

## IRRIGATION

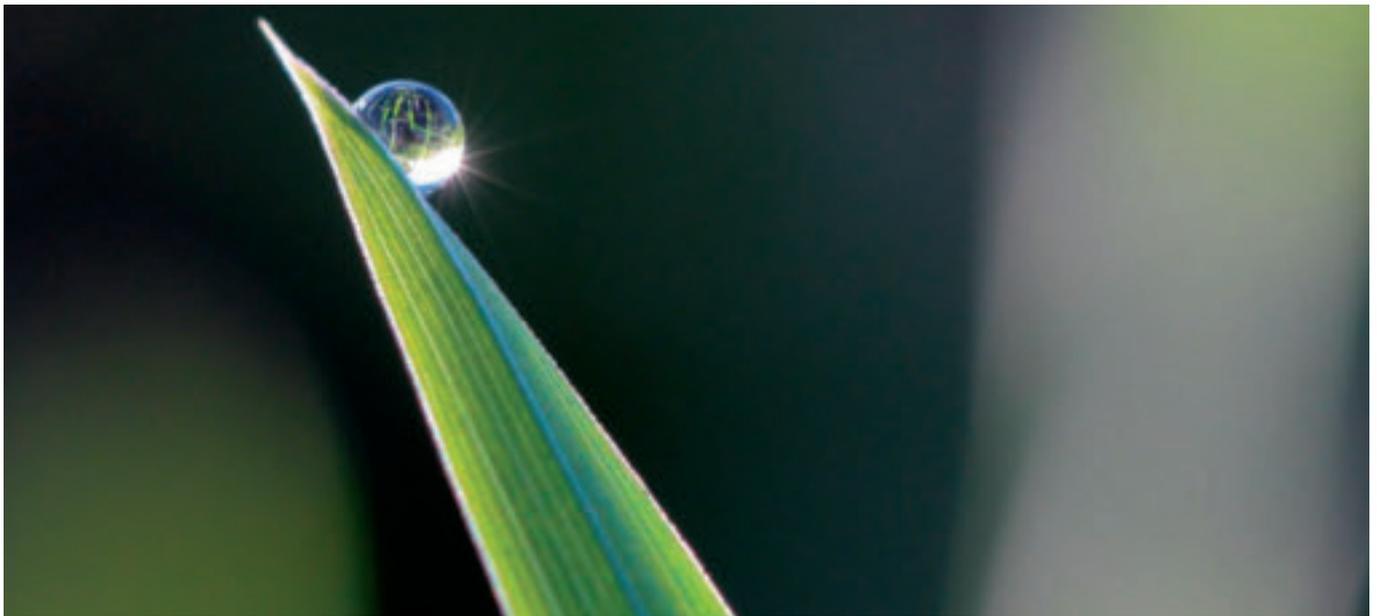
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Evapotranspiration  
Soil Moisture Monitoring  
Irrigation System Monitoring  
Pump & Valve Control

# What ADCON provides for Irrigation Management

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- **Site-specific soil moisture, temperature, and salinity**
- **A variety of soil sensors for every crop, every soil and every budget**
- **Multi-layer moisture graphs, stacked graphs, summed/averaged graphs, agronomical thresholds (e.g. full point)**
- **Easily correlate soil moisture with ETo and weather**
- **Incorporate irrigation system monitoring data to see cause and effect**
- **Ability to integrate remote valve and pump control**
- **Fully web-enabled – work through a web browser from any computer or mobile device, from anywhere, at any time**
- **WAP interface for mobile data access**



## Grower Benefits

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- **Improve crop quality and yield**
- **Avoid over-watering**
- **Avoid wasting nutrients**
- **Ensure irrigation uniformity by monitoring flow rates and pressures**
- **Know if something goes wrong with the irrigation system**
- **Save water, energy, and labor**
- **Adjust irrigation based on weather and phenological stages**
- **Detect your active root zones**
- **Get important soil information anytime, anywhere**

# Evapotranspiration (ET<sub>o</sub>/ET<sub>c</sub>)

## Replace what you use.

Simply put – evapotranspiration (ET<sub>o</sub>/ET<sub>c</sub>) is a method to estimate the water used by the crop (transpiration) and water lost to environmental conditions (evaporation) to determine the amount of water needed to replace what has been used.

Weather sensors are used to measure environmental conditions and calculate an hourly or daily ET<sub>o</sub> value.

ADCON provides premier agricultural weather stations with robust, accurate, and reliable sensors.

The ET<sub>o</sub> value calculated from the weather sensor data may be modified for the crop and growth stage by the use of crop coefficients (K<sub>c</sub>). This allows a single weather station to help schedule irrigations for multiple fields, crops, and growth stages over a wide region.

