PLEASE READ CAREFULLY BEFORE INSTALLING OR USING SMART ENERGY SAVER. THIS UNIT SHOULD ONLY BE INSTALLED AS SUPPLIED (AS A PLUG AND PLAY UNIT) IF YOU HAVE PURCHASED THE HARD WIRED VERSION THIS MUST ONLY BE INSTALLED BY A QUALIFIED ELECTRICIAN
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IMPORTANT
This booklet should be retained for future reference after installation.

Imprint
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This user manual may only be reprinted or copied in whole or in part with the express, written approval of Smart Energy Saver Ltd. Any type of reproduction, distribution or storage on data carriers in any form and of any kind not authorised by Peraqua GmbH represents a violation of the applicable copyright laws and will be prosecuted. We reserve the right to make technical changes which serve to improve the device, or which increase the safety standard – even without separate prior notice.
1. **Introduction**

Thank you for purchasing the **Smart Energy Saver**. To enjoy the energy saving benefits of this device, please take the time to read this manual thoroughly **BEFORE** beginning installation. Please keep this manual for future reference.

If you experience any difficulty with the installation or operation of your new Smart Energy Saver, then please contact your supplier.

2. **Interface translation**

3. **Important Safety Information**

1. The **Smart Energy Saver** has been designed for your convenience, economy and safety of use, provided that it is installed and used in accordance with our instructions and recommendations.
2. This product must be installed as per this installation manual. Failure to follow the guidelines and instructions may result in an electrical hazard which may cause serious injury (even death), or property damage.
3. This device should **ONLY** be used with PSC (Permanent Split Capacitor) domestic SINGLE SPEED swimming pool pumps. See Figure 1 to see a typical single speed swimming pool pump motor.
4. **The Smart Energy Saver is NOT COMPATIBLE WITH:**
   a. Split phase pool pump motors with centrifugal switch gear
   b. Pool pump motors with start relays
   c. Series or DC motors
   d. Pool pump motors with faults in their rotors or capacitors
   e. ANY OTHER APPLIANCE OR MOTOR other than those stated in this document.

**WARNING:** If you are in any doubt about the compatibility of your pool pump with this device, please contact your supplier before proceeding with installation.

5. To reduce the risk of injury, do not permit children to use this device.
6. **The SMART ENERGY SAVER** has an internal 15A fuse. See warning below.
7. **The SMART ENERGY SAVER** has internal battery backup. See warning below.
8. **The SMART ENERGY SAVER** has a 240v 2 Amp output dry contact which switches on when the pump is running to give a signal to heat pump/ Chlorinator
9. **The SMART ENERGY SAVER** has an anti freeze temperature sensor. The unit when running in auto mode, **NOTE:** (if pump is not active by time clock to run) will switch the pump on high save if the ambient temperature drops to 1 deg c. the pump will switch back off when temperature rises back to 3 deg c

**WARNING:** If the internal fuse or battery needs to be replaced the work must be done by electrician or authorised service agent. The unit must be disconnected from electrical power before repair can be made.

4. **Important Location Requirements**

1. The warranty may be compromised if the Smart Energy Saver is not installed in accordance with the installation guidelines.
2. The Smart Energy Saver can be installed indoors or outdoors. It should be installed in a location somewhere with a free flow of air, where the ambient temperature is between -10°C and +40°C. It should be installed in a
location that is out of direct sunlight. The minimum requirements for airflow around the heat sink are a major factor contributing to efficient cooling of the Smart Energy Saver and as a result the Smart Energy Saver should never be installed where these minimum space requirements are not met.

3. The Smart Energy Saver must be mounted on a non flammable flat surface such as a wall. Allow at least 400mm clearance from the top, 400mm from the bottom and 70mm on each side of the Smart Energy Saver.

4. Do not mount Smart Energy Savers above each other or another source of hot air. Do not install the Smart Energy Saver anywhere that it is likely to accumulate debris such as tree leaves or large amounts of dust. Do not mount the Smart Energy Saver in a cupboard or an enclosed space with no air flow as this may cause the Smart Energy Saver to overheat and potentially cause damage.

5. Make sure the mounting surface can support the weight of the Smart Energy Saver before you begin. If you are installing on plaster board, use supporting material such as plywood or secure the fasteners to supporting wall studs. The mounting bracket must not be installed directly on galvanised steel.

