

IMAGINATION SOLAR LTD



Installation Guide B4

ATON DeltaSol BS Controller - for Mains Powered Systems



Unit 4 Montpelier Central, Station Road
Bristol BS6 5EE
t: 0117 942 6668 f: 0117 942 8998
e: enquiries@imagnationsolar.com
www.imagnationsolar.com
Reg. in England No. 4226842

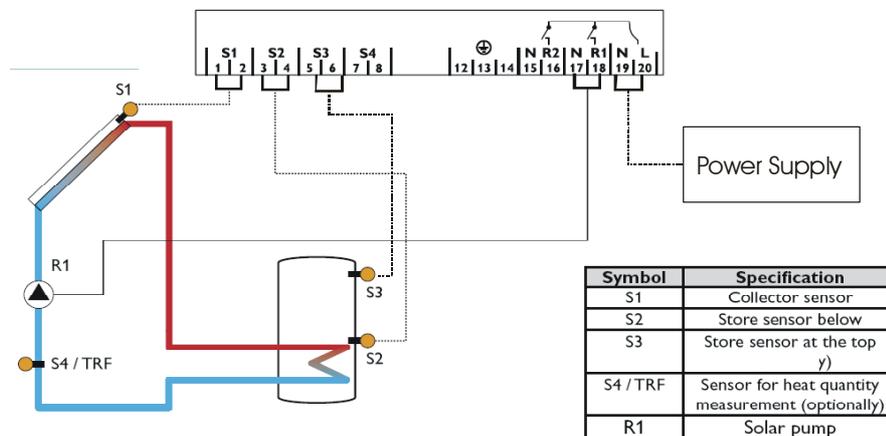
B 4.1 Features

The Aton Deltasol BS has been specially designed by Resol to allow the Aton siphonic drainback system to operate correctly. Please read this document in conjunction with the Resol manual (section B4.6) as this controller has several extra features.

- 12-24V DC voltage controller uses a mains power supply unit, so is Part P exempt if a mains socket is available.
- User variable fill and drain time delays are added to ensure that the system will be fully filled on start up and will have time to siphonically drainback (default is 4 minutes).
- User variable delta T control with user variable maximum store temperature.
- Digital display showing pump operation, collector temperature, and cylinder temperatures.
- Hours run counter, totalling hours run since installed.
- Optional heat meter option, when used with additional 4th temperature sensor.

B 4.2 RESOL Sensor Wiring

Standard solar system with 1 cylinder, 1 pump and 3 sensors. The sensor S4/TRF can optionally be used for a heat meter function.



B4 Figure 1: Wiring diagram and location of temperature sensors to RESOL unit.

Ideally an existing 13A switched socket is available for the power supply to plug into, or the clients' electrician can provide a socket in advance. However if a new power supply is required then a competent person may:

- Fit a new 13A switched socket on a suitable 2.5mm² power ring main, in either a 'dry' area of the house or in an airing cupboard separated from a 'wet' area by a door.
- Fit a new fused spur from the supply side of the immersion heater power supply.
- In either case always avoid hidden junction boxes below floors.

B 4.3 Installation

The collector sensor S1 screws into the back of the Aton collector near to the flow and return connections into the tapping provided.

Sensors S2 and S3 should be inserted into pockets provided on the solar cylinder, at the bottom and top respectively, and sealed with silicone.

Sensor S4 is optional and is used to provide an indication of heat quantity. This should be put in a suitable pocket (also available from ISL) close to the cylinder in the return pipe to the pump/drainback unit.



It is recommended that sensor cable connections are made using insulated crimps, rather than junction boxes as these provide long term low resistance joints.

B 4.4 Operation

Once the controller is wired and powered up it can be operated using the 3 push buttons beneath the display. The round centre button is used to set the user variable values and the left and right buttons are used to scroll through the menu and adjusting values up and down during the initial set up.

The values shown are as follows:

COL: Current collector temperature S1, shown in °C

TST: S2 Store temperature at solar coil shown in °C

S3: Temperature sensor S3 at top of cylinder (DHW supply temperature)

TRF: Solar return temperature, shown if optional sensor S4 is fitted in °C

HP: Hours pump has run since installed.

KWh: Heat quantity in kWh if optional S4 is fitted.

MWh: Heat quantity in MWh if optional S4 is fitted, add to kWh for total quantity.

A green light is shown when the unit is powered and operational.

tMnO: Draintime: This is a countdown in seconds from sensing a ΔT and switching on pump (set to 240 seconds). This is accompanied by a flashing green operating led. This countdown can be seen by scrolling through to it when the green light is flashing. If the ΔT falls below the user set figure within this time then the pump will not switch on.

tMnF: Fill time: This is a countdown in seconds that the pump will run for after it has started (set to 240 seconds). At the end of the countdown the pump will continue to run if the ΔT still exists.

B 4.5 Set up and Commissioning

The unit is supplied with factory set values but these will need to be checked and modified as follows:

Press the right button for over two seconds to enter the commissioning menu.

To change the value shown press the middle button once and then scroll up or down using the left and right buttons. Press the middle button again to set the value required.

DT O: ΔT "ON" can be varied from 1–20°C. As a guide this will usually be set to 6°C (use a higher figure for longer pipe runs with greater heat losses).

DT F: ΔT "OFF" can be varied from 0.5-19.5°C. As a guide this will usually be set to 2°C.

S MX: Maximum store temperature °C. As a guide this is normally set to 80°C if a thermostatic mixing valve is used or 60-65°C if not. Once this figure has been exceeded the pump will switch off until the cylinder cools or some water is drawn off.

EM: Collector limit temperature °C. The Aton collector has a stagnation temperature of 185°C so this should be set to the maximum of 200°C.

OCX: System cooling. This feature is not used and should be set to OFF with the ISL system.

OCN: Collector minimum temperature °C. For mains powered systems set to OFF.

CMN: Minimum collector temperature. For mains powered systems set to OFF.

OREC: Re-cooling function. This feature is not used and should be set to off.

OHQM: Heatmeter function. If the optional sensor 4 is not fitted this should be set to OFF.

FMAX: With the optional sensor 4 fitted the flow rate should be set to the number of collectors fitted, i.e. single collector 0.7 l/min, twin collector 1.4 l/min or read from flow meter if fitted.

MEDT: Collector fluid. If Fernox Alphi 11 supplied with the system is used then use 1. (only used for heat measuring)

MED%: This figure is the concentration of antifreeze used. See guide B2.4 for more details.

tMnO: ΔT sampling period/draindown delay. Must be set to a minimum of four minutes. Very long pipe runs may require a longer delay to drain down.

tMnF: Fill time/Minimum run time. This must be set to 4 minutes to ensure the system is filled before drainback is attempted.

HND1: This feature should be left on auto in normal operation but can be set to ON to run pump whilst commissioning.

LANG: EN is English and the above instructions refer to this setting.

Once the above has been completed scroll back using the left button to complete the commissioning operation.

B 4.6 Resol Deltasol BS Manual

The full RESOL installation manual follows, with further detailed information. However please note that the ATON DeltaSolBS controller has a mains DC power supply unit and also has modified software to provide a fill and drainback time delay.