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SM40

INSTALLATION AND OPERATING INSTRUCTIONS

Mini — 24 V DC · 1 A



Read all the instructions before installation and keep them for future reference. These instructions apply to SM40 24V 1A Mini (5267039) and SM40 24V 1A Mini + batteries (5267099). SM40 Medium, Large and XL have separate instructions.

⚠ SAFETY – READ THIS FIRST

- ⚠ **Lethal voltage.** Hazardous voltages and currents are present in the unit whether the internal fuses are on or off. The area at the warning label "WARNING – Hazardous voltage" on the circuit board is live when mains voltage is connected.
- ⚠ **Qualified personnel only.** Only authorised personnel experienced in AC and DC may operate, install, work on, service or maintain the unit.
- ⚠ **Insulated tools.** Use only insulated tools inside the unit.
- ⚠ **Batteries are always active.** Batteries are always electrochemically active, even when the unit is disconnected. Never short-circuit the battery terminals.
- ⚠ **Read and understand the instructions.** The instructions must be read thoroughly and understood by all personnel handling the unit. If in any doubt about the system's design, function, components or safety – contact the supplier.
- ⚠ **Check before installation.** Check that the circuit board is securely fixed and has not been damaged in transport.

✓ DO

- ✓ Read all the instructions before starting work.
- ✓ Use insulated tools.
- ✓ Check that the circuit board is securely fixed and undamaged.
- ✓ Mount the unit with free space around it so that ventilation is not blocked.
- ✓ Follow the connection order: 230 V AC → batteries → load.
- ✓ Check the output voltage before connecting batteries and load.
- ✓ Contact Swansons if in any doubt.

✗ DO NOT

- ✗ Work inside the unit without AC and DC qualification.
- ✗ Assume the unit is de-energised because the fuses are switched off.
- ✗ Short-circuit the battery terminals.
- ✗ Cover the enclosure ventilation.
- ✗ Load the UT output above the rated current of 1 A.
- ✗ Fit fuse boards or DC/DC converters – they do not fit the Mini.

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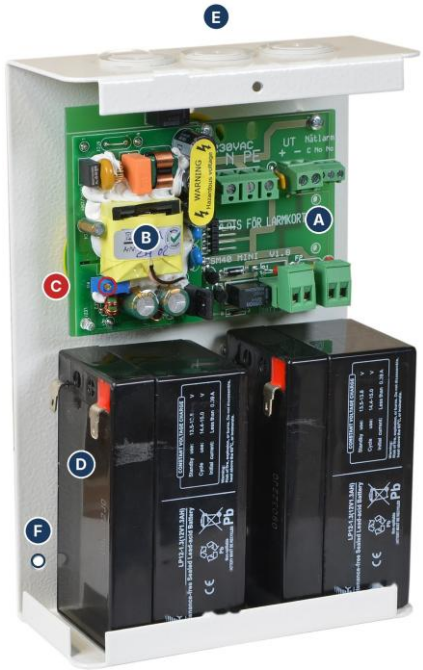
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1 UNIT LAYOUT



The picture shows SM40 24V 1A Mini with 2 × 12 V 1.3 Ah batteries.

A **Circuit board**
Single-board design with power supply, connections, fuses and alarm relay – see section 3.

B **Power supply section**
Located on the circuit board. Mains voltage is connected to the circuit board.

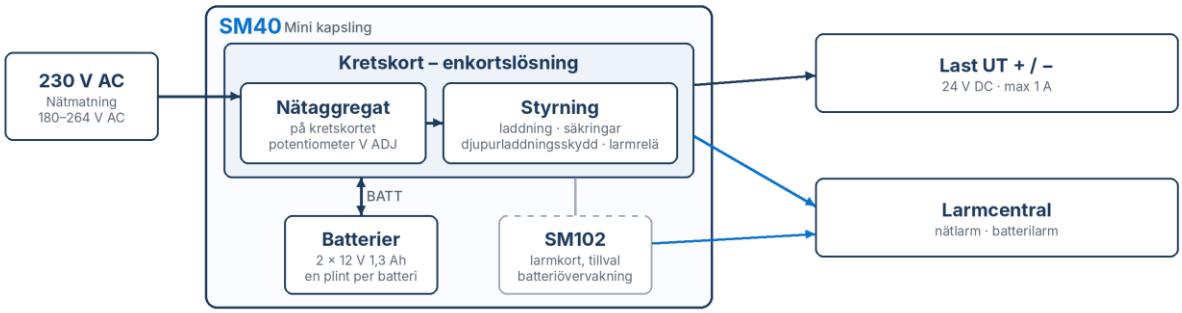
C **Potentiometer V ADJ (R13)**
Blue trimmer potentiometer at the bottom left of the circuit board. Output voltage adjustment.

