



**BATTERY OPERATED
QUARTZ MOVEMENT
TECHNICAL MANUAL**

WESTERSTRAND URFABRIK AB

P.O. Box 133
SE-545 23 TÖREBODA

Tel. +46 506 48000
Fax. +46 506 48051

Internet: <http://www.westerstrand.se>
E-mail: info@westerstrand.se



General

The Quartz-movement is an analogue clock with a built-in high accuracy temperature compensated quartz crystal as a time base. The movement can control up to 3 slave movements connected to a special slave output.

Batteries

The movement can work with two types of batteries, Lithium batteries (3.6V) or Alkaline batteries (1.5V).

The major advantages of **Lithium** batteries are:

Wide temperature range: -55°C - +85°C
High cell voltage: 3.6V
High energy density: nominal 16.5Ah
Superior shelf life
and reliability

The major advantages of **Alkaline** batteries are:

Low cost
High energy density
The capacity of alkaline batteries is depending of the temperature.
Therefore alkaline batteries should only be used in environments where the temperature is stable.

The following configurations can be used:

Number of Movements (master + slaves)	Estimated running time		
	1 lithium battery 3.6V size LR20/D	2 lithium batteries 3.6V size LR20/D	2 alkaline batteries 1.5V size LR20/D
1	2 years	4 years	1 years
2	1.25 years	2.5 years	0.75 year
3	0.75 year	2 years	0.5 year
4	0.5 year	1 years	0.25 year

Remark : The selection between lithium and alkaline batteries are done by strap's inside the movement, see page 8.
The factory setting is lithium batteries.

Installation

1. Mount the movement on the dial.
2. Mount the hands at 12-position.
3. Insert the batterie(s).
4. Set by using the setting wheel the hands to an even minute ahead of correct time.
5. Push the sync.button and release it when correct time = time of hands.

Technical data

Microcontroller PIC16C558
Temperature range -20°C to +50°C
Time accuracy ±1 min/yr 0°C to +40°C
±4 min/yr -20°C to +50°C
Size (h, w, d) 80 x 158 x 41 mm

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Options

Alkaline battery	art. no. 113190-00	(2pcs 1.5V LR20/D)
Lithium battery	art. no. 113191-00	(1pcs 3.6V LR20/D)
Lithium battery	art. no. 113192-00	(2pcs 3.6V LR20/D)

