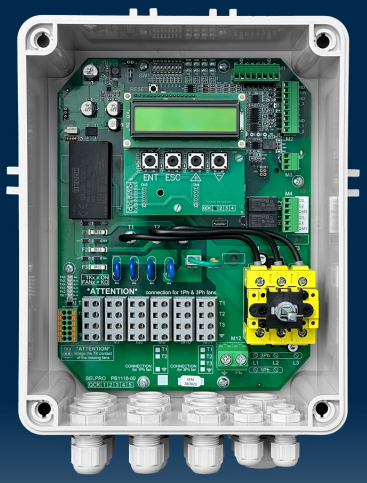
ECD

Multifunction digital Master control panel system for single-phase and three-phase EC fan motors



EC fans

Single-phase & Three-phase

Master

ECD is a **compact**, **multifunction** digital control panel designed for **intelligent control** of **EC motors** in HVAC&R installations such as **dry coolers**, **remote condensers** and **fan grids**. Available in **25 A** or **32 A** versions, it easily adapts to both **single-phase** and **three-phase** configurations, simplifying design and **standardisation** of power panels.

The controller operates exclusively in **Master mode** and is optimised for **continuous proportional control** and for managing **Copeland Digital Scroll** systems. The **0–10 Vdc** output signal, **short-circuit protected**, ensures **smooth** fan speed control, contributing to system **energy efficiency**.

ECD is sized for direct management of up to **6 EC motors**, with integrated reading of **TK contacts** for monitoring **thermal protections**. It provides **2 universal analogue inputs** for **pressure transducers** and **temperature probes**, with **automatic selection** of the **higher value**, and a **read-only input** for an **NTC 10 kΩ @ 25°C** probe.

Operational flexibility and **customisation**:

The device allows the use of **2 independent setpoints** and **2 parameter banks** selectable via an **on/off contact**, enabling **seasonal** or **functional adaptation** of the system. Advanced functions include support for **dynamic speed limits**, **winter operation** enabled via **NTC**, and **direct** or **reverse mode** for **heat pump** applications.

6 programmable auxiliary on/off contacts are available and can be assigned to functions such as **remote stop**, **night maximum limit**, **reverse / heat pump** function and **setpoint change**, for flexible management of **operating logic**. The equipment is completed by **2 configurable relays**, used for **alarms** or **auxiliary functions**.

Diagnostics and **connectivity**:

ECD is designed for integration into **BMS systems** via **Modbus RTU slave** interface, enabled through an **optional plug**, allowing **remote monitoring** and **centralised adjustment** of operating parameters.

The **technopolymer enclosure** with **IP55** protection rating and **UL-94 V0** compliant construction enables use in **outdoor** or **harsh environments**, ensuring **robustness**, **safety** and **durability**.

Rated current (RMS)

at 50 °C ambient temperature

25A 32A

Available in **25 A** and **32 A** versions capable of directly supporting up to **6** single-phase or three-phase **motor outputs** with the corresponding **TK thermal contacts**.

Supply voltage

Available options:

100/500 Vac ± 10%

50/60 Hz:

Automatic

Control output signal

0-10V

Based on a **0–10 Vdc** signal, **ECD** provides a **smooth** and **protected** command to **EC motors**, ensuring **continuous** and **silent** control.

Inputs

2 Inputs
For sensors and control signals

The controller is designed for **intelligent management** of **pressure** and **temperature** via **2 configurable analogue inputs**. It is possible to automatically select the **prevailing input value**, optimising control based on the most **critical condition**. It includes dedicated functions for **winter operation**, enabled via **1 NTC probe input**, and allows operation within **configurable speed limits**, ensuring **safe** and **efficient** performance.

4-20 mA | 0-20 mA | 0-5 V | 0-10 V | NTC -10/+90°C

Modbus RS-485 (RTU) connection

Designed for integration into **BMS systems** via **Modbus RTU slave** interface, enabled through an **optional plug**, allowing **remote monitoring** and **centralised adjustment** of operating parameters.

Slave (optional Plug module)

Control system

Proportional Master | Copeland digital scroll

ECD offers **Master proportional** and **Digital Scroll** operating modes, with **intelligent management** of **pressure** and **temperature**.

Setpoints and operating profiles

2 Setpoint

2 Banks
Customisable parameters

ECD allows definition of **2 independent setpoints** and **2 customisable parameter banks**, enabled via an **external contact**, to adapt controller behaviour to different **seasons** or **operating conditions**.

Working parameters:

- Parameter bank for Setpoint 1
- Parameter bank for Setpoint 1

Digital outputs

2 Outputs
Relay output

The controller is equipped with **two relays** with **configurable functions**, enabling advanced **customisation** for **alarm management** or other **auxiliary components**.

Digital inputs

6 Inputs
On/Off contacts

The presence of 6 programmable auxiliary on/off contacts provides wide flexibility for functions such as remote Start/Stop, night limit, direct/reverse mode and setpoint change.

- Remote Start/Stop
- Night speed limit
- Direct/reverse mode
- Work-bank switch
- Other functions available on request

Integrated isolator switch

Thanks to the **integrated main switch**, the device is configured as a **compact** and **self-contained** electrical panel, eliminating the need for **external components** for system installation.

- Integrated isolator switch
- 6 independent outputs

Technical specifications

Control input types	4–20 mA transducer, NTC probe (–10/+90°C)
No. motor connection outputs	6 motor connection outputs + TK
Interface	Digital, display 2x16 LCD display
Electrical protections	• Control input protection • Mains overvoltage protection
Protection ratings	IP55
Applicable earthing systems	Full compliance with international earthing standards IT / TT / TN
Operating temperature	-20°C / 50°C
Weight (kg)	2,5 kg
Dimensions (H×W×D) (mm)	296x247x173

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