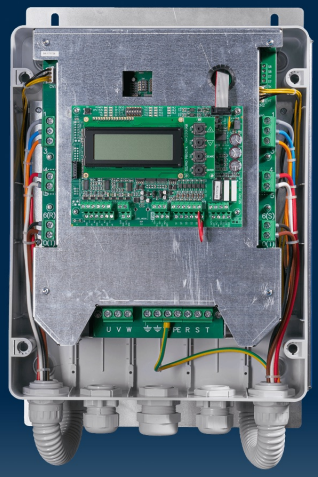
# DSV

## Digital sinusoidal controller with advanced Wet & Dry system management for three-phase asynchronous fan motors



AC fans

Three-phase

Master & Slave

The Selpro **DSV** series represents the new frontier of fully **compliant control** for ventilation systems with three-phase **AC motors**.

Based on a **hybrid stepped-sine voltage technology**, it is designed to provide **smooth** and **completely silent** control, free from **harmonic distortion** (**THD = 0%**) and fully compliant with **European EMC regulations**.

Unlike **inverters** and **phase-cut controllers**, **DSV** ensures total absence of **acoustic noise** and **electrical disturbances**, even with standard **asynchronous motors**.

Thanks to **digital sequential switching** at **6+2 levels**, each **voltage change** occurs progressively via **autotransformers**, with **soft-start** management on each step, reducing **current peaks** and **mechanical stress** on **fan motors**.

**DSV** is an advanced electronic controller, designed for **precise**, **silent** and **efficient** control, ideal for HVAC&R applications such as **dry coolers**, **condensers**, **chillers** and ventilation systems with **high-slip asynchronous motors**.

**DSV** is available in proportional **Master** or **Slave** version, and can supply AC motor groups up to **48 A rated current (RMS)**, with **400 Vac three-phase power supply**. It is compatible with all **high-slip motors** and is housed in an **IP55 enclosure**, protected against **dust** and **water**.

**Operational flexibility and customisation**:

It supports **2 independent setpoints** and **2 customisable parameter banks**, for managing **speed ramps**, **voltage steps**, **night limit**, **day/night mode** and **seasonal logics**. Selection of the **control channel** can occur automatically based on the **higher value** between the **2 analogue inputs** available.

**Intelligent management of adiabatic systems:**

**DSV** is designed for advanced control of **adiabatic systems**, with a proportional **0–10 Vdc output** for **pumps** or **inverters** and an **ON/OFF** relay command, which can be activated based on **temperature**, **scheduled times** or defined **environmental thresholds**. The synergy between **ventilation** and **evaporative cooling** ensures maximum efficiency even under the most demanding conditions.

**Advanced diagnostics and reliability:**

It includes an **event logger** with internal **real-time clock (RTC)** for **traceability** of **operational transitions**, **alarms** and **control states**. Operating parameters are accessible via **Modbus RTU interface**, facilitating integration with **BMS systems** and **remote operation** management. Electronic protections against **overvoltage**, **overload**, **blocked fans** and **power supply faults** make it ideal for critical systems requiring high **service continuity**.

**DSV** is the complete solution for **robust**, **efficient** and **intelligent** control of three-phase motors, for those seeking **silence**, **reliability** and **connectivity**.

## Rated current (RMS)

at 50 °C ambient temperature

12A 20A 27A 34A 48A

## Supply voltage

Available options:

400 Vac ± 10% | 230 Vac ± 10%

50/60 Hz:

Automatic

## Control principle

**Stepped sinusoidal voltage control**

**Hybrid stepped-sine voltage technology**, designed to provide **smooth** and **completely silent** control, free from **harmonic distortion** (**THD = 0%**) and fully compliant with **European EMC regulations**.

## Inputs

**3 Inputs**
For sensors and control signals

The device provides **2 analogue inputs** compatible with **pressure transducers** (**4–20 mA**, **0–5 V**) or **NTC probes** (**–10 / 90 °C**) in **Master mode**. In **Slave mode** it supports **0–10 V**, **0–20 mA** and **4–20 mA** signals. An additional **read-only input** is also provided for activation of **special functions**.

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

## Modbus RS-485 (RTU) connection

The controller has a dedicated input for integration with **BMS systems** via **Modbus RTU slave** connection.

Slave

## Control system

**Proportional Master** **Proportional Slave**

**DSV** is available in proportional **Master** or **Slave** version, and can supply AC motor groups up to **48 A rated current (RMS)**, with **400 Vac three-phase power supply**.

## Setpoints and operating profiles

**2 Setpoint**

**2 Banks** Customisable parameters

It supports **2 independent setpoints** and **2 customisable parameter banks**, for managing **speed ramps**, **voltage steps**, **night limit**, **day/night mode** and **seasonal logics**.

**Working parameters:**

- Parameter bank for Setpoint 1
- Parameter bank for Setpoint 2

## Digital outputs

**3 Outputs** Relay

The controller is equipped with **three relays** with **configurable functions**, enabling advanced **customisation** for **alarm management** or other **auxiliary components** such as management of an **adiabatic system**.

## Digital inputs

**6 Inputs** On/Off

It includes **6 programmable on/off contacts** with operating functions such as **remote Start/Stop**, **setpoint change**, **night limit**, **reverse mode**, **TK management** and **spray activation**.

- Remote Start/Stop
- Motor thermal contacts (TK)
- Night speed limit
- Direct/reverse mode
- Work-bank switch
- Fixed speed with spray

## Auxiliary control outputs and adiabatic system management

Designed for advanced control of **adiabatic systems**, thanks to **2 programmable 0–10 Vdc outputs**, which can be used both to drive **slave devices** and for **proportional control** of the **adiabatic system**. It also includes an **ON/OFF command** via **relay**, activatable based on **temperature**, **time bands** or defined **environmental thresholds**.

- Proportional output 0(1)–10 Vdc
- On/Off enable command

## Technical specifications

| | |
|---|---|
| **Control input types** | 4–20 mA transducer, 0–5 Vdc transducer, NTC probe (–10/+90 °C) |
| **Number of motor connection outputs** | 1 |
| **Interface** | Digital |
| **Internal clock** | Event logger with internal real-time clock (RTC) for traceability of operational transitions. |
| **Electrical protections** | • Control input protection<br>• Mains overvoltage protection |
| **Protection ratings** | IP55 - IP20 (on request) |
| **Applicable earthing systems** | Full compliance with international earthing standards IT / TT / TN |
| **Operating temperature** | -20°C / 50°C |
| **Weight (kg)** | • 12 A 18,2 Kg<br>• 20 A 31,6 Kg<br>• 28 A 41 Kg<br>• 34 A 11,5 Kg + TRAFO 45 Kg coppia<br>• 48 A 11,5 Kg + TRAFO 56,4 Kg copia |
| **Dimensions H × W × D (mm)** | • 12 A 495 x 325 x 345<br>• 20 A 495 x 325 x 445<br>• 28 A 362 x 395 x 193 TRAFO 376 x 257 x 141<br>• 34 A 362 x 395 x 193 + TRAFO 376 x 257 x 141<br>• 48 A 362 x 395 x 193 + TRAFO 376 x 257 x 141 |