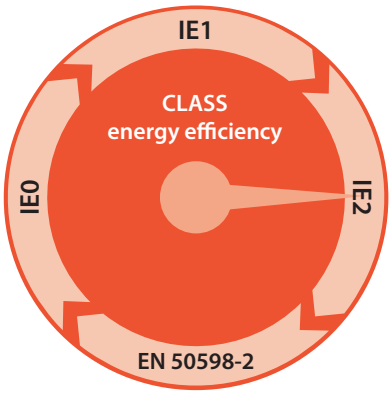
VARIABLE SPEED DRIVES

VLA1 SERIES

Lovato electric

ENERGY AND AUTOMATION

SIMPLE | COMPACT | VERSATILE | TOP PERFORMANCE



IE2 efficiency class (EN50598-2)
The drive efficiency
is 25% higher than the
reference value for the IE1 class.

- Single-phase input 200...240VAC (50/60Hz)
- Three-phase output 240VAC max.
- Three-phase motor power from 0.25 to 2.2kW (240VAC)

VERSATILITY AND TOP PERFORMANCE

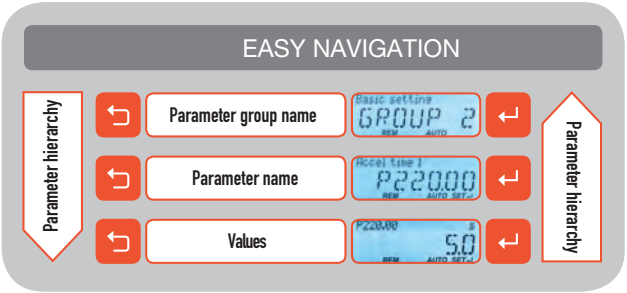
VLA1 is a variable speed drive with single-phase input.
The different integrated motor control modes and the wide range of functions available make it extremely versatile for a wide range of applications, such as pump and fan control, automatic door management, assembly or packaging machines, packing machines, conveyor belts and many more.

COMPACT DIMENSIONS AND "SIDE BY SIDE" INSTALLATION

The container with "book" format only 60 mm wide for the whole range makes it extremely compact.
It is also possible to install several drives side by side without gaps to minimize space requirements.

SIMPLE AND FLEXIBLE PROGRAMMING

- The parameters are divided into groups of the same type (e.g. group for configuration of motor parameters, group for configuration of basic parameters, group for configuration of I/O functions, group for configuration of PID control, etc...) making navigation faster and more intuitive.
- It is also possible to custom configure a group of "favourite" parameters by selecting the most common parameters.

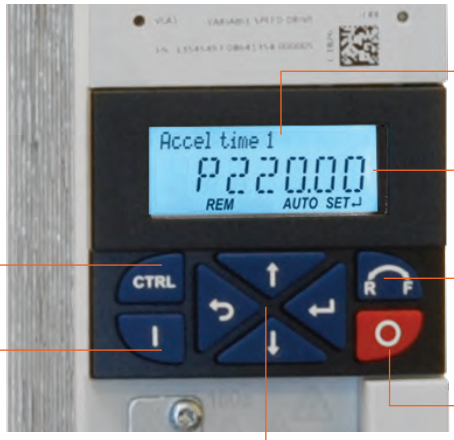


Example "acceleration time"
- Group 2 (basic setup).
- Parameter 20.

DISPLAY AND KEYBOARD

The keyboard with display supplied as standard allows simple and intuitive programming of the drive.

- The alphanumeric display allows you to view not only the code but also a text description of the parameter being modified, helping the user to understand the function being configured even without the need for a manual.
- In addition to the basic buttons for navigating the programming menus, the keyboard has two additional buttons for immediate activation of the full control for the drive from the keypad (to start the motor using the start and stop keys on board and adjust the frequency using the arrow keys, regardless of the settings configured) and to reverse the motor direction of rotation.



- Description of the displayed parameter (Accel time 1 = Acceleration time 1)
- Code of the parameter displayed
- Reverse direction control from keyboard
- Motor STOP control
- Enabling/disabling full motor control from the keypad
- Motor START control
- Buttons for navigation through the programming menus

USB COMMUNICATION MODULE

As an alternative to the programming via the keypad with display supplied as standard, the drive can be programmed from a PC via the USB communication module code VLAX C02.
It is possible to exchange the display keyboard (VLAX C01) with the USB module (VLAX C02) at any time, even without interrupting the power supply of the drive.
You can do this via the USB module:

- access the parameters without powering the drive
- set the parameters simply and repeatedly using VLBX SW software
- carry out operating diagnostics (trends, measurement monitoring, PID parameter control, etc.).



