



Variable speed drives  
VLB3

Product designation

Product type designation

**General characteristics**

|                            |     |  |
|----------------------------|-----|--|
| Rated power supply voltage |     | Three phase<br>400...480VAC<br>50/60Hz       |
| Rated output voltage       | VAC | Three-phase 0...<br>480VAC 0-599Hz           |
| Rated output current       | A   | 61 (heavy load) /<br>73.2 (standard<br>load) |
| Rated output power         | kW  | 30 (Heavy load) /<br>37 (Standard<br>load)   |
| EMC filter                 |     | Built-in EMC<br>suppressor cat.<br>C2        |
| Communication port         |     | Built-in RS485,<br>Modbus RTU<br>protocol    |

**Technical features**

|                                      |                      |  |
|--------------------------------------|----------------------|--|
| Input type                           |                      | Three phase  |
| Rated mains voltage                  | VAC                  | 400...480  |
| Operating mains voltage range        | VAC                  | 340...528  |
| Rated mains frequency                | Hz                   | 50/60  |
| Operating mains frequency range      | Hz                   | 45...65  |
| Rated mains current with mains choke |                      | 54.9 (heavy load)<br>/ 69 (standard<br>load)           |
| Output type                          |                      | three-phase  |
| Output voltage range                 | VAC                  | 0...480  |
| Output frequency range               | Hz                   | 0...599  |
| Current overload                     | %/s                  | 150% for 60s;<br>200% for 3s                           |
| Apparent output power                |                      | 41 (heavy load) /<br>49 (standard<br>load)             |
| Power loss                           |                      | 4kHz: 680W<br>(heavy load) /<br>810 (standard<br>load) |
| Brake chopper                        |                      | Yes  |
| Switching frequency                  |                      | 2...16kHz  |
| Max motor cable length               |                      |  |
|                                      | Shielded             |  |
|                                      | Without EMC category | m 100  |

|             |   |    |
|-------------|---|----|
| Category C1 | m | 3  |
| Category C2 | m | 20 |
| Category C3 | m | 35 |

Unshielded

Without EMC category m 200

## Functions

|  |  |
|--|--|
| Motor control modes                            | V/f linear, quadratic torque, sensorless vector control, ECO mode, servo control with encoder feedback, multipoint V/f curve, V/f closed loop control with encoder feedback, torque setpoint, sensorless control for synchronous motors up to 22kW |
| Speed reference signals                        | External potentiometer 0...10kΩ Voltage signals: 0...10VDC or -10...+10VDC Current signals: 0/4...20mA Buttons on front keyboard Door-mount installation kit 15 preset speeds via digital inputs Motor potentiometer Fieldbus                      |
| 3-wire control                                 | Yes  |
| S-shape curves                                 | Yes  |
| Slip compensation                              | Yes  |
| Flying restart                                 | Yes  |
| Access to DC bus                               | Yes  |
| DC braking                                     | Yes  |
| DC injection at start                          | Yes  |
| PID control                                    | Yes, with sleep and rinse function   |
| Sequencer (programmable frequency/time cycles) | Yes  |
| Preset speeds                                  | Yes  |
| Motorpotentiometer                             | Yes  |
| Different parameter configuration sets         | Yes  |
| Parameters changeover function                 | Yes  |
| Favorite parameters menu                       | Yes  |

|                                       |  |
|---------------------------------------|--|
| Autotuning                            | No   |
| Safe torque Off (STO) safety function | Optional   |
| PTC probe input                       | Yes  |
| Protections                           | Overcurrent<br>Output short circuit and earth/ground leakage<br>Overvoltage<br>Undervoltage<br>Phase loss<br>Motor heat overload (i2t)<br>Overspeed<br>Speed reverse |
| Special funct.                        | Multi-pump PID control (1 main pump frequency regulated + 2 auxiliary pumps activated in direct mode in case of necessity)   |
| <b>Input and Output</b>               |  |
| Number of digital input               | n° 5   |
| Digital input type                    | Selectable PNP or NPN logic  |
| Number of digital output              | n° 2   |
| Digital output arrangement            | 1 relay output with changeover contact (C/O-SPDT) + 1 digital output   |
| Output contacts ratings               | Relay output: 3A 250VAC<br>Digital output: 100mA max 30VDC   |
| Number of analog input                | n° 2   |
| Analog input type                     | Configurable 0/2...10VDC, -10...+10VDC, 0...5VDC, 0/4...20mA   |
| Number of analog output               | n° 1   |
| Analog output type                    | configurable as 0...10VDC, 0...5VDC, 2...10VDC, 0/4...20mA   |

