Vis-Solis In-Rooft 2.5M Installation Manual

REGISTER THIS PRODUCT ONLINE WITHIN 28 DAYS OF COMMISSIONING

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JL-VISIR2.5-INS-001-03-2017
# Warranty Card

**Please register your product online**

**MUST BE COMPLETED AND THEN REGISTERED ONLINE TO COMPLETE WARRANTY**

## Homeowner Information
- **Name**
- **Address**
- **Contact Tel.**
- **Contact Email**

## Installer Information
- **Name**
- **Address**
- **Contact Tel.**
- **Contact Email**

## Product Details

<table>
<thead>
<tr>
<th>Product</th>
<th>Product Installed</th>
<th>Serial Number</th>
<th>Installation Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder</td>
<td>☐</td>
<td>Located on cylinder badge</td>
<td></td>
</tr>
<tr>
<td>Solar Thermal</td>
<td>☐</td>
<td>Take from solar controller</td>
<td></td>
</tr>
<tr>
<td>Solar PV</td>
<td>☐</td>
<td>Ser. No. from String / Micro Inverter</td>
<td></td>
</tr>
<tr>
<td>Air Source Heat Pump</td>
<td>☐</td>
<td>Located on external heat pump badge</td>
<td></td>
</tr>
<tr>
<td>Integrated Heat Pump and Cylinder</td>
<td>☐</td>
<td>Located on cylinder badge</td>
<td></td>
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<tr>
<td>Underfloor Heating</td>
<td>☐</td>
<td>Project ref. on supplied schematic</td>
<td></td>
</tr>
<tr>
<td>Intergas Gas Boiler</td>
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<td>Located on cylinder badge</td>
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<tr>
<td>Was a Pre-Plumbed cylinder installed too?</td>
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</tr>
</tbody>
</table>

**Joule Advance Installer**

**I accept the terms and conditions in the installation manual**
2. The Company’s liability to the Buyer for death or injury resulting from its own or that of its employees’ agents’ or subcontractors’ negligence and damage suffered by the Buyer as a result of any breach of the obligations implied by Section 12 of The Sale of Goods Act 1979 shall not be limited.

3. If Joule fails to deliver the Goods for any reason other than any cause beyond the Company’s reasonable control or the Buyer’s fault then Joule shall only be liable to the Buyer for and the Company’s liability shall be limited to the excess (if any) of the cost to the Buyer (in the cheapest available market) of similar goods to replace those not delivered over the Price of the Goods.

4. The Buyer shall examine all delivered Goods forthwith. Any claim based on any defect in the quality or condition of the Goods or their failure to meet specification shall be notified to Joule within 7 days from the delivery date or where the defect was not apparent on reasonable inspection within a reasonable time after discovery of the failure. If delivery is not refused and the Buyer does not notify Joule the Buyer shall not be entitled to reject the Goods.

5. Joule shall be entitled to examine any Goods, which are the subject of any claim by the Buyer, and to remove such Goods or any part thereof for testing. No tests carried out by the Buyer will be recognised by Joule unless carried out strictly in accordance with a method previously agreed by Joule as being suitable for the purpose.

6. Any valid claim in respect of the Goods which is based on any defect in the quality or condition of the Goods or their failure to meet specification is notified to Joule in accordance with these Conditions Joule shall be entitled to repair or replace the Goods (or the part in question) free of charge or at the Company’s sole discretion refund to the Buyer the Price (or a proportionate part of the Price) but Joule shall have no further liability to the Buyer.
7. Joule shall not be liable to the Buyer by reason of any representation (unless fraudulent) or any implied warranty condition or other term or any duty at common law (including but without limitation the negligence of Joule its employees agents or otherwise) or under the express terms of the Contract for any loss of production loss of profits or anticipated profits loss of contracts operation time or anticipated savings loss of business or of expected further business loss of or corruption to data damage to the Buyer’s reputation or goodwill damages costs or expenses payable by the Buyer to any third party or any other indirect special or consequential loss or damage or claim (whether caused by the negligence of Joule its employees agents or otherwise) which arise out of or in connection with the supply of the Goods or their use or resale by the Buyer.

8. Without prejudice to the provisions of clauses 3, 4, 5, 6 and 7 the entire liability of the Buyer under or in connection with the Contract shall not exceed the Price of the Goods.

