

# **LEIT WWS** *and*

# **LEIT WWS**

**Ambient Light Powered  
Wireless Weather Station**



**OPERATING INSTRUCTIONS**

**DIG**<sup>®</sup>  
CORPORATION

English

## Table of Contents

A. Introduction .....	3
B. About the LEIT WWS and LEIT WWSE Weather Stations .....	3
C. Unit Identification .....	4
D. Technical Assistance .....	4
E. Copyright and Compliance .....	5
F. Features .....	6
1. System .....	8
2. Installation .....	10
3. Quick Operation Review .....	11
4. Maintenance .....	11
5. Warranty .....	12

## A. Introduction

Thank you for purchasing DIG's LEIT WWS (with wind sensor) or LEIT WWSE (without wind sensor) wireless, ambient light (solar) powered weather station, which operates as a part of the LEIT-2ET wireless, ambient light (solar) powered irrigation system. This manual describes how to get the LEIT WWS or LEIT WWSE weather station up and running quickly. After reading the manual and becoming familiar with the basic functions of the weather station, the user can refer to the manual for less common tasks in the future.

## B. About the LEIT WWS and LEIT WWSE Weather Stations

DIG's LEIT WWS and LEIT WWSE wireless weather stations are independent, column mounted, weather measuring instruments powered by ambient light (solar). The LEIT WWS and LEIT WWSE weather stations continually gather data on weather conditions from the surrounding area and simultaneously transmit the data once every hour during daylight hours to any LEIT-2ET and/or LEIT XRC-ETS controller at a distance of up to 350' (100 m) line of sight. The weather data collected and transmitted by the weather station's sensors is used in the calculation of the daily local microclimate evapotranspiration (ET).

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. Site information is entered into the LEIT RC2ET handset and is downloaded into the LEIT-2ET controller. With the site information and the hourly weather data received from the LEIT WWS or LEIT WWSE weather station, the LEIT-2ET controller calculates the daily local microclimate evapotranspiration (ET) and uses it to make a daily adjustment or override of the scheduled irrigation program.

**NOTE:** The LEIT WWS and LEIT WWSE wireless weather stations' weather condition data can be reviewed by the LEIT RC2ET remote handset. After installation, no further visits to the weather stations are required.

## C. Unit Identification

### INSTRUMENTS:

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

LEIT WWSE includes: thermometer, hygrometer, rain collector and solar radiation meter to monitor humidity level, temperature, solar radiation and rainfall.

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

## D. 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](mailto:questions@digcorp.com) or faxed to 760-727-0282.

Specification documents and manuals are available for download at: [www.digcorp.com](http://www.digcorp.com).

For customer assistance outside the USA, contact your local distributor.

## E. 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, CE certified, Australia and Hong Kong 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 operated 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 with radio and television reception.

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

HANDBET 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 WWS or LEIT WWSE weather stations. 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.

## F. Features

- Power is provided by an efficient photovoltaic module (PVM) and microelectronic management system fueled by ambient light (solar)
- Weather data transmitted from the weather station is stored by the controllers and reviewable by LEIT RC2ET handsets
- The weather station ID number enables any controller in range to differentiate among multiple weather stations allowing the controller to receive information from several weather stations
- Based on user input and information collected from the weather station sensors, a LEIT-2ET controller performs the calculations needed to override or adjust the daily scheduled irrigation program to compensate for evapotranspiration (ET)
- Environmentally friendly, utilizes RoHS compliant components

- The LEIT weather stations utilize 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 weather station's electronic components and sensors are completely waterproof
- The rain gauge is a self-emptying tipping bucket reading rainfall in 0.01 inch (.254 mm) increments
- The LEIT weather station's three-plate radiation shield is specially designed to protect the sensors from reflected and radiated heat
- The LEIT WWS and LEIT WWSE weather stations can provide information to the LEIT ET controllers to completely stop irrigation if it is raining, freezing or too windy
- Current weather data is provided to LEIT-2ET controllers daily, every hour, during daylight hours only
- The weather stations function both day and night in any weather and in most outdoor locations and only transfer weather data during daylight hours
- Rugged and lightweight plastic construction
- Three-year manufacturer's warranty

## Technical Specifications:

- Weather Station power requirements for normal operation:  
Minimum of 3,000 LUX
- PVM power output 35 W/M<sup>2</sup> at 100,000 LUX (231 W/M<sup>2</sup>) +/- 20%
- Input: 3,000-100,000+ LUX
- Wireless transmitter power and frequency specifications: -7 dBm @ 920 MHz / 7 dBm @ 868 MHz / -7 dBm @ 866 MHz

## Sensor Specifications:

- Humidity range and resolution: 1 to 99%  
° Relative humidity accuracy: +/- 2%
- Temperature resolution and accuracy: -40° F to +170° F (-40° F to +77° C)  
+/- 1% resistance tolerance
- Wind speed resolution and accuracy: Minimum speed 0 MPH (KPH) max speed 30 MPH (49 KPH) +/- 1%
- Rainfall resolution and accuracy: .01 inches accuracy +/- 2% @ 2" (51 mm) per hour

## Dimension and Connections:

- Weather station size: W 6.07" x H 9.5" x D 14.5" (W 154 mm x H 241 mm x D 368 mm)
- Rain collector size: W 5.13" x H 4.09" (W 130 mm x H 104 mm) [16.5 sq. in. (41.9 sq. cm)]
- Mounting connection: 1" x 12" mounting column and integrated clamp with two screws for mounting onto 1 1/2" galvanized pipe mounting column [recommended height; minimum 8 ft. (2.4 m)]

