



|                                         |  |                                          |                                    |                                                                 |
|-----------------------------------------|--|------------------------------------------|------------------------------------|-----------------------------------------------------------------|
| 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                                        | 2.4                                |                                                                 |
| Rated output power                      |  | kW                                       | 0.75                               |                                                                 |
| Rated output power                      |  | HP                                       | 1 (heavy load)                     |                                                                 |
| EMC filter                              |  | Built-in EMC<br>suppressor cat.<br>C1/C2 |                                    |                                                                 |
| Communication port                      |  | RS485, Modbus-<br>RTU                    |                                    |                                                                 |
| 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 without mains choke |  | 3.3                                      |                                    |                                                                 |
| Rated mains current with mains choke    |  | 2.6                                      |                                    |                                                                 |
| 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                   |  | 1.6 (heavy load)                         |                                    |                                                                 |
| Power loss                              |  | 4kHz: 32W<br>(heavy load)                |                                    |                                                                 |
| Brake chopper                           |  | Yes                                      |                                    |                                                                 |
| Switching frequency                     |  | 2...16kHz                                |                                    |                                                                 |
| Max motor cable length                  |  |                                          |                                    |                                                                 |
| Shielded                                |  |                                          |                                    |                                                                 |
|                                         |  | Without EMC category                     | m                                  | 50m / 100m<br>(40°C max,<br>switching<br>frequency 4kHz<br>max) |
|                                         |  | Category C1                              | m                                  | 3                                                               |
|                                         |  | Category C2                              | m                                  | 20                                                              |
|                                         |  | Category C3                              | m                                  | 20                                                              |
| Unshielded                              |  |                                          |                                    |                                                                 |

Without EMC category

m

100m / 150m  
(40°C max,  
switching  
frequency 4kHz  
max)

## 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

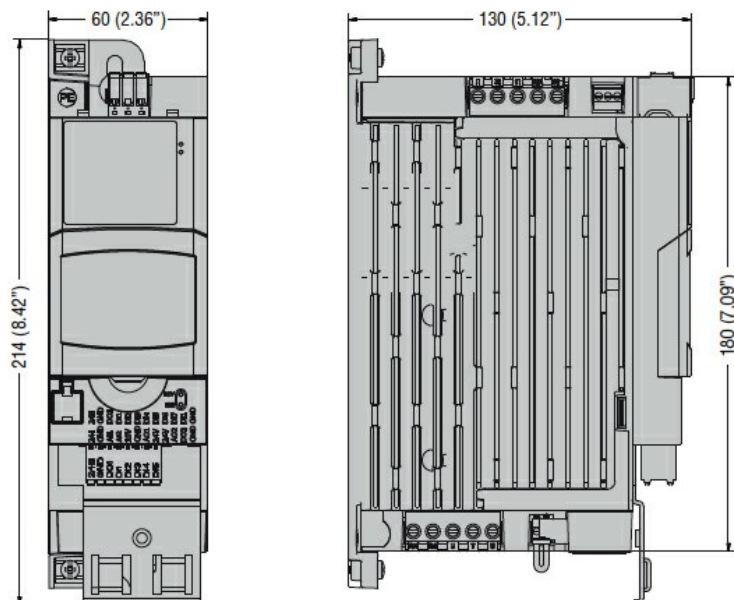
External  
potentiometer  
0...10kΩ Voltage  
signals: 0...  
10VDC or -10...  
+10VDC Current  
signals: 0/4...  
20mA Buttons on  
front keyboard  
Door-mount  
installation kit 15  
preset speeds  
via digital inputs  
Motor potentiom

|                                                |                                       |
|------------------------------------------------|---------------------------------------|
| 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<br>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                                   |

