

ECB

Compact configurable digital Master & Slave controller for single-phase and three-phase EC fan motors



 EC fans

 Master & Slave

ECB is a **compact** and **configurable** digital controller designed for **proportional** or **PI** control of single-phase and three-phase EC motors in HVAC&R systems such as **remote condensers**, **dry coolers** and **high-efficiency cooling units**. It supports **24 Vac/Vdc**, **230 Vac** or **400 Vac ($\pm 10\%$)** power supply, with **automatic 50/60 Hz** frequency selection.

Two **independent analogue outputs**—one for **0–10 Vdc** voltage signals and one for **4–20 mA** current signals—allow direct control of up to **30 EC motors per output**, enabling flexible management even in **large installations**. The outputs are **short-circuit protected**, ensuring **operational safety**.

The controller features two **programmable analogue inputs**, compatible with **4–20 mA**, **0–10 Vdc**, **0–5 Vdc** or **10 k Ω NTC** probes (25 °C, 10/60 °C) in **master mode**. In **slave mode**, ECB accepts **0–20 mA**, **4–20 mA** and **0–10 Vdc**. In both cases, the two inputs work in **parallel** with **automatic high-signal selection**.

Control can be set to **direct** or **reverse proportional** operation, or the **PI algorithm** can be enabled for advanced control of environmental parameters. In addition, an **optional plug** enables a **second setpoint**, selectable via an **on/off input**, to manage the system with **two distinct operating levels**.

ECB provides **four programmable digital inputs** that can be configured for **remote Start/Stop**, **setpoint change**, **night limit**, **reverse operation** or **maximum-speed forcing**. It also includes an **alarm relay** for **fault signalling**.

The **LED indicators** provide immediate feedback on **system status**, **power supply** and **active alarms**. ECB is available as an **IP55** version for outdoor mounting or an **IP00** version for **DIN-rail** installation.

Supply voltage

Available options:

24 Vac $\pm 10\%$ **230 Vac** $\pm 10\%$ **400 Vac** $\pm 10\%$

50/60 Hz:

Automatic

Control output signal

 **0-10V**

 **1-10V**

 **4-20mA**

Two **control outputs**, configurable as **0(1)–10 Vdc** or **4–20 mA**, **independent** and **short-circuit protected**, allow direct control of up to **30 EC fans**.

Inputs

2 Inputs

For sensors and control signals

The controller features two **programmable analog inputs**, compatible with **4–20 mA**, **0–10 Vdc**, **0–5 Vdc** or **10 k Ω NTC** probes (25 °C, 10/60 °C) in **master mode**. In **slave mode**, ECB accepts **0–20 mA**, **4–20 mA** and **0–10 Vdc**. In both cases, the two inputs work in **parallel** with **automatic high-signal selection**.

0-20 mA

4-20 mA

0-5 V

0-10 V

NTC +10/+60°C

Control system



Proportional Master



Proportional Slave



Master PI

The integrated software is designed for the dynamic management of **fan-assisted heat exchangers** and supports both **proportional control—direct or reverse—**and **PI control** with the **IES (Intelligent Energy Saving)** algorithm, for optimised control of environmental parameters and **energy performance**.

Setpoint

1 Setpoint

Optional 2nd

Input configuration and the definition of the **setpoint working band (SP)** are set via **DIP switches**. An optional **second setpoint** can also be enabled, allowing selection between **two distinct control levels** according to operating requirements.

Operating parameters

Setpoint

Proportional band

Min cut-off

Min speed limit

Max speed limit

Digital outputs

1 Output

Relay output

The device integrates an **alarm relay (RL1)** with a **changeover contact** for signalling possible **operating anomalies**.

Digital inputs

4 Inputs

On/Off contacts

Four digital inputs are provided for on/off control of the operating modes, including the ability to set a fixed speed (absolute-priority safety bypass, even in case of faults), night limit, maximum and minimum speed limits, setpoint change and remote Start/Stop.

Remote Start/Stop

Night speed limit

Heat pump

Direct/Reverse mode

Setpoint 1/2 switch

Options

Optional 2nd setpoint plug

Technical specifications

Control input types	4–20 mA transducer, 0–5 Vdc transducer, 0–10 Vdc transducer, NTC probe (+10/+60 °C)
Interface	Analogue
Electrical protections	<ul style="list-style-type: none">• Control input protection• Mains overvoltage protection
Protection ratings	IP00 Din-rail IP55
Applicable earthing systems	Full compliance with international earthing standards IT / TT / TN
Operating temperature	-20°C / 50°C
Weight (kg)	1 kg
Dimensions (H×W×D) (mm)	203x199x85



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