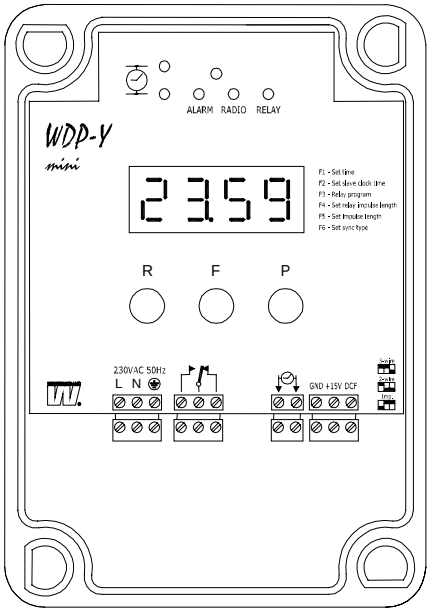
User manual

Quartz master clock
WDP-Y mini

121346-00



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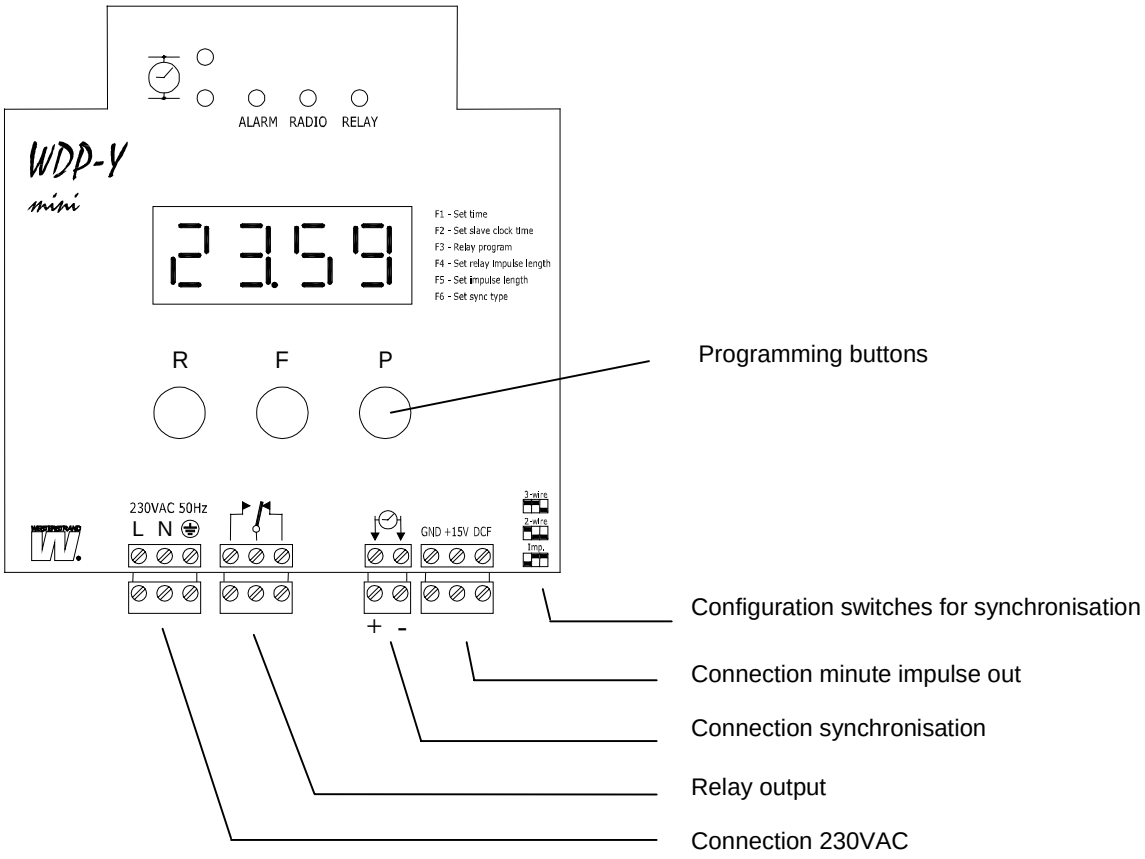
General

Quartz master clock WDP-Y mini with impulse output for operation of slave clocks.
The clock has a programmable relay output for control of, for example, illumination or pause signals.
The relay output can be programmed with 40 different ”signal points”.
A built-in temperature compensated quartz crystal oscillator gives high accuracy also when the ambient temperature is varying. Optional time signal receivers can be connected for extra high accuracy. Minute impulse synchronisation is also possible.
Changing from winter time to summer time and vice verse is fully automatic and does not need programming.
In case of power failure, an internal memory keeps the correct time for 24 hours.
Note: Activation or deactivation of the relay is not possible during power failure.
The connected slave clocks are corrected after the power failure by means of rapid impulsing.
The impulse output has a short-circuit protection with automatic reset.
In the event of short-circuit, the alarm LED is lit and outgoing impulses are inhibited.



