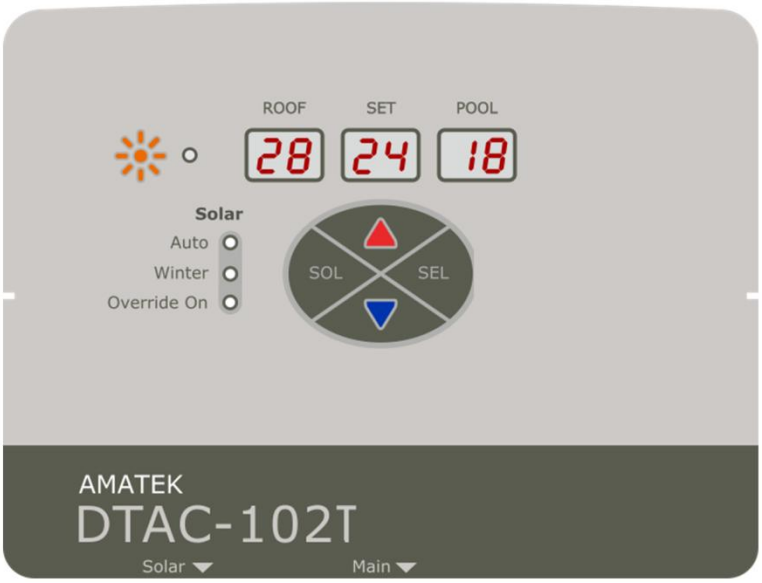
AMATEK·DESIGN	DTAC-102T

INSTALLATION, USER AND REFERENCE MANUAL

Thank you for purchasing the DTAC-102T solar pool heating thermostat controller.



WARNING:

The DTAC product line is rated to supply a maximum combined power of 2.3kW under Approval Certificate NSW29186. If the product is connected to equipment with a load greater than 2.3kW then the DTAC may be damaged. The DTAC product must NOT be installed where sustained overload can occur and it is not warranted under such usage. For a load greater than 2.3kW, an AMATEK PS001A power separator must be used, which can take an additional 2.4kW load or 4.7kW in total. See Section 6 below for a system load calculator.

It is recommended to install the product under cover, not in direct sunlight, and in accordance with AS/NZS 3000 and AS/NZS 3136.

UNIT UNIQUE ID (UUID)

Please retain this page for future reference

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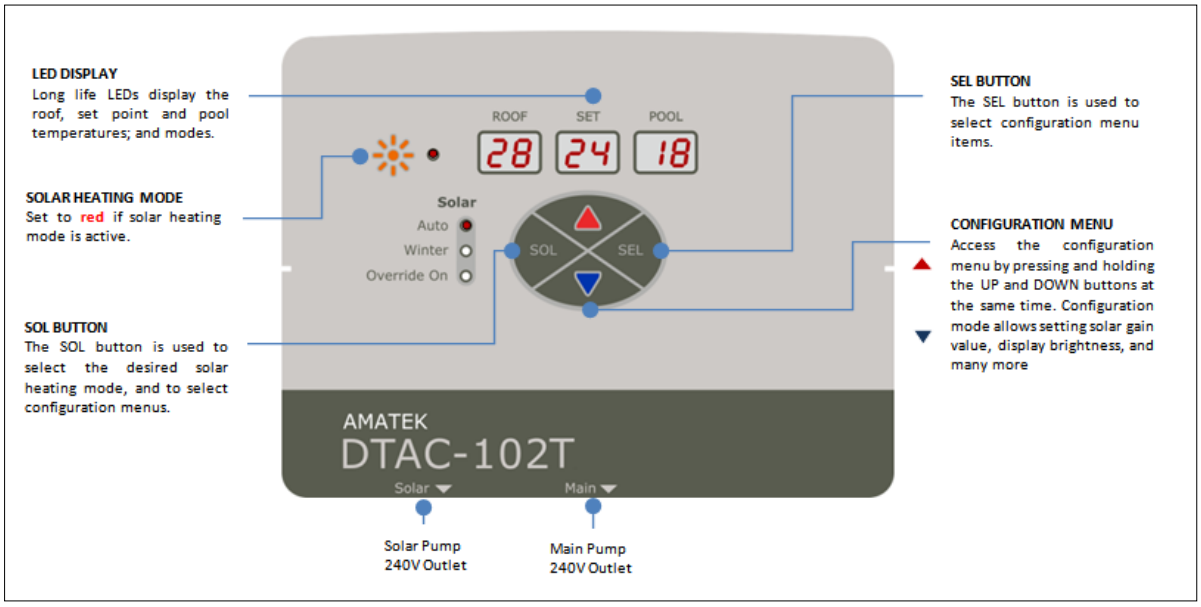
1 OPERATIONAL SUMMARY

