

On Site Guide

Getting started and user reference information

0 Overall view

0.1 Installation

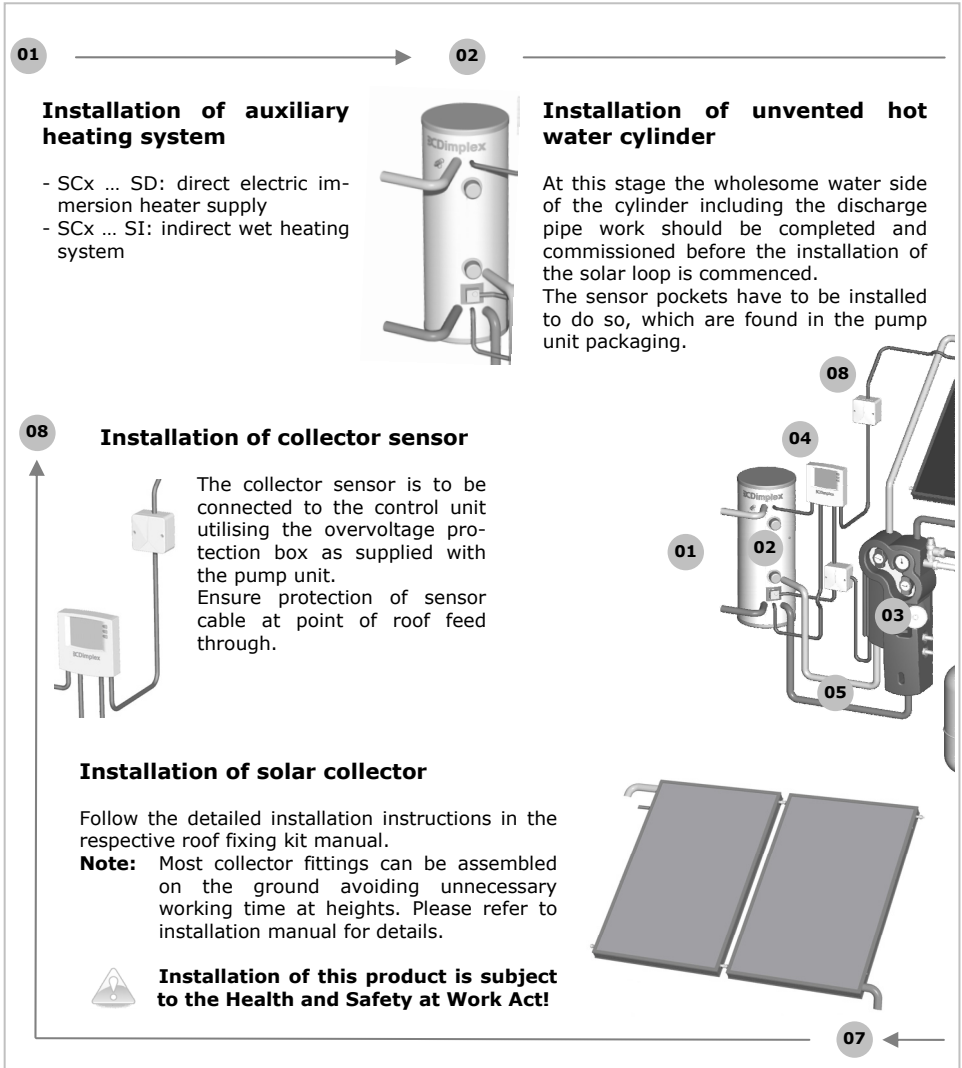


Figure 1 – Overall view installation of Dimplex Solar System

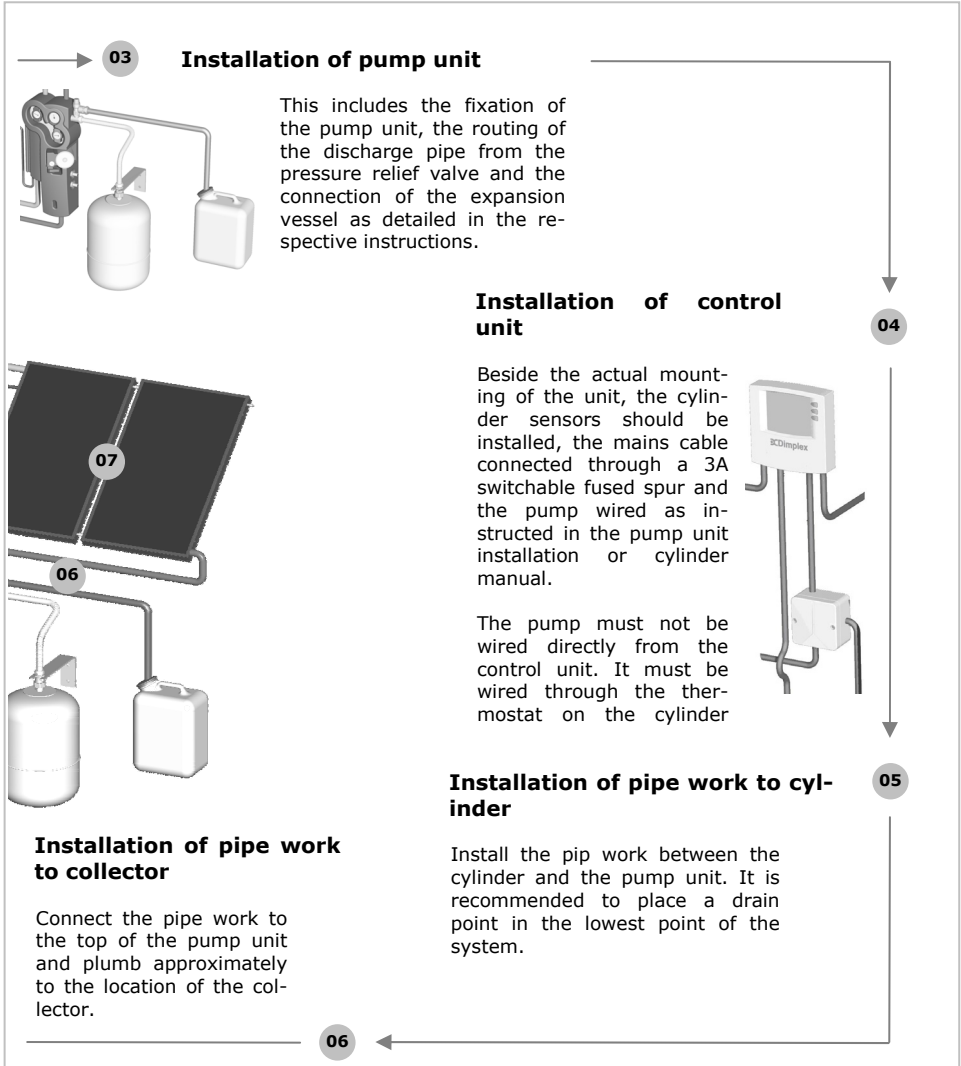


Figure 1 – Overall view installation of Dimplex Solar System

0.2 Literature

Note: This On Site Guide is only part of the range of literature provided by Dimplex solar to ensure the correct specification, installation and operation of the Dimplex solar system. This guide only provides an overall view of the installation and operation of the system. Full details are to be found in the respective manuals.

Dimplex solar offers a range of literature to provide relevant information at all stages of the product life cycle from planning and design, installation and maintenance to operation and troubleshooting. Figure 2 summarises the available documents and their relevance at the various stages of the product’s application.