EMC SPECIFICATIONS

Integrated EMC filters (EN 61800-3) cat. C2 for motor cable length:

- up to 5m for 0.25 and 0.4kW sizes
- up to 20m for 0.75, 1.5 and 2.2kW sizes.

- Integrated filter can be deactivated in case of IT networks
- I/O connection terminal boards
- Connection plate for control signal screen

MOTOR CONTROL MODES

Speed control:

- Linear V/f
- Square V/f for pumps and fans

Torque control:

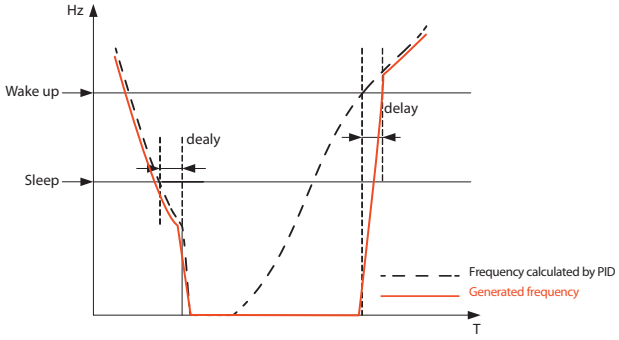
- Open ring vector control (sensorless)
- Torque setpoint.

PID CONTROL

In some applications, such as pump or fan control, the output frequency from the drive is determined by the objective of maintaining constant pressures or flows. Typically, through the analogue input, the current value of the quantity to be controlled is read (feedback) and with PID back control the drive sets the motor speed in order to reach the target value (setpoint).
The PID control also includes the functions of:

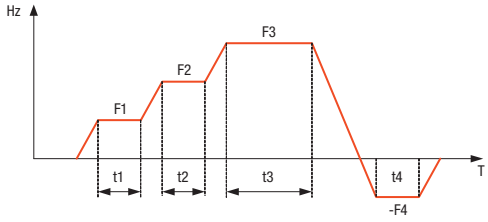
- **sleep**: if the calculated frequency is lower than a settable limit, or if the motor speed approaches the minimum allowable speed indicating no propulsion is required, the drive stops the motor to avoid wasting energy;
- **wake-up**: during the sleep phase, if the calculated frequency exceeds a set threshold value, the drive restarts to control the motor at the appropriate speed to follow the target value (setpoint) without the need for manual start.

Both functions are also equipped with a tripping delay to avoid unnecessary short motor start and stop cycles.



SEQUENCER

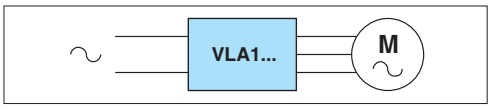
The user can program frequency/time cycles consisting of different steps each characterized by motor speed and duration.



Single phase drives

VLA1...

Order code	Output current	3-phase motor power at 240VAC		Qty per pkg	Weight
	[A]	[kW]	[HP]	n°	[kg]
Single phase supply 200...240VAC 50/60Hz. Three-phase motor output 240VAC max. Built-in EMC suppressor, cat. C2.					
VLA1 02 A240	1.7	0.25	0.33	1	0.750
VLA1 04 A240	2.4	0.4	0.5	1	0.750
VLA1 07 A240	4.2	0.75	1	1	0.950
VLA1 15 A240	7	1.5	2	1	1.350
VLA1 22 A240	9.6	2.2	3	1	1.350



Accessories

VLAX C01

VLAX C02

VLAX P01

Order code	Descrizione	Qty per pkg	Weight
		n°	[kg]
VLAX C01	Display and keypad	1	0.050
VLAX C02	USB communication module	1	0.050
VLAX P01	Door-mount installation kit for the keypad VLAX C01. IP65, Type 4/4X. Connecting cable included, 3m long.	1	0.340

General characteristics
VLA1 is an ultra-compact drive with high performance. It integrates different motor control modes, like V/f linear and quadratic and sensorless vector control. VLA1 is extremely versatile and can be used in several applications such as conveyor belts, machine tools, control of automatic doors, packaging machines and in particular to manage pumps and fans thanks to specific integrated functions like the PID control and flying restart. Simple to install and configure. The user interface, which comprises of a built-in keypad and display, allows to access the setting parameters easily, thanks to the use of extended texts describing the functions and codes. Using the optional USB communication module, the programming, monitoring and diagnostic can be performed using a PC with software VLBXSW, downloadable from the website www.LovatoElectric.com.

