# ICM290

## Gas Ignition Control

**Low cost, direct replacement ignition control**

- **Universal intermittent pilot gas ignition control**
- **Provides ignition sequence, flame monitoring and safety shutoff for single/dual rod intermittent pilot control applications**
- **For gas fired furnaces, boilers and other heating applications**
- **Switch selectable pre-purge and ignition trials with permanent lock**
- **Works with or without vent damper connected**
- **Works with both Natural and LP gas systems**

### Installation, Operation & Application Guide

For more information on our complete range of American-made products – plus wiring diagrams, troubleshooting tips and more, visit us at **www.icmcontrols.com**

## Specifications

**Control Voltage:** Line 24 VAC (18-30 VAC) 50/60 Hz

**Anticipator Setting:** 0.1 A plus valve load @ 24 VAC

**Trial for Ignition:** See Table 1 on reverse side

**Prepurge:** See Table 1 on reverse side

**Flame Failure Response Time:** 2 seconds maximum

**Status LEDs:**
- **Green Status** provides system status and error codes
- **Yellow Flame LED** indicates flame presence and flame strength

**Typical Gas Control:** Honeywell models VR8204 and VR8304

**Operating Temperature:**
- **Minimum** ambient temperature rating is -40°F (-40°C)
- **Maximum** ambient rating when used with 2.0 A main valve is 165°F (74°C)

**Relative Humidity:** 0% to 95% non condensing

## Application

The **ICM290** Universal Intermittent Pilot Gas Ignition Control Module provides easy field replacement of a wide range of intermittent pilot ignition modules manufactured by Honeywell, Robertshaw, Johnson Controls, and others. The **ICM290** replaces existing flame rectification type, intermittent pilot ignition modules with the following characteristics:

- Single rod (local sense) or two rod (remote sense) flame sensing
- Non-100 percent shutoff, 100 percent shutoff/lockout, or 100 percent shutoff/continuous retry
- Natural or LP gas
- Shutoff/lockout times of 15 seconds or longer
- Prepurge configurable to 30 seconds or no prepurge
- Pilot burners with flow rates of 1,500 Btuh or less
- With or without integral damper connector

Table 1 describes the key features of the **ICM290** control

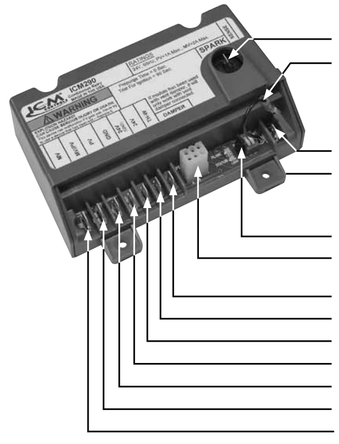
A complete list of the specific Honeywell and other modules that the **ICM290** is designed to replace is provided in Table 2.

The **ICM290** package contains complete, easy-to-use instructions, plus the accessories required to adapt the existing spark cable (Rajah adapter) to the spark terminal on the control module. It also contains a label with LED code information that can be affixed in the appliance.

The **ICM290** provides:

- Pilot burner ignition using an internally generated high voltage spark
- Flame rectification circuit to monitor flame presence
- Monitoring of 24 VAC, pilot, and main gas valve
- Two LED indicators for flame presence/strength and system status/errors
- Vent Damper connection

