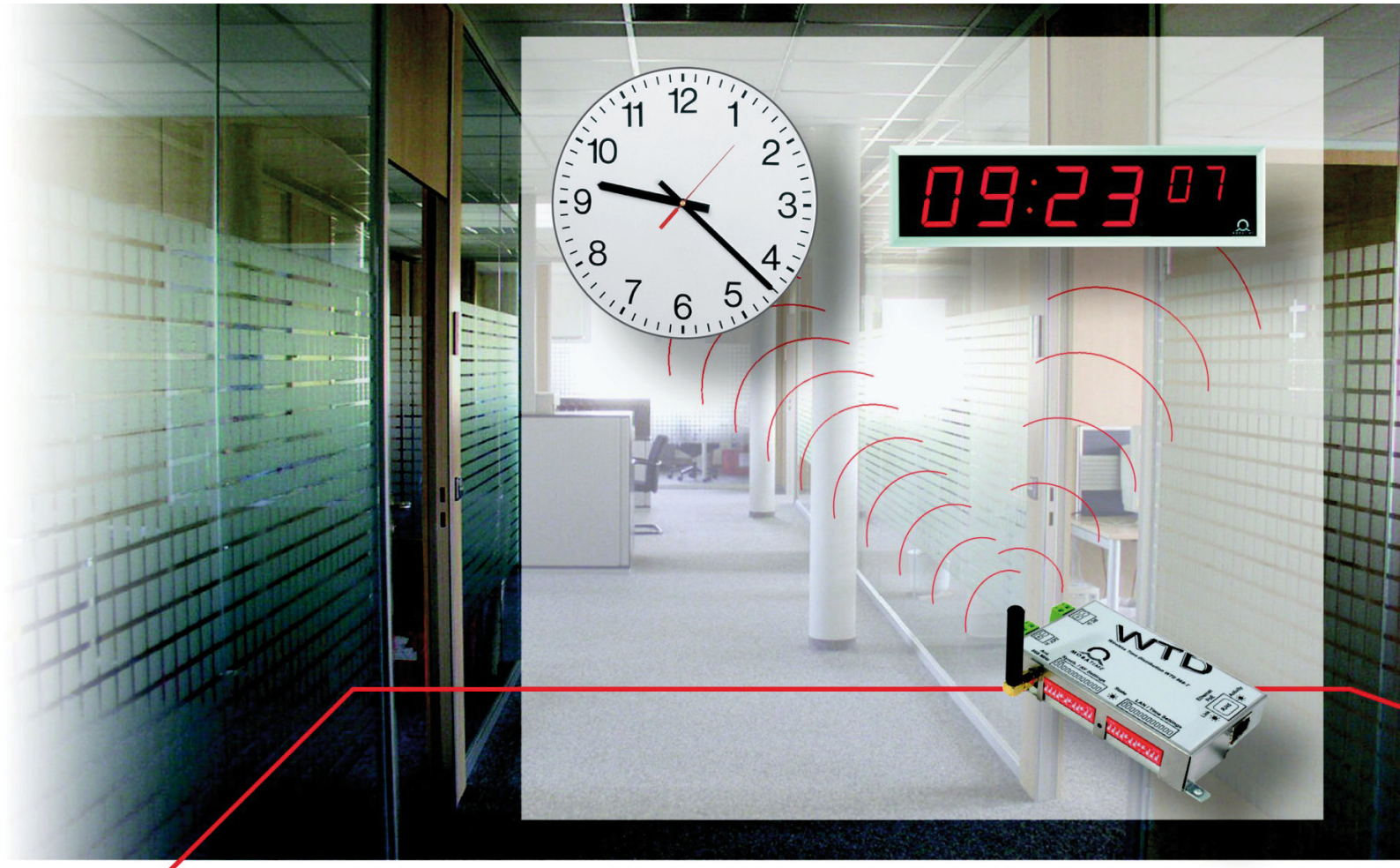


Wireless time distribution for digital and analog radio slave clocks (frequency band 868 MHz)

Wireless Time Distribution - WTD

The innovative radio clock system is based on a transmitter which sends the time signal to the devices (i.e. clocks). The end devices are equipped with a WTD movement or with a special WTD receiver module. The WTD transmitter is synchronized either by a standard master clock, by a modern NTP time server or by a GPS or DCF77 receiver directly.

