

DIG Corporation Irrigation Product Specifications

SECTION 02810

IRRIGATION SYSTEMS

Part 2 Products

2.1 Automatic Irrigation Controller [Light][Solar]

Irrigation controllers shall be single, solid-state independent controllers conforming to the following:

The controller shall be powered by an internal, ultra high efficiency, photovoltaic module with a microelectronics energy management system fueled by ambient light. The controller shall be protected by a vandal-resistant, waterproof enclosure fashioned from space-age composite material and made to endure extreme environments. The controller shall function day and night in any weather and in most outdoor locations where no direct sunlight is required and communicate to a micro-power solenoid actuator via two-way digital control pulses at 3.5 volts DC. The controller shall have a daily exposure to light levels which need to be no higher than the equivalent of 25% of the ambient light level at 55 degrees latitude under 10-year worst-case weather conditions (worst day measured in 10-year period). The controller shall have a fully protected circuitry from electrostatic discharge up to 27,000 volts.

2.1.1 Controller Features

- a. **Controllers model X shall operate 10, 12, 16, 20, 24 and 28-station and a master valve**
- b. **Controllers model XR upgradeable to radio (the controller can be sent to back to the factory to be loaded with the hardware for radio, software already included) shall operate 4, 6, 8, 10, 12, 16, 20, 24 and 28-station and a master valve**
- c. **The controllers shall operate and use a standard series micro-power solenoid actuator with globe valve or a micro-power solenoid actuator with the correct adapter to be mounted on any other valve.**
- d. Controller shall have bilingual software in English and Spanish.
- e. The controller LCD screen shall be activated with a special Key powered by a 9 volt alkaline battery to provide access and security to a simple 4-button programming pad and the LCD shall display all the schedule information.
- f. The controller shall have 4-independent programs with 3-start times per station.
- g. **The controller shall have a custom grouping, allowing the controller to operates any number of groups with any number of station per group together (if hydraulic limitation are not exceeded)**
- h. Ability to program in one-minute increments up to 5 hours and 59 minutes with separate setting for hours and minutes.
- i. A programmable watering calendar choice of a 1 to 39 day interval, odd/even days or any day(s) of the week.
- j. A feature that shall include password protection for added security.
- k. Rain stop from 1 to 99 days with automatic restart.
- l. A 12-month budget adjustment from 10% to 200% in 10% increments.
- m. A manual feature that allows a single desired station to cycle start for any preset, preferred duration.
- n. The controller shall have the option to operate automatic, semi- automatic and manual cycle via the controller.
- o. Status report to check amount of watering time applied during current and previous month.

- p. The controller shall have the option to assign any switch type rain sensor, moisture sensor or freeze sensor to an individual valve or to the entire system using a SKIT adapter.
- q. The controller shall activate the micro-power solenoid actuator @ 3.5 volts to a distance of up to 2400' (727m) using NFPA 70 copper conductor 12-gauge (1.6 mm) irrigation wire type UF.
- r. The controller shall be capable of operating pump start relay or a master valve **using a RKIT adapter.**
- s. The controller shall have lightning protection to fully isolate the controller from electrical ground, and offer virtual immunity to ground currents from overhead power-lines and/or close proximity to lightning strike.
- t. The controller shall have a full two-year repair or replacement warranty.
- u. The controller shall have a lifetime lightning warranty.
- v. The controller and its components shall be manufactured by DIG Corporation, Vista, CA.

2.1.2 Controller System Components

a. Mounting column

The controller shall be mounted on a galvanized mounting column with a length of about **35" short or 50" long** with a curved sweep at the bottom to permit ease of wire pull.

b. Micro-power solenoid actuator

b1. Micro-power solenoid actuator with globe valve

The remote control valve (standard or expansion series), with a micro-power solenoid actuator shall be a globe type, normally closed, using 3.5-volt DC bipolar pulse. The valve shall be pressure rated up to 150 PSI and have balanced opening and closing. The valve(s) body size shall have a 3/4" up to 2" FNPT inlet and outlet and constructed of weather resistant, high impact glass reinforced nylon and stainless steel spring (303). The valve(s) one piece diaphragm shall be buna-N reinforced nylon fabric (NR). The valve(s) shall have a flow control and internal manual bleed located under the micro-powered actuator solenoid and allow for manual operation by turning the manual bleed handle a ¼ turn. The valve(s) shall provide easy access for removing all parts from the top of the valve without disturbing normal valve installation.

b2. Micro-powered solenoid actuator only

Micro-power solenoid actuator (standard series) shall be with the correct adapter to be mounted on any other valve (**please refer to page 10 of LEIT catalog for detail**). The controller shall communicate to the micro-powered solenoid actuator via two-way digital control pulses at 3.5 volts bipolar pulse.

c. LEIT key

The controller shall use one LEIT-Key (powered by a 9 volt battery) to provide access and to activate the controller's LCD screen.