## ICM290 Typical Wiring Connections



| Connector Label | Size or Type | Description |
|---|---|---|
| Spark | 1/4 inch | High voltage sparking electrode |
| Sense Jumper Wire | Wire with 3/16 inch quick connect | Connects to the **REMOTE SENSE** connector for installations with a single spark rod (local flame sensing)<br>⁂ **Note:** *For installations with remote flame sensing (separate spark and sensor rods), this jumper wire is clipped as close to the circuit board as possible and the wire is discarded* |
| Remote Sense | 3/16 inch | Flame Sensor connector<br>• For single rod installations, connect the SENSE JUMPER WIRE to this terminal connector.<br>• For dual rod installations, connect the flame sense wire from the burner/igniter to this terminal connector |
| P4 (Jumper) | Jumper | Provides a lockout for the DIP switch settings (See “Jumper”) |
| P1 | 6-pin keyed plug | Connector for vent damper connection (used to control a connected damper in atmospheric appliances) |
| TH-W | 1/4 inch | Connector for “Call for Heat” signal from thermostat |
| 24V | 1/4 inch | Optional: 24 VAC power connection for vent damper |
| 24V GND | 1/4 inch | Return path to transformer |
| BRN GND | 1/4 inch | Burner Ground |
| PV | 1/4 inch | Pilot Valve connection |
| MV/PV | 1/4 inch | Common terminal for gas valves |
| MV | 1/4 inch | Main Valve connection |

## ICM290 Settings and Adjustments

### Settings and Adjustments

DIP Switch (S1) Settings

When replacing an existing ignition control with the **ICM290**, refer to table ***(at right)*** for the correct DIP switch settings.

⁂ **Note:** *Refer to table **(at right)** for lockout control of DIP switch timing settings.*

**IMPORTANT:** *Do not power the ignition control prior to setting the DIP switches.*

The following timing parameters may be set with this 2-position DIP switch.

**IMPORTANT:** *Once the Jumper has been pulled or the module starts the 10th “Call for Heat”, the control operating sequence is permanently locked and cannot be reset by replacing the jumper or by resetting the Dip Switch.*

| Jumper | Action to lock the control’s operating sequence |
|---|---|
| P4 | To ensure proper system operation (after installation and checkout), pull jumper to lock the DIP switch settings.<br>⁂ **Note:** *If jumper is not removed during installation, the ignition control locks the DIP switch settings after the 10th “Call for Heat” cycle.* |

### Prepurge

To select Prepurge, set SW1 according to the table ***(at right)***.

### Trial for Ignition (TFI)

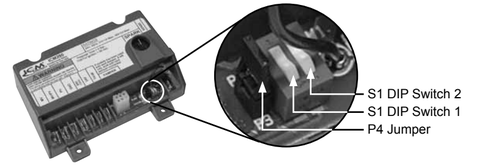
To select the Trial for Ignition timing, set SW2 according to the ***(at right)***.

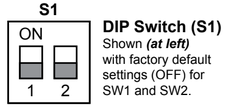
| Prepurge | Trial For Ignition | SW1 | SW2 |
|---|---|---|---|
| None | 90 seconds | **OFF** | **OFF** |
| 30 seconds | 90 seconds | ON | **OFF** |
| None | 15 seconds | **OFF** | ON |
| 30 seconds | 15 seconds | **OFF** | ON |

⁂ **Note:** *The default factory settings (all OFF) are in **bold**.*

### Jumper

This jumper (labeled P4) is used to lock the operating sequence selected by the DIP switch settings. See jumper location ***(at right)***.




