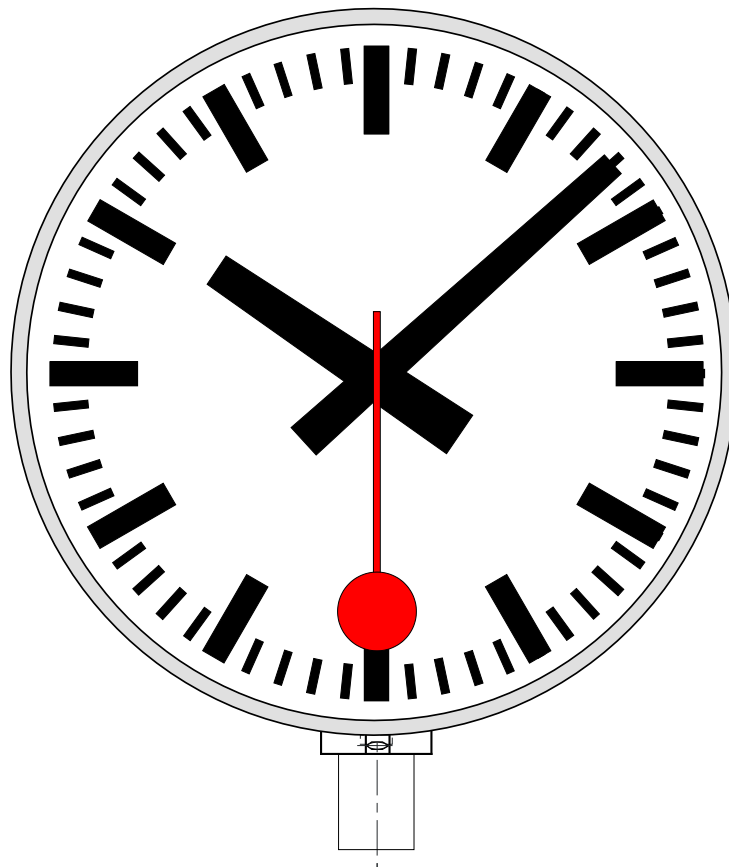


# Installation instruction

## METRO – Outdoor clock, round, single- and double-sided, with or without LED – Illumination

Before installation of the clock please read the manual carefully.



## References to the Instruction Manual

1. The information in this Instruction Manual can be changed at any time without previous notice.
2. This Instruction Manual has been composed with utmost care, in order to explain all details in respect of the operation of the product. Should you, nevertheless, have questions or discover errors in this Manual, please contact us.
3. We do not answer for direct or indirect damages, which could occur, when using this Manual
4. Please read the instructions carefully and start the setting-up of the product, only once you have correctly understood all information for the installation and of the operation.
- 5. The installation must only be carried out by skilled staff.**
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# 1 Electrical connections

## 1.1 The main power

In the clock there is a cable fixation for the main power cable available. The power earth has to be connected to the specially marked (PE) connection point.

There is a plug-in spring terminal available for the power line and the neutral wires. The wires must be stripped 8 – 9 mm and can be inserted after pushing (opening) the terminal with operation tool.

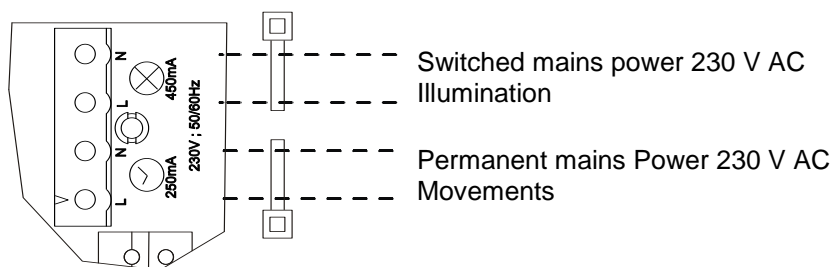


### Attention:

**For all maintenance and cabling work, the clock has to be completely separated from mains! Always use the same power phase with only one fuse for illumination and movement (nom. 230 V AC).**

Use the cable straps to fix the mains power cables for illumination and movement (pull relief).