Advantages:

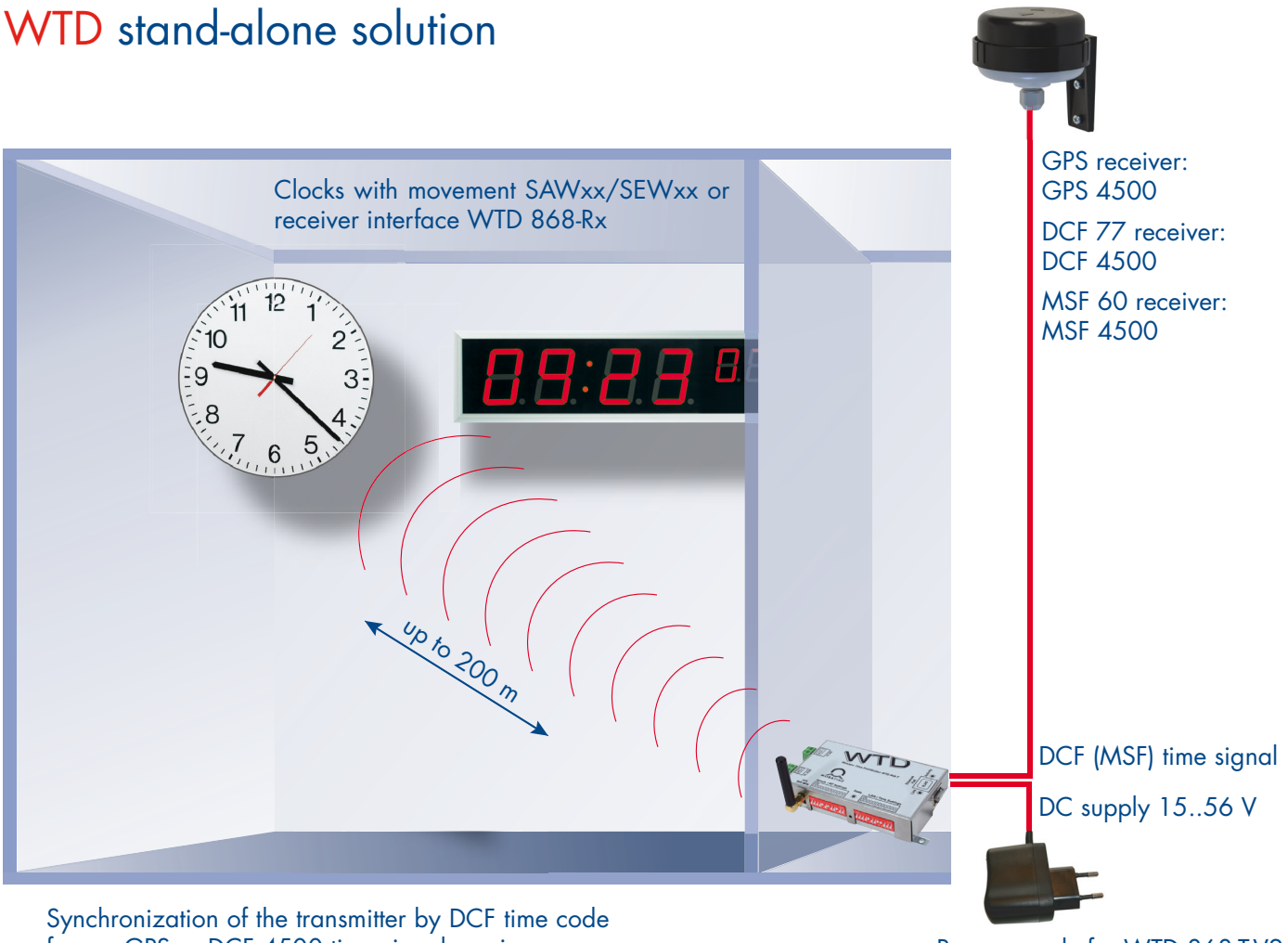
- Flexibility in clock installation and realization of clock systems
- No cabling as wireless synchronization
- Distribution over large distances (up to 200 m, depending on building structure), extension by repeater possible
- Compatible to AFNOR NFS 87500 standard