**DIP Switch (S1)**
Shown ***(at left)*** with factory default settings (OFF) for SW1 and SW2.

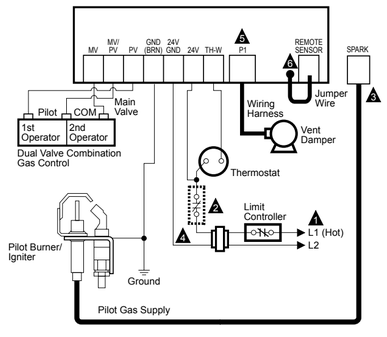
## Mounting and Installation

- Mount the control with four screws close to the burner to allow a short and direct spark cable route to the pilot burner (3 ft. maximum)
- Connect “call for heat” thermostat wire to TH-W terminal
- Connect common from the control transformer to 24V GND terminal
- Make PV, MV/PV and MV connections from the gas control to designated terminals on the control module
- **Spark cable**
  - Use a spark cable no longer than 36 in.
  - Use 10,000 or preferably higher voltage rating on the cable
  - Use plastic or ceramic insulators to separate the spark cable from coming in direct contact with metal surface as spark voltage will be reduced.
  - Use the Rajah adapter if needed for connection to the spark terminal on the control module
  - Protect both ends of the spark cable with insulated boots
- **Grounding**
  - Make a ground connection from burner bracket mounting screw to BRN GND terminal on the board
- **Burner**
  - Ensure that the spark gap is close to 1/8 in.
- **Pilot flame**
  - Make sure it is blue, steady and envelopes 3/8 to 1/2 in. of the flame rod. If necessary adjust pilot flame by turning the pilot adjustment screw on the gas control
- **Damper**
  - If part of the system, plug the damper cable to P1 connector on the control module
  - Connect 24Vac hot from the control transformer to 24V terminal on the control module when the Damper assembly is used

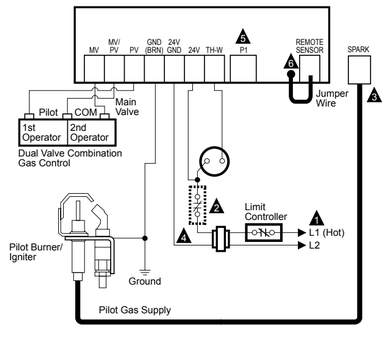
## Wiring Diagrams

1. Power supply. Provide disconnect means and overload protection as required.
2. Alternate limit controller location.
3. Maximum cable length 3 Ft. [0.9 M].
4. Controls in 24V circuit must not be in ground leg to transformer.
5. Once powered up with vent damper connected, module will operate only with damper connected.
6. For single rod applications: connect jumper wire to the remote sense connector.
   For two rod applications: remove jumper wire by cutting it as close as possible to the base of the module. Discard clipped wire and firmly attach the sensor wire from the igniter/sensor assembly to the remote sense connector.

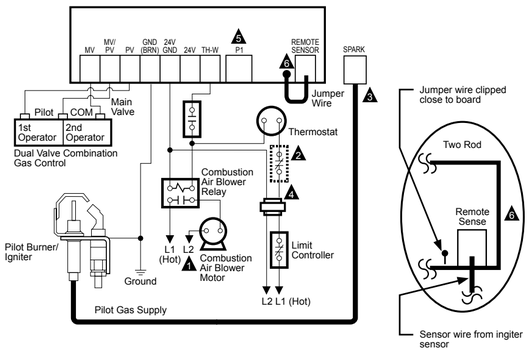
**ICM290** connection in a heating system with an: ***atmospheric burner*** and ***vent damper***




**ICM290** connection in a heating system with an: ***atmospheric burner*** and ***no vent damper***




**ICM290** connection in a heating system with: ***power-assisted combustion***




## Operation

The ignition control module’s operation is divided into two phases: 1) Trial for pilot ignition and 2) Main burner operation

### Trial for Pilot Ignition

On a “Call for Heat”, the ignition control module energizes the spark source and the pilot valve relay simultaneously. The pilot valve opens, allowing gas to flow to the pilot burner for the ignition trial time. The spark lights the pilot flame when pilot gas is present. A flame rectification circuit confirms the presence of the pilot flame, shuts off the spark source, and energizes the main valve relay.

### Main Burner Operation

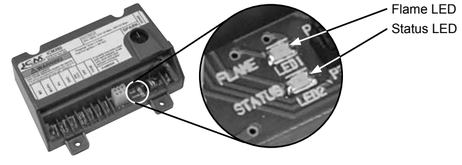
When the main valve opens, gas flows to the main burner where it is lit by the pilot flame. There is a short flame stabilization period as the main valve opens to allow the pilot flame to stabilize as the main gas lights. The system is now in the run mode with the presence of the pilot flame continuously monitored by the flame rectification circuit. If the pilot flame goes out, the ignition control module senses loss of pilot flame and shuts off both the pilot valve relay and the main valve relay. Flow of gas to pilot and main burners stops as the valves close (100% shutoff).