### Detail of mains connection on PCB:



## 1.2 Internal connections

### Single-sided clocks

- |  |               | Documents          |
|--|---------------|--------------------|
| - <b>Slave clocks for MOBALine</b>                           | <b>page 9</b> | <b>BE – 800565</b> |
| Movement codes M04 or M12                                    |               | <b>BE – 800642</b> |
| Connection diagram with movements MLU 190t or MLU 190t S 230 |               |                    |
| - <b>Slave clocks for DCF- 77 time code and mains power</b>  | <b>page 9</b> | <b>BE – 800602</b> |
| Movement codes R04   |               |                    |
| Connection diagram with movement BU 190t S 230               |               |                    |
| - <b>Slave clocks for GPS time code and mains power</b>      | <b>page 9</b> | <b>BE – 800602</b> |
| Movement codes R63   |               |                    |
| Connection diagram with movement BU 190t S 230               |               |                    |

### Double-sided clocks

- |  |                |                    |
|--|----------------|--------------------|
| - <b>Slave clocks for MOBALine</b>                           | <b>page 10</b> | <b>BE – 800565</b> |
| Movement codes M04 or M12                                    |                | <b>BE – 800642</b> |
| Connection diagram with movements MLU 190t or MLU 190t S 230 |                |                    |
| - <b>Slave clocks for DCF- 77 time code and mains power</b>  | <b>page 10</b> | <b>BE – 800602</b> |
| Movement codes R04   |                |                    |
| Connection diagram with movement BU 190t S 230               |                |                    |
| - <b>Slave clocks for GPS time code and mains power</b>      | <b>page 11</b> | <b>BE – 800602</b> |
| Movement codes R63   |                |                    |
| Connection diagram with movement BU 190t S 230               |                |                    |

The clocks are completely cabled. Do not modify any internal cable connections in the clock.  
Do not exchange any wires connected to the terminals.

## 2 Set clock to correct time

### 2.1 Self-setting clocks

#### **BU 190t xxx, MLU 190t xxx:**

No time settings needed, clock will set up automatically to current time.

Movements are set by factory to standard run mode (DIP switch for 12:00 position in OFF position).

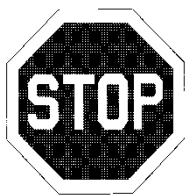
If a clock does not run to correct time, set 12:00 position DIP switch to ON and check, if the hands are stopping at 12:00 position exactly (if not, remove the clock hands and fix them exactly at 12:00 position).

Correct time and guaranteed time and power reserve, as well as precision of the clock can only be guaranteed after 2-3 days of working.

For further information read the documentation of respective movements (see chapter 1.2).

