



TECHNICAL SPECIFICATIONS

LEIT-2ET Ambient Light Powered, Weather Based, Wireless Irrigation Control System LEIT- LIGHT ENERGIZED IRRIGATION TECHNOLOGY

The LEIT-2ET system is a weather-based, wireless irrigation control system composed of the LEIT 2ET two-station ambient light (solar) powered controller with a rain sensor connection, the LEIT RC2 ET remote control handset and the LEIT WWS or WWSE ambient light (solar) powered weather stations.

1. Weather Based System Description:

1.1 Ambient Light Powered Wireless Weather-Based Controller [LEIT]

The LEIT-2ET is a two-station ambient light powered (solar), wireless weather-based controller with a rain sensor connection. The LEIT-2ET controller receives and stores weather information transmitted hourly and daily during daytime. This local, real time weather data is provided by a LEIT weather station, from up to 350' (100 m) away, line of sight. The LEIT-2ET controller uses the weather station data and the site information obtained from the LEIT-RC2 handset to calculate the hourly and daily local microclimate evapotranspiration (ET) and automatically adjusts the irrigation schedule taking into account plant water requirements and allowable soil depletion.

1.2 Remote Controller Handset

The LEIT RC2 ET remote control handset is the programming component of the LEIT 2ET weather-based wireless irrigation control system. The LEIT RC2 ET handset has a large LCD display with intuitive icon-based software used to communicate with and manage up to 99 LEIT-2ET weather-based controllers from a distance of up to 350 feet (100 m) line of sight. The site information stored into the LEIT-RC2 handset is downloaded to the LEIT 2 ET controller where it is used to calculate the daily local microclimate evapotranspiration (ET). All of the LEIT-2ET controller's operations are remotely controlled via the RC2 remote handset.

1.3 Wireless Weather Stations [LEIT]

The LEIT-WWS and LEIT-WWSE are independent, column-mounted ambient light powered (solar), wireless weather stations that gather local weather information. The weather-measuring instruments are powered by ambient light (solar). The LEIT-WWS and LEIT-WWSE weather stations continually gather weather condition information from the surrounding area and then transmit the data once every hour during daytime to any LEIT-2ET and/or LEITXRC-ETS controller from a distance of up to 350' (150 m) line of sight. The weather data collected and transmitted by the weather station sensors is used in the calculation of the daily local microclimate evapotranspiration (ET).

2. Weather Based System Specifications:

2.1 Ambient Light Powered Wireless Weather-Based Controller [LEIT]

- The LEIT-2ET irrigation controller shall be a single, solid-state independent wireless controller powered by an internal photovoltaic module with a microelectronic energy management system fueled by ambient light.
- The LEIT-2ET controller shall be programmed via the LEIT RC2 remote control handset from a distance of up to 350 feet line of sight. Up to 99 controllers can be programmed using one

handset when client ID and controller ID are assigned.

- The LEIT-2ET controller shall be protected by a vandal-resistant, waterproof housing, fashioned from super tough plastic material and made to endure extreme environments. The controller shall function day and night in any weather and in most outdoor locations. No direct sunlight is required.
- The LEIT-2ET controller shall have a mounting option for a valve box lead or a column mounting. The controller shall operate a DC solenoid via two-way digital control pulses with a daily exposure to light levels of 3,000 to 100,000 Lux. All controller operations can be reviewed or changed using the remote control handset.

2.2 Remote Controller Handset

The LEIT-RC2 ET remote control handset can communicate with LEIT 2ET controllers from a distance of up to 350 feet line of sight. Up to 99 controllers can be programmed using one handset when client ID and controller ID are assigned. The remote control handset shall be operated using a rechargeable, 3.6V Ni/MH battery. The remote control handset shall have a large liquid crystal display with user-friendly icons for easy programming, and can be programmed in multilingual software including English, Spanish, Italian, French, German and Portuguese.