SPEED REFERENCE SIGNALS
Reference signals for speed adjustment are obtained by:
- External potentiometer 1...10kΩ
- Voltage signal 0…10VDC or current signal 0/4...20mA
- Buttons on front keypad
- Door-mount installation kit
- 15 preset speeds via digital inputs
- Motor potentiometer.

PROGRAMMABLE INPUTS
- Selectable pNp or nPn I/O logic
- 5 digital inputs
- 1 digital output, 1 changeover relay output
- 2 analog inputs:
  - 1 voltage inputs 0...10VDC
  - 1 configurable as voltage 0...10VDC or as current 0/4...20mA
- 1 analog output configurable as voltage output 0...10VDC or current output 0/4...20mA.

PROTECTIONS
- Overcurrent
- Output short circuit and earth/ground leakage
- Overvoltage
- Undervoltage
- Phase loss
- Motor heat overload (I^2t)
- Overspeed
- Speed reverse.

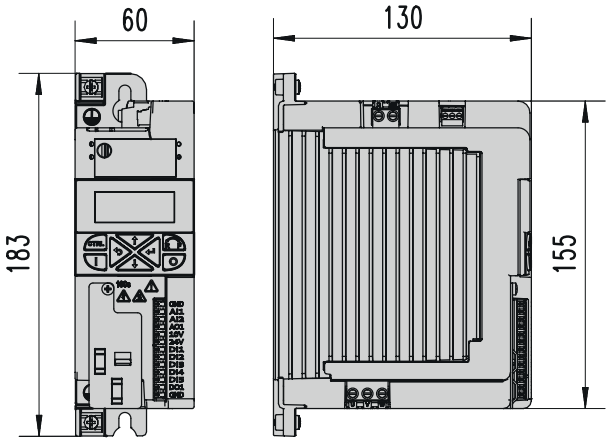
FUNCTIONS
- Speed control
- V/f linear or squared curves
- Sensorless vector control
- Flying restart
- DC braking and DC injection at start
- Integrated PID with sleep and wake-up thresholds
- Programmable frequency/time cycles
- Different parameter configurations
- User menu (favorite parameters)
- Programming and monitoring software VLBX SW, downloadable from the website www.LovatoElectric.com.

Operational characteristics
- Input voltage: 200...240VAC single-phase
- Rated operational current Ie: 1.7...9.6A
- Mains frequency: 50/60Hz
- Output frequency: 0...599Hz
- Frequency modulation: 2...16kHz
- Current overload: 150% for 60s; 200% for 3s
- IEC degree of protection: IP20
- Ambient conditions:
  - Operating temperature: -10...+55°C (45°C without derating)
  - Maximum altitude: 4000m (1000m without derating)
  - Relative humidity: 5…95% (with no condensing)
- Side-by-side installation
- Built-in EMC suppressor (EN61800-3), cat. C2
- IE2 efficiency level (EN50598-2).

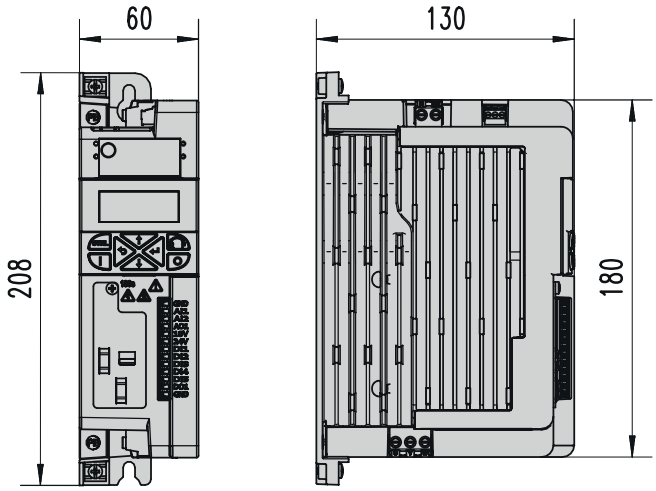
Certifications and compliance
Certifications: cULus, EAC, RCM.
Compliant with standards: EN61800-5-1, UL61800-5-1, CSA 22.2 No. 274.