The DTAC-102T is designed as a stand alone thermostat for a solar pool heating system. The DTAC-102T has two 240V outlets, one for the solar pump and one main circulation pump. The main pump outlet is always on.

1.1 Control panel



1.2 Operational Summary

Solar Auto

When solar gain is available, the DTAC-102T heats the pool to the set point temperature

Solar Winter

Runs the solar pump for 3 minutes once every 24 hours from power on, or from when last activated. This saves energy and reduces the risk of pump seizure during winter.

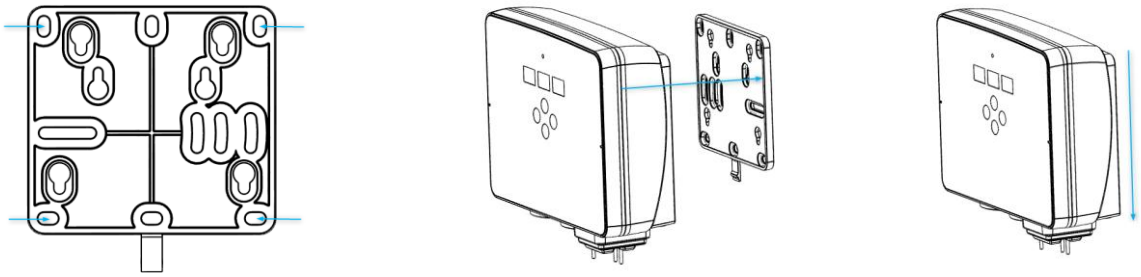
Solar Override On

Runs the solar pump for between 15 minutes and 120 minutes as configured in 15 minute increments, after which DTAC-102T reverts to the previous solar control state

2 INSTALLATION

Prior to installing ensure that all the other solar heating equipment has been installed and ready including necessary pumps, pipes and filter

2.1 Mounting



Mount the DTAC-102T on a flat section of a wall using the mounting plate. The mount plate has four screws at the rear of the housing which can be adjusted, allowing the mounting plate to slide freely. The unit can be removed from the mounting plate by pushing its tongue away from the housing.

Ensure the tongue is facing down, mark four holes to mount the plate, and drill and screw to the wall. Ensure the plate is flat after tightening the screws so the DTAC-102T may slide on and off easily. Align the DTAC-102T housing and the mounting plate, then push the housing down to lock the unit on to the wall. The mounting plate has multiple slots and holes allowing it to be mounted directly to screw holes from other legacy controllers.