### Failed Trial for Pilot Ignition

The **ICM290** control module provides multiple trials for ignition (TFI). If the pilot is not lit or sensed before the end of the trial for ignition time, the ignition control shuts off the spark and pilot gas (100% shutoff). There is a five minute delay before another TFI is initiated. The pattern of TFI followed by a five minute delay continues until the pilot lights and is proved or the “Call for Heat” ends. The five minute delay time can be bypassed by cycling the system thermostat or removing and restoring system power.

## Flame and Status LED Locations

The **ICM290** has two LEDs; one for flame sensing and one for system status.




**Flame LED (Yellow)**
Indicates flame presence and strength. See “Yellow Flame” Codes.

**Status LED (Green)**
Indicates system operation status and error conditions. See “Status Flame” Codes.

## Yellow and Green LED Status Codes

| Yellow LED Flame Codes | | |
|---|---|---|
| **Yellow LED Flash Code*** | **Indicates** | **Recommended Service Action** |
| Heartbeat | Normal Flame Signal | Not applicable |
| 2 | Weak Flame Signal – System will operate reliably but flame signal is less than desired.<br>∴ **Note:** *This indication may flash temporarily during or shortly after lightoff on some applications.* | Perform routine maintenance to assure optimum flame signal. |
| 1 | Marginal Flame Signal – System may not operate reliably over time. Service call recommended.<br>∴ **Note:** *This indication may flash temporarily during or shortly after lightoff on some applications.* | Check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection. |
| OFF | Flame Signal below minimum threshold for system operation. | Check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection. |

* Flash Code Descriptions:
- Heartbeat: Constant ½ second bright.
- The flash code number signifies that the LED flashes X times at 2 Hz, remains off for two seconds, and then repeats the sequence.

| Green LED Flame Codes | | | |
|---|---|---|---|
| **Green LED Flash Code (X+Y)*** | **Indicates** | **Next Systemn Action** | **Recommended Service Action** |
| OFF | No “Call for Heat” | Not applicable | None |
| Heartbeat | *Normal operation* | Not applicable | None |
| 2 | Five minute Retry Delay – Pilot flame not detected during trial for ignition | Initiate new trial for ignition after retry delay completed. | If system fails to light on next trial for ignition check gas supply, pilot burner, spark and flame sense wiring, flame rod contaminated or out of position, burner ground connection. |
| 3 | Recycle – Flame failed during run | Initiate new trial for ignition. Flash code will remain through the ignition trial until flame is proved. | If system fails to light on next trial for ignition, check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection. |
| 4 | Flame sensed out of sequence | If situation self corrects within 10 seconds, control module returns to normal sequence. If flame out of sequence remains longer than 10 seconds, control module goes to Flash code 6+4 (see below). | Check for pilot flame. Replace gas valve if pilot flame present. If no pilot flame, cycle “Call for Heat.” If error repeats, replace control. |
| 5 | Damper Error: – Damper required but not present<br>– Damper failed to open within 60 seconds<br>– Damper failed to close within 60 seconds | If damper error corrects, ignition control resumes normal operation. | Check damper connection, damper wiring, and 24V connection on control.<br>Replace damper if necessary. |
| 7 | Flame sense leakage to ground | Control module remains in wait mode. When the fault corrects, control module resumes normal operation after a one minute delay. | Check flame sense lead wire for damage or shorting. Check that flame rod is in proper position. Check flame rod ceramic for cracks, damage or tracking. |
| 8 | Low secondary voltage supply | Control module remains in wait mode. When the fault corrects, control module resumes normal operation after a one minute delay. | Check transformer and AC line for proper input voltage to the control. Check with full system load on the transformer. |
| 6+2 | Five minute Retry Delay – On every third retry on the same “Call for Heat” | Initiate new trial for ignition after retry delay completed. | Check gas supply, pilot burner, spark and flame sense wiring, flame rod contaminated or out of position, burner ground connection. |
| 6+3 | On every 6th flame failure during run on the same “Call for Heat” | Initiate new trial for ignition after retry delay completed. | Check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection. |
| 6+4 | Flame sensed out of sequence for longer than 10 seconds | Control module waits until flame is no longer sensed and then goes to soft lockout. Flash code continues. Control module auto resets from soft lockout after one hour. | Check for pilot flame. Replace gas valve if pilot flame present. If no pilot flame, cycle “Call for Heat.” If error repeats, replace the ICM290 control module. |

