





## Why a Tonick **wired IoT** sensor & actuator network is the **Smarter Choice** for Irrigated Agriculture!

Here at Tonick Watering, like all smart tech innovators, we love playing with the many wireless gadgets that claim to revolutionize the IoT space.

In the real world, these gadgets are plagued by ongoing battery life and connectivity problems that make wireless tech a very poor choice for reliable control and monitoring of agricultural irrigation systems.

The innovative NEW Tonick AG two-wire IoT platform is a simple, easy to install, cost effective alternative to wireless networks, able to work with field proven sensors and actuators, and simply bolts on to your Modbus PLC or PC based Control System!

**You handle the Smart Management Software...., let Tonick handle the Smart Field Networks!**

For more information go to [www.tonick.com](http://www.tonick.com)



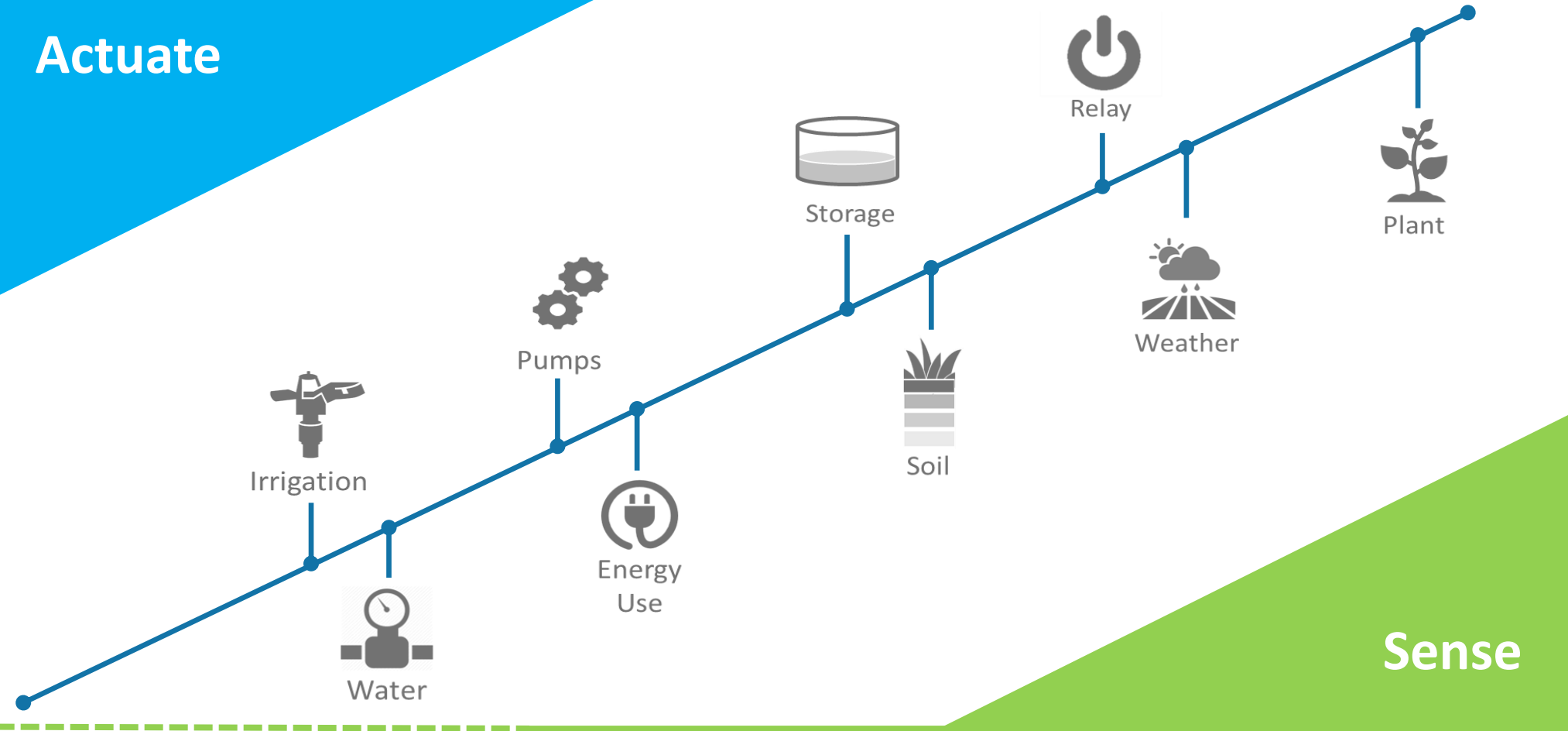
**Marketing Sample**



# Adaptable **control** and **monitoring** technology for irrigated agriculture.



Actuate