9. Joule shall not be liable to the Buyer or be deemed to be in breach of the contract by reason of any delay in performing or any failure to perform any of the Company’s obligations in relation to the Goods if the delay or failure was due to any cause beyond the Company’s reasonable control. Without limiting the foregoing, due to causes beyond the Company’s reasonable control.

10. For comprehensive details regarding “Warranties and Liability” please refer to the “CONDITIONS OF SALES” available to view on our website.
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36 Service Record

Do not crosswire the power cable with the comms cable on the solar pump. If you do this you will see a flashing green light on the pump. The pump will not operate. The pump will be rendered obsolete and will need to be replaced with a new pump. This is not covered under a product warranty.
Pre-Installation Notes

Solar hot water systems should be designed and sized correctly before commencing the installation. Proper design will ensure that a system is correctly sized to provide many years of optimised performance and most or all of the required hot water when the most solar radiation is available. However a supplementary heating system such as oil or gas boiler, heat pump or wood boiler is required for months that have less solar radiation. This guide will illustrate and explain how a system should be installed to conform to the Joule manufacturer guidelines for the Navitas/Acapella/Vis-Solis product models. Using this guide, stages of a solar installation will be described in the following pages, with illustrations where necessary to explain how to install the relevant components, and contains general recommendations and important safety information.

Handling Guidance

• Tube, manifold and panel boxes should be transported horizontally
• Heavy goods should not be loaded on top of the kit boxes
• Care should be taken when opening boxes to prevent scratches or sudden shocks to the glass.
• Do not use sharp objects to open the packaging

Installation Guidance

• Unpack and install tubes and/or panels only after the manifold and pipe work has been installed
• Do not leave the solar collector exposed to solar radiation when the solar loop and manifold have been drained.
• If installing tubes they must have a minimum elevation of 20 degrees and a maximum or 70 degrees. The pipe work of the solar collector loop is to be earthed and the collector is to be lightning protected in accordance to local regulations.
• A solar panel installation must be performed in accordance with all Health & Safety legislation and local building/planning regulations for the relevant jurisdiction. Furthermore, the necessary electrical work required to install control equipment should be undertaken by a qualified electrical contractor.

Sizing of safety equipment

Component sizes are relative to the volume of liquid in the system

Pipe sizing (minimum of 15 mm diameter pipework must be used).

<table>
<thead>
<tr>
<th>No. of Panels</th>
<th>Flow Rate ltr/hr</th>
<th>Flow Rate (ltr/hr)</th>
<th>Pipe Diameter Copper Ext. (“BSP”)</th>
<th>Pipe Diameter Copper Ext. (“BSP”)</th>
<th>1 Panel System (mbar)</th>
<th>2 Panel System (mbar)</th>
<th>3 Panel System (mbar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>120</td>
<td>3/4” M/F</td>
<td>8.54</td>
<td>1.18</td>
<td>4.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>240</td>
<td>3/4” M/F</td>
<td>17.08</td>
<td>2.36</td>
<td></td>
<td>8.22</td>
<td></td>
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<tr>
<td>3</td>
<td>360</td>
<td>3/4” M/F</td>
<td>25.14</td>
<td>5.74</td>
<td></td>
<td></td>
<td>20.94</td>
</tr>
</tbody>
</table>
First Fix Notes

Degree of Over Shading

Shading will reduce the overall performance of a solar system. During the planning stage of a solar system, consideration should be given to the location of the collectors with the aim of minimising the effects of shading from high buildings, trees, etc.

Collector Fixing Surface

Is there enough room for the solar panels to sit on the required roof?

Is there enough between gulleys (top, bottom and both sides) to prevent leaves and debris from gathering around the panels?

Orientation of Roof & Est. Tilt Angle of Roof for Mounting Solar Collectors

What is the Roof orientation (should be between East SE - West SW)

Collector should be facing the equator

Is an inclined roof frame need to obtain required pitch?

To calculate optimal angle of tilt multiply latitude x 0.7 for domestic hot water production

Estimating Hot Water Demand & Size of System Required

No. of people using hot water in the house

Any other exceptional water loads in the dwelling

<table>
<thead>
<tr>
<th>No. of People</th>
<th>Solar Cylinder Size</th>
<th>Size of Flat Panel System</th>
<th>Size of Evacuated Tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 people</td>
<td>200 litres</td>
<td>2 Panel System (4m²)</td>
<td>30 Tube</td>
</tr>
<tr>
<td>3-5 people</td>
<td>300 litres</td>
<td>3 Panel System (6m²)</td>
<td>40 Tube</td>
</tr>
</tbody>
</table>

Location of Solar Pump Station & Solar Controller

Ensure the pump station is located in an area where it can be easily accessed for servicing & maintenance

Ensure that there is adequate space both left and right of pump station to allow easy access to remove pump in future.