* **Flash Code Descriptions**:
- Flash Fast: rapid blinking.
- Heartbeat: Constant ½ second bright.
- A single flash code number signifies that the LED flashes X times at 2 Hz, remains off for two seconds, and then repeats the sequence.
- X + Y flash codes signify that the LED flashes X times at 2 Hz, remains off for two seconds, flashes Y times at 2Hz, remains off for three seconds, and then repeats the sequence.

## Table 1 – ICM290 Universal Intermittent Pilot Gas Ignition Controls

| Igniter-Sensor, Type | Valve Current, Rating, @ 24 VAC | Prepurge, Timing | Trial for, Pilot, Ignition | Ignition, Sequence, Type | Ignition Sequence, (After prepurge, if prepurge is, selected) | Integral, Damper, Connector |
|---|---|---|---|---|---|---|
| Separate (two rod; remote flame sensing), or, Combination (one rod; local flame sensing) | 1.0 A Pilot, and, 2.0 A Main | None or 30 seconds (field, selectable) | 15 or 90 seconds (field selectable) | Retry | Spark and pilot gas ON until lightoff or trial for ignition ends.,<br>• If established flame is lost, trial for ignition restarts immediately.,<br>• If pilot fails to light, pilot gas and spark Off (100% shutoff). After 5 minute delay, a new trial for ignition is initiated. This sequence continues until lightoff or “Call for Heat” is removed. | Included for use as needed.,<br>• If initially installed with damper attached, unit must always have a vent damper connected. |

## Table 2 – ICM290 Replaces the follow controls:

| Camsat | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| IPI-24-00 | OFF | OFF |

| Fenwall | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| 05-203025-005, 05-203026-005 | OFF | OFF |

| Honeywell | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| S86A1001, S86A1019, S86A1027, S86A1035, S86B1009, S86B1017, S86B1025, S86C1007, S86C1015 | OFF | OFF |
| S86C1023 | OFF | ON |
| S86C1031, S86C1049, S86C1056, S86D1005 | OFF | OFF |
| S86D1013 | OFF | ON |
| S86D1021, S86E1002, S86E1010, S86E1028, S86E1036, S86E1044, S86E1051, S86E1069, S86E1077, S86E1101, S86E1119, S86E1127, S86F1000, S86F1018, S86F1026, S86F1042, S86F1059, S86F1067, S86F1075, S86F1083, S86F1091, S86G1008, S86G1016 | OFF | OFF |
| S86G1024 | OFF | ON |
| S86G1032, S86G1057, S86G1073, S86H1006 | OFF | OFF |
| S86H1014 | OFF | ON |
| S86H1022, S86H1048, S86H1055 | OFF | OFF |
| S86H1063 | OFF | ON |
| S86H1089, S86H1097, S86H1105 | OFF | OFF |
| S86H1113 | OFF | ON |
| S86H1121 | OFF | OFF |
| S86H1139 | OFF | ON |
| S86H1147, S90A1005, S90B1003, S90B1011 | OFF | OFF |
| S860C1000, S860D1009 | ON | OFF |
| S860D1017 | ON | ON |
| S8600A1001, S8600B1009 | OFF | OFF |
| S8600B1025, S8600B3005 | OFF | ON |
| S8600B3013, S8600C1015, S8600C3003, S8600F1000, S8600F1034, S8600F1042, S8600H1006 | OFF | OFF |
| S8600H1014 | OFF | ON |
| S8600H1022, S8600H1048, S8600H1055 | OFF | OFF |
| S8600H1063 | OFF | ON |
| S8600H1071, S8600H1089, S8600H1097, S8600H1105, S8600H3002 | OFF | OFF |
| S8600H3010 | OFF | ON |
| S8600M1005, S8600M1013, S8600M1021, S8600M2003, S8600M3001, S8600M4009, S8610A1009, S8610B1007, S8610B1015 | OFF | OFF |
| S8610B1023, S8610B3003 | OFF | ON |
| S8610C1005, S8610C1013, S8610C3001, S8610F1008, S8610F1016, S8610F1024, S8610F1032 | OFF | OFF |
| S8610H1004 | OFF | ON |