6. The Smart Energy Saver should be installed in a location which makes it unlikely to be damaged (e.g. by impact from persons, objects or vehicles), where it is accessible for operating, adjusting and maintaining, and where sufficient space to make the input and output connections without stress on (or kinking) of the conductors.

**WARNING:** Smart Energy Saver should not be installed ON OR CLOSE TO flammable materials

5. **Before Installing Smart Energy Saver**

1. Check to see if the Smart Energy Saver has been damaged in transit. If it is found to be damaged you **SHOULD NOT PROCEED** with installation and contact your supplier.

2. If the supply cord is damaged **DO NOT PROCEED WITH INSTALLATION.** This should only be replaced by the manufacturer. Contact your supplier for further instruction.

3. Do not use extension leads with the Smart Energy Saver. This can pose a danger particularly in the vicinity of a swimming pool.

4. If the supply cord is damaged, do not proceed with installation, and contact your supplier.

5. **This device should ONLY be used with PSC (Permanent Split Capacitor) SINGLE SPEED swimming pool pumps.** See Figure 1 to see a typical single speed swimming pool pump motor.

6. If you are unsure if your pump is compatible with Smart Energy Saver, please contact your supplier before proceeding with installation.

7. The installation environment has a direct impact on the normal function and life of the Smart Energy Saver, therefore the device should be installed in a place that meets the following conditions:
   a. Temperature should remain between -10 and +40 degrees Celsius
   b. Away from direct sunlight
   c. The weather protector supplied should **ALWAYS** be installed when using the Smart Energy Saver externally.

**WARNING:** Due to the potential risk of fire, electric shock, or injuries to persons, **Smart Energy Saver must be connected to an electrical circuit that has earth leakage protection (RCD) of a maximum of 30mA.** The circuit MUST also comply with local and national electrical standards and safety codes. If you are in ANY doubt please contact a qualified electrician to check your house wiring and confirm.

6. **Smart Energy Saver Technical Data**

   - **Input power:** 1~ 220-240V
   - **Output power:** 1~ 220-240V
   - **Input Frequency:** 50Hz
   - **Maximum power:** 1100W (1.1KW)
   - **Max Current:** 10A
   - **IP65**
   - **Class I appliance – accessible conductive parts are earthed**
   - **Appliance has inbuilt overcurrent protection (10A)**
   - **This unit can ONLY be connected to a electrical supply**
   - **Fuse 15A (internal)**
   - **Battery Backup (3v lithium)**
   - **Temperature sensor**

![Typical single speed swimming pool pump motor diagram.](image)
7. Installing Smart Energy Saver

Figure 2

1. Wall mounting bracket.
2. Controller to mounting bracket screws.
3. Wall mounting screws
4. Smart Energy Saver Controller
5. Temperature sensor

WARNING: Do not expose the user interface to direct sunlight. Too much direct sunlight will shorten the life of the display.

1. Turn off all electrical power to the pool pump at the main switch or at the chlorinator which provides electrical power to the pump.
2. Retrieve a minimum of two (2) fasteners (supplied) to attach the back plate to the wall ensuring the leads will reach. This will ensure the Smart Energy Saver is held securely in place.
   Check to ensure there is a minimum of 400mm between the bottom of the back plate and the ground/floor. (ensure controller is mounted out of direct sunlight and under cover)
3. The back plate has ten (10) mounting holes to choose from. See Figure 2. Mark the hole locations on the wall and then use the fasteners to secure the back plate to the wall.
4. Using the screws supplied, mount the Smart Energy Saver onto the back plate. See Figure 2.

WARNING: Please note, this appliance weighs 3.5kgs and therefore it is extremely important that it is mounted securely to a hard static non flammable surface such as a concrete wall.

For more information on installing the Smart Energy Saver please see our website and installation video.

8. Connecting the Smart Energy Saver to your Pool Pump

This section is for use on the Plug and Play version of the Smart Energy Saver. If you have purchased the hard wired version the installation must be carried out by a qualified electrician.

WARNING: Only ONE pump can be connected to the Smart Energy Saver. No other appliance can be connected to the output. Failure to comply with this will result in damage to the Smart Energy Saver and/or appliance and may cause severe injury, death or property damage. Improper installation and/or operation will also void the warranty of the Smart Energy Saver.

The following steps provide the procedure for connecting the Smart Energy Saver to a single speed (PSC) swimming pool pump.

