



LEIT-2ET
Two Station
Weather Based
Ambient Light Powered
Wireless Irrigation Controller



I N S T R U C T I O N M A N U A L

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A.

Introduction

Thank you for purchasing DIG's LEIT-2ET two station, weather based, ambient light (solar) powered, wireless irrigation controller, which operates as part of the LEIT-2ET wireless irrigation system. This manual describes how to get the LEIT-2ET controller up and running. After reading the manual and becoming familiar with the basic functions of the controller, the user can refer to the manual for less common tasks in the future.

B.

About the LEIT-2ET System

The LEIT-2ET weather based wireless irrigation control system comprises the LEIT-2ET weather based two-station ambient light (solar) powered irrigation controller with a rain sensor connection, the LEIT RC2ET handset, and the LEIT WWS or LEIT WWSE ambient light (solar) powered weather station.

Introduction

The LEIT-2ET, a two station ambient light (solar) powered wireless irrigation controller, is an advanced and cost effective weather based wireless device that is programmed using the LEIT RC2ET remote control handset. Site information entered into the LEIT RC2ET remote control handset is downloaded into the LEIT-2ET controller, and with hourly weather data received from the LEIT WWS or LEIT WWSE wireless solar powered weather station, the LEIT-2ET controller calculates the daily local microclimate evapotranspiration (ET). The final result is used for a daily adjustment or override of the current scheduled irrigation program.

The LEIT-2ET includes a photovoltaic module (PVM panel), 2 pairs of 18" (45 cm) station wires (labeled #V1 and #V2) used to connect the controller with up to two S-305DC solenoids, plus a pair of yellow wires for sensor connection. The LEIT-2ET has an ultra-compact photovoltaic module that harnesses light energy to generate electricity that is stored and used to power the controller day and night in any kind of weather. The programming and operation of the LEIT-2ET controller is conducted using the LEIT RC2ET remote control handset, which has an operating range of up to 350 ft (100 m) line of sight, by way of 2-way radio communication. After installation, no further visits to the controller are required.

The LEIT-2ET two station ambient light (solar) powered wireless irrigation controller requires daily exposure to light levels at a minimum of 3000 LUX, which is equivalent to daylight around 7-8 AM on a cloudy day. On very cloudy days the controller requires more time to charge up and to operate with the radio.

IMPORTANT: Communication between the LEIT RC2ET remote control handset, the LEIT-2ET controller, and the LEIT WWS or LEIT WWSE weather station is automatically limited to daylight hours when there is sufficient light energy. Longer, brighter days will enable the system to operate over extended parts of the day.

C. Technical Assistance

Should you encounter any problem(s) with this product or if you do not understand its many features, please refer to this operating manual first. If further assistance is required, DIG offers the following customer support:

Technical Assistance USA

DIG's Technical Service Team is available to answer questions from 8:00 AM to 5:00 PM (PST), Monday-Friday (except holidays) at 1-800-322-9146.

Questions can be emailed to questions@digcorp.com or faxed to 760-727-0282.

Specification documents and manuals are available for download at: www.digcorp.com.

Customer Assistance Outside the USA

Contact your local distributor.

D.**Copyright and Compliance**

Copyright 2010 DIG Corporation. All rights reserved. LEIT-2ET and LEIT RC2ET are each trademarks of DIG Corporation. Patent pending.

FCC, IC, Canada and CE certified, Australia and HK compliance.

To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter is installed to provide a separation distance of at least 8 inches (20 cm) from all persons (not including hands, wrist, feet and ankles) and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is required to comply with FCC RF exposure requirements for mobile and fixed transmitting devices. This model transceiver generates and uses radio frequency energy. If not installed and used in accordance with the manufacturer's instructions, it may cause interference to radio and television reception.

CONTROLLER FCC ID: UJV-LEIT01 IC: 6694A-LEIT01

HANDSET FCC ID: UJV-LEIT02 IC: 6694A-LEIT02

WEATHER STATION FCC ID: UJV-LEIT03 IC: 6694A-LEIT03



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions, the remote may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult DIG technician for help.

WARNING: the user should make no field changes or modifications to the LEIT-2ET controller, LEIT RC2ET handset, the LEIT WWS or LEIT WWSE weather station. All adjustments and changes must be made at DIG's facility under the specific guidelines suggested in our instruction manual. Any tampering or modification to the equipment will void the users authority to operate the unit, render the equipment in violation of FCC part 15, and will void the warranty.

