

SOLENOID MODULE

- MODEL # MOD-SOL1 (in 110V, NEMA 5-15 plug)**
- MOD-SOL2 (in 230V, CEE 7/7 plug)**
- MOD-SOL3 (in 230V, BS 1363 plug)**
- MOD-SOL4 (in 230V, AS/NZS 3112 plug)**

The Solenoid Module is designed to connect a NORMALLY CLOSED line voltage solenoid valve to the controller. It is possible to use a 12V or 24V normally closed solenoid by replacing the AC power cord. Note that the maximum contact rating is 240VAC (50-60Hz) / 30VDC / 2A.



LOCATION

Step 1) Find a suitable location on the wall for the solenoid module. The module must be installed close enough to the controller, or the UV sensor to be able to plug in the male IEP connector. The module must also be installed close enough to the actual solenoid valve and this distance will be dependent on the cord length of the particular solenoid valve that is used.

Step 2) Pick a location for the solenoid valve and install as per the manufacturer’s directions. The solenoid module requires bare leads for connection to terminal blocks, so if the solenoid cable has a plug attached, remove the plug and strip the wires to a suitable length.



Figure 1
Secure module to wall with screws

INSTALLATION

Step 1) Make sure the solenoid module cable is NOT plugged into the electrical outlet. Insert the solenoid valve cable through the center hole of the middle strain relief. Connect the three electrical wires to the terminal block that is marked “SOLENOID” (see Fig. 2). Connect the ground wire in the position marked “GND”, the line voltage wire in the position marked “L1” and the neutral wire in the position marked “N”. Typical wire colour configurations are marked directly on the circuit board to the left of the SOLENOID terminal block to aid in this process (see Fig.3) If you are unsure of the correct wiring configuration for you particular solenoid valve, please contact an approved electrical contractor. Once all the line voltage connections have been made, tighten the strain relief nut to secure the cable to the solenoid module.

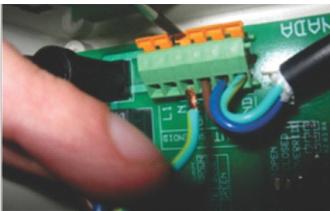


Figure 2

Solenoid Wire Installation

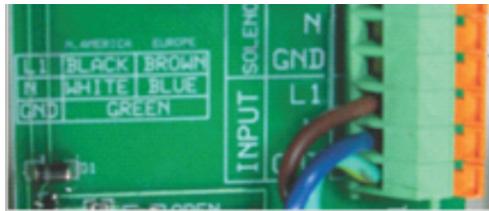


Figure 3

Wiring Colour Guide



Step 2) Plug the solenoid module into the applicable electrical outlet. At this stage, the functionality of the solenoid valve can be tested by pressing the solenoid test button located on the upper left of the circuit board. Manually depressing (and holding) this button will complete the electrical circuit and will open the normally closed solenoid valve. You should be able to hear the activation of the solenoid valve at this stage to ensure the valve is functioning properly (see Fig. 4).

Step 3) Make sure your UV controller is unplugged from the power source. Once all these connections have been made, affix the male IEP plug of the solenoid module cable into the IEP port on the controller (see Fig. 5), or any other available IEP port such as the UV sensor, 4-20 mA module or remote alarm module. It does not matter which IEP port any module is attached to, as long as they are attached.



Figure 4
Solenoid Test Button

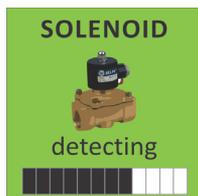
OPERATION

Step 1) Plug the BLACKCOMB controller into the power source and make sure the solenoid module is activated on the controller. During the start-up sequence, the SOLENOID MODULE screen will indicate a “initialized” when the module is activated properly (see Fig. 6).



Figure 5
IEP connection

Figure 6
Solenoid Activation Screens



detecting the presence of a solenoid module



if solenoid module is present, returns this screen



if solenoid module is not present, returns this screen

Step 2) The controller will only notify you when there is a failure mode whereby the solenoid module (and connected solenoid valve) will be activated. On the BLACKCOMB 5.1 system, the solenoid module will be activated (shutting off the flow of water) upon LAMP FAILURE (see Fig. 7). To remedy this, replace the UV lamp and restart the system as per the directions outlined in the Owner’s Manual.



Figure 7
LAMP FAILURE Screen

Step 3) On the BLACKCOMB 6.1 system where a UV sensor is installed, the solenoid module will be activated (shutting off the flow of water) upon a LOW UV condition (less than 50%) (see Fig. 8). To remedy this, you will need to address the reason for this low UV condition which may be due to a dirty UV sensor and quartz sleeve, a lamp that is not emitting enough UV energy, or a change in the water quality. Please refer to the UV systems Owner’s Manual for corrective action procedures.

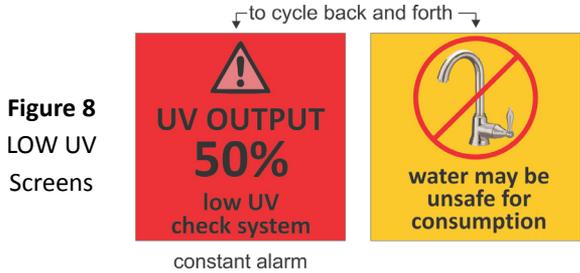


Figure 8
LOW UV
Screens

Step 4) To determine what position the solenoid valve is currently in, the solenoid module incorporates three lights on the circuit board (see Fig. 9). When the solenoid is in the OPEN position a green light will appear on the circuit board beside the word “OPEN”. When the valve is CLOSED, a red light will appear on the circuit board beside the word “CLOSED”. And when the solenoid is in an OVERRIDE position, an amber light will appear on the circuit board beside the word “OVERRIDE ON”.

Figure 9
Solenoid Status
(Colour)



Boil Water Advisory: If any failure occurs on a BLACKCOMB UV system, the water must not be used for human consumption until the system is returned to a safe operational mode. If the water is used for human consumption during this period, the water must be boiled (minimum 20 minutes at a full boil) prior to consumption.

EMERGENCY BYPASS

In a case where the solenoid valve has been activated (valve is closed and no water is allowed to flow), the solenoid module has the ability to bypass the solenoid valve in case of an emergency need of water. To initiate this bypass, depress the button labeled “OVERRIDE” located in the lower left portion of the circuit board (see Fig. 10)

Figure 10
Solenoid Bypass
Button



**SOLENOID
OVERRIDE
SWITCH**

Once this button has been pressed, the system will remain in this override mode regardless of whether or not the condition causing the solenoid activation has been remedied or not. To reset the system, hold down the override button for 3 seconds until the override LED turns off (resetting feature is only applicable to solenoids made after May 2024). While in this override mode the controller will intermittently display a red “SOLENOID OVERRIDE” screen (see Fig. 11).



Figure 11
SOLENOID OVERRIDE
Screen

DISABLING EMERGENCY BYPASS

In certain regulated applications, the availability, and use, of the emergency bypass feature may be in violation of the local, state/provincial codes. If this is the case, the bypass feature can easily be disabled by physically removing the bypass button. To accomplish this, carefully use a pair of needle nose pliers and physically remove the actual bypass button (marked “OVERRIDE”) from the circuit board.



**BY-PASS
BUTTON**

OTHER FAILURE MODES

In the event there is an issue with the solenoid connection from the IEP cable to the controller, the system will register a “SOLENOID FAILURE” screen on the controller (see Fig. 12).



Figure 12
SOLENOID FAILURE
Screen

CAUTION: BEFORE PERFORMING ANY WORK ON THE SOLENOID MODULE, THE POWER CORD MUST BE DISCONNECTED FROM ITS POWER SOURCE (WALL PLUG).