Commercial Controllers & Central Control

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The Intelligent Use of Water.™

Agenda

- **Commercial vs Residential**

- **TBOS II Battery Operated Controller**

- **LX Controllers**
  - Traditional vs Two Wire
  - LXME
  - LXD
  - Options (ET Cartridge, Backup Cartridge, Expansion Modules, and Pedestals)

- **IQ2 Central Control**

Controller for Every Application

Residential | **Residential & Light Commercial** | **Light & Heavy Commercial**

ESP-RZX

Zone Count
Fixed Station Count — 4, 6, or 8

Key Features
Quick to program
Easy for Homeowners
Priced Right!

Características principales
Programación rápida
Fácil para el usuario de casa
¡Buen Precio!

ESP-Me

Zone Count
Modular Station Count — 4 - 22

Key Features
Fast/Flexible programming
Expandable to 22 Stations
Built to last

Características principales
Programación rápida y flexible
Expandible a 22 estaciones
De larga duración

ESP-SMTe

Zone Count
Modular Station Count — 4 - 22

Key Features
Smart Controller
20% water savings
EPA WaterSense approved

Características principales
Controlador inteligente
20% en ahorro de agua
Aprobado por el EPA WaterSense

ESP-LXME

Zone Count
Modular Station Count — 8 - 48

Key Features
Upgradeable to:
Flow Sensing
Smart Controller
Central Control

Características principales
Se puede actualizar a:
Sensor de flujo
Controlador inteligente
Control centralizado

ESP-LXD

Zone Count
Modular Station Count — 50 - 200

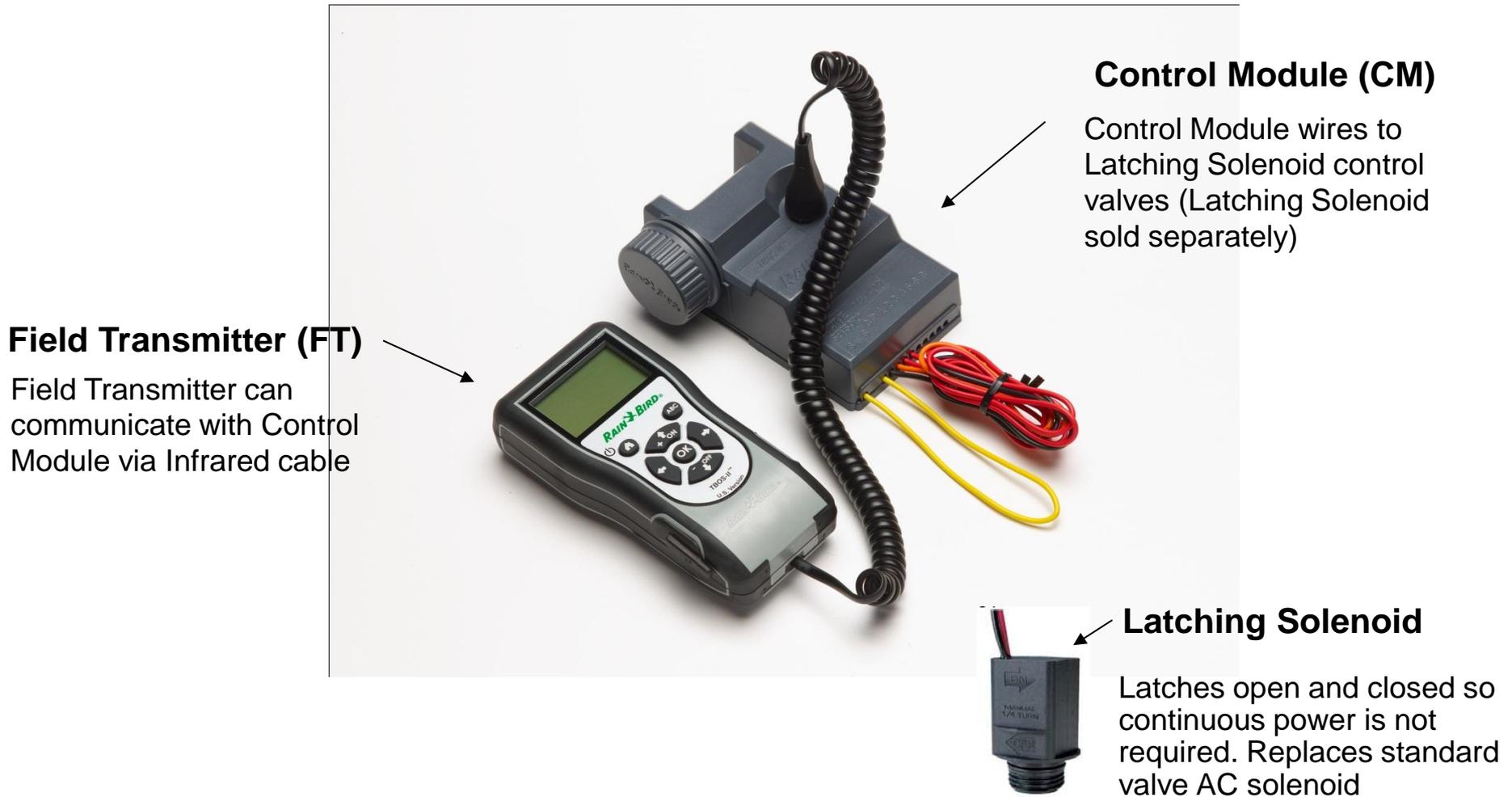### Key Features
Two Wire Decoder Controller
Same programming as ESP-LXME
Handles complex hydraulic systems