E.**Features**

- Environmentally friendly; certified lead free; uses light (solar) as a source of energy
- Power is provided by an efficient photovoltaic module (PVM) and microelectronic management system fueled by ambient light (solar)
- Operates up to two (2) stations and a sensor without AC power hookup, batteries, or conventional solar panels
- Two (2) independent programs with four (4) start times per program
- Used with Unimax S-305DC solenoids, which mount on most brand name valves using one (1) of seven (7) valve adapters
- Client ID enables the user to assign a unique identity code to the controller and handset; this is a security feature, which locks out unauthorized users
- The LEIT-2ET controller uses information transmitted from the weather station sensors and the LEIT RC2ET handset to override or adjust the daily scheduled irrigation program by adjusting the valve time duration in percents to compensate for evapotranspiration (ET)
- The LEIT-2ET can monitor and receive signals from one (1) to five (5) weather stations every hour and uses the daily average data for evapotranspiration (ET) calculation
- The LEIT-2ET controller can monitor the weather stations and when ET is set to active will alert the user via the handset if information has not been received or how often the controller has received ET information that day along with the last time information was received
- The LEIT-2ET controller can receive information from the weather station(s) to completely stop irrigation if it is raining, freezing or too windy. This information is provided daily, every hour, during daylight hours only
- Environmentally friendly, utilizes RoHS compliant components
- The LEIT-2ET controller utilizes radio frequency in the ISM band 902-928 MHz (866 Hong Kong, 868 International) CE, IC, FCC certified, Australia and Hong Kong compliant

- The LEIT-2ET controller communicates with LEIT RC2ET handset and LEIT WWS or LEIT WWSE weather station at a distance of up to 350 feet (100 m) line of site by way of radio communication
- The LEIT-2ET controller functions both day and night in any weather and in most outdoor locations
- Default program: five (5) minutes per day with a start time of 9 AM on valve one (1) with no previous programming, if ID has been assigned
- Non-volatile memory retains program and controller integrity (excluding time)
- Program stacking feature prevents hydraulic overload
- Custom grouping of the two (2) stations allows the controller to operate the two (2) valves at the same time if hydraulic limitations are not exceeded
- Available with 18" (45 cm) color-coded 16 gauge wires for each valve and rain sensor
- Built from tough, rugged material and is resistant to harsh environmental conditions
- Completely waterproof, complies with IP68 requirements
- The LEIT-2ET has three (3) mounting configurations including green, tan and purple valve box mounts, direct-to-valve clip mounting and column mounting with 25" (63 cm) or 50" (127 cm) mounting columns
- Three-year manufacturer's warranty

Electrical Specifications:

- Controller power requirements for normal operation:
Minimum of 3,000 LUX
- Controller input: 3,000-100,000+ LUX
- Controller output: 9-volt DC pulse
- Controller station capacity: One 6-9 volt DC pulse, two-way magnetic latching solenoid per each set of red and white wires

Mechanical Specifications:

- Operating temperature:
32° F to 158° F (0° C to 70° C)
- Controller wires gauge: 16 AWG

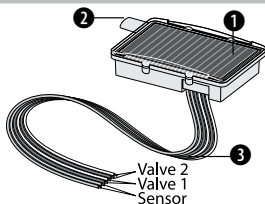
Dimensions:

- 3" W x 5 1/2" L
(7 cm x 14 cm)
including the antenna

1. System

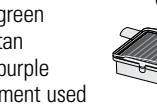
1.1 Parts Identification

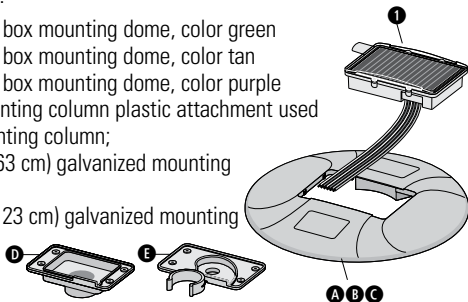
1. PVM (photovoltaic module) harnesses the energy of light and generates the electricity to power the unit day and night in any weather
2. Antenna
3. Stations and sensor wires



1.2 System Components

To properly install the LEIT-2ET controller, the following components are needed:

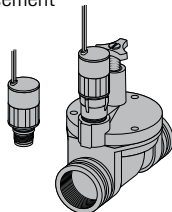
1. Control unit: LEIT-2ET two station weather based ambient light (solar) powered wireless controller.
 2. The controller is installed using one (1) of the mounting configurations available:
 - a. Model 30-830: Valve box mounting dome, color green
 - b. Model 30-835: Valve box mounting dome, color tan
 - c. Model 30-836: Valve box mounting dome, color purple
 - d. Model 30-831*: Mounting column plastic attachment used with galvanized mounting column;
 - i. MCOL2S: 25" (63 cm) galvanized mounting column
 - ii. MCOL2L: 50" (123 cm) galvanized mounting column
- 
- An illustration showing a valve box mounting dome (a small, dome-shaped enclosure) and a mounting column attachment (a plastic piece that fits onto a galvanized mounting column). The dome is shown in a light blue color, and the attachment is shown in a light grey color. The dome is mounted on a base, and the attachment is shown being inserted into a slot on the side of the dome.