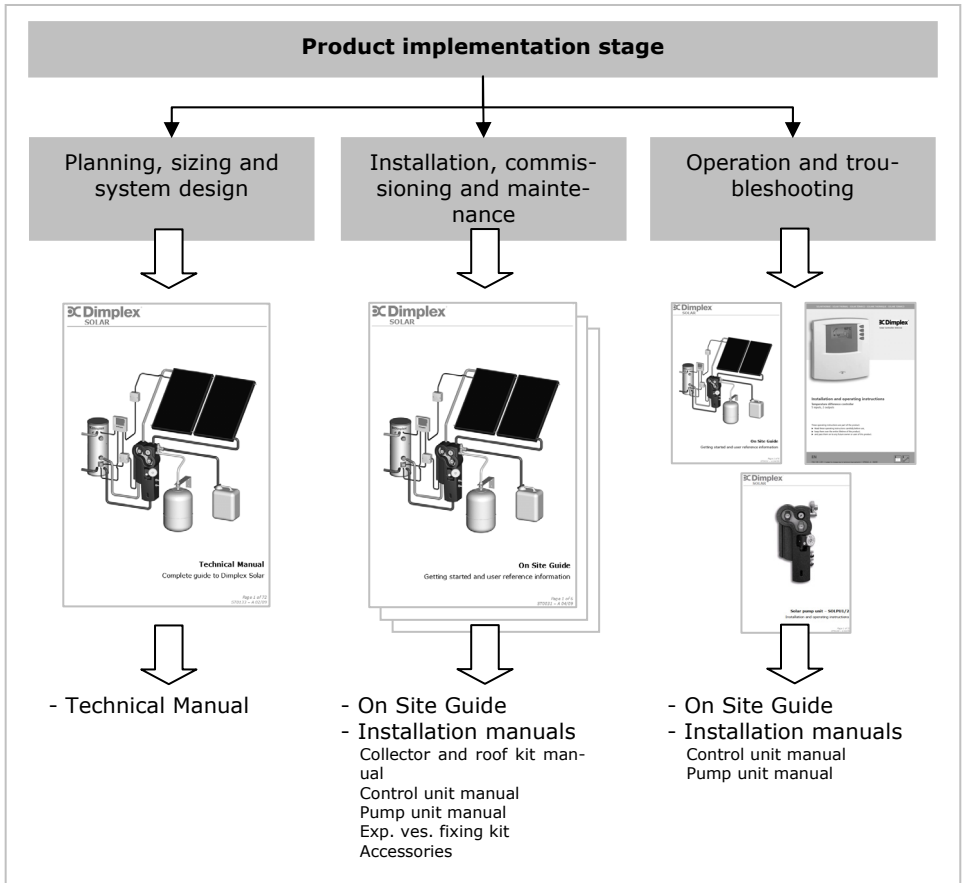


Figure 2 – Literature overall view

1 Contents

0 OVERALL VIEW	2
0.1 INSTALLATION	2
0.2 LITERATURE	4
1 CONTENTS	5
2 BEFORE YOU START	6
GENERAL	6
COMPETENCE	6
HEALTH AND SAFETY	6
RISK ASSESSMENT	7
3 INSTALLATION	7
3.0 GENERAL	7
3.1 INSTALLATION OF AUXILIARY HEATING	7
3.1.1 <i>Direct electric</i>	7
3.1.2 <i>Indirect</i>	7
3.2 INSTALLATION OF UNVENTED HOT WATER CYLINDER	7
3.3 INSTALLATION OF PUMP UNIT	8
3.4 INSTALLATION OF CONTROL UNIT	8
3.5 INSTALLATION OF PIPE WORK TO CYLINDER	8
3.6 INSTALLATION OF PIPE WORK TO COLLECTOR	8
3.7 INSTALLATION OF SOLAR COLLECTOR	8
3.8 INSTALLATION OF COLLECTOR SENSOR	9
4 COMMISSIONING	9
5 OPERATION	12
5.1 SYSTEM OPERATING TEMPERATURES	12
5.2 SYSTEM OPERATING PRESSURE	13
5.3 SYSTEM FLOW RATE	13
5.4 ADDITIONAL FUNCTIONS	14
6 MAINTENANCE	15
7 TROUBLESHOOTING	18
8 HEAT TRANSFER MEDIUM HEALTH AND SAFETY DATA SHEET	24
9 GUARANTEE	28
10 CONTACT DETAILS	29
11 SYSTEM REGISTRATION	30

2 Before you start

General

Thank you for choosing a Dimplex product. We ensure you that every effort was made at design, manufacture and delivery stages of this product and we ensure you of our best possible support throughout the product's lifespan.

As part of ongoing product development and improvement Dimplex reserves the right to undertake changes to the product without prior notice. Great care has been taken to ensure this manual was correct at the time of print. Should you however discover any issues with the information contained therein please do not hesitate to contact your vendor.

We strongly recommend to read the whole contents of this manual before commencing the work.

Competence

Dimplex products have been designed and manufactured to the current relevant standards and under stringent quality control. It is therefore imperative that the product is only installed by a:

- trained and
- competent

person as defined in the relevant regulations. Dimplex does not accept any liability for damage done to persons or property resulting from undue handling and usage of this product.

All regulations current at the time of installation are to be considered alongside the content of this manual as they form the code of best practice.

The warranty of this product is linked to the ability of proofing that the product was installed, commissioned and maintained:

- by a competent person
- in accordance with Dimplex instructions and the current relevant regulations and legislation
- the product being registered with Dimplex at the time of installation using the form in the Dimplex On Site Guide
- records showing the date of maintenance in accordance with the maintenance schedule as detailed in the On Site Guide

Health and Safety

The installation of this product is subject to the Health and Safety at Work Act. It is your responsibility to ensure that the transport, storage, installation and operation of the product is carried out in a safe manner.

Dimplex will not accept any liability due to damage caused to people or property resulting from negligence or not adhering to the relevant Health and Safety practises.

Risk assessment

The compilation of a risk assessment is strongly recommended before installing the product. The following areas require particular consideration in addition to the information required by the Health and Safety at Work Act.

- scalding: where appropriate or required by law a thermostatic mixing valve is to be fitted to the hot water outlet of the cylinder
- explosion: the unit is fully equipped with all relevant safety equipment to comply with current regulations. The correct design and function has been verified by independent third party testing. The correct application thereof is the responsibility of the competent installer.
- water borne organisms (i.e. Legionella): if applicable a risk assessment should be carried out following the recommendations outlined in the Approved Code of Practise L8.
- the user preference must be considered when commissioning the system, in particular when adjusting the solar and auxiliary system temperature and timer settings.

3 Installation

3.0 General

An overall installation guide is given in Figure 1 – Overall view of Dimplex Solar System. Detailed installation instructions are provided in the installation and operating instructions which are provided with the individual components. It is imperative that these instructions are being consulted and followed.

3.1 Installation of auxiliary heating

3.1.1 Direct electric

When installing the Dimplex solar system in combination with a direct electric auxiliary hot water system the relevant IEEE wiring regulations have to be followed. It is imperative that the system controls and safety features are checked to ensure the safe and reliable operation thereof.

3.1.2 Indirect

When installing the Dimplex solar system in combination with an indirect auxiliary hot water system the instructions of the manufacturer have to be followed. Please ensure that the safety equipment delivered with the Dimplex SCx cylinder is applied correctly.

3.2 Installation of unvented hot water cylinder

The installation of the unvented hot water cylinder has to be carried out in strict compliance with the cylinder installation manual. Particular attention has to be given to the safety requirements as outlined in building regulations concerning the temperature control and the safe discharge of hot water.

3.3 Installation of pump unit

When installing the pump unit the following should be considered:

- access to flush and fill valves
- readability of flow meter
- room to connect expansion vessel
- routing of discharge pipe
- sufficient distance to solar collector to avoid overheating

3.4 Installation of control unit

Although the control unit has a back light display to aid with the readability of the LCD screen, the position should be chosen in such a way that the screen can be read readily. It is also advisable to keep the unit in close proximity to the cylinder to avoid having to extend the sensors which are supplied with a 3m cable. Should any of the sensors need extending, please follow:

- 0.75mm² up to 50m
- 1.50mm² up to 100m

3.5 Installation of pipe work to cylinder

The pipe work from the pump unit to the cylinder should be of the same diameter as the pipe work between the collector and the pump unit. Equally it has to be capable of withstanding high temperatures and has therefore to be:

- of appropriate material
- joint accordingly
- insulated sufficiently

It is recommended to place a drain valve in the lowest point of the collector loop to allow draining of the system should this be required.

3.6 Installation of pipe work to collector

Ensure the flow and return are connected correctly to the collector and the pump unit. The flow has to come from the upper connection from the collector to the left hand side connection of the pump unit. The return comes from the right hand side connection of the pump unit to the lower connection of the collector.

Ensure that the pipes are connected correctly as detailed in the collector installation manuals as otherwise the functionality and output of the system is considerably impaired.