2.3. Wireless Weather Station [LEIT]

The LEIT-WWS and LEIT-WWSE weather stations are powered by an efficient photovoltaic module (PVM) and microelectronic management system fueled by ambient light with no battery or AC power used. The weather station collects weather data and transmits it to any LEIT 2ET controllers within a distance of up to 350' line of site from the weather station every hour. The weather station shall function day and night in any weather and in most outdoor locations with a daily exposure to light levels of 3,000 to 100,000 Lux. The weather station can transmit the information to a LEIT 2ET every hour only in daylight.

- The LEIT weather station shall be mounted using 1 1/2", 8-10' high column.
- With rugged and lightweight plastic construction, the LEIT weather station utilizes ROHS components, CE, IC, FCC certified, Australia and Hong Kong compliant. The LEIT weather station's electronic components and sensors are weather protected and completely waterproof.
- The LEIT weather station utilizes radio frequencies in the ISM band 902-928 MHz (868 international).

The weather station Instruments include:

- LEIT-ET-WWS includes: anemometer, thermometer, hygrometer, rain collector and solar radiation meter to monitor wind speed, temperature, humidity level, rainfall and solar radiation.
- LEIT ET-WWSE includes: thermometer, hygrometer, rain collector and solar radiation meter to monitor temperature, humidity level, rainfall, and solar radiation.

3. Weather-Based Irrigation System Construction:

3.1. Automatic Irrigation Controller, Remote Handset and Weather Stations

The LEIT® 2ET irrigation controller's and the weather station's lenses shall be made of GE Super-Tough LEXAN® Polycarbonate Resin with UV resistance to protect the photovoltaic module from moisture, dust, chemicals and impact damage. The LEIT® controller's and weather stations' waterproof housing is fashioned from tough material which can endure extreme hot, cold, wet or dry weather conditions. The lens for the controller and the water stations shall be coated with an additional clear layer of UV protection preventing discoloration and stress cracking of the lens.

4. Weather-Based System Operation [LEIT]:

4.1. Automatic Irrigation Controller, Remote Handset and Weather Stations

The LEIT 2ET irrigation controller and the LEIT weather station shall operate without AC power hookup, batteries or conventional solar panels. The LEIT® 2ET controller's and the LEIT weather station's power shall be provided by an internal, ultrahigh efficiency photovoltaic module and microelectronic energy management system fueled by ambient light. The LEIT RC2 ET remote control handset shall be used to communicate with a LEIT®2ET controller and can change or modify the controller's programming. The LEIT weather station shall be used to transmit weather information to any LEIT 2ET controller within a distance of up to 350' (100 m) line of site from the weather station. The LEIT® 2ET controller shall be programmed using the LEIT 2ET remote control handset with a self-guiding menu and five durable sealed buttons for navigation. To program the controller a password or ID shall be required to eliminate potential user error. The password can be changed at any time during communication with the controller. The LEIT®2ET controller and the LEIT weather station shall have a non-volatile memory holding the programs indefinitely without batteries or AC power.

The LEIT weather-based system shall be manufactured by DIG Corporation, Vista, California.

5. Automatic Irrigation Controller [LEIT] Components Descriptions:

The LEIT® LEIT weather-based system shall conform to the following:

Controller, Handset and Weather Station

LEIT weather-based irrigation system units:

- LEIT 2ET two-station weather-based wireless ambient light powered irrigation controller with rain sensor connection.
- LEIT RC2 ET weather-based, remote handset (version SW U:1.XX.XX EE 1.XX.XX). Each LEIT remote control handset can communicate with up to 99 LEIT-2 controllers (or 198 valves).
- LEIT-ET-WWS ambient light powered weather station with mounting accessories for 1 1/2" mounting column includes: anemometer, thermometer, hygrometer, rain collector and solar radiation meter to monitor wind speed, temperature, humidity level, rainfall and solar-radiation
- LEIT ET-WWSE ambient light powered weather station with mounting accessories for 1 1/2" mounting column includes: thermometer, hygrometer, rain collector and solar radiation meter to monitor temperature, humidity level, rainfall and solar-radiation.

