

# Smart Irrigation **Control System**

Products & Solutions Book

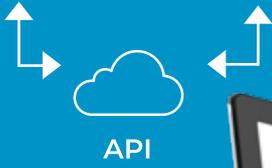




Decision Support Systems

ICC PRO AUTOPILOT

## Management & Control



ICC PRO



## Controllers



IRRInet ACE



IRRInet EDGE



IRRInet M

## Andromeda Water Distribution System



**parkland**

# System Structure

## Controllers



IRRIInet M



Piccolo XR



MDS



Piccolo RTU

## Sensors



Water & Fertilizer Meters



Water Quality Sensors



Pressure & Level Sensors



Soil Sensors



Climate Sensors

## Mottech Management & Control

### ICC PRO



#### Info

ICC PRO software is the advanced control platform that communicates with all the system's components while simultaneously monitoring and controlling all sites for highly reliable, centralized and remote irrigation management. ICC PRO provides real-time status and performance analysis for all system components.

#### Highlights

- Real-time monitoring, control and reporting of system components
- Advanced communication protocol with all system components
- SMS/Email reporting to on-duty operators or group of users
- Operating and monitoring via Google map

#### More Info

<https://mottech.com/product/irrigation-software/>

### ICC PRO Mobile App



#### Info

The ICC PRO app gives anywhere, anytime control over the entire Mottech system. Working in the ICC PRO app is simple and convenient, presenting a familiar interface that utilizes customizable dashboards. An advanced filtering and sorting mechanism give quick access to required components.

#### Highlights

- Full control anytime, anywhere
- Operate, manage, and monitor the entire system
- Friendly and simple interface
- Uses Google maps and Waze

#### More Info

<https://mottech.com/product/icc-pro-app/>

## Mottech Management & Control

### Andromeda Water Distribution System



#### Info

Andromeda provides a unique solution to water providers, engaging consumers and managing online water orders through the app. This unique solution represents a significant breakthrough in terms of water provider's capabilities to meet consumer demand easily and efficiently, while maximizing their available water resources, energy and labor force.

#### Highlights

- Consumer self-management of water orders by friendly user application
- Motorola wireless control system for automatic control of valves, monitoring water quantities and flow rates maximum utilization of the providers water supply and energy capabilities
- Water budgets and flow rate constraints Management

#### More Info

<https://mottech.com/product/tethys-water-distribution-system/>

### ICC PRO Autopilot



#### Info

The first ever AgroGation system combines accurate irrigation recommendations with the ICC PRO irrigation control system.

#### Highlights

- Irrigation & sensing systems on a one-screen display
- Suitable for all types of crops & soil
- Real-time irrigation operation according to the sensing system recommendations
- Safety mechanism that prevents incorrect amount of water
- Establish an irrigation protocol based on the collected data analysis
- Irrigation recommendations are based on artificial intelligence & machine learning

#### More Info

<https://mottech.com/icc-pro-autopilot/>

## Mottech Controllers

### IRRInet-ACE



#### Info

The modular design of the IRRInet ACE provides complete scalability for projects of all sizes. IRRInet ACE has powerful digital and analog I/O modules, along with diverse communication capabilities. It integrates existing and new IRRInet platforms via a range of media protocols and types: TCP/IP, radio, cellular, and wire line. Greater installation flexibility is available by supporting third-party sensors and PLC units.

#### Highlights

- Variety of I/O modules
- Multiple communication ports
- Automatic switching between communication types in the event of a failure

#### Technical Specifications

##### • Communication Ports

- Port 1 (Module Variants) - Ethernet 10/100 Mb/s, radio, RS232, RS485
- Port 2 - Configurable RS232 /RS485
- Port 3 - RS232
- Port 4 - Ethernet 10/100 Mb/s
- Port 5 - (optional plug in) Radio modem, RS232, RS485 or Ethernet 10 Mb/s

##### • Power Source

- 10.8-16VDC
- 18-72VDC with / without battery charger
- 100-264VAC with / without battery charger

#### More Info

<https://mottech.com/product/irrinet-ace/>



# Mottech Controllers

## IRRInet EDGE



### Info

The IRRInet Edge gateway enables exceptional remote monitoring and control capabilities. This control unit is another controller in the IRRInet product family and is a bridge that connects us between the Motorola control systems that exist today and the latest communication infrastructures based on IoT and IP.