1. Turn off all power to your pool pump.
2. Remove the pump’s plug from the bottom of the chlorinator or timer.
3. Plug the pool pump into the Smart Energy Saver power outlet marked (PUMP CONNECTION ONLY)

WARNING: You can only use an energy monitor on the input side of the Smart Energy Saver as this is what will show your energy usage. DO NOT connect an energy monitor to the output pump connection.
4. Plug the Smart Energy Saver into the chlorinator/timer connection where the pump was originally plugged into.
5. Mount temperature sensor bulb in an external place to read ambient temperature.
   NOTE: Sensor bulb must be protected from wind and rain to ensure correct reading is received.
6. Switch all power back on.
7. Ensure chlorinator/timer is active.
8. Now your Smart Energy Saver is ready to run. Now just follow the programming guide.

**WARNING:** Do not touch the metal surface while the Smart Energy Saver is in operation or until at least 30 minutes after it has been switched off.

9. **Smart Energy Saver Control Panel**

   The Smart Energy Saver control panel provides both manual (manually selected speeds) and Auto (automatic time and speed control). See below for a description of control panel functions.

   For more information on programming the Smart Energy Saver please see the programming guide and the programming video on the website.

**Figure 3**

<table>
<thead>
<tr>
<th>Number</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AN / AUS</td>
<td>Used to turn the pump on and off.</td>
</tr>
<tr>
<td>2</td>
<td>Funktion</td>
<td>Used for switching between functions and also programming.</td>
</tr>
<tr>
<td>3</td>
<td>Super Sparen</td>
<td>Mega savings up to 80% 1200rpm (not recommended when using a pool cleaner which requires pressure or vacuum)</td>
</tr>
<tr>
<td>4</td>
<td>Viel Sparen</td>
<td>High savings up to 70% 1750rpm (recommended when using a pool cleaner which requires pressure or vacuum)</td>
</tr>
<tr>
<td>5</td>
<td>Mittel Sparen</td>
<td>Medium savings up to 60% 2000rpm (recommended if using a small pump on large pool)</td>
</tr>
<tr>
<td>6</td>
<td>Ruck Spulung</td>
<td>Low savings up to 45% 2700rpm (recommended for back washing filter)</td>
</tr>
<tr>
<td>7</td>
<td>Runter</td>
<td>Used to adjust speed and time settings</td>
</tr>
<tr>
<td>8</td>
<td>Hoch</td>
<td>Used to adjust speed and time settings</td>
</tr>
<tr>
<td>9</td>
<td>LED Light</td>
<td>Power LED</td>
</tr>
</tbody>
</table>
10. Warranty Information

Please read and understand the Warranty Terms and Conditions in full. Failure to follow the instructions in this installation manual in full can result in damage to property and/or persons and void the warranty.

Terms and Conditions

The Smart Energy Saver comes with a 24 month factory warranty from the date of purchase. Within the warranty period we will resolve any factory defects in the product resulting from faulty workmanship or material on the condition that:

1. The device has been correctly installed in accordance with our instructions
2. The device has been used in accordance with these instructions and has not been tampered with or otherwise subject to neglect or accident.
3. The device has not been taken apart, modified or repaired except by a person authorised by Peraqua.
4. The device has not been used for any purpose other than the intended use and within the rating limit.
5. Evidence of the date of purchase in the form of an invoice or receipt can be provided in order to qualify for an in-warranty repair
6. The service work to be undertaken will only be undertaken by Peraqua, or our approved agents.

EXCLUSIONS

This warranty DOES NOT cover damage or defects arising from poor or incorrect installation or improper use. It is the responsibility of the installer to check that the installation parameters meet the requirements of the product, and any relevant regulations. Wear and tear of the device is NOT covered by this warranty. Damaged caused by exposure to water to this device is NOT covered by this warranty. The warranty applies to a repair or replacement (at our discretion) of the product subject to the conditions above, and DOES NOT cover compensation for the loss of the product or consequential loss of any kind. If the warranty seal has been broken the warranty will be voided.

This warranty does not apply to the repair or replacement of pool pumps connected to this device. It is the responsibility of the installer to ensure that this product is compatible with the Smart Energy Saver. This warranty does not affect your statutory rights.

PLEASE NOTE:

It is the CUSTOMER’S RESPONSIBILITY to return the product to the place of purchase if there is a valid warranty claim. A copy of the proof of purchase must be returned with the faulty Smart Energy Saver. If Peraqua accept the warranty claim they will refund the return postage fee along with the repaired or replaced Smart Energy Saver, otherwise all repair and postage costs will be payable by the purchaser. As Smart Energy Saver is a portable device, this warranty is valid for 24 months from the original purchase of the product even when the customer moves residence. All terms and conditions stated above apply when the device is used with a different pool pump within that warranty period. Proof of original purchase will be required for all claims.

