

Aurora II

All-in-One Dosing, Irrigation and Crop Steering Controller
MODEL AURORA-II · NURAVINE FERTIGATION PLATFORM

The Aurora II runs nutrient dosing, irrigation valve control, and crop steering from a single controller. It combines the dosing engine of the original Aurora with the valve automation of the Flux, replacing a separate doser and irrigation controller with one unit on one power supply.

It is the only controller that runs all three dosing methods: inline injection into flowing irrigation lines, batch tank mixing, and recirculating reservoir correction. Methods can be mixed across zones. Laboratory-grade pH, EC, dissolved oxygen, ORP, and temperature sensing drives closed-loop dosing, while 20 valve outputs, four 4-20 mA industrial inputs, 16 point-sensor inputs, and RS485 Modbus handle full-system automation.

- Up to 18 peristaltic dosing pumps via 6 Elixir ports
 - Inline, batch, and recirculating dosing in one unit
 - 4x 4-20 mA inputs plus RS485 Modbus RTU
 - Crop steering with substrate monitoring
- 20 solenoid valve outputs at 24V DC
 - pH, EC, DO, ORP, and temperature sensing
 - Single 24V / 10A supply powers the entire system
 - OTA firmware updates with automatic rollback



DOSING SYSTEM		VALVE AND IRRIGATION OUTPUTS	
Expansion ports	6 dedicated module ports, one Elixir II or Elixir Max per port	Valve outputs	20 total, arranged as 5 output groups of 4
Maximum pumps	18 peristaltic (6x Elixir II) or 6 high-flow (6x Elixir Max), any mix	Output type	24V DC switched on/off
Dosing methods	Inline, batch, and recirculating; mixable across zones	Wiring	Pluggable terminal blocks, 1 common + 4 switched outputs per group
Elixir II module	3 peristaltic pumps, 350 mL/min, accurate to 1 mL	Supported loads	Solenoid valves, motorized ball valves, relays, transfer pumps
Elixir Max module	Single high-flow pump head, up to 1,200 mL/min	Irrigation zones	Per-zone valve + volume control; zones run sequentially
Elixir Ultra module	Dual high-flow pump head, up to 2,400 mL/min	Valve safety	Max-time timeout drives valves to configured finish positions
Minimum dose	1 mL		
Pump calibration	Per-pump volumetric calibration (30 or 60 s timed run)		
Dose delivery	Volumetric metering, segmented into cycles for uniform mixing		
Suction lift	Draws nutrients from over 200 ft away (Elixir II, tested)		
Tubing	Food-grade Tygon pump-head tubing (3/8 in), 1/4 in dosing line		
Chemical handling	Handles high-viscosity fluids such as silica		

WATER QUALITY SENSING	
Sensor inputs	pH, ORP, DO (color-coded BNC) + EC/temperature (dedicated port)
pH	Range 0-14, 0.1 resolution; 2-point calibration (pH 7.0 / 4.0)
pH compensation	Automatic temperature compensation (Nernst slope correction)
EC	3-point calibration: dry, 445 uS/cm, 1417 uS/cm at 25 C
EC probe support	K 0.1, 1.0, and 10 cell constants
EC compensation	Automatic, 2% per C referenced to 25 C
Temperature	Integrated in EC probe; drives EC and pH compensation
Dissolved oxygen	0-20 mg/L; single-point air calibration
ORP	Single-point calibration, 225 mV reference
Sampling rate	1 reading/s; automation triggers evaluated 5x/s
Display units	uS/cm, mS/cm, PPM (500 / 640 / 700 scales), F/C, gal/L

INDUSTRIAL I/O	
4-20 mA inputs	4 channels for flow meters, pressure transducers, level sensors
Sensor power	+24V supplied on 4-20 mA and Modbus terminals
Flow metering	Reads standard 4-20 mA flow meters in GPM (options 0.26-264 GPM)
Point-sensor inputs	2 ports x 8 points (16 total): float switches, leak detectors
Fieldbus	RS485 Modbus RTU, 1 port (+24V, A, B, GND)
Terminal blocks	Included, color-coded: black (valves), blue (4-20 mA), green (Modbus)