## Why is Tonick's **Wired IoT** sensor & actuator platform the **Smart Choice** in Irrigated Agriculture?

**Control** - actuate valves, gates, pumps and other infrastructure.

**Monitor** - sample sensor trends from soil, water, plants and the environment.

**Connect** - to any compatible control system or SCADA network.

**Manage** - with your own advanced adaptive software, compliance reporting and trending and graphs.

You handle the Smart Management Software...., let Tonick handle the Smart Field Networks!





## Why is Tonick's **Wired IoT** sensor & actuator platform the **Smart Choice** in Irrigated Agriculture?

**Safe & Secure** - A single pair of wires, buried safely underground, resistant to machinery damage, theft and vandalism.

**Versatile** - Actuate multiple switchable devices for advanced control, sample data from a wide range of sensors via the same pair of wires.

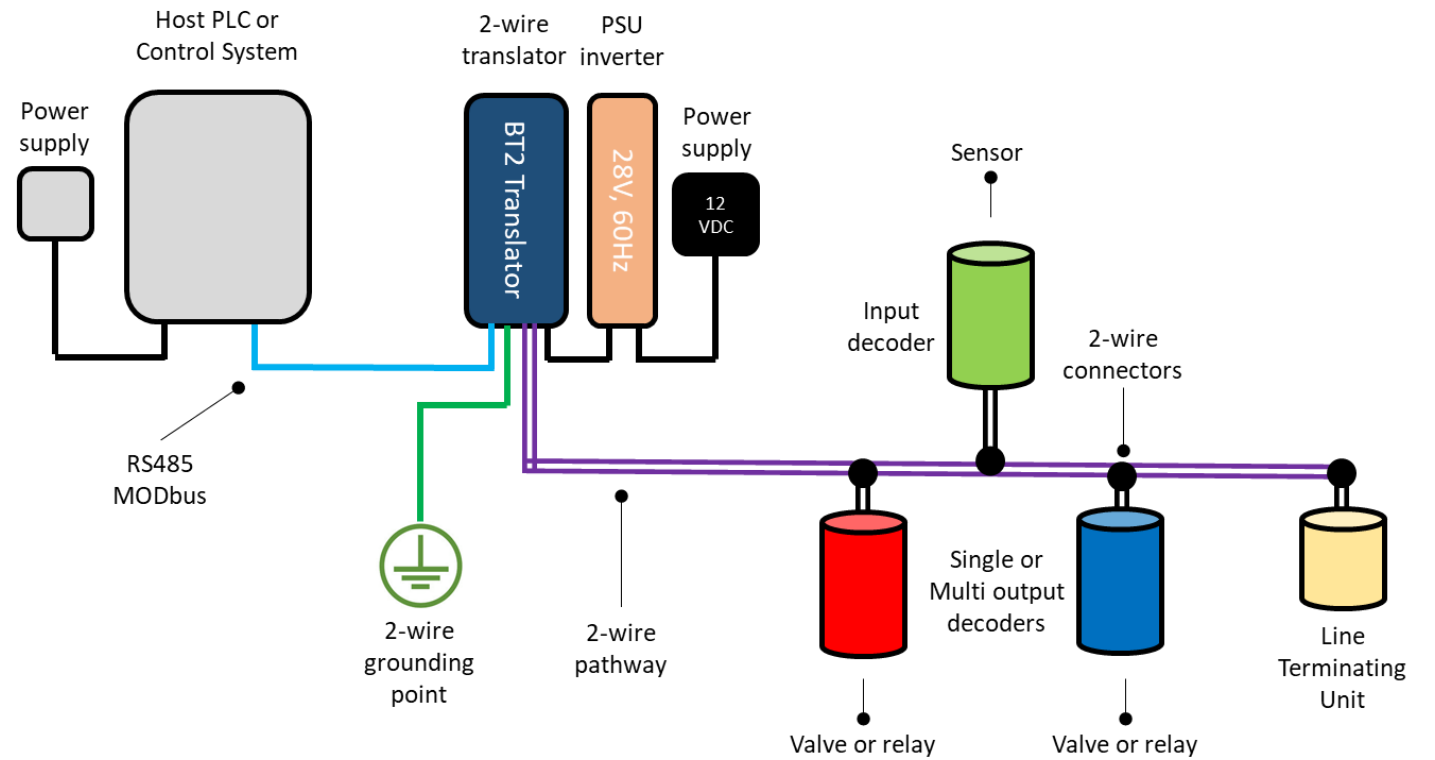
**Seamless** - all connected seamlessly back to your PLC or smart control system.

