Installation Instructions for the Digital Clock Series C 210

Switching on the clock

Switch on the clock by means of the slide switch on the reverse side. All segments are now visible in the display for a short moment. The clock switches automatically to radio reception (standard setting) for a maximum of 20 minutes. A constant blinking – in seconds - of the radio waves at the radio tower symbol (top right in the display) indicates the reception of radio impulses. The radio tower remains visible in case of **satisfying reception**, in case of poor reception it disappears. Thereby you can always control the quality of the radio signal in each individual location. The clock requires 3 minutes of proper reception to indicate time and date.

What to do in case of radio interference

Sources of interference such as television, monitors, computers, metal walls or buildings with reinforced concrete walls may deteriorate or even prevent reception. Check the receiving quality by watching the radio tower symbol. If the symbol disappears frequently, change the location. Put the clock on your window sill where you will have the best reception. **Avoid moving the clock during the reception process!**

In case of durable interference, there are four options to solve the problem:

1) Install the clock at another point in order to obtain best receiving results.
2) Change the clock to quartz-controlled mode. (see: Setting of the Operation Mode)
3) Keep the clock in the radio mode but set the current time manually. At 2 and 3 a.m. for 20 minutes each, the clock will attempt synchronisation with radio operation. Sources of interference such as computers and neon lamps are disconnected at night enabling improved reception. Should these attempts however not be successful, the life of the battery will be reduced due to longer receiving hours at night.
4) An external aerial is optionally available. Connect this aerial to the clock and lay the aerial cable to a point providing improved receiving quality. If the cable is not long enough, it can be extended up to max. 30 m. We recommend the cable: **I-Y(ST)Y 2x2x0.6.** This requires that you lay the shielding and the free lead to the 0-volt phase of the cable and connect it to the aerial. The colour code of the aerial cable is as follows: White = +3V, green = data, brown = GND

Setting of the Operation Mode

Select the operation mode **by pressing and holding the button T1 or T2** during the switch-on phase. Keep the relevant button pressed, switch on the clock and then release the button.
T1 activates the quartz operation mode and deactivates the reception of the DCF-77 radio signal. Whereas **T2** activates the DCF mode and switches the clock to radio operation. **The mode selected last will be saved and automatically activated when switching on the clock again.**

Manual Setting of Time and Date

By pressing the **T1** button, when the clock is switched on, you get to the time and date setting, as well as to the temperature readout. Preferably proceed as shown in the example below. By actuating the **T2** button for entering hour → minute → day → month → temperature → seconds (AC 150 only) you can make changes in the sequence as indicated. Press the **T3** button for setting the desired values. Finally save and terminate the settings by pressing the **T1** button and the clock shows the changed values.

Setting Example

Press **T1** once and set the hour by pressing **T3**. → Press **T1** once and set the minute by pressing **T3**. → Press **T1** once and set the day by pressing **T3**. → Press **T2** once and set the day by pressing **T3**. → Press **T2** once and set the month by pressing **T3**. → Press **T2** once and set the year by pressing **T3**. → Press **T2** once and a thermometer is $^{\circ}C$ shown in the display. Now you can set the temperature indication to three different modes by means of the **T3** button:

Caution: The temperature sensor is optional equipment. Without the sensor the clock shows only –0 °C.

A   the **temperature alternates with the date display**, this means, the temperature (for 4 seconds) alternating with the date display (for 6 seconds), will be depicted in the bottom line.

F   fixed temperature display , this means no date is shown

No symbol   "temperature readout off", thus permanent date display

Press **T2** once and an **A** is shown in the display: And a **blinking figure** between 0 and 3. Here you can set the seconds readout (for clock type AC 150 only) again with the **T3** button. The values are indicated below:

Value	Mode
0	Minute marks light up or extinguish
1	Seconds readout off, all marks light up
2	Minute marks always light up
3	Only the mark of the actual second fades out

Now you have finished the settings in this menu, and by pressing **T2** you return to the beginning of the cycle, i.e. for setting the hour. To terminate the settings, simply press the **T1** button, while the seconds are automatically set to zero and from now on start counting. The clock returns to the normal display mode and the adjustments you have just made are saved.