Ensure that the solar controller is located in an easily accessible area for the user

Ensure that the controller is mounted at the correct height for ease of viewing.
First Fix Notes

**Safe Roof Access To Work**

Is there adequate access to area of house to mount scaffolding or ladders? yes/no

Is there steady and secure base on which to mount scaffolding or ladders? yes/no

Are the scaffolding and/or ladders fit for purpose? yes/no

Are all installers trained in working at heights? yes/no

Are all harness and other safety equipment working correctly? yes/no

All work carried out should be in accordance with all relevant good practices and or current building standards. All current regulations should be followed in relation to working at heights. Nothing stated in this guide takes precedence over current standards.

**Condition of Roof**

What are the centres of the roof rafters where the solar collector is to be mounted (e.g. 400mm)? mm

What is the size of roof rafters (e.g. 6x2”, 7x2”, 8x2”)? inch

Are roof rafters cross braced? yes/no

Is any of the timber showing discolouration (indicating rot)? yes/no

To determine the total load on the roof you must get the total weight of the collectors and divide this weight by the number of roof fixing bolts or anchors used to hold the collector on the roof. This will give you the weight of the solar panels on each point of the roof. You must then carefully review the points where the collectors are connected to the roof to ensure that these exact points can take the anticipated load.

Where there is signs of discolouration a closer examination will be required. If black spots are found on the timber this indicates a leak which needs attention. If the timber appears brown and flaky then the timber may need to be replaced. If the situation is unclear a structural engineers report should be obtained prior to completing any further work.

**Effects of Snow Loads**

What is the estimated annual snow fall for this part of the country? mm

What is the total extra weight to be assumed from a snow fall? kg

Irish/UK snow weighs approx 150kg per m³. To determine the extra weight the snow will add to the solar panels you may assume the following formula. (snow fall in meters x area of panel on the roof in m² x 150kg/m³)

When you find out the total extra weight of the snow add it to the total weight of the collector on the roof. Then using this new weight to examine the roof structure to ensure its suitability. You do not need to consider the snow load when installing evacuated tubes.
Effects of Wind Load
The evacuated tube collector is exempt from the effects consideration of wind loading for the same reason as the snow loading. When considering flat panels wind tests have been conducted that ensure that they and their fixing brackets can withstand all recorded wind forces in Ireland when mounted on a four storey house or less.

Pipework & Liquids
Is anti-freeze being used as the solar system fluid? ☐
Ensure solder joints are not used throughout the entire system ☐
Ensure high temperature insulation is used throughout all pipe work in solar system ☐
Ensure white paste and hemp is used on all fitting connections throughout ☐
Ensure Joule copper overflow & disch. vessel used to recover fluid from safety valve ☐

Water Quality
Water sample visually inspected and no signs of contamination visible yes/no

Fire Safety
Ensure that there is no obvious risk to fire prevention when installing the solar system. ☐
Ensure that all wires are not in direct connection with any un-insulated pipe work or plant that could cause a risk of burning ☐

Legionella / Bacterial Growth
Ensure that there is no dead legs in the existing plumbing system that could induce the growth of legionella. ☐
Ensure that the stats controlling the boiler and the stat controlling the immersion are set to 60 °C or above. ☐
Ensure that the client understands the risk of legionella and the standard procedures for reducing the risk of it forming. Also ensure that the client understands that you are there to install a solar thermal system and that you do not take any responsibility for auditing their hot water system for risk of legionella forming. That you will endeavour to minimise the risk of it forming by the work that you carry out but any existing risk should be dealt by a certified professional. ☐
First Fix Notes

General And Transport Instructions

The mounting system is suitable for tiled roofs only. Installation must only be carried out by qualified personnel. The entire information in these instructions is intended exclusively for only qualified personnel. Only the supplied material should be used for the installation. Prior to starting installation and operation of the solar collector system, please be informed about the applicable local standards and regulations. The use of a carrying strap is recommended for transporting the collector. The collector must not be lifted at the connections or on the threading. Avoid impacts and mechanical effects on the collector, in particular on the solar glass, the rear panel and pipe connections.