### Highlights

- Integral part of the ICC PRO and IRRInet solution  
IRRInet EDGE is compatible with the ICC PRO and with all the IRRInet line of products
- IoT Connectivity  
The IRRInet EGDE is an intelligent LORA gateway designed for IoT applications
- Variety of Modules  
The IRRInet EDGE offers a wide range of I/O modules (digital and analog) to facilitate irrigation & water control and monitoring applications. The CPU contains 3DI + 1DO

### • Communication Ports on CPU

- RS232/RS485
- Ethernet
- OTG
- More expansion options

### Technical Specifications

#### • Internal communication device

- LTE: 4G, 3G, 2G  
(Depending on the location)

#### • LORA GATEWAY

- 863 - 870 MHz, 902 - 928MHz
- More (External) communication device available

#### Software

- Configuration and maintained tool: STS
- MDLC Networking: Yes
- RTU to RTU communication: Yes
- MDLC Store and Forward: Yes
- Services: DNS, DHCP
- Protocols: MDLC, Modbus, SSH, SFTP

#### • IO's models

- Main board: 3DI + 1DO
- Input Module: 12DI+ 8AI (AI: 0 -20mA, 4 -20mA, 0-5V)
- Output Module: 8DO + 2AO (AO: 0 -20mA, 4 -20mA, 0-10V)
- Mixed I/O Module: 7 DI+6 DO + 4AI
- (0-20mA, 4-20mA) 1AO (AO: 0 -20mA, 4 -20mA, 0-10V)
- MDS interface
- More modules in the future

### More Info

<https://mottech.com/product/irrinet-edge/>

## Mottech Controllers

### IRRInet M



#### I/O Capacity (AC and DC models)

- Basic model: 12 outputs, 4 inputs
- Expansion: 12 outputs, 4 inputs
- Expansion: 4 analog inputs, 3 digital inputs, 1 analog output
- Decoder Interface

#### Power Options

- 24 VAC
- 12 – 30 VDC

#### Info

IRRInet M provides a powerful, cost-effective water management tool that is well suited for automation and monitoring of irrigation water control and management applications.

#### More Info

<https://mottech.com/product/irrinet-m/>

#### Highlights

- Professional, reliable and powerful irrigation and water control unit
- Variety of communication options: cellular, radio, and wire line
- Can function as a master or satellite controller in the IRRInet platform
- Excellent for applications of agricultural, landscape and water supply control systems



## Mottech Controllers

### Piccolo XR, XR Plus & PIU



#### Info

The Piccolo XR is a small sized wireless Remote Terminal Unit that operates as an integral part of the IRRInet system. The Piccolo XR operates up to 8 latched outputs and may receive up to 12 digital inputs (model dependent). With a unique communication protocol, it enables it to be the most energy- efficient.

The PIU (Piccolo Interface Unit) is connected to the IRRInet Field Unit, and communicates with Piccolo-XR units via its internal two-way low-power radio.

#### Highlights

- Integral unit of the IRRInet system
- Powerful Store & Forward capabilities
- Very Low power consumption

#### Models - XR & XR Plus

- 1 DI / 1 DO
- 2 DI / 2 DO
- 4 DI / 4 DO
- 6 DI / 6 DO
- 7 DI / 1 DO
- 8 DI / 8 DO
- 12DI / 4 DO

#### Technical Specifications:

- **Frequency range (Piccolo XR, XR PLUS & PIU)**
  - 430-450MHz
  - 450-470MHz
- **PIU**
  - Internal UHF two-way radio
  - RS232 & 485 to IRRInet
- **Power Supply**
  - External 6VDC for Piccolo XR
  - 6 to 12VDC for PIU
- **Environmental Conditions**
  - Operating temperature:  
-30°C to + 60°C(-22° F to +140° F)

#### More Info

<https://mottech.com/product/piccolo-xr-xr-plus/>



## Mottech Controllers

### Piccolo RTU



#### Info

The Piccolo RTU is a small sized unit which consists of an electronic board and a 3-way latched solenoid, packed in an IP65 plastic housing. The unit energizes one latched solenoid and receives two digital inputs such as: water meter contact, level transducer, pressure gauge etc.