Características principales
Controlador con decodificador de 2 cables
Se programa igual que el ESP-LXME
Maneja sistemas hidráulicos complejos

RAIN BIRD

TBOS-II Battery-Operated Control System

Control Module (CM)

Control Module wires to Latching Solenoid control valves (Latching Solenoid sold separately)

Field Transmitter (FT)

Field Transmitter can communicate with Control Module via Infrared cable

Latching Solenoid

Latches open and closed so continuous power is not required. Replaces standard valve AC solenoid

TBOS-II Applications

- **TBOS-II is ideal for irrigation systems where traditional AC power isn't available or affordable**

- **Possible scenarios include:**

  - Temporary control before power is available
  - Adding a new valve to a location that is out of controller wiring
  - Sites where a standard controller could be damaged by vandalism or flooding

TBOS-II Typical Applications

- **Typical Sites:**
  - Street and highway landscapes
  - Street medians
  - Roundabouts
  - Construction sites
  - Wetland mitigation projects
  - Temporary irrigation projects
  - Retrofit projects

TBOS-II Battery-Operated Controls System Components

- **Field Transmitter (hand-held programmer)**
  - Provides configuration and programming of TBOS and TBOS-II Control Modules
    - TBOS-II transmitter works with existing TBOS controllers
  - Rechargeable NiMH batteries (batteries & charger included)
  - Can communicate directly with Control Modules via Infrared communication link
  - Multiple language support
  - Provides Control Module and station naming

ESP-LX Series Controllers

ESP-LXME Traditionally-Wired
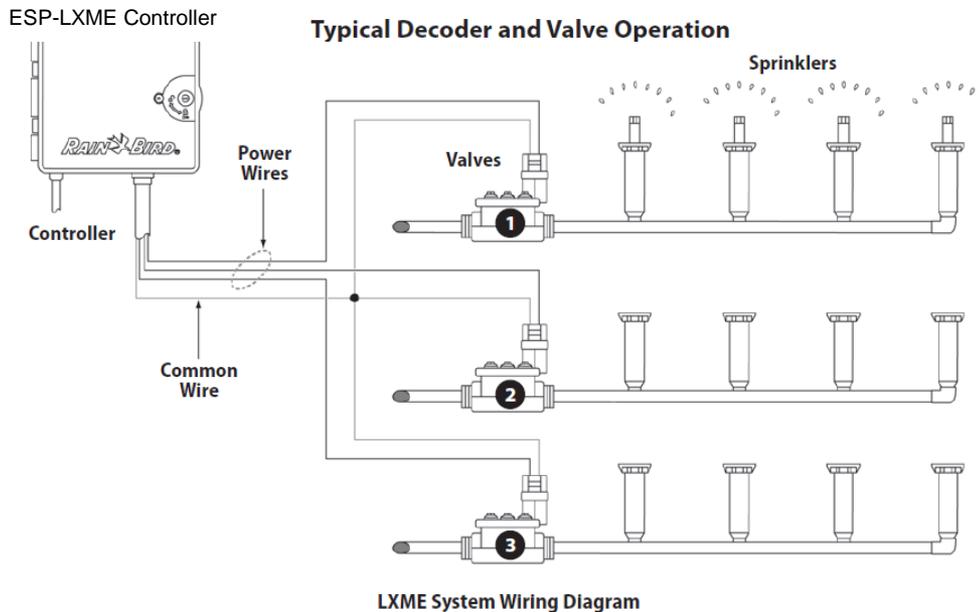
ESP-LXD 2-Wire Decoder

