

|   |            |                      |  |
|---|------------|----------------------|--|
| Product designation                     |            |                      | Variable speed drives  |
| Product type designation                |            |                      | VLB3   |
| <b>General characteristics</b>          |            |                      |  |
| 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          |                      | 2.4 (heavy load)   |
| Rated output power                      | kW         |                      | 0.75 (Heavy load)  |
| Rated output power                      | HP         |                      | 1 (heavy load)   |
| EMC filter                              |            |                      | Built-in EMC<br>suppressor cat.<br>C1/C2                         |
| Communication port                      |            |                      | Built-in RS485,<br>Modbus RTU<br>protocol                        |
| <b>Technical features</b>               |            |                      |  |
| 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  |
|   |            | Category C1          | m  |
|   |            | Category C2          | m  |
|   |            | Category C3          | m  |
|   |            |                      | 50m / 100m<br>(40°C max,<br>switching<br>frequency 4kHz<br>max)  |
|   |            |                      | 3  |
|   |            |                      | 20   |
|   |            |                      | 20   |
|   | Unshielded |                      |  |
|   |            | Without EMC category | m  |
|   |            |                      | 100m / 150m<br>(40°C max,<br>switching<br>frequency 4kHz<br>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 control for synchronous motors up to 22kW |
| 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<br>15 preset speeds via digital inputs<br>Motor potentiometer<br>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    | 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          | 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   |
| <b>Ambient conditions</b>  |  |
| Temperature                |  |
| Operating temperature      |  |
|                            | min °C -10   |
|                            | max °C +55   |

|                                      |                     |    |   |
|--------------------------------------|---------------------|----|---|
|                                      |                     |    | 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 |
|                                      | Current derating    |    |   |
|                                      | 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 | 60 x 214 x 130  |
| Weight                               |                     | Kg | 1.1   |
| <b>Dimensions</b>                    |                     |    |   |
| <b>Wiring diagrams</b>               |                     |    |   |
| <b>Certifications and compliance</b> |                     |    |   |
| Compliance                           |                     |    | CSA 22.2 n°274  |
|                                      |                     |    | EN 61800-5-1  |
|                                      |                     |    | UL61800-5-1   |
| Certificates                         |                     |    | CSA   |
|                                      |                     |    | cULus   |
|                                      |                     |    | EAC   |
|                                      |                     |    | RCM   |
| <b>ETIM classification</b>           |                     |    |   |
| ETIM 8.0                             |                     |    | EC001857 -<br>Frequency<br>converter =< 1 kV  |