**Easy Expansion** - Add components anywhere there is Traxx cable installed or add on to existing installed systems.

**Low Maintenance** - No battery's or solar panels failures, decoders are rugged and long lasting.

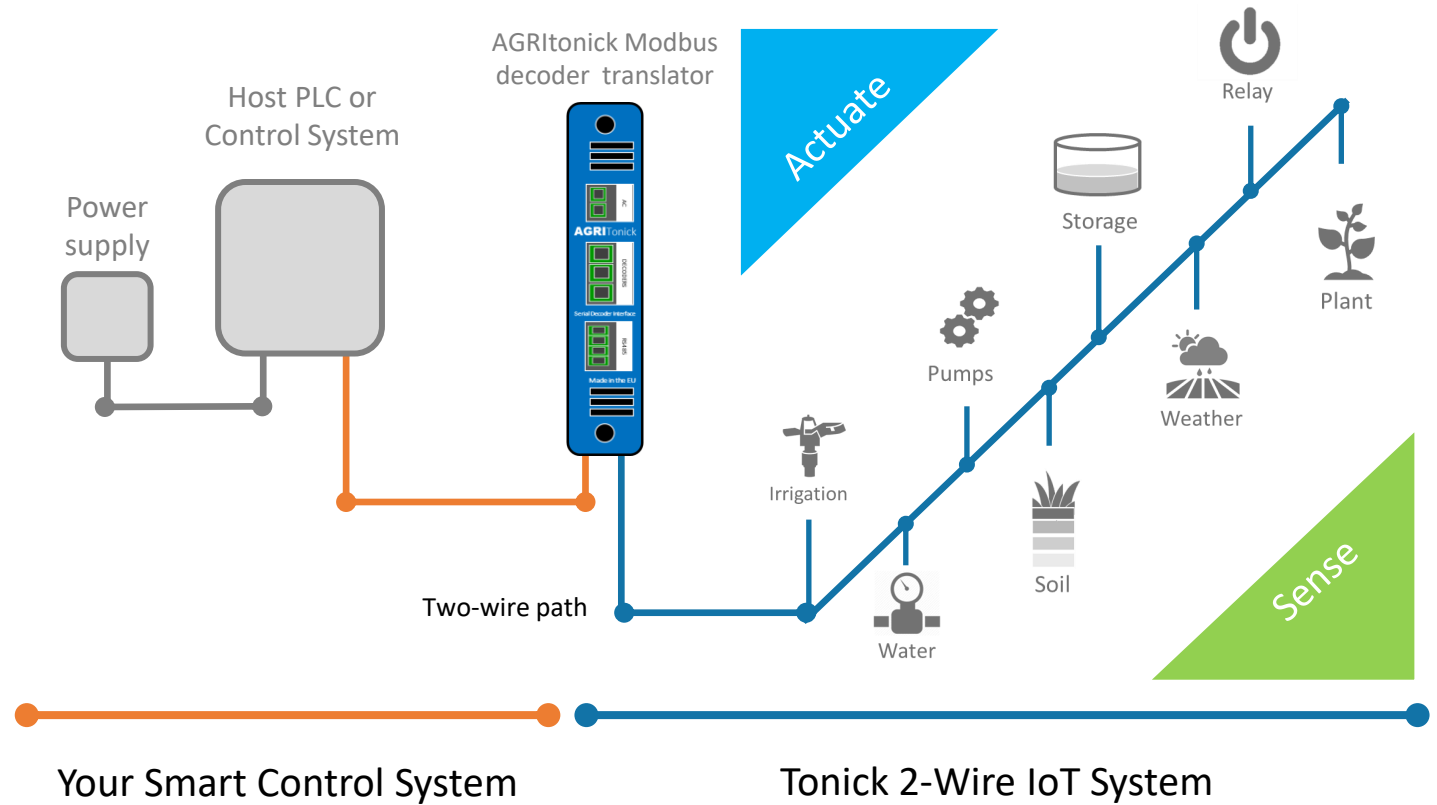


No development required, simply **Bolts On** to your smart control system!