FD-Series Decoders
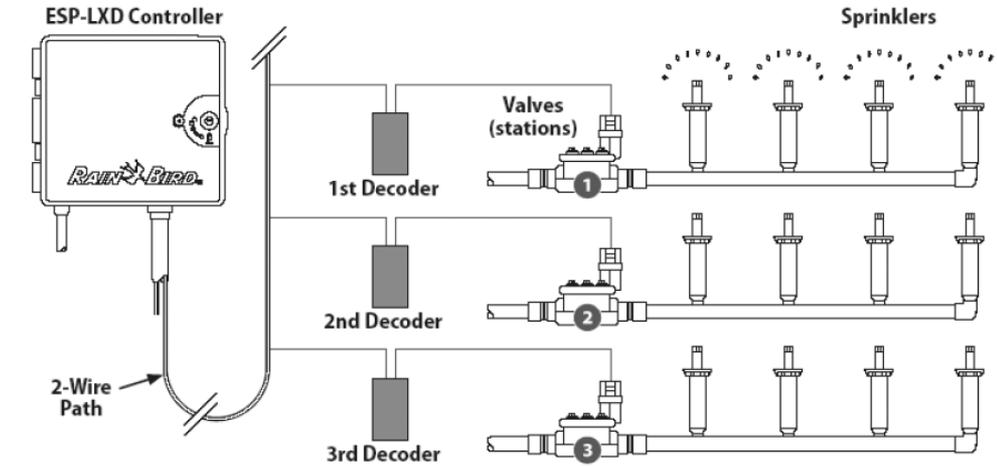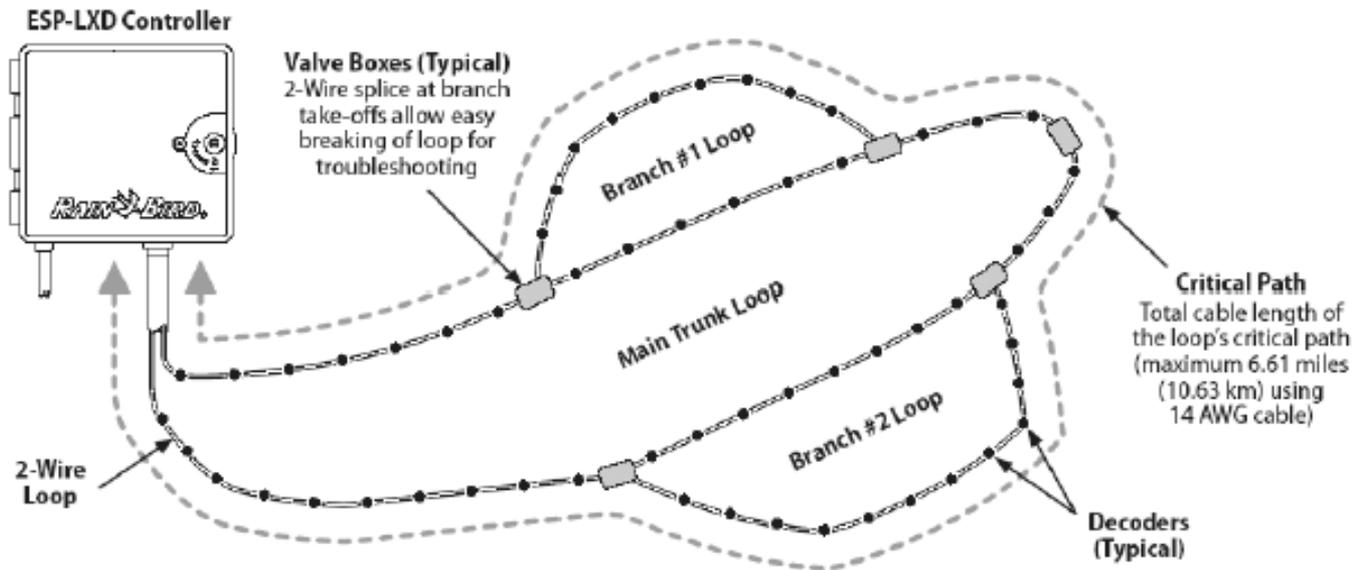## Connect to ESP-LXD by Two-Wire Path