The pipe work must be:

- of appropriate material
- joint accordingly
- insulated sufficiently

3.7 Installation of solar collector

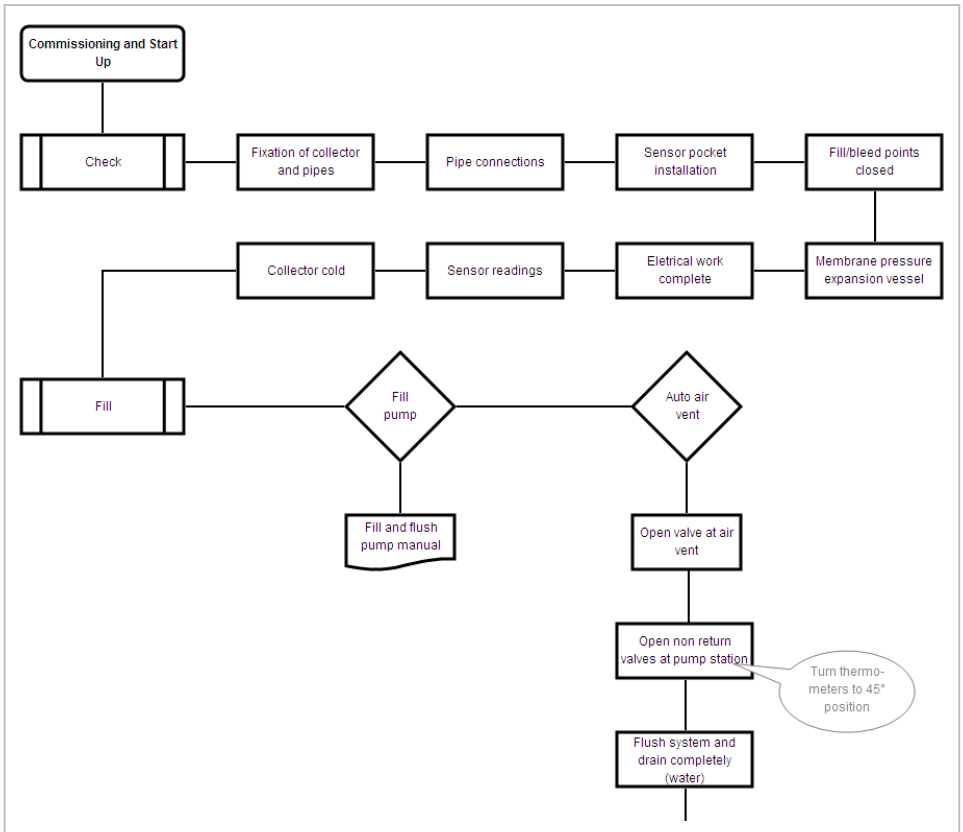
The installation of the solar collector to the various roof mounting options must be followed as outlined in the respective manuals.

3.8 Installation of collector sensor

The installation of the collector sensor should be carried out before safe access to the collector has been removed. The use of the overvoltage protection box allows a secure extension of the collector sensor to the control unit.

The polarity of the sensor and the extension cable is irrelevant, the connection of the overvoltage protection box has however to be carried out as detailed in the pump unit manual.

4 Commissioning



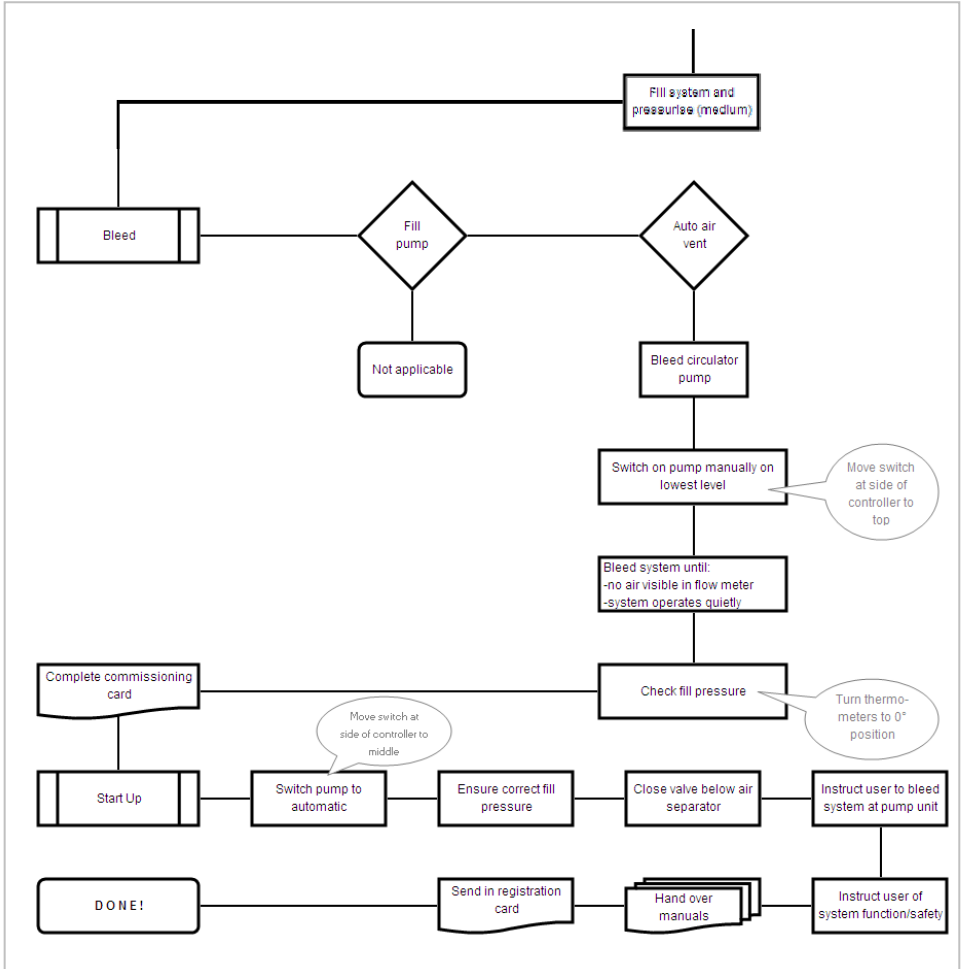


Figure 3 – Commissioning process Dimplex Solar system

A further step that should be undertaken at the commissioning stage is the setting of the correct flow rate. Although the Dimplex SOLCU1/2/3 control units incorporate a variable speed control of the pump, to maximise the auxiliary energy savings provided through this feature the pump speed should be adjusted as detailed in Figure 4.

Using the flow meter

The flow meter indicates the flow rate through the system. It also aids during the commissioning process to show that all air is removed from the system.

The nominal flow rate V_n is **2.0 l/min** for high flow operation and **1.0 l/min** for low flow operation for each SOLC220 collector installed.

The upper edge of the propeller is the reading mark for the scale on the left hand side, the lower edge of the scale on the right hand side.

The example shown indicates a flow of 10 l/min.

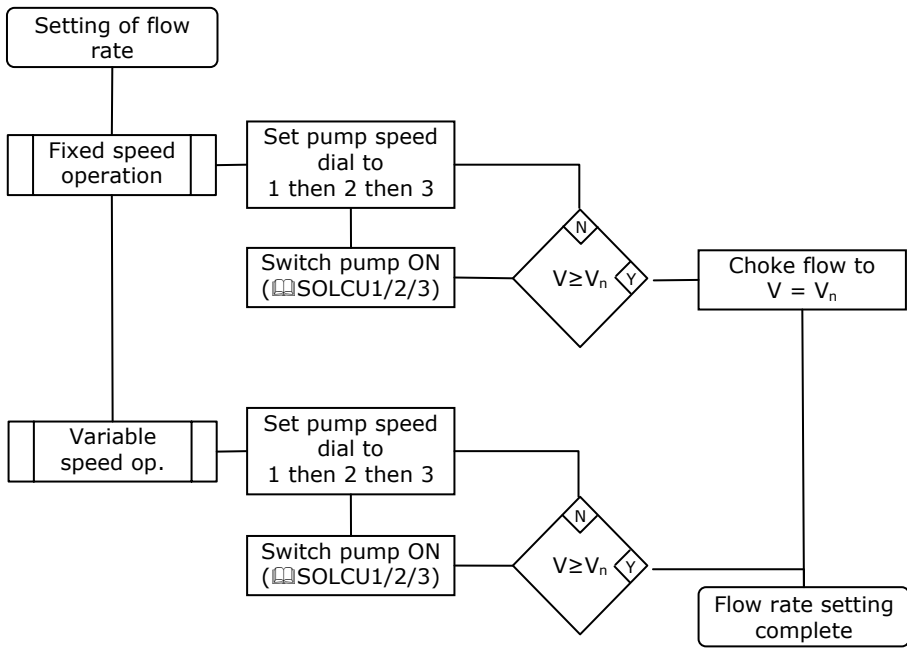


Figure 4 – Setting the flow rate

5 Operation

Once the Dimplex solar system is installed and commissioned the system operates fully automatically and self – safe. No user intervention is required to ensure the most efficient and safe operation of the system.

However, for his information the user might want to check from time to time the temperatures in the system and the system condition with regards to pressure and flow rate.

5.1 System operating temperatures

Depending on which Dimplex solar control unit is being used, a number of temperatures and operating conditions can be displayed on the LCD display (Figure 5). Please refer to the user manual for detailed information.

