

**VACON**<sup>®</sup>

DRIVEN BY DRIVES



**VACON<sup>®</sup> 100 AC DRIVES  
SIMPLY SUPERIOR**



## IT'S REALLY THAT EASY

Imagine the energy savings if all motors were controlled by AC drives. Industry automation continues to increase and so much energy is lost through traditional constant speed and mechanical control mechanisms at present. This is why energy saving programs and policy interventions are a global priority. Our new VACON® 100 AC drives make these savings easy. They are simple to use and optimize across multiple applications and are wise investment.

### ONE DRIVE, EXTENSIVE APPLICATIONS

With VACON 100, we have raised the bar on the design and functionality of standard drives. VACON 100 AC drives can be easily optimized to suit various process control applications across a wide spectrum of industries. Just choose your application, and quantify the potential savings. We've made sure that you can optimize your drive your way with a wide range of fieldbus options and features for motor and process control.

### SAVE AND SAVE SOME MORE

Adding AC drives to your power installation makes good business sense. Companies and utilities are faced with a growing list of concerns including customer demands for improved efficiency, escalating energy prices, environmental care, increased competition and quality standards. In order to meet these demands, and still cut production costs, major users in industry increasingly

see energy reduction as a key to improving profitability and competitiveness.

In addition to providing direct energy savings, AC drives can also be used to upgrade existing production machinery and increase both capacity and quality by ensuring better control of the entire installation. In other words, it doesn't take long for your investment in variable speed drives to pay for itself.

### KEY APPROVALS

- CE,UL, cUL, C-Tick
- RoHS & WEEE
- Gost-R
- EMC & Harmonics



## 100 REASONS TO CHOOSE VACON® 100

VACON 100 AC drives provide the lowest overall cost of ownership across the widest range of applications.

## DRIVING YOUR BUSINESS

### PARTNERSHIP MATTERS

Selecting the right AC drive is also about choosing a supplier with the right attitude towards partnership. When you succeed, we succeed. Partnering with Vacon, you can be sure that all efforts aim to the best end result – be it product related, solutions related, or logistics and service-related. You'll notice that we are driven by our passion to develop, manufacture and sell simply the best AC drives on the planet.

### VACON AT YOUR SERVICE

Vacon drives are sold in over 100 countries, with production and R&D in 3 continents, sales offices in 27 countries and service centers in nearly 90 locations worldwide.

We provide services to help you meet your business targets. Our global service solutions are available 24/7 throughout the product lifecycle with the intent to minimize the total cost of ownership and environmental load.



### IN HARMONY WITH THE ENVIRONMENT

While saving energy with VACON 100, you naturally contribute to reduced emissions and pollution. Our new VACON 100 portfolio fulfills key international standards and global requirements, including RoHS (lead free), EMC & Harmonics approvals.

We have also carried out a lifecycle analysis of our Vacon 100 to determine its carbon footprint. During the production of one 18.5 kW VACON 100 drive, 255 kg of CO<sub>2</sub>e (carbon dioxide equivalent) emissions occur. However, when that drive is put to work in a typical fan application (compared to a two speed electric motor), it actually saves 24 500 kg in CO<sub>2</sub>e emissions over a 10 year period.



## EXCEEDING EXPECTATIONS

It may look like a traditional AC drive - but it's not. VACON® 100 is bursting with smart new features. Benefit from functional safety with Safe Torque Off to prevent the motor from generating torque on the motor shaft, Safe Stop 1, and ATEX certified motor over-temperature protection. VACON 100 also has a unique feature with built-in Ethernet to make integration to plant automation easy and efficient via integrated ModBus TCP, Ethernet I/P or Profinet IO.

VACON 100 is ideal for a wide range of constant power/torque applications including pumps, fans, compressors and conveyors. These are applications where energy efficiency and productivity improvements often result in a rapid return on project investments.

In addition to several standard features such as built-in I/Os with 3 option slots, integrated RS485 and Ethernet based fieldbus support, varnished boards and robust motor control features for reliability, the VACON 100 also has dedicated features for each of these key applications. VACON 100 is available in the power range of 0.55 to

90 kW (0.75 - 125 HP) 230 V and 1.1-160 kW (1.5 - 200 HP) 500 V. The wall-mountable drive modules are easy to install and operate, with IP21/UL Type1 provided as standard. Options include IP54/UL Type12 and flange (through hole) mounting. Frame sizes MR8 and MR9 are also available as compact IP00 for easy installation to cabinets or enclosures.

VACON 100 allows you to do much more than you would expect from a standard drive. At Vacon, we aim to exceed your expectations.

