



|                                      |  |                                                          |                                              |
|--------------------------------------|--|----------------------------------------------------------|----------------------------------------------|
| Product designation                  |  | Variable speed drives                                    |                                              |
| Product type designation             |  | VLB3                                                     |                                              |
| General characteristics              |  |                                                          |                                              |
| Rated power supply voltage           |  | 400...480VAC<br>50/60Hz                                  |                                              |
| Rated output voltage                 |  | VAC                                                      | Three-phase 0...<br>480VAC 0-599Hz           |
| Rated output current                 |  | A                                                        | 180                                          |
| Rated output power                   |  | kW                                                       | 90                                           |
| Rated output power                   |  | HP                                                       | 120 (Heavy load)<br>/ 150 (Standard<br>load) |
| EMC filter                           |  | Built-in EMC<br>suppressor cat.<br>C2                    |                                              |
| 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 |  | 168 (heavy load)<br>/ 200 (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                |  | 121 (heavy load)<br>/ 145 (standard<br>load)             |                                              |
| Power loss                           |  | 4kHz: 1961W<br>(heavy load) /<br>2348 (standard<br>load) |                                              |
| Brake chopper                        |  | Yes                                                      |                                              |
| Switching frequency                  |  | 2...16kHz                                                |                                              |
| Max motor cable length               |  |                                                          |                                              |
| Shielded                             |  | Without EMC category                                     | m 200                                        |
|                                      |  | Category C1                                              | m 3                                          |
|                                      |  | Category C2                                              | m 20                                         |
|                                      |  | Category C3                                              | m 100                                        |
| Unshielded                           |  |                                                          |                                              |