Statics - Tiled Roofs

The collectors may only be mounted on sufficient load-bearing roof surfaces and substructures. It is imperative that the static load bearing capacity of the roof or substructure is checked in terms of local and regional conditions prior to installation of the collectors by the customer, if necessary through the involvement of a structural engineer. Particular attention should be paid to the quality of the (timber) substructure in terms of the stability of the screw connections necessary for fastening the collectors. The checking of the entire collector structure by the customer as per DIN 1055 part 4 and 5 or as per the applicable country-specific regulations is particularly important in areas with heavy snowfall (note: 1m³ powder snow ~ 60 kg / 1m³ wet snow ~ 200 kg) or in areas exposed to high wind speeds. The assessment should also take into account any particular circumstances at the place of installation (foehn wind, air jets or eddy formation etc.) which can lead to increased loads. The collector inclusive roof mountings are suitable of withstanding a maximum gust of wind (V) 140km/h and of a maximum characteristic snow load (sk) of 2.0kN/m². The statical requirements have been defined according to EN 1991. When selecting the installation site it should be ensured that the maximum load is not exceeded by either snow or wind forces. As a rule, collector arrays must be installed such that any possible collection of snow is prevented from reaching the collectors by snow barriers (or through special forms of installation). The distance to roof ridges/edges must be at least 1m.

Installing a collector array signifies an intervention into an (existing) roof. Roof coverings, e.g. tiles, shingle and slate, especially in the case of converted and inhabited loft spaces or roofs with less than the minimum slope (with regards to the covering) require additional measures by the customer, e.g. sarking membranes, as security against water penetration caused by wind pressure and driving snow.

Lightning Protection / Equipotential Bonding Of The Building

In accordance with the lightning protection standard ÖVE/ÖNORM EN 62305 Part 1-4 the collector array cannot be connected to the building's lightning protection. A safe distance of at least 1m must be maintained from any possible adjacent conducting object. For installations on metal substructures at the installation site, generally qualified electricians must be consulted. To carry out a building potential equalisation, the metal tubes of the solar circuit and all collector cases or fastenings must be connected to the main potential equalisation bus by a qualified electrician in accordance with ÖVE/ÖNORM E 8001-1 or the country-specific standards.
Connections

Depending on the design, the collectors must be connected with one another and/or the connection pipes using screw fittings (1” internal/external thread) with flat-face sealing. Ensure correct placement of the flat gaskets. If flexible pipes are not used as connectors, precautions must be taken to protect the connection pipes against temperature fluctuations caused by heat expansion, e.g. expansion bends and flexible piping (see Connecting the collectors to one another/Operational recommendations). Larger collector arrays must be assembled with expansion bends or flexible members inserted in the links. (IMPORTANT: check the pump design). When tightening the union nuts, always balance (counter) the torque with a pipe wrench or another spanner to prevent damage to the absorber.

Collector Inclination / General Notes

The collector is suitable for angles between 20° (minimum) and 65° (maximum). The collector must be installed so that rear ventilation for preventing the diffusion of moisture in the collector is guaranteed. The collector connections and the ventilation openings must be protected against the penetration of water as well as contamination such as dust etc.

Cleaning

Clean the water courses of the sheet metal edging at least once per year (or more often if required).

Legal Guarantee

Legal guarantee claims can only be made if the supplier’s own antifreeze has been used and maintenance has been carried out correctly. Installation by qualified personnel with absolute adherence to the instructions is a prerequisite for the justification of claims.
# Standard Kit Components