### 3 Relacement of the LED illumination

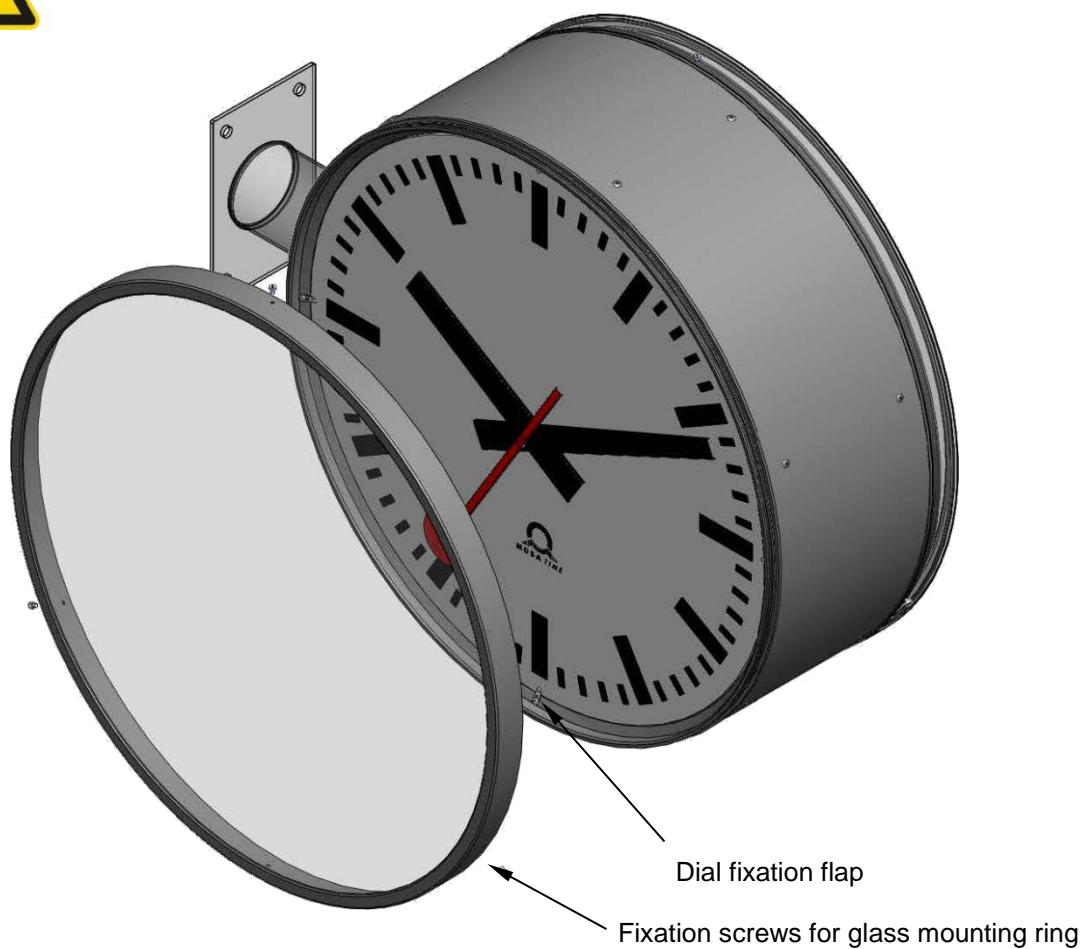
#### 3.1 Open clock



For all maintenance and cabling work, the clock has to be separated from mains!



For safety reasons avoid to look directly into the LEDs.



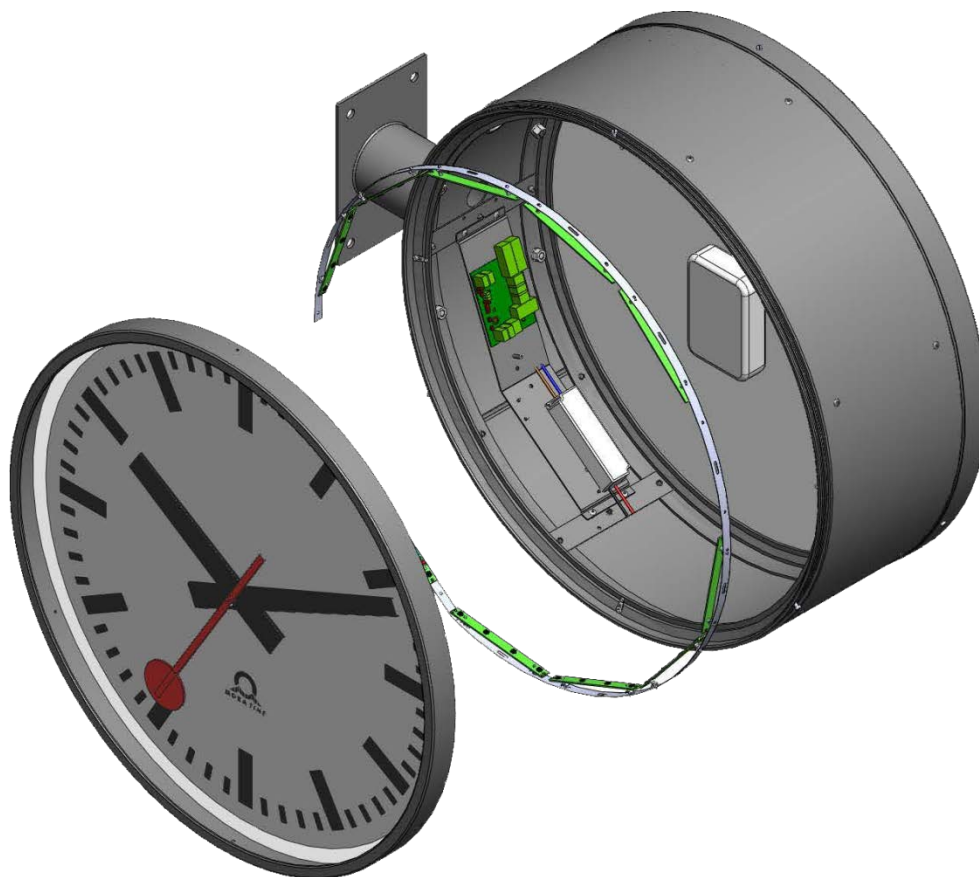
1. Unscrew the 3 screws of the glass ring, pull of the glass ring with the glass and deposit it carefully.
2. Untighten and turn the dial fixation flaps. Carefully pull the dial together with the movement out from clock housing und disconnect the electrical terminals from the clock movement.
3. Remove dial.

