

IRRIWISE™ PROJECT GUIDELINES

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1.0	New Manual		October 2009	Yizhar Feldman
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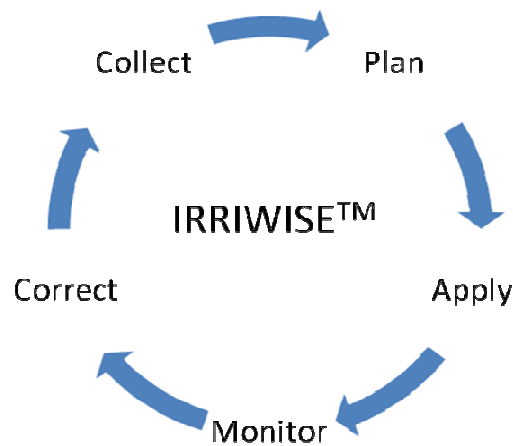
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Introduction

The objective of this booklet is to provide the appropriate tools by which to successfully implement the IrriWise™ solution. In addition, it aims to increase awareness regarding the methods that may be used to improve the performance of the IrriWise™ platform. These guidelines are not a substitute for the existing platform documentation, but rather serve as a complementary, practical handbook for the IrriWise™ project.



Planning and Design

The following list of key elements will help you gather relevant information by which to design the most suitable IrriWise™ solution for your customer in terms of technical and agronomical needs.

- A. Crop Type**
- B. Variety Segmentation**
- C. Soil Type**
- D. Topography**
- E. Climate**
- F. Irrigation Method**
 1. Shifts/blocks/physical size plan
 2. Flows
- G. Utilities Infrastructure**
- H. Cellular Coverage (GSM/GPRS)**

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Quotation

The quotation is an excel sheet containing a detailed list of product part numbers and quantities for the required IrriWise™ solution.

A. Infrastructure

1. Poles (receiver, repeater, iRCU, weather station)
2. Rods (transmitters)

B. Sensor

1. Soil moisture sensors
2. Operational & Hydraulic sensors
3. Environmental sensors
4. Plant parameters sensors

C. Communication Solution

1. From transmitter to receiver
 - Direct
 - Repeater DC/AC
2. From receiver to PC
 - Direct
 - iRCU DC/AC

Project Preparation

The preparation stage includes a checklist of key elements to be confirmed prior to the official installation date.

*****Please read the user and installation manuals*****

A. On Site: Office Preparations

1. Designated computer (*IrriWise™ Installation Manual – Chapter 2*)
2. Software

Please make sure to follow this checklist:

- IrriWise™ manager software (ask the CMT for the most updated version)
 - IrriWise™ manager demo
 - Weather station firmware upgrade software
 - Weather station firmware (ask the CMT for the most updated version)
 - Repeater and receiver configuration software
 - Hyper terminal for weather station settings configuration
3. Communication preparations
 - Internet connection + real & static IP
 - Port number 49994 must be open
 - Create users

B. Field Preparations

1. Set drillers and holes according to sensors types
2. Set pressure and water/fertilizer meter connectors according to dripline characteristics
 - In case of water/fertilizer meter usage, make sure the hydraulic system meets the minimum required flow rate (4 pulses in less than 2 minutes)
3. 1.5" pole at the height of 2-3 meters (depending on crop type) for the weather station

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4. Volt meter and calibration kit for Plantsense installation
5. 1.5" pole at the height of at least 10 meters above the ground for receiver/repeater
(Please note: receiver and repeater equipped with a 10 meter cable, in case of solar panel usage or 30 meter in case of AC power utilization)
6. Transmitter rods
7. Cellular coverage verification (GSM/GPRS)
8. iRCU's SIM card (DATA) checked according to the specification provided by the CMT

Checklist

- A. Make sure the ordered equipment has arrived according to the packing list**
Verify that the selected frequency matches all communication equipment
- B. Connect radio equipment and confirm that everything is set**
- C. Verify that all field preparations have been completed**
- D. Contact CMT corporate personnel for checklist verification**

Installation

A well organized installation will save you valuable time at customer site.