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>UK Pack Comp.</th>
<th>IE Pack Comp.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td><strong>Components for Solar Kits</strong></td>
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<tr>
<td>SW-IR-00002.5V</td>
<td>Vis-Solis 2.5M In Roof Panel Vertical</td>
<td>1</td>
<td>2</td>
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<tr>
<td>SW-IR-U0000000</td>
<td>2.5M In-Roof Panel U-Bent</td>
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<tr>
<td>SW-IR-I0000000</td>
<td>2.5M In-Roof Panel U-Bent Installation</td>
<td>-</td>
<td>1</td>
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<tr>
<td>SW-IR-W-000028</td>
<td>2.5M In-Roof Panel Washer</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>SW-IR-P0000000</td>
<td>2.5M In-Roof Panel Probe Pocket</td>
<td>1</td>
<td>1</td>
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<tr>
<td>SFR-0000000000</td>
<td>2.5M Vis-Solis Center Rail</td>
<td>-</td>
<td>1</td>
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<tr>
<td>SKN-C-00000ERP</td>
<td>Solar Controller Deltasol BS HE (ERP)</td>
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<tr>
<td>SVE-0000000024</td>
<td>Solar Expansion Vessel 24Ltr</td>
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<tr>
<td>SVE-0000000035</td>
<td>Solar Expansion Vessel 35Ltr</td>
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<td>-</td>
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<tr>
<td>SVE-0000000050</td>
<td>Solar Expansion Vessel 50Ltr</td>
<td>-</td>
<td>-</td>
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<td>SVS-0000000000</td>
<td>Solar Expansion Vessel Connect</td>
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<td>SZ-L-0D-0ERP-5</td>
<td>Solar Pump Station Dual ERP 5m</td>
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<td>SKU-0000000020</td>
<td>20L Pre-Mixed Solar Fluid</td>
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<td>SF-IS-OV2.5-01</td>
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<td>1</td>
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<tr>
<td>SF-IS-OV2.5-02</td>
<td>2.5m Vis-Solis 2 Pan Flash Slate</td>
<td>-</td>
<td>1</td>
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<td>2.5m Vis-Solis 3 Pan Flash Slate</td>
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<tr>
<td>SF-IT-OV2.5-01</td>
<td>2.5m Vis-Solis 1 Pan Flash Tile</td>
<td>1</td>
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<tr>
<td>SF-IT-OV2.5-02</td>
<td>2.5m Vis-Solis 2 Pan Flash Tile</td>
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<tr>
<td>SF-IT-OV2.5-03</td>
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<tr>
<td>SVB-000000000P</td>
<td>Solar Discharge - Plastic</td>
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<tr>
<td>SZF-01-000-3/4</td>
<td>Solar Fitting 1” x 3/4” Nipple</td>
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<td>OZM-00000.75HP*</td>
<td>Thermo Mixing Valve 3/4” HP *</td>
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<td>OZM-00000.75NRV</td>
<td>Thermo Mixing Valve 3/4” NRV</td>
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<tr>
<td>SKT-00000000000*</td>
<td>Solar SS Insulated Tail *</td>
<td>2</td>
<td>2</td>
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</table>

* These items are only included in the complete kit. If basic kit is ordered these will not be included.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>UK Pack Comp.</th>
<th>IE Pack Comp.</th>
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<tbody>
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<tr>
<td>SKT-00000000</td>
<td>DN16 Solar SS Insulated Tail 0.75m</td>
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<td>10m DN16 Solar Pipe Pack Standard System</td>
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<td>SPD-16-10-0000</td>
<td>DN16 10m sol SS pipe duo ins</td>
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<td>SZ-J-0000DN-16</td>
<td>solar fitting joiner pack DN16</td>
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<td>15m DN16 Solar Pipe Pack Standard System</td>
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<td>DN16 15m sol SS pipe duo ins</td>
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<td>1</td>
</tr>
<tr>
<td>SZ-J-0000DN-16</td>
<td>solar fitting joiner pack DN16</td>
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<td>1</td>
</tr>
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<td>25m DN16 Solar Pipe Pack Standard System</td>
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<td></td>
</tr>
<tr>
<td>SPD-16-25-0000</td>
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<td>SZ-J-0000DN-16</td>
<td>solar fitting joiner pack DN16</td>
<td>1</td>
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</tr>
</tbody>
</table>

* Pipe packs are not included in kit as standard. The requirement and length of these packs are the responsibility of the contractor on site to order.*
UK Pack Components

SW-IR-00002.5V
SZ-L-0D-0ERP-5
SKU-0000000020

SKN-C-000000ERP
SVB-000000000P
SVS-0000000000

SZF-3/4-3/4-SM
SKT-0000000000
OZM-0000.75NRV

SVE-0000000024
SVE-0000000036
OZM-0000.75NRV

SF-IS-OV2.5-01
SF-IS-OV2.5-02
SF-IS-OV2.5-03
SF-IT-OV2.5-01
SF-IT-OV2.5-02
SF-IT-OV2.5-03
IE Pack Components