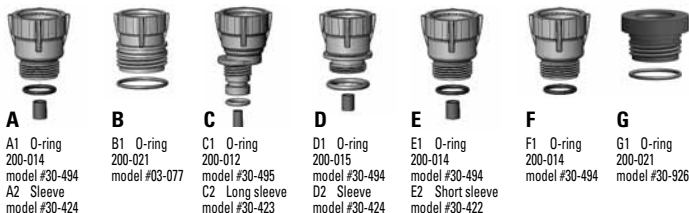
- e. Model 30-832: Valve clip attachment with four (4) screws

*The mounting column includes a mounting tool kit with cement glue to firmly attach the mounting bracket to the column.

- 3. 305DC-XXX complete in-line valve with solenoid or S-305DC solenoid (one (1) for each valve used).



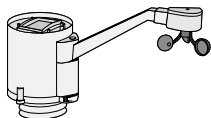
- 4. Seven (7) solenoid adapters are available to fit most valves:
 - a. Model 30-920 use with BERMAD series 200, HIT series 500, DOROT series 80, GRISWOLD series 2000, DW and BUCKNER series VB valves
 - b. Model 30-921 use with RAIN BIRD DV, DVF, PGA, PEB (1" only), GB, EFB-CP, BPE, PESB (1" only) and ASVF valves
 - c. Model 30-922 use with HUNTER series ASV, HPV, ICV, PGV, SRV, IBV and ASVF valves
 - d. Model 30-923 use with WEATHERMATIC series 12000, 21000, 8200CR valves
 - e. Model 30-924 use with IRRITROL series 100, 200B, 205, 217B, 700, 2400, 2500, 2600 and TORO series 220, P220 valves
 - f. Model 30-925 use with SUPERIOR series 950, HUNTER HBV and TORO series 252 valves (1.5" and larger)
 - g. Model 30-926 use with RAIN BIRD series PEB and PESB (1 1/2" and 2" only) valves



5. LEIT RC2ET remote control handset (version SW U:1.XX.XX EE 1.XX.XX) to communicate with up to 99 LEIT-2ET controllers.



6. LEIT WWS or LEIT WWSE ambient light (solar) powered wireless weather station used to transmit weather data to the LEIT-2ET controller.



1.3 Tools and Supply Requirements

1. Standard wire stripper.
2. Phillips screwdriver (#1) if using the valve clip attachment or the mounting column plastic attachment, or Phillips screwdriver (#2) if using the valve box mounting dome.
3. Concrete: approximately one (1) 90 lb (40 kg) bag, if using the mounting column installation.
4. **WATERPROOF WIRE CONNECTORS** (not included).

1.4 Quick Installation Setup and Operation Review

In order to establish communication for the first time between a LEIT RC2ET handset and LEIT-2ET two station weather based, ambient light (solar) powered wireless irrigation controller and the LEIT WWS or LEIT WWSE weather station, the following steps must be taken:

1. Charge the LEIT RC2ET handset (see LEIT RC2ET instructions).
2. Set up the LEIT RC2ET handset (see LEIT RC2ET instructions).
3. Install the LEIT-2ET controller following the LEIT-2ET installation instructions, see Section 2, then set it out in the light for initial charge.
4. Install the LEIT WWS (with wind sensor) or LEIT WWSE (without wind sensor) weather station following the installation instructions inside each box and allow the controller and weather station to harness light energy. After the weather station has been installed, no wire connection or programming is required for the unit's operation.

- a. In bright light conditions (full sun) charging the controller will take under 30 min.
 - b. In shaded conditions charging the controller could take up to 2 hours.
 - c. Communication between the remote control handset and the controller can only initiate when the controller is fully charged.
 - d. Communication between the controller and the weather stations will initiate every hour, and only when the controller and the weather stations are fully charged and the controller ET feature is activated.
5. Follow instructions on page 18, 19 and 20, on how to establish initial communication between a LEIT-2ET controller and LEIT RC2ET remote control handset.

2.

Installation

NOTE: Install the LEIT WWS and/or LEIT WWSE at a minimum of 25 ft (8 m) from the nearest LEIT-2ET controller.

2.1 Solenoid and Valve Installation

NOTE: Maximum operating pressure is up to 150 PSI (10.5 BAR).

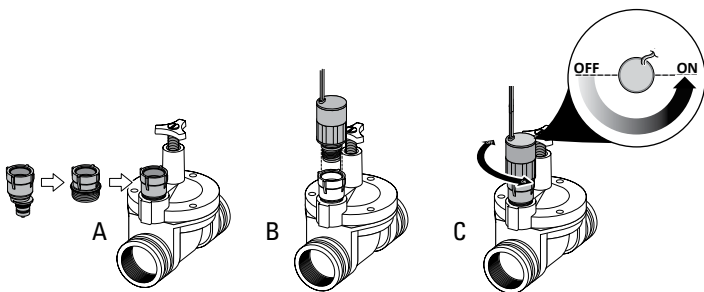
Use DIG's 305DC-XXX valve or Model S-305DC solenoid and select the appropriate conversion adapter for the valve(s) that will be used with the S-305DC solenoid (see list on page 9, #4).

