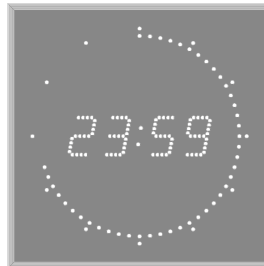


Instructions

CIRCLE LINE

Art. no. 119470-51, 119471-51, 119472-51,
119473-51, 119474-51, 119475-51



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General

CIRCLE LINE is a digital clock for indoor use. The clock can operate stand-alone, be connected to a master clock transmitting 1/1 or 1/2 min impulses (24 to 48 V) or synchronised via radio (option). The clock has a built in calendar and a function for automatic summer/winter or winter/summer time change (given this functionality is selected).

This manual is valid for all versions of CIRCLE LINE.

- 119 470 –51 Standard / 7 segment digits / straight corners
- 119 471 –51 Standard / diode digits / straight corners
- 119 472 –51 Standard / 7 segment digits / smoothed corners
- 119 473 –51 Standard / diode digits / smoothed corners
- 119 474 –51 De Luxe / 7 segment digits
- 119 475 –51 De Luxe / diode digits

All versions display time in hours and minutes. Time is expressed in 24 hours format. Seconds are shown graphically in a circle.

If time is not initially programmed "--:--" is shown instead of digits for time.

(If the clock is equipped with radio receiver, correct time will be displayed automatically after the receive of accepted signal.)

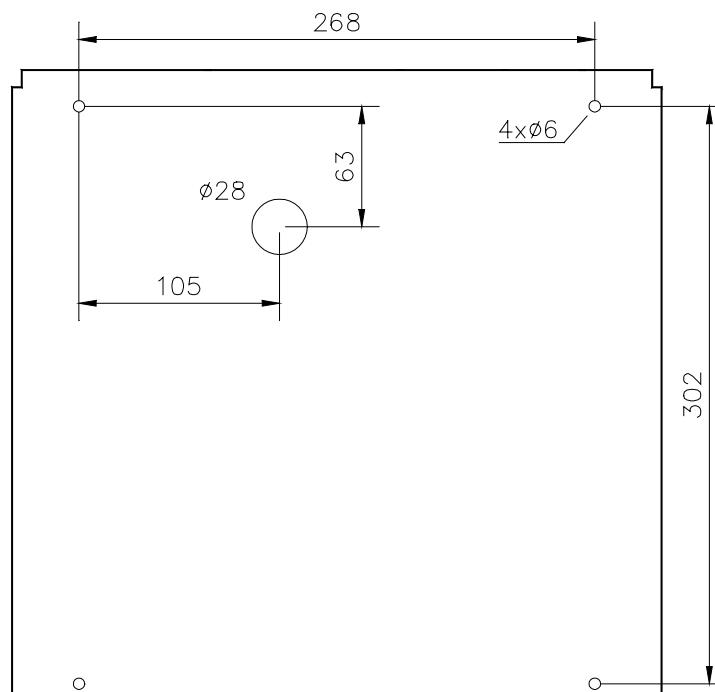
Options

For connection of options, see separate instructions. Following options are available;

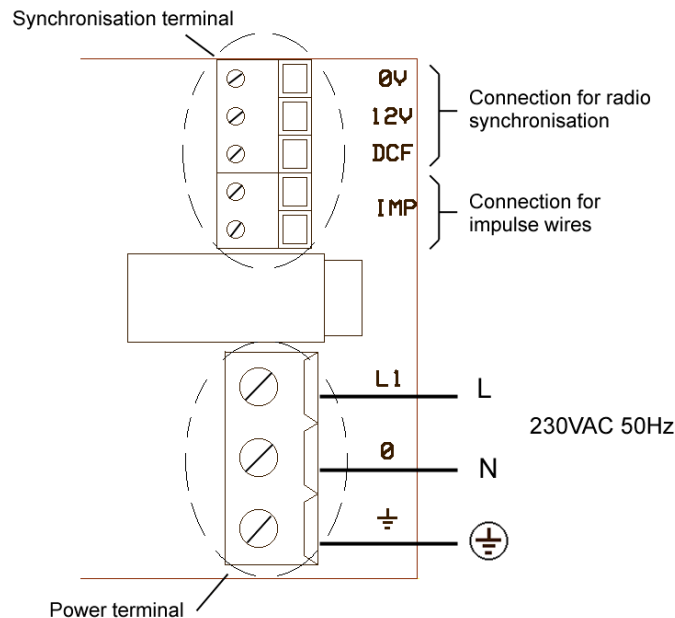
- Radio receiver DCF, RDS
- IRIG-B input (factory mounted)
- LON-input (factory mounted)
- LTC (SMPTE/EBU)-input (factory mounted)
- Time code via RS485-input (factory mounted)

Installation

Remove the back plate from the casing and mount it on wall or bracket. See measurements for attachment below.



Cable connections to the power supply board are shown in the figure below.
 (Note! For connections for options see separate description for the actual option.)