CONNECTIVITY AND CLOUD	
Wi-Fi	2.4 GHz only
Wi-Fi security	WPA2-Personal; WPA3-SAE supported
Network profile	Outbound-only TLS on TCP 443; no inbound ports required
Cloud platform	Nuravine Cloud at app.nuravine.com (browser-based, no install)
Telemetry	TLS-encrypted MQTT; change-driven reporting with 10 min heartbeat
Data logging	Historical timeline of readings and dosing events; low/avg/high views
Offline operation	All rules continue running without internet
Provisioning	On-device touchscreen setup with token-based cloud registration
Firmware updates	Over-the-air (OTA) with automatic rollback

USER INTERFACE	
Display	High-contrast capacitive touchscreen, 800 x 480
On-device control	Live readings, manual dosing, rule control, calibration wizards
Web application	Dashboard, rules, schedules, historical graphs, alerts

ELECTRICAL	
Power supply	24V DC, 10 A external adapter (included)
AC input	100-240V AC, 50/60 Hz, 4 A max (universal input)
AC plug	US 3-prong grounded (NEMA 5-15P); grounded outlet required
Maximum consumption	240 W at full load; 1 outlet powers the entire system
Architecture	Single supply powers controller, pumps, valves, sensors, display
Valve drive	24V DC switched outputs

ENVIRONMENTAL AND PHYSICAL	
Operating temperature	0-50 C
Humidity	20-80% RH, non-condensing
Environment	Indoor, dry location; not waterproof
Mounting	DIN rail (5 in rail and hardware included)
Dimensions / weight	10 x 7 x 3 in (H x W x D); 2 lb
Warranty	2-year limited hardware warranty

FUNCTIONAL CAPABILITIES

Dosing Automation

- EC rules with adaptive, self-learning dosing constant
- pH rules with target, swing deadband, and proportional final dose
- Recipe entry straight from the feed chart; controller does the math
- Inline Dose: recipe-based per-zone injection metered against live flow
- Fill and Dose: doses metered against actual water volume added
- Timed and custom multi-action rules; manual Quick Dose
- Schedules sequence rules across configurable timelines (e.g. 12-week programs)

Crop Steering and Irrigation

- Substrate monitoring with per-event irrigation control
- Vegetative and generative steering via irrigation strategy
- Fills, drains, and zone control from the same rules engine
- Per-zone sequential execution with flow verification

Safety Interlocks

- Dosing halts if a rule's sensor disconnects or reads invalid for 30 s
- Every dose bounded: per-dose limits, capped attempts, max EC step
- Container tracking prevents dosing on empty bottles; low-level alerts
- Wrong-direction detection aborts dosing and flags miswired pumps
- Overshoot prevention on both EC and pH control loops
- Valve max-time timeouts prevent stuck-open fill valves

Cloud and Data

- Live readings and remote control from any browser
- Trend visualization: nutrient use, dosing patterns, fluctuations
- Threshold-based alert notifications
- Per-sensor calibration history
- Forward-compatible with all future Nuravine modules

IN THE BOX

- 1x Aurora II controller
- 1x DIN rail (5 in) with 2 mounting screws
- 4x Blue 3-position terminal blocks (4-20 mA inputs)
- 1x Flathead screwdriver

- 1x Power adapter, 24V DC / 10 A
- 5x Black 5-position terminal blocks (valve outputs)
- 1x Green 4-position terminal block (Modbus RTU)
- Note: water quality probes sold separately

ORDERING INFORMATION

MODEL / SKU	DESCRIPTION
AURORA-II	Aurora II all-in-one fertigation controller
ELIXIR-II	Elixir II 3-pump peristaltic dosing module (Aurora II only)
ELIXIR-MAX	Elixir Max high-flow dosing module, single head (Aurora II only)
ELIXIR-ULTRA	Elixir Ultra high-flow dosing module, dual head (Aurora II only)
SENSOR-PH	pH probe, double junction, BNC, 2 m cable
SENSOR-EC	EC/temperature combination probe, 2 m cable
SENSOR-DO	Dissolved oxygen probe, BNC, 2 m cable
SENSOR-ORP	ORP probe, double junction, BNC, 2 m cable
SENSOR-PH-IND	Industrial pH/ORP probe, 3/4 in threaded
SENSOR-EC-IND	Industrial EC/temperature probe, 3/4 in threaded
MANIFOLD-2 / -3 / -4	Schedule 80 sensor manifolds, 2 to 4 probe sockets

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