ENGINEERING TOMORROW

VLT® AutomationDrive

The premier, globally supported drive concept for exceptional control of motor driven applications.

Designed for variable speed control of all asynchronous motors and permanent magnet motors, on any industrial machine or production line, a VLT® AutomationDrive helps its owner save energy, increase flexibility, and optimize processes.

Flexible and expandable
Built on a flexible, modular design concept the AutomationDrive is packed with standard, industry features out of the box. These can be expanded with plug-and-play options with additional features, positioning control, fieldbuses, safety functions such as STO, SS1, SLS, SMS and SSM, motor protection and more.

Robust and safe
VLT AutomationDrives are proven performers in all industrial environments and grid voltages, including 690V. Enclosures are available up to IP 66 (depending on model), and integrated DC chokes and RFI filters in all models protect installations by minimizing harmonic distortion and electromagnetic interferences. All drives are fully tested at the factory before they are shipped.

Easy to set up and operate via the user-friendly graphical control panel, a VLT AutomationDrive only requires little maintenance once in operation. The result is an market leading control solution that provides a fast return on investment and a highly competitive cost of ownership.

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 kW – 75 kW
3 x 525 – 690 V.....1.1 kW – 1.2 MW
Normal overload.....1.5 kW – 1.4 MW

98%

Energy efficiency

Optmize processes while reducing energy costs. Versatile, flexible, configurable and built to last.

Feature	Benefit
Reliable	**Maximum uptime**
Ambient temperature 50° C without derating	Less need for cooling or oversizing
Available in IP 00, 20, 21, 54, 55 and 66 enclosures	Enclosures for all environments
Resistant to wear and tear	Low lifetime cost
Back-channel cooling for frame D, E and F	Prolonged lifetime of electronics
User-friendly	**Saves commissioning and operating cost**
Plug-and-Play technology	Easy upgrade and changeover
Awarded control panel	User-friendly
Intuitive VLT® interface	Saves time
Pluggable cage clamp connectors	Easy connection
Exchangeable languages	User-friendly
Intelligent	
Intelligent warning systems	Warning before controlled stop
Smart Logic Control	Reduces need for PLC capacity
Advanced plug-in features	Easy commissioning
Safe stop	Safety cat. 3, 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	Intelligent heat management

ENGINEERING TOMORROW

Fieldbus options

- VLT® PROFIBUS DP MCA 101
- VLT® DeviceNet MCA 104
- VLT® CanOpen MCA 105
- VLT® Profibus Converter MCA 113
- VLT® Profibus Converter MCA 114
- VLT® PROFINET MCA 120
- VLT® Ethernet/IP MCA 121
- VLT® Modbus TCP MCA 122
- VLT® POWERLINK MCA 123
- VLT® EtherCAT MCA 124
- VLT® DeviceNet Converter MCA 194

I/O and feedback options

- VLT® General Purpose I/O MCB 101
- VLT® Encoder Input MCB 102
- VLT® Resolver Input MCB 103
- VLT® Relay Card MCB 105
- VLT® 24 V External Supply MCB 107
- VLT® Extended Relay Card MCB 113
- VLT® Sensor Input MCB 114

Safety options

- VLT® Safe PLC I/O MCB 108
- VLT® PTC Thermistor Card MCB 112
- VLT® Safe Option MCB 140 Series
- VLT® Safe Option MCB 150 Series

Motion Control Options

- VLT® Motion Control Option MCO 305
- VLT® Synchronizing Controller MCO 350
- VLT® Position Controller MCO 351
- VLT® Center Winder MCO 352

Power options

- VLT® Brake resistors MCE 101
- VLT® Sine-Wave Filters MCC 101
- VLT® dU/dt Filters MCC 102
- VLT® Common Mode Filter MCC 105
- VLT® Advanced Harmonic Filters AHF 005/010

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

Specifications

Mains supply (L1, L2, L3)	
Supply voltage	200 – 240 V ±10% FC 301: 380 – 480 V ±10% FC 302: 380 – 500 V ±10%, 525 – 600 V ±10% 525 – 690 V ±10%
Supply frequency	50/60 Hz
True Power Factor (λ)	0.92 nominal at rated load
Displacement Power Factor (cos φ) 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 – 590 Hz (0.25 – 75 kW) FC 302: 0 – 590 Hz (0.25 – 75 kW) 0 – 590 Hz (90 – 1200 kW) 0 – 300 Hz (Flux mode)
Switching on output	Unlimited
Ramp times	1–3600 sec.

Note: 160% current can be provided for 1 minute.
Higher overload rating is achieved by oversizing the drive.

Digital inputs	
Programmable digital inputs	FC 301: 4 (5) / FC 302: 4 (6)
Logic	PNP or NPN
Voltage level	0 – 24 VDC

Note: One/two digital inputs can be programmed as digital output for FC 301/FC 302.

Analogue input	
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 to 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 with options.*

- Mounting brackets
- Mains disconnect option
- USB Extension
- Interbus gateway MCA 110
- Option Adapter
- RCMB20/RCMB35 Leakage Current Monitor Module

Brake chopper (IGBT) option

Limits the load on the intermediate circuit in the case the motor acts as a generator.

High power options

- Emergency stop with Safety Relay
- Safety Stop with Safety Relay
- RFI Filters
- NAMUR terminals
- Residual Current Device
- Insulation Resistance Monitor
- Mains shielding
- Regen terminals

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

Danfoss VLT Drives, Ulsnaes 1, DK-6300 Graasten, Denmark, Tel. +45 74 88 22 22, Fax +45 74 65 25 80
www.danfoss.com/drives • E-mail: info@danfoss.com

DKDD.PFP.301.A3.02 VLT® is a trademark of Danfoss A/S Produced by PE-MMSC 2014.09