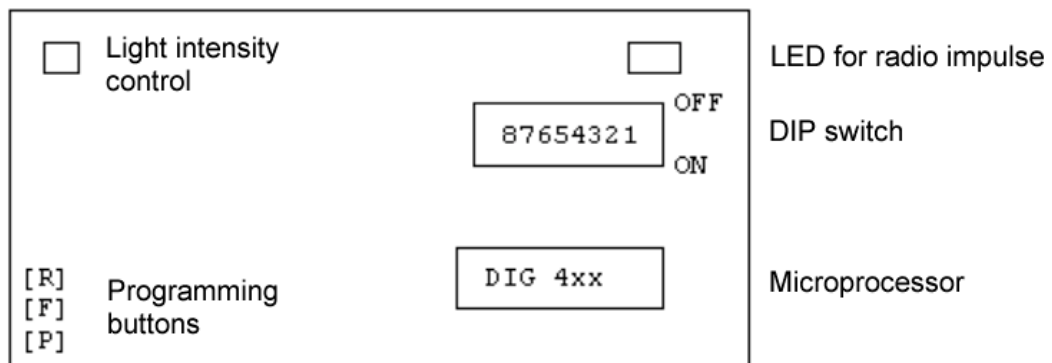


Mains (230V AC, 50Hz) should be connected to the Power terminal. When the clock is permanently installed a readily accessible disconnect device shall be incorporated in the fixed wiring. Installation fuse max10A. Power wire 1,5mm².

If the clock shall be connected to a synchronising source this shall be connected to the Synchronisation terminal.

Settings of dip-switches

Remove the clock from the back plane. On the rear side there are three buttons for programming labelled [R], [F] and [P], and also a knob for the adjustment of light intensity.



The clock can operate stand-alone with a built-in quartz crystal as time reference, as a slave clock to a master clock transmitting polarised 1/1 or 1/2 min impulses (24 to 48V) or synchronised via a radio receiver (option).

On the computer board there are dip-switches. The following settings are relevant;

Dip 6 Dip 2
 OFF OFF

Stand-alone (update time from internal crystal). Options:

- Radio receiver (DCF, RDS)
- IRIG-B input (factory mounted option)
- LON-input (factory mounted option)
- LTC (SMPTE/EBU) –input (factory mounted option)
- Time code via RS485-input (factory mounted option)

ON OFF
 ON ON

Slave 1/1-minute.
 Slave 1/2-minute.

Dip 7
 OFF
 ON

Normal operating position
 Check of radio reception quality. Only used together with optional radio receiver. Positions 1-2 in the display show the impulse length in 1/64 seconds (normally 07 or 13). Positions 3-4 show the number of accepted radio impulses.

The remaining DIP switches are not used.

Note! If the DIP switches are adjusted the clock must be resetted. Disconnect the battery and the mains power during a few seconds to do this.



Manual programming

Buttons [R], [F] and [P] are used for programming. Button [R] are for return to base mode after programming, while [F] and [P] are for programming:

Press [F]. Display shows

Press [P]. Displays shows:

Press [P] until selected year (00-99) is shown. Keeping [P] pressed down gives a scrolling effect. Accept with [F].

Displays shows

Press [P] until selected month (01-12) is shown. Accept with [F].

Display shows:

Press [P] until selected day (01-31) is shown. Accept with [F].

Display shows:

Press [P] until selected day of wee (01-07) is shown. Accept with [F].

Display shows:

Press [P] until selected hour (00-23) is shown. Accept with [F].

Display shows:

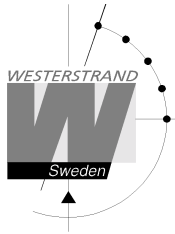
Press [P] until the minute (00 – 59) next to the selected is shown. Press [F] at the selected minute

Display shows

Press [R]. Programming is done.

Display shows:

The clock is pre-programmed for SW/WS change the last Sunday in March and the last Sunday in October.



What happens if power is down?

If power is down the diodes are turned off. The internal clock continues to keep correct time at least during 24 hours. When power is up again correct time is displayed directly.

When synchronised to minute impulse (slave): The clock stops when the power failure occurs. When power is up again, the clock is adjusted to correct time by means of rapid impulses from the master clock.

If the power failure lasts for more than 24 hours, time has to be programmed manually.

Technical specification

Data	All versions
Main power	230VAC 50Hz -10% +5%
Power consumption	10VA
Size of digits	60 mm
Diode light intensity (red)	300 mcd
Power consumption (impulse)	5 mA at 24V. 10 mA at 48V.
Synchronisation	Polarised impulse 1/1, 1/2, min, 24-48V, Radio DCF*, RDS* Time code via IRIG-B-input** Time code via LON**, LTC (SMPTE/EBU)** Time code via RS485-input**
Running reserve	24 h internal time keeping
Accuracy	0,1 sec/ 24 h quartz crystal reference
Protection class	IP43
Standards compliance	EN50081-01 and EN50082-02
Weight	3,4 kg
Dimensions	344x344x70 mm

* option

** factory mounted option

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