### 3.2 Exchange of LED illumination band

In case the LED illumination breaks down, the illumination band can be exchanged.

Step by step procedure:

1. Unplug the connector to the illumination.
2. Remove fixation screws of the illumination band.
3. Insert new illumination band and fix it with the screws
4. Plug in the connector to the illumination.



Illuminationband for single-sided clock				Illuminationband for double-sided clock			
Dial Ø	500	600	800	Dial Ø	500	600	800
Order number	204382	204383	204384	Order number	204382	204383	204384

### 3.3 Uhr schliessen

1. Connect the electrical terminal(s) to the movement (time signal, power).
2. Put the dial to the correct position.
3. Turn the dial fixation flaps and tighten all four screws.
4. Pull the glass ring with the glass carefully over the housing frame and fix the ring with the 3 screws.

**Check, that the cables do not affect the clock illumination with shadows on the dials.**

### 3.4 Cleaning

Clean Glass with a humid cloth. Do not use solvent, evaporating or organic detergent.

## 4 Significant Documents

Movement MLU 190t:	BE – 800565
Movement MLU 190t S 230:	BE – 800642
Movement BU 190t S 230:	BE – 800602
DCF 4500:	TE – 800537
GPS 4500:	TE – 800348



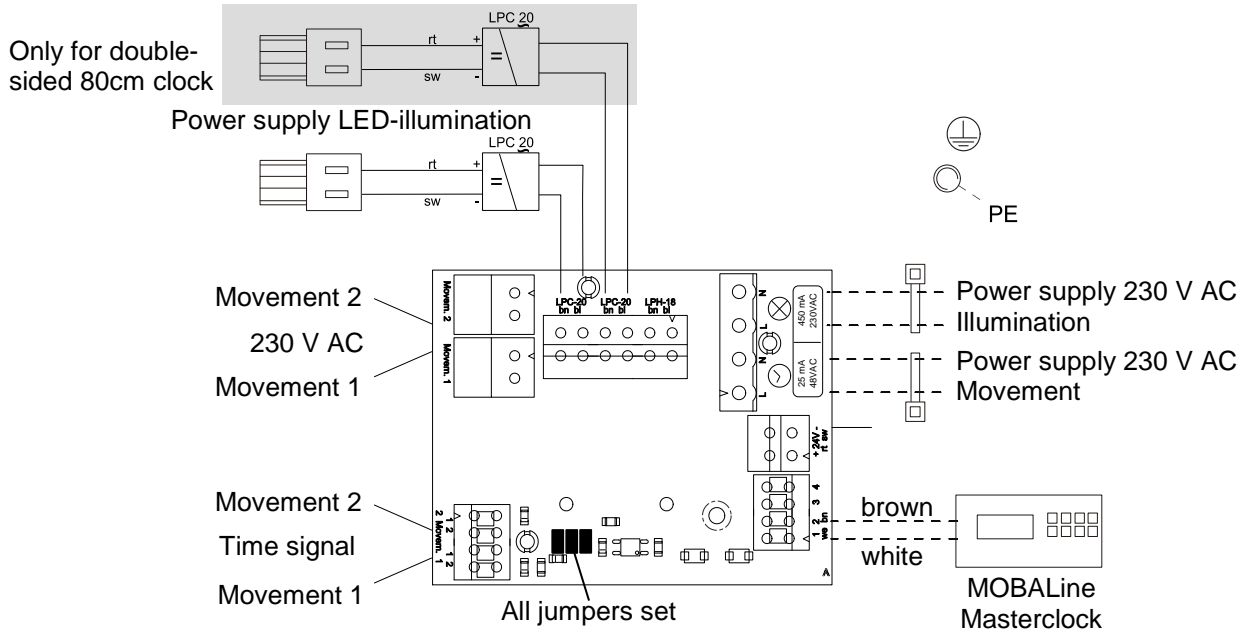


## 6 Connection diagrams (double-sided clocks)

Shown are only the connection diagrams for illuminated clock models.

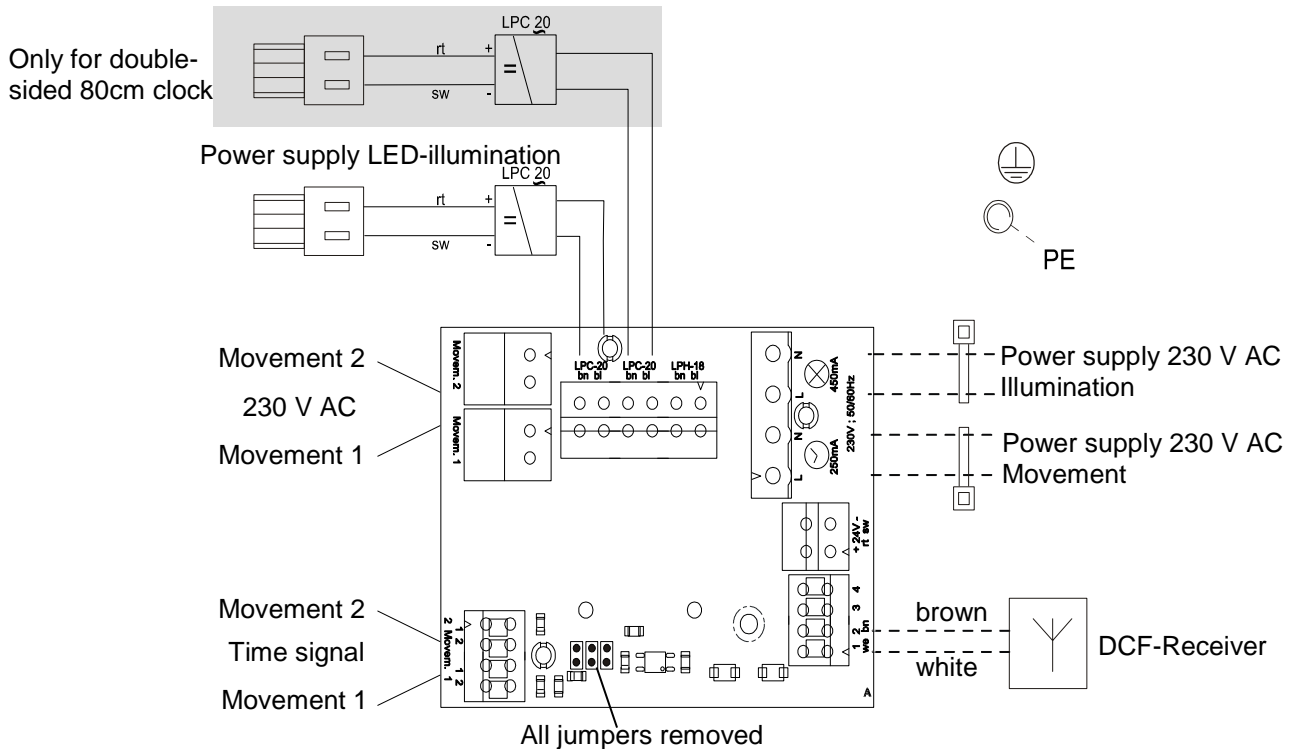
### 6.1 Slave clock for MOBALine (MOBALine only or 230V – power supply)