- SW-IR-00002.5V
- SZ-L-0D-0ERP-5
- SKU-000000020
- SKN-C-00000ERP
- SZF-3/4-3/4-SM
- SKT-0000000000
- OZM-0000.75HP
- SVE-0000000024
- SVE-0000000036
- OZM-0000.75NRV
- SF-IS-OV2.5-01
- SF-IS-OV2.5-02
- SF-IS-OV2.5-03
- SF-IT-OV2.5-01
- SF-IT-OV2.5-02
- SF-IT-OV2.5-03
Flashing Components

Attachment Bracket  Self-Trapping Screws
5*60 / 5*40

Flat Gasket  Front Corner Section
Right / Left Or Middle

Side Tin Cover Strip  Sealed Plumbing Screw 4.5*35

Side Piece Right / Left

Sealed plumbing Screw 3.9*13  Wooden Wedge

Middle Cover Strip
Flashing Components

- Self-Trapping Screws 6*120
- Side Piece Connector Right / Left
- Middle Cover Right / Left or Middle
- Rear Corner Section Right / Left or Middle
- Self Trapping Screws 4*25
- Metal Retainer, Roofing Nail
- Foam Rubber Wedge
Solar Pipe Components
Not Included In Standard Kit

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<td>SPD-16-25-0000</td>
<td>DN16 25m sol SS pipe duo ins</td>
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1. Cut pipe with splice cutters
2. Insert single fitting and grab ring
3. Tighten to flatten the pipe end
4. Reassemble with washer and tighten again
Setting Out The Roof
1 Panel Extension Flashing Kit

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<td>B</td>
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<td>C</td>
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<td>D</td>
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<td>E</td>
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<td>F</td>
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Mounting Orientations

Maximum 6 panels vertically mounted

Panels horizontally mounted

Panels mounted above each other
**In-Roof Mounting**

Uncover the roof according to the collector surface area

**Width:** appr. 1.25m per collector + 1.5m

**Height:** appr. 3.0m for single row installation

Ensure there is a double batten arrangement at both the top and bottom of the solar panels as shown on diagram.

**Measurement**

**A = 80mm** for tile sheet metal edging

**A = 50mm** for shingle and crown tile sheet metal edging

**Measurement**

**B = 200mm** or tile width + 50mm

All dimensions in mm unless otherwise stated
3: Fasten the attachment bracket on the installation batten as shown on the attachment diagram, self-tapping screws 3 x 5*40

4: Set and align collectors on the roof

5: Fasten the collectors to the attachment bracket, self-tapping screws 2 x 5*40

6: Secure the collectors to the upper attachment bracket, 1 bracket in the centre of each collector glass, self-tapping screws 2 x 5*40.

If necessary, install upper installation batten, self-tapping screws 5*60.
In-Roof Mounting

Hydraulically connect the collectors using short connecting bends

Connect the roof-integrated connection set (8a/8b).

Alternative: Create a CU connection using a soldered connection.

Install the sensor with the sensor tube extension at the forward flow.

Slide the front corner section to the left into the required nut on the glass lower bar.

Note: Before installing the underside of the metal casing, remove the collectors’ lower protection piece!
Slide the front section into the middle

Slide the front corner section to the right

Secure the front section on the required positions (stampings) using sealed plumbing screws 4.5*35

Warning: The collector array must be checked for leaks before installing the metal casing!

Slide the front corner section to the left into the required nut of the glass lower bar. Note: Before installing the underside of the metal casing, remove the collectors’ lower protection piece!

Slide the front section into the middle

Slide the front corner section to the right

Secure the front section on the required positions (stampings) using sealed plumbing screws 4.5*35

Fasten the attachment bracket on the installation batten as shown on the attachment diagram, self-tapping screws 3 x 5*40

Repeat steps 16, 17, 19, 20, 21 and 22 for the second collector row accordingly!
In-Roof Mounting

17
Secure the side pieces to the roof batten using metal retainers and roofing nails.

18
Slide the front corner section to the left into the required nut of the glass lower bar.
Note: Before installing the underside of the metal casing, remove the collectors’ lower protection piece!

19
Attach the side tin cover strip to the front corner section on the right and left at the collector using sealed plumbing screws 4.5*35

20
Push the middle cover strip (between adjacent collectors) from the bottom as far as it can go.
Tighten the middle cover strips using two self-drilling sealed plumbing screws and the lateral tin cover strip using one self-drilling sealed plumbing screw 3.9*13

Place the timber wedge in the middle above the collector and tighten it on the roof structure, self-tapping screws 5*120. Hang the left rear corner section (27b) in the collector.