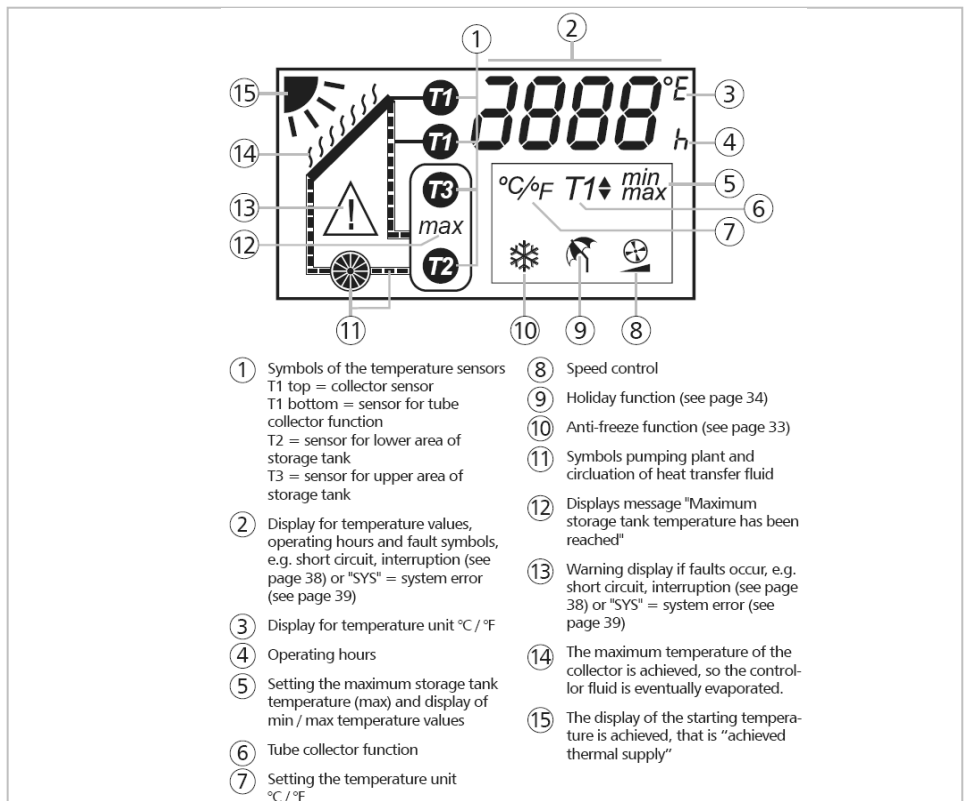


Figure 5 – Display options SOLCU1

Utilising the SOLCU1 controller the following information can be read from the display:

- current/min/max collector temperature (T1)
- current/min/max bottom cylinder temperature (T2)
- current/min/max top cylinder temperature (T3)

The collector (T1) and the bottom cylinder (T2) temperature are the main control temperatures of the system. As soon as the collector temperature (T1) is 8K higher than the bottom cylinder (T2) temperature the circulation pump switches on, once this condition is not given anymore or the maximum cylinder temperature is reached the circulation pump switches off.

The top cylinder temperature (T3) displays the actual currently available hot water temperature. Should the preparation of hot water through the auxiliary heating system not be controlled automatically, it is advisable to check the top cylinder (T3) temperature before the auxiliary source is deployed as the solar system might have provided sufficient hot water.

5.2 System operating pressure

The system operating pressure (Figure 6) should remain constant during the operation of the solar thermal system. A slight increase might be observed when the system goes into stagnation. The cold fill pressure at commissioning is to be recorded on the commissioning card and the expansion vessel label.

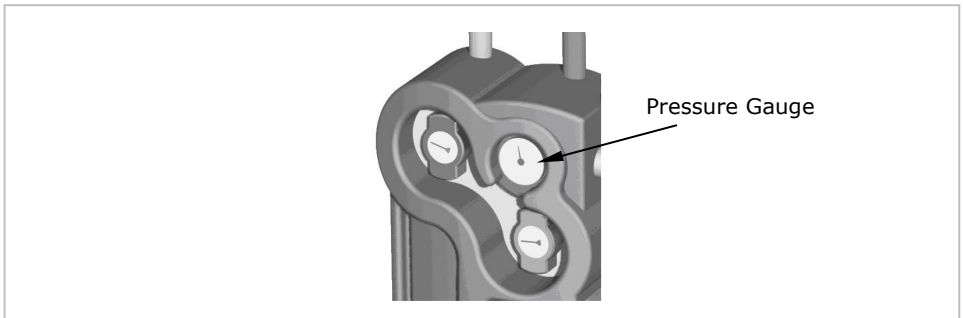


Figure 6 – Reading system operating pressure SOLPU1/2

5.3 System flow rate

The flow rate of the solar system varies to optimise the energy gain from the collector into the cylinder. However, should the flow meter on the pump station not indicate any flow when the pump is operating, the troubleshooting guide should be consulted as a malfunction exists.

The location of the flow meter in the pump station is indicated in the figure below. In dark and confined spaces it might be necessary to remove the front insulation cover to read the flow meter more readily (Figure 7).

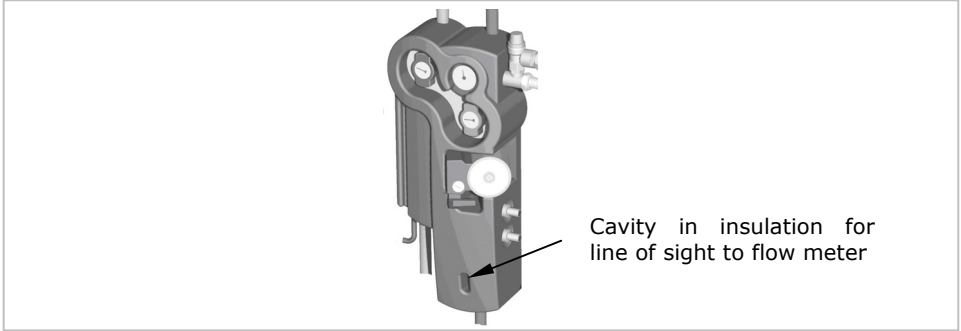


Figure 7 – Reading system flow rate SOLPU1/2

5.4 Additional functions

The Dimplex solar range of control units SOLPU1/2/3 incorporate a number of functions which make operation of the solar system more convenient and reliable. Figure 8 shows the set up menu of the SOLCU1 control unit. For other models please refer to the respective manuals.

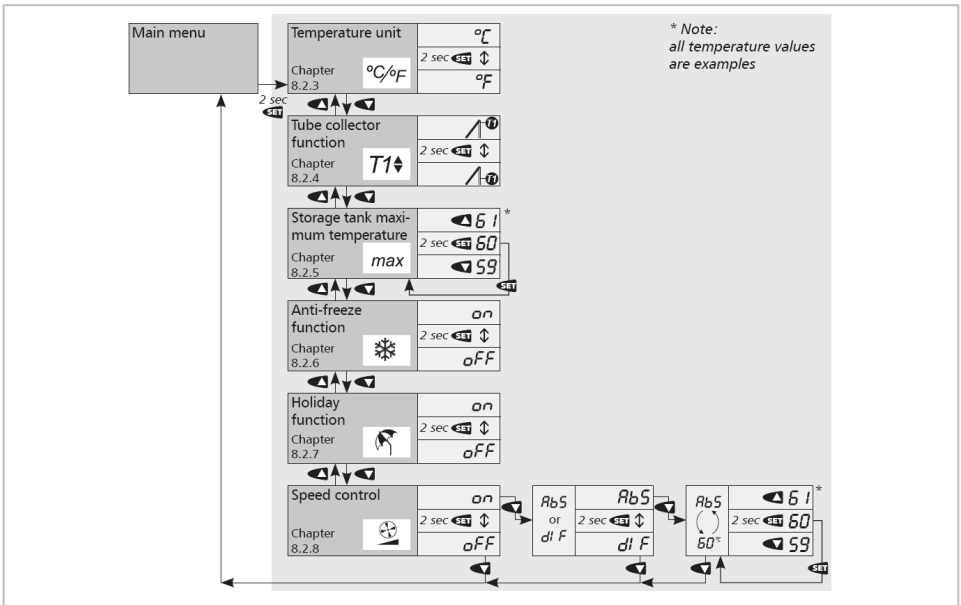


Figure 8 – Set up menu SOLCU1

One particular function is the holiday function. This function should be enabled when the hot water system is not being used for a longer period of time (more than 3 days). The holiday function is to prevent the solar system from overheating when no hot water is being drawn from the solar storage cylinder. The holiday function has to be activated and de-activated manually by the user.

6 Maintenance

The maintenance effort for the Dimplex solar system is minimal and can ideally be executed when carrying out the mandatory checks on the unvented hot water installation. Figure 9 details the schedule of the maintenance to be carried out.