No warranty of accuracy is given concerning the contents of the information contained in this manual. To the extent permitted by law no liability (including liability to any person by reason of negligence) will be accepted by Peraqua, its subsidiaries or employees for any direct or indirect loss or damage caused by omissions from or inaccuracies in this document.

Smart Energy Saver Ltd reserves the right to change details in this publication without notice.

11. Returns Information

Please contact your supplier for their returns policy.
12. WEEE Legislation

The symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.

13. CE Marking and Standards

The Smart Energy Saver meets the following standards for CE marking:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 61800-5-1:2007</td>
<td>Adjustable speed electrical power drive systems -- Part 5-1: Safety requirements - Electrical, thermal and energy.</td>
</tr>
<tr>
<td>EN 60529:1992+A2:2013</td>
<td>Degrees of protection provided by enclosures (IP code)</td>
</tr>
<tr>
<td>EN 50419:2006</td>
<td>Marking of electrical and electronic equipment in accordance with Article 11(2) of Directive 2002/96/EC (WEEE)</td>
</tr>
<tr>
<td>EN 50581:2012</td>
<td>Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances</td>
</tr>
</tbody>
</table>

14. Storage

When not in use, the Smart Energy Saver should be stored in a cool dry place.

15. Maintenance

The Smart Energy Saver does not require any maintenance.

16. Dimensions and Weight

**Dimensions**

| Width: 220mm |
| Height: 180mm |
| Depth: 120mm |
| Weight: 3.5kg |
17. Hard Wiring
(For use only by qualified electrician)

IMPORTANT: If your pool pump is not connected with a cord and plug then the Smart Energy Saver must be hard wired by a qualified electrician to local and national electrical codes and standards.

WARNING

- WARNING- Risk of electric shock.
- INSTALL IN ACCORDANCE WITH THE MANUFACTURER’S INSTALLATION INSTRUCTIONS.
- Ensure the Smart Energy Saver is connected only to a circuit with earth leakage protection (GFCI/RCD). Must comply with local and national standards.
- Do not connect the AC power supply to output terminal (marked on Diagram 1 motor connection U,V,PE)
- Ensure power is disconnected prior to performing any electrical installation (Risk of electrical shock). Always disconnect power to the pool pump at the circuit breaker before servicing the controller. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electric shock.
- Verify the Smart Energy Saver, main supply and motor voltages are all consistent.
- Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.
- CAUTION — Install the controller a minimum of 5 feet (1.5 m) from the inside wall of the pool and spa.
- When setting up pool water turnovers or flow rates the operator must consider local codes governing turnover as well as disinfectant feed ratios.
- CAUTION — This controller is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity and has a maximum dimension of 18 feet (5.49m) and a maximum wall height of 42 inches (1.07m).
- Never open the inside or the Smart Energy Saver enclosure. There is a capacitor bank that holds a 230 VAC charge even when there is no power to the unit.
- The Smart Energy Saver Controller is not submersible
- Code requirements for the electrical connection differ from state to state. Install equipment in accordance with all applicable local codes and ordinances.

Smart Energy Saver Installation Procedure

Installation must be performed by a qualified electrician adhering to all recognized local and national electrical codes.

NOTE — If required by local building codes, the controller is to be supplied by an isolating transformer or supplied through a residual current device (RCD) having a residual operating current not exceeding 30 mA.

NOTE — Use RCD/GFCI type A or B.

The Smart Energy Saver hard wired edition comes with input and output cables:

- Input cable is 1.5 meters long
- Output cable is 4 meters long

Installation Instructions:

1. Verify the Smart Energy Saver main supply and motor voltages are consistent.
2. Confirm that earth protection is present.
• Grounding must be present at the installation location and from the service panel where grounding originates.
• Correct grounding should be determined by a licensed electrician.

3. Turn off the circuit breaker that will provide power supply to the Smart Energy Saver circuit.
   • After disconnecting power supply to the circuit that feeds power to the swimming pool circulation pump, installation of the Smart Energy Saver Controller can be performed.

4. Mount and Install Smart Energy Saver.
   • Refer to section 3, 4, 5 & 6 of this manual to ensure mounting to manufacturer and warranty requirements.