Tighten the left rear corner section outside of the reinforcing seam on the wooden wedge, self-tapping screws 4*25.
In-Roof Mounting

Hang the middle top section in the collector and connect the top left corner section. Tighten the sheet metal outside of the reinforcing seam using a self-tapping screw 4*25.

Hang the right top section in the collector and connect it to the middle top section.

Tighten the top section on the left and right side to the cover strip and the collector using a sealed plumbing screw 4.5*35.

Laterally secure the right and left top corner section to the roof batten using metal retainers and roofing nails.

Glue the foam rubber wedge on the side and the top (applies to sheet metal edgings for tile roofs only!)
Glue the foam rubber wedge on the side and the top (applies to sheet metal edgings for tile roofs only!)

Finally, adjust the lead skirting (for sheet metal edging with tile roofs only) to the contour of the tile

Note:
When installing the side sections of the plain-tile metal casing, the tiles and metal parts must always be alternately covered!
Finishing Roof Work
Inserting Probe Into The Panel

Inside the controller box you will find 3 probes as shown in the diagram.

Take the black probe from the box and insert this black probe into the sensor pocket located on the left hand side of the far left panel.

This side is now the hot side of the solar system.

Connecting Solar Pipe To The Panels

If you choose to use solar pipe either in full lengths or as tails the connections must be made to the panels prior to fitting the flashing kit.

The panels are terminated in 3/4” BSP flat face male nipple as supplied as part of the kit. Following the diagram below single fitting should be tightened to the flat face of the elbow connected to the panel.
A Anti gravity loop. Stops backward movement of heat from cylinder to panel when panels are cold.
B Return pipework from solar coil to pump station. Return pipework always connects to pump side of pump station.
C Discharge container required to catch discharge from solar system in the event of over pressurisation. This must not be connected to drain.
D Solar expansion vessel to be mounted with connection facing upwards. Always to be mounted below the pump station.

E Solar controller black probe to be fitted in left hand side of far left panel.
F Pipework on the left hand side of panels must be connected to the left hand side of the pump station.
G Pipework on the right hand side of panels must be connected to the right hand side of the pump station.
H/I Fill & flush points for commissioning of system.
J Manual air vent to remove small pockets of air after commissioning.
Wiring The System

The controller calculates the temperature difference between collector sensor S1 and store sensor S2. If the difference is larger than or identical to the adjusted switch-on temperature difference (DT O), the solar pump will be activated by the relay, and the store will be loaded until the switch-off temperature difference (DT F) or the maximum store temperature (S MX) is reached. Unlike the diagram above we recommend that S3 is inserted to the top cylinder sensor pocket.

Commissioning

It is important that a motorised flush and fill centre is used to fill and pressurise the system with solar fluid as follows:

- Connect fill hose to H and connect flush hose to I.
- Close the isolating valve above to the flow meter to ensure all air and liquid passes through the fill centre to filter any air and contaminants.
- Allow the flush pump to run for 1 minute. Close I and pressure the solar system to 4bar. Close H once this is reached. Shut off solar fill pump.
- Allow system to stand at 4bar pressure to make sure there is no leaks.
- After this process is completed without any leaks being present open I and H and allow the flush pump to run.
- While flush pump is running slightly open connections on expansion vessel, pump station and coil. This will allow any air trapped locally to exit the system more easily.
- After this has been completed allow flush pump to run for a further 15 minutes.
- Once you are confident there is no more air in the system (you will be able to see air in the system through the flow meter and also the noise it makes), close I first.
- Allow the system to re-pressurise to 2bar. Once achieved, close H and shut off flush pump.
- Do not turn on the power supply to the solar controller.

Do not crosswire the power cable with the comms cable on the solar pump. If you do this you will see a flashing green light on the pump.