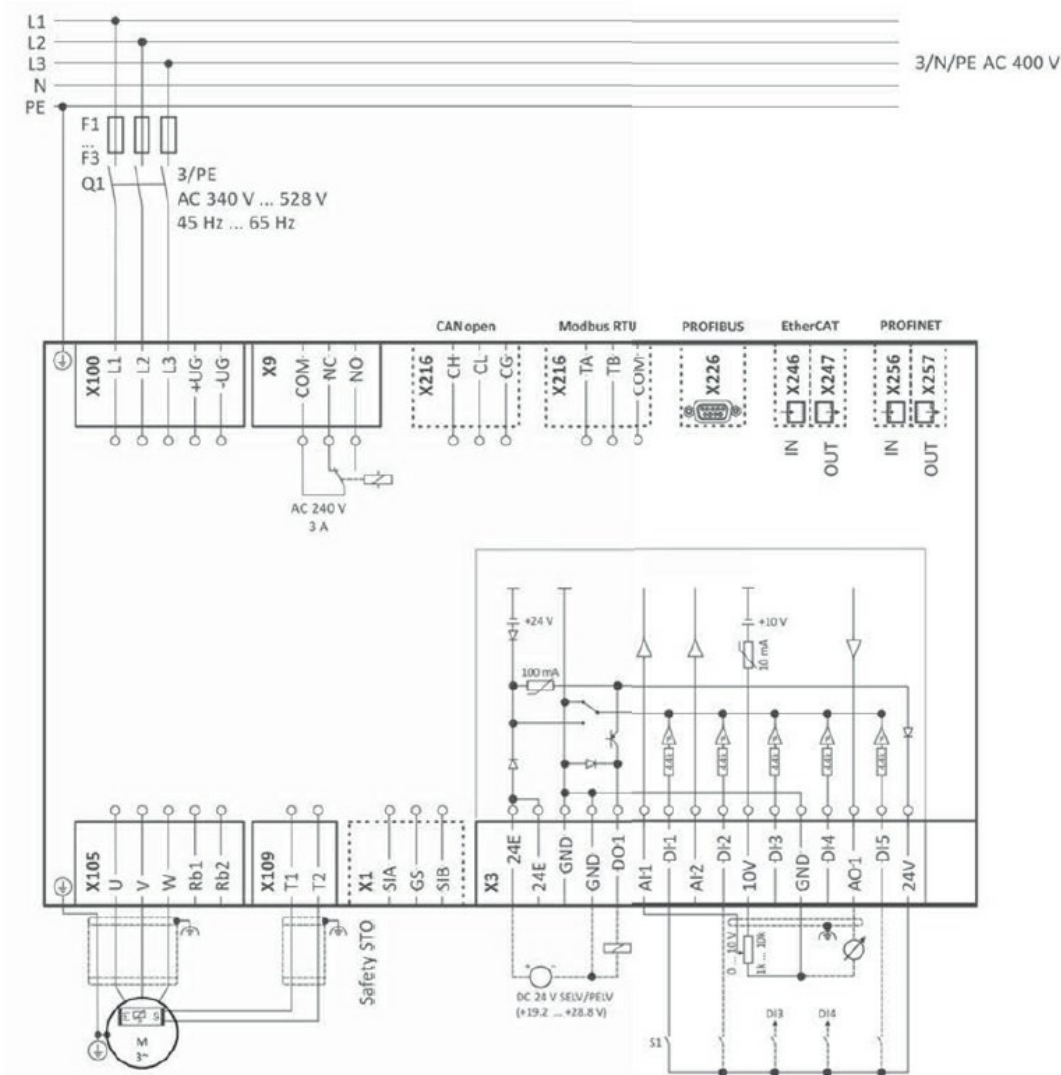
|                            |                                                                                                                                                                |    |     |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|
| 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<br>max          | °C<br>°C | -25<br>+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)                                                                         |
| Housing                  |                     |          |                                                                                                                         |
| Installation position    |                     |          | Vertical                                                                                                                |
| IP degree of protection  |                     |          | IP20                                                                                                                    |
| Dimensions (W x H x D)   |                     | mm       | 60 x 214 x 130                                                                                                          |
| Weight                   |                     | Kg       | 1.1                                                                                                                     |

#### Dimensions



#### 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

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EAC

RCM

## ETIM classification

ETIM 8.0

EC001857 -  
Frequency  
converter  $\leq 1$  kV