SD-210 Sensor Decoder

FD-601 Decoder

LSP-1 Line Surge Protector

FD-401 Decoder

FD-202 Decoder

FD-101 Decoder

FD-102 Decoder

First digit = Number of Addresses   Last Digit = Number of Valves per Address

Two-Wire (TOP) Vs. Traditional (Bottom)

ESP-LXD Controller

Sprinklers

Valves (stations)

1st Decoder

2nd Decoder

3rd Decoder

2-Wire Path

Typical Decoder and Valve Operation

ESP-LXME Controller

Sprinklers

Power Wires

Valves

Controller

Common Wire

LXME System Wiring Diagram

ESP-LXD Controller

Valve Boxes (Typical)
2-Wire splice at branch take-offs allow easy breaking of loop for troubleshooting

Branch #1 Loop

Main Trunk Loop

Branch #2 Loop

Critical Path
Total cable length of the loop's critical path (maximum 6.61 miles (10.63 km) using 14 AWG cable)

2-Wire Loop

Decoders (Typical)

2-Wire Path Loop Pattern Design

Maximum Critical Path Lengths for 2-Wire Paths					
		Max. Length For Critical Path			
	Ohms per 1000' or Ohms per Km (per conductor) Miles	Star		Loop	
Nominal Wire Size		Km	Miles	Km	Miles
2.5 mm2	7.5 0hms/Km	3.00	1.86	12.00	7.46
14 AWG	2.58 0hms/1000'	2.66	1.65	10.63	6.61
12 AWG	1.62 0hms/1000'	4.23	2.63	16.93	10.52

Two Wire Benefits

- **Reduced installation time**

- **Reduced wire costs**

- **Increased wire run lengths**

- **Larger station counts**

- **More Flow Zones**
  - What is a flow zone?

- **More weather sensors**

- **More simultaneous stations - SimulStations™**

Two Wire Cautions

- **Wire – Paige Maxi Cable**
  - 14-2 UF
  - Double jacketed (PVC Outer/PE Inner)
  - Not twisted

- **Wire Connectors**
  - Rain Bird DB Connectors

- **Grounding**
  - LSP every 500 feet or 8th decoder

ESP-LX Series Controller Options
Feature Comparison

Feature	ESP-LXME	ESP-LXD
Type of controller wiring	Traditionally Wired	Two-Wire Decoder
Controller base station capacity	8 or 12	50
Station module capacity	4, 8, or 12	75
Maximum station capacity	48	200
Number of master valves	1	5
Number of flow sensors	1 (optional)	5
Number of weather sensors	1	4
Number of programs	4	4
Number of simultaneous programs	4	4
Number of simultaneous stations per controller	5	8
Number of simultaneous stations per program	5	8
Flow, power, and station management	Yes	Yes
Upgradeable to smart controller	Yes	Yes
Upgradeable to central control satellite	Yes	Yes

Simplicity and Modularity are Key

- **Same Extra Simple Programming (ESP) is shared between LXME & LXD**

- **Train users once on both controllers**

- **Many upgrades are available and some are shared**

ESP-LX Series Controller Features

- **Cycle + Soak™**
  - Breaks up station run times into increments that allow water to soak into soil
  - Helps prevent run off for sloped landscape

- **Programmable Valve Delay**
  - Ability to set up to a 10 minute station delay
  - Helps adjust for slow closing valves and system recharge time (reservoirs)

- **Sensor Override by Station**
  - Each station can be selected to obey or ignore the weather sensors
  - Allows zones that aren't affected by rain fall to continue to irrigate

- **Master Valve by Station**
  - Each station can be designated to use the master valve or not
  - Allows user to only turn on pump or open master valve for zones that need it

- **Calendar Day Off**
  - Ability to set days of the calendar to not irrigate
  - Helps with annual events

- **Total Program and Valve Run Times**
  - Quickly review the entire program without having to go to multiple screens

Features that allow you to easily upgrade

- **ESP-LXME & ESP-LXD are both modular controllers**

- **ESP-LXME**
  - ESP-LXME base configurations are 8 or 12 stations
  - Expandable to 48 (4, 8, and 12 station expansion modules available)
  - Optional pre-installed Flow Smart Module – enables flow sensing

- **ESP-LXD**
  - Base configuration is 50 stations with flow smart module standard
  - Expandable to 200 (75 station expansion module available)

- **Painted metal and stainless steel enclosures available**

- **ET Cartridge compatible – upgrades to smart controller that uses weather data to adjust schedules (ESP – ET Series are LX controllers with the ET cartridge pre-installed – cheaper than buying separate)**

- **IQ2 Cartridge compatible – upgrades to central control satellite**

Station Expansion Modules & ET Cartridge

Water Savings of 20 – 50% over traditional time based irrigation control.