The Piccolo RTU is connected in series on a 2-wire standard cable for a distance of up to 10 km (6.2 miles) to an IRRInet Single Cable module. Up to 63 Piccolo RTUs may be hooked up along the cable.

#### Highlights

- 2-wire communication without additional costs
- Private, fast, reliable communication
- Powered from the communication cable
- Enables control of DC latch solenoids, monitoring water meters and analog and digital sensors

#### Technical Specifications

- Power Consumption
- 4 mA in operation mode
- 0.4 mA in standby mode Input
- 2 digital inputs: "dry" contact: <10 K $\Omega$  = closed,> 50 K $\Omega$  =opened
- Output
- 3 wire solenoid
- 1 output: 32-40V DC, 200 ms pulse Two solenoids: Baccara or Bermad
- Ambient Temperature
- -30 °C to +60 °C (-22 °F to +140 °F)
- Ambient Humidity
- Up to 95% RH @ 50 °C (non-condensing)

#### More Info

<https://mottech.com/product/piccolo-rtu/>

## Mottech Controllers

### Piccolo RTU4



#### Info

The new polypropylene casing is UV-protected, moisture-proof, and chemical-resistant -- for extended durability even under harsh conditions.

Easily installed on walls or poles, the low-maintenance Piccolo RTU 4 is ideal for cost-effective system expansion, including for existing S.C. users.

The Piccolo RTU4 casing delivers increased flexibility. Each unit comprises three separate parts, allowing up to four Piccolo RTU cards to be fitted, each controlling its own solenoid type.

#### Highlights

- Each Piccolo RTU 4 contains up to four S.C. electronic cards,
- Allowing the connection of up to 4 digital outputs and up to 8 digital inputs
- Can house 4 Smart card

### MDS - Decoders



#### Info

The MDS is a reliable, highly efficient 2-wire decoder that substantially reduces the amount of buried wire used for valve control. It offers true flexibility for future expansion of existing systems.

All IRRInet controllers are compatible with the MDS:

- IRRInet M – maximum of 200 decoders
- IRRInet ACE & Edge – maximum of 400 decoders

#### Highlights

- Digital and analog sensor decoder
- Output Decoder 1, 2, 4, 6
- Advanced diagnostic tools
- Robust, reliable, and waterproof

#### More Info

<https://mottech.com/product/mottech-decoder-system-mds/>

# Mottech Complementary Products

## Mottech Weather Station



### Info

Mottech Weather Station is part of the ICC PRO platform and is the result of long-term development that combines strong and reliable hardware, a large selection of sensors and an advanced web-based interface, all in accordance with high quality standards.

### Highlights

- Automatically changes the volume of the irrigation programs
- Transfer data using cellular GPRS, Internet or Modbus
- Real-time meteorological data in 1-minute resolution