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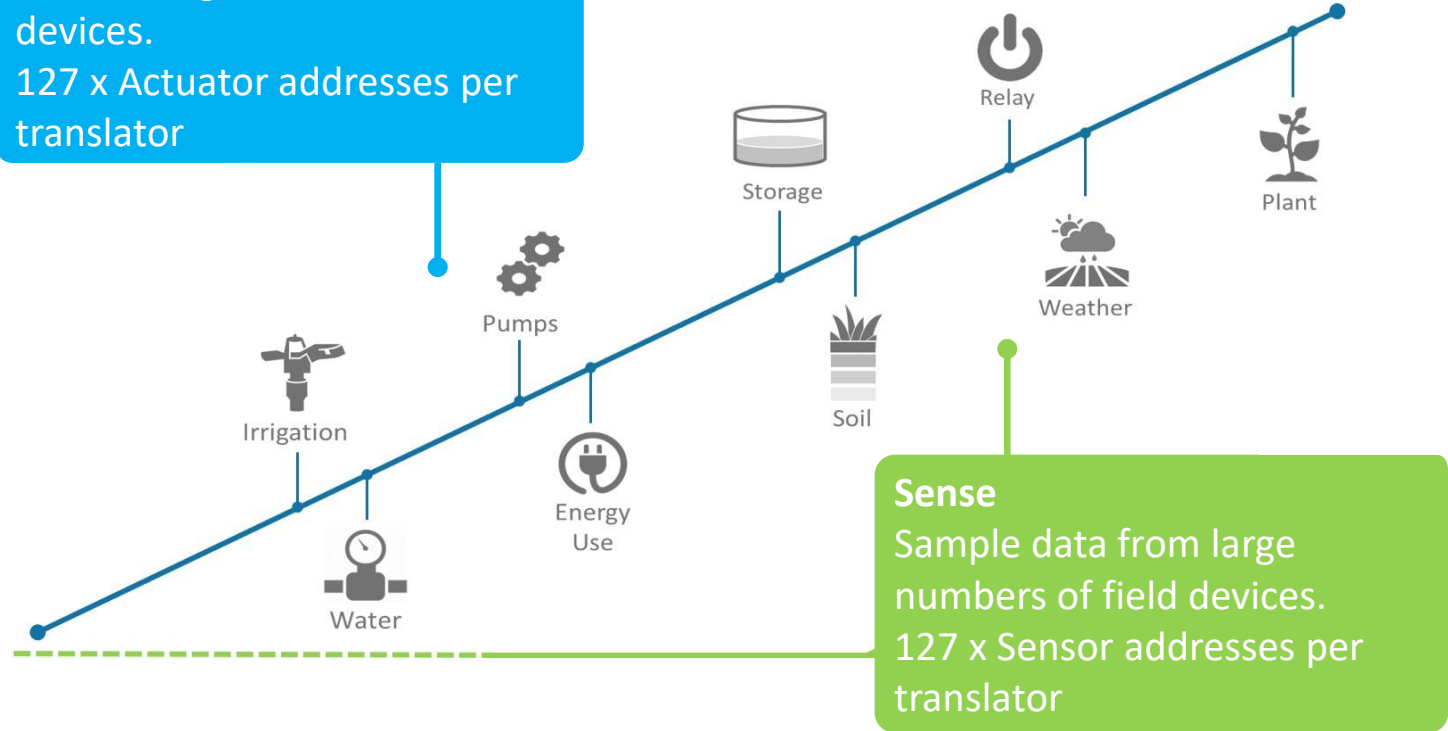




## System Overview

### Actuate

Control large numbers of field devices.  
127 x Actuator addresses per translator