It is recommended to check the function of the system after the 1st year of operation and then carry out a bi-annual maintenance check. Not all steps have to be undertaken every two years as detailed in Figure 9. All the values measured during the maintenance procedure are to be recorded in the appropriate fields in the maintenance schedule. The following steps are part of the system maintenance:

Check system pressure

The original system pressure can be found on the system commissioning sheet contained in the on site guide. Should the pressure have reduced considerably, the cause is to be investigated.

Check pipe work for leaks

This step is only required if the system pressure dropped considerably. Where readily accessible joints should be checked for signs of small leaks.

Check content discharge vessel

Should any heat transfer medium be deposited in the discharge vessel which was not there from the beginning, the cause is to be established.

Check roof feed-through for leaks

The points at which the pipe work penetrates the primary and secondary protection layer are to be inspected if accessible. No leakage must be found at these points.

Check condition of pipe insulation

The pipe work insulation in solar thermal systems must fulfil certain criteria. However, damage due to system overheating, animal and mechanical influences are always possible. Damaged insulation is to be replaced.

Check collector fixations

This work must be carried out with safe access only.

Check electrical connections

This check must only be carried out in a safe manner and by a qualified person.

Check pump function

This check can be carried out by moving the switch on the side of the control unit to its ON position. A flow should be registered on the flow meter in the system. Remember to return the control unit into AUTO when testing is complete.

Check sensor readings

The sensor readings can be checked in the display of the control unit by pressing the up and down buttons. Should any doubt exist about the correct reading, the sensor should be exchanged against another sensor in the system for reference and replaced if required.










Check frost protection and pH value of heat transfer medium

The SOLHTTK test kit is to be used to ensure the heat transfer medium retained its properties. To access the heat transfer medium in the system slacken the bleed screw of the circulating pump and allow 1 or 2 drops of liquid to escape to carry out the testing.

Check charge pressure expansion vessel

This can only be carried out when the expansion vessel is hydraulically disconnected from the solar loop. It must therefore not be undertaken when the system is hot or will heat up in the foreseeable future. This check must only be carried out when any doubt exists that the charge pressure has reduced such as reduced fill pressure, pressure fluctuation between cold and hot system.

At the end of the maintenance routine it is imperative to ensure the system is back in its automatic operation and that the user is informed of what has been undertaken.

Maintenance		Year 1, 5, 9	Year 3, 7	Year 1 _/_/_	Year 3 _/_/_	Year 5 _/_/_	Year 7 _/_/_	Year 9 _/_/_
Check system pressure								
Check pipe work for leaks								
Check content discharge vessel								
Check roof feedthrough for leaks								
Check condition of pipe insulation								
Check collector fixations								
Check electrical connections in junction boxes and								
Check pump function								
Check sensor readings								

