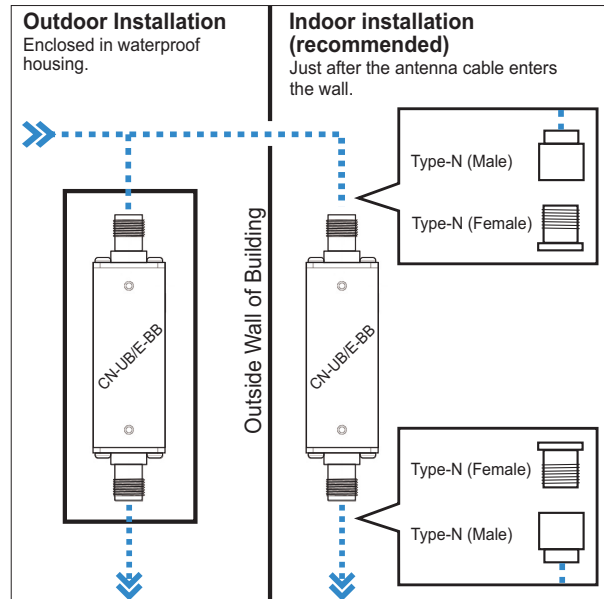


Ensure that the maximum cable length is not exceeded when laying the antenna cable between the antenna and receiver. The maximum cable length will depend on the cable type used (e.g., RG58) and its attenuation factor.

## 2.

The antenna cable may act as a conductor for voltage surges (e.g., lightning strike), which may damage your receiver. The receiver can be protected against these transient voltages by using a surge protector with a floating shield (0V potential against ground).

Before installing the surge protector, please ensure that it is also suitable for outdoor use. Meinberg recommends installing the surge protector inside the building, as close as possible to the point where the cable passes through the building exterior, in order to minimize the risk of damage from voltage surges (e.g., lightning strike).



Meinberg recommends using the [CN-UB/E-BB](#) surge protector with floating shield for coaxial cable connections from the manufacturer Phoenix Contact.



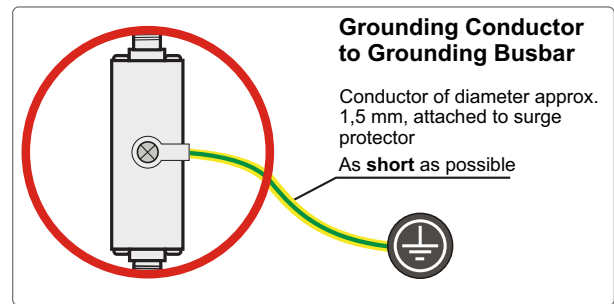
### WARNING!

When using an external antenna to synchronize the DCF600USB radio-controlled clock, please only use a surge protector with a floating shield.

3.

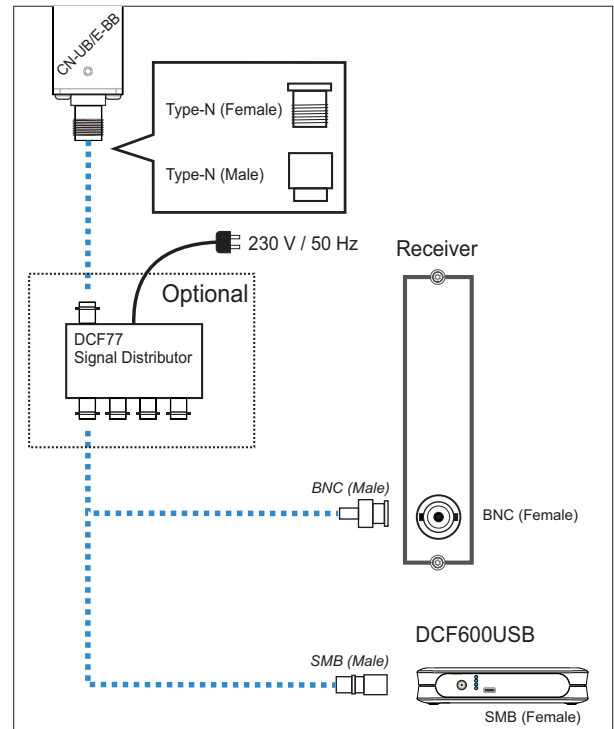
To ground the antenna cable, connect the surge protector to a grounding busbar using a grounding conductor (see illustration).

Once the grounding connection has been established, connect the other end of the antenna cable to the female connector of the surge protector.