### TYPICAL APPLICATIONS

#### Process industry

- Conveyors
- Pumps & fans
- Chippers, debarking drums, sawmills

#### Marine

- Cargo pumps, compressors
- Steering gear

#### Industrial HVAC/ Semiconductor industry

- Compressors
- Pumps & fans

#### Water

- Distribution
- Desalination
- Treatment
- Pumps, compressors, conveyors

#### Chemical, Oil & Gas

- Pumps & fans
- Compressors

#### Mining & Minerals

- Conveyors
- Pumps & fans

#### Cement auxiliary drives

- Conveyors
- Pumps & fans

## 100 REASONS TO CHOOSE VACON® 100

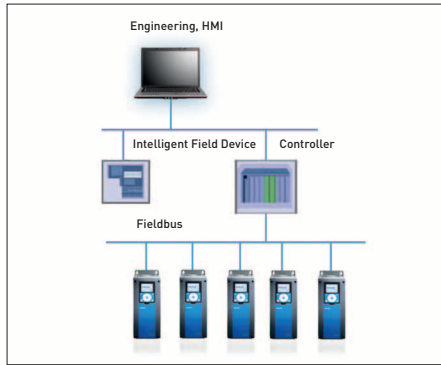
This one-drive-for-all-applications makes VACON 100 your easy, economical solution to improved process control and energy savings.



## WHAT'S IN IT FOR YOU

VACON 100	Common features	Benefits
	Compliance with global standards	Global compatibility.
	Built-in Modbus TCP and Modbus RTU Profinet IO or Ethernet/IP as software option	Most of what is needed is in-built. Easy integration with plant automation.
	Safe torque off, Safe Stop and ATEX	Improved safety at work.
	EMC compliance with integrated RFI filter. Integrated DC chokes	No additional accessories required
	Conformal coating Compact IP54/ UL Type 12 with same footprint as IP21/UL Type 1 Flange mounting Side by side mounting for IP54/ UL Type 12	High reliability in difficult environments, easy and cost effective installation.
	Standard I/O + 3 free slots Fieldbus options, Built in PLC capability	Reduces need for an external controller.
	High efficiency >97% + energy optimisation Energy counter Real time clock with calendar based functions Optimized control of cooling fan	Fast investment payback, increase profits. Easy monitoring of energy savings. Reduce noise levels.
	<b>Dedicated features</b>	<b>Added benefits</b>
• Pumps	2 PID controllers with Sleep Mode Soft Fill, Jockey Pump, Pump Autoclean PM and induction motor support	Demand based optimization of the process for accurate process control and energy saving. Easy selection for any motor. PM motor allows higher power density, less mechanics.
• Fans	Flying start, Motor Switch 3 Prohibit Frequency Ranges PM and induction motor support	Save time during process operation and maintenance. Fan lifetime increased due to reduced mechanical stress. Easy selection for any motor. PM motor allows higher power density= energy savings
• Compressors	IP21/UL Type 1 and IP54/ UL Type 12 Flange (through hole) mounting IP00 for MR8 and MR9	Suitable for wide installation needs. Easy to integrate into the machine, saving space and cost of integration and cooling.
• Conveyors	Load drooping, Identification run without disconnecting the motor from the load, mechanical brake, torque boost	Avoid stress on mechanics. Easy commissioning.

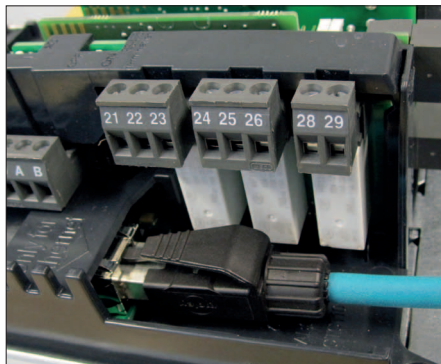
## SMART INTEGRATION TO YOUR PLANT AUTOMATION



### FIELDBUS OPTIONS

VACON® 100 is easily integrated with your plant's automation system using built-in Modbus RTU (RS485) or Modbus TCP (Ethernet). Integration over Profinet IO or Ethernet IP systems is made possible through software options. Click-in fieldbus options facilitate integration to traditional systems using Profibus DP, DeviceNet, CANOpen & LONWorks. Fieldbus technology ensures increased control and monitoring of the process equipment with reduced cabling.

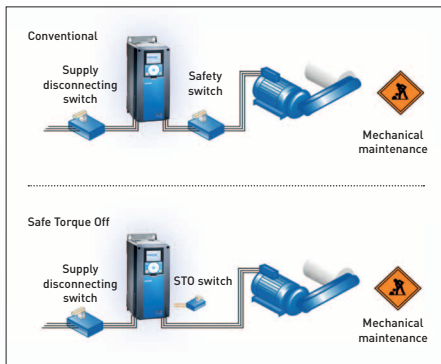
**MODBUS TCP, Ethernet IP, Profinet IO**  
**Modbus RTU, Profibus DP, DeviceNet, LONWorks, CANOpen**



### BUILT-IN ETHERNET

Ethernet based communication is common in all process industries today and VACON 100 is an obvious economical choice. No additional options or gateways are needed for the communication with process automation due to its unique built-in Ethernet. It not only provides access for commissioning and maintenance through VACON® Live but also makes local or remote wireless monitoring possible.