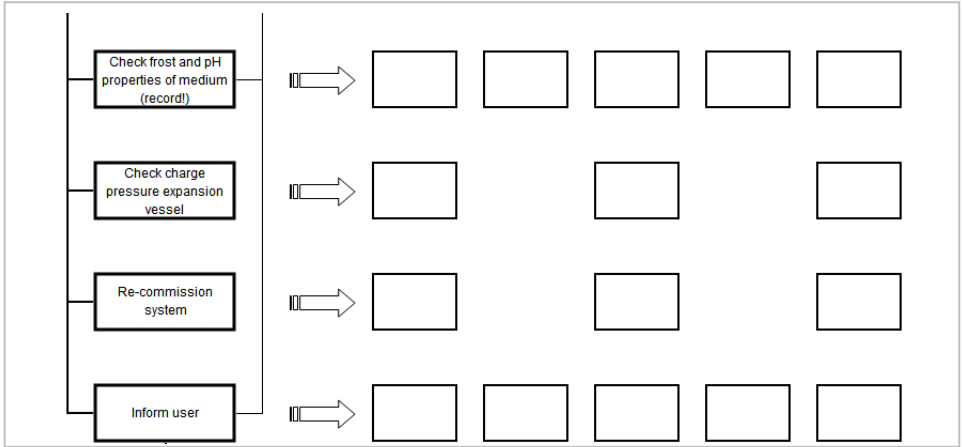


Figure 9 – Maintenance schedule

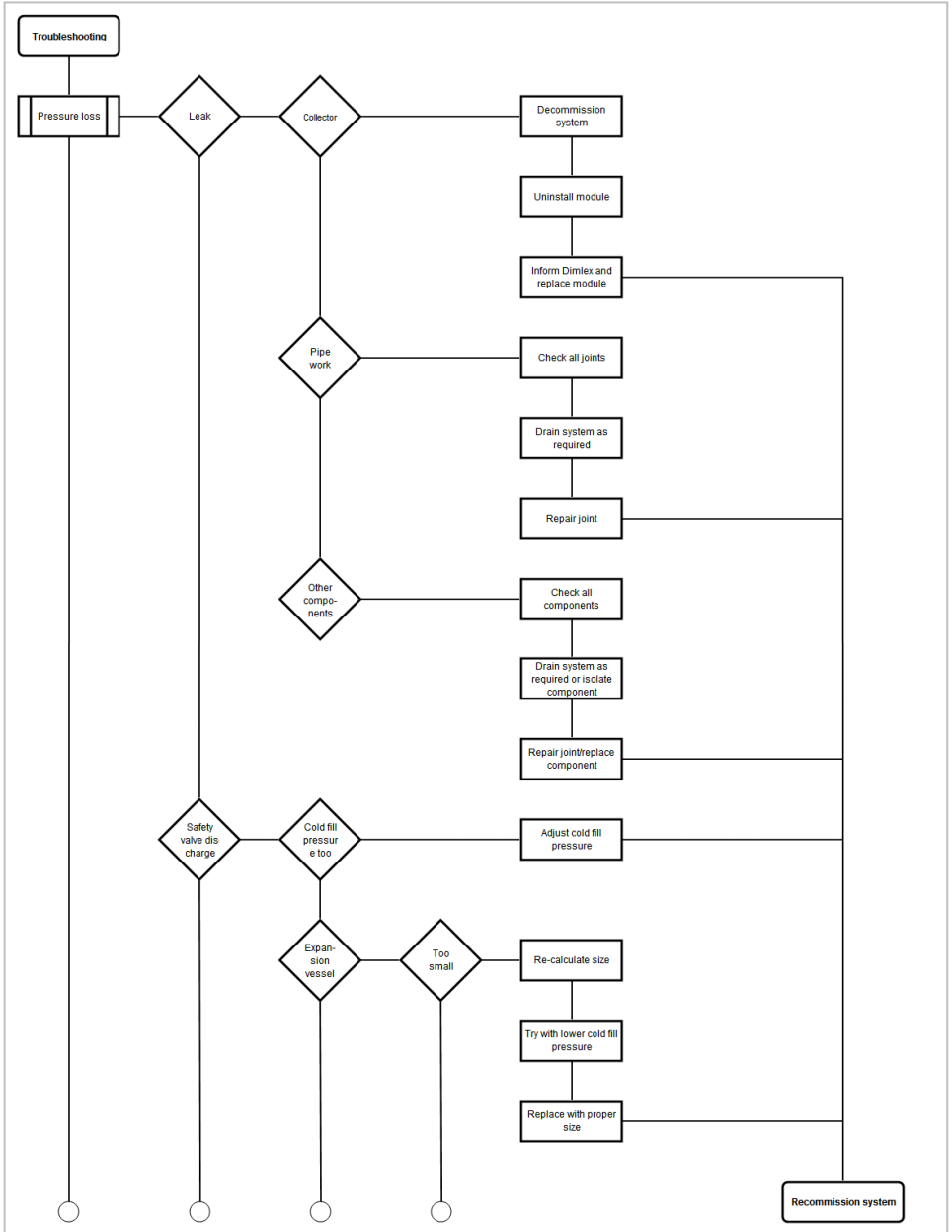
7 Troubleshooting

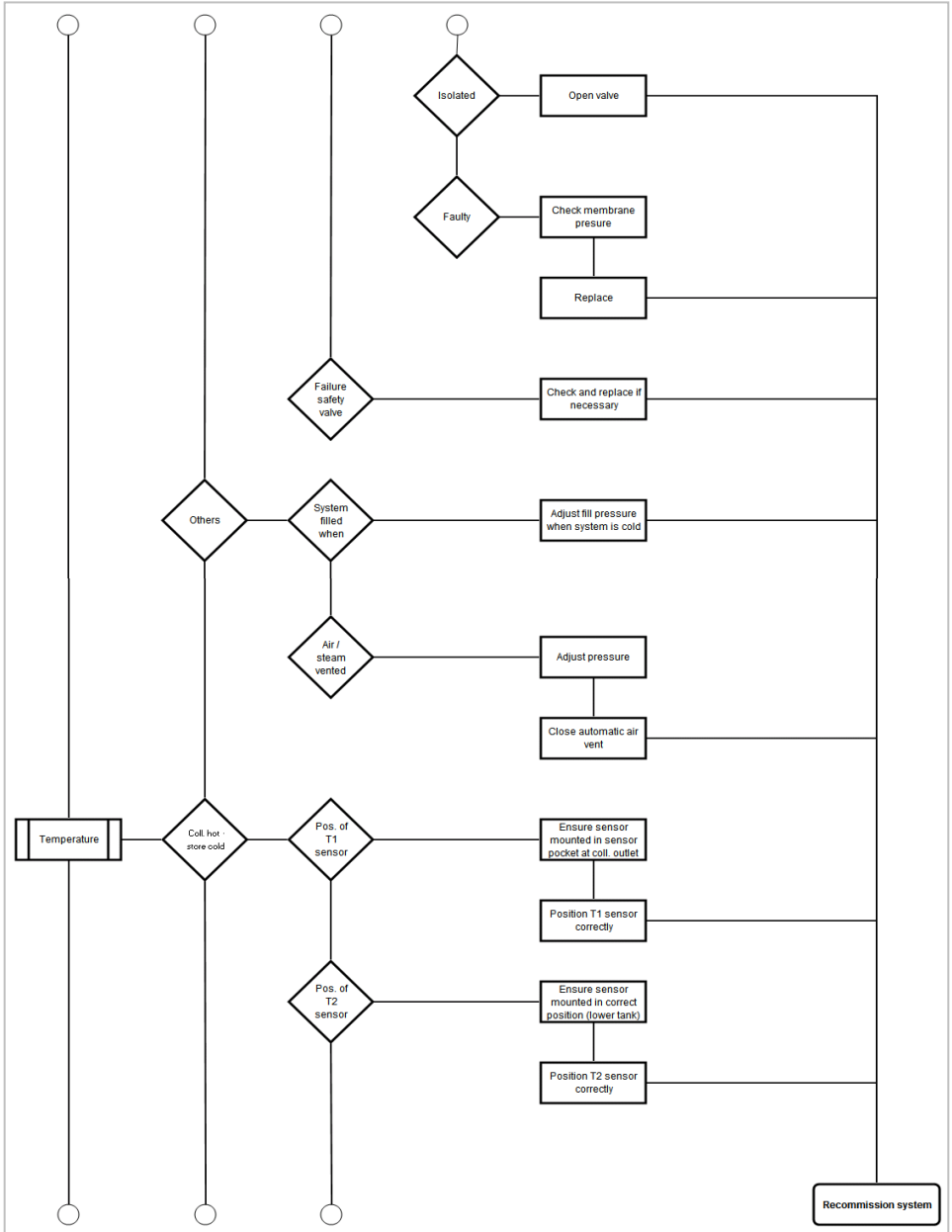
In the case of a malfunction of the system, please follow the flow chart in Figure 10 to identify the problem and apply the suggested remedy. Please note that not all procedures are suitable for the untrained person. If in any doubt, please contact your installer or the service team.

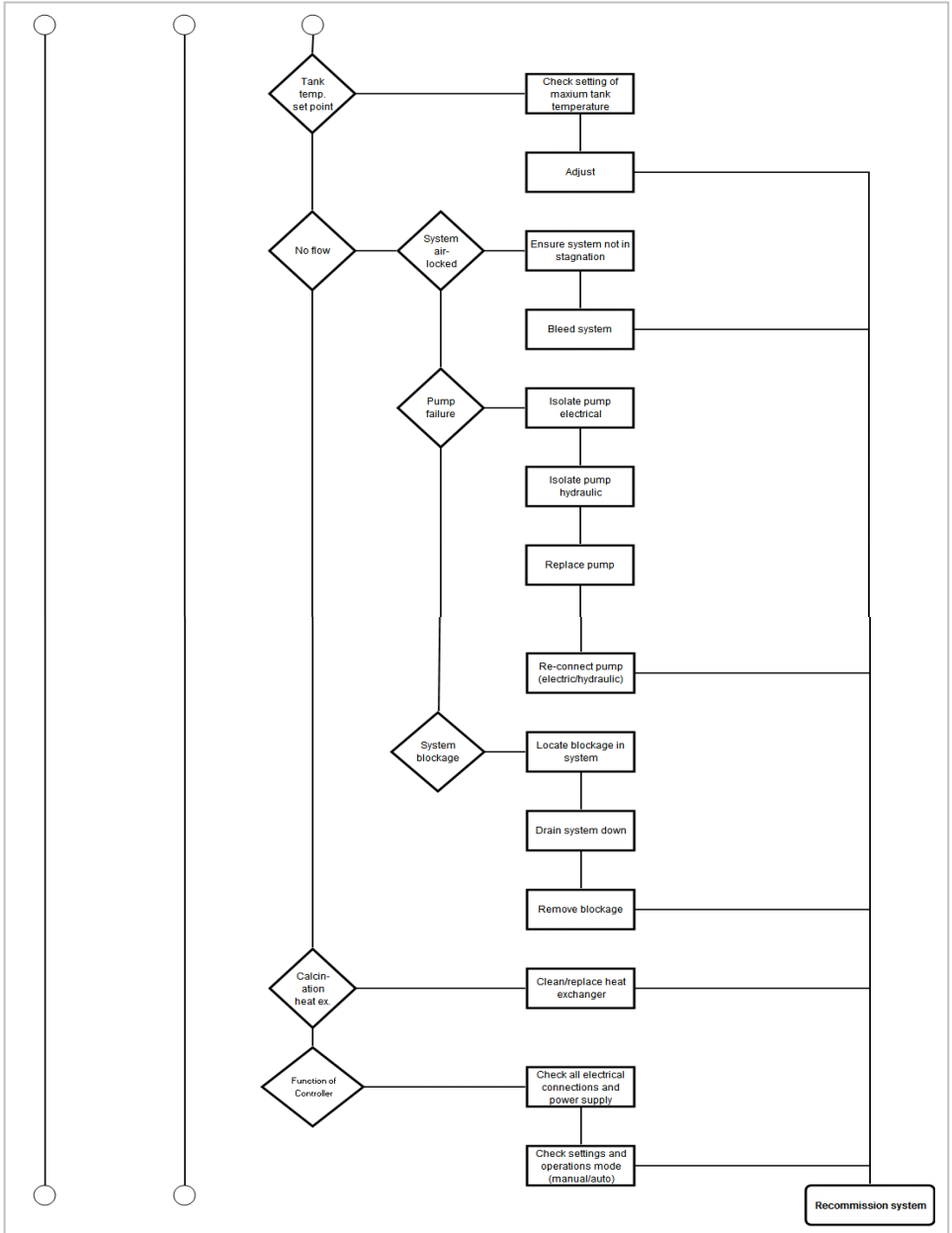
The troubleshooting guide covers the following areas of the Dimplex solar system:

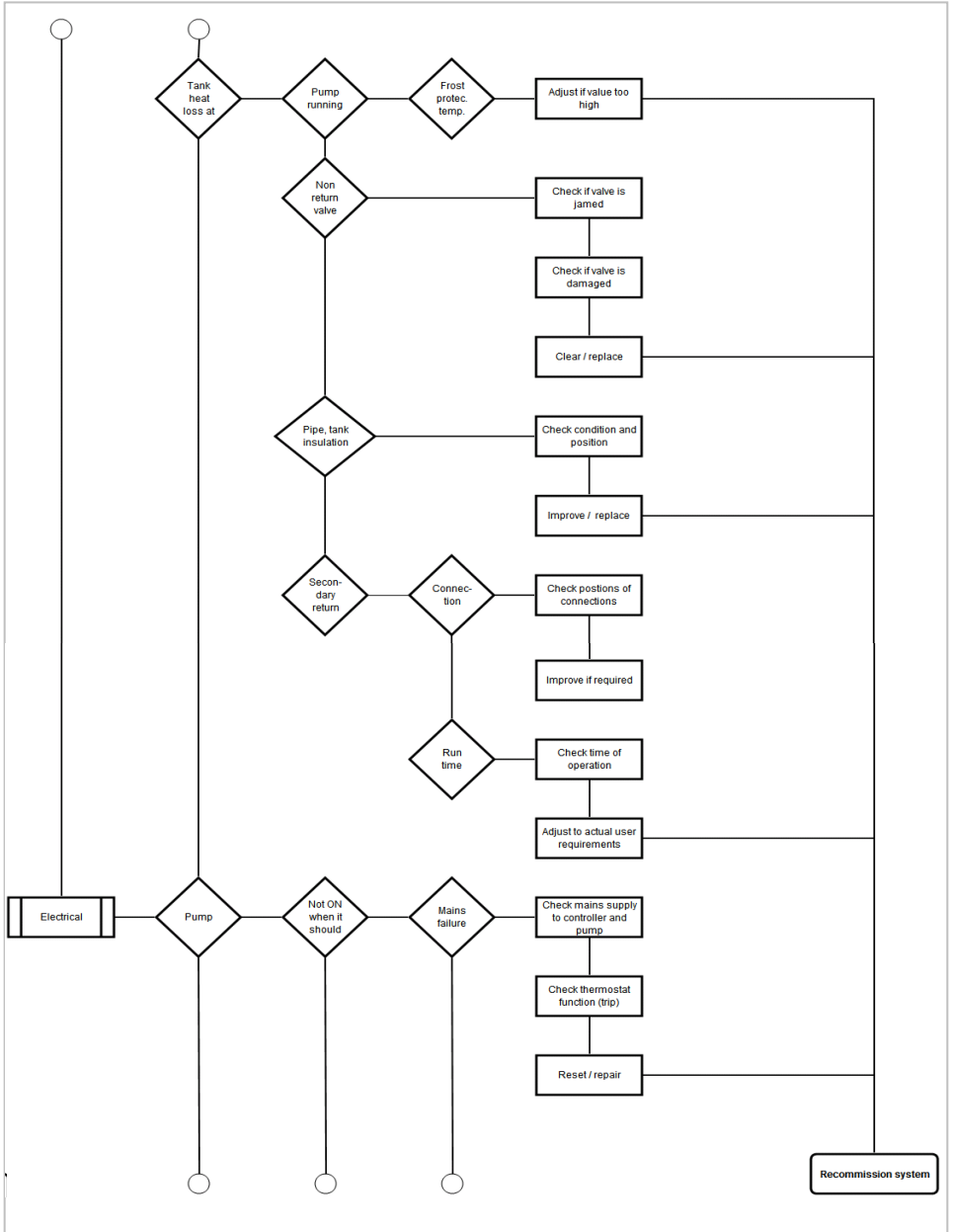
- system pressure loss
- system temperature related issues
- electrical problems