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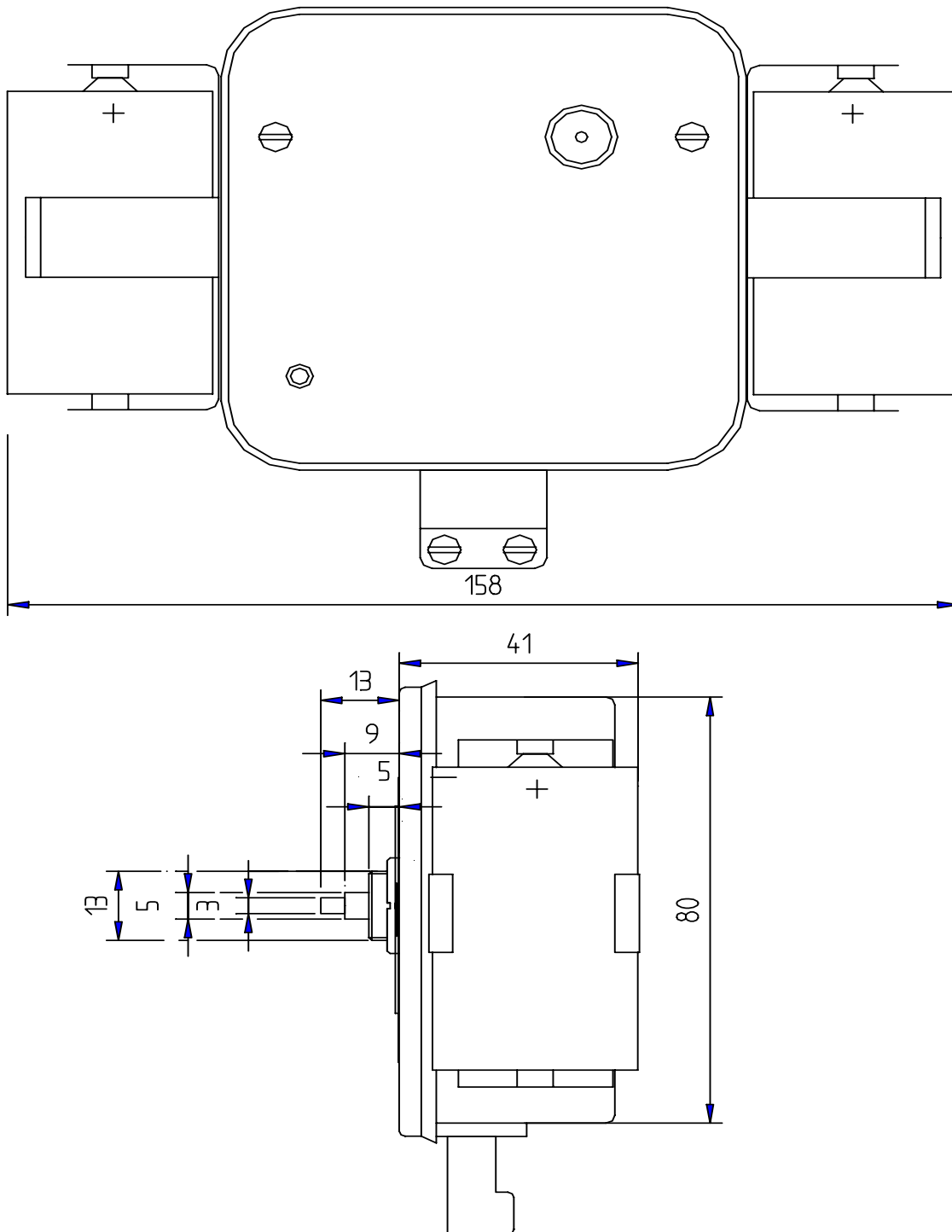
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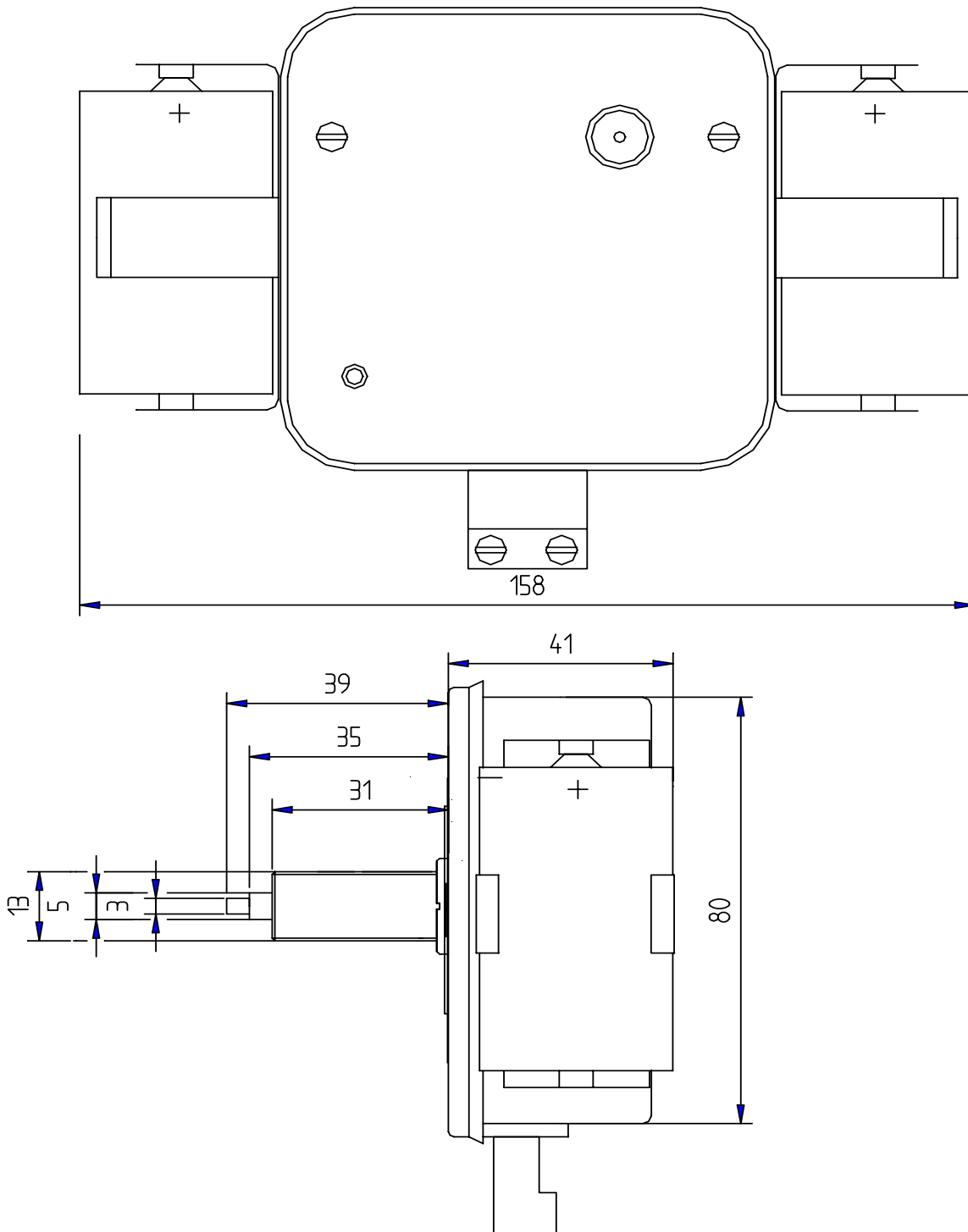
113106-00

Maximum dial size 400 mm.