6. Automatic Irrigation Controller [LEIT] System Accessories:

Universal DC Solenoid with Globe Valve

The remote control valve with a 6-9 volt DC solenoid shall be globe type normally closed using 2-way magnetic latching solenoid, directional pulse with coil resistance of 5+/-0.03Ω. The valve shall be pressure rated up to 150 PSI and have balanced opening and closing. The valve's body shall be constructed of weather resistant, high impact glass-reinforced nylon and stainless steel spring (303). The valve's one-piece diaphragm is nylon fabric-reinforced natural rubber (NR). The valve shall have a flow control and internal manual bleed within the solenoid and allow for manual operation by turning the manual bleed handle ¼ turn. The valve shall provide easy access for removing all parts from the top of the valve without disturbing normal valve installation. The remote control valve shall have a 3/4" FNPT inlet and outlet connection and is manufactured by DIG.

Universal DC Solenoid

The DC solenoid is model S-305DC with 11/16"-12 UN thread, with one needed for each valve (appropriate adapter required).

The 6-9 volt DC solenoid shall be normally closed, using 2-way magnetic latching, and directional pulse with coil resistance of 5+/-0.03 Ω. The solenoid shall be used with the correct adapter to be mounted on any valve. The controller shall communicate with the micro powered solenoid actuator via two-way

digital control pulses at 6-9 volts.

The solenoid shall use one of the seven solenoid adapters available to fit most valves:

1. Model number 30-920 solenoid plastic adapter assembly - use with BERMAD series 200, HIT series 500, DOROT series 80, GRISWOLD series 2000, DW and BUCKN ER series VB valves
2. Model number 30-921 solenoid plastic adapter assembly - use with RAIN BIRD DV, DVF, PGA, PEB (3/4" and 1" only), GB, EFB-CP, BPE, PESB (3/4" and 1" only) and ASVF valves
3. Model number 30-922 solenoid plastic adapter assembly - use with HUNTER series ASV, HPV, ICV, PGV, SRV, IBV and ASVF valves
4. Model number 30-923 solenoid plastic adapter assembly - use with WEATHERMATIC series 12000, 21000 valves
5. Model number 30-924 solenoid plastic adapter assembly - use with IRRITROL series 100, 200B, 205, 217B, 700, 2400, 2500, 2600 and TORO series 220, P220 valves
6. Model number 30-925 solenoid plastic adapter assembly - use with SUPERIOR series 950, HUNTER HBV and TORO series 252 valves (1.5" and larger)
7. Model number 30-926 solenoid plastic adapter assembly - use with RAIN BIRD series PEB and PESB (1 1/2" and 2" only) valves

Mounting Domes

One of three mounting configurations shall be used: valve box mounting dome (model 30-830 color green, model 30-835, color tan and model 30-836, color purple), mounting column plastic bracket (model 30-831) or valve clip attachment (model 30-832).

- a. If a mounting column plastic attachment shall be used, a mounting column with a curved sweep at the bottom to permit ease of wire pull is also needed. Use one of the two following mounting columns: model MCOL2S (small) 25" (63 cm) or MCOL2L (large) 50" (127 cm) mounting column including mounting tool kit with cement tube.

Screen Filter

The 3/4" all purpose WYE screen filter shall be constructed of UV resistant, non-corrosive black plastic and is pressure rated up to 120 PSI. The 155-mesh screen filter shall be color coded green and constructed of molded polyester plastic frame with fabric screen attached to it. The filtration area shall be 14.8 square" (96 cm²) and the recommended flow rate shall be 10 to 13 GPM. The flush cap at the end of the filter body may be used for periodic service by unscrewing the cap and flushing the filter. The filter body shall not be removed for service under pressure. By reversing the filter body direction a disc element can be added instead of the screen. The filter shall have a 3/4" MNPT inlet and outlet connection and is manufactured by DIG.