Wireless Time Distribution - WTD

The new dimension of time distribution technology offers

- High flexibility for realizing new time systems or the extension of existing clock systems in a convenient way
- Simple and economic installation - therefore, essential cost savings
- High reliability in time synchronization over distances of up to 200 m
- Versatile application e.g. in historic buildings under monument protection, low cost wireless installation for small clock systems e.g. in schools, simple retrofitting of existing clock systems in buildings and open-plan offices, extension of existing wired clock systems
- The WTD transmitter can be easily integrated in cable ducts (plastic)
- Use of unlimited number of slave clocks within the range of a transmitter

WTD stand-alone solution



Synchronization of the transmitter by DCF time code from a GPS or DCF 4500 time signal receiver.

Power supply for WTD 868-T-V2

Transmitter WTD 868-T-V2

Two possibilities of synchronization

- DCF current loop time code from a MOBATIME master clock (ETC, CTC, DTS etc. with DCF output) or radio receiver (DCF 4500 or GPS 4500)
- From Ethernet, by Network Time Protocol NTP (Multicast)

Power supply

- External DC power supply 15 - 56 V (e.g. from a MOBATIME master clock with DC output)
- PoE (Power over Ethernet) supply over Ethernet cabling from a PoE switch

Automatic calculation of local time

- One entry from 64 predefined time zones can be selected by DIP switches
- One entry of 15 time zones, received from a time zone server (e.g. DTS 480x.masterclock), can be selected

Selectable transmission power

125 mW and 500 mW (for large distances)

Service & Maintenance

The transmitter is able to force a stop at 12 o'clock position for analog MOBATIME movements (e.g. for maintenance reasons, to check the correct mounting of the hands and the correct radio reception).

Receiver interface WTD 868-Rx

Synchronization

Reception of the time information on the 868 MHz radio frequency.

Two variants of time code output

- WTD 868-RM: MOBALine time code
- WTD 868-RD: DCF time code (current loop)

All MOBALine or DCF controlled analog and digital clocks for in- and outdoor use can be equipped with WTD 868-Rx interfaces.