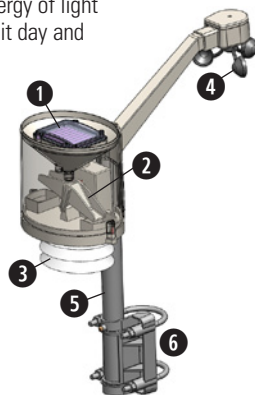
# 1. System

## 1.1 Box Contents

1. Weather sensor model LEIT WWS with wind sensor or LEIT WWSE without wind sensor
2. 12" (30 cm) mounting galvanized steel column used with mounting bracket
3. Two clamps
4. 1 1/2" mounting bracket

## 1.2 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 condition
2. Self-emptying, tipping bucket rain gauge
3. Weather sensor shield to protect the temperature sensors
4. Wind sensor
5. 12" mounting galvanized steel column
6. 1 1/2" mounting bracket with two clamps



## 1.3 System Components

To properly install the LEIT WWS or LEIT WWSE weather stations, the following components will be needed:

1. Weather station unit: LEIT WWS or LEIT WWSE ambient light (solar) powered wireless weather station
2. Mounting connection: 1" x 12" mounting column and integrated clamp with two screws (included)
3. 1 1/2" mounting column with a recommended height with a minimum of 8 ft (2.4 m) (not included)

## 1.4 Tools and Supply Requirements

1. Philips screwdriver (#2) if using the mounting column plastic attachment and 7/16" wrench or socket to tighten the U clamp to the 1 1/2" pipe
2. Concrete: approximately four to five 60 lb (27 kg) cement bags

## 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.

Install the weather station 8-12 ft. (2.4 m - 3.7 m) above the ground using a 1 1/2" pipe mounting column. Set the mounting column in a 15" x 15" x 12" (38 x 38 x 30 cm) frame and pour in the four to five 60 lb (27 kg) bags of cement. After the cement is dry, mount the weather station on the top of the mounting column following the steps below (see Figure A):

**STEP 1:** Insert the 12" column (included) into the weather station column holder and secure the clamp with the two screws.

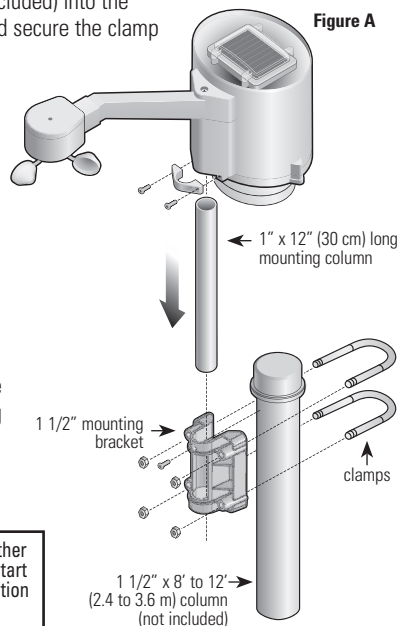
**STEP 2:** Insert the assembly into the plastic mounting bracket and secure with provided screw.

**STEP 3:** Mount the assembly to the 1 1/2" column and secure using the two clamps included

**STEP 4:** Cap off the end of the 1 1/2" pipe using a 1 1/2" galvanized cap.

Make sure the column is vertical to allow the rain gauge to operate properly. No setting, programming or wire connection is required.

After installation and after the weather station is fully powered, it will start transmitting weather data information every hour.



## 3. Quick Operation Review

In order to establish communication for the first time between a LEIT RC2ET remote control handset, 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 remote control 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 and let it sit out in the light to harness light energy.
4. Install the LEIT WWS (with wind sensor) or LEIT WWSE (without wind sensor) weather station following the installation instructions and allow the weather station to sit out in the light to harness light energy.
  - a. In bright light conditions (full sun) it will take approximately 30 minutes.
  - b. In shaded conditions it could take up to 2 hours.

**NOTE:** Communication between the remote control handset and the controller will only initiate when the controller is fully charged. Communication between the controller and the weather station will initiate every hour, in daylight hours only, and only if controller ET feature is activated (wind sensor and rain sensor are set active by user).

## 4. Maintenance

The LEIT WWS and LEIT WWSE weather stations are waterproof units, designed for outdoor use. In order to keep the weather stations clean and functioning correctly, cleaning the clear plastic above the PVM panel and the solar radiation sensor every 6-12 months is recommended.

## 5.

## Warranty

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.

DIG CORPORATION SHALL IN NO EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND; THE SOLE OBLIGATION OF DIG BEING LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Unattended use for prolonged periods without inspection to verify proper operation is beyond the intended use of this product, and any damage resulting from such use shall not be the responsibility of DIG CORPORATION. There are no warranties which extend beyond the description on the face hereof. In the case of purchase of the product for use other than, for irrigation purposes, DIG CORPORATION hereby disclaims any implied warranties including any warranties of merchantability and fitness for a particular purpose. In the case of the purchase of the product for personal, family or household purposes, DIG CORPORATION disclaims any such warranties to the extent permitted by law. To the extent that any such disclaimer or implied warranties shall be ineffectual, then any implied warranties shall be limited in duration to a period of three years from the date of the original purchase for use by the purchaser. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

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.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



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