



QWEL

Qualified Water Efficient Landscaper

Class Nine: Irrigation Controllers



Class Nine - Controller types and functions

Overview

1. Know how a controller works and its functions
2. Be able to program conventional controllers from an irrigation schedule





Irrigation scheduling

Controller scheduling

Regular Controller: Follow the irrigation scheduling cycle

SMART Controller: Enter field data directly into controller. An irrigation audit and calculations are still needed, but the controller will perform the scheduling calculation.



Comparing conventional to ET-based scheduling data

Conventional

- ETo
- $K_L = K_c \times K_d \times K_{mc} \times K_s$
- PR
- DU
- Watering Windows
- Programs
- Start Times

ET-based

- Type of irrigation
- Plant Type
- Soil Type
- Slope
- Sun Exposure
- Watering Windows



Controller types and functions

Function of the controller

A controller efficiently manages irrigation water

1. Allows reliable automatic operation of an irrigation system
2. Typical controller features include
 - Programs
 - Runtimes
 - Start times
 - Days on/off
 - Water budgeting
 - Program stacking
 - Non-volatile memory



Controller types and functions

Types of controllers



Programmable electronic control with Lcd display

1. Requires user to program an irrigation schedule
2. Individual programs allow hydrozone grouping
 - Similar irrigation interval requirements



Controller types and functions

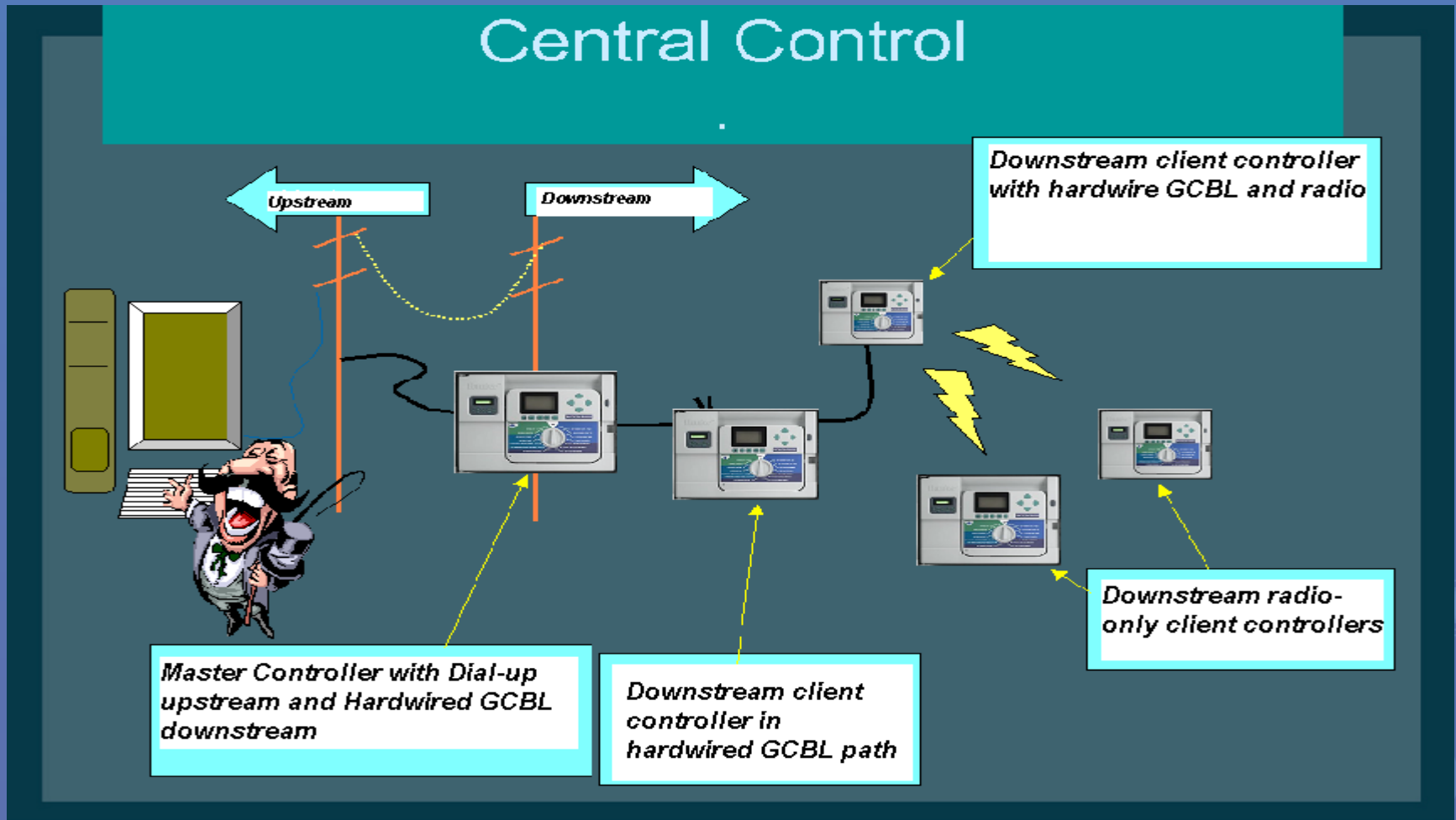
Weather based controllers

- On-site weather based ETo
 - Data download based ETo
 - Historical Eto
 - Automates irrigation scheduling calculations
- ☀ **Manufacturers provide extensive programming support and training**



Controller types and functions

Central control





Comparing conventional to ET-based programming

Conventional

- Multi-Program Layout
 - Number of cycles
 - Cycle start times
 - Watering days/interval
- Individual Station Runtimes
- Water Budgeting

ET-based

- Type of irrigation
- Plant Type
- Soil Type
- Slope
- Sun Exposure
- Watering Windows

☀ ET-based controllers automate irrigation scheduling calculations

Controller types and functions

Rain Dial programming



- LCD Screen
- Master Switch
- Master Dial
 - Date and Time
 1. Station Runtime
 2. Water Budgeting
 3. Cycle Start Times
 4. Day Watering Schedule
 - Days of the week
 - Skip Days
 - Odd/Even
- Buttons
 - Plus and Minus
 - Next
 - Semi-Auto/ Manual



Controller types and functions

Entering the irrigation schedule

	<i>Description</i>	<i>Irrigation Type</i>	<i>GPM</i>	<i>Weekly Runtime</i>	<i>Days per Week</i>	<i>Daily Runtime</i>	<i>Starts per Day</i>	<i>Runtime per Start</i>	<i>Program (A, B, C, etc)</i>	<i>Estimated Weekly Usage</i>
Station 1	Front Lawn	Spray	10	170	3	57	3	19	A	1700
Station 2	Rear Privet	Drip	15	41	1	41	3	14	B	615



Class Nine: Controller types and functions

Summary

1. Know how a controller works and its functions
2. Be able to program conventional controllers from an irrigation schedule



Class Nine

Question & Answer



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