D **Battery space**
2 × 12 V 1.3 Ah, one per battery terminal. Batteries are not included with the product.

E **Cable entry**
Three cable entries along the top edge. All for M20.

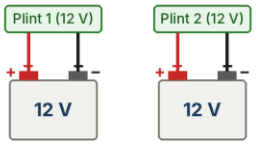
F **Mounting holes**
One keyhole at top centre and three round holes in a row at the bottom.

Block diagram and battery connection



BATTERIKOPPLING

24 V
Ett batteri per 12 V-plint – seriekopplas på kretskortet



Batterier
- Varje batteri ansluts till en egen 12 V-plint
- Kretskortet seriekopplar batterierna till 24 V
- SM40 24V 1A Mini + batterier (5267099): batterierna levereras i separat kartong
- Kontrollera polariteten – kortslut aldrig batteripolerna
- Byt alltid båda batterierna samtidigt

2 INSTALLATION

> ⚠ **WARNING**
>
> **Work may only be carried out by qualified personnel.** Hazardous voltage is present in the unit even when the internal fuses are switched off. Use insulated tools.

2.1 Before installation

- Check that the delivery is complete, that the enclosure and circuit board have not been damaged in transport and that the circuit board is securely fixed.
- Check that the correct variant has been delivered: SM40 24V 1A Mini (5267039) or SM40 24V 1A Mini + batteries (5267099).
- With 5267099, two 12 V 1.3 Ah batteries are supplied in a separate box. For 5267039, the batteries must be 2 × 12 V 1.3 Ah.

2.2 Mounting

- Mount the unit on the wall with free space around it. The back plate has a keyhole at top centre and three round holes in a row at the bottom.
- Do not cover the enclosure ventilation.
- Cables enter through three cable entries in the top edge of the enclosure (M20).

SIZE	DIMENSIONS H×W×D (MM)	HOLE SPACING W×H (MM)
Mini	200 × 135 × 60	**113.5 × 164.3**

Hole spacing = centre-to-centre distance. W = between the outer round holes, H = from the keyhole to the row of holes. The keyhole is directly above the centre hole. Hang the unit on the keyhole and secure it with screws in the three round holes.

2.3 Connection

Numbers in brackets refer to the circuit board picture in section 3. Follow the order: **mains → batteries → load.**

1. First connect 230 V AC **(1)**. The mains voltage LED lights up.
2. Check that the output voltage is at the factory setting (see table below). **Do not reduce it to the nominal voltage – the batteries will then not be fully charged and will be damaged.**
3. If necessary, adjust the output voltage with the V ADJ potentiometer on the circuit board **(C, see section 1)**.
4. If the LED does not light up: check the input voltage and the input fuse **(6)**.
5. Connect the batteries **(4)** – one 12 V battery on each battery terminal, + on the left and – on the right. The circuit board connects the batteries in series to 24 V; no external series link is needed. **Never short-circuit the battery terminals – batteries are always electrochemically active.**
6. Connect the load to the UT + / – output **(2)**.
7. If required, connect the alarm relay **(3)** to a higher-level alarm or monitoring system.
8. If fuse F2 trips **(7)**: check the wiring and the connected equipment.

2.4 Checking the output voltage

VARIANT	NOMINAL	FACTORY SETTING	ADJUSTMENT RANGE (POT.)
SM40 24V 1A Mini	24 V DC	27.4 V DC	23.3 – 28.4 V DC

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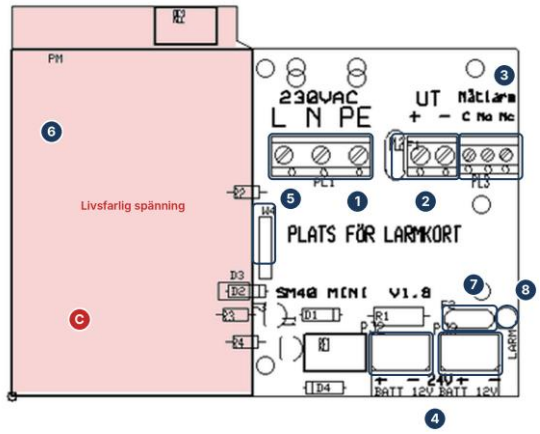
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3 CONNECTIONS



■ Red area = power supply section (PM) – lethal voltage. Terminal 1 is also live.

1 **Mains voltage 230 V AC – PL1**
L · N · PE. 230 V AC (180–264 V), 47–62 Hz.

2 **Load output UT + / – – PL2**
24 V DC, max 1 A.

