

TECH NOTE #9

SENTRY 2000® MOTORIZED WINDOW SYSTEM: Function of LCII Motor Control Module Inputs

The LCII motor control module is configured to allow the Sentry 2000 Motorized Window System to be controlled as a sub-system from another building control system. This is made possible by adding inputs to the LCII Motor Control Module. This information is to be used as a supplement to the installation instructions for the operator system. This Tech Note explains the input functions and operation and is meant to give the system planner an over-all idea of how the LCII motor control module inputs will work as a sub-system to another building control system.

LCII Input Function and Control

There are three (3) inputs supplied on the LCII motor control module ('G', 'O', and 'C') which can be used in a variety of ways to produce a desired window control function.

- The 'G' lead is common.
- The 'O' connection provides a "open" signal when contact is made across the 'O' and 'G' connections. If this contact is maintained, the window will be "held" open with all other devices ignored (except rain sensor). This can be an important mode of control for smoke ventilation applications where windows must be opened to vent smoke in the case of a fire. The rain sensor must not be used in these applications.

If the contact between the 'O' and 'G' connection is made momentarily (one (1) second min.), the window will open to the vent opening and wait for a close command. Any additional open commands will be ignored.

If the window is opened by a momentary open signal and closed by the rain sensor, the window will not re-open when the rain sensor dries off. The rain sensor will re-open the window if the open signal is maintained.

- The 'C' connection provides a "close" signal when contact is made across the 'C' and 'G' connections. If this contact is maintained, the window will be "held" closed with all other inputs ignored (except a maintained open command which has highest priority). This can be an important mode of control for applications where it is desired to close all windows and lock out all other open commands. An example might be a "VACATION" mode for home automation systems where all windows should close and remain closed while the home owner is on vacation.

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LCII Input Function and Control (cont.)

If the contact between the 'C' and 'G' connections is made momentarily (one (1) second min.), the window will fully close (and lock if so equipped) and wait for an open command. Any additional close commands will be ignored.

- The 'F' connection is not an input. The 'F' connection is an output which provides a signal with respect to the black lead to indicate whether the window is open or closed. When the brown lead goes to 24 VDC, with respect to the 'G' connection, it is a signal that the window is closed. Conversely when the output is at 0 VDC, the window is open. It must be stressed that this output must not be used as a sole means of determining window position for security purposes.

Thermostat use with Sentry 2000

- The LCII switch can be controlled with the normally open and closed contacts of a mechanical (Heat/Cool) thermostat.
- Use a Honeywell T87, with a Q539A sub-base or a CT51A heating/cooling thermostat. (With heat anticipator resistor removed.)
- Connect the thermostat contacts between the 'G' and 'O' (to Open) and 'G' and 'C' (to Close).
- The thermostat will override the wall switches and accessories when connected. The Rain Sensor will close the units even if the thermostat is calling for the motor to open. When the Rain Sensor dries off, the window will re-open.
- A switch can be added (found on some thermostats) which will allow automatic and manual control. This switch should be a SPST contact connected to break the 'G' or common connection between the LCII and thermostat.

Home Automation Systems (including use with X-10 modules)

- Use two (2) SPST relay contacts or two (2) X-10 universal relay modules. X-10 modules must be set for momentary operation.
- Connect the "Open" relay between the 'O' and 'G' connections of the LCII switch(s). Pulse the "Open" relay closed for a minimum of one (1) second to "Open" the window/skylight(s).
- Connect the "Close" relay between the 'C' and 'G' connections of the LCII switch(s). Pulse the "Close" relay closed for a minimum of one (1) second to "Close" the window/skylight(s).

Note: X-10 modules may respond to X-10 commands coming from neighboring locations. For example, someone on the outside of the building could operate the X-10 modules by simply plugging an X-10 controller into an external electrical outlet. Therefore, careful consideration must be given to security issues when controlling windows through X-10 modules.

It is important to note that the LCII motor control module only has control over the window motor(s) connected to that particular motor control module.