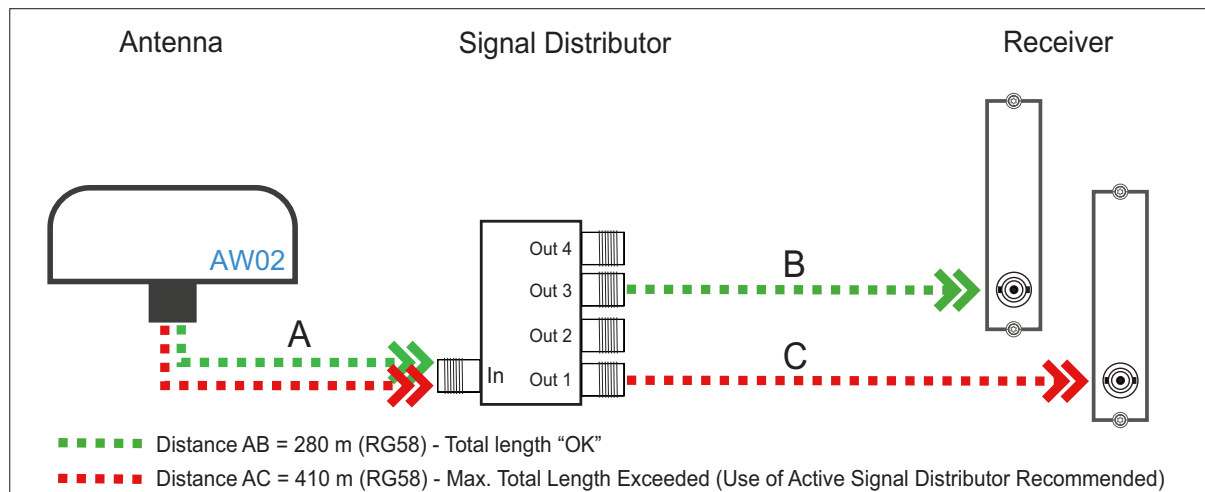
4.

The next step is to connect the supplied coaxial cable from the surge protector to the receiver.



## Optional Use of Antenna Signal Distributor

If the cable length exceeds 300 m, we recommend installing our Meinberg DCF77 AV4 signal distributor between the antenna and the receiver. This not only serves as a signal splitter to allow multiple receivers to be connected to a single antenna, but also (optionally) amplifies the signal. The signal distributor can be installed at any location between the surge protector and the receiver, and requires a 230 V / 50 Hz power supply.



## 7 System Installation

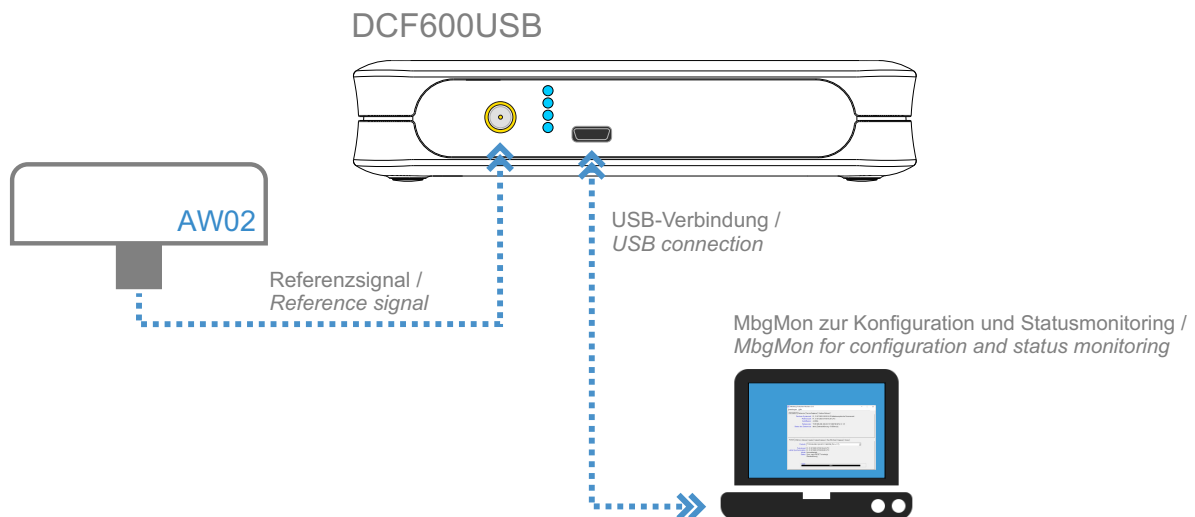
The internal DCF77 antenna enables the DCF600USB to be synchronized even without an external DCF77 antenna. However, given that indoor reception can be problematic, we do recommend connecting an external antenna. For more information, please refer to the chapter "Installation of the DCF77 Antenna".

