

Fact Sheet

VLT® HVAC Drive



The VLT® HVAC Drive is a full-featured, HVAC dedicated drive with built-in intelligence. It has a vast number of functions developed to meet the diverse needs of the HVAC business. It is the perfect match for pumps, fans and compressors in modern buildings that are fitted with increasingly sophisticated solutions.

Perfect

for pumps, fans, and compressors

Product range:

- 1 x 200 – 240 V1.5 – 30 HP
- 3 x 200 – 240 V1.5 – 200 HP
- 3 x 380 – 480 V 1.5 – 1350 HP
- 3 x 600 V 1.5 – 1550 HP
- 3 x 690 V 1.5 – 1900 HP

With 110% overload torque

Available enclosure ratings:

- NEMA/UL Type 1/IP21 1.5–1900 HP
- NEMA/UL Type 12/IP54 150–1900 HP
- NEMA/UL Type 12/IP55 1.5–125 HP
- NEMA/UL Type 3R..... 1.5–125 HP
- NEMA/UL Type 4X/IP66.....1.5–125 HP

Feature	Benefit
All built-in – low investment	
Modular product concept and a wide range of options	Low initial investment – max. flexibility, later upgrade possible
Dedicated HVAC I/O functionality for temperature sensors etc.	External conversion saved
Decentral I/O control via serial communication	Reduced wiring costs and fewer controller I/O needed
Wide range of HVAC protocols for BMS controller connectivity	Less extra gateway solutions needed
4 x auto tuned PID's	No external PID controllers required
Smart Logic Controller	Often makes external controller unnecessary
Real Time Clock	Enables daily and weekly settings
Integrated fan, pump and compressor functionality	Reduces external control and conversion equipment needs
Fire Override Mode, Dry Run Detection Variable or Constant Torque	Protects equipment and saves energy
Condition Based Monitoring	Monitor motor and application to prevent equipment downtime
Save energy – less operation cost	
Automatic Energy Optimizer function, advanced version	Saves 5 – 15% energy
Advanced energy monitoring	Overview on energy consumption
Energy saving functions i.e. flow compensation, sleep mode	Saves energy
Unequaled robustness – maximum uptime	
Robust single enclosure	Maintenance-free
Unique cooling concept with no ambient air flow over electronics	Problem-free operation in harsh environments
Max ambient temp. 50° C without derating	No external cooling or derating necessary
User friendly – save commissioning and operating cost	
Smart Start	Quick and precise start-up
Award winning graphic display, 27 languages	Effective commissioning and operation
USB plug and play connection	Easy to use PC software tools
Global HVAC support organization	Local service – globally
Built-in DC coils and RFI filters – no EMC concerns	
Integrated DC link harmonic filters	Small power cables. Meets EN 61000-3-12
Integrated EMC filters	Meets EN 55011 Class B, A1 or A2



Application options

A wide range of integrated HVAC options can be fitted in the drive:

- **General purpose I/O option (MCB 101)**
3 digital inputs, 2 digital outputs, 1 analog current output, 2 analog voltage inputs.
- **Relay option (MCB 105)**
Adds 3 relay outputs
- **Analog I/O option (MCB 109)**
3 Pt1000/Ni1000 inputs, 3 analog voltage outputs
- **External 24 VDC supply (MCB 107)**
24 VDC external supply can be connected to supply control and option cards when main power is disconnected.
- **Extended Relay option (MCB 113)**
Adds 7 digital inputs, 4 - Form C relays and 2 analog outputs and mounts in the drive's C option slot.
- **Brake chopper option**
Connected to an external brake resistor, the built-in brake chopper limits the DC bus voltage when the motor acts as generator.
- **AC line protection options**
Built in disconnect and fuses available

Power options

A wide range of external power options are available for VLT® HVAC Drive in critical power applications:

- **Advanced harmonic filters:** For critical limitations on harmonic distortion
- **dV/dt filters:** For special demands on motor insulation protection
- **Sine wave filters:** (LC filters)
For noiseless motor and when long motor leads are required

HVAC PC software tools

- **MCT 10:** Ideal for commissioning and servicing the drive
- **VLT® Energy Box:** Comprehensive energy analysis tool, shows the drive payback time
- **MCT 31:** Harmonic analysis tool

Power supply (L1, L2, L3)	
Supply voltage	200–240 V ±10%
Supply voltage	380–480 V ±10%
Supply voltage	525–600 V ±10%
Supply frequency	50/60 Hz
Displacement Power Factor (cos φ) near unity	(> 0.98)
Switching on input supply L1, L2, L3	1–2 times/min.
Output data (U, V, W)	
Output voltage	0–100% of supply voltage
Switching on output	Unlimited
Ramp times	1–3600 sec.
Open/Closed loop	0–1000 Hz
Digital inputs	
Programmable digital inputs	6*
Logic	PNP or NPN
Voltage level	0–24 VDC
* 2 can be used as digital outputs	
Pulse inputs	
Programmable pulse inputs	2*
Voltage level	0–24 VDC (PNP positive logic)
Pulse input accuracy	(0.1–110 kHz)
* Utilize some of the digital inputs	
Analog input	
Analog inputs	2
Modes	Voltage or current
Voltage level	0 V to +10 V (scaleable)
Current level	0/4 to 20 mA (scaleable)
Analog output	
Programmable analog outputs	1
Current range at analog output	0/4–20 mA
Relay outputs	
Programmable relay outputs	2 (240 VAC, 2 A and 400 VAC, 2 A)
Fieldbus communication	
Standard built-in:	Optional:
FC Protocol	LonWorks (MCA 108)
N2 Metasys	BACnet (MCA 109)
FLN Apogee	DeviceNet (MCA 104)
Modbus RTU	Profibus (MCA 101)
BACnet	Profinet SRT
	Ethernet IP
	Modbus TCP
OSHPD Special Seismic Certification	
Pre-Approval	Certification expedites seismic authorization by regulatory agencies.