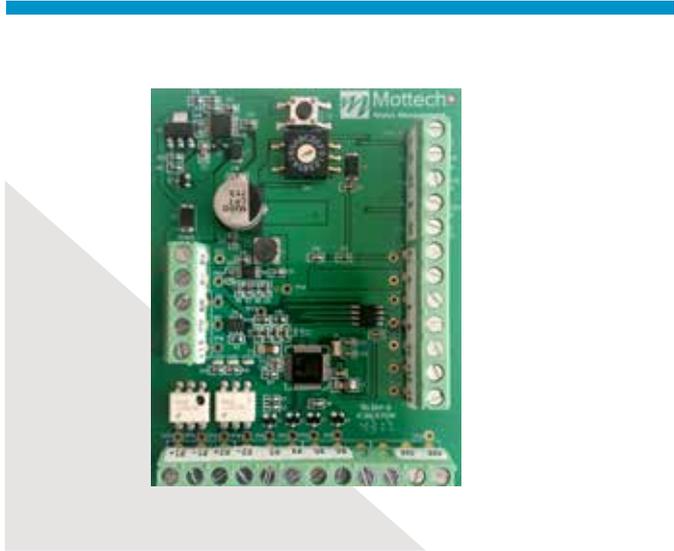
### Meteorological data Processes

- Daily evaporation (ET)
- Dew point
- Rain data
- Alerts about abnormal situations and the values of the extremes

### More Info

<https://mottech.com/product/mottech-weather-station/>

## Mottech Smart Card



### Info

Connect and monitor an extended range of sensor types with the new Mottech multi-functional electronic Smart Card. The Mottech Smart Card provides a number of options in one card: Analog to Digital converter, Pulse Splitter, Pulse Divider, and adapter for SDI-12 protocol sensors. The Smart Card easily integrates into Motorola IRRInet controllers, or can be supplied as an autonomous unit.

### Highlights

- Connect and monitor an extended range of sensor types
- Easily integrates into the IRRInet system
- Analog to Digital converter, Pulse Splitter & Pulse Divider
- Exceptionally low energy consumption Input voltage from 5.5VDC to 14.5VDC Voltage
- Adapted to work with all the IRRInet line of products

### More Info

<https://mottech.com/product/mottech-smart-card/>

## Mottech Complementary Products

### Mottech Fertigation Machine



#### Info

Mottech by-pass fertigation machine designed to inject fertilizers and acid into the irrigation water. The fertigation machine locates in parallel to the main irrigation line and injects the nutrients and acid using venturi pumps with fertilizers meters and under monitoring of EC and pH sensors. The IRRInet & ICC PRO system manage the fertigation machine and divide the fertilizers all along the irrigation process according the operator demands.

#### Highlights

- Full integration with the IRRInet & ICC PRO system
- Remote Terminal Units management capabilities
- On-line alarms
- Remote and local operation
- Up to 500 irrigation & fertilizer programs Multi irrigation lines
- system – one machine for many lines
- EC and pH monitoring
- Fertilizer counter and monitoring for each Injector

#### Technical Specifications:

- Mainline water pressure range: 3 to 6 bar Up to 5 dosing channels
- Channel flow (each): 160 l/h, 350 l/h, 500 l/h or 1000 l/h

#### More Info

<https://mottech.com/product/mottech-fertigation-machine/>

# Mottech Complementary Products

## Mottech Soil Moisture Sensor



### Info

Mottech Soil Moisture sensor is a high accuracy, high sensitivity of soil moisture measuring instrument.

### Highlights

- Four 316L needle probe
- Fast response
- High stability
- Easy installation
- High accuracy
- Is not effected by chemical fertilizer

### Code

M.SENS-86-A

### More Info

<https://mottech.com/product/mottech-soil-moisture-sensor/>

## Mottech Soil Moisture & Temperature Sensor



### Info

The stainless steel probe is inserted into soil surface or soil profile to test soil moisture and temperature quickly

### Highlights

- High precision
- Fast response
- Soil Properties effect little
- Directly buried in soil
- Widely used

### Code

M.SENS-83-SDI

### More Info

<https://mottech.com/product/mottech-soil-moisture-sensor-high-sensitivity/>

## Mottech Complementary Products

### Mottech Liquid EC Sensor



#### Info

Mottech Liquid EC sensor uses advanced anti-polarization technology, internal signal isolation technology, and has strong anti-interference ability.

