



Product designation

Variable speed  
drives

Product type designation

VLA1

### General characteristics

|                            |     |                                       |
|----------------------------|-----|---------------------------------------|
| Rated power supply voltage |     | 200...240VAC<br>50/60Hz               |
| Rated output voltage       | VAC | Three-phase<br>0...240VAC 0-<br>599Hz |
| Rated output current       | A   | 4.2                                   |
| Rated output power         | kW  | 0.75                                  |
| Rated output power         | HP  | 1                                     |
| EMC filter                 |     | Built-in EMC<br>suppressor cat.<br>C2 |
| Communication port         |     | None                                  |

### Technical features

|                                         |     |                              |
|-----------------------------------------|-----|------------------------------|
| Input type                              |     | Single-phase                 |
| Rated mains voltage                     | VAC | 200...240                    |
| Operating mains voltage range           | VAC | 170...264                    |
| Rated mains frequency                   | Hz  | 50/60                        |
| Operating mains frequency range         | Hz  | 45...65                      |
| Rated mains current without mains choke |     | 10                           |
| Rated mains current with mains choke    |     | 8.8                          |
| Output type                             |     | Three-phase                  |
| Output voltage range                    | VAC | 0...240                      |
| Output frequency range                  | Hz  | 0...599                      |
| Current overload                        | %/s | 150% for 60s,<br>200% for 3s |
| Power loss                              |     | 33W                          |
| Brake chopper                           |     | No                           |
| Switching frequency                     |     | 2...16kHz                    |
| Max motor cable length                  |     |                              |

Shielded

|                      |   |    |
|----------------------|---|----|
| Without EMC category | m | 50 |
| Category C2          | m | 20 |

### Functions

Motor control modes

V/f linear,  
quadratic torque,  
sensorless  
vector control,  
ECO mode

|                                                |                                                                                                                                                                                                                                                 |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Speed reference signals                        | <p>External potentiometer<br/>0...10kΩ<br/>Voltage signals:<br/>0...10VDC<br/>Current signals:<br/>0/4...20mA<br/>Buttons on front keyboard<br/>Door-mount installation kit<br/>15 preset speeds via digital inputs<br/>Motor potentiometer</p> |
| 3-wire control                                 | Yes                                                                                                                                                                                                                                             |
| S-shape curves                                 | Yes                                                                                                                                                                                                                                             |
| Slip compensation                              | Yes                                                                                                                                                                                                                                             |
| Flying restart                                 | Yes                                                                                                                                                                                                                                             |
| Access to DC bus                               | No                                                                                                                                                                                                                                              |
| 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          | No                                                                                                                                                                                                                                              |
| PTC probe input                                | No                                                                                                                                                                                                                                              |
| Protections                                    | <p>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</p>                                                              |
| 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<br>Digital output: 100mA max 30VDC                                                             |
| Number of analog input     | Nr. | 2                                                                                                                      |
| Analog input type          |     | Analog input 1: configurable 0/2...10VDC, 0...5VDC, 0/4...20mA<br>Analog input 2: configurable 0/2...10VDC or 0...5VDC |
| 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 |    | 2.5%/°C over 40°C |

##### Storage temperature

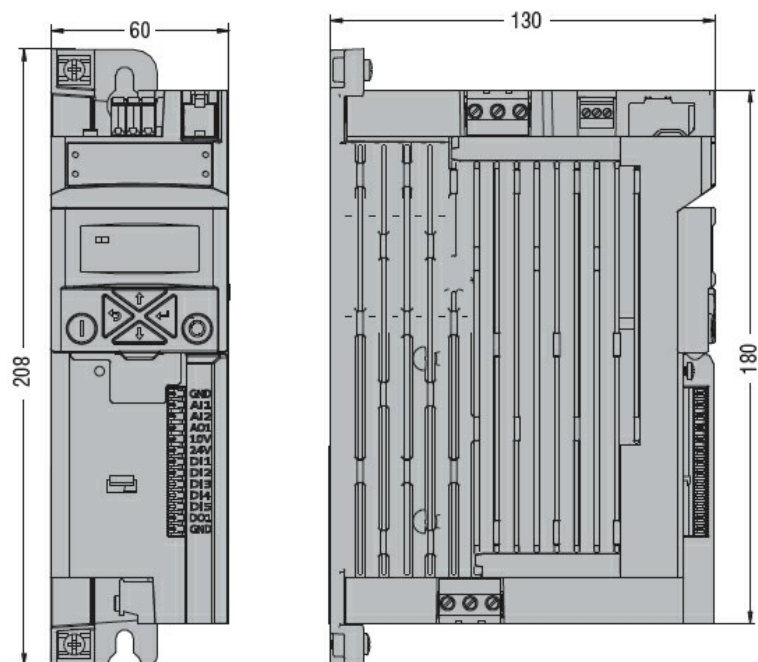
|     |    |     |
|-----|----|-----|
| min | °C | -25 |
| max | °C | +60 |

|                          |   |                                                         |
|--------------------------|---|---------------------------------------------------------|
| Relative humidity        | % | 5...95% (with no condensing)                            |
| Max altitude             | m | 4000m (over 1000m derate the rated current by 5%/1000m) |
| Maximum Pollution degree |   | 2                                                       |
| Overvoltage category     |   | III up to 2000m altitude (II above 2000m)               |