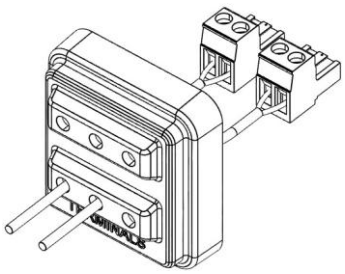
2.2 Connecting Cables and Pumps

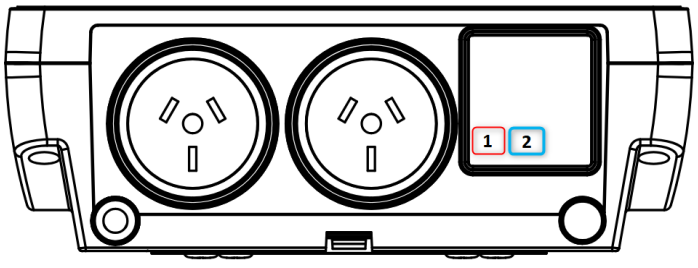
2.2.1 Sensing and Control

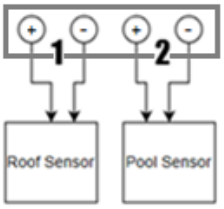
The silicone rubber terminal socket seal protects the wires and plugs from moisture and insects. **Note:** Ensure the socket seal is installed correctly during installation and for the product lifetime.

To install the seal, drill the required holes in it, then remove the Phoenix plugs from the sensors, feed the sensor wires through the holes, and reconnect them.

Then insert the Phoenix plugs to the correct Phoenix socket as marked below. Finally slide the seal down the wires, press onto the terminal flange and push home until it is firmly in place. You may need to pull the wires gently through the holes to contain them. If necessary, use silicon glue to seal the holes. The Phoenix connector pin out is shown below. Both the Roof sensors and the Pool sensors for the DTAC unit are unpolarised

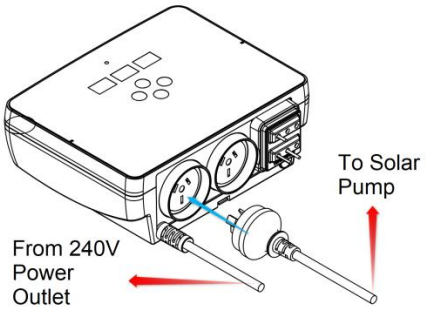






2.2.2 Stand Alone Installation

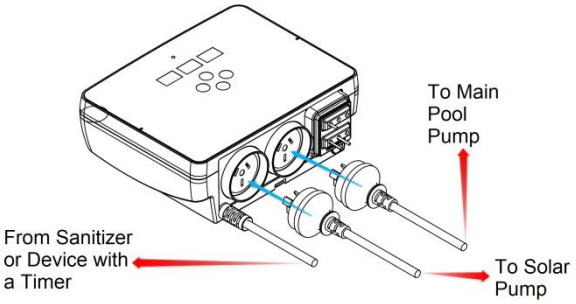
Connect the DTAC-102T power cable to the general power outlet (GPO). Connect the solar pump plug to the solar pump socket as shown in the diagram. See §3.1 under “Auto” for heating control details. The solar pump will run whenever there is solar gain.



2.2.3 Sanitizer/Timer Slave Installation

Connect the DTAC-102T power cable to a device with a timer (e.g. sanitizer). Connect the solar pump to the solar pump socket and the pool pump to the main socket as shown in the diagram. The main socket is wired to be always on.

In sanitizer/timer slave configuration, the DTAC-102T will only power on when the device it is connected to is active, and in turn, operate the main and solar pumps.

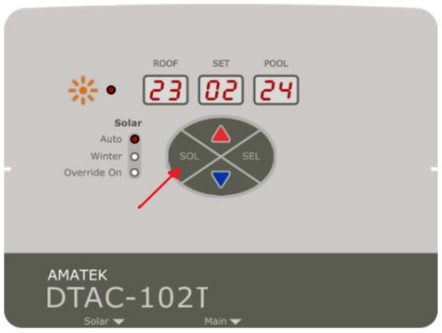


3 FRONT PANEL OPERATION

The three LED displays show the ROOF, SET and POOL temperatures. SET displays the desired temperature when heating. POOL displays the last measured pool temperature and the current pool temperature during solar pump operation. ROOF displays the current roof temperature.

There are four "buttons" on the front panel, UP, DOWN, SOL and SEL. In normal use the SOL button controls the solar pump and mode. If none of the DTAC-102T buttons are pressed for 3 minutes, the device enters “Timeout” mode, where the display will go blank except for a blinking decimal point in the rightmost digit. The DTAC-102T displays will light up whenever a button is pressed.