1. Shut off the main line to the valve.
2. Install the valve (model 305DC-XXX) or unscrew the conventional solenoid from the valve installed and remove the solenoid housing, solenoid stem, plunger, spring, and O-ring (if necessary).
3. Select the appropriate conversion adapter(s) for the valve(s) (see list on page 9, #4).

IMPORTANT: Do not remove existing O-ring on BUCKNER and SUPERIOR valves. When installing adapter on BUCKNER and SUPERIOR valves remove the adapter sleeve (model 30-424) before installing.

4. Thread and tighten the conversion adapter clockwise to the compatible valve port. Do not over tighten (see A).

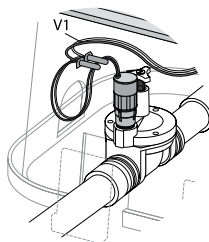
5. Screw model S-305DC solenoid into the selected adapter. Tighten the solenoid by hand, but do not over tighten (see B).



6. After installation is complete, turn the water supply on and pressurize the main line. The valves will open momentarily and then shut off. Test each valve in manual operation by turning the solenoid to the left a half turn or until the valve opens (see C).
7. Splice the solenoid hot wires (red) to the controller incoming station wire (V1 red). Splice the solenoid white wire to the single incoming white wire (V1). If needed, repeat for the second valve. **USE 2 CONVENTIONAL DRY-SPLICE WATERPROOF CONNECTORS.** Leave slack on each side of the wires so that repairs can be carried out easily.

NOTE: The solenoid operates only with 2-way normally closed valves.

NOTE: V1 may be identified by label or striped wires.



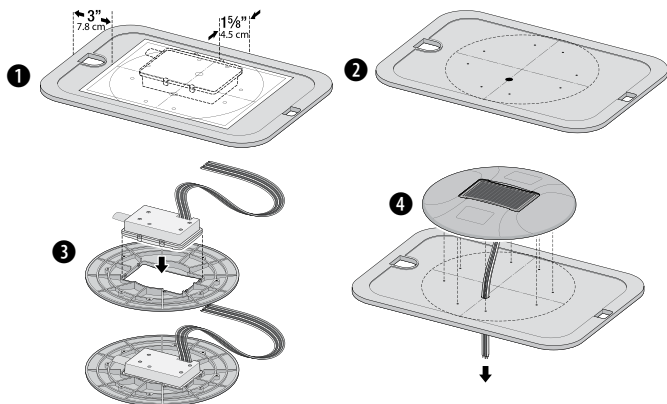
IMPORTANT: If a valve remains open in manual operation, you may need to examine the solenoid adapter and sleeve to see that they are installed correctly and the adapter is firmly secured. Do not over tighten the solenoid to the valve and do not cross thread the adapter into the solenoid cavity.

CAUTION: For all valves with built-in internal manual bleed lever, make sure the lever is in closed position. Do not move the lever after installing the solenoid with the valve adapter. If the manual lever on the valve is used, it can damage the adapter or the sleeve, causing the valve to stay open.

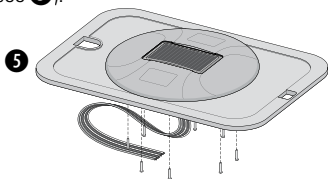
2.2 Controller Installation

Option A: Valve Box Mounting Dome, color: green (model 30-830), tan (model 30-835) or purple (model 30-836)

1. Lay the template on top of the rectangular or round irrigation box cover and drill 4-8 holes, make sure to review the template position on the valve box before drilling (see drilling instruction on the template) using 1/4" (.250") (6 mm). The holes are used to hold the mounting dome to the irrigation box cover. Using the same template, drill a single hole using a 1/2" (.500") (12 mm) drill bit to allow the wires from the controller into the valve box cover (see ①-④).

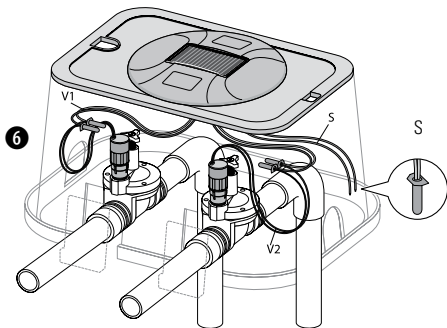


2. Insert the controller into the mounting dome (see 3).
3. Insert the controller wires into the valve box cover (see 4).
4. Use #2 Phillips screwdriver to attach the mounting dome to the valve box cover with the #10 Phillips head screws that are included with the mounting dome (see 5).



5. There are 6 wires (or three sets) from the controller, one (1) pair for each valve and one (1) pair for sensor connection (labeled V-1, V-2 and S on the housing where the wires enter the controller). Connect the controller's output station wire (V1 red) to the hot wires (red) on the solenoid. Then connect the controller's output station common wire (V1 white) to the white wire on the solenoid **USING CONVENTIONAL DRY-SPLICE WATERPROOF CONNECTORS**. Repeat the same steps for station 2. Leave slack in the wires on each side so repairs can be carried out easily (see 6).