3 **Mains failure alarm relay – PL3 (C · No · Nc)**
Changeover, max **1 A**. Mains operation: C–Nc closed. Battery operation: C–No closed.

4 **Battery terminals BATT 12V – PJ2, PJ3**
One battery per terminal, + left, – right. Connected in series to 24 V on the board.

5 **Space for alarm board SM102 – W4**
Option for battery monitoring.

6 **Input fuse**
Internal fuse (not replaceable).

7 **Fuse F2**
PTC fuse 1.8 A (not replaceable).

8 **ALARM LED**
Shows the SM102 flash sequences.

C **Potentiometer V ADJ (R13)**
In PM, bottom left. See section 2.4.

4 FUNCTION, INDICATION AND ALARMS

A green LED on the front indicates that mains voltage is present. SM40 Mini has a changeover alarm relay for mains failure. With alarm board SM102, a relay for battery monitoring is added.

RELAY	NORMAL STATE	ALARM STATE
Mains failure alarm relay (3) – standard, max 1 A	Mains operation: C–Nc closed	Battery operation: C–No closed
Battery alarm – SM102 (option)	Normal operation: C–Nc closed	Alarm state: C–No closed

5 TROUBLESHOOTING

PROBLEM	ACTION
The mains voltage LED does not light up	Check the input voltage – 230 V AC (180–264 V), 47–62 Hz – and the input fuse (6).
Incorrect output voltage	Should be 27.4 V (charging voltage). **Do not turn it down to 24 V – the batteries will be damaged.** Adjust with the potentiometer, see 2.4.
Fuse F2 (7) trips	Check the wiring and the connected equipment. Check that the total load does not exceed 1 A.
The unit does not switch over to battery operation	Check that the battery connections are correct. Measure the voltage of each battery individually; the voltages should be the same. Check that the charging voltage is correct, 27.4 V.
Battery fault LED flashes	Check that the battery connections are correct. If the connections are OK, the batteries are faulty and need to be replaced. After replacement, the alarm must be reset with a button on alarm board SM102. (Does not apply to SM102HV, which resets automatically.)

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PROBLEM	ACTION
Battery fault alarm relay does not switch	SM102 measures the batteries in 15-minute cycles; the relay switches after a measurement. If the relay has not switched after 15 minutes, contact our support for help.

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6 MAINTENANCE

- Maintenance and service may only be carried out by qualified personnel experienced in AC and DC.
- Check the batteries and connections once a year.
- Function test: disconnect the mains voltage and check that the load is supplied from the batteries and that the mains failure alarm relay is activated. Restore the mains voltage and check that the LED lights up and the alarm resets.
- Replace the batteries according to the battery manufacturer's recommendation, normally after 3–5 years. Always replace both batteries at the same time and use 2 × 12 V 1.3 Ah.
- Keep the ventilation openings free from dust and objects.

7 WARRANTY AND RECYCLING

- **Warranty:** 2 years in accordance with Swansons Telemekanik's general terms of delivery.
- **Recycling:** The product is electronic waste and must be taken to electronics recycling. Batteries must be taken to a battery collection point. Do not dispose of with household waste.

Support and service

If in any doubt about the system's design, function, components or safety – contact Swansons Telemekanik on **0303-746 320** or **info@swtm.se**.

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8 TECHNICAL DATA

Input voltage	**230 V AC (180–264 V), 47–62 Hz**
Output voltage, nominal	**24 V DC**
Output voltage, factory setting	**27.4 V DC** Adjustable with potentiometer on the circuit board. Adjustment range: 23.3 – 28.4 V DC
Rated current	**1 A** Refers to the total load on the UT output
Efficiency	**86–90 %**
Battery voltage	**24 V**
Batteries	**2 × 12 V 1.3 Ah – one battery per 12 V terminal, connected in series on the circuit board** Not included with the product. Sales item 5267099 = 5267039 + 2 × 12 V 1.3 Ah, supplied in separate boxes. Connected during installation as described in section 2.3
Protection	**Overload, short circuit and deep discharge** Mains, load and battery are fused separately
Indication	**Green LED on the front: mains voltage**
Alarm	**Changeover relay for mains failure** Max relay contact load: **1 A** · Option SM102: changeover relay for battery monitoring
Accessories	**Alarm board SM102 (5256993) · Tamper switch SAB40 (5256991)** SPM900 fuse boards and DC/DC converters do not fit the Mini
Mounting	**Wall mounting**
Enclosure rating	**IP20**
Dimensions H×W×D	**200 × 135 × 60 mm**
Weight	**0.9 kg (1.0 kg incl. packaging)**
Approvals	**CE marked – EN 61000-6-3:2001, EN 61000-6-2:2005** RoHS, REACH

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