Disc Filter

The 3/4" all purpose WYE discs filter shall be constructed of UV resistant, non-corrosive black plastic and is pressure rated up to 120 PSI. The 150 mesh disc filter assembly shall be color coded black and constructed of a molded plastic frame with a set of grooved plastic rings stacked together attached to it. The dimensional filtration area shall be a minimum of 28 square" (180 cm²) and the recommended flow rate shall be 10 to 13 GPM. The filter can be serviced periodically by unscrewing the threaded cover, and removing and cleaning the disc. The filter body shall not be removed for service under pressure. By reversing the filter body direction a screen element can be added instead of the disc. The filter shall have a 3/4" MNPT inlet and outlet connection and is manufactured by DIG.

Adjustable Direct Acting Pressure Regulator

The adjustable direct acting pressure regulator shall be a spring-operated piston type, constructed of UV resistant, non-corrosive material with maximum upstream pressure not to exceed 125 PSI. The adjustable pressure regulator shall have a rolling diaphragm made of neoprene that completely separates the spring assembly from dirt or contaminants in the flow stream and ensures immediate response to inlet pressure variation. The adjustable direct pressure regulator shall have an accessible regulation body that can be removed and serviced without removing the unit from the system. The

adjustable direct acting pressure regulator shall be capable of regulating downstream pressure from 28 to 60 PSI by turning the colored knob (+ -) under the colored cap on the top of the unit using a screwdriver to increase or decrease pressure. The adjustable direct acting pressure regulator shall have a ¾" FNPT inlet and outlet connection and is manufactured by DIG.

Preset Pressure Regulator

The preset pressure regulator shall be constructed of UV resistant, non-corrosive high quality, acid resistant materials with a maximum upstream pressure not to exceed 125 PSI. The preset pressure regulator shall have a diaphragm with a stainless steel spring assembly to ensure immediate change to inlet pressure variation. The preset pressure regulator shall be capable of regulating downstream pressure to a preset pressure of 20, 25 and 30 PSI. The preset pressure regulator shall have a ¾" FNPT inlet ¾" MNPT outlet connection and is manufactured by DIG.

7. Automatic Irrigation Controller [LEIT] Submittals:

The following items shall be submitted by filling in the appropriate number of units and submitting (QTY) with a copy of catalog and instruction manual.

The number of LEIT-2 ET weather-based ambient light powered wireless irrigation controllers shall be ____ each of the [LEIT-2 ET] two-station weather-based controller with sensor connection, manufactured by DIG.

The number of the weather-based rechargeable remote control handsets shall be ____ each of the [LEIT-RC2 ET] weather-based remote control handsets, manufactured by DIG in the USA.

The number of WWS ambient light powered wireless weather stations with rain sensor shall be ____ each of the [WWS] ambient light powered wireless weather stations with rain sensor manufactured by DIG or [WWSE] ambient light powered wireless weather stations without rain sensor, manufactured by DIG in the USA.

The number of the two-way directional pulse magnetic latching 6-9 volt DC solenoids with in-line valves shall be ____ each of the [305DC-075] for ¾", [305DC-100] for 1", [305DC-150] for 1 1/2" and [305DC-200] for 2" actuator and valve[s] or equal, manufactured by DIG.

If the two-way directional pulse magnetic latching 6-9 volt DC solenoid is selected, use the solenoid model S305DC with the correct adapter to match the valve in use (see details below for adapter compatibility). The two-way directional pulse magnetic latching 6-9 volt DC solenoid shall be ____ each of the [S-305DC] latching 6-9 volt DC solenoids.