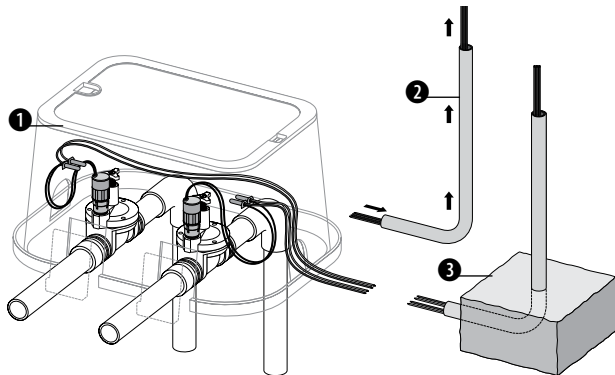
NOTE: V1 may be identified by label or striped wires.



6. Reattach the valve box cover on top of the valve box and, if available, lock the cover to the box (recommended) (see 6).

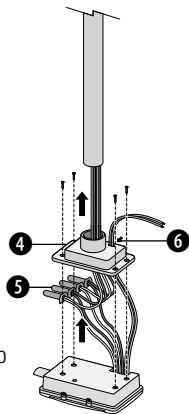
Option B: Mounting Column (model 30-831)

1. Excavate a trench from the valve to the column location and then pull a set of colored wires from the valve area to the mounting column location (one (1) pair for each valve). Each pair should consist of one (1) white wire, and one (1) red or colored wire, preferably of differing colors. Each pair should be taped and marked separately at both ends, so that the wires do not get cross-connected (see 1).
2. Insert the pairs of wires through the bottom of the mounting column and push the wires up through the column until at least 6" (15 cm) of wire extends from the top of the mounting column (see 2).
3. Install the mounting column, setting the curved bottom of the mounting column in an 8" x 8" x 6" (20 x 20 x 15 cm) frame and pour in the 90 lb (40 kg) sack of cement (see detailed illustration). Make sure the column is vertical and the opening in the curved bottom is accessible and unclogged (see 3).

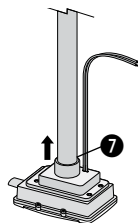


IMPORTANT: Make sure the cement pad is dry before continuing installation.

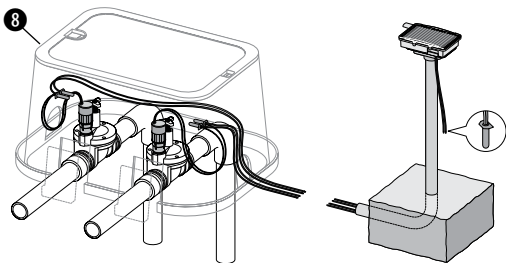
4. Pull the two (2) pairs of field wires from the valves through the center hole in the bottom of the mounting plastic bracket (see 4). There are three (3) sets of wires from the controller, one (1) pair for each valve and one (1) pair for sensor connection (labeled V-1, V-2 and S on the housing where the wires enter the controller). First, trim the controller's valve wires to about 3-4" (7-10 cm) from the controller and then connect the controller output station wire (V1 red and white) to the incoming wires (#1 red or colored and white) using two (2) small **WATERPROOF WIRE NUT CONNECTORS**. If necessary, repeat the same procedure for valve #2 using the wires labeled V2 (see 5). Next, bring the two (2) yellow (or yellow and black) sensor wires through the small hole on the side of the mounting bracket (see 6). Finally, place the wires with nuts inside the bracket body and secure the plastic bracket into the controller using the four (4) small Phillips screws provided (see 5 - 6).



5. Next, apply a thin layer of cement glue (included with the column) to the top on the outside area of the column and slide the controller mounting bracket into place on top of the column (see 7).

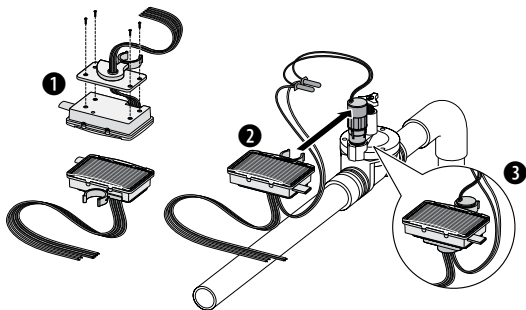


6. At the valves, connect the incoming station wire (V1 red) to the hot wires (red) on the solenoid **USING CONVENTIONAL DRY-SPLICE WATERPROOF CONNECTORS**. Connect the controller incoming station common wire (V1 white) to the white wire on the solenoid **USING CONVENTIONAL DRY-SPLICE WATERPROOF CONNECTORS** and, if needed, repeat for the second valve and sensor. Leave slack in the wires on each side so that repairs can be carried out easily (see 8).