5. Connect cables to Smart Energy Saver as per wiring diagram below (diagram 1)
   • Ensure all cables are sized and installed to local and national codes (for example Conduit or non conduit). All cable and conduit must comply with local and national codes.
   • Mount temperature sensor bulb in an external place to read ambient temperature.
   • NOTE: Sensor bulb must be protected from wind and rain to ensure correct reading is received

Diagram 1

Confirm that the National Electrical Codes and Local Electrical Codes support the specific conduit, cable, and associated connectors for the appropriate application.
18. Introduction to Programming the Smart Energy Saver

The Smart Energy Saver has two run modes, manual mode and auto mode. Manual mode is used when you are connecting to a pool chlorinator or timer. The system time settings are not required to run in this mode. Auto mode is used when there is no chlorinator or timer and includes up to 4 separate timers with individual speed options. This is ideal for when you want to run your pool pump at different times and speeds to take advantage of the different electrical tariffs.

19. Manual Mode

In off mode press the FUNKTION button once.

The display will now show MANUAL, SPEED 1 and the speed in rpm.

Press the up or down buttons to select the speed. Alternatively press one of the systems, preset speed buttons SUPER SPAREN, VIEL SPAREN, MITTEL SPAREN.

Press the ON OFF (AN AUS) button to put it into on mode, this will start the pump. When the chlorinator timer turns off, the Smart Energy Saver will store the speed and resume at that speed when switched on again. To stop the pump simply press the ON/OFF (AN AUS) button again.
20. Backwash Mode

In off mode press the FUNKTION button once. The display will now show MANUAL, SPEED 1 and the speed in rpm.

Press the BACKWASH (Rückspülung) button. The display will now show SPEED 4 and the rpm.

Press the ON OFF (AN AUS) button to put it into on mode, this will start the pump. Press the ON OFF button to stop the pump. If previously set in manual mode you will need to follow the manual mode instruction to set it again. If previously in Auto mode you will need to put the Smart Energy Saver back into auto mode. Previous setting will not be affected.

21. Setting System Clock

In off mode press and hold FUNKTION button for five seconds. The display will then show the hour digits flashing.

Press the UP or DOWN (HOCH RUNTER) buttons to select the hours.
Press the FUNKTION button to step over to minutes. The display will then flash the minutes digits.

Press the UP or DOWN (HOCH RUNTER) button to select the minutes.

Press the FUNKTION button to store the time. The display will now show the current time with flashing cursor and the word NOW is shown at the top.

22. Setting Auto Mode Timers and Speeds

In off mode press the FUNKTION button 3 times. The display should show START, TIMER 1 and the stored time with hours digits flashing. This is the start time for TIMER 1.

Press the up or down (HOCH RUNTER) button to select the hours.

Press the FUNKTION button to step over to minutes. The display will then flash the minutes digits.
Press the up or down (HOCH RUNTER) button to select the minutes.

Press the FUNKTION button to store the time and step to STOP time. The display will now show STOP, TIMER 1 and the stored time with hours digits flashing. This is the stop time for TIMER 1.

Press the up or down (HOCH RUNTER) button to select the hours.

Press the FUNKTION button to step over to minutes. The display will then flash the minutes digits.

Press the up or down (HOCH RUNTER) button to select the minutes.

Press the FUNKTION button to store the time and step to SPEED setting. The display will now
show SPEED 1-4, TIMER 1 and rpm. This is the speed for TIMER 1.

Press the up or down (HOCH RUNTER) button to change motor speed. Alternatively press one of the systems preset speed buttons SUPER SPAREN, VIEL SPAREN, MITTEL SPAREN.

Press the FUNKTION button to store the speed and step over to TIMER 2. The display will now show TIMER 2, START and the stored time with the hours digits flashing.

Repeat steps above to set speed, start and stop times for TIMER 2 3 and 4. Pressing the FUNKTION button after selecting the speed for TIMER 4 will finalize the timer settings.

The display will go blank and return to off mode with the current set time displayed. Alternatively if you only require one time period per day press the FUNKTION button to cycle through time a speed settings of the remaining TIMERS ensuring all start and stop times are set to zero’s or to the same time period as TIMER 1+.

Please note all settings for TIMER 1 to 4 will be retained in the event of power loss.

23. **Auto Mode**

After all timers have been set. In off mode press the function key twice. The display will now show AUTO, EVERYDAY and current system time. The Smart Energy Saver will then start and stop the pump at set times and speeds.

**Warning** if power is lost system time will need to be set again. The unit will also have to be switched to auto mode.