The cables are connected as follows:

1. Once the driver software is installed, connect the (optional) DCF77 antenna to the antenna socket on the DCF600USB.
2. Using the USB cable included with the product, connect the DCF600USB to the PC to be synchronized.  
  
In addition to synchronizing the clock of the PC, this cable is also used to power the DCF600USB and as a management interface for the configuration of the device.
3. As soon as the USB connection is established, the device will begin to initialize ("Init" LED turns blue).

### Example of Usage:

The diagram below shows an example of how a DCF600USB is used to perform synchronization using a signal from a DCF77 antenna (AW02).



*Illustration: Synchronization of the DCF600USB Using a Signal from a AW02 Antenna*

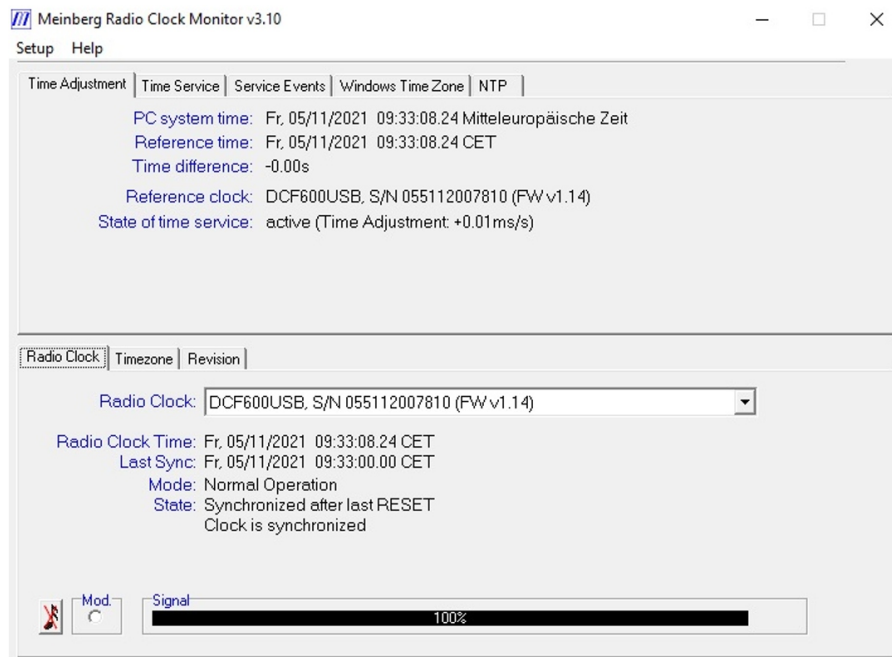
### Other Possible References:

- AI01
- BPE1060 (4x SIM77 DCF Signal)
- DCF77 Generator
- GPS165 with DCF77 SIM Out