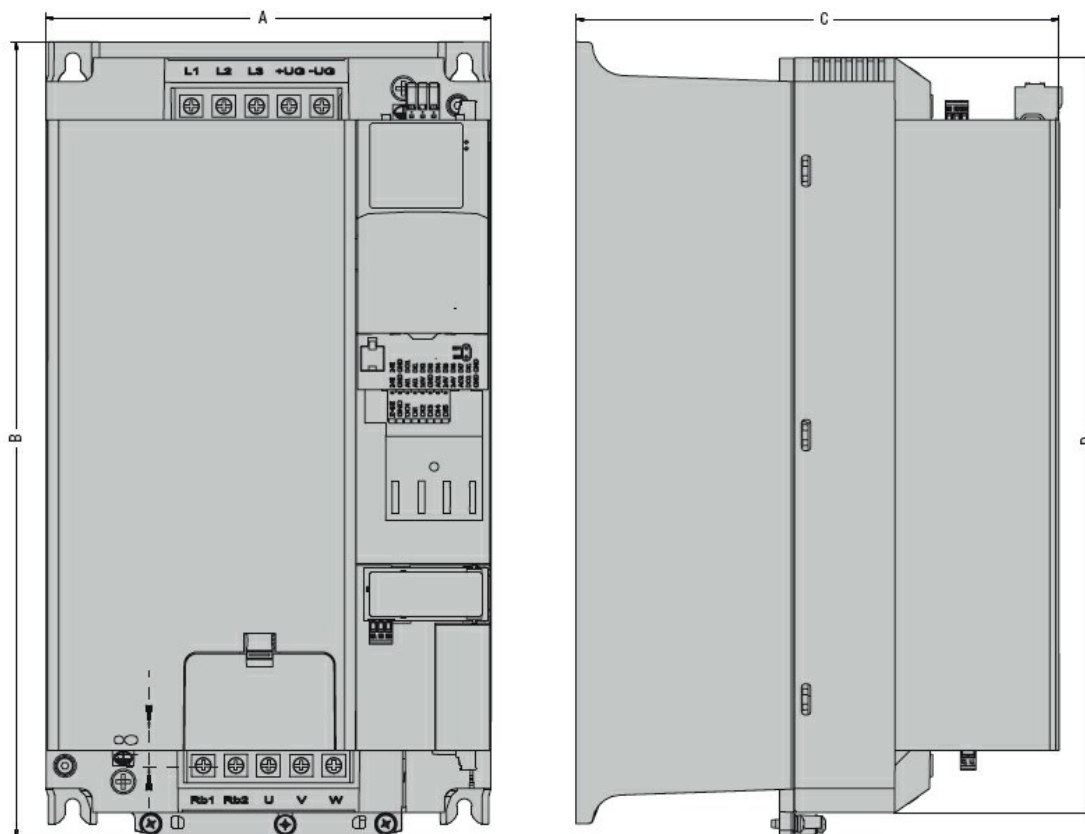
Without EMC category m 200

## 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                      |
| Speed reference signals                        | External potentiometer<br>0...10kΩ Voltage signals: 0...10VDC or -10...+10VDC Current signals: 0/4...20mA Buttons on front keyboard<br>Door-mount installation kit 15 preset speeds via digital inputs<br>Motor potentiometer |
| 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                                                                                                                                                                                                                           |

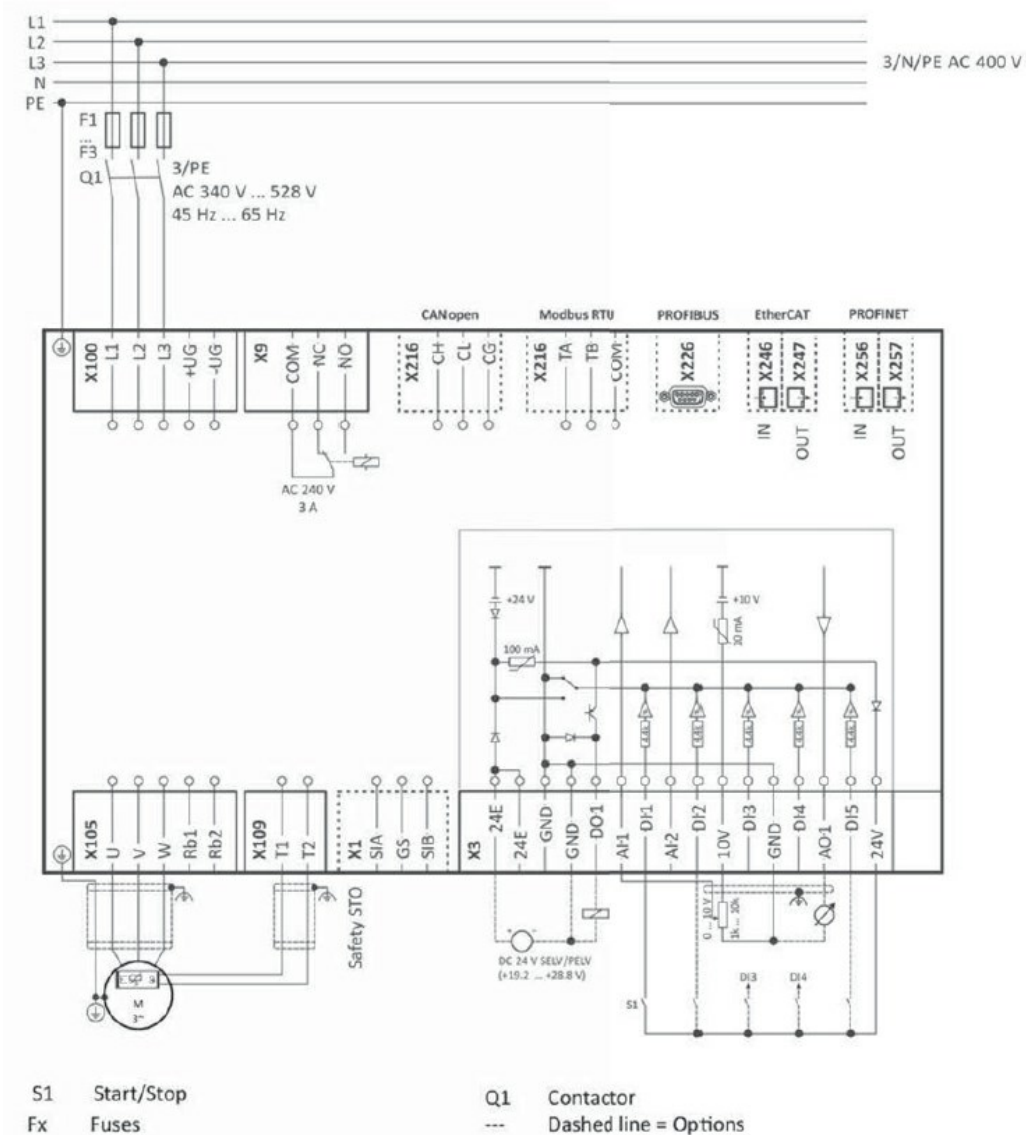
|                            |                                                                                                                                                                |    |     |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|
| Protections                | Overcurrent<br>Output short circuit and earth/ground leakage<br>Overvoltage<br>Undervoltage<br>Phase loss Motor heat overload (i2t) 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)                                     |    |     |
| Input and Output           |                                                                                                                                                                |    |     |
| Number of digital input    | Nr.                                                                                                                                                            | 5  |     |
| Digital input type         | Selectable PNP or NPN logic                                                                                                                                    |    |     |
| Number of digital output   | Nr.                                                                                                                                                            | 2  |     |
| Digital output arrangement | 1 relay output with changeover contact (C/O-SPDT) + 1 digital output                                                                                           |    |     |
| Output contacts ratings    | Relay output: 3A 250VAC Digital output: 100mA max 30VDC                                                                                                        |    |     |
| Number of analog input     | Nr.                                                                                                                                                            | 2  |     |
| Analog input type          | Configurable 0/2...10VDC, -10...+10VDC, 0...5VDC, 0/4...20mA                                                                                                   |    |     |
| Number of analog output    | Nr.                                                                                                                                                            | 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 |

