

VLT® AQUA Drive technical data

Basic unit without extensions

| Main supply (L1, L2, L3) | |
|--|--|
| Supply voltage | 1 x 200 – 240 V AC..... 1.1 – 22 kW 1 x 380 – 480 V AC..... 7.5 – 37 kW 3 x 200 – 240 V AC..... 0.25 – 45 kW 3 x 380 – 480 V AC..... 0.37 – 1000 kW 3 x 525 – 600 V AC..... 0.75 – 90 kW 3 x 525 – 690 V AC..... 1.1 – 1400 kW* |
| Supply frequency | 50/60 Hz |
| Displacement power factor (cos φ) near unity | > 0.98 |
| True power factor (λ) | ≥ 0.9 |
| Switching on input supply L1, L2, L3 | 1–2 times/min. |
| Harmonic disturbance | Meets EN 61000-3-12 |

* Up to 2000 kW available on request

| Output data (U, V, W) | |
|--|----------------------------|
| Output voltage | 0 – 100% of supply voltage |
| Output frequency (dependent on power size) | 0-590 Hz |
| Switching on output | Unlimited |
| Ramp times | 0.1 – 3600 sec. |

Note: VLT® AQUA Drive can provide 110%, 150% or 160% current for 1 minute, dependent on power size and parameter settings. Higher overload rating is achieved by oversizing the drive.

| Digital inputs | |
|------------------------------|---------------------|
| Programmable digital inputs | 6* |
| Changeable to digital output | 2 (terminal 27, 29) |
| Logic | PNP or NPN |
| Voltage level | 0 – 24 V DC |
| Maximum voltage on input | 28 V DC |
| Input resistance, Ri | Approx. 4 kΩ |
| Scan interval | 5 ms |

* Two of the inputs can be used as digital outputs.

| Analog inputs | |
|---------------------------|--------------------------------|
| Analogue inputs | 2 |
| Modes | Voltage or current |
| Voltage level | 0 to +10 V (scaleable) |
| Current level | 0/4 to 20 mA (scaleable) |
| Accuracy of analog inputs | Max. error: 0.5% of full scale |

| Pulse inputs | |
|------------------------------------|----------------------------------|
| Programmable pulse inputs | 2* |
| Voltage level | 0 – 24 V DC (PNP positive logic) |
| Pulse input accuracy (0.1 – 1 kHz) | Max. error: 0.1% of full scale |

* Two of the digital inputs can be used for pulse inputs.

| Digital outputs | |
|--|--------------------------------|
| Programmable digital/pulse outputs | 2 |
| Voltage level at digital/frequency output | 0 – 24 V DC |
| Max. output current (sink or source) | 40 mA |
| Maximum output frequency at frequency output | 0 to 32 kHz |
| Accuracy on frequency output | Max. error: 0.1% of full scale |

| Analogue output | |
|---|------------------------------|
| Programmable analogue outputs | 1 |
| Current range at analogue output | 0/4 – 20 mA |
| Max. load to common at analogue output (clamp 30) | 500 Ω |
| Accuracy on analogue output | Max. error: 1% of full scale |

| Control card | |
|------------------|------------------|
| USB interface | 1.1 (Full Speed) |
| USB plug | Type "B" |
| RS485 interface | Up to 115 kBaud |
| Max. load (10 V) | 15 mA |
| Max. load (24 V) | 200 mA |

| Relay output | |
|---|------------------------------|
| Programmable relay outputs | 2 |
| Max. terminal load (AC) on 1-3 (break), 1-2 (make), 4-6 (break) power card | 240 V AC, 2 A |
| Max. terminal load (AC) on 4-5 (make) power card | 400 V AC, 2 A |
| Min. terminal load on 1-3 (break), 1-2 (make), 4-6 (break), 4-5 (make) power card | 24 V DC 10 mA, 24 V AC 20 mA |

| Surroundings/external | |
|---------------------------|---|
| Enclosure | IP: 00/20/21/54/55/66 UL Type: Chassis/1/12/4x Outdoor |
| Vibration test | 1.0 g (D, E & F-enclosures: 0.7 g) |
| Max. relative humidity | 5% – 95% (IEC 721-3-3; Class 3K3 (non-condensing) during operation) |
| Ambient temperature | Up to 55° C (50° C without derating; D-frame 45° C) |
| Galvanic isolation of all | I/O supplies according to PELV |
| Aggressive environment | Designed for coated/uncoated 3C3/3C2 (IEC 60721-3-3) |

| Fieldbus communication | |
|---|--|
| Standard built-in: FC Protocol Modbus RTU | Optional: VLT® PROFIBUS DP V1 MCA 101 VLT® DeviceNet MCA 104 VLT® PROFINET MCA 120 VLT® EtherNet/IP MCA 121 VLT® Modbus TCP MCA 122 |

| Ambient temperature | |
|--|--|
| – Electronic thermal motor protection against overload | |
| – Up to 55° C (50° C without derating; D-frame 45° C) | |
| – Temperature monitoring of the heatsink ensures that the frequency converter trips in case of overtemperature | |
| – The frequency converter is protected against short-circuits on motor terminals U, V, W | |
| – The frequency converter is protected against earth faults on motor terminals U, V, W | |
| – Protection against mains phase loss | |

| Application options | |
|--|--|
| Extend the functionality of the drive with integrated options: | |
| • VLT® General Purpose I/O MCB 101 | |
| • VLT® Extended Cascade Controller MCO 101 | |
| • VLT® Advanced Cascade Controller MCO 102 | |
| • VLT® Sensor Input MCB 114 | |
| • VLT® PTC Thermistor Card MCB 112 | |
| • VLT® Extended Relay Card MCB 113 | |
| • VLT® 24 V External Supply MCB 107 | |

| Relay and analogue I/O option | |
|-------------------------------|--|
| • VLT® Relay Card MCB 105 | |
| • VLT® Analog I/O MCB109 | |

| Power options | |
|---|--|
| Choose from a wide range of external power options for use with our drive in critical networks or applications: | |
| • VLT® Low Harmonic Drive | |
| • VLT® Advanced Active Filter | |
| • VLT® Advanced Harmonic Filter | |
| • VLT® dU/dt filter | |
| • VLT® Sine wave filter (LC filter) | |

| High power options | |
|--|--|
| See the VLT® High Power Drive Selection Guide for a complete list. | |

| PC software tools | |
|-----------------------------------|--|
| • VLT® Motion Control Tool MCT 10 | |
| • VLT® Energy Box | |
| • VLT® Motion Control Tool MCT 31 | |