#### Highlights

- On-line measurements
- High accuracy
- Titanium alloy electrode & Teflon lining
- Polarization resistance
- Electromagnetic isolation

#### Code

M.SENS-91-A

#### More Info

<https://mottech.com/product/mottech-water-ec-sensor/>

### Mottech Liquid Temperature Sensor



#### Info

Mottech Liquid Temperature Sensor is used to measure the temperature of the water, applied to the automatic meteorological station, pond or reservoir water temperature detection and other fields.

#### Highlights

- On-line and real time measurement
- High accuracy
- Stainless steel made
- Corrosion resistance

#### Code

M.SENS-93-A

#### More Info

<https://mottech.com/product/mottech-water-temperature-sensor/>

# Mottech Complementary Products

## Water Pressure Sensor



### Info

The Water Pressure Sensor is high stable and reliable pressure sensor and used for measure and control of water flow pressure in irrigation and water supply systems.

### Highlights

- High accuracy, high sensitivity
- Fast response
- Good stability
- Wide measurement range

### Code

20.0XXX

### More Info

<https://mottech.com/product/water-pressure-sensor/>

## Mottech Submersible water Level Sensor



### Info

Mottech Submersible Water Level Sensor features is with stainless steel isolation diaphragm diffusion silicon pressure core body. The pressure core body uses a laser trimming resistor for a wide temperature range of zero and sensitivity temperature compensation.

### Highlights

- Fast response
- Good stability
- High accuracy, High sensitivity
- Anti-corrosion

### Code

M.SENS-71-A  
M.SENS-71-B (50 m cable)

### More Info

<https://mottech.com/product/mottech-water-liquid-level-sensor/>

## Mottech Complementary Products

### Mottech Water pH Sensor



#### Info

Mottech pH sensor is an advanced solution to measure the pH value. It does not require a professional calibration instrument and is simple to operate. The sensor is used to continuously measure the pH value in water.

#### Highlights

- On-line & real time monitoring
- High accuracy
- Simple operation and high reliability
- Widely power supply range

#### Code

M.SENS-92-A

#### More Info

<https://mottech.com/product/mottech-water-ph-sensor/>

### Mottech Anemometer



#### Info

Mottech anemometer uses a sensitive 3-cup anemometer designed to measure wind speed and wind run.

#### Highlights

- Easy Installation
- Light structure
- Strong corrosion resistant ability
- Low starting threshold

#### Code

M.SENS-100-A

#### More Info

<https://mottech.com/product/mottech-anemome/>

# Mottech Complementary Products

## Mottech Atmospheric Temperature & Humidity Sensor



### Info

The Mottech Atmospheric Temperature & Humidity Sensor is a professional measurement of air temperature and relative humidity

### Highlights

- High sensitivity
- Low consumption
- Fast response time
- Good stability of output

### Code

M.SENS-5

### More Info

<https://mottech.com/product/mottech-atmospheric-temperature-humidity-sensor/>

## Mottech Wall-mounted Atmospheric Temperature & Humidity Sensor



### Info

The Mottech Wall-mounted Atmospheric Temperature & Humidity Sensor is a professional measurement of air temperature and relative humidity. Sensor element is digital temperature and humidity.

### Highlights

- High sensitivity
- Fast response time
- Linear correction
- LCD display optional

### Code

M.SENS-52-A

### More Info

<https://mottech.com/product/mottech-wall-mounted-atmospheric-temperature-humidity-sensor/>

## Mottech Complementary Products

### Mottech Rain Bucket Sensor



#### Info

The Mottech Rain Bucket Sensor is a hydrology, meteorological instrument used to measure the amount nature of rainfall, and it converts the precipitation into a pulse signal output.

#### Highlights

- Compact size and easy use
- High accuracy
- Horizontal bubble in the bottom
- Well made tipping bucket with low resistance

#### Code

M.SENS-11-P  
M.SENS-12-P (Small size)

#### More Info

<https://mottech.com/product/mottech-rain-bucket-sensor/>



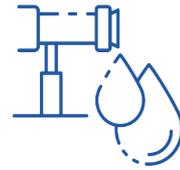
Agricultural  
Irrigation

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Landscape  
Irrigation

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Water  
Distribution

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