SapIP Mesh Network

Preliminary Specifications

Features

- The Gateway collects and forwards all radio data to servers.
- Gateway data transmitted with optional Cellular GPRS package.
- Data can be transmitted with LAN if on site internet accessible
- Fully integrated wireless sensor mesh-networking platform.
- Self-Healing Network. Typical 10 min to 1 hr data collection.
- 50 SapIP Nodes per Gateway Net (PAN)
- LAN – Data port – standard data retrieval
- Cellular Data Retrieval for remote sites – with annual data service subscription.
- Data Retrieval tool without WAN network provides csv files backups.

Grower Dashboard – Map View

- Field irrigation management, and monitoring in interactive graphics display
- Account management with password access to field specific data.
- Data history saved for full year – growing season.

Interactive Graphics Presentation

- Data charts are defined by the customer to show latest days, weeks, or any specific historical period.
- Typical moisture and field weather data displayed.

Detail Irrigation Block Field View

- As the grower reviews sensors in each block, the location is identified in a satellite picture.
- Moisture trends can be compared to sap flow, transpiration stress, weather and projections for water or harvest needs.

Network – Gateway – 100 % Proven Technology

- Integrated Gateway package ensures security, flexibility, and full range of Gateway Functions
    - o Fully supported Engineered Package, provided with custom DIA – Device Integration Application - device drivers by Dynamax.
    - o Device Interface and WEB based communication, monitoring and reliability controls.
    - o All tools are structured for Dynamax Engineering team to support field installations quickly, and interactively.
    - o We always have a engineer monitor the signals, sensors, data integrity and start collection before the installer leaves the field. 100 % Success first time.

Network – Monitoring

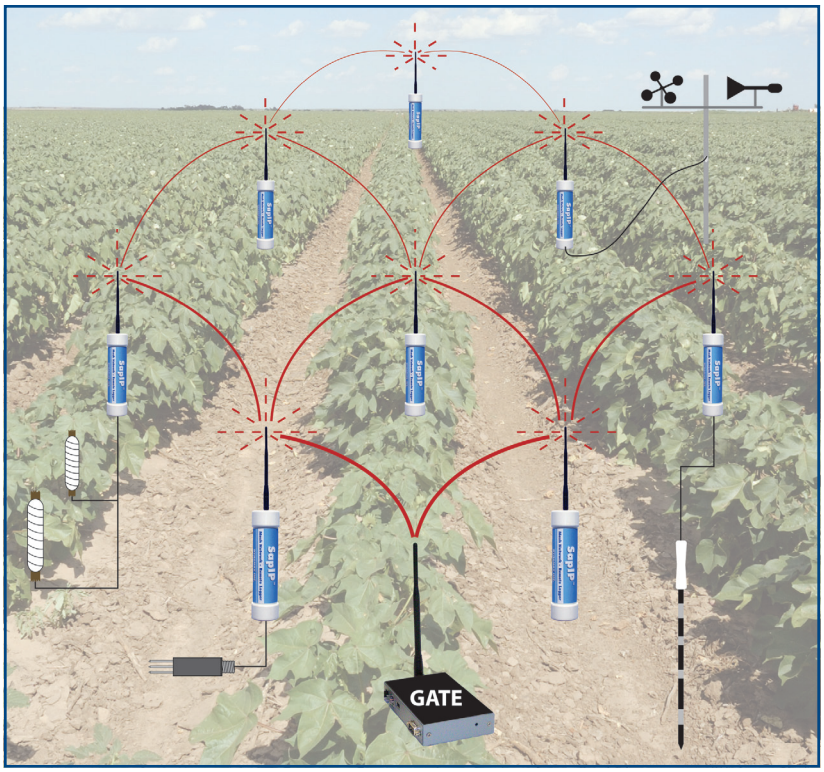
- Interactive Node and Gateway consoles on map overlays with key information, battery status, communication, and signals.
- Additional layer of communications tools for device discovery, node additions, repositions

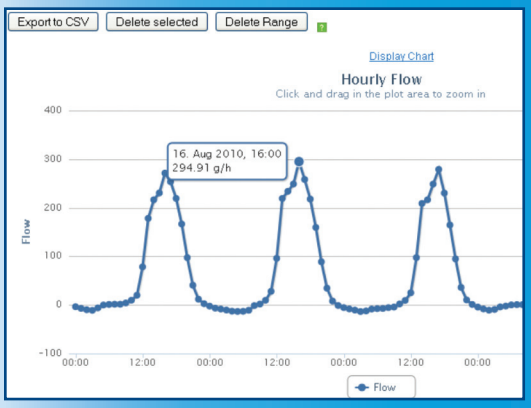
Field Monitoring – Device Control

- Factory Designated channel management.
- Sensor cables are preconfigured before shipment.
- No Field installation changes, add batteries and solar panels.
- Channel definition and sensor conversions are set at the factory, but can be modified for field conditions, soil type, and a variety of sensor manufacturers.

DYNAMAX

SapIP Specifications





Function	Specification
Range to next Mote	2.4 Ghz configuration - 350 m (1,150 ft.) urban; Rural 500 m (1,600 ft.) 900 MHz Configuration - 1,000 m ; U.S.A. Only
Antennas	7 dBi Mobile. Supplied with lightning protection, mounting, and 12 ft cables. Recommended for 3 m (10 ft) pole mounting above crop or canopy
Differential signal inputs (8)	24 bit analog to digital converter. 22 bit effective accuracy (±4 uV) - 1 uV resolution.+2.5 to – 2.5 V, to +.000100 to - .000100 mV in seven defined ranges All ranges provided with data checking, validation codes. Voltage scaling supported on board for high voltage inputs. All Differential inputs have offset and noise elimination. All signals protected from surge, over voltages
Pulse Inputs (2)	Switch closures up to 150 hz / Frequency signal (wind)
Sensor Heater Supply	1.5 to 9 V, 1.5 A max, Regulated and monitored voltage- current Sensor heaters require large external battery and solar panel charging
Output excitation	5.00 V fixed, up to 150 ma
Logging/transmit period	1 minute to 1 Hour in 6 ranges. Sampling – averaging supported
Environmental	Operating Range –20° to 50° C

Features

- Sensor Mote with Eight Channel Differential Signal Logger
- Self-Healing Sleeping Network. Real-time data collection
- Wide range input signals: micro Volts to ±2.5 Volts
- High accuracy and high resolution
- Two to Eight sensors per mote typical. 30,000 records saved to flash memory
- Completely sealed field enclosure
- Radio Transmission at low power 50 mW, programmable to 1 mW
- Two versions available – 2.4 Ghz, and 900 Mhz spread spectrum, FCC licensed
- Up to 7 hops in network motes supported automatically
- Compact Size 7 cm x 30 cm, easily mounted with straps provided

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