|                          |  |                  |    |                                                                                                                         |
|--------------------------|--|------------------|----|-------------------------------------------------------------------------------------------------------------------------|
|                          |  | Current derating |    | switching<br>frequency 2 or<br>4kHz: 2.5%/°C<br>over 45°C<br>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 | 258 x 775 x 304                                                                                                         |
| Weight                   |  |                  | Kg | 35.6                                                                                                                    |
| <b>Dimensions</b>        |  |                  |    |                                                                                                                         |



| TYPE           | A             | B            | C            | D            |
|----------------|---------------|--------------|--------------|--------------|
| VLB3 0150 A480 | 204.5 (8.05") | 366 (14.41") | 222 (8.74")  | 347 (13.66") |
| VLB3 0185 A480 | 204.5 (8.05") | 366 (14.41") | 222 (8.74")  | 347 (13.66") |
| VLB3 0220 A480 | 204.5 (8.05") | 366 (14.41") | 222 (8.74")  | 347 (13.66") |
| VLB3 0300 A480 | 250 (9.84")   | 520 (20.47") | 230 (9.05")  | 450 (17.72") |
| VLB3 0370 A480 | 250 (9.84")   | 520 (20.47") | 230 (9.05")  | 450 (17.72") |
| VLB3 0450 A480 | 250 (9.84")   | 520 (20.47") | 230 (9.05")  | 450 (17.72") |
| VLB3 0550 A480 | 250 (9.84")   | 623 (24.53") | 265 (10.43") | 536 (21.10") |
| VLB3 0750 A480 | 250 (9.84")   | 623 (24.53") | 265 (10.43") | 536 (21.10") |
| VLB3 0900 A480 | 258 (10.16")  | 775 (30.51") | 304 (11.97") | 685 (26.97") |
| VLB3 1100 A480 | 258 (10.16")  | 775 (30.51") | 304 (11.97") | 685 (26.97") |

## Wiring diagrams



## Certifications and compliance

## Compliance

CSA 22.2 n°274

EN 61800-5-1

UL61800-5-1

## Certificates

CSA

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cULuS

EAC

RCM

## ETIM classification

ETIM 8.0

EC001857 -  
Frequency  
converter  $\leq 1$  kV