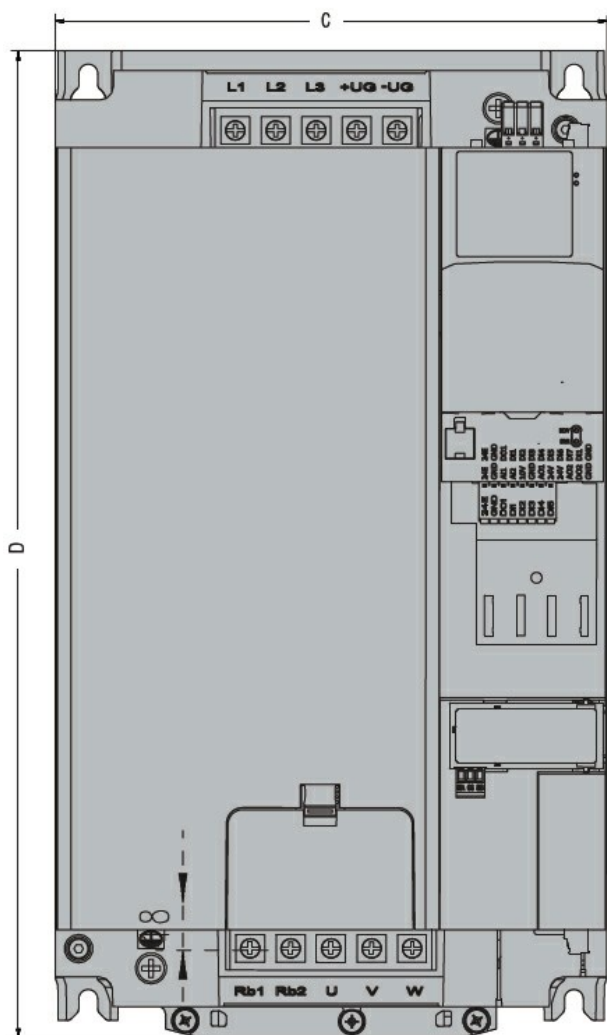
**Ambient conditions**

Temperature

Operating temperature

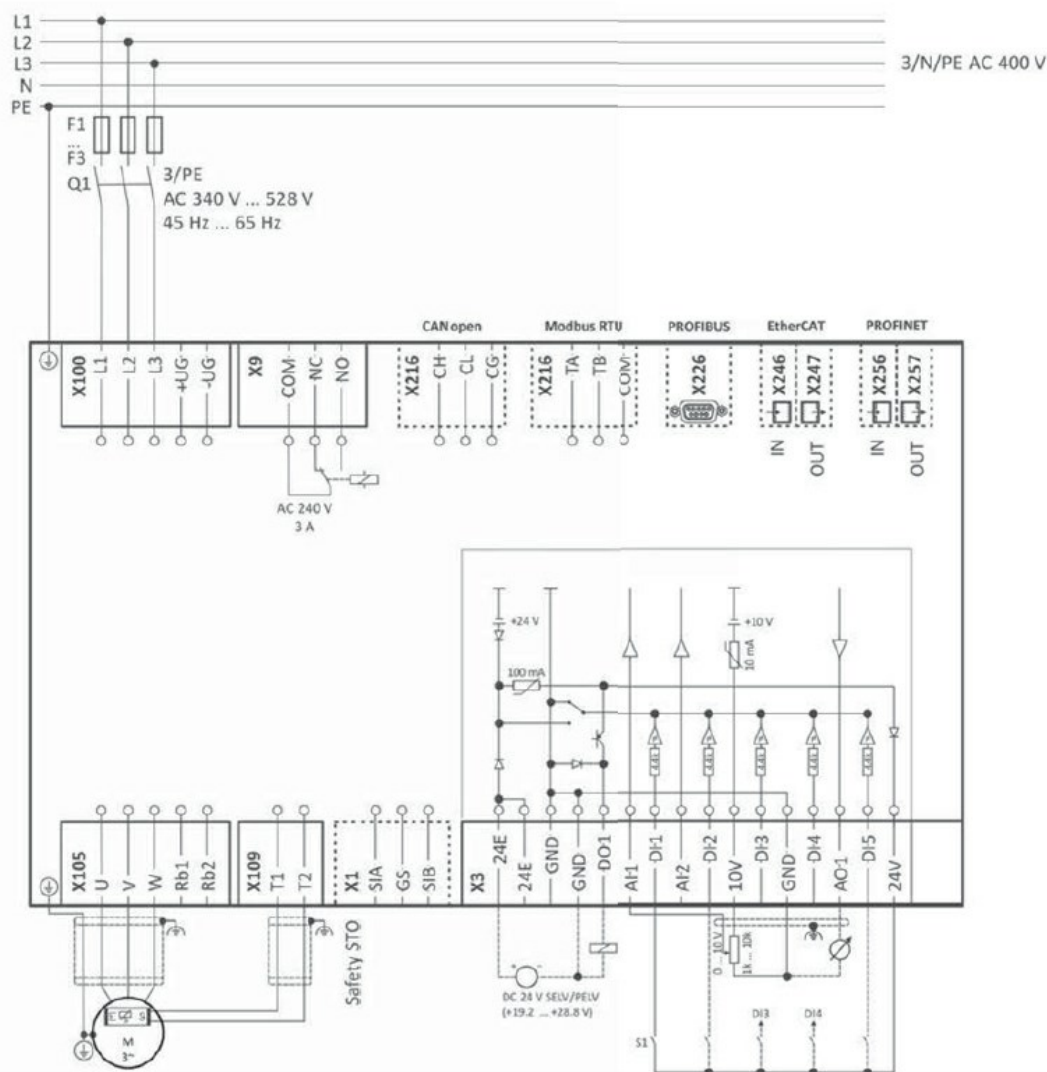
|     |    |     |
|-----|----|-----|
| min | °C | -10 |
| max | °C | +55 |

|                          |                  |    |  |
|--------------------------|------------------|----|--|
|                          |                  |    | switching<br>frequency 2 or<br>4kHz: 2.5%/°C<br>over 45°C        |
|                          | Current derating |    | switching<br>frequency 8 or<br>16kHz: 2.5%/°C<br>over 40°C       |
| Storage temperature      |                  |    |  |
|                          | min              | °C | -25  |
|                          | max              | °C | +60  |
| Relative humidity        |                  | %  | 5...95% (with no<br>condensing)                                  |
| Max altitude             |                  | m  | 4000m (over<br>1000m derate<br>the rated current<br>by 5%/1000m) |
| Maximum Pollution degree |                  |    | 2  |
| Overvoltage category     |                  |    | III up to 2000m<br>altitude (II above<br>2000m)                  |
| <b>Housing</b>           |                  |    |  |
| Installation position    |                  |    | Vertical   |
| IP degree of protection  |                  |    | IP20   |
| Dimensions (W x H x D)   |                  | mm | 250 x 520 x 230  |
| Weight                   |                  | Kg | 17.5   |
| <b>Dimensions</b>        |                  |    |  |



| TYPE           | A           | B            | C             | D            |
|----------------|-------------|--------------|---------------|--------------|
| VLB3 0150 A480 | 222 (8.74") | 347 (13.66") | 204.5 (8.05") | 366 (14.41") |
| VLB3 0185 A480 | 222 (8.74") | 347 (13.66") | 204.5 (8.05") | 366 (14.41") |
| VLB3 0220 A480 | 222 (8.74") | 347 (13.66") | 204.5 (8.05") | 366 (14.41") |
| VLB3 0300 A480 | 230 (9.05") | 450 (17.72") | 250 (9.84")   | 520 (20.47") |

### Wiring diagrams



## Certifications and compliance

### Compliance

CSA 22.2 n°274  
EN 61800-5-1  
UL61800-5-1

### Certificates

CSA  
cULus  
EAC  
RCM