To match other valves, the correct adapter shall be ____ each of the following:

1. Model number 30-920 solenoid plastic adapter assembly - use with BERMAD series 200, HIT series 500, DOROT series 80, GRISWOLD series 2000, DW and BUCKN ER series VB valves
2. Model number 30-921 solenoid plastic adapter assembly - use with RAIN BIRD DV, DVF, PGA, PEB (3/4" and 1" only), GB, EFB-CP, BPE, PESB (3/4" and 1" only) and ASVF valves
3. Model number 30-922 solenoid plastic adapter assembly - use with HUNTER series ASV, HPV, ICV, PGV, SRV, IBV and ASVF valves
4. Model number 30-923 solenoid plastic adapter assembly - use with WEATHERMATIC series 12000, 21000 valves
5. Model number 30-924 solenoid plastic adapter assembly - use with IRRITROL series 100, 200B, 205, 217B, 700, 2400, 2500, 2600 and TORO series 220, P220 valves
6. Model number 30-925 solenoid plastic adapter assembly - use with SUPERIOR series 950, HUNTER HBV and TORO series 252 valves (1.5" and larger)
7. Model number 30-926 solenoid plastic adapter assembly - use with RAIN BIRD series PEB and PESB (1 1/2" and 2" only) valves

Each is manufactured by DIG in the USA.

To install the ambient light powered irrigation controller, the number of the mounting configurations (one of three mounting configurations) shall be ___ each of the [30-830] valve box mounting dome, color green, [30-835] valve box mounting dome, color light tan, [30-836] valve box mounting dome, color purple, or [30-831] mounting column plastic bracket model, manufactured by DIG in the USA

If a mounting column plastic attachment shall be used, the number of the mounting column with a curved sweep at the bottom to permit ease of wire pull shall be _____ each of the [MCOL2S] (small) 18" (xx cm) or [MCOL2L] (large) 34" (xx cm) mounting column including mounting tool kit with cement tube, manufactured by DIG in the USA.

Screens and Discs Filters

The screen filter shall include 155 mesh polyester screen (colored green) and the number shall be ___ each of [P10-155] ¾" MNPT screen filter with 155 mesh polyester screen and cap, [P12-155] ¾" screen filter with 155 mesh polyester screen and flush valve, [P11-155] ¾" screen filter with 155 mesh stainless screen and cap, [P13-155] ¾" screen filter with 155 mesh stainless screen with flush valve, manufactured by DIG.

The disc filter shall have 150 mesh plastic disc elements and number shall be ___ each of [P30-150D] ¾" MNPT disc filter with 150 mesh disc (colored black) elements and cap, manufactured by DIG.

Adjustable and Preset Pressure Regulators

The number of the adjustable pressure regulators shall be ___ each of [18-008-PR] ¾" FNPT, 12-35 PSI adjustable pressure regulator (white cap) or [18-007-PR] ¾" FNPT, 28-60 PSI adjustable pressure regulator (red cap), manufactured by DIG.

The preset pressure regulator shall be a 20, 25 or 30 PSI and shall be ___ each of [18-020-PR] ¾" FNPT x MNPT, 20 PSI preset pressure regulator, [18-025-PR] ¾" FNPT x MNPT 25 PSI preset pressure regulator or [18-030-PR] ¾" FNPT x MNPT, 30 PSI preset pressure regulator, manufactured by DIG.

8. Automatic Irrigation Controller [LEIT] Electrical Circuits:

Control wire for the LEIT-2 system used with a mounting column shall be NFPA 70 copper conductor 14-gage [1.8 mm]. Irrigation wire type UF shall be used for station wire with lengths up to 200' feet (60 m). NFPA 70 copper conductor 12-gage [2.05 mm] irrigation wire type UF shall be used for station wire with runs up to 300' feet (90 m). Electrical splices shall be waterproof and shall be located inside the valve box. 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.

9. Installation (if applicable) of [rain] [moisture] [freeze] sensor(s)

Install as per manufacture's recommendations. The two sensor wires shall be connected to the yellow wires on the controller. All wires shall be connected using sealed waterproof splices and shall be located inside the valve box.

Manufacturer: DIG Corporation, 1210 Activity Drive, Vista CA USA



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