Feature	ESPLXM- SM4, SM8, SM12 Station Modules	ESPLXD-SM75 Station Module	FSM-LXME Flow Smart Module
Compatible with	ESP-LXME	ESP-LXD	ESP-LXME
Module function	Increases station capacity by 4, 8, or 12 stations	Increases station capacity by 75 stations	Adds flow sensing
Installs in module slot	1, 2, 3, or 4	1, 2, 3, or 4	0
Replaces	N/A	N/A	Base Module

PBC-LXD Programming Backup Cartridge
for ESP-LXD Decoder Controller

Backup and restore programming and configuration for up to 8 ESP-LXD Controllers or store seasonal programs for a single controller

Add optional Bar Code Scanner Pen (not included in PBC-LXD package) for Decoder Address and Station Number entry

Rain Bird FS-Series Flow Sensors
built in profiles to LX Controllers

FS100B, FS150P, FS200P, FS300P, FS350B & FS350SS

- FS100B, FS150B, FS200B   Brass Tee Flow Sensors:
    - Sensor mounted in a 1", 1- ½", or 2"   brass tee
- FS050P, FS075P, FS100P, FS150P, FS200P, FS300P & FS400P   PVC Tee Flow Sensors:
    - Sensor mounted in a ½", ¾", 1", 1-½ ", 2",   3" or 4" PVC solvent weld tee
- FS350B Brass & FS350SS Stainless Steel Insertion-Style Flow Sensors:
    - Sensor for insertion in pipe saddle or   weld-o-let on 2-½" to 12" pipe diameters
- 3rd-Party Flow Meters can be used in Custom configuration mode if meter has:
    - Reed-Switch output
    - Minimum of 2 pulse/10 seconds output

Pedestals

Part Number	Model	Product Description
ESP-LX Series Controller Metal Enclosures		
F42400	LXMM	Metal Wall-Mount Enclosure for ESP-LX Series Controllers
F42410	LXMMPED	Metal Pedestal for ESP-LX Series Controllers
F42420	LXMMSS	Stainless Steel Metal Wall Mount Enclosure for ESP-LX Series Controllers
F42430	LXMMSSPED	Stainless Steel Metal Pedestal for ESP-LX Series Controllers
F42440	LXSSADAPTR	ESP-MC SS PED To LX SS PED AdapterKit

Superior features that save water/time/money compared to competition

- **SimulStations™ - Run multiple stations at once**

- **Learn Flow**
  - Controller can run the irrigation system and learn each station's normal flow rate

- **Flo-Watch™**
  - Protection for high and low flow conditions with user defined reactions.

- **FloManager™**
  - FloManager™ manages hydraulic demand to make full use of available water and shorten total watering time.
  - Doesn't require flow sensor

- **Hot swappable expansion modules**
  - No need to worry what order you put modules in, controller will dynamically number and no need to power off

Before FloManager™

Basic Programming
No Advanced Features Used

Controller Configuration:
- SimulStations™ = 1
- PGM Water Window = None
- FloManager™ = Off
- Station Sequencing = By Numbers
- PGM Seasonal Adjust = 100%

