



Digital multifunction Master & Slave control panel system for single-phase asynchronous fan motors



AC AC fans

Single-phase

Master & Slave

ESK is a digital control panel system designed for advanced speed control of **single-phase asynchronous motors**, operating in **Master or Slave mode** with proportional control via **mains-balanced phase-cut control**. It is particularly suitable for HVAC&R applications such as **dry coolers** and **condensers**, where it ensures **precise, reliable** and **modular** control according to the system's **operating requirements**.

Based on a **compact** and **stand-alone** architecture, **ESK** integrates a **line isolator** and does not require **external components** for **commissioning**. It is available in an **IP55** version for **harsh environments** or in an **IP00** version for installation inside **electrical panels**.

The system provides management of **15 predefined configurations**, selectable to quickly adapt to different **operating logics**. It features **two analogue inputs** in **Master mode**, compatible with **4–20 mA pressure transducers**, **0.5–4.5 V** signals or **NTC probes** (reading range **-10 °C / +90 °C**). In **Slave mode** it accepts **0–10 V** and **4–20 mA** signals and includes an independent **PWM input**. A **third analogue input (IN3)** is also available, customisable on request, which can be configured to accept **0–5 V**, **0–10 V**, **4–20 mA** or **NTC** signals, providing additional **flexibility** for advanced applications.

The controller manages **two independent setpoints**, with the possibility to configure **two customised parameter banks: night limit, minimum speed, maximum speed, speed steps** and **acceleration ramps**. This enables extremely **flexible control**, adaptable to different **application profiles**.

To support advanced logic, **ESK** provides **three programmable on/off contacts** for functions such as **Start/Stop, setpoint change, reverse control** or **heat pump mode**. The **0–10 V auxiliary output** enables direct driving of **slave devices**, synchronising multiple elements within the HVAC system.

The controller also integrates a **changeover relay** with **configurable functions**, useful for **alarm management** or other **auxiliary components**. Protections on **control inputs** and against **mains overvoltage** ensure high **operational reliability** and continuity of operation.

Integration with **supervision systems** is possible via an **optional Modbus RTU plug**, enabling **remote monitoring** and interconnection with **BMS** or **plant controllers**.

Rated current (RMS)

at 50 °C ambient temperature



Supply voltage

Available options:

230 Vac ± 15%

50/60 Hz:

Automatic

Control principle



Phase-cut control

Single-phase phase-cut control, mains-synchronised and line-balanced

Inputs

3

Inputs

For sensors and control signals

Equipped with **2 analogue inputs** in **Master mode**, compatible with **4–20 mA** pressure transducers, **0.5–4.5 V** signals or **NTC temperature probes** ($-10^{\circ}/+90^{\circ}\text{C}$). In **Slave mode**, it accepts **0–10 V** and **4–20 mA** signals, as well as an independent **PWM input** and an **NTC input** for **special functions**.

4–20 mA

0–5 V

NTC $-10^{\circ}/+90^{\circ}\text{C}$

PWM

NTC

Control system



Proportional Master



Proportional Slave

Setpoint

2

Setpoint

Includes the possibility to operate with a single or dual setpoint (via optional plug), adapting controller behaviour to different system conditions.

Operating parameters:

Parameter bank for Setpoint 1

Parameter bank for Setpoint 2

Digital outputs

1

Output

Relay

The controller is equipped with a changeover relay with configurable functions, enabling advanced customisation for alarm management or other auxiliary components.

Digital inputs

3 Inputs
On/Off

ESK features 3 programmable on/off contacts for managing switching between setpoint 1/2, Start/Stop, reverse control or heat pump mode.

Work-bank switch

Remote Start/Stop

Direct/Reverse mode

Heat pump

Auxiliary control outputs

For advanced control of slave units, ESK provides a 0–10 V output and a PWM output, enabling synchronised management of multiple devices within an HVAC system.

0–10 Vdc output

PWM output

Modbus RS-485 (RTU) connection

Integration with supervision systems is facilitated thanks to Modbus RTU BMS support via plug, enabling advanced remote monitoring.

Slave (optional plug)

Integrated isolator switch

Thanks to the integrated isolator, 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

Options

Plug Modbus

Technical specifications

Control input types	4–20 mA transducer, 0.5–4.5 Vdc transducer, 0–10 Vdc transducer, NTC probe (–10/+90°C)
Number of motor connection outputs	6
Interface	Digital, 2×16 character LCD display
Electrical protections	<ul style="list-style-type: none">• 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)	<ul style="list-style-type: none">• 14A 3,8 kg• 20A 6,5 kg• 28A 6,8 kg
Dimensions H × W × D (mm)	<ul style="list-style-type: none">• 14A 255x235x142,5• 20A 255x235x155• 28A 285x200x197



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