

# VLT® AutomationDrive

The VLT® AutomationDrive is a single drive concept that covers an entire range of applications, which is a major benefit in commissioning, operating and maintaining the equipment.



The modular open-technology platform that VLT® AutomationDrive is built on makes it exceptionally adaptable and programmable. Its configurable, user-friendly interface supports local languages and letters.

## Pluggable options

The drive solution can be adapted to any application due to the flexible option structure. Numerous options are available and can be mounted and tested from factory or be plugged in later for change-over or upgrade.

## Adapts to the future

The modular concept of VLT® AutomationDrive makes it highly adaptable – also to future features and options. Modularity offers the benefit of buying on a need-to-have basis without losing future possibilities.

## Hot pluggable Control Panel

The Local Control Panel (LCP) can be plugged in directly or connected through a cable for remote commissioning. The LCP can be disconnected during operation and replaced with a blind cover. Settings are easily transferred via the LCP from one drive to another or from a PC to a drive with the VLT® Set-up Software MCT 10.

## Awarded

VLT® AutomationDrive has received the Frost & Sullivan award for innovation and the iF Design Award for its user-friendliness.

## Power range

3 x 200 – 240 V .....	0.25 – 37 kW
3 x 380 – 480/500 V .....	0.37 – 800 kW
3 x 525 – 600 V .....	0.75 – 75 kW
3 x 535 – 690 V .....	37 – 1200 kW
Normal overload .....	45 – 1400 kW

# Perfect

## match for:

- Industrial automation
- High dynamic applications
- Safety installations

Feature	Benefit
<b>Reliable</b>	<b>Maximum uptime</b>
Ambient temperature 50° C without derating	Less need for cooling or oversizing
Available in IP 00, 20, 21, 54, 55 and 66 enclosures	Suitable for harsh and wash down areas
Resistant to wear and tear	Low lifetime cost
Back-channel cooling for frame D, E and F	Prolonged lifetime of electronics
<b>User-friendly</b>	<b>Saves commissioning and operating cost</b>
Plug-and-Play technology	Easy upgrade and change over
Awarded control panel	User-friendly
Intuitive VLT® interface	Saves time
Pluggable cage clamp connectors	Easy connection
Exchangeable languages	User-friendly
<b>Intelligent</b>	
Intelligent warning systems	Warning before controlled stop
Smart Logic Control	Reduces need for PLC capacity
Advanced plug-in features	Easy commissioning
<b>Safe stop</b>	Safety cat. 3 (EN 954-1), PL d (ISO 13849-1), Stop cat. 0 (EN 60204-1)
STO: Safe Torque Off (IEC 61800-5-2)	SIL 2 (IEC 61508) SIL CL 2 (IEC 62061)
Intelligent heat management	Excess heat effectively removed

## Options

The following options are available:

### Fieldbus options

- MCA 101 Profibus
- MCA 104 DeviceNet
- MCA 105 CanOpen
- MCA 113 Profibus VLT® 3000 protocol converter
- MCA 114 Profibus VLT® 5000 protocol converter
- MCA 120 PROFINET
- MCA 121 Ethernet IP
- MCA 122 Modbus TCP

### I/O and feedback options

- MCB 101 General Purpose I/O
- MCB 102 Encoder
- MCB 103 Resolver
- MCB 105 Relay
- MCB 107 24 V input option for control voltage
- MCB 113 Extended Relay Card
- MCB 114 VLT® Sensor Input

### Safety options

- MCB 108 Safety PLC interface (DC/DC converter)
- MCB 112 ATEX-PTC Thermistor Card

### Brake chopper (IGBT) option

Connected to an external brake resistor, the built-in brake chopper limits the load on the intermediate circuit in the case the motor acts as a generator.

### Motion Control Options

- MCO 305 Programmable Motion Controller
- MCO 350 Synchronizing Controller
- MCO 351 Positioning Controller
- MCO 352 Center Winder Controller

### Power options

- Brake resistors
- Sine-Wave Filters
- dU/dt Filters
- Harmonic Filters (AHF)

## Specifications

Mains supply (L1, L2, L3)	
Supply voltage	200 – 240 V $\pm 10\%$ FC 301: 380 – 480 V $\pm 10\%$ FC 302: 380 – 500 V $\pm 10\%$ , 525 – 600 V $\pm 10\%$ 525 – 690 V $\pm 10\%$
Supply frequency	50/60 Hz
True Power Factor ( $\lambda$ )	0.92 nominal at rated load
Displacement Power Factor ( $\cos\phi$ ) near unity	(>0.98)
Switching on input supply L1, L2, L3	Maximum 2 times/min.
Output data (U, V, W)	
Output voltage	0 – 100% of supply voltage
Output frequency	FC 301: 0.2 – 1000 Hz (0.25 – 75 kW) FC 302: 0 – 1000 Hz (0.25 – 75 kW) 0 – 800 Hz (90 – 1200 kW) 0 – 300 Hz (Flux mode)
Switching on output	Unlimited
Ramp times	1 – 3600 sec.
<i>Note: 160% current can be provided for 1 minute. Higher overload rating is achieved by oversizing the drive.</i>	
Digital inputs	
Programmable digital inputs	FC 301: 4 (5) / FC 302: 4 (6)
Logic	PNP or NPN
Voltage level	0 – 24 V DC
<i>Note: One/two digital inputs can be programmed as digital output for FC 301/FC 302.</i>	
Analogue inputs	
Analogue inputs	2
Modes	Voltage or current
Voltage level	FC 301: 0 to +10 V / FC 302: -10 to +10 V (scaleable)
Current level	0/4 – 20 mA (scaleable)
Pulse/encoder inputs	
Programmable pulse/encoder inputs	FC 301: 1 / FC 302: 2
Voltage level	0 – 24 V DC (PNP positive logic)
Digital output*	
Programmable digital/pulse outputs	FC 301: 1 / FC 302: 2
Voltage level at digital/frequency output	0 – 24 V
Analogue output*	
Programmable analogue outputs	1
Current range	0/4 – 20 mA
Relay outputs*	
Programmable relay outputs	FC 301: 1 / FC 302: 2
Cable lengths	
Max. motor cable lengths	FC 301: 50 m / FC 302: 150 m (screened/armoured) FC 301: 75 m / FC 302: 300 m (unscreened/unarmoured)

\*More analogue and digital inputs/outputs can be added by options

### Other accessories

- IP 21/NEMA 1 Kit (convert IP 20 to IP 21)
- PROFIBUS adapter
- Sub-D9 Connector
- Decoupling plate for fieldbus cables
- USB connection cable to PC
- Panel Through option
- LCP panel mounting kit
- Mains disconnect option

### High power options

- IEC Emergency stop with Safety Relay
- Safety Stop with Safety Relay
- RFI Filters
- NAMUR terminals
- RCD
- IRM
- Mains shielding
- Regen terminals

Please see the VLT® High Power Drive Selection Guide for the complete range of options.