3.1 Solar Control

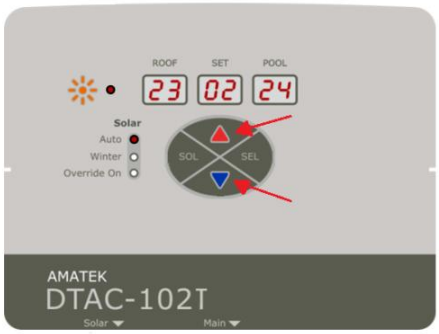


Pressing the SOL button will toggle the Solar mode between "Auto" and "Winter".

In “Auto” mode, heating will begin when the roof temperature is above the last measured pool temperature by at least the configured solar gain value, and continue until the pool temperature reaches the set temperature, or until the heating is paused due to user input, insufficient solar gain, or the roof temperature falling below the minimum threshold. (See §3.2.3) After any heating attempt, the system will suspend further heating attempts for a configurable time delay of between 1 and 4 hours, before re-attempting. (See §3.2.5)

In “Winter” mode, the DTAC-102T will pause all solar-gain based heating operations. Instead, the system will operate the solar pump for 3 minutes every 24 hours after power on, or activation. This saves energy and wear and tear on the pump during winter.

Pressing and holding the SOL button enables "Override On" mode. "Override On" will run for the set time (See §3.2.6), after which DTAC-102T will revert to its previous state. During “Override On”, the solar heating system will operate for the entire duration, regardless of the set point temperature.



Pressing the UP and DOWN buttons increases or decreases the temperature set point. UP and DOWN can be used to change the set point in any Solar mode.

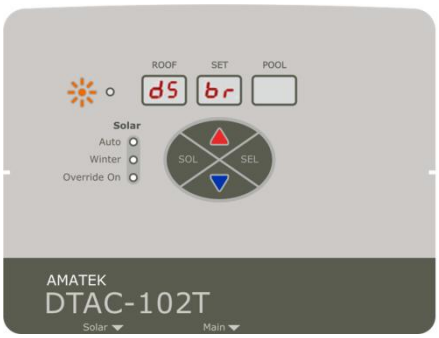
3.2 Configuration Menus

Configuration menus may be entered and exited by pressing the UP and DOWN buttons concurrently.

Pressing the SOL button moves to the next menu item. Pressing

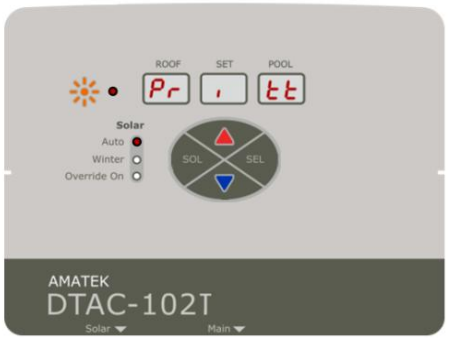
the SEL button enters the current menu item. Pressing the press SOL button again exits that menu item. If no buttons are pressed after one minute the configuration menus are exited.

3.2.1 Display Brightness



- When “dS br” is displayed, press the SEL button to enter the brightness menu
- Press UP or DOWN to select the display brightness, scaled between 1 and 6
- Press SEL to save the currently selected brightness or SOL to exit without saving

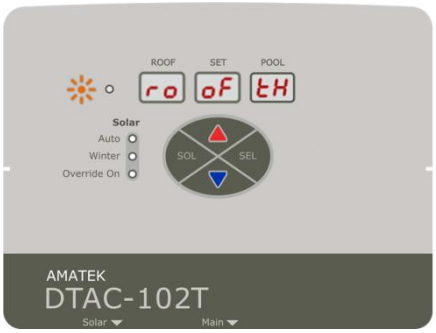
3.2.2 Priming Time



The priming time menu sets how long the solar pump will run before starting to display the current pool temperature; and can be set between 20 seconds and 600 seconds in 20 second increments; with 20 seconds being the default time.