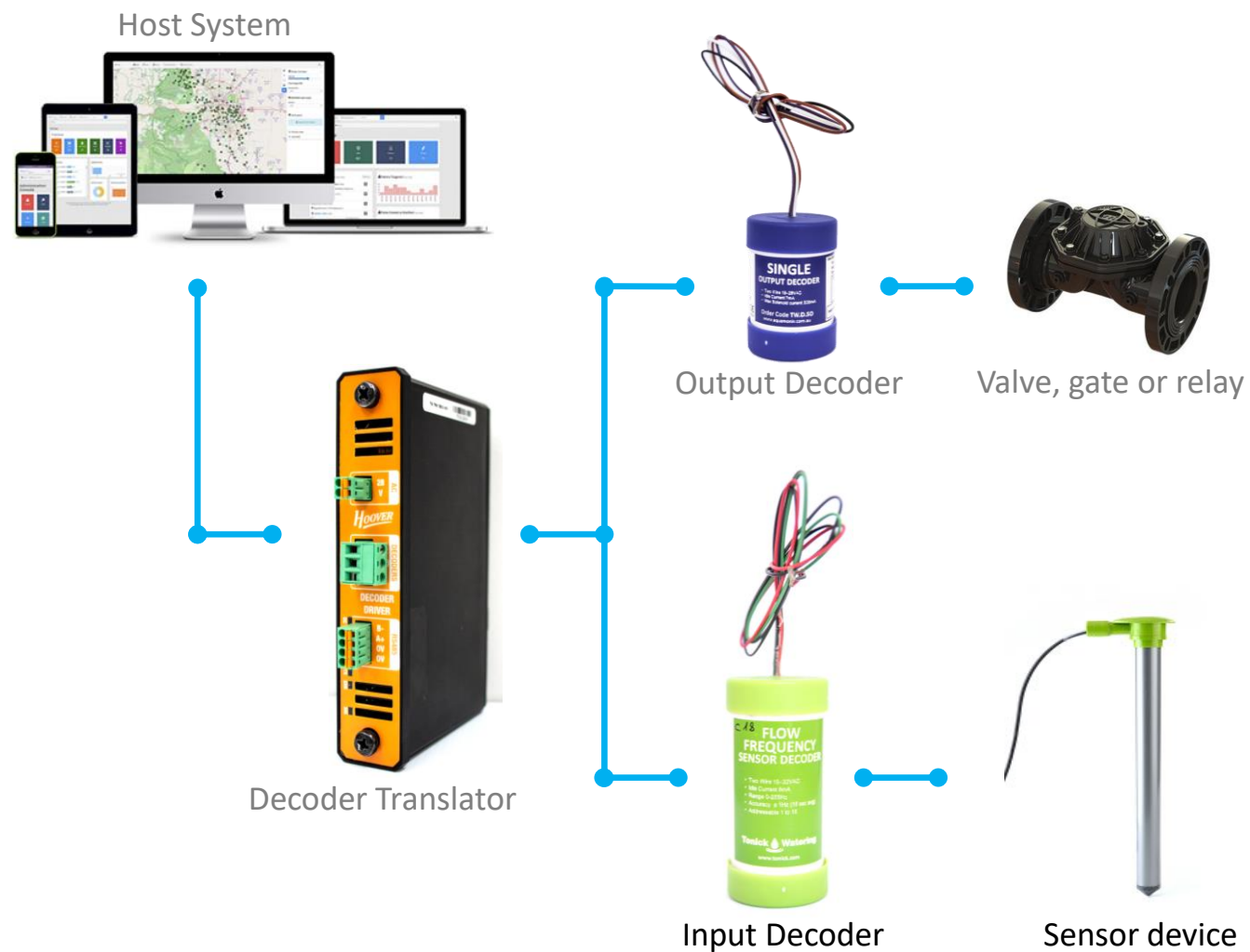


### Sense

Sample data from large numbers of field devices.  
127 x Sensor addresses per translator



## System Overview







## System Overview



### Tonick Decoder Translator

- Connects to host control system, connects field devices via 2-wire pathway.
- Converts Tonick 2-wire protocol to MODbus.

### Tonick Field Decoders

- Connects via 2-wire pathway to the translator.
- Connects to field devices such a sensor, actuators and relays.
- Turns stuff on and off, reads sensor data.

### Tonick Sensors and Actuators

- Control Valves, Gates, Relays and Actuators.
- Sample Flow, Pressure, Soil, Environmental and plant data.





It all starts here!



It all starts here!

## Serial Translator

- AGRIttonick BT2 Decoder Translator
- Connects via MODbus to your controller or PLC.
- Generates Tonick communications protocol to field devices.
  - 127x Actuator addresses
  - 127x Sensor addresses
- Multiple BT2' can be run from a single host.



## 2-wire path



### 2-wire path way

- Tonick Traxx Cable or similar designed specifically for use with decoder systems.
- Sized to suit distance and load requirements of the system.
- Double insulated
- 300m, 500m or 750m Roll lengths.





## Actuator Decoders

### Output Decoders

- Designed for direct bury
- Inbuilt Lighting Protection
- Blind Output decoders
  - Single Station
  - Dual Station
  - Quad Station
- Decoder In A Solenoid (DIAS)
  - Replaces host coil
  - Low Power, can run many at once
  - 2 way and 3 way versions.
- Ideal for control valves.







