MOUNTING AND INSTRUCTION MANUAL

SEI 40

Second impulse movement

Certification of the Producer

STANDARDS

The DP Character was developed and produced in accordance with the EU Guidelines:
2006 / 95 / EC
2004 / 108 / EC
96 / 48 / EC

CE

References to the instruction manual

1. The information in this instruction manual can be changed at any time without notice.
   The current version is available for download on www.mobatime.com.
2. This instruction manual has been composed with the 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 only start setting-up the product, after you have correctly understood all the information for the installation and operation.
5. The installation must only be carried out by skilled staff.
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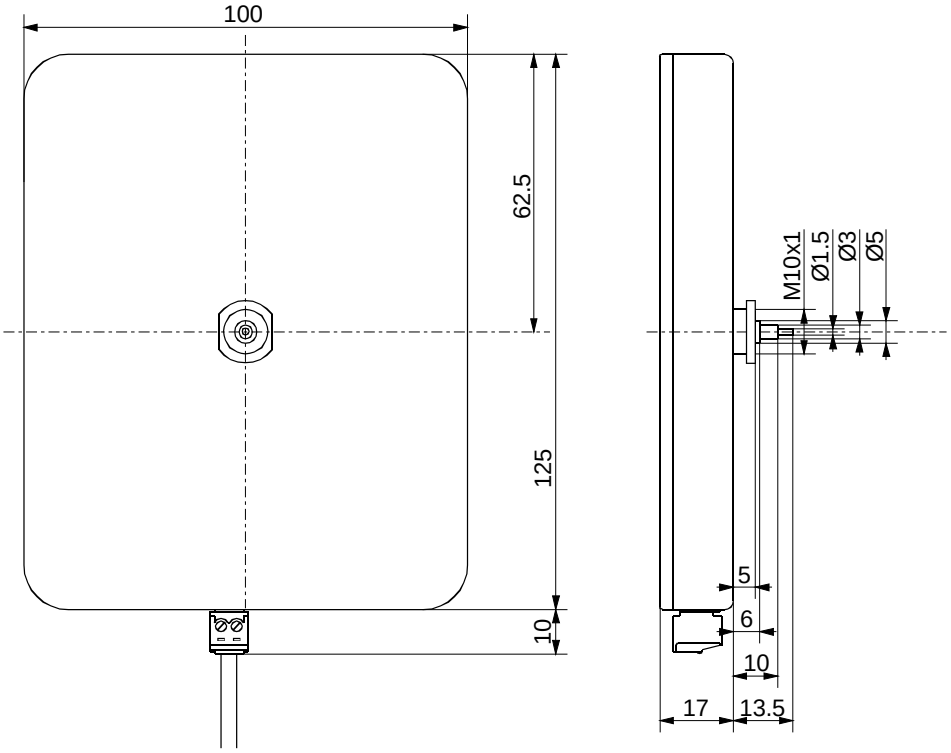
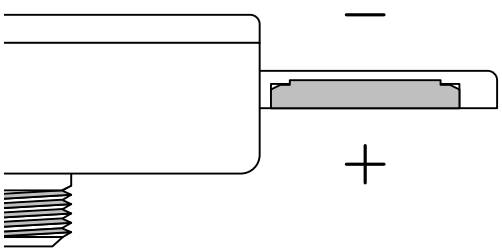
Table of contents

1 Measurements / Connection



Second impulse connection

1.1 Battery change



Attention!

Danger of explosions in case of improper battery exchange. Disposal of used batteries according to instructions.

For this device, LIR 2032 batteries are used (see chapter 8).

Batteries

The user is legally obliged **(battery regulation)** to return used batteries and accumulators. **Disposing used batteries in the household waste is prohibited!** Batteries/ accumulators containing hazardous substances are marked with the crossed-out bin. The symbol indicates, that this product is forbidden to be disposed in the household waste. Below the chemical shortcuts for the contained hazardous substances of this product are mentioned:

Ag_2O = Silver oxide, **Cd** = Cadmium, **Hg** = Mercury, **Li** = Lithium**, Li-Ion** = Li-ion, **NiCD** = Nickel-cadmium, **NiMH** = Nickel-metal-hybrid, **Pb** = Lead, **$ZnMnO_2$** = tin-manganese dioxide.