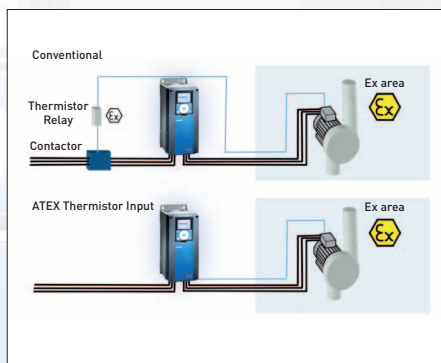
## FUNCTIONAL SAFETY



### SAFE TORQUE OFF, SAFE STOP 1

Safe Torque Off (STO) prevents the drive from generating torque on the motor shaft and prevents unintentional start-ups. The function also corresponds to an uncontrolled stop in accordance with stop category 0, EN60204-1. Safe Stop 1 (SS1) initiates motor deceleration and initiates the STO function after an application specific time delay. The function also corresponds to a controlled stop in accordance with stop category 1, EN 60204-1.

The advantage of the integrated STO and SS1 safety options compared to standard safety technology using electromechanical switchgear is the elimination of separate components and the effort required to wire and service them, while still maintaining the required level of safety at work.



### ATEX CERTIFIED THERMISTOR INPUT

Vacon has developed an ATEX approved thermistor input, as an integrated option. Certified and compliant with the European ATEX directive, 94/9/EC, the integrated thermistor input is specially designed for the temperature supervision of motors that are placed in areas in which potentially explosive gas, vapor, mist or air mixtures are present and areas with combustible dust. Typical industries requiring such supervision include chemical, petrochemical, marine, metal, mechanical, mining, and oil drilling. If over-heating is detected, the drive immediately stops feeding energy to the motor. As no external components are needed, the cabling is kept to a minimum, improving reliability and saving on both space and costs.

**USER FRIENDLY KEYPAD**

Vacon has ensured that the user interface is simple and intuitive to use. You will enjoy the keypad’s well-structured menu system that allows for fast commissioning and trouble-free operation.

- Graphical and text keypad with multiple language support
- 9 signals can be monitored at the same time on a single multimonitor page and is configurable to either 9,6 or 4 signals
- 3 color LED status indication on the control unit:
  - **blinking green** = ready; **green** = run; **red** = fault
- Trend display for two signals at the same time



**QUICK SET UP**

Easy commissioning tools ensure a hassle-free set up whatever the application. Easy diagnostic with help in plain text is provided for each parameter, signal and fault.

- **Startup Wizard** — for fast setup of basic pump or fan applications
- **PID Mini-Wizard** — for easy commissioning of internal PID Controller
- **Multi-Pump Wizard** — for easy commissioning of Multi-Pump system
- **Fire Mode Wizard** — for easy commissioning of Fire Mode function

VACON® 100 also features a real time clock with calendar based functions.



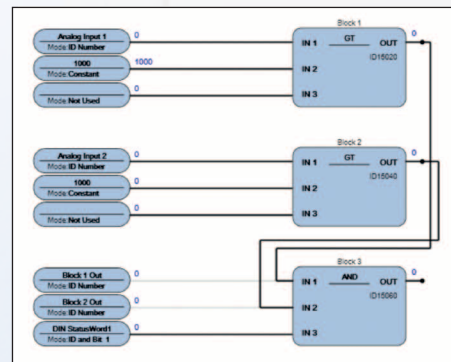
**EASY INSTALLATION**

Both IP21/UL Type 1 and IP54/UL Type 12 units have the same footprint making either an easy choice. Compact IP54/UL Type12 units can be installed side by side and require no additional space between them. Frame size MR8 and MR9 are available as IP00 for cabinet installation. Our flange mounting option makes through-hole mounting in the enclosure possible, with the heat sink remaining outside the enclosure. This significantly reduces heat losses in the enclosure and thus the enclosure size. Likewise, integrated lead-in grommets and 360 degree grounding improve both the IP54/UL Type 12 and EMC respectively, and lead to further cost savings.



**DRIVE CUSTOMIZER**

VACON 100 comes equipped with a built-in functionality that enables the drive to adapt to almost any function requiring I/O and control logic. The drive customizer function features a wide array of logical and numerical function blocks that can combine and extend standard drive functionalities, ensuring specific user requirements are met. The drive customizer does not require any special tools or training, while a fully graphical configuration can be performed using our own configuration tool, VACON® Live. Configurations can be copied using VACON Live as part of the normal parameter list.



# OPTