

# Technical Bulletin

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**Subject:** Common Interrupt Sensor Devices  
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**Product Applicability:** Evolution DX2 Controller  
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## CONTROL DEVICES

Many commercial sensor devices available in today's market take advantage of the common ground configuration of an irrigation system to control watering operations. Devices such as rain sensors, freeze sensors, moisture sensors, etc., employ a control system that interrupts the common ground line of watering stations to control the ability for those stations to irrigate.

These control devices are made available in two forms:

- Two wire sensors
- Three wire sensors

The Two wire sensors are basically a mechanical switch under the control of a moisture or temperature sensing element.

The Three wire sensor is designed with an electrically operated switch, which is activated by its moisture or temperature sensing element.

**WARNING:** When connecting an active common interrupt device to a Rain Master Evolution DX2 Controller, an external (24) VAC supply must be used. Do not connect to the controller transformer terminal to access (24) VAC required to power external add-on device(s). The external supply must be fuse or circuit breaker protected.

## Two Wire Control Devices

As an example, a rain sensor installed into the common return line acts as a normally closed switch as long as its control element remains dry. When rainfall or watering occurs, the moisture absorbed in the sensor control element will cause the switch to open, placing the common return line in an open circuit condition. This places all stations wired to the common return line out of operation and watering is aborted.



## **Two Wire Control Devices**

After a drying out period and the sensor control element dries out to a level below its preset rainfall setting, the switch returns to its closed position and watering is restored. The extent of the common interrupt control device therefore, is limited to on/off watering control only.

The DX2 Controller, however, when used with the Rain Master custom interface kit, will deliver the water control and maintain the standard water management features, such as Hi/Lo current and flow detection, manual operation, program testing, warning notification, etc..

Since all DX2 Controller operations are under the control of a microprocessor, conventional control device installation methods cannot be used. Installation requires the custom interface kit for these devices to operate properly. The custom interface kit provides direct communication between the control device sensor and the DX2 Controller microprocessor.

This installation also requires the controller EPROM version 2.14 or greater. Details on upgrading software are given in the interface kit installation instructions.

Rain Master discourages standard control device installation methods in the Dx2 Controller for the following reasons:

- 01) The DX2, being an intelligent controller, will detect open common lines as discrepancies, generating alarms. Generally an alarm will shut down the associated stations until the condition is corrected.
- 02) Open common lines cause unstable station outputs resulting in erratic operation of LEDs and solenoids.
- 03) Control devices tend to exhibit "contact bounce" or jitter when the on/off threshold is reached. This may have adverse effects on pump systems.
- 04) It may be difficult to identify/interrupt a particular common wire if multiple commons come in from the field.

These problems will be encountered in the DX2 Controller if conventional installation methods are employed. Therefore, the custom interface kit must be used to maintain the full advantages and operation integrity of the DX2 Controller.

The interface kit is available (with full installation instructions) at no charge through Rain Master Order Department under part number "DXCID-KIT". Procedures on the required software are included. To request the interface kit, please contact Rain Master direct at (805) 527-4498.

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