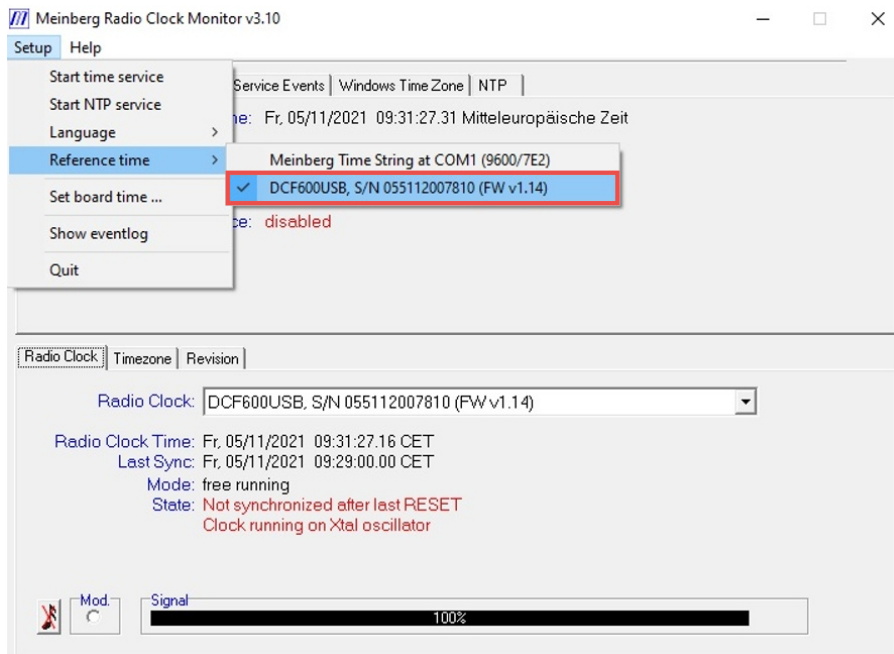
## 8 Configuration of the DCF600USB

This chapter explains how to set up a DCF600USB using the Meinberg Management Utility (MbgMon). If your computer is running Windows 7 or later, the MbgMon program must be started with elevated privileges. To do so, please right click on the program and select "Run as Administrator".



## 8.1 Configuring the DCF600USB as the Reference Clock

To ensure that the DCF600USB is selected as the clock reference for the PC that it is connected to, open the menu "Setup" -> "Reference Time" and select the product (see screenshot).



### Status Monitoring:

Status information on the selected radio-controlled clock is displayed in the lower half of the window. This information is explained below.

**Radio Clock Time:** This shows the current time of the selected radio-controlled clock.

**Last Sync:** This shows the time of the last synchronization.

Folgende Statusmeldungen werden zunächst angezeigt:

**Mode:** Free Running (reference clock is unsynchronized and running solely off the quartz oscillator)

**Status:**

**Not Synchronized After Last Reset** DCF: The radio-controlled clock has not yet synchronized since it was reset/switched on.

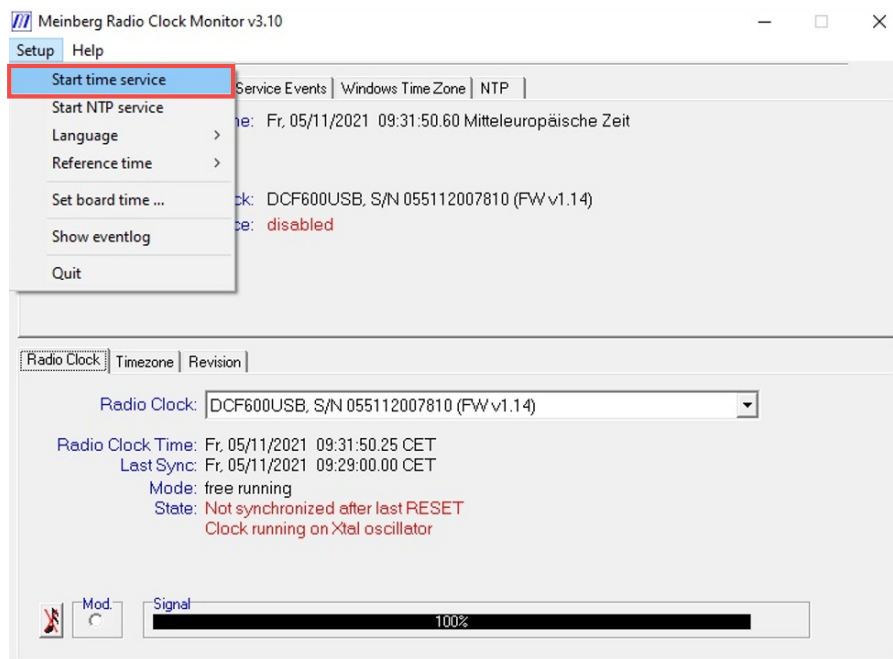
**Clock Running on Xtal Oscillator** The radio-controlled clock is not receiving a valid antenna signal and is therefore running solely off the internal oscillator. Either the antenna is not connected, the cable is damaged, or the DCF signal strength is insufficient.

Once the DCF600USB is operating normally, the following status messages will appear for DCF77 systems:

- Normal Operation
- Synchronized after last RESET
- Clock is Synchronized

## 8.2 Starting the Time Service

To use the previously selected reference source to synchronize the clock of the connected PC, go to the "Setup" menu and click on "Start Time Service".



### Status Information:

The "Time Adjustment" tab serves as a quick reference to compare the time of the PC's internal clock against the time from the resource source (e.g., DCF600USB), and specifies the current difference between these two clocks.

