GA2 – Test Adapter for Honeywell SmartValves™

The GA2, **Figure 1**, allows for electrical troubleshooting of the Honeywell Gas SmartValve™ Series and upgrades and replaces Honeywell's 396085 GA2 Testing Harness. These instructions will reference the 81B Victor multimeter, **Figure 2**.

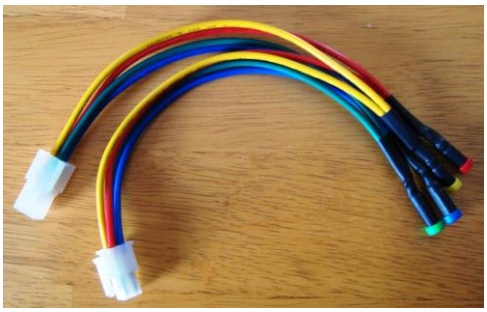

Figure 1

The GA2 Test Adapter helps a qualified technician to confirm proper appliance control operation in the field. When installed between the appliance wiring and the gas valve, the GA2 Adapter can easily introduce a multi-meter or voltmeter to the circuit. This will allow you to observe the input voltages from the system controls to the gas valve. The following are the mandatory steps for connecting the GA3 Adapter to Honeywell SmartValve™ models SV9X00, SV9X01, SV9X02, and SV9X03.

NOTE: Do not use the GA3 with SV9X10, SV9X20, and SV9X40 SmartValve™ Systems that control combustion air blowers and monitor airflow proving switches

WARNING: Prior to using the GA2 Test Adapter read these instructions carefully.

1. Failure to follow the instructions can damage the appliance control set, the gas valve and the meter. In addition, inaccurate readings will be obtained making the test procedure useless.
2. Serviceman/installer must be a trained, experienced (licensed) service technician, familiar with the sequence of operation of gas appliances.

Figure 2

REQUIRED ITEMS:

Use the following items to attach and test SmartValve™ Systems with the GA2 Adapter:

1. The GA2 Adapter, Figure 1.
2. Multi-meter or voltmeter with an AC voltage scale (Vac), Figure 2.

TEST PROCEDURE

NOTE: Leave the SmartValve™ switch in the ON position, **Figure 3**. Turn off gas supply at the appliance shut-off valve.

1. Make sure the appliance is powered.
2. Lower the temperature controller setting to make sure there is **no call for heat**.
3. Disconnect the appliance wiring (Figure 3, CONTROLS CONNECTOR) from the SmartValve™.
4. Connect the GA2 Adapter between the appliance wiring and the SmartValve™ in place of the connector removed in Step 4, **Figure 4**. Make sure the keyed connectors lock into place. Make sure your meter is connected properly.
    a. Insert the **BLACK** test lead into the **COM terminal** and the **RED** one into the **V/Ω/Hz terminal** of the meter.
    b. Insert the **BLACK** test lead into the GREEN (COMMON) wire.
    c. Insert the **RED** test lead into the YELLOW (HOT) wire test points of the GA2.
5. Turn the selector knob to V ∼ range.

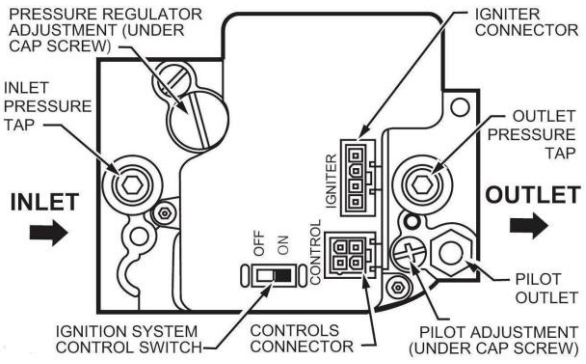

Figure 3

6. Auto range is the original mode, it will display AUTO symbol.
   Press the RANGE key to change to the manual range mode, 400mV, 4V, 40V, 400V, 750V range is selective.

NOTE: When measuring Vac under auto range mode, pressing the RANGE key will display AC mV range.

7. Measure the voltage between the 24 Vac HOT (YELLOW wire) lead and the 24 Vac COMMON (GREEN wire) lead on the GA3 Adapter. If the voltage is less than 20 volts or more than 28 volts, check the appliance power supply and the system transformer for proper operation.

NOTE: If an appliance is wired so the 24 Vac HOT lead is controlled with the 24 Vac TSTAT/PSWITCH (RED wire) lead, there is no voltage between the 24 Vac HOT lead and the 24 Vac COMMON (GREEN) lead in Step 6.

8. Disconnect the meter test leads from the 24Vac HOT (YELLOW wire) lead test point of the GA2.
9. Connect the meter test leads to the 24 Vac TSTAT/PSWITCH (RED wire) test point of the GA3.
10. Set the temperature controller so it calls for heat.
11. Make sure the meter displays nominal 24 Vac while the light-off sequence progresses, and the reading is steady with the element glowing.

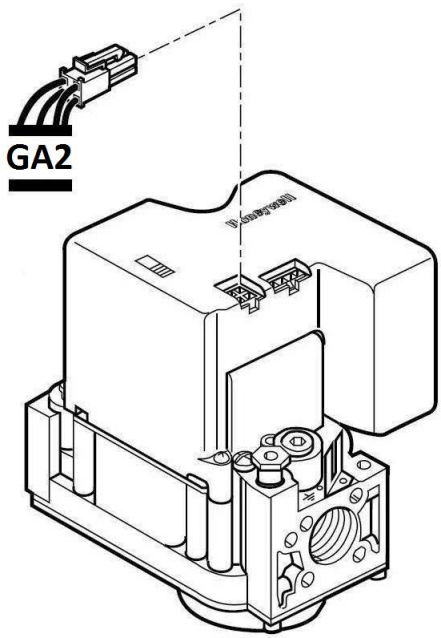

Figure 4

NOTE: The voltage in steps 10 and 11 should be between 19 Vac and 26 Vac with the Q3450 element glowing and the gas turned off. If the measured voltage is outside the acceptable range, analyze the appliance control system wiring, the input voltage supply, and the transformer to identify the problem. Correct the problem and retest the appliance.

12. If the voltage is within the acceptable range, turn off the call for heat and make sure the measured
13. Voltage decreases to zero.
14. Disconnect the meter test leads from the GA2 Adapter.
15. Connect the meter test leads to the EFT output (BLUE wire) lead and the 24 Vac COMMON lead (GREEN wire) lead on the GA2 Adapter.
16. Turn on the gas supply.
17. Initiate a new call for heat.
18. When the appliance main burner lights, measure the voltage between the EFT OUTPUT LEAD (BLUE) and the 24 Vac COMMON LEAD (GREEN). This is a logic signal and can range from 15 Vac through 28 Vac.
19. Test is complete.
20. Turn off the appliance call for heat.
21. Disconnect the GA2 Adapter and meter test leads from the SmartValve™.
22. Reconnect the appliance wiring to the SmartValve™ .
23. Turn on call for heat and make sure the appliance works properly.

CAUTION: Electrical Shock or Equipment Damage Hazard. Can shock individuals or short equipment circuitry.