You can return used batteries / accumulators free of charge to any collecting point of your local authority or stores, where batteries / accumulators are sold.

Consequently you comply with your legal obligations and contribute to environmental protection!

2 Introduction

The SEI 40 is a second impulse movement for hour, minute and second hands. It is suitable for indoor and outdoor clocks with a dial diameter of up to 400 mm.

Models:

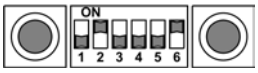
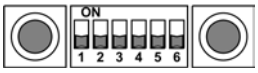
SEI 40	Art. no.: 204723
SEI 40 LN	Art. no.: 205043

2.1 Function description

- Control via second impulses
- Separate adjustment of the minute / hour and the second hand via push-buttons
- Two motors for minute / hour and second
- Running mode of the minute hand selectable via DIP switch: continuous (10s) or step mode
- Power supply through impulse line

3 Configuration

The movement SEI 40 possesses 6 switches on the rear side of the housing. With those it is possible to choose between four configurations:

Switch Position:	Mode:
	**Normal Operating Mode 1:** Minute hand in step mode.
	**Normal Operating Mode 2:** Minute hand in continuous mode.
	**12:00-Position Mode:** Clock runs to 12:00 position.
	**Storage Mode:** Storage setting.

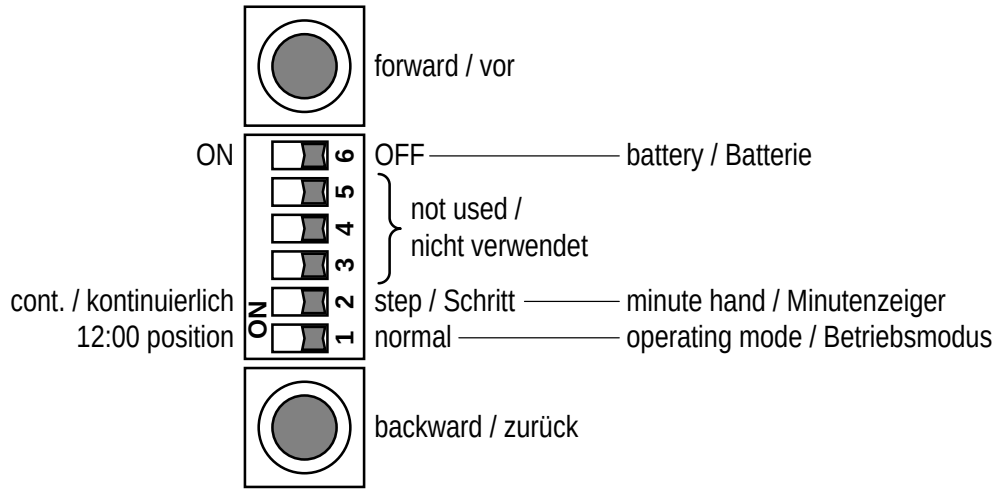
Important: To store the clock, switch 6 must be OFF.

4 Operation

Apart from the 6 configuration DIP switches, there are two push-buttons on the rear side of the movement that are used to operate the movement:

Button(s):	Duration:	Function:
forward & backward	long	Clock runs to 12:00 position. While doing so, impulses are ignored. After reaching the 12:00 position, impulses are processed again.
forward & backward	short	Selection of the hand to be adjusted: sec → min → sec → min...
forward	short	The hand to be adjusted moves 1s/1m clockwise
backward	short	The hand to be adjusted moves 1s/1m counter-clockwise
forward	long	The hand to be adjusted continuously moves clockwise until the push-button is released.
backward	long	The hand to be adjusted continuously moves counter-clockwise until the push-button is released.

- The movement can also be adjusted with an active impulse line and does not need to be separated from the line. In that case, impulses are being processed at the same time.
- If the second hand crosses the 12:00 position while being adjusted both clockwise and counter-clockwise, the minute hand will accordingly move a minute step clockwise resp. counter-clockwise.