113106-02

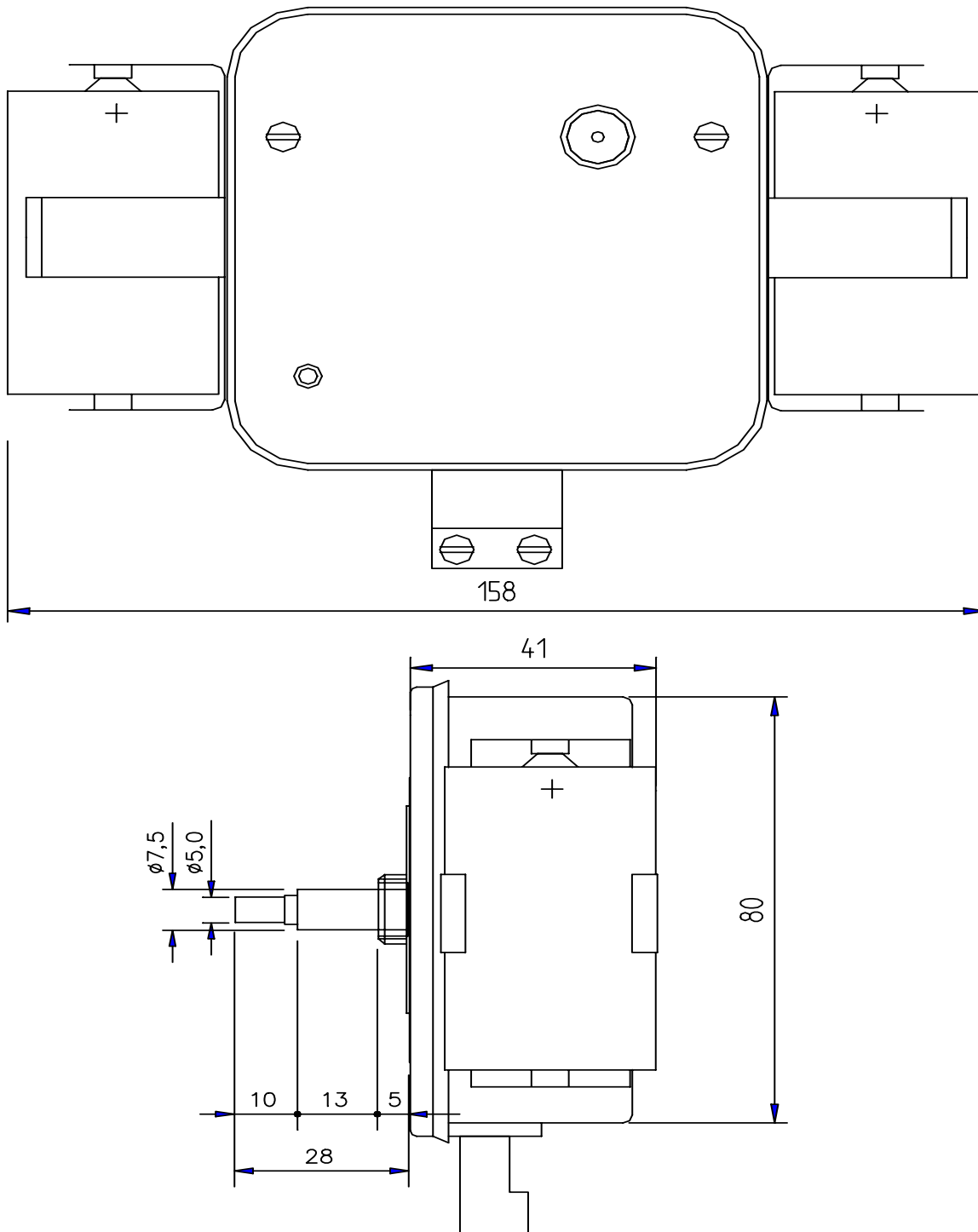
Maximum dial size 400 mm, max. with extended shaft.





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Maximum dial size 900 mm, max. minute hand 410 mm.