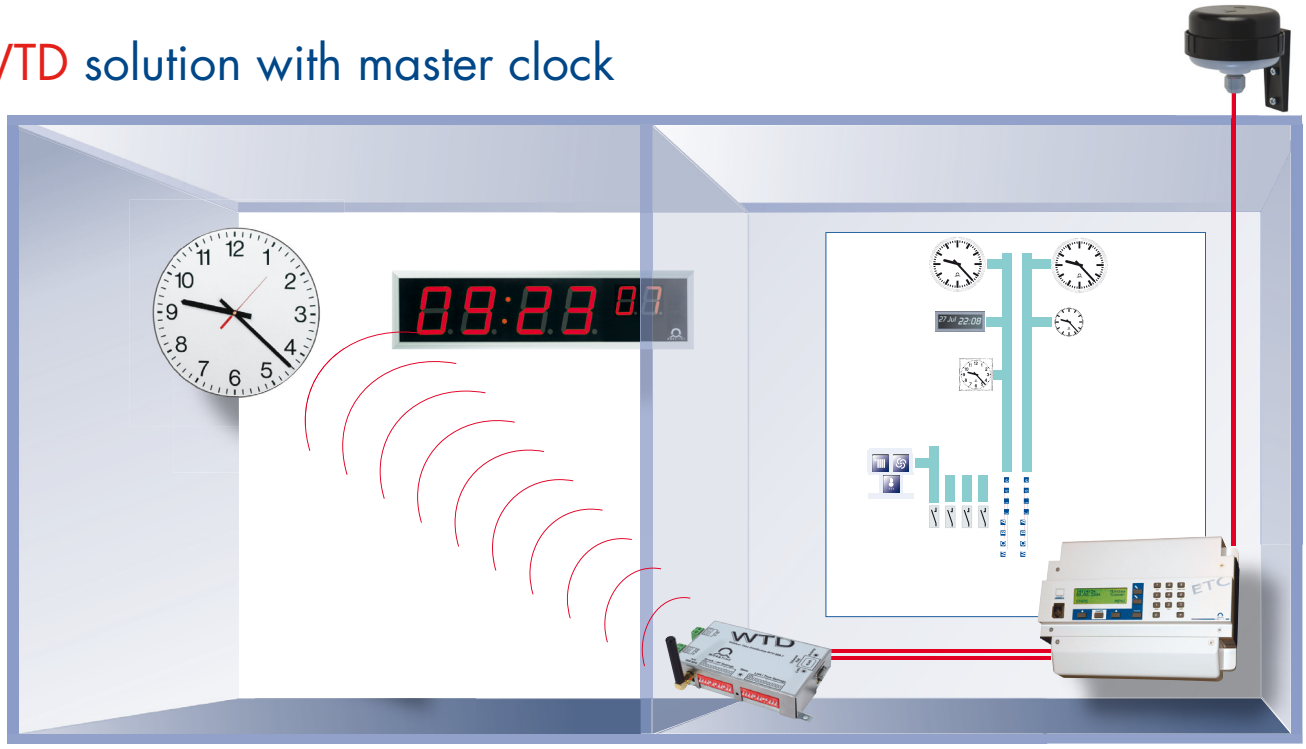
Power supply

10 V - 30 VDC from slave clock or through external power supply.

Movements SAW xx / SEW xx

A large range of analog indoor clocks of the ECO and FLEX series (Ø 25 and 30 cm) with SAW xx / SEW xx radio movement are capable of receiving direct time information based on time code AFNOR NFS 87500. They are battery powered (optional mains powered) and can therefore be used in many kinds of applications.