IQ Dry-Run Results:
- PGM Start Time = 10:00 PM
- PGM End Time = 11:55 AM
- Total Time = 13 Hrs & 55 Min
- Peak Flow Rate = 88 GPM
- Total Water Used = 33,995 Gal
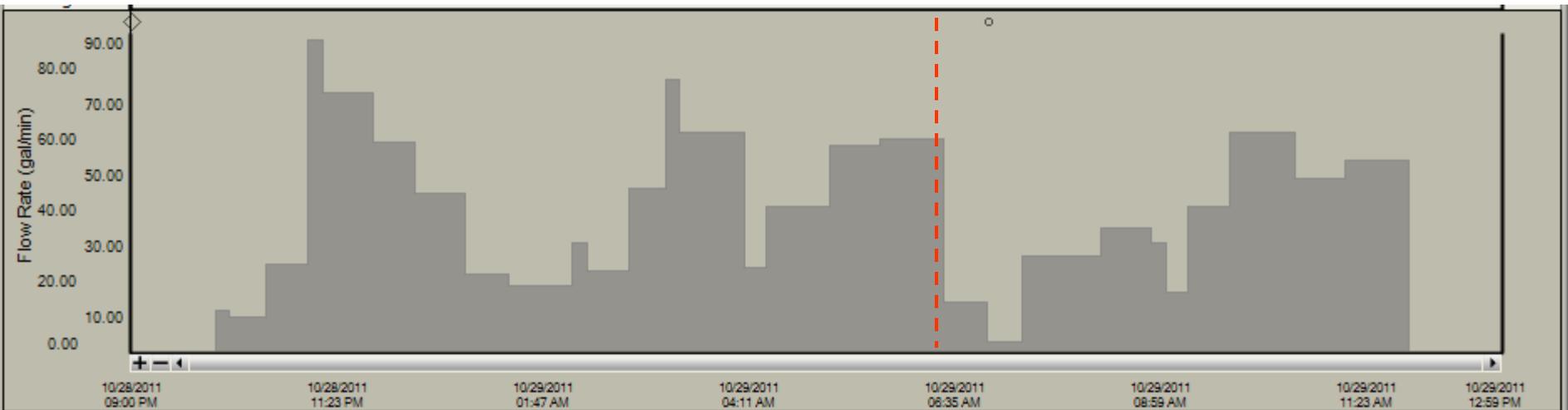
Site Watering Parameters:
- No watering allowed 6:00 am to 10:00 pm *– Watering ended at 11:55 AM*
- Water source capacity = 120 GPM *– Max = 88 GPM / Average 40.7 GPM*
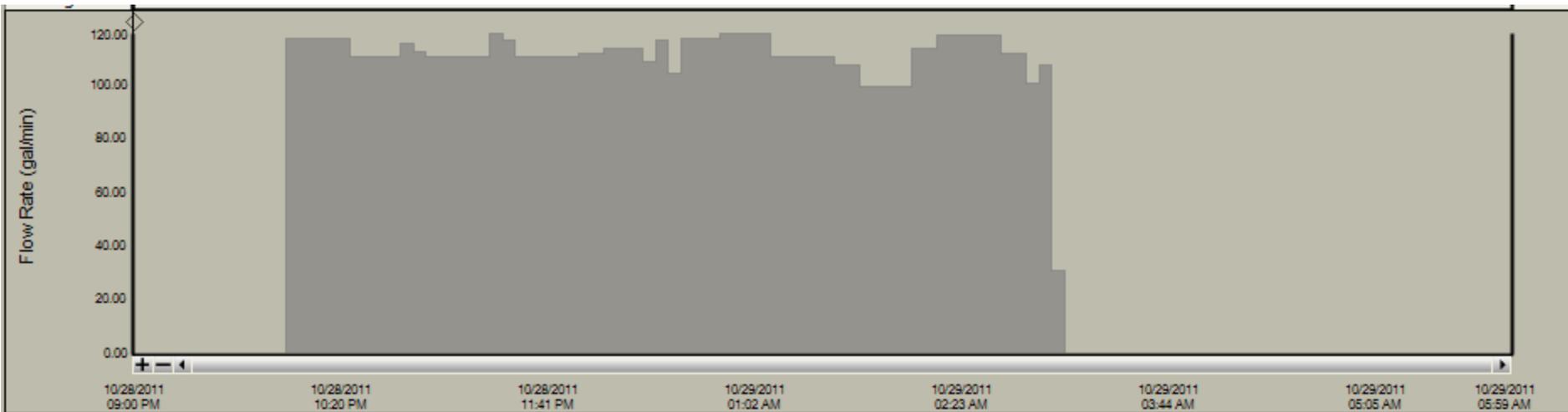
After FloManager™

SimulStations™ = 4, FloManager™ = On,

Controller Configuration:
- SimulStations™ = 4
- PGM Water Window = None
- FloManager™ = On
- Station Sequencing = By Priorities
- PGM Seasonal Adjust = 100%