Option C: Valve Clip Attachment Bracket (model 30-832)

1. Slide the wires from the controller into the valve clip attachment bracket and connect the valve clip attachment bracket to the controller using the four (4) screws included (see 1).



2. Connect the incoming station wire (V1 red) to the hot wires (red) on the solenoid **USING CONVENTIONAL DRY-SPlice WATERPROOF CONNECTORS**. Connect the controller incoming station common wire (V1 white) to the white wire on the solenoid **USING CONVENTIONAL DRY-SPlice WATERPROOF CONNECTORS** and, if needed, repeat for the second valve and sensor. Leave slack on each side of the wires so that repairs, if needed, can be made easily (see 2).

NOTE: V1 on the bottom of the housing where the wires enter the controller.

3. Attach the controller into place on the top of the solenoid (see 3).

2.3 Maximum Wire Run

100' (30 m) using 18 AWG (0.75 mm) solid core direct burial irrigation wire

200' (60 m) using 14 AWG (2.5 mm) solid core direct burial irrigation wire

300' (90 m) using 12 AWG (4 mm) solid core direct burial irrigation wire

3. Initial LEIT-2ET Connection

3.1 Connecting to a LEIT-2ET controller for the first time

NOTE: Prior to initial LEIT-2ET connection, LEIT RC2ET handset Client ID must be set at AAA (factory default setting).



In order to begin communication with a new LEIT-2ET controller using the handset, a series of initial setup steps must be made. First, the user connects to the LEIT-2ET controller via CONTROL ID 00 DEFAULT SETUP. Next, the user must assign the controller a new Control ID (recommended ID # 2-99). At this stage, the user can also change the existing Client ID of the controller (controller default Client ID is AAA) as long as it is also changed on the handset after exiting the controller program. In addition a descriptive controller address or name can be assigned to the controller with up to 14 characters to uniquely identify the location of each LEIT-2ET controller on the system.











Step 1: Make sure the LEIT-2ET controller is out in bright light to harness light energy used to power the controller. It will take about 30 minutes, or less, in direct sunlight.

Step 2: Splice the two (2) yellow (or yellow and black) sensor wires together using waterproof connectors. This splice will indicate that the controller is ready to communicate with a LEIT RC2ET remote control handset.

Step 3: Connect via RADIO UPLINK screen:

- a. On the LEIT RC2ET remote control handset's MAIN MENU, press  and highlight RADIO UPLINK icon. Press  again, and CONTROL ID: 00 DEFAULT SETUP with the first 0 blinking appears. Press  again to connect. ARE YOU SURE? screen appears with RADIO UPLINK icon selected. Press  again to connect.

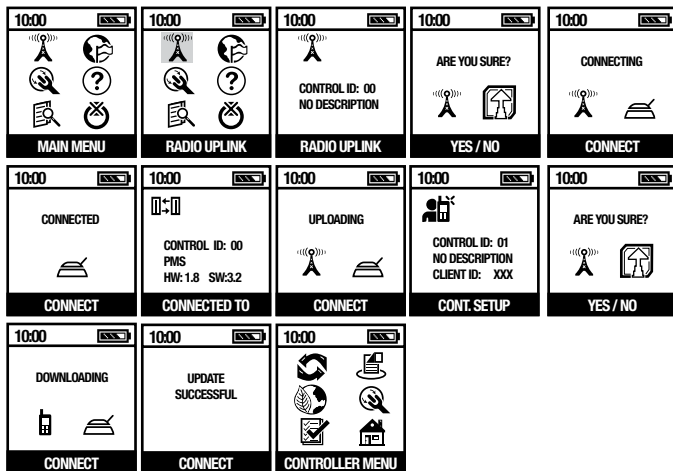
CONNECTED appears momentarily, then, CONTROL ID: 00, NO DESCRIPTION appears. Press  again and CONTROL ID: 01, NO DESCRIPTION appears with  blinking. At this point the user can assign a new controller ID.

- b. To assign a controller ID, press  or  and enter a number (1-9) for the first digit. Press  and repeat the steps with the second digit (we recommend changing the ID number to a number higher than 01). Next, assign description, name or address (recommended). The default is NO DESCRIPTION. Press  and the first letter of NO DESCRIPTION is blinking. Press  or  and enter a letter for the first digit. Press  and repeat the steps for each letter. After completion, press  to download the new information with the new ID number and address. Use the new ID number to connect to this controller and use the address or name to identify the controller location.
- c. Setting a new client ID (A-Z): The default ID is AAA (this is a security feature). If the controller CLIENT ID is changed from AAA to other letters, the user must update the handset to the same client ID after exiting the controller program. Repeat the steps to select a new ID. When finished, press  to connect and upload the new information. ARE YOU SURE? screen appears. Press  again to download the information. UPDATE SUCCESSFUL message will appear momentarily confirming that the controller received the information and Setup is updated and complete. After the update is completed the SETUP MENU appears. Exit SETUP MENU and the controller is ready to program.

