

AirSmart EcoConnect installer data sheet

For electricians and ventilation installers: what you need to quote, wire and commission one EcoConnect. Figures are the production design; bench results on the first board follow.

Before you quote

- ☐ **Control input** on the unit: 0 to 10 V, or a range inside it such as 2 to 10 V (each output is set to match).
- ☐ **Or an on/off input** (maker's contact adaptor, fan controller): use the relay, volt-free, 1 A at up to 30 V AC or DC, low voltage, not mains.
- ☐ **Supply:** 24 V AC $\pm 20\%$ or 6 to 36 V DC, from the unit or a building transformer; full 10 V output across the range. 1 W typical, 2 W maximum; allow 3 VA per unit at 24 V AC.
- ☐ **One 0 V** for the supply, both outputs and RS-485.
- ☐ **Minimum airflow:** set each output's minimum to the unit's design minimum (10 l/s per person on DQLS mechanical systems).
- ☐ **Wall:** interior, in the room served, 1.2 m to 1.8 m up, clear of windows, doors, heaters and the unit's airflow.
- ☐ **Wi-Fi:** 2.4 GHz, WPA2 with a plain name and password; no login-page or enterprise networks. Schools: ask IT.
- ☐ **Building system:** Modbus RTU or BACnet MS/TP over RS-485, read access, no writes; firmware may follow the first units by update.
- ☐ **Warranty:** the unit's maker allows an outside control signal on this input.

Tell your customer

- **First release:** 0 to 10 V outputs, relay, and RS-485 for building systems. **Roadmap, not yet available:** heat pump control by infrared, BACnet/IP and Modbus TCP over Wi-Fi.
- Every reading reaches the AirSmart app and web portal every 15 minutes, with each output's level and mode.
- Settings are stored on the device, so it keeps running through Wi-Fi drops and power cuts.

Not sure about a unit? Email its make and model, or a photo of its label, to contact@monkeytronics.co.nz and AI will get back to you. Guides: docs.monkeytronics.co.nz



contact@monkeytronics.co.nz

Connections

Terminal	Signal	Connect to
+V	Supply in	24 V AC (G), or DC +, 6 to 36 V
0 V	0 V	G0, or DC 0 V; common to all
D1 (B)	RS-485	Bus B
D0 (A)	RS-485	Bus A
OUT1	Output 1	Unit's 0 to 10 V input
OUT2	Output 2	Second 0 to 10 V input
RLY, RLY	Relay	Unit's on/off contact input

Back plate: two screws over the wall box; cable in from behind through the gasket; two wires per terminal. Then slot EcoConnect on.

RS-485: terminator on at the last unit; bias off unless the bus has none. On 24 V AC, one transformer pole for every device on the bus.

Terminal order as designed; the back plate drawing follows with the first board. Seal the cable entry against wall-cavity air. Never mains.

Commissioning

- ① Power off the unit. Wire as above; check polarity.
- ② Power on. In the AirSmart Installer app, scan the label's QR code, hold the red button on the back and join 2.4 GHz Wi-Fi.
- ③ In the AirSmart app, set each output's role, input, set points, voltage range and minimum, and the relay.
- ④ Set On at 0, 50 and 100 % and measure each output to 0 V: your start voltage, the midpoint and your end voltage, within 0.2 V. Allow 20 s per change.
- ⑤ Set Auto. Turn Wi-Fi off and cycle the power: the outputs return to their settings within 10 s. Note the settings for the handover.

Output behaviour

- **Off** bottom of the range. **On** a fixed level, 0 to 100 %. **Auto** a straight line between two set points on temperature, humidity or CO₂, either way round. Updates every 20 s. Lighting and sound are monitored, not used for control.
- **Control role:** runs a unit and never drops below the minimum you set. **Transmit role:** sends the reading to a building controller over the voltage range you set (for example 0 V at 400 ppm, 10 V at 1,000 ppm).
- **Faults** (sensor missing, settings that do not match the sensors): transmit outputs go to 0 V so a building controller sees the fault; control outputs hold their minimum.
- **Wi-Fi drops, power cuts, restarts:** runs on its stored settings, back within 10 s of power-up. During a firmware update the outputs hold their last value.
- **Relay:** switches on above one level and off below a lower one, on temperature, humidity or CO₂.
- **Schools:** Ministry guidance (2023) asks CO₂-driven systems to aim for sustained levels under 800 ppm, so choose set points to suit.¹

Heat pumps, by type

- **0 to 10 V:** commercial packaged units with a capacity or fan-speed input; EC fan coils, on fan speed (most stop below about 1 V, so set a minimum).
- **Relay, on and off:** units with a maker contact adaptor or thermostat input.
- **Infrared, on the roadmap:** not in the first release. EcoConnect will send any split, floor console, ducted or cassette unit the commands its remote sends, and pick up the commands given with the handheld remote. Line of sight to the indoor unit, up to 6 m; mount on a facing or side wall. Allow 2.5 W.
- **Not driven:** units with a wired controller and no infrared remote.

¹ Ministry of Education, Ventilation Guidance for New Zealand Schools (March 2023), pages 11, 12, 18, 23 and 29.