ADCON's addVANTAGE Pro software package comes with built-in crop extensions for a wide range of crops and also offers full flexibility to modify or integrate customized crop coefficients.



- 1: Wind speed
- 2: Solar radiation
- 3: Temperature & relative humidity
- 4: Rain gauge (optional)



# Soil Moisture Monitoring

## Is the water where you need it?

Soil moisture monitoring is the equivalent to having a camera in your soil. Multi-depth and multi-parameter probes allow a grower to view soil moisture, temperature, and salinity at several depths throughout the soil profile. Separate layer views allow the grower to see what is happening at each depth throughout the profile. Summed or average trends allow the whole root zone to be treated as a single sensor which works like a gas gauge showing if the root zone is full or empty.

Pressure sensors, flow meters, and rain gauges are typically used in conjunction with soil moisture sensors to determine runtime and/or volume of irrigations. This allows growers to make simple changes in their irrigation schedules to get water to target depths.

- **Depth of irrigation or rainfall events**
  - Infiltration rates for irrigation events
- **Crop water use (by depth)**
- **Irrigation runtime or volume**



# Irrigation System Monitoring

## Are you applying what was planned?

Irrigation delivery and timing can be crucial for maximizing crop quality and yield. However, simply turning the system on/off is no longer the only concern a grower may have. Scarce resources, energy prices, and government regulations can add additional challenges to scheduling and running effective irrigations.

Simple monitoring of the irrigation system itself can document the irrigations are being

applied when planned. The ADCON system can be connected to most flow meters with pulse or 4-20 mA outputs. Pressure sensors and well/reservoir depth sensors are also commonly used tools. Not only does this show when system is operating properly at designed flow rates and pressures, but it can also send alarms when something fails. Typical information from irrigation system monitoring includes:

- Volume applied
- Flow rates
- Operating pressure
- Water availability
- Changing well depths
- Leaks
- Clogged filters
- Daily, weekly, monthly, & seasonal water use
- Allocation management



# Pump & Valve Control

## Irrigate on your schedule.

### Pump Control

- The Adcon system also supports pump and valve control
- Standard Adcon RTUs supports one digital output on each I/O port
- The Adcon A553 is recommended for pump/valve control and can work with a variety of control relays
- The A553 also extends each I/O port to 7 digital outputs
- Maximum digital output support by model:
  - A723 Series 4 supports up to 7
  - A755, & A765 support up to 14
  - A760 Series 6 supports up to 21
  - A753 & A764 supports up to 28



### A724 addSWITCH

- The A724 is a RTU specialized for control of latching solenoid valves
- Transmission for distance up to 1km
- It has a specialized Switchcraft port to handle control of 4 latching valves
- A separate sensor port supports up to 4 flow meters with pulse outputs and one analog sensor

### addTIMER for addVANTAGE Pro

- The addTIMER is a specialized extension for addVANTAGE Pro and allows an irrigation manager to schedule pump & valve control
- Multiple sets/shifts can be set up and scheduled
- Sets/shifts can be run manually as well as automatically



# Remote Monitoring Hardware

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ADCON focuses on building compact and robust devices, which are extremely simple to install and operate, and excel thanks to superior hardware technology. Our mission is building networks that cover huge areas, be it a large

farm, the distribution network of a drinking water supplier, a province, a state or even an entire country. To achieve this target we have developed a series of data loggers, that cover all applications and all areas.



- UHF Radio-based RTUs
- GPRS/UMTS/LTE-based RTUs
- Combination GPRS/UMTS/LTE with UHF Radio
- Sensors for multiple applications
- Easy installation
- Low maintenance
- Ultra-low power
- Superb return on investment

# addVANTAGE Pro Software

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addVANTAGE Pro is ADCON's powerful yet universal software package to collect, store, process and graphically display data. The inherent flexibility of the software makes it an ideal tool for many applications - for weather and environmental data as much as for irrigation management, for leakage detection, frost warning and pump monitoring to countless other applications.

Data can be displayed graphically, as text in a table, as a virtual instrument, or on a map. addVANTAGE Pro informs and/or alarms the user about specific events, and provides a number of tools to process the data according to the needs of the clients, be it a simple report, an advanced statistic, or even a complex expert system which makes recommendations.



Agricultural companies from all over the world, top winegrowers, potato producers as well as numerous institutions such as universities, research institutes and governmental institutions rely on our systems.

We offer the best equipment to support you sustainably and reliably in your work. With more than 100,000 systems sold worldwide, we are the leading provider of reliable environmental measurement at the highest level of quality.

More project information? Contact us!

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