



OPERATION & TROUBLESHOOTING GUIDE

Torrium® Status Indicator LED

The Torrium status indicator LED lights can help establish what the current status of the Torrium and the pump system is. While the Installation and Operating Instructions and the status card attached to the Torrium show the basic descriptions of what the various LED indicators mean, the table below gives an in depth description of the status indicators.

Prior	Colour	Flash	Status	Criteria	Action	Status Cleared Criteria
0	Red	0	Standby	Power connected, no flow, pressure above cut-in.	Pump waiting for pressure drop to initiate start.	N/A
0	Green	0	Pump running	Flow over 0.5gpm (± 0.13 gpm).	Power to pump.	N/A
1	Green	0	Toilet cistern mode	Pressure drop to $>20\%$ and previous three starts within 40 seconds.	Pump runs for 110 seconds.	Time elapsed or critical fault detected.
1	Red	1	Loss of prime	Flow < 0.5 gpm (± 0.13 gpm) and pressure < 15 psi (± 15 psi) with pump on.	Alarm displayed immediately. Pump stopped after 45 sec. Self priming attempted after 5min, 30min, 1hr, 2hr, 4hr, 8hr, 16hr, 32hrs, then never again. 5min after unsuccessful self-prime, water return checking is activated.	If self priming is successful.
2	Red	2	Triac over-temperature	Caused by locked rotor or triac overheating.	Pump stopped until power cycled.	Button press or power cycle.
2	Red	2	Under-voltage	Supply voltage goes below 90v for 110-120v models or 180v for 220-230v models (± 13 v) for 10 seconds with pump on.	Pump operates normally.	After 10 seconds of mains supply over 90v for 110-120v models or 180v for 220-230v models with pump operating. Or button press or power cycle.
3	Red	3	Water over temperature	Water temperature is over 158°F (± 9 °F) for 2 minutes.	Restart when water temperature drops to 140°F (± 9 °F).	When water temperature < 140 °F (± 9 °F) is reached.
3	Red	3	Slow leak	Time interval between last 8 pump starts are within $\sim 25\%$ and >15 seconds and < 4 hours.	Pressure cut-in is adjusted from 80% to 50%. Fault is cleared after 100 pump cycles or with button press or power cycle.	If 100 cycles is reached or if button is pressed or power cycled.

Note: If multiple errors are present, the highest priority error is indicated. Any previous fault code is lost until it recurs. All tolerances are specified at 77°F. All time intervals are $\pm 25\%$ (over operating temperature range).

Torrium® Troubleshooting

a) PUMP HAS STOPPED OR MOTOR RUNS FOR SHORT PERIOD ONLY WHEN SWITCHED ON OR PRIME BUTTON PUSHED, BUT DOES NOT PUMP - STATUS INDICATOR LIGHT ILLUMINATED RED FLASHING ONCE PER SEQUENCE (LOSS OF PRIME)

1. Suction line and pump body not filled with water. Action Code 1
2. Air leaks in suction lines or suction pipe not under water. Action Code 1
3. Air trapped in suction lines (also possible with flooded suction due to uneven rise in piping; eliminate humps and hollows). Action Code 1
4. No water at source or water level too low. Action Code 2
5. Valve on suction lines closed. Action Code 1
6. Torrium® may have lost calibration. Replace

b) PUMP SWITCHES ON AND OFF FREQUENTLY (CYCLING)

1. Cycling may occasionally be caused by float valves filling tanks – see “Cistern Fill Mode” in the Installation and Operating Instructions.
2. Leaking taps, float valves etc. check plumbing. Action Code 3
3. Leaking check valve/foot valve. Action Code 4
4. Discharge plumbing has been connected to the priming port. Action Code 5

c) MOTOR DOESN'T START WHEN SWITCHED ON - LOW PRESSURE INDICATOR LIGHT NOT ILLUMINATED (NO POWER INDICATOR)

1. Power not connected or no power available from supply outlet. Action Code 6
2. Torrium® damaged due to power spike or lightning. Action Code 7
3. Torrium® may have lost calibration. Replace

d) MOTOR STOPS - STATUS INDICATOR LIGHT IS ILLUMINATED RED, FLASHING TWICE PER SEQUENCE (TRIAC OVERTEMP PROTECTION)

