

# **Siemens**

## **LMV Linkage-less Burner Control System**

### **LMV Burner Control**

The Siemens LMV Series Burner Control is an integrated burner control, which includes a fully modulating flame safeguard, fuel-air ratio control system, valve proving system, fault annunciator, and optional PID pressure/temperature controller. All connections are via plug type connectors for easy removal/replacement. The plug sockets are “keyed” to ensure the plugs cannot be misconnected in the wrong sockets. All parameters are stored in a non-volatile memory in the control unit. The parameters are also stored in the AZL display as a redundant back up. The parameters are protected from tampering with four different levels of password protection (user level, service level, OEM level, and manufacturer’s level). The parameters may be uploaded/downloaded between the LMV control and AZL display for easy configuration. All parameter programming can be performed via the keypad on the AZL display. No laptop computer is required for configuration. Optional software is available, but is not required for system configuration. Control has worldwide approvals (U.L., CSA, CE, etc.). 120 volt 50/60 Hertz power input is standard for North American installations. 220-volt versions are also available for overseas exports.

### **AZL Programming/Annunciator Display**

Current burner status can be viewed through the AZL display. Status includes flame signal strength, firing rate, setpoint, etc. Upon burner start-up and shut-down, the AZL will display the various changes in the ignition sequence (i.e., fan energized, driving to high-fire for pre-purge, purging, ignition energized, post-purge, etc.) Lockout and fault history can be viewed from the AZL. All annunciations are in plain English text. The parameter selections are user-friendly and menu-based. As described previously, the parameters are password protected with four different access levels. The AZL also has connections for modbus communications, and a serial port for the optional (not required) computer software.

### **QRI Flame Detector**

The QRI flame detector utilizes an infrared detection to monitor the flame. It is designed to detect the infrared wavelengths and also detects the random “flickering” pattern associated with a flame. It is therefore able to discriminate between the infrared produced by an actual flame versus that generated from glowing refractory or other hot surfaces. It also filters out all flickering from line voltage (50 or 60 hertz) sources. Thus, it is also immune to false signals generated from fluorescent lights, and ignition spark rods. The flame signal amplifier is built into the scanner to provide a higher strength signal between the scanner and the flame safeguard. This increases its immunity against electrical noise interference or lost flame signals (due to weak signals or long runs of wire to the flame safeguard). The scanner is solid-state and is self-checking. It is suitable for boilers in continuous operation (longer than 24 hour intervals). Its self-checking

mechanism has no moving parts or shutters, thereby providing a more reliable design and longer operating lifetime.

### **SQM4 Actuators**

The LMV system provides accurate parallel positioning via the SQM4 actuators. The SQM4 actuators are driven via a digital Can-bus signal. Their movement is accurate to a tenth of one degree. The actuators also provide a digital feedback signal to insure they are in the correct position throughout the modulating range. If any actuator falls out of position, the burner will lockout. This ensures that the burner will always perform with repeatability and accuracy. The actuator's potentiometer is not susceptible to burner vibrations. The actuators do not require any potentiometer calibration or 'zero-ing' upon initial start-up. They also do not require any wiring changes to reverse direction of movement. Direction of rotation, stroke timing, etc. are all adjustable parameters configured through the AZL keypad display. The SQM4 actuators are available in three torque ratings (27, 180, and 320 in-lbs) capable of handling small or large burners. The actuator shafts include a flat side to help prevent slippage. The medium and high torque versions also include keyways to prevent any slippage.