| Honeywell (continued) | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| S8610H1012 | OFF | OFF |
| S8610H1020 | OFF | ON |
| S8610H1038, S8610H1046, S8610H1053 | OFF | OFF |
| S8610H1061 | OFF | ON |
| S8610H1079, S8610H1095, S8610H3000 | OFF | OFF |
| S8610H3018 | OFF | ON |
| S8610H3026, S8610M1003 | OFF | OFF |
| S8610M1011 | OFF | ON |
| S8610M1029, S8610M3009 | OFF | OFF |
| S8610M3017 | OFF | ON |
| ICM2901003, ICM2901011 | OFF | OFF |
| S8620C1003, S8620C1011 | OFF | ON |
| S8620H1002 | OFF | OFF |
| S8620H1010 | OFF | ON |
| S8620H1028 | OFF | OFF |
| S8660D1002 | ON | OFF |
| S8660D1010 | ON | ON |
| S8660J1008, S8660J1016, S8660J1024, S8660K1006, S8660K1014, S8660K1022, S8670D1000, S8670D1018 | ON | OFF |
| S8670D1026, S8670D3006 | ON | ON |
| S8670D3014, S8670E1007, S8670E3003 | ON | OFF |
| S8670J3002 | ON | ON |
| S8670J3010, S8670K3000 | ON | OFF |
| S8680J1004 | ON | ON |

| HSC | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| 1003-3, 1003-300 | OFF | OFF |

| Johnson Controls | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| CSA35A-617R, CSA35A-618R, CSA42A-600R, CSA42A-601R, CSA42A-602R, CSA42A-603R, CSA42A-604R, CSA43A-600R, CSA44A-600R, CSA45A-601R, CSA45A-602R, CSA46A-600R, CSA48A-600R, CSA49A-600R, CSA49A-605R, CSA51A-601R, CSA52A-600R | OFF | OFF |
| G60AAA-1, G60AAG-1, G60AAG-2, G60AAG-3, G60AAG-4, G60AAG-5, G60AAG-6, G60AAG-7, G60CAA-1, G60CAA-3, G60CAG-1, G60CAG-2, G60CAG-3, G60CAG-4, G60CAG-5, G60CAG-6, G60CAG-7, G60CAG-8, G60CAG-9, G60CBA-1, G60CBA-2, G60CBA-3, G60CBG-1, G60CBG-2, G60CBG-3, G60CBG-4, G60CBG-5, G60CBG-6, G60CBG-7, G60CBG-8, G60CBG-9, G60CBG-10, G60CBG-11, G60CBG-12, G60CBG-13, G60CBG-14, G60CBG-15, G60CBG-16, G60CBG-17, G60CCA-1, G60CCG-1, G60CPG-1, G60DBG-1, G60DCG-1, G60DCG-2, G60DCG-3, G60DCG-4, G60PAG-1, G60PAG-2, G60PAG-3, G60PAG-4, G60PAG-5, G60PAG-6, G60PAJ-1, G60PAK-1, G60PAK-2, G60PFH-1, G60PFH-2, G60PFL-1, G60PFQ-1, G60PVL-1, G60QAG-1, G60QAG-2, G60QAG-3 | OFF | OFF |