A. At Customer's Office

1. Verify clean software installation
2. Create an explorer tree according to the place of sensors in the field
3. Check the **radio monitor** for received transmission by activating transmitters with the help of a magnet
4. Software programming and calibration
 - Soil moisture sensors – via Irriwise™ manager
 - Weather station configuration - via hyper terminal
5. Create an Irriwise™ manager software backup on the user and technician's PC

B. In the Field

1. Sensors installation places and method according to agronomist's instructions
2. Transmitter installation
 - 3-4 km **Line Of Site** to receiver or repeater
 - Protect stations (cables, transmitters, sensors) from rodents, foxes, birds or harmful machinery
3. Installation of receiver/repeater and solar panel (if exists)
4. Using the Irriwise™ manager software (radio monitor), check transmission quality between transmitters and receiver/repeater. If improvements are needed, choose a different position or connect an antenna extension
5. List all transmitter field positions, including type and ID number details

C. Remote Users (when relevant)

1. Make sure that port 49994 is open and tunneling all incoming calls into a real and static IP at IrriWise™ server side
2. Define users at IrriWise™ server side
3. Install IrriWise™ manager at the remote user's side
4. Define contacts at the remote user's side

Training and Delivery

Following installation, it is very important to assign the required time for detailed training.

A. System Overview With Client

1. Sensor location, types and installation
 - Basic sensor troubleshooting
2. Transmitter location and communication characteristics
 - Basic troubleshooting
3. Repeater/receiver and other communication model locations
 - Basic troubleshooting

B. IrriWise™ Software Training

1. Main media windows
 - Graphs
 - SCADA
 - Reports
2. Explorer tree
 - Topology
 - Navigation
 - Drag & drop objects
3. Transmission monitoring
4. Remote users (if any)
 - User definition
 - Downloads
 - Import/export

After Sales Support

After sales support is a key factor towards a successful IrriWise™ implementation and a satisfied customer. The following list serves as a basic suggested support package.

A. Customer Visit: One week after installation

1. IrriWise™ software - technical overview
 - Conduct a transmission quality check
 - Verify that reasonable values are being received from sensors
2. Field equipment – technical overview
 - Conduct sensor installation improvements, if needed
 - Conduct communication equipment improvements, if needed
3. IrriWise™ software training review
 - Main media windows
 - Reports

B. Customer Visit: Three weeks after installation

1. IrriWise™ software - technical overview
 - Conduct a transmission quality check
 - Verify that reasonable values are being received from sensors
2. Field equipment – technical overview
 - Conduct sensor installation improvements, if needed

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- Conduct communication equipment improvements, if needed
- 3. IrriWise™ software training review
 - Main media windows
 - Reports
 - Advanced features

C. Ongoing Support

1. Over the phone
2. Via Internet
3. On customer site

Maintenance

The following list will help you ensure that the IrriWise™ system provides long lasting reliable information, with minimal effort.

A. Sensors

1. Solar panel cleaning
 - Weather station
 - Leafsen
2. Tensiometer water refill
3. Plantsense calibration
4. If sensor has been disconnected from transmitter, make sure connectors are sealed
5. In areas where temperatures decline beneath 0 degrees Celsius, make sure sensors are well protected
6. Rain gauge cleaning at weather station
7. Solar radiation sensor cleaning at weather station

B. Communication

1. Make sure transmission quality is maintained between transmitters and repeater/receiver
2. If the transmitter is not used, please make sure to:
 - Switch transmitter to **sleeping** mode
 - Pack and protect transmitter to avoid harm
 - Make sure connectors are sealed
3. Replace the batteries after three years of use
4. Check status of cables

C. IrriWise™ software

1. Make sure a backup process is conducted automatically
2. After a season, it is recommended to create an external backup
3. After a year of use, it is recommended to backup and save all data in an external library and delete unnecessary data to improve DB performance