SINGLE-PHASE VARIABLE SPEED DRIVES

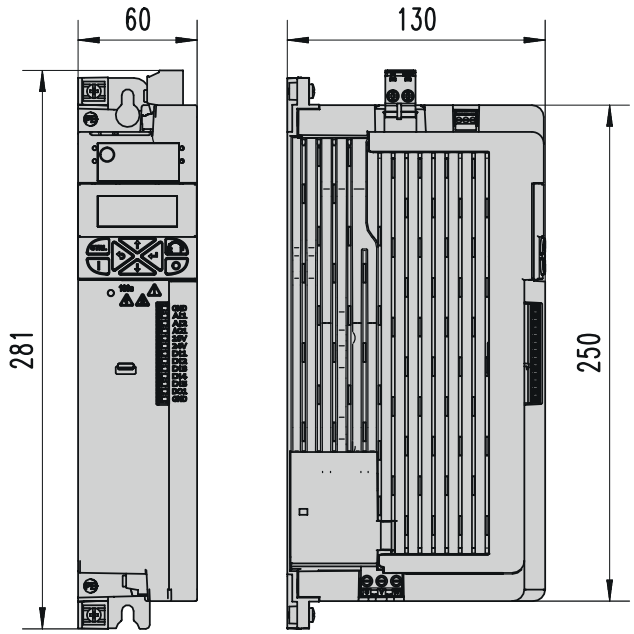
VLA1 02 A240 - VLA1 04 A240



VLA1 07 A240



VLA1 15 A240 - VLA1 22 A240



LOVATO ELECTRIC LTD
Lovato House - Providence Drive Lye
STOURBRIDGE
West Midlands - DY9 8HQ - ENGLAND
Tel. +44 01384 899700
sales@Lovato.co.uk
www.Lovato.co.uk

LOVATO ELECTRIC CORPORATION
4500, Garand Street
Laval, Quebec CANADA
H7L 5Z6
Tel. +579-641-1253
info@Lovato.ca
www.Lovato.ca

LOVATO ELECTRIC INC
2017 Georgetown Blvd.
CHESAPEAKE, VA 23325
UNITED STATES
Tel. +1 757 545-4700
info@LovatoUsa.com
www.LovatoUsa.com

LOVATO ELECTRIC GmbH
Im Ermlisgrund 30
76337 WALDBRONN
GERMANY
Tel. +49 7243 766 937 0
info@LovatoElectric.de
www.LovatoElectric.de

LOVATO ELECTRIC S.L.U
Pol. Ind. Llinars Park
C/. de la Tecnología, 102
Passatge B, Nau 9
08450 LLINARS DEL VALLÈS - SPAIN
Tel. +34 93 7812016
LovatoElectric@LovatoElectric.es
www.LovatoElectric.es

LOVATO ELECTRIC. S.R.O.
Cizovska 488
397 01 PISEK
CZECH REPUBLIC
Tel. +420 226 203210
Lovato@LovatoElectric.cz
www.LovatoElectric.cz

LOVATO ELECTRIC SP.Z O.O.
ul. Zachodnia 3
55-330 Błonie k. Wrocławia
POLAND
Tel. +48 71 7979010
info@LovatoElectric.pl
www.LovatoElectric.pl

LOVATO ELEKTRIK LTD
Araylar Sanayi Sitesi
No:9A/36 Özvatan Caddesi
Tepeören Mahallesi 34959 Tuzla
Istanbul, TURKEY
Tel. +90 216 499 86 86
info@LovatoElectric.com.tr
www.LovatoElectric.com.tr

LOVATO ELECTRIC ME FZE
#A101-9, First Floor, Block A
DSO-Operations and Facility Centre
DUBAI SILICON OASIS
Dubai, UAE
Tel. +971 4 371 2713
info@lovatoelectric.ae
www.LovatoElectric.ae

ООО Ловато Электрик
107023, г. Москва
ул. Суворовская, д.19, стр. 2,
RUSSIA
Тел: +7 (495) 998-50-80
info@LovatoElectric.ru
www.LovatoElectric.ru

LOVATO ELECTRIC CO LTD
Shanghai, CHINA
上海市虹井路288号燎申虹桥国际中心B座701单元
邮编： 201103
电话： +86 021 62961837
info@LovatoElectric.cn
www.LovatoElectric.cn

LOVATO ELECTRIC SRL
Muntenia Business Center,
Splaiul Unirii nr. 16, et. 6, cam. 601
RO-040035, sector 4,
Bucarest, ROMANIA
Tel. +40 372 074 155
info@LovatoElectric.ro
www.LovatoElectric.ro

LOVATO ELECTRIC SAS
IMMEUBLE DANICA B
21 Avenue Georges Pompidou
FRANCE
Tel. +33 4 72 91 31 35
info@LovatoElectric.fr
www.LovatoElectric.fr

Lovato electric

ENERGY AND AUTOMATION

www.LovatoElectric.com

LOVATO ELECTRIC S.P. A.

via Don E. Mazza, 12
24020 Gorle (Bergamo) Italy

Tel +39 035 4282111
info@LovatoElectric.com

Follow us

PD131 GB 07 18