IQ Dry-Run Results:
- PGM Start Time = 10:00 PM
- PGM End Time = 3:05 AM
- Total Time = 5 Hrs & 5 Min
- Peak Flow Rate = 120 GPM
- Total Water Used = 33,995 Gal
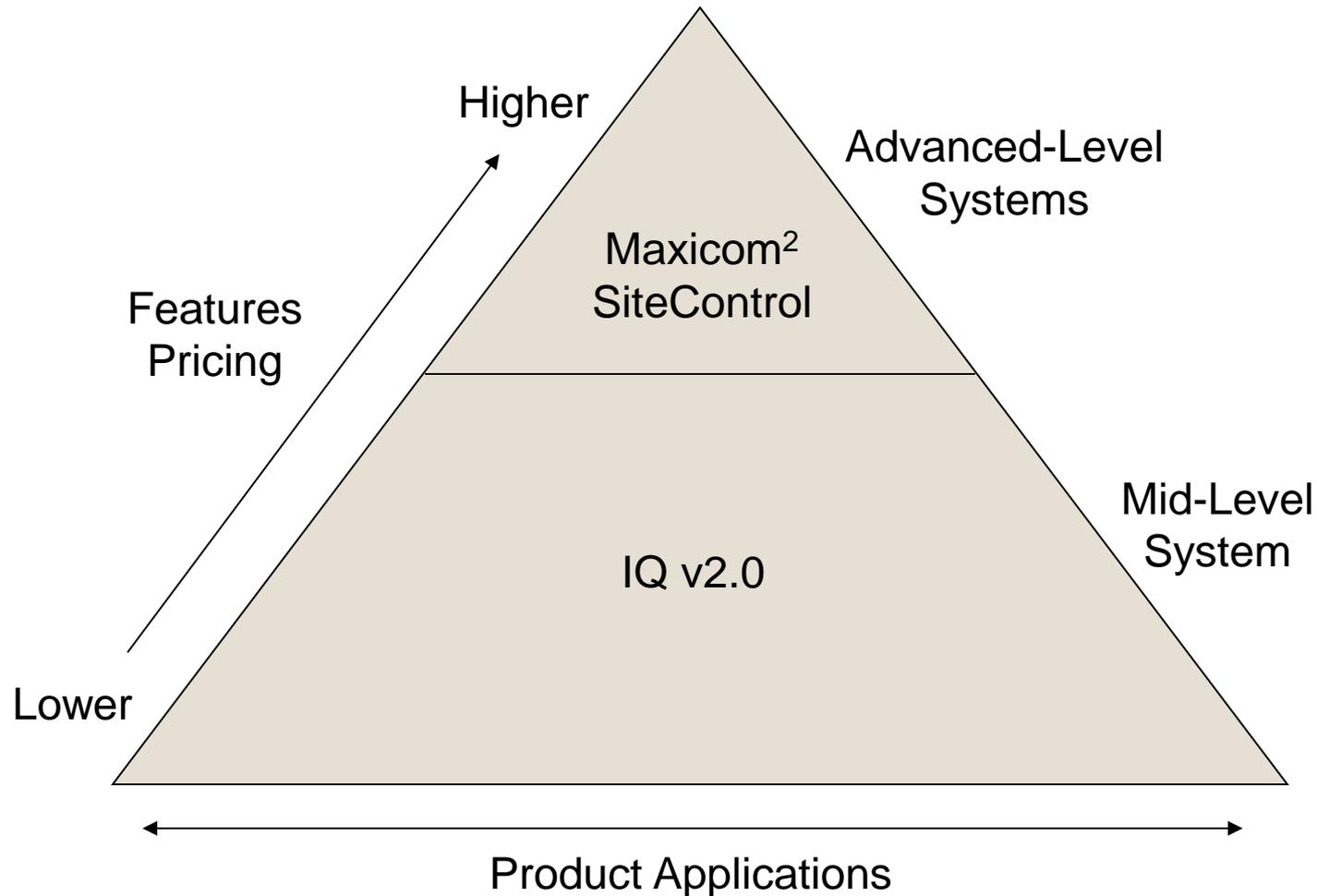

Site Watering Parameters:
- No watering allowed 6:00 am to 10:00 pm *– Watering ended at 3:05 AM*
- Water source capacity = 120 GPM *– Max = 120 GPM / Average 111.5 GPM*

Landscape Secured by IQ™

Rain Bird Commercial Central Control Product Family

Reasons Customers Buy Central Control

- Program, monitor, adjust, and manually operate remote site controllers from a computer – Saves time & labor, do more with less