The user can now easily connect back to this controller using the newly assigned CONTROL ID and CLIENT ID. Repeat the steps to program additional controllers.

NOTE: When connecting to a LEIT-2 controller, the controller and handset CLIENT ID must be the same.

ATTENTION: The two yellow (or yellow and black) sensor wires are left connected so the RAIN OFF alert will not appear. If a rain sensor needs to be added, see Section 4 – Using a Sensor.



4. Using a Sensor

NOTE: Do not install a sensor until the controller has been given an ID # by the LEIT RC2ET remote control handset.

4.1 Sensor Installation

Remove the **WATERPROOF CONNECTORS** from the LEIT-2ET controller's yellow (or yellow and black) wires and splice them. Splice the sensor's two, normally closed (N/C), black wires. Connect one of each yellow wire or one of the yellow and black wires from the controller with one of each black wires from the sensor using **WATERPROOF CONNECTORS** (if sensor is connected, the sensor will override the program when triggered).

4.2 Compatible Sensors

Sensors compatible with LEIT-2ET controllers:

Rain sensor: ... HUNTER MINI-CLICK II (model 502) and the RAIN BIRD RSD

Moisture sensor: IRROMETER RA and TGA series

Freeze sensor: HUNTER FREEZE-CLICK

5. Troubleshooting

The LEIT-2ET weather based wireless irrigation control system is comprised of the LEIT-2ET two station ambient light (solar) powered wireless irrigation controller with a rain sensor connection, the LEIT RC2ET remote control handset, and the LEIT WWS or LEIT WWSE ambient light (solar) powered weather station.

The LEIT-2ET weather based wireless irrigation control system is a series of components consisting of the LEIT-2ET two station weather based ambient light (solar) powered wireless irrigation controller, the LEIT RC2ET remote control handset, the LEIT WWS or LEIT WWSE weather station, the S-305DC solenoid, with or without a hydraulic control valve, solenoid adapter and three (3) mounting configurations.

It is best to troubleshoot this DC system (like an AC system) by a process of elimination with the goal being to determine which component(s) has failed. The following facts and tips may be helpful to eliminate certain components and facilitate faster troubleshooting. It is assumed that these are installed controllers that are receiving the proper amount of light. Keep in mind that the problem may be with more than one component.

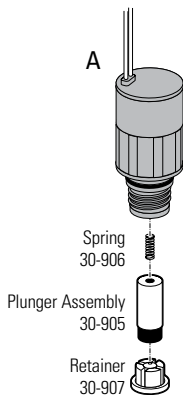
5.1 Troubleshooting Controller

1. To test the controller's output, connect a solenoid to one of the controller's red and white wire pairs. Institute a test run via the handset with one (1) minute on the station in question and zero (0) minutes on the other station. If the solenoid is not installed, verify that the plunger retracts and extends or that you hear the sound of the plunger latching. If the solenoid is installed onto a valve, see that the valve turns on and the sprinklers or drip system is working. If it does not turn on, the plunger does not retract and extend, or no sound is heard of the plunger latching, repeat the process using a second solenoid. If the problem continues you may have an issue with the controller wires and the **WATERPROOF CONNECTORS**.
2. The LEIT-2ET controllers function only with S-305DC solenoids or 305DC-XXX valves.
3. The LEIT-2ET controllers function only with compatible sensors (HUNTER MINI-CLICK or RAIN BIRD RSD).

5.2 Troubleshooting Solenoids

1. Verify that the correct solenoid and adapters are being used for the valve in question.
2. Verify that the white and red wires from the solenoid are connected to the white and red wire pair on the controller and that these splices are tight and corrosion free.
3. Verify that no water is leaking externally near the adapter, stem, or bonnet.
4. Verify that all O-rings and/or rubber hoses are in place; if in doubt check the adapter and the solenoid.
 - a. To test S-305DC solenoid, remove the solenoid from the valve and disconnect the hot and common wires. Verify the solenoid functions properly using a 9-volt battery by briefly touching the wires to the positive and negative contacts. Reverse polarity if nothing happens. Plunger should retract. Reverse polarity to close (plunger should extend and a sound of the plunger latching should be heard).

- b. If the solenoid does not function with a 9-volt battery, check the battery. If the problem with the solenoid continues after using a second battery, it should be replaced.
5. If the valve is weeping or not closing completely, the adapter being used with the S-305DC solenoid may be loose, cross-threaded, or missing an O-ring, the adapter sleeve could be damaged, or the valve diaphragm inside the valve could be in need of cleaning or replacement.
6. If the valve is not opening completely, the adapter being used with the S-305DC solenoid may be too tight, the adapter sleeve could be damaged, or the valve water passage down stream may be plugged and in need of cleaning.
7. Solenoid parts list (see A).