WTD solution with master clock

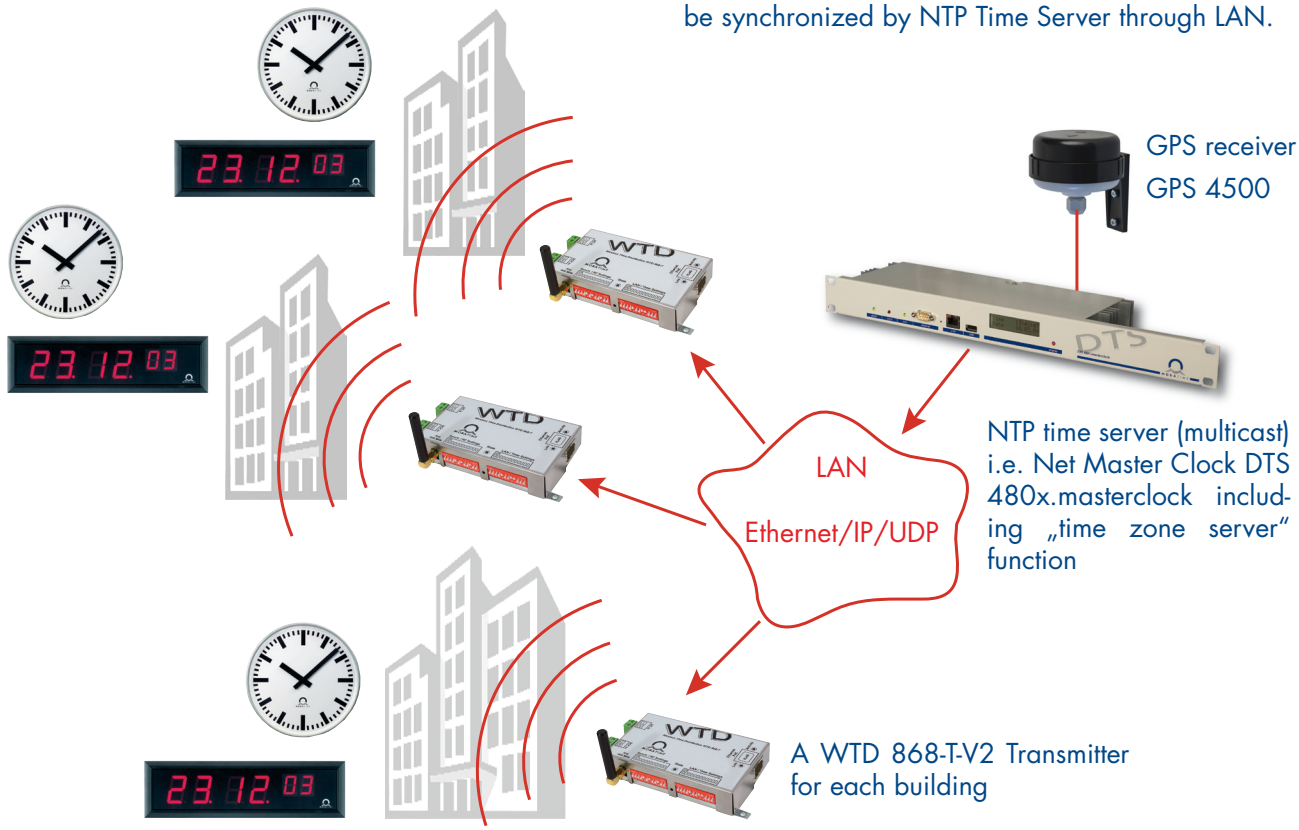


Synchronization of the transmitter by a master clock via DCF current loop and DC power supply from a master clock.

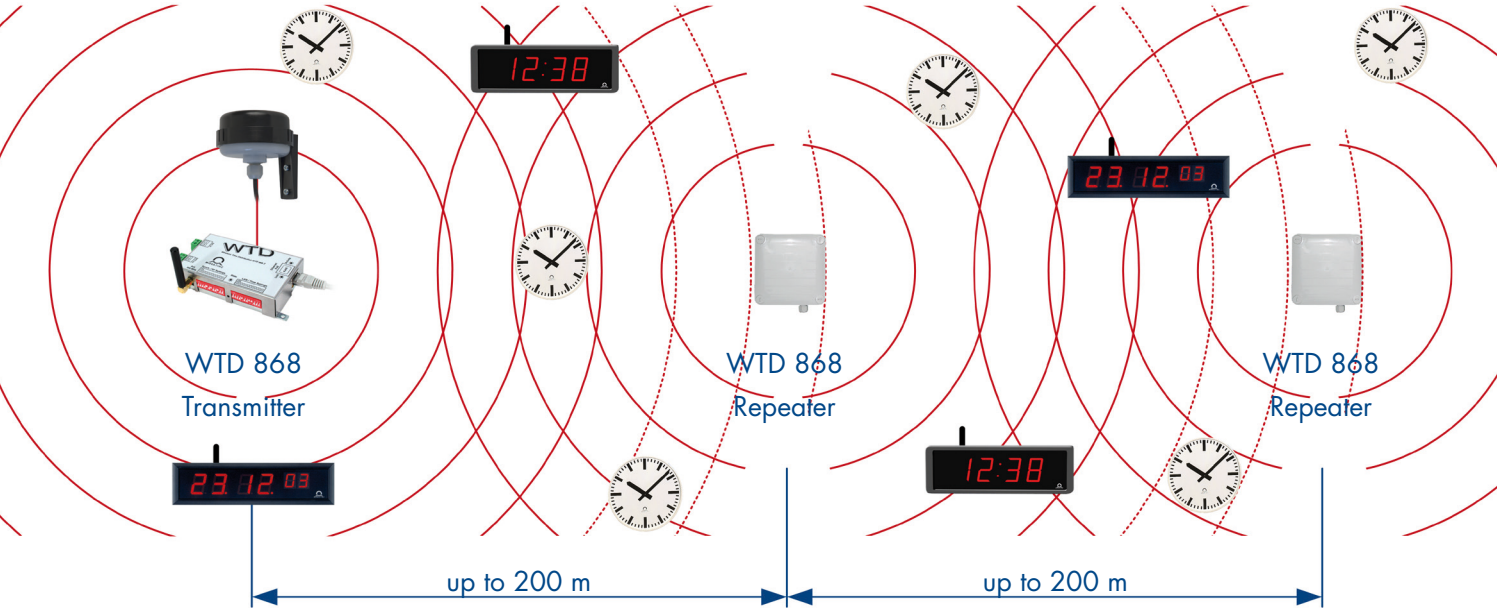
Extension of existing master clock systems: master clock, e.g. Euro Time Center ETC to control conventional slave clocks and switching functions e.g. in the building technology.