### Status Information:

<b>Reference Clock:</b>	Reference clock selected for PC synchronization
<b>State of Time Service:</b>	
Active	The reference clock is providing the computer with a reference time
Disabled	The time service has been disabled
Waiting for Reference Time...	The time service has been started, but there is no connection with the clock

## 9 DCF600USB Technical Specifications

<b>Receiver:</b>	Narrowband direct receiver with gain control Bandwidth approx. 40 Hz, reception possible using internal ferrite antenna or external ferrite antenna
<b>Modulation:</b>	Demodulation of time markers indicated by "Mod." LED
<b>Data Integrity Checks:</b>	Multiple checks of string received from transmitter, additional plausibility check using two complete strings Reception problems indicated by "Sync" LED and status bit
<b>Loss of Sync:</b>	Automatic switch to holdover mode using internal quartz oscillator Precision of quartz oscillator: $1 \cdot 10^{-6}$ , assuming that decoder was previously synchronized for at least an hour
<b>Power Reserve:</b>	Gold Cap Capacitor If the power supply is cut off (PC switched off or USB cable disconnected), the hardware clock will continue to run off the internal quartz oscillator for around 140 hours.
<b>Operational Safety:</b>	A hardware watchdog will trigger a safe reset in the event of undervoltage. A software watchdog also monitors the program events and will trigger a reset in the event of a malfunction.
<b>Interface:</b>	Universal Serial Bus (USB) V 2.0
<b>Configurable Timezones:</b>	CET/CEST (Standard), always CET (no adjustment for Daylight Saving Time), UTC, Eastern European Time (CET/CEST + 1h)
<b>Power Supply:</b>	Over USB: +5 V, 140 mA
<b>Housing Dimensions:</b>	73 mm x 117 mm x 24 mm (L x W x H)
<b>Operating Temperature:</b>	0–50 °C
<b>Air Humidity:</b>	Max. 85 %

## 10 We Care About Your Opinion

This user manual is intended to assist you in the preparation, use, and care of your Meinberg product, and provides important information for configuration and status monitoring.

Be a part in the ongoing improvement of the information contained in this manual. Please contact our technical support if you have any suggestions for improvements or technical questions that are relevant to the manual.

### **Meinberg – Technical Support**

Phone: +49 (0) 5281 – 9309- 888  
E-Mail: [techsupport@meinberg.de](mailto:techsupport@meinberg.de)

# 11 RoHS and WEEE

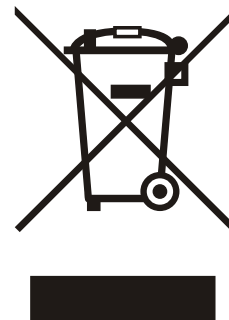
## Compliance with EU Directive 2011/65/EU (RoHS)

We hereby declare that this product is compliant with the European Union Directive 2011/65/EU and its delegated directive 2015/863/EU "Restrictions of Hazardous Substances in Electrical and Electronic Equipment". We ensure that electrical and electronic products sold in the EU do not contain lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs), bis(2-ethylhexyl)phthalat (DEHP), benzyl butyl phthalate (BBP), dibutyl phthalate (DBP), or diisobutyl phthalate (DIBP) above the legal limits.



## WEEE status of the 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 must 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.



# 12 Declaration of Conformity

## Konformitätserklärung

Doc ID: -November 29, 2021

**Hersteller** Meinberg Funkuhren GmbH & Co. KG  
*Manufacturer* Lange Wand 9, D-31812 Bad Pyrmont

erklärt in alleiniger Verantwortung, dass das Produkt,  
*declares under its sole responsibility, that the product*

**Produktbezeichnung** DCF600USB  
*Product Designation*

auf das sich diese Erklärung bezieht, mit den folgenden Normen und Richtlinien übereinstimmt:  
*to which this declaration relates is in conformity with the following standards and provisions of the directives:*

EMV – Richtlinie	DIN EN 61000-6-2:2019
<i>EMC Directive</i>	DIN EN 61000-6-3:2007 + A1:2011
	DIN EN 55032:2015
2014/30/EU	DIN EN 55024:2010 + A1:2015

Niederspannungsrichtlinie	DIN EN 62368-1:2014 + A11:2017
<i>Low-voltage Directive</i>	
2014/35/EU	

RoHS – Richtlinie	DIN EN IEC 63000:2018
<i>RoHS Directive</i>	
2011/65/EU + 2015/863/EU	

Bad Pyrmont, November 29, 2021

  
Stephan Meinberg  
Production Manager