## Actuator Decoders



### Relay Decoders

- Designed for cabinet mount
- Inbuilt Lighting Protection
- Blind Output decoders with relay
  - Dual Relay
  - Quad Relay
- Ideal for pump start or filter flush

## Actuator Decoders



**Tonick**  **Watering**  
Irrigation Innovation



Control sprinklers, dripper line, travelling irrigators and other systems, each Tonick decoder translator can operate up to 127 control zones.



Control master valves, simple pump starts or manage multiple pump sets, aerators, filtration and injection systems.



Manage storage level in multiple tanks and ponds, fill and monitor before during and after scheduled irrigation events.



Control generators, flood gates and other assets with time based scheduling or on demand access.



## Sensor Decoders

### Input Decoders

- Designed for direct bury.
- Inbuilt Lighting Protection
- Sensor input decoders
- Multi Purpose Configurable
  - Pressure (or Soil Tensiometer)
  - Frequency (Hall Effect)
  - Closed Contact (Pulse)
  - Dielectric (Volumetric Water Content)
- SDI-12 Low Voltage
- 4-20mA Analogue
- Ideal for a wide range of sensors



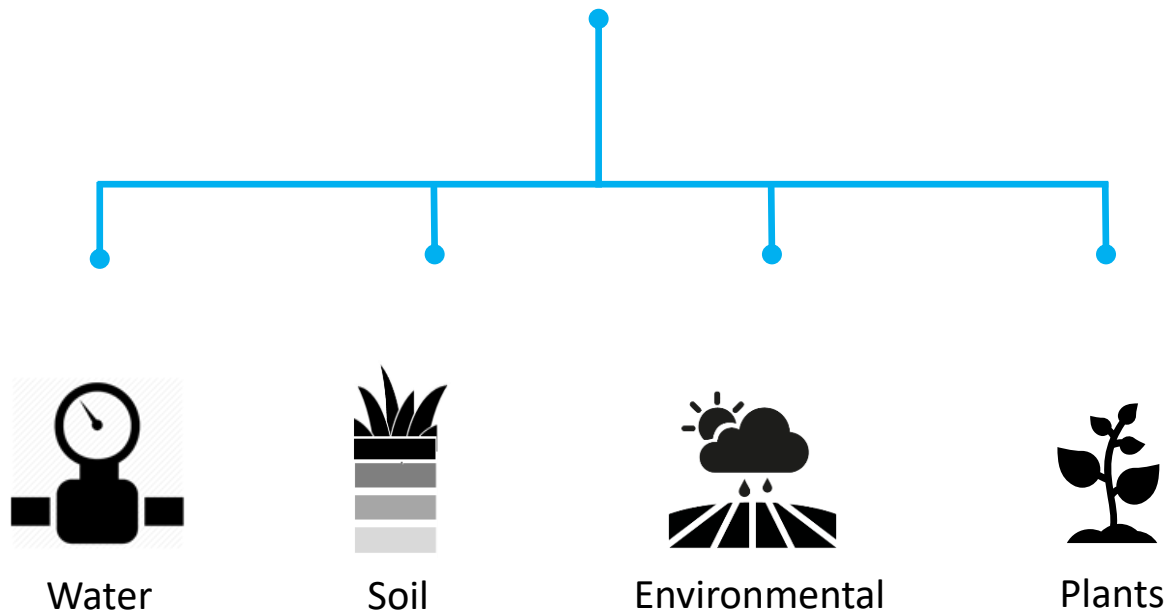


Hybrid  
Decoder



Sensor  
Decoders

## Sensor Decoders



# Water Sensor Decoders



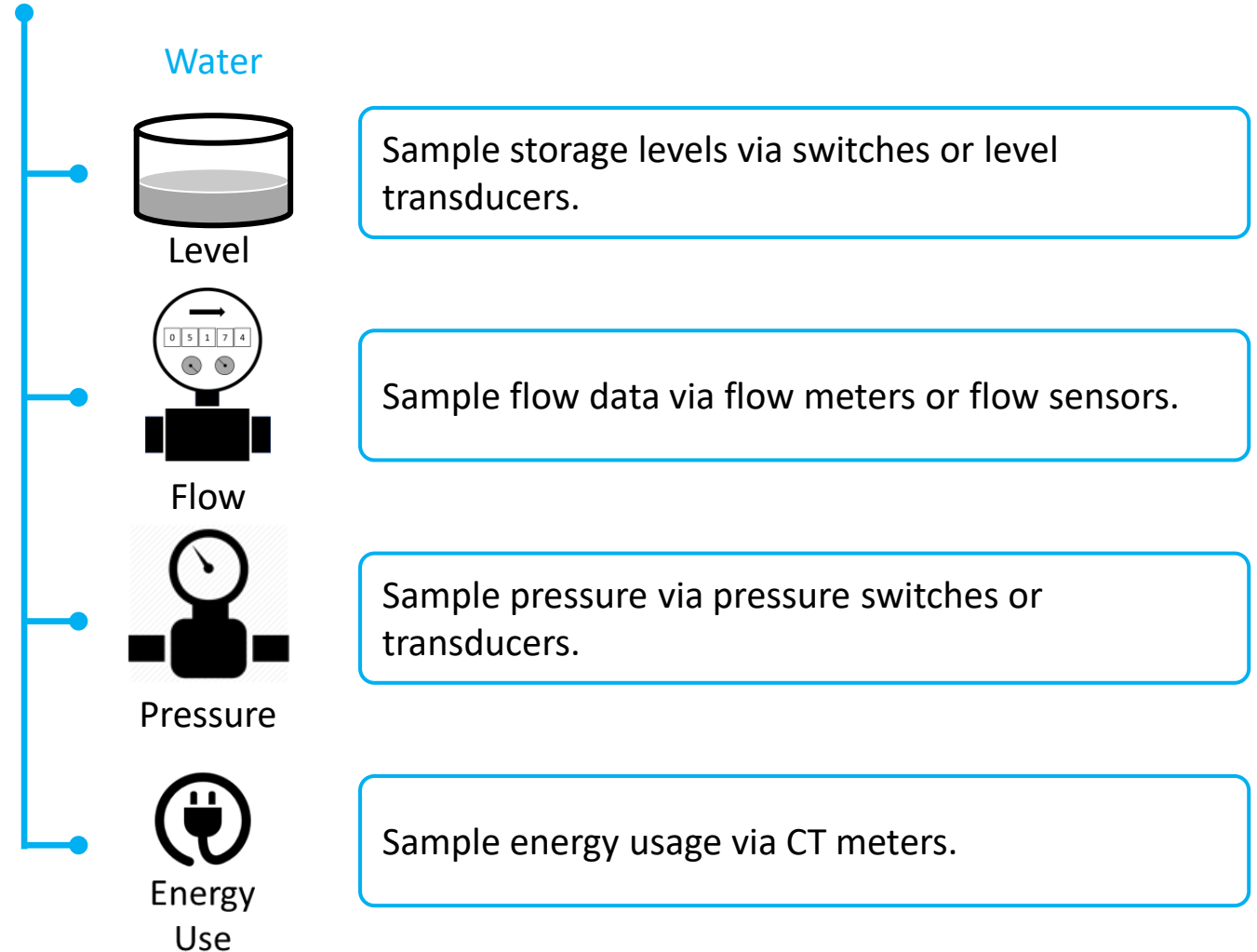