5 Mounting of hands and starting-up

5.1 Installation and starting-up of an SEI 40 (LN)

1. Turn the DIP switch 6 ON.
2. Turn the DIP switch 1 ON.
3. Wait for the movement to stand still
4. Insert metal needles into both holes on the rear side without application of force (ill. 1). The needles should slide in approx. 6-7mm.
   If necessary, move the axis slightly.

ill. 1

5. Mount the parts to the axis in the following order:
   - rubber washer
   - dial
   - metal ring
   - nut (torque 4.5 Nm +/- 0.2)
   - hour hand
   - minute hand
   - second hand

   During the assembly, the movement must rest on a stable surface (ill. 2). Otherwise, the clock might be destroyed!

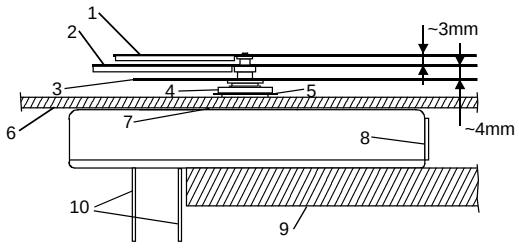


illustration 2

1 second hand	6 dial
2 minute hand	7 rubber washer
3 hour hand	8 MOBALine input
4 nut	9 rest
5 metal ring (optional)	10 metal pins

6. Adjust the hands to the 12:00 position
7. Remove the pins
8. Turn the DIP switch 1 OFF.
9. Connect clock to impulse line.
10. Set desired time using the push-buttons (see chapter 4).

5.2 Starting-up of a clock with an SEI 40 (LN)

1. Turn the DIP switch 6 ON.
2. Connect clock to impulse line.
3. Turn the DIP switch 1 ON. The clock must run to the 12:00 position.
4. When the 12:00 position is reached, turn the DIP switch 1 OFF. The clock begins to run in the second tact.
5. Set desired time using the push-buttons (see chapter 4).

Important: The impulse length must amount to at least 300ms!

6 Troubleshooting table

No.	Error / Fault	Solution
1	Time cannot be adjusted or hands move in a jerky manner.	Check whether DIP switch 6 is turned ON; if not, turn it on. If the time still cannot be set, change the battery (see chapter 1.1). Attention: If the clock had been stored for a long time, connect the clock to a running impulse line. After two days, check if time can be adjusted now.
2	Hands cannot be set to the 12:00 position or move in a jerky manner.	Please refer to the solution for No. 1 above.
3	Hand position of hour, minute or second hand is incorrect.	Set clock to 12:00 position and check whether the hands are correctly mounted on the axis. If needed, reset the hands correctly (see chapter 5).
4	Clock does not work even though impulse line is active and connected.	Set the impulse length to at least 300ms.

7 Troubleshooting tree

Start at the top of the tree with the first question. Rhombuses represent questions, rectangles represent actions. Try to reach the field “Clock runs correctly”.

8 Technical data

	SEI 40
Time signal	second impulses
Impulse voltage	20V...72V
Power consumption	< 12 mA
Minimal impulse length	300ms
Maximum impulse length	900ms
Operation mode minute axis	continuous (10s) or step mode
Operation mode second axis	step mode
Operation mode hour axis	continuous
Number of motors	2 (h / min. + sec.) clockwise / counterclockwise
Temperature area	-30 ... +70 °C
Weight	180g
Max. hand weight (well balanced)	hour: 7 g; minute: 18 g; second: 3 g
Dial diameter	max. 400 mm
Dial thickness	max. 3 mm
Nut fixing torque	4,5 Nm +/- 0,2 Nm
Torque on hour shaft	max. 2.8 mNm
Torque on minute shaft	max. 1.4 mNm
Torque on second shaft	max. 2.1 mNm
Battery type	LIR 2032, rechargable lithium battery

9 Accessories

Position:	Description:	Part no.:
1	Lithium battery LIR 2032	701851
2	Central nut M10x1 (2 mm wide, hole 10mm) Central nut M10x1 (4 mm wide, hole 12mm	20000 203685
3	Rubber washer Ø 40 x 12.5 x 0.5 mm If needed (depending on dial thickness): Rubber washer Ø 40 x 12.5 x 1 mm Rubber washer Ø 43 x 12.5 x 2 mm	32002 250079 250078
4	Metal ring for dial protection (used for nut 203685 only) Ø 16 x 12.5 x 0.5	22699
5	Needles for hand mounting	701710

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