- When "Pr tt" is displayed, press SEL to enter the menu and the selected digits will blink
- Press UP or DOWN to modify the pump priming time
- Press SEL to save the current priming time and exit or press SOL to exit without saving

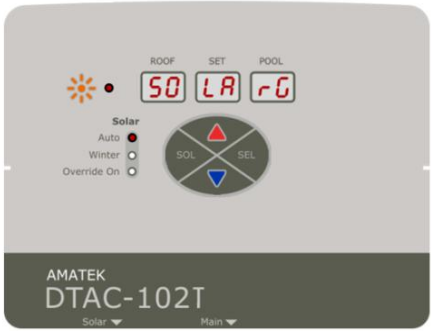
3.2.3 Minimum Roof Temperature



Minimum roof temperature is the lowest temperature point the roof can reach before all heating operations are paused. Heating operations will resume when the roof temperature surpasses this value and is greater than the sum of the solar gain value and last measured pool temperature. However, if the roof temperature falls below the pool temperature the device will pause heating operations for 12 hours.

- When “ro oF tH” is displayed, press SEL to enter the menu
- Press UP or DOWN to change the value
- Press SEL to save the configuration and exit or press SOL to exit without saving

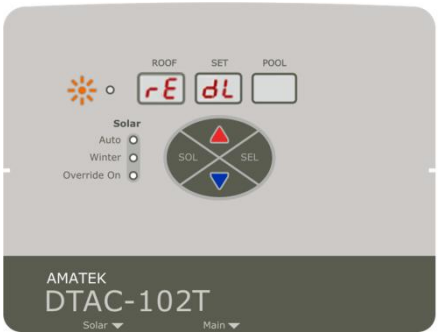
3.2.4 Solar Heating Gain



Solar heating gain is the difference between the measured roof and pool temperatures. When the solar heating gain is equal to or greater than the solar gain setting, the solar pump will operate. Solar gain can be set from 1C to 20C. The default solar heating gain is 6C**.**

- When "50 LA rG" is displayed, press SEL to enter the menu
- Press SEL to enter the solar gain menu
- Press UP / DOWN to change the value
- Press SEL to save the solar gain value and exit or press SOL to exit without saving

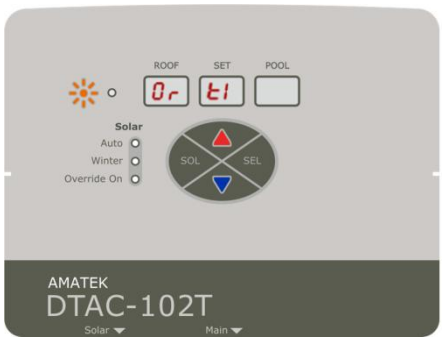
3.2.5 Heating Retry Delay



Heating Retry Delay is the minimum time the system must halt before attempting another heating operation after a previous attempt in Auto mode. The default heating retry delay is 2 hours**,** and can be increased up to 4 hours in hourly increments. If a heating attempt is successful (when the pool temperature reaches the set temperature) the heating delay will last 4 hours, irrespective of the setting.

- When "rE dL" is displayed, press SEL to enter the menu
- Press SEL to enter the heating retry delay menu
- Press UP / DOWN to change the value
- Press SEL to save the heating retry delay time and exit or press SOL to exit without saving

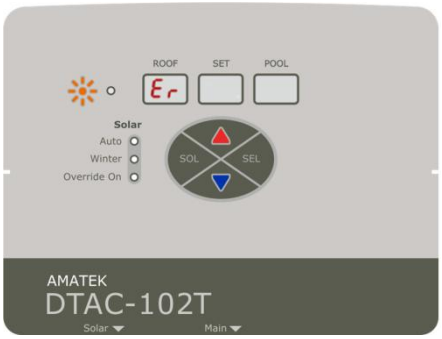
3.2.6 Override Timer



- When “Or tI” is displayed, press the SEL button to enter the override time menu
- Press UP or DOWN to set the override time. 15 minutes is the minimum and 30 minutes is the default, and can be varied in 15 minute intervals up to 120 minutes.
- Press SEL to save the newly set override time or SOL to exit without saving