Extension of WTD system through LAN

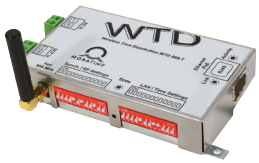
An unlimited number of WTD 868-Transmitters can be synchronized by NTP Time Server through LAN.



Extension of a WTD system with repeaters



Available WTD Products



Transmitter WTD 868-T-V2
Input: NTP, DCF, GPS
Output: Radio transmitted time code (868 MHz)

WTD Repeater
Input: Time code from a WTD 868-Transmitter
Output: Radio transmitted time code (868 MHz)

Receiver Interface WTD 868-RM or WTD 868-RD
Input: Time code from a WTD 868-Transmitter or Repeater
Output: - RM: MOBALine
- RD: DCF

Power supply for WTD 868-T-V2
Input: 100 - 240 VAC 50/60 Hz
Output: 24 VDC, 300 mA

DC 57, 100 & 180
Digital indoor clocks equipped either with built-in WTD receiver or with external WTD 868-RM receiver interface.

DK 57
Indoor calendar clocks equipped with external WTD 868-RM receiver interface.

METROLINE outdoor slave clocks for WTD
With built in WTD 868-RM receiver interface.

PROFILINE outdoor slave clocks for WTD
With build in WTD 868-RM receiver interface.

ECO slave clocks for WTD
With WTD movements SAWxx, SEWxx (battery powered) or SEWxx MPS (mains powered), available up to Ø 30 cm.

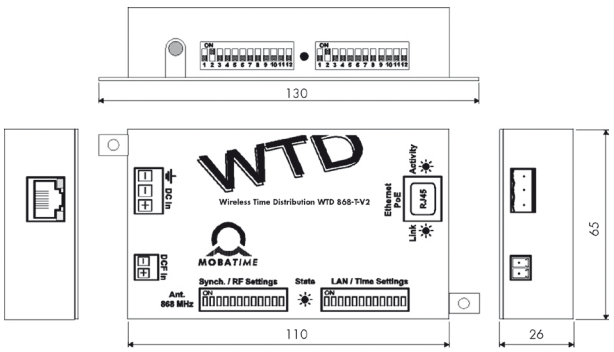
Clock dials for ECO clocks
Only type 200 and 210 are available with defined hands especially for SAW/SEW movements.

FLEX slave clocks for WTD
With WTD movements SAWxx, SEWxx (battery powered) or SEWxx MPS (mains powered), available up to Ø 30 cm.

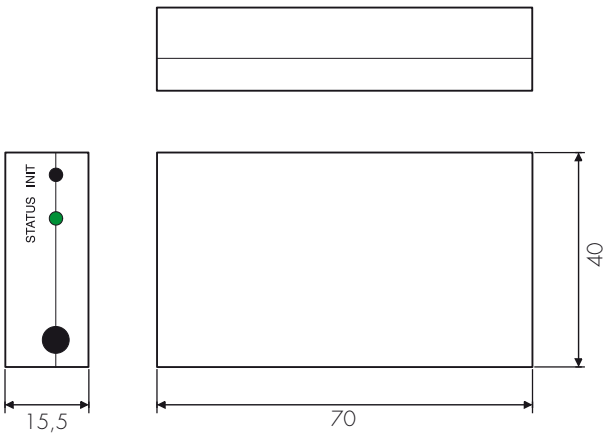
Clock dials for FLEX clocks
Only type 200 and 210 are available with defined hands especially for SAW/SEW movements.