1. Motor “over temperature” cut-out tripped. Action Code 8
2. Motor not free to turn - e.g. a jammed impeller. Action Code 8
3. Prime button has been held in for too long. Action Code 9

e) PUMP WILL NOT STOP

1. Water leaks on discharge side of pump. Action Code 3
2. Torrium® may have lost calibration. Replace

f) PUMP WILL OPERATE NORMALLY INITIALLY BUT WILL NOT RESTART ON WATER DEMAND - STATUS INDICATOR LIGHT NOT ILLUMINATED

1. Power supply problem. Action Code 6
2. Torrium may have lost calibration. Replace

g) PUMP WILL OPERATE NORMALLY INITIALLY BUT WILL NOT RESTART ON WATER DEMAND - STATUS INDICATOR LIGHT IS ILLUMINATED RED CONSTANT

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| 1. Suction air leak - pump has partially lost prime. | Action Code 1 |
| 2. Blocked impellers or suction. | Action Code 10 |
| 3. Discharge valve closed - open valve. | Action Code 11 |
| 4. System is operating on high static (vertical) head. | Action Code 13 |

h) PUMP HAS OPERATED NORMALLY FOR SOME TIME, BUT NOW WILL NOT RESTART OR THE PRESSURE DROPS TO A LOWER POINT BEFORE THE PUMP STARTS – STATUS INDICATOR LIGHT IS ILLUMINATED WITH THREE FLASHES PER SEQUENCE

1. Your Torrium® has detected a slow leak and has dropped the cut-in pressure to a lower cut-in pressure to help reduce the pump cycling. Correct the leak, and your Torrium® will return to normal operation automatically or cycle power for immediate return to normal.

i) PUMP HAS STOPPED OPERATING – STATUS INDICATOR LIGHT IS ILLUMINATED RED FLASHING THREE TIMES PER SEQUENCE.

1. Your Torrium® has detected high water temperature in the pump. Action Code 12

j) PUMP IS OPERATING NORMALLY, BUT THE STATUS INDICATOR LIGHT IS ILLUMINATED FLASHING TWICE PER SEQUENCES – RED FLASHES WHILE IN STANDBY OR AMBER FLASHES WITH CONSTANT GREEN WHILE PUMP RUNNING

1. Your Torrium® has detected low voltage. The low voltage may result in a small pump performance shortfall. Once the voltage has returned to normal the status indicator will return to normal.

Action Codes

1. Check for air leaks in the suction, all suction valves are open then reprime pump and try again.
2. Without water or with suction lift too high the pump will not be able to run.
3. Close leaking valves.
4. Ensure discharge is isolated (valves closed) and cycling is caused by suction leaks. Check for debris under check valve seat, clean and replace poppet.
5. Ensure all discharge plumbing is isolated from the suction pipework except via the pump itself.
6. Torrium will not work without power – make good if possible.
7. Check for smell or visual signs of electrical burning around the control / label face of the Torrium. Failure due to power spikes and /or lightning are not covered by warranty – see notes on Electrical Power Surge Protection in the Installation and Operating Instructions.
8. This is likely to be a incoming voltage issue, pump jamming issue or motor issue – consult relevant service instructions.
9. Release prime button and switch off power for 1 minute to allow unit to reset.
10. Switch off and clear obstructions.
11. Open discharge valve and pump should start.
12. Once the water has cooled the Torrium will automatically restart the pump. Check to ensure that the Torrium check valve or the external check valve is not allowing the pump to cycle – this is the usual cause of pumps overheating.
13. If the static head is greater than 80% of the pumps shutoff head, the Torrium may not detect sufficient pressure drop to allow a start. If the Torrium has detected a slow leak, and the static head is more than 50% of the pump shut-off head the same fail to start symptom will occur. Select a higher head water pressure system.

This literature is not a complete guide to product usage. Further information is available from your Davey dealer, Davey Customer Service Centre and from the relevant product Installation and Operating Instructions. This data sheet must be read in conjunction with the relevant product Installation and Operating Instructions and all applicable statutory requirements. Product specifications may change without notice.

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Davey Water Products Pty Ltd

Member of the GUD Group
ABN 18 066 327 517

Davey Pumps Inc.

USA Distribution Center

1005 N. Commons Drive
Aurora, Illinois 60504
Ph: +1 630 898 6976
Toll Free: +1 866 328 7867
Fax: +1 630 851 7744
Website: daveyusa.com
E-mail: sales@daveyusa.com

Head Office

6 Lakeview Drive,
Scoresby, Australia 3179
Ph: +61 3 9730 9222
Fax: +61 3 9753 4100
Website: davey.com.au



Offices also in Germany and New Zealand

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