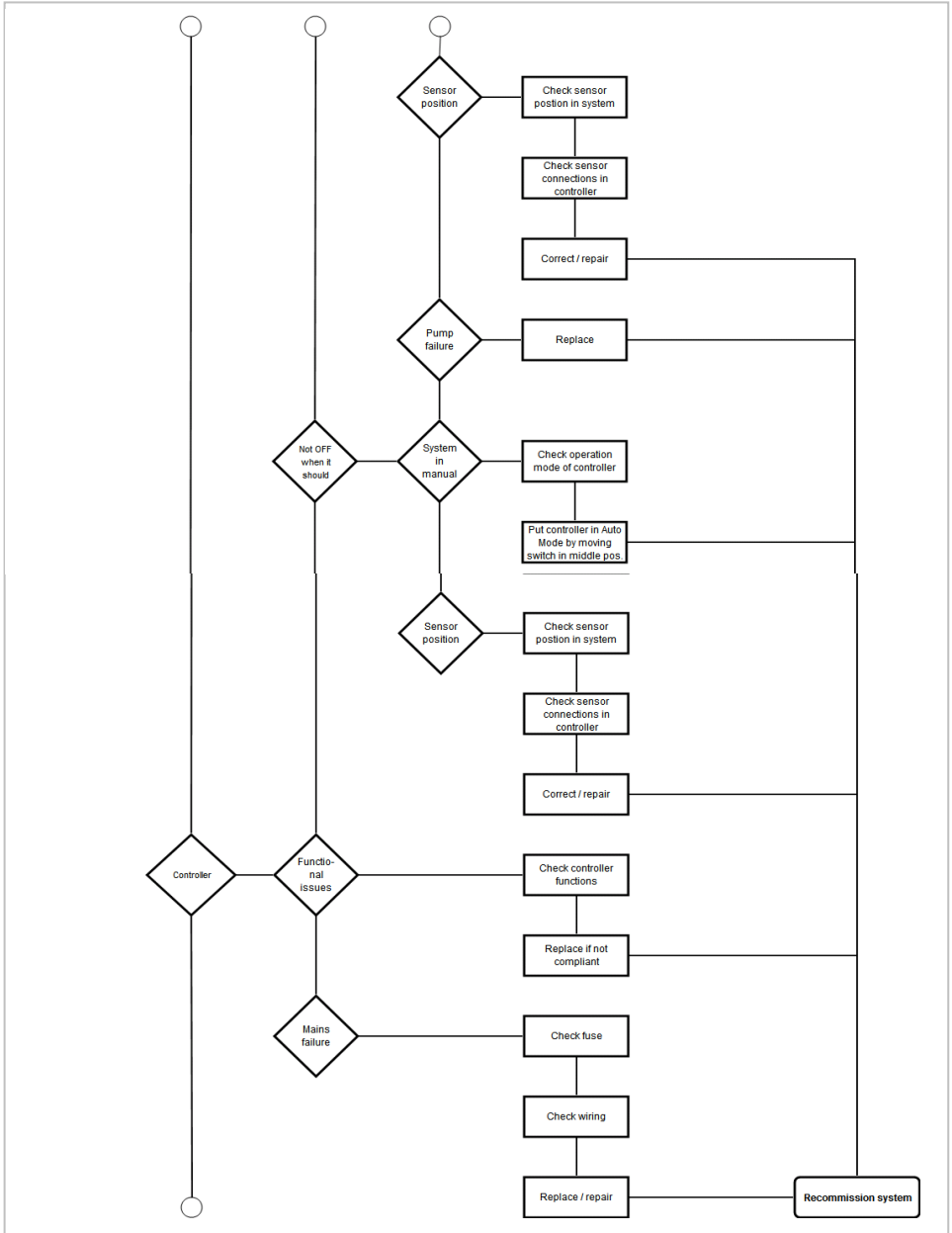
Should a fault occur that is not covered in the troubleshooting guide please contact our technical service team for further assistance. Specific information relating to the various system components can also be found in the respective manuals.











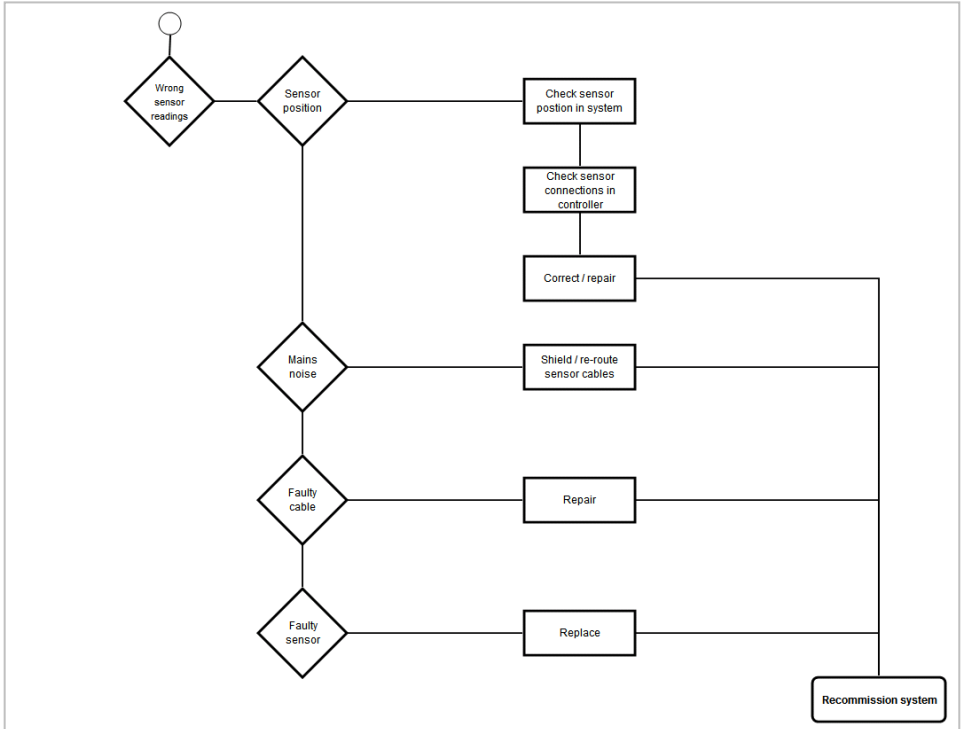


Figure 10 – Dimplex solar troubleshooting guide

8 Heat transfer medium health and safety data sheet

The following health and safety data sheet of the Dimplex solar heat transfer medium SOLHT20 is to be retained with the installation. In case of accidents, fire, accidental escape of fluid please provide the relevant personnel with the information contained in this data sheet.