3.3 Error Handling

3.3.1 Temperature Sensors



If the DTAC-102T encounters an error with the temperature sensors it will display “Er”. If a sensor is not connected, or has failed, then the system will suspend heating, and continue to display “Er” and wait until both sensors are no longer in an error state. Once both sensors read correctly, then the DTAC-102T will re-attempt solar heating after the heating retry timer elapses.

4 UNIT SPECIFICATIONS

4.1 Approvals and Ratings

Approval Certificate	NSW29186
Input	230VAC, 50Hz, 10A, 2.3kW
Max Total Output Load	9.9A 2.28kW
Insulation	Double insulated water circuit
IP rating	IP33 (Keep out of direct sun and rain)
Temperature	0C - 40C
Altitude	3,000m

4.2 Power Relay Ratings

Contact Material	AgSnO2 AgCdO
Contact Rating(Resistive)	20A,25A/250VAC; 25A/277VAC
Motor Load:	2HP 240VAC Max
Switching Power	6925VA Max
Switching Voltage	277VAC Max.
Switching Current:	25A

4.3 Material Specifications

Housing	ASA UL940/V0
Silicon Seal	Silicon UL94/V0
Sensor Cable	Silicone.

5 WARRANTY AND LIABILITY

5.1 Warranty on Hardware

(1) Subject to the following clause (1) **SUPPLIER** warrants that the goods delivered by **SUPPLIER** shall be free from defects in material and workmanship.

(2) **SUPPLIER** shall be released from obligations in the event that the goods are subject to misuse, neglect, accident, improper installation or any unusual or unrecommended physical, environmental or electrical stress (including improper voltage or power surge) by **BUYER** or if repairs or modifications are made by persons other than **SUPPLIER's** own or authorised service personnel (unless such repairs by others are made within the consent of **SUPPLIER** which consent will not be unreasonably withheld in the case where such persons are reputable and adequately and properly trained)**.**

(3) Limited three year warranty, first year full warranty, second and third year back to base warranty.

(4) Amatek Design reserves the right to investigate, determine the cause of failure and replace or refund at its sole discretion.

5.2 Limited Software Warranty

(1) **SUPPLIER** does not warrant that software or firmware supplied under this Agreement:

(a) will operate error free;

(b) will operate uninterrupted while in use;

(c) will meet the customers requirements other than those set out in specifications accepted by **SUPPLIER**; or;

(d) will provide any function not designated in such specifications.

(2) **SUPPLIER** agrees to use its best endeavours to rectify or replace the software or firmware at its option and at its own expense when such defect has been detected by Buyer and notified to **SUPPLIER** in writing within 90 days of the software or firmware satisfactorily completing the relevant tests specified or prescribed by Buyer, provided the details of such tests have been advised by Buyer to **SUPPLIER** prior to delivery of the software to Buyer.

(3) If testing of delivered software has not occurred within 30 days of the date of delivery the software is deemed to be accepted by Buyer.

(4) If investigation of a problem reported vide clause (2) establishes that the cause of the report is not **SUPPLIER** software, **BUYER** agrees to pay on Invoice the charges for the effort expended by **SUPPLIER** in researching the reported problem.

(5) Subject to clauses (1) and (2) **BUYER** acknowledges that the goods including related software and firmware provided to **BUYER's** specification are of a design capacity, manufacture and performance as selected by **BUYER**.

(6) All conditions, warranties and representations on the part of **SUPPLIER** in relation to the goods or the software, whether expressed or implied, statutory or otherwise, whether collateral or antecedent hereto including but not limited to any warranty or condition of fitness for a particular purposes are hereby expressly excluded, provided that nothing herein contained purports to exclude, restrict or modify the operation or effect of any terms compulsory implied in this Agreement by virtue of any legislation.