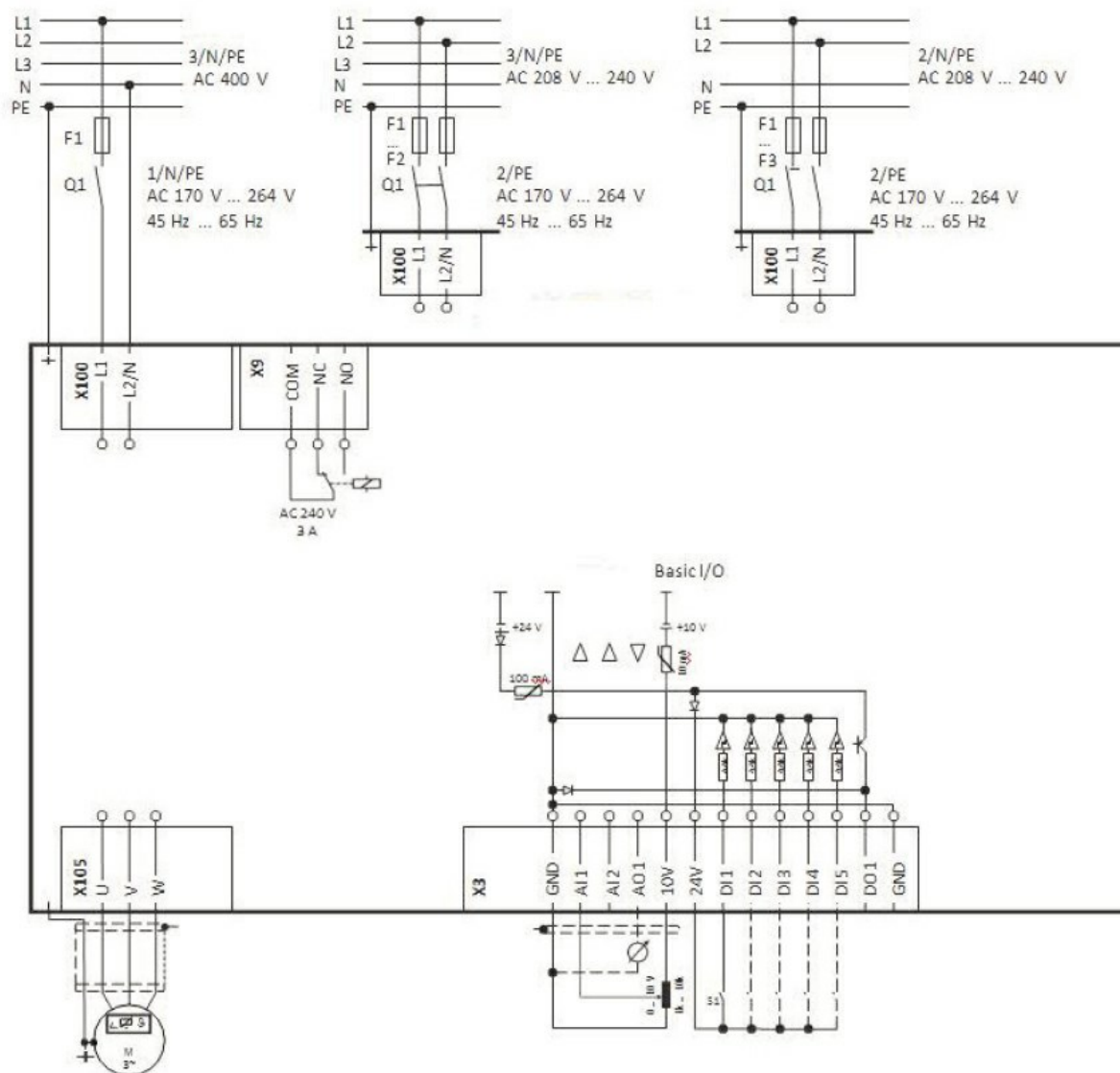
### Housing

|                         |    |                |
|-------------------------|----|----------------|
| Installation position   |    | Vertical       |
| IP degree of protection |    | IP20           |
| Dimensions (W x H x D)  | mm | 60 x 208 x 130 |
| Weight                  | Kg | 0.95           |

### Dimensions



## Wiring diagrams



## Certifications and compliance

Compliance

CSA 22.2 No. 274

EN 61800-5-1

UL61800-5-1

Certificates

cULus

EAC

RCM

ETIM classification

ETIM 8.0

EC001857 -  
Frequency  
converter =< 1 kV