Options

The following options can be used:

- Synchronisation DCF, art. no. 122984-20
- Synchronisation RDS, art. no. 122983-00
- Synchronisation GPS, art. no. 122982-00 (factory mounted option)

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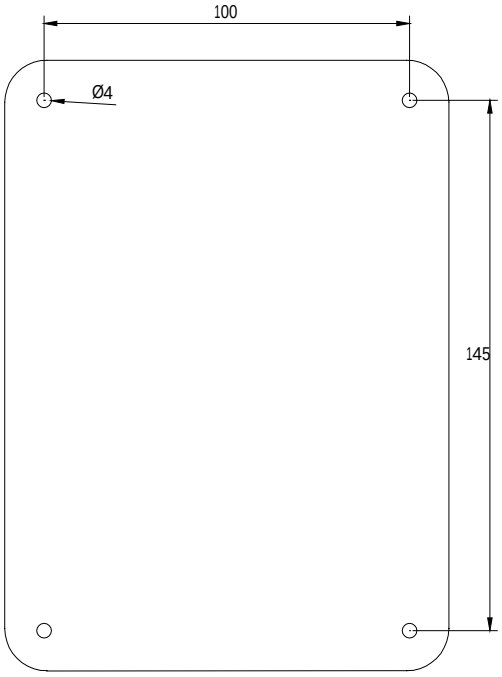
Installation

The master clock is intended for wall mounting.
The connectors are removable for easier installation.



- Mount the master clock with four screws.
- Connect the wires for the outgoing minute impulse.
- Connect the synchronisation source, if any. Check the configuration switches before any synchronisation source is connected. The master clock may be damaged if the wrong setting is used. See ”Configuration” below.
- Connect the wires for the relay output.
- Connect the wires for 230VAC. When the clock is permanently installed, a readily accessible disconnect device shall be incorporated in the fixed wiring.
  Installation fuse max. 10A.
  Supply wire area: 1,5mm^2.

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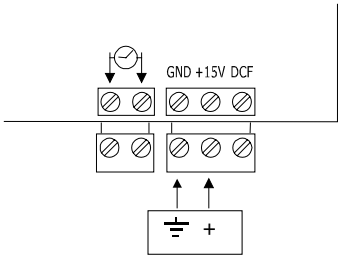
Configuration

The master clock can be synchronised via minute impulse or radio DCF/RDS. This must be selected with the switches at the edge of the front panel. Furthermore, correct type of synchronisation must be selected with function F6; see “Programming”.

Note: The master clock may be damaged if the switches are in the wrong position.

DCF synchronisation

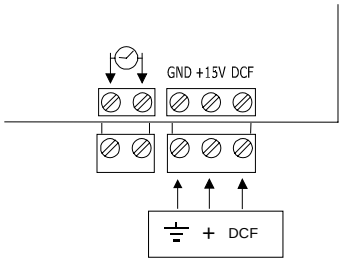
Set the switches like this:  (2-wire)



RDS/GPS synchronisation

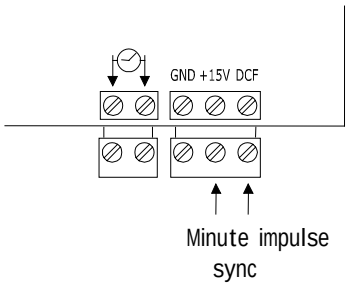
(GPS: The master clock must be prepared for GPS from factory)

Set the switches like this:  (3-wire)



Minute impulse synchronisation

Set the switches like this: 



Programming

General

Use the buttons R, F and P to program the clock.

R	Return	Return to normal mode
F	Function	Select function/Accept
P	Programming	Change/Select.

The buttons are self-repeating if pressed for more than 0,7 s.

A total of 40 different signal points can be programmed. A signal point is a programming of the relay output at a certain time and with a certain signal type, e.g. switch ON at 07.00 on Mondays.

Functions

Select with button **F**:

F1 Set time
F2 Set slave clock time
F3 Relay programming
F4 Impulse length for the relay output. This setting is relevant only when the output is programmed for "Pulse" (1-59 sec).
F5 Set impulse length for the outgoing minute impulse (0,5-4,0 s.)
F6 Select synchronisation source (minute impulse or DCF)

Abbreviations used in the programming menus:

y	year	
n	month	
d	day	
H	hour	
n	minute	
S	second	
P	program no.	
S	signal type	
E	erased signal point	
0	switch OFF	(relay contact open)
1	switch ON	(relay contact closed)
P	pulse	(the relay is activated for a programmed time, 1-59 sec)
W	weekday	

Manual control

With the clock in normal mode, the relay can be controlled manually by pressing button "P".