(7) Subject to clause (6) **SUPPLIER** shall not be liable to any person for any special, general or consequential damages, including but not limited to loss or profits from any cause whatsoever arising out of or in any way connected with **SUPPLIER's** obligations under this Agreement

(8) **SUPPLIER's** liability under this Agreement shall be limited, at the option of **SUPPLIER** where goods or software are supplied to the replacement cost of the goods or software, the repair for the goods or software, or payment of the replacement cost of the goods or software.

(9) **SUPPLIER** further warrants that this Agreement does not in any way infringe upon any registered trademark, trade name or patent or upon the right entitlement or interest of any firm, person or corporation not a party to this Agreement pursuant to the Copyright Act or otherwise.

6 SYSTEM LOAD CALCULATOR

Use this calculator to record the system power. If the total power is greater than 2300W, then an AMATEK PS001A power separator MUST be used. Failure to do so shall void the DTAC warranty.

ACCEPTABLE SYSTEM LOAD EXAMPLE

ITEM	MODEL NUMBER	MAX (W)	POWER SOURCE
SOLAR PUMP	ONGA P100	700W	DTAC SOLAR
TOTAL DTAC POWER		**1,850W**	

UNACCEPTABLE SYSTEM LOAD EXAMPLE

ITEM	MODEL NUMBER	MAX (W)	POWER SOURCE
SOLAR PUMP	DXD 340A 4HP Circulation Pump	2,800W	DTAC SOLAR
TOTAL DTAC POWER		**2,800W**	

CALCULATE YOUR SYSTEM POWER BEFORE INSTALLATION.
TOTAL PS001A POWER IS TO BE < 2,400W
TOTAL DTAC POWER IS TO BE < 2,300W

ITEM	MODEL NUMBER	MAX (W)	POWER SOURCE
SOLAR PUMP			DTAC SOLAR
TOTAL DTAC POWER			

7 DTAC MODEL CROSS REFERENCE

#	Model	Feature							
		Solar Pump Relay	Main Pump Relay	Wireless Remote Support	Valve Relay	Heater Relay	VSD	Chlorinator Input	Energy Monitor
1	DTAC-101	✓		✓					
2	DTAC-101S	✓		✓			✓		
3	DTAC-102	✓	✓	✓	✓				
4	DTAC-102H	✓	✓	✓	✓	✓			
5	DTAC-102C	✓	✓	✓	✓			✓	
6	DTAC-102HC	✓	✓	✓	✓	✓		✓	
7	DTAC-102S	✓	✓	✓	✓		✓		
8	DTAC-102HS	✓	✓	✓	✓	✓	✓		
9	DTAC-102CS	✓	✓	✓	✓		✓	✓	
10	DTAC-102HCS	✓	✓	✓	✓	✓	✓	✓	
11	DTAC-101E	✓		✓	✓				✓
12	DTAC-101SE	✓		✓	✓		✓		✓
13	DTAC-102E	✓	✓	✓	✓				✓
14	DTAC-102HE	✓	✓	✓	✓	✓			✓
15	DTAC-102CE	✓	✓	✓	✓			✓	✓
16	DTAC-102HCE	✓	✓	✓	✓	✓		✓	✓
17	DTAC-102SE	✓	✓	✓	✓		✓		✓
18	DTAC-102HSE	✓	✓	✓	✓	✓	✓		✓
19	DTAC-102CSE	✓	✓	✓	✓		✓	✓	✓
20	DTAC-102HCSE	✓	✓	✓	✓	✓	✓	✓	✓
21	DTAC-101X	✓							
22	DTAC-102X	✓	✓		✓				
23	DTAC-102HX	✓	✓		✓	✓			
24	DTAC-102T	✓							

PREPARED: NH	**DATE:** 17/1/25	**PROJECT**: DTAC-102T
APPROVED: SB	**DATE:**	**DOC NUMBER:** A100J101F080D090R001
STATUS	**RELEASE**	

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