

## APPLICATION

The 396085 SmartValve™ Input Voltage Test Harness helps a user to confirm proper appliance control string operation in the field. When installed between the appliance harness and the SmartValve, the 396085 Test Harness is used to connect a voltmeter to the SmartValve. This allows the user to monitor the input signals to the SmartValve controls. Proper SmartValve operation requires the appliance control string to supply the needed input signals during a call for heat.

## OVERVIEW

This manual describes the steps for connecting the 396085 SmartValve Input Voltage Test Harness to SmartValve models SV9X00, SV9X01, SV9X02, and SV9X03.



### CAUTION

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

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

### Prior to Using

1. Read these instructions carefully. Failure to follow the instructions can damage the appliance control string, causing an inaccurate reading.
2. Installer must be a trained, experienced service technician, familiar with the appliance sequence of operation.

### Tools Required

Use the following tools to attach and test with the 396085 SmartValve Input Voltage Test Harness:

- Voltmeter or multimeter with an ac voltage scale.
- Small test clips to attach the meter leads to the striped area on the test harness.

## TEST PROCEDURE

NOTE: Leave SmartValve switch in ON position.

1. Turn off gas supply at the appliance shut-off valve.
2. Make sure appliance is powered.
3. Lower the temperature controller setting to make sure there is no call for heat.
4. Disconnect the appliance wiring harness (2 x 2 connector) from the SmartValve.
5. Connect the test harness between the appliance wiring and the SmartValve, as shown in Fig.1. Make sure the keyed connectors lock into place.
6. Measure the voltage between the 24-volt hot (white label) lead and the 24-volt common (gray label) lead on the test harness. If the voltage is less than 20 volts or more than 28 volts, check the appliance power supply and the system transformer for proper functioning.

NOTE: If an appliance is wired so the 24-volt hot lead is controlled with the 24-volt TSTAT/PSWITCH (yellow label) lead, there is no voltage between the 24-volt hot lead and the 24-volt common lead in step 6.

7. Disconnect the voltmeter or multimeter from the 24-volt hot lead.
8. Connect the voltmeter or multimeter to the 24-volt TSTAT/PSWITCH (yellow label) lead.
9. Set the temperature controller so it calls for heat.
10. Make sure the meter displays nominal 24 volts while the lightoff sequence progresses, and the reading is steady with the element glowing.

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 string, input voltage supply, and the transformer to identify the problem. Correct the problem and retest the appliance.



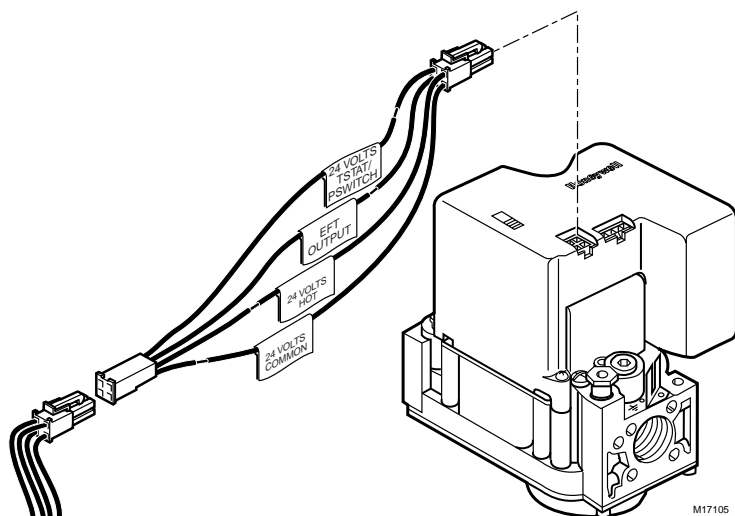


Fig. 1. Harness attaches between SmartValve and appliance wiring.

11. If the voltage is within the acceptable range, turn off the call for heat and make sure the measured voltage decreases to zero.
12. Disconnect the voltmeter or multimeter leads from the test harness.
13. Connect the leads to the EFT output (green label) lead and the 24-volt common lead.
14. Turn on the gas supply.
15. Initiate a new call for heat.
16. When the appliance main burner lights, measure the voltage between the EFT output lead and the 24-volt common lead. This is a logic signal and can range from 15 Vac through 28 Vac.
17. Test is complete. Turn off appliance call for heat.
18. Disconnect the test harness from the SmartValve.
19. Connect the appliance wiring harness to the SmartValve.
20. Turn on call for heat and make sure the appliance works properly.

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