To set up the controller refer to Manual supplied in the box with the controller.
Dual Orientation Single Cylinder
Under Roof Remaining Work

Legend

A  Anti gravity loop
B  Return pipework from solar coil
C  Discharge container
D  Solar expansion vessel
E  Solar controller black probe
F  Flow pipe from panel
G  Return pipe to panel
H  Fill point for commissioning
I  Flush point for commissioning
J  Manual air vent

Not included as standard in IE kits
**Wiring The System**

The controller calculates the temperature difference between collector sensors S1 and S3 and store sensor S2. If the differences are larger than or identical to the adjusted switch-on temperature difference (DT O), one or both solar pumps will be activated by relay 1 and / or relay 2, and the store will be loaded until the switch-off temperature difference (DT F) or the maximum store temperature (SMX) is reached. Sensor S4 can optionally be used as the reference sensor for the store emergency shutdown option (OSEM). If heat quantity measurement (OHQM) is activated, S4 and VFD are used as the flow and return sensors respectively.

**Commissioning**

It is important that a motorised flush and fill centre is used to fill and pressurise the system with solar fluid as follows:

- On dual line pump station connect fill hose to H and connect flush hose to I.
- Close the isolating valve above to the flow meter to ensure all air and liquid passes through the fill centre to filter any air and contaminants.
- Allow the flush pump to run for 1 minute. Close I and pressure the solar system to 4bar. Close H once this is reached. Shut off solar fill pump.
- Allow system to stand at 4bar pressure to make sure there is no leaks.
- After this process is completed without any leaks being present open I and H and allow the flush pump to run.
- While flush pump is running slightly open connections on expansion vessel, pump station and coil. This will allow any air trapped locally to exit the system more easily.
- After this has been completed allow flush pump to run for a further 15 minutes.
- Once this was complete move the fill&flush hoses to the single line pump station and repeat.
- Once you are confident there is no more air in the system (you will be able to see air in the system through the flow meter and also the noise it makes), close I first.
- Allow the system to re-pressurise to 2bar. Once achieved, close H and shut off flush pump.
- Do not turn on the power supply to the solar controller.

**Do not crosswire the power cable with the comms cable on the solar pump. If you do this you will see a flashing green light on the pump.**

**To set up the controller refer to Manual supplied in the box with the controller.**
Single Orientation Dual Cylinder
Under Roof Remaining Work

Legend
A  Anti gravity loop
B  Return pipework from solar coil
C  Discharge container
D  Solar expansion vessel
E  Solar controller black probe
F  Flow pipe from panel
G  Return pipe to panel
H  Fill point for commissioning
I  Flush point for commissioning
J  Manual air vent

Not included as standard in IE kits
**Wiring The System**

The controller calculates the temperature difference between collector sensor S1 and store sensors S2 and S3. If the difference is larger than or identical to the corresponding adjusted switch-on temperature differences (DT1O / DT2O), one or both solar pumps will be activated by relay 1 and/or relay 2, and the corresponding store will be loaded until the switch-off temperature difference (DT1F/DT2F) or the maximum store temperature (S1MX/S2MX) is reached. The priority logic causes priority loading of the store selected in the PRIO channel, if possible. If PRIO = 0, both stores will be loaded simultaneously. Sensor S4 can optionally be used as the reference sensor for the store emergency shutdown option (OSEM). If heat quantity measurement (OHQM) is activated, S4 and VFD are used as the flow and return sensors respectively.

**Commissioning**

It is important that a motorised flush and fill centre is used to fill and pressurise the system with solar fluid as follows:

- On dual line pump station connect fill hose to H and connect flush hose to I.
- Close the isolating valve above to the flow meter to ensure all air and liquid passes through the fill centre to filter any air and contaminants.
- Allow the flush pump to run for 1 minute. Close I and pressure the solar system to 4bar. Close H once this is reached. Shut off solar fill pump.
- Allow system to stand at 4bar pressure to make sure there is no leaks.
- After this process is completed without any leaks being present open I and H and allow the flush pump to run.
- While flush pump is running slightly open connections on expansion vessel, pump station and coil. This will allow any air trapped locally to exit the system more easily.
- After this has been completed allow flush pump to run for a further 15 minutes.
- Once this was complete move the fill&flush hoses to the single line pump station and repeat.
- Once you are confident there is no more air in the system (you will be able to see air in the system through the flow meter and also the noise it makes), close I first.
- Allow the system to re-pressurise to 2bar. Once achieved, close H and shut off flush pump.
- Do not turn on the power supply to the solar controller.

To set up the controller refer to Manual supplied in the box with the controller.
Service Record

It is recommended that your hot water system is serviced regularly and that the appropriate Service Record’s completed.

Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer’s instructions.

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