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Set time– function F1

Note! The complete routine must be worked through.

- - - -	Press ”R” to enter normal mode. If time is not previously set, ”----” is shown in the display. Press **F** until ”F1” is shown.
F 1	Function for programming of time. Select with **P**.
y 0 0	Year. Change with **P**. Accept with **F**.
n 0 1	Month. Change with **P**. Accept with **F**.
d 0 1	Date. Change with **P**. Accept with **F**.
H 0 0	Hour. Change with **P**. Accept with **F**.
n 0 0	Minute. Change with **P**. Set time one minute ahead of correct time and await the minute shift. Press **F** to synchronise.
F 1	Press **R** to return to or continue with next function (press **F**).

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Set slave clock time– function F2

2 3 . 5 9	When the clock is in normal mode, press **F** to select function F2.
F 2	Function for correction of slave clocks. Select with **P**. Note: Set the time shown by the slave clocks. The time of the slave clock is automatically adjusted by rapid impulses or by inhibition of impulses.
H 0 0	Hour. Change with **P**. Accept with **F**.
n 0 0	Minute. Change with **P**. Accept with **F**.
F 2	Press **R** to return or continue with the next function (press **F**).

Note: If the slave clock is one minute from correct time, reverse the slave clock connection wires.

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Relay output programming – function F3

2 3 . 5 9	When the clock is in normal mode, press **F** to select function F3.
F 3	Relay programming. Select with **P**.
P 0 1	Signal point (program) 1. Change with **P**. Accept with **F**. A total of 40 different signal points can be programmed.
S E	Signal type. Change with **P**. Select one of the following: **E** erased signal point **0** switch OFF **1** switch ON **P** pulse Accept with **F**.
W 0	Weekday. Change with **P**. Select one of the following: **1** Monday **2** Tuesday **3** Wednesday **4** Thursday **5** Friday **6** Saturday **7** Sunday **8** Monday-Friday **9** All days in week **0** Saturday-Sunday Accept with **F**.
H 00	Hour. Change with **P**. Accept with **F**.
n 00	Minute. Change with **P**. Accept with **F**.
F 3	Press **R** to return or continue with next function (press **F**).

Relay impulse length programming – function F4

2 3 . 5 9	When the clock is in normal mode, press **F** to select function F4.
F 4	Pulse length. Select with **P**.
S 0 6	Number of seconds (1 to 59). Change with **P**. Accept with **F**. Factory preset value is 6 seconds.
F 4	Press **R** to return or continue with next function (press **F**).

Setting of impulse length for slave clock output – function F5

2 3 . 5 9	When the clock is in normal mode, press **F** to select function F5.
F 5	An impulse length between 0,5 and 4,0 seconds can be selected. Press **P** to continue.
S 2 . 0	Impulse length in seconds (S). Change with **P**. Accept with **F**.
F 5	Press **R** to return or continue with the next function (press **F**).

Setting of synchronisation source – function F6

The master clock is prepared for synchronisation via DCF/RDS (GPS optional) or minute impulse.
When the master clock is synchronised, the dot between hours and minutes is flashing each second.

2 3 . 5 9	When the clock is in normal mode, press **F** to select function F6.
F 6	Function for selection of synchronisation source. DCF (RDS/GPS) or minute impulse (1/1 minute) can be selected. Select with **P**.
S y d C	Sy dC = DCF (or RDS/GPS) Sy Im = Minute impulse Change with **P**. Accept with **F**.
F 6	Press **R** to return or continue with the next function (press **F**).

Special functions

To erase all programmed signal points for the relay output:
1) Turn OFF the master clock.
2) Press buttons **R** and **P** while the master clock is turned on.
The message ”dELE” is displayed, indicating that the erasure is completed.

Program reset
Restart of the master clock program. Already programmed signal points for the relay are intact but the real time must be programmed with function F1 (and F2 for the slave clocks).
1) Turn OFF the master clock.
2) Press buttons **R**, **F** and **P** while the master clock is turned on.
The clock is restarted and ”- - - - ” is shown in the display.

Technical data

Supply voltage	230VAC 50Hz -5% +10%
Power consumption	10VA
Temperature range	-20°C to +50°C ambient temp.
Crystal frequency	32.768 kHz (time base) 4,0 MHz (processor)
Microprocessor	PIC16LC62A
Accuracy	±1 min/year (0°C to +40°C) ±4 min/year (-20°C to +50°C)
Display	14,2 mm red LED, 4 figures and dot
Impulse memory	24 h
Impulse output	1/1-minute polar changing impulses Impulse length 0.5-4.0 s. Max load 100 mA
Relative humidity	Max 85% non-condensing
Protection class	IP55
Dimensions	165x120x75 mm
Relay output	Single pole, changing contact. Max. 8A/250VAC

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Programming form

No.	Signal type (ON/OFF/pulse)	Pulse length	Day(s)	Time

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