

# System Power Planning

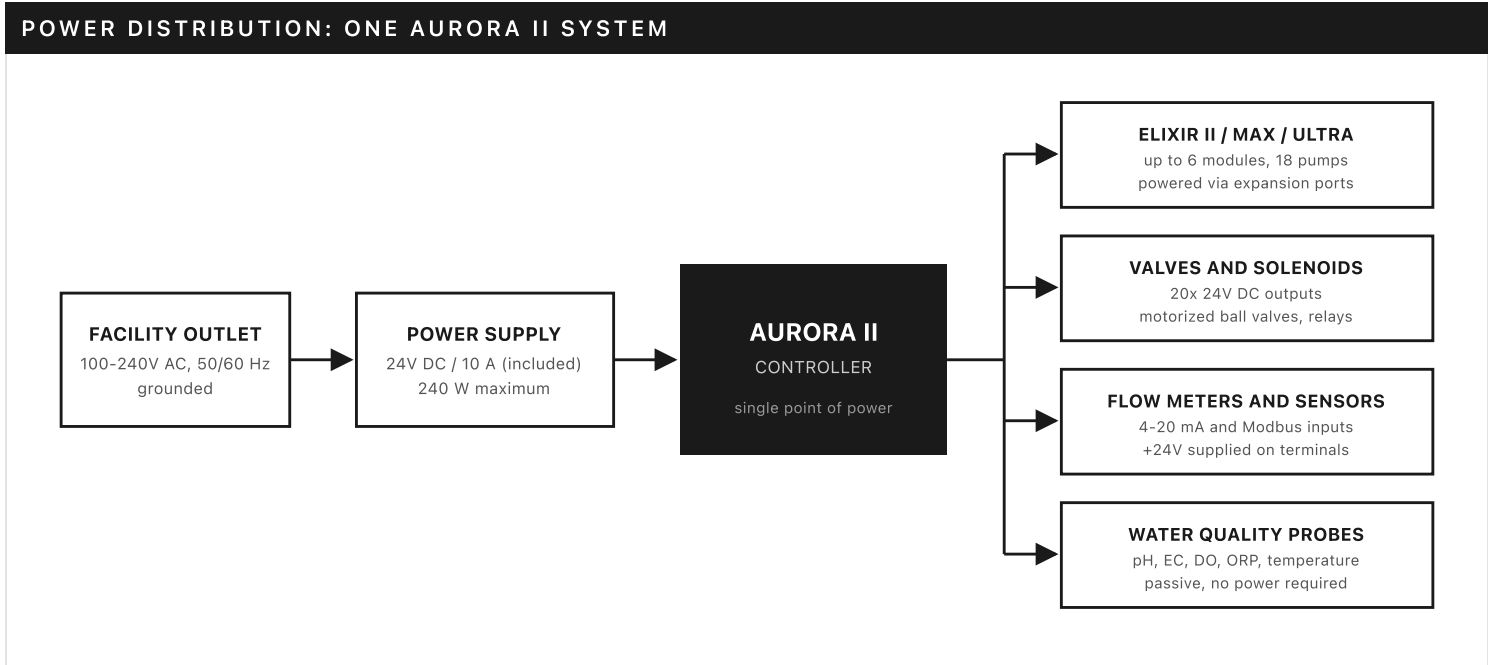
Electrical Requirements for Nuravine Fertigation Systems

APPLICATION NOTE · NURAVINE FERTIGATION PLATFORM

This note covers everything an electrical designer needs to plan outlets and circuits for a Nuravine installation: input ratings, worst-case consumption, plug types, and outlet counts per system.

The key simplification: an Aurora II system is a single point of power. One included 24V DC / 10 A supply feeds the controller, and the controller in turn powers every connected component: Elixir dosing modules, motorized valves and solenoids, 4-20 mA flow meters and level sensors, Modbus sensors, and water quality probes. None of those components need their own outlet.

- One grounded outlet per Aurora II system
  - 240 W maximum per system at full load
  - Rules resume automatically after a power outage
- Universal input: 100-240V AC, 50/60 Hz
  - Valves, sensors, and dosing modules draw from the controller
  - UPS optional, surge protection recommended



| AURORA II SYSTEM (PER SYSTEM) |                                                                                  | COMPANION PRODUCTS  |                                                                        |
|-------------------------------|----------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------|
| AC input                      | 100-240V AC, 50/60 Hz, 4 A max (universal input)                                 | Aurora (original)   | 24V DC / 1 A adapter; 24 W max; 1 outlet                               |
| Power supply                  | 24V DC / 10 A external adapter, included                                         | Elixir (original)   | 24V DC / 1 A adapter per module; 24 W max; 1 outlet each               |
| Maximum consumption           | 240 W at full load; typical draw is far lower                                    | Flux                | 24V DC / 6 A supply; 144 W max; 1 outlet                               |
| Plug type                     | US 3-prong grounded (NEMA 5-15P); Japan JIS C 8303 compatible                    | Ra (0-10V / RS-485) | 5V USB-C, under 10 W; 1 outlet (adapter not included)                  |
| Outlets required              | 1 grounded outlet per system                                                     | Switch              | Plugs into a standard 120V outlet; passes through up to 15 A / 1,800 W |
| Powered by the controller     | Elixir modules, valves, solenoids, flow meters, level and Modbus sensors, probes |                     |                                                                        |

## COMPONENT LOADS (ON THE 24V RAIL)

|                                          |                                                                 |
|------------------------------------------|-----------------------------------------------------------------|
| Motorized ball valve                     | Up to 12 W during ~10 s actuation only; near zero at rest       |
| Vortex flow meter (SV7204)               | Under 30 mA continuous (under 1 W)                              |
| Ultrasonic flow meters (SU8631 / SU2621) | Under 75 mA continuous (under 2 W each)                         |
| Water quality probes                     | Passive pH, EC, DO, ORP: negligible (under 0.1 W total)         |
| Point / level sensors                    | Dry-contact float and leak sensors: no power                    |
| Load budget                              | All component loads are already inside the 240 W system maximum |

## WORKED EXAMPLE: TWO AURORA II SYSTEMS

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Outlets               | 2 grounded outlets, one per system                                |
| Recommended spare     | 1 additional outlet for network equipment (router / access point) |
| Total controller load | 480 W maximum; fits comfortably on one standard circuit           |
| Circuit sharing       | Keep on a circuit separate from large motor loads                 |

## FUNCTIONAL CAPABILITIES

### Circuit Recommendations

- Power controllers on a circuit separate from pumps, chillers, and HVAC to avoid brownouts and electrical noise
- Use grounded outlets for all controller power supplies
- A quality surge protector is recommended for all controllers
- Install supplies and controllers in a dry indoor location

### Power Loss Behavior

- All rules and schedules resume automatically when power returns
- Recipes and automations are stored on-device, not in the cloud
- UPS is optional: add one only if dosing must continue through an outage
- A UPS on the controller supply also keeps its valves and sensors alive

1. Values are maximum ratings for electrical planning. Typical operating draw depends on pump and valve duty cycles and is substantially lower.

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