Technical Data

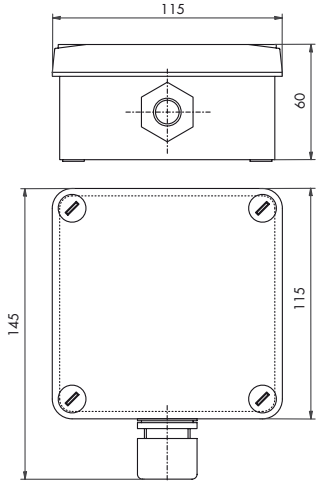
WTD 868-T-V2



WTD 868-Rx



WTD Repeater



WTD 868-T-V2 (Transmitter)	Item no. 205030
Transmitter	Center frequency: 869.525 MHz / Bandwidth: 100 kHz / Modulation: FSK, ± 25 kHz Transmission power (2 steps): 125 mW or 500 mW
Synchronization	- From LAN by Network Time Protocol (NTP, UTC) - Synchronization input (active current loop) for synchronization with DCF (UTC) or MSF time code either from a master clock or from GPS or radio receiver
Ethernet connection	Ethernet controller 10 MBit/s Mod-Jack RJ45 with integrated LED
Power supply	DC input: 15 - 56 VDC or PoE: 48 V (Phantom/Pins 4,5 and 7,8) Screw terminal (DC In plug) with earth connection
Current consumption	< 100 mA @ 48 V / < 300 mA @ 15 V
Antenna	SMA connector (female) for antenna
Time keeping	1 h autonomously running on quartz base
Accuracy	± 20 ms (synchronized)
Range	up to 200 m (depending on building structure)
Configuration	2 x 12 DIP switches
LED indicators	Status, LAN link, LAN activity
Ambient temperature	0 - 50 °C, 10 - 90 % relative humidity, without condensation
Case	Stainless steel, hanger for wall mounting
Dimensions	130 x 65 x 25 mm (L x W x H), weight: approx. 300 g

WTD 868-Rx (Receiver interface)	Item no. RM: 202841 RD: 202842
Time code output	WTD 868-RM: MOBALine, local time, 20 mA max. WTD 868-RD: DCF 77, local time Passive current loop, optocoupler: U_{min} = 5 V, U_{max} = 30 V, I_{on} = 10 - 15 mA, I_{off} = 2 mA @ 20 V
Control elements	Initialization key: Key pressed < 5 s: Show operation state (status LED) Key pressed > 5 s: Start initialization mode
LED indicators	Green status LED
Power supply	10 V - 30 V DC, 25 mA, galvanic separation from time code output (voltage input depends on necessary voltage output)
Antenna	Integrated antenna
Time keeping	1 h autonomously running on quartz base
Accuracy	± 50 ms (synchronized)
Ambient temperature	-20 - +70 °C
Case	Plastic, black, mounting with Velcro strip
Dimensions	70 x 40 x 15 mm (L x W x H), weight: approx. 80 g
Connections	Black connection cable, 0.5 m, 4 x 0.25 mm²

WTD Repeater	Item no. 701756
Transmitter	Adjustable transmission power: max. 500 mW
LED indicators	1 LED for init. mode, 2 LED's for transmission power
Power supply	100 - 240 VAC 50/60 Hz (power cable not included)
Current consumption	< 50 mA
Antenna	Integrated antenna
Accuracy	± 20 ms (synchronized)
Range	up to 200 m (depending on building structure)
Configuration	2 DIP switches for transmission power, jumper for init. mode
Ambient temperature	0 - 50 °C, 10 - 90 % relative humidity, without condensation
Case	Plastic, white
Dimensions	145 x 115 x 60 mm (L x W x H), weight: approx. 300 g