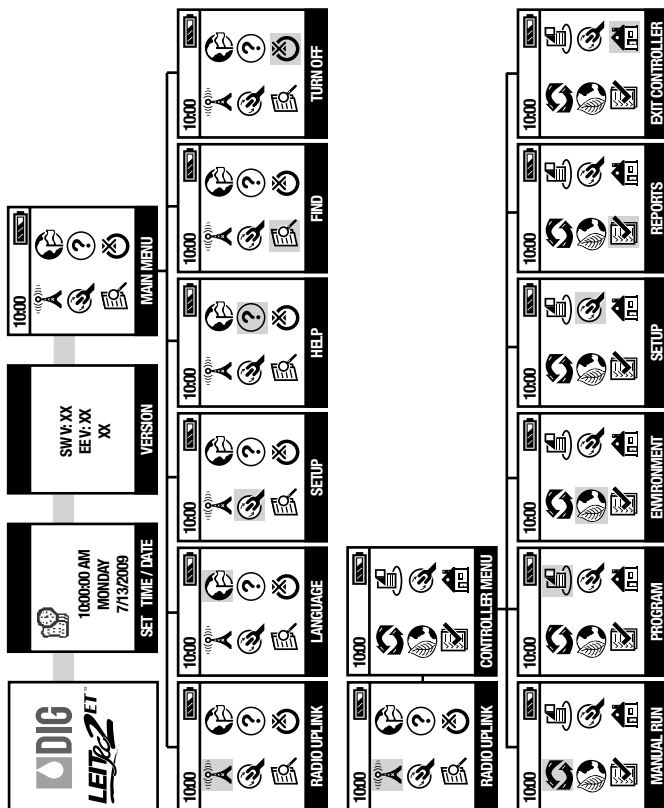


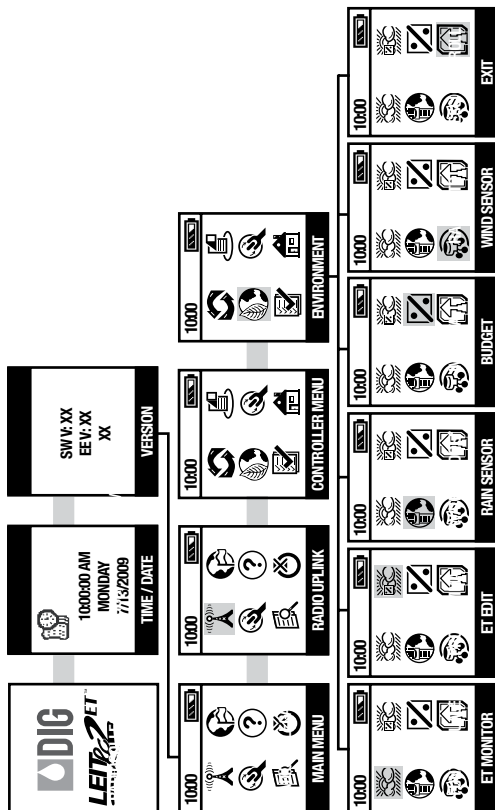
5.3 Troubleshooting Hydraulic Valves

1. Verify that the valve opens and closes. If it does not, the problem is with the valve.
- a. Verify that the static mainline pressure at the valve is below 150 PSI (10.5 BAR) and above 10 PSI (.7 BAR).
- b. Verify that the valve size is correct for the flow rate of the system.
- c. The S-305DC solenoid should be installed only on normally closed 2-way valves.

5.4 Troubleshooting Control Valves

1. Verify that the white common wire is connected to the white common wire on the controller and that the wire is from the same pair.
2. Verify that common and hot wire splices at the valves or splice boxes are tight and made with **WATERPROOF CONNECTORS**.
3. 12 and 14 AWG direct burial single strand solid core irrigation wires are recommended; do not use multi-strand wires.
4. The controller software can detect wire faults or wire shorts on each valve. To review, select the REPORTS icon, then in the REPORTS MENU screen select the CURRENT STATUS icon to review.





DIG CORPORATION warrants these products to be free from defects in material and workmanship for a period of three years from date of purchase. This warranty does not cover damage resulting from accident, misuse, neglect, modification or improper installation. This warranty shall extend only to the original purchaser of the product for use by the purchaser. The obligation of DIG CORPORATION under this warranty is limited to repairing or replacing at its factory this product which shall be returned to the factory within three years after the original purchase and which on examination is found to contain defects in material and workmanship.

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In order to obtain performance under this warranty, the unit must be returned to the factory, along with proof of purchase indicating original date of purchase, shipping prepaid, addressed as follows:

DIG CORPORATION, 1210 Activity Drive, Vista, CA 92081-8510. Repaired or replaced units will be shipped prepaid to the name and address supplied with the unit returned under warranty. Allow four weeks for repairs and shipping time. Repair of damaged units not otherwise within warranty may be refused or done at a reasonable cost or charge at the option of DIG CORPORATION.

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