Connection diagram MLU 190t (M04), MLU 190t S 230 (M12)



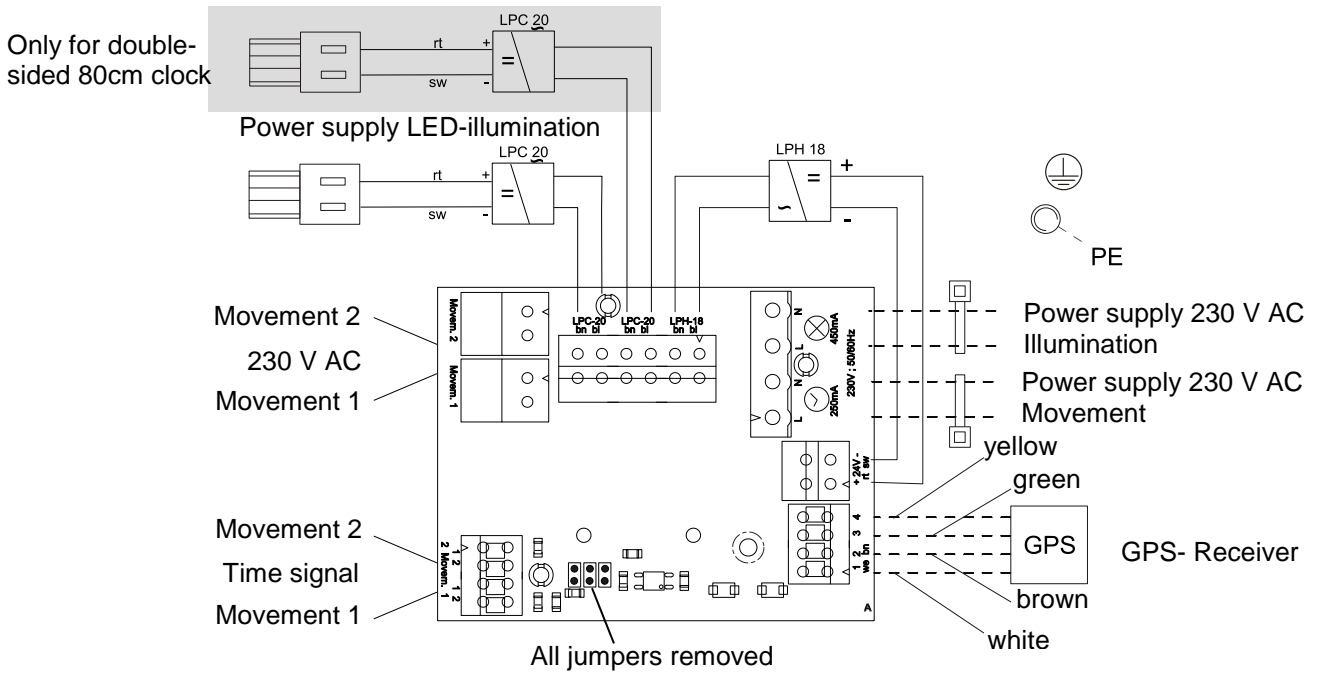
### 6.2 Slave clock for DCF – reception

Connection diagram BU 190t S 230 (R04)



### 6.3 Slave clock for GPS – reception

Connection diagram BU 190t S 230 + GPS 4500 (R63)



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