| Johnson Controls (continued) | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| G60QAG-4, G60QAK-1, G60QBG-1, G60QBG-2, G60QBG-3, G60QBG-4, G60QBG-5, G60QBG-6, G60QBG-7, G60QBG-8, G60QBG-9, G60QBH-1, G60QBK-1, G60QBK-2, G60QBK-3, G60QBL-1, G60QBL-2, G60QCG-1, G60QCJ-1, G60QCL-1, G60QDG-1, G60QFL-1, G60QGH-1, G60QHL-1, G60QHL-2, G60QJL-1, G60QLG-1, G60QLK-1, G60QPL-1, G60QRH-1, G60QRH-2, G60QRH-3, G60QRL-1, G60QRL-2, G60QRL-3, G60QSL-1, G60QTH-1, G60QTL-1, G60RAG-1, G60RAK-1, G60RBG-1, G60RBG-2, G60RBG-3, G60RBK-1, G60RBK-2, G60RCG-1, G60RCG-2, G60RCJ-1, G60RDG-1, G60RDK-1, G60RGL-1, G60RHL-1, G60RHP-1, G60RPL-1, G60RSL-1, G60TTL-1, G60ZAG-1, G60ZAG-2 | OFF | OFF |
| G65BBG-1, G65BBG-2, G65BBG-3, G65BBG-4, G65BBG-5, G65BBG-6, G65BBG-7, G65BBG-8, G65BBM-1, G65BBM-2, G65BBM-3, G65BBM-4, G65BCG-1, G65BCM-1, G65BFG-1, G65BFM, G65BKG-1, G65BKG-2, G65BKG-3, G65BKM-1, G65BKM-2, G65BKM-3, G65BLG-1, G65BLG-2, G65DBG, G65DBM-1, G65DBM-2, G65DBM-3, G65DCM-1, G65DFG, G65DFM-1, G65DKG, G65DKM, G65DKM-1, G65DLM-1, G65FBG, G65FFG, G65FKG | OFF | OFF |
| G66AG-1, G66AG-2, G66BG-1, G66MG-1, G66MG-2, G66NG-1 | OFF | OFF |
| G67AG-3, G67AG-4, G67AG-7, G67AG-8, G67AG-9, G67AG-10, G67AG-11, G67BG-2, G67BG-3, G67BG-4, G67BG-5, G67MG-1, G67MG-2, G67MG-3, G67MG-4, G67NG-2, G67NG-4 | OFF | OFF |
| G600AX-1, G600AX-2, G600AX-3, G600AY-1, G600LX-1, G600LX-2, G600LY-1, G600MX-1, G600NX-1, G600RX-1 | OFF | OFF |
| G670AW-1, G670AW-2, G670GA-1 | OFF | OFF |
| G770LGA-1, G770LGA-2, G770LGC-1, G770LGC-2, G770LGC-3, G770LGC-4, G770LHA-1, G770LHA-2, G770LHC-1, G770MGA-1, G770MGA-2, G770MGA-3, G770MGC-1, G770MGC-2, G770MGC-3, G770MGC-4, G770MGC-5, G770MGC-6, G770MHA-1, G770MHA-2, G770MHC-1, G770NGA-1, G770NGC-4, G770NGC-5, G770NGC-6, G770NGC-7, G770NHA-1, G770NHC-1, G770RGA-1, G770RHA-1, G770RHA-2 | OFF | OFF |
| G775RGA-1, G775RHA-1, G775RHA-2 | OFF | OFF |
| G779 | OFF | OFF |
| Y79ABC-1, Y79ABC-2, Y79ABC-3, Y79ABC-4, Y79ABC-5, Y79ABC-6, Y79ABC-7, Y79ABD-1, Y79ABCD-2, Y79BBA-1, Y79BBA-2 | OFF | OFF |

| RobertShaw | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| 780-001, 780-002 | OFF | OFF |
| 780-003 | ON | OFF |
| 780-845, 780-715, 780-735, 780-736, 780-737 | OFF | OFF |
| SP715, SP715A, SP735, SP735D, SP735L | OFF | OFF |
| USI715U | OFF | OFF |

| Wite-Rodgers | | |
|---|---|---|
| **Vendor / Model** | **SW1** | **SW2** |
| 50D49-350, 50D49-360 | OFF | OFF |
| 50D49-361 | ON | OFF |
| 50D49-401 | OFF | OFF |