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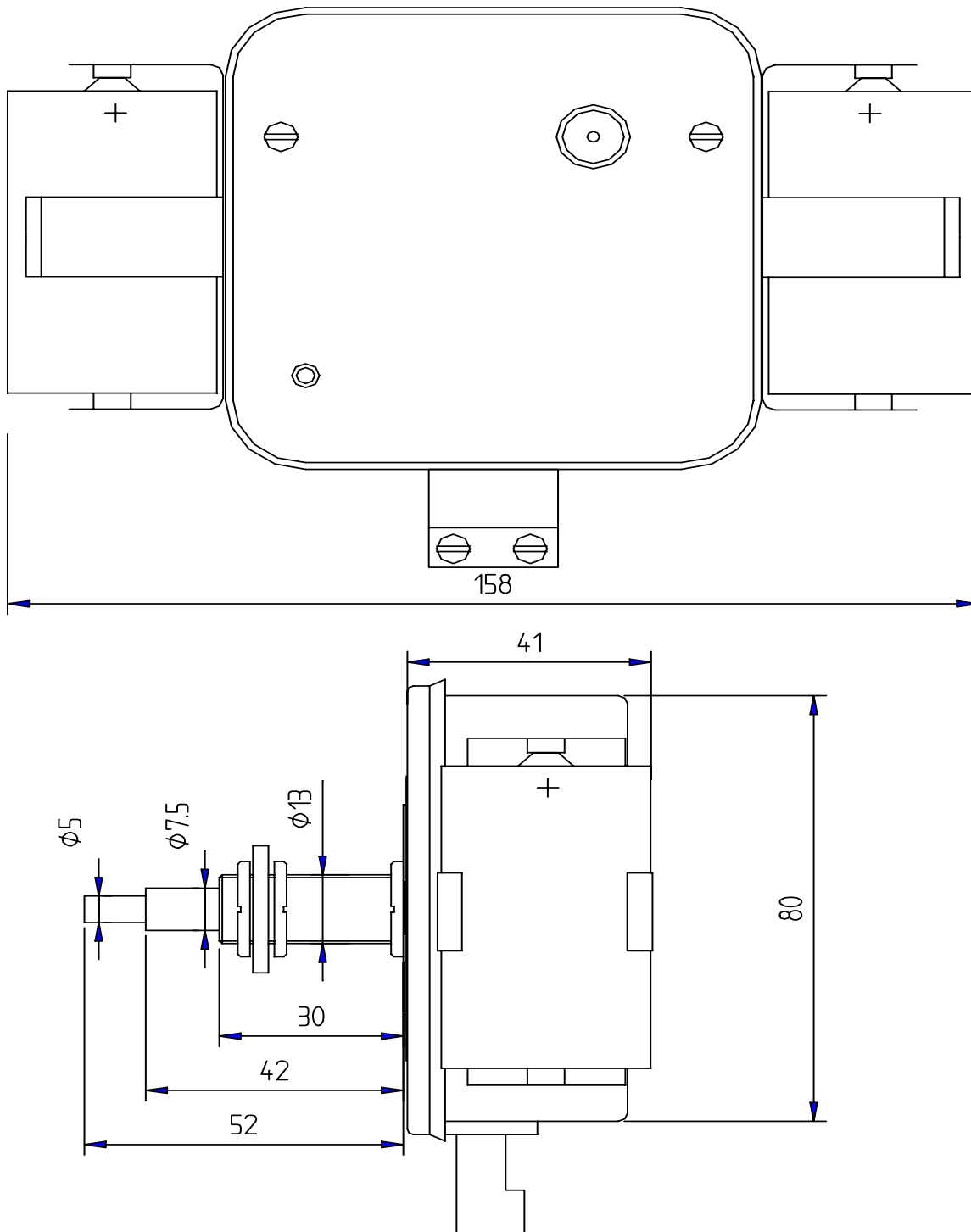
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Maximum dial size 900 mm, max. minute hand 410 mm, with extended shaft.



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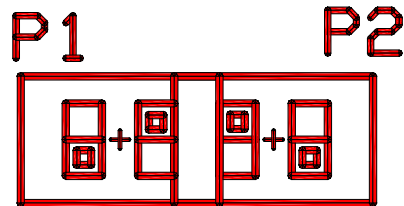
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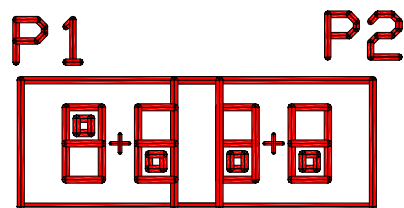
Strapping for battery options

To change the strapping for the battery, loosen the two screws and remove the cover. There you find the Pcboard with the straps.

Lithium battery (default)



Alkaline battery



Pcboard