EEC – SAFETY DATA SHEET

acc. 91/155/EEC; 2001/58/EEC

Date/Revised: 07.06.05

Printing date: 07.06.05

1. Substance/preparation, and company name		Page 1 of 3
Trade name:	TYFOCOR® LS – ready to use, frost protection -28°C	
Company:	TYFOROP Chemie GmbH, Anton-Ree-Weg 7, D – 20537 Hamburg Tel: +49 (0)40 -20 94 97-0; Fax: -20 94 97-20; e-mail: info@tyfo.de	
Emergency information:	Tel: +49 (0)40 -20 94 97-0	
2. Composition/information on ingredients		
Chemical nature:	Aqueous solution of propane-1,2-diol with corrosion inhibitors. CAS-No.: 57-77-6	
3. Hazard identification		
No particular hazards known.		
4. First aid measures		
General advice:	Remove contaminated clothing.	
If inhaled:	If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.	
On skin contact:	Wash thoroughly with soap and water.	
On contact with eyes:	Wash affected eyes for at least 15 minutes under running water with eyelids held open.	
On ingestion:	Rinse mouth and then drink plenty of water.	
Note to physician:	Symptomatic treatment (decontamination, vital functions), no known specific antidote.	
5. Fire fighting measures		
Suitable extinguishing media:	The product is non-flammable. Water spray, alcohol-resistant foam, dry extinguishers, and carbon dioxide (CO ₂) are suitable for extinguishing environmental fire.	
Specific hazards:	Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.	
Special protective equipment:	In case of fire, wear a self contained breathing apparatus.	
Further information:	The degree of risk is governed by the burning substance and fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.	
6. Accidental release measures		
Personal precautions:	No specific measures necessary.	
Environmental precautions:	Contain contaminated water/fire fighting water. Do not discharge into natural waters without pre-treatment (biological treatment plant).	
Methods for cleaning up/taking up:	For large amounts: pump off product. For residues: bind in liquid by using a suitable absorbent material and dispose of in accordance with the regulations. Wash away spills thoroughly with large quantities of water. In case of release of larger quantities which might flow into the draining system or waters, contact appropriate authorities.	

7. Handling and storage		Page 2 of 3
Handling:	No specific measures necessary.	
Protection against fire and explosion:	No specific measures necessary.	
Storage:	Containers should be stored tightly sealed in a dry place. Storage in galvanized containers is not recommended.	
8. Exposure controls and personal protection		
Respiratory Protection:	Respiratory protection in case of release of fumes/fog.	
Hand protection:	Chemical resistant protective gloves (EN 374). Recommended: nitrile rubber, protective index 6. Manufacturers directions for use should be observed because of great diversity of types.	
Eye protection:	Safety glasses with side-shields (frame goggles, EN 166)	
General safety and hygiene measures:	The usual precautions for the handling of chemicals must be observed.	
9. Physical and chemical properties		
Form:	liquid.	
Colour:	red-fluorescent.	
Odour:	product specific.	
Freezing point:	ca. -25°C	(ASTM D 1177)
Solidification temperature:	ca. -31°C	(DIN 51583)
Boiling temperature:	>100°C	(ASTM D 1120)
Flash point:	not applicable.	
Lower explosion limit:	2.6 vol%	(Propylene glycol)
Upper explosion limit:	12.6 vol%	(Propylene glycol)
Ignition temperature:	not applicable.	
Vapour pressure at 20°C:	20 mbar	
Density (20°C):	ca. 1.030 g/cm ³	(DIN 51757)
Solubility in water:	unlimited.	
Solubility in other solvents:	soluble in polar solvents.	
pH value (20°C):	9.0-10.5	(ASTM D 1287)
Viscosity (kinematic, 20°C):	ca. 5.0 mm ² /s	(DIN 51562)
10. Stability and reactivity		
Substances to avoid:	Powerful oxidizing agents.	
Hazardous reactions:	No hazardous reactions if stored and handled as described.	
Hazardous decomposition products:	No hazardous decomposition products if stored and handled as prescribed.	
11. Toxicological data		
LD50/oral/rat: >2000 mg/kg		
Primary skin irritation/rabbit: non-irritant (OECD Guideline 404)		
Primary irritation of the mucous membrane/rabbit: non-irritant (OECD Guideline 405)		
Additional information:	The product has not been tested. The statement has been derived from the properties of the individual components.	

12. Ecological data

Ecotoxicity:	Toxicity to fish: <i>Leuciscus idus</i> /LC50 (96 h): >100 mg/l Aquatic invertebrates: EC50 (48 h): 100 mg/l Aquatic plants: EC50 (72 h): >100 mg/l Microorganisms/effect on activated sludge: DEV-L2 > 1000 mg/l Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations.
Assessment of aquatic toxicity:	The product has not been tested. The statement has been derived from the properties of the individual components.
Persistence and degradability:	Elimination information: Test method: OECD 301A (new version) Method of analysis: DOC reduction Degree of elimination: >70% Evaluation: Readily biodegradable.

13. Disposal considerations

TYFOCOR® LS must be dumped or incinerated in accordance with local regulations.

Contaminated packaging: Uncontaminated packs can be re-used. Packs that cannot be cleaned should be disposed of in the same manner as the contents.

14. Transport information

Not classified as hazardous under transport regulations.
(ADR RID ADNR IMDG/GGVSee ICAO/IATA)

15. Regulatory information

Regulations of the European Union (labelling)/ Not subject to labelling.

National legislation/Regulations:

Other regulations: None.

16. Further information

This safety data sheet is intended to provide information and recommendations as to: 1. how to handle chemical substances and preparations in accordance with the essential requirements of safety precautions and physical, toxicological, and ecological data. 2. how to handle, store, use, and transport them safely.

No liability for damage occurred in connection with the end use of this information or with the use, application, adaptation, or processing of the products here described will be accepted. An exception will be made in the case that our legal representatives should come to be held responsible and liable by reason of intent or gross negligence. No liability will be accepted for damage indirectly incurred.

We provide this information and data according to our present level of knowledge and experience. No assurances concerning the characteristics of our product are hereby furnished.

Department which issued the data sheet: Dept. AT, Tel: +49 (0)40 -20 94 97-0

9 Guarantee

The solar collector is guaranteed against material defects or manufacturing faults for a period of 10 years from the date of purchase if the product is installed, registered, operated and maintained as laid out in these instructions.

All other parts including, but not limited to pump, valves, controller but excluding all pipe work or other items not supplied as part of the solar system, are guaranteed against material defects or manufacturing faults for 2 years from the date of purchase.

In the event of replacement components being required your supplier will supply such part(s), free of charge and freight paid on condition that the defective component is delivered, freight paid, to your supplier within 2 weeks of written notice being given to the service department of the defect. Such replacement parts shall be guaranteed under the terms of this guarantee to the unexpired period of the aforementioned 2 year period.

This warranty is conditional upon the solar system being installed, operated and maintained in compliance with the installation manuals as supplied with the unit, all current legislation, codes of practice and regulations governing the installation of solar thermal systems in force at the time of installation and provided that:

1. The solar system is filled with the heat transfer fluid supplied before turning on the electricity supply to the pump station.
2. The solar equipment is not modified in any way.
3. No factory fitted parts have been removed for unauthorised repair or replacement.
4. Defects caused by frost, excess pressure and overheating, transient voltages lightning strikes or incorrect installation, repair or use, are not covered by this warranty.
5. The system is operated in accordance with the operating instructions.
6. Evidence of the purchase date and date of supply must also be submitted with your claim.
7. To validate the guarantee the user must complete and return the guarantee card supplied accompanied by proof of purchase within 60 days of purchase (evidence of the purchase date and date of supply / installation must be submitted with your claim).

This guarantee does not confer any rights other than those expressly set out above and does not cover any claims for consequential loss or damage. This guarantee is offered as an extra benefit and does not affect your statutory rights as a consumer.

10 Contact details

Dimplex UK Limited

Millbrook House Grange Drive
Hedge End
Southampton SO30 2DF
Te.: 01489 773 052
Fax.: 01489 773 061
e-mail: customer.services@dimplex.co.uk
www.dimplex.co.uk

Glen Dimplex Northern Ireland Ltd

5 Charlestown Avenue
Charlestown Industrial Estate
Co Armagh
Craigavon BT63 5ZF
Tel.: 02838 337 317
Fax.: 02838 350 208
e-mail: info@gelndimplexni.co.uk
www.glendimplexni.co.uk

Dimpco

Airport Road
Cloghran
Co Dublin
Tel.: 01 842 4833
Fax.: 01 842 4705
e-mail: service@dimpco.ie
www.dimpco.ie

Halstead Boilers

Technical Services, Training and Marketing
5 Titan Business Centre
Spartan Close, Tachbrook Park
Leamington Spa, Warwickshire CV34 6RR
Te.: 01926 834 800
Fax.: 01926 834 888
e-mail: sales@halsteadboilers.co.uk
www.hgdheating.co.uk