Hybrid Decoder



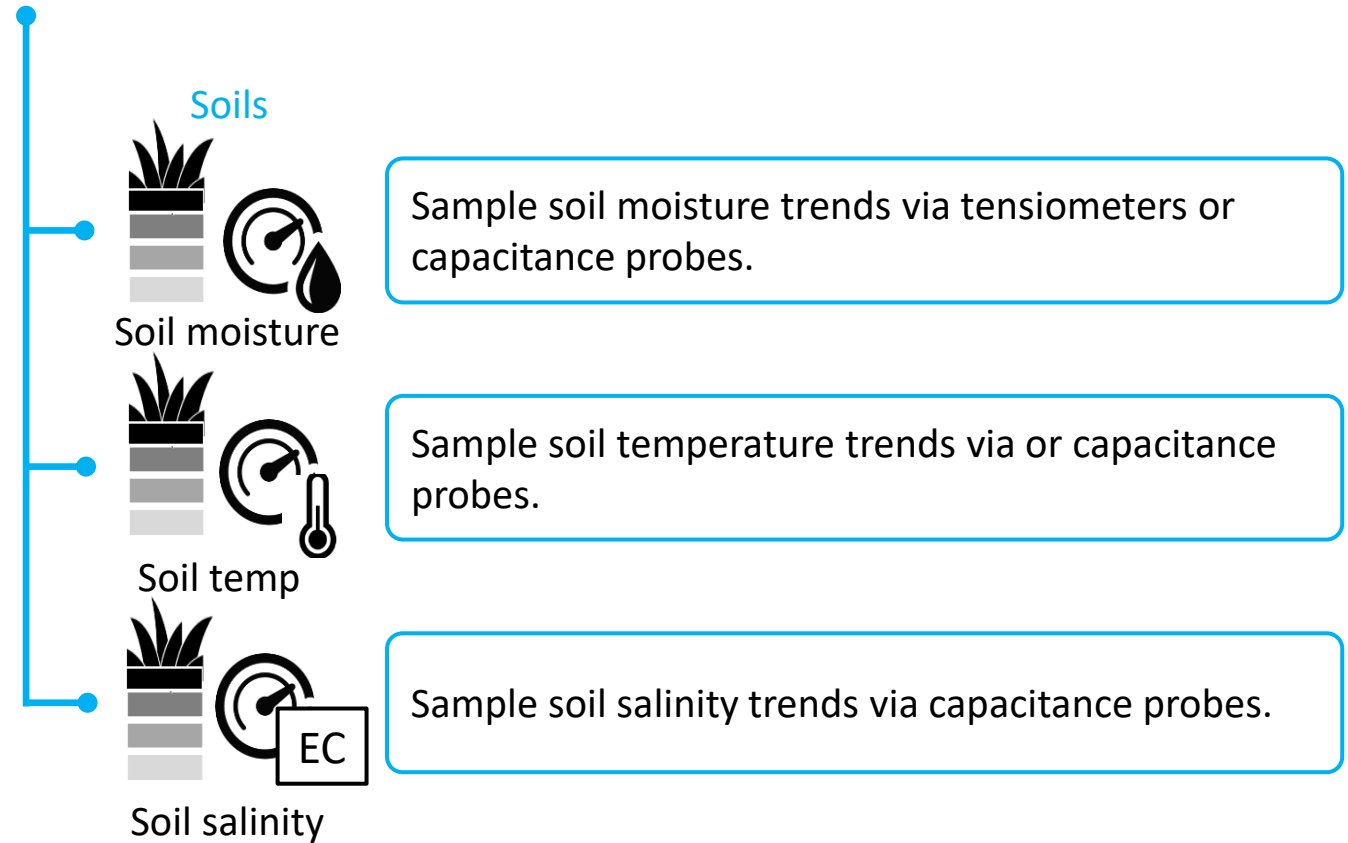
4-20mA Decoder



Flow Frequency/Pulse Decoder



## Water Sensor Decoders





## Climate Sensor Decoders



### Environment



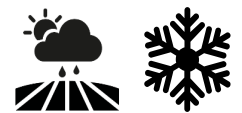
Barometric

Sample air temperature and humidity via barometric sensors.



Rainfall

Sample rainfall data via tipping bucket rain gauges.



Frost

Sample parameters that lead to the formation of frost via dew point and wind sensors.



Wind

Sample wind speed and direction data.

## Plant Sensor Decoders



SDI-12  
Decoder

### Plants



Leaf wetness

Sample leaf wetness data via capacitance sensors.



Canopy temp

Sample canopy temperature via barometric sensors.



Dendrometer

Sample plant growth rates via dendrometers.



## Combination Decoders



### Hybrid Decoders

- Designed for direct bury.
- Inbuilt Lighting Protection
- Combination output and input decoder
- 1 x Output
- 2 x Inputs (Single input on DIAS Version)
  - Pressure (or Soil Tensiometer)
  - Frequency (Hall Effect) or Closed Contact (Pulse)
- Ideal for Master Valves or Filter Flush



## Smart Valves



DC Modulating  
Valves



High Flow  
Hydraulic  
Valves

DC or AC Motorised Valves for low pressure applications

High flow lightweight control valves

NEW SMART Valves with positive feedback

*NEW Smart  
Feedback Valves!*

Inbuilt sensor sends feedback  
when valve has opened.  
Ideal for use with Hybrid  
Decoder!





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Here at Tonick Watering, like all smart tech innovators, we love playing with the many wireless gadgets that claim to revolutionize the IoT space.

However, changing batteries every few days is not practical and above ground solar panels, poles and antennas are prone to theft or damage by machinery.

The innovative NEW Tonick AG two-wire IoT platform uses proven two-wire decider technology that means that all the critical components can be below ground or mounted out of harms way!

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**Marketing Sample**

A world of solutions is waiting for you.....

# *Welcome to the Aquamonix of Things!*

Measure ————— Monitor ————— Master



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Electromagnetic  
Water Meters.

## Pressure & Level

Depth, Level &  
Line Pressure.

## Remote Monitoring

IoT, Telemetry, Remote Stations, Soil,  
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## Control Solutions

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