2.1.3 Controller System Accessories

a. Stainless steel enclosure

For added protection the controller shall have the option to add a (304) Stainless Steel vandal resistant enclosure with strip perforations on top, allowing light to enter the controller and a lockable-hinged door.

Sensor adapter: The controller or the micro-powered solenoid actuator shall have an option to connect to all type of switch type sensors via the SKIT sensor adapter. The SKIT adapter shall be used as an interface between the controller and a compatible rain, moisture or freeze protection sensor.

MV/P adapter: The controller shall have an option to switch on/off an AC or DC circuit via the RKIT relay interface adapter. The RKIT adapter shall be used as an interface between the controller and AC switch device

Swivel fittings: Micro-powered solenoid actuator with globe valve shall be used with swivel fittings and shall allow in case of repair, that the valve may be brought to the surface to be serviced without removing the irrigation box or cutting the pipe. The swivel fitting shall be constructed of injected molded polypropylene, UV resistant. The swivel fitting shall feature high impact strength plastic and highly chemical resistant. The male thread of the swivel fittings shall be attached to both sides of the valve. The female thread side of the swivel fitting shall have a large swivel 1", 1 ½" or 2" (FNPT) with encapsulated Nitric rubber "O" ring in such a manner that allows quick and easy tightening to a PVC male adapter without tools and teflon tape. The swivel fitting operating pressure shall not exceed 150 psi.

2.1.4 Electrical Circuits

Install irrigation wires at least six inches below finish grade and lay to the side and below main line.

- a. Control wire for LEIT operated valve shall be NFPA 70 copper conductor, 14-gauge [1.8 mm] irrigation wire, type UF, shall be used for station wire with runs up to 1,500 feet (454 m). NFPA 70 copper conductor 12-gauge [1.6 mm] irrigation wire, type UF, shall be used for station wire with runs up to 2400' (727m).
- b. Electrical splices shall be waterproof and shall be located in valve box.
- c. An expansion curl shall be provided so that in case of repairs the valve may be brought to the surface to be serviced without disconnecting the control wire.

Part 2 Submittals

Fill in the appropriate number of units and submit (qty) with a copy of the catalog and instruction manual.

The LEIT X powered irrigation controller shall be _____ each of the LEIT [X10] ten-station, [X12] twelve stations, [X16] sixteen station, [X20] twenty station, [X24] twenty-four station and [X28] twenty-eight stations

OR

The LEIT XR powered irrigation controller shall be _____ each of the LEIT [XR04] four-station, [XR06] six-station, [XR08] eight-station, [XR10] ten-station, [XR12] twelve stations, [XR16] sixteen station, [XR20] twenty station, [XR24] twenty-four station and [X28] twenty-eight stations

- b. The two-way data communication micro-powered solenoid actuator or and valve shall be ____ each of:
 - 1) Standard series micro-powered solenoid actuator and valve model [150S-075] for ¾", [150S- 100] for 1", [150S-150] for 1½" and [150S-200] for 2" Actuator and valve [s] or equal

- 2) If other than the above are selected, use the two-way data communication micro-powered solenoid actuator with the correct adapter to match the valve in use (**See page 10 of LEIT catalog for actuator compatibility**).

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- c. The light powered irrigation controller shall require ___ each of LEIT- Control Key to enter the system. The same key can be used with any LEIT controller.
- d. Each irrigation controller shall require one mounting column and shall have ___ each of MCOL XS (35") short or MCOLXL (50") long mounting column and column kit.
- d. The controller or the micro-power solenoid actuator shall require if applicable ___ each of the SKIT sensor adapter, used as an interface between the controller and compatible rain, moisture and/or freeze protection sensors.
- e. **The controller shall require if applicable ___ each of the RKIT 8810S relay interface adapter, used as an interface between the controller and pump switch**
- f. The light powered irrigation controller shall also require _____ each of the **ENCL X** (If a stainless steel enclosure is required for extra protection against vandalism and theft).

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