Automation in Drip Irrigation
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Automation in Drip Irrigation

Agenda

- Where does automation fit in a drip system?
- The job of irrigation management
- Benefits of automation
- Automation system components
- System architecture
- Considerations in selecting an automation system
Typical Drip Irrigation System
Typical Drip Irrigation System

Potential for Automation

- Pumps
- Fertigation
- Field Valves
- Filtration
- Climate Control
- Monitoring
Focus on the job…

Irrigation Management

…and how to make it:

Easier
More efficient
More productive

Develop Irrigation Plan
- Crop Type
- Soil Type
- Water Source & Availability

Design & Build System
- Target application rate
- Pump - available flow & pressure
- Valve layout / block design

Consider External Drivers
- Germination
- Fertigation
- Flushing
- Water / Energy availability

Create Irrigation Schedule
- Grouping and sequence valves
- Start time
- Duration (application depth/volume)
- Frequency (crop/soil/environment)

Run Schedule
- Manual valve operation
- Local controller
- Automation system

Monitor & Adjust Schedule
- When to start irrigation
- How much to irrigate
- Weather/environment
- Is irrigation running as planned?
Benefits of Automation

Easier – More Efficient – More Productive

• Less effort to build & implement an irrigation schedule.
• Reduce time & labor to run irrigations.
• Ensure the schedule runs as planned.
• Apply water and fertilizer more precisely and at any time.
• Match water and fertilizer applications to crop needs.
• Adjust as conditions change over the season.
Valves and Solenoids

- Irrigation valves with electric control option.
- AC / DC / DC Latching solenoids react an electrical signal from controller to open/close the valve.
Automation System Components

Controller

• Direct interface to valves and pumps.
• Programmable to run on a schedule or run on demand.
• Options for local or remote programming
• AC or DC power
Automation System Components

Programming Interface

• Local via controller display or mobile app (Bluetooth).
• Remote options via app or web interface.
Optional: Remote Control

- Manage your irrigation system from anywhere
Optional: Field Monitoring

- Use field insights to drive irrigation decisions
  - Pressure
  - Flow
  - System on/off
  - Soil Moisture
  - Weather
System Architecture

- Modularity – systems can be designed to grow with your needs

**LOCAL CONTROL WITH MOBILE DEVICE**
- Directly schedule and operate valves without long wire runs
- Build confidence in Automation
- Cost effective (no data plan)

**WI-FI OR CELLULAR BASE STATION**
- Remotely manage from anywhere
- Operate multiple controllers with one schedule - no wires!
- Add monitoring devices to confirm the system is running as planned

**MULTIPLE BASE STATIONS**
- Manage large areas as one system
- Easy setup in the field
- Mix-and-match Wi-Fi and 4G base stations
Considerations for an Automation System

- Fits my workflow
- Easy to use / operate
- Easy to install
- Features / expandability
- Support
- Price / budget
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