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Setting of the Time Zone

For the countries Germany, Austria, Switzerland, France, Benelux, the time is set in the factory to +1 hour to the world time (UTC = Coordinated Universal Time) **and needs to be changed only in case of deviating from this time, for example UK**. For this, an offset can be set, which adds to or deducts from the radio time received (corresponding to the world time). Thereby you have the option to use the clock as part of a world clock or use it in adjacent time zones, where the DCF-// radio waves from Frankfurt are received.For this purpose, press the **T2** button in the normal mode of the clock, **"Of"** is shown in the display and the set offset in hours (the first two digits) and in minutes (the last two digits). The offset can be set in a range of +/- 12 hours with the buttons **T1** for **+30 minutes** and **T3 for -30 minutes**. By pressing the button **T2** again, the setting is terminated and the new value is saved. For the operation in the above mentioned time zones, '+0100' is preset here.

Setting of the Summer/Winter Time Parameter

The settings of summer and winter time comply with the legal regulations, but may be altered in case these times change. By actuating the **T3** button in the normal mode of the clock, you reach the setting mode for the summer time. The clock now indicates **'So'**: for the summer time and either **'On'** (automatic switching for summer/winter time or **'Of** (no automatic switching). The button **T3** serves to switch from **'On' to 'Of'** and vice versa. In the **'Of'** setting, the clock returns to the normal mode after pressing the **T2** button. If **'On'** is selected, the start and end of the summer time can be set after the **T2** button has been pressed or by pressing **T2** again, the standard settings can be maintained. To achieve this, the **T2** button is to be pressed several times (4x) until the normal display mode is shown.

Setting of the Start/End of the Summer Time

The clock change is always effected on a Sunday, i.e. two months and the respective Sundays have to be adjusted. First, the data for the start of the summer time are queried. The clock indicates the month of the start as figure: the month blinks and can be set in a range from 1 to 12 with the **T3** button. By actuating **T2** you select the respective Sunday: With the **T3** button you can choose between the figures from **1 to 4** and **'L'**. The figures indicate the Sunday, from the **1st** to the **4th**, while **'L'** stands for the last Sunday of the month. By pressing **T2** you terminate the input of the start data. Now the data for the end of the summer time is to be adjusted in the same manner. After completing the input, press **T2** and the clock is reset in the normal mode and the data is saved. **The standard factory setting for Germany is the last Sunday in March for the start and the last Sunday in October for the end.**

Secondary Clock Input

In case option 'N' was included in the order for the clock, a pole changing impulse of the master clock with a voltage ranging from 12 to 60 volt may be applied to the connecting field via the terminals 1 and 2.

External connector for DCF radio reception:

The DCF antenna can be connected on the reverse side of the clock. For this purpose, the respective DIP switches have to be adjusted as defined in the table below. Radio reception is transmitted in frequency band 77.5 KHz.

Connecting of an External Temperature Sensor

An external sensor may be connected on the reverse side of the clock to be used instead of an internal sensor. In such a case, the internal sensor will be deactivated.

External Power Source

An external direct voltage source may be supplied to the clock via the terminals 11 and 12. The voltage should not exceed 9 volt and not fall below 6.5 volt.

Setting of the DIP Switch on the Reverse Side

DIP-Switch	ON	OFF
1,2	**Internal DCF aerial activated**	External DCF aerial activated
3,4,5	Language selection for day display, see separate scheme	
6	DCF signal inverted	**DCF signal normal**
7	Inverse date display (MM/DD)	**Date display normal (DD/MM)**
8	Suppress left-hand zeros for hours and	**Depict left-hand zeros**

Language Settings for the Days of the Week

DIP3	DIP4	DIP5	Language
Off	Off	Off	**German**
On	Off	Off	English
Off	On	Off	Dutch
On	On	Off	French
Off	Off	On	Spanish

Display of **bold type** correspond with our factory settings
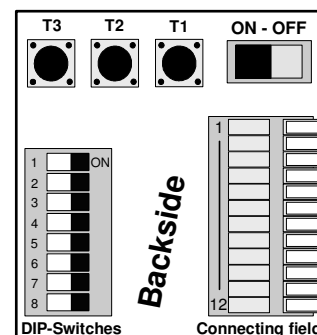
Should you have any questions when installing the clock, please do not hesitate to contact us.
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