- Automatically adjust controller programming based on the weather conditions – Saves water, labor, money

- Automatically react to and be notified of problem flow conditions, shutting down the valve or water source – Saves water & limits liability

- Track water usage, create reports – Show your customer or organization how much water you have saved

- Track manual operation and programming changes made at the controller – Prevent unauthorized access

IQ™ v2.0 Central to IQ Server Satellite
Communications Options
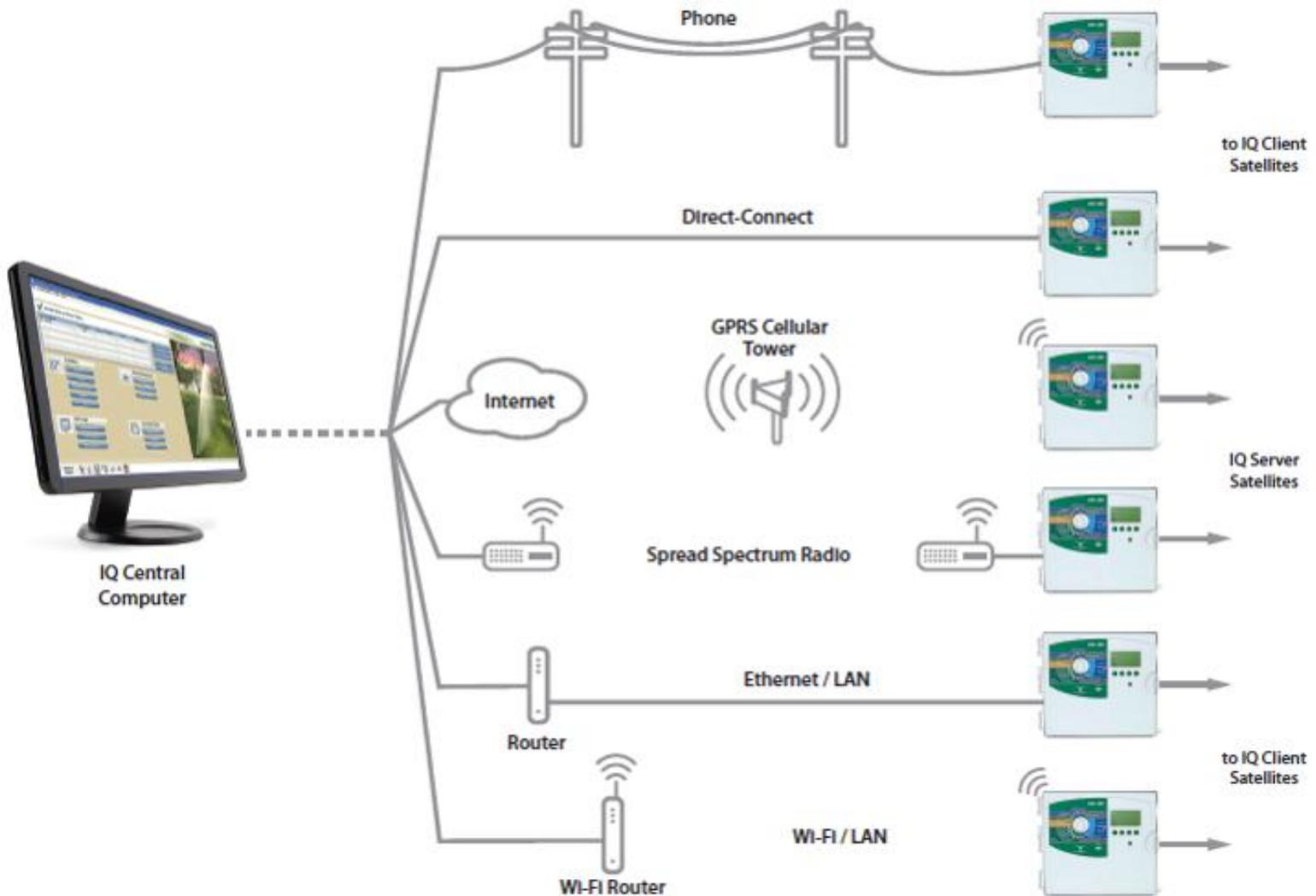
Ease of Use

- **IQ's main goal is to provide easy to use central control capabilities**

- **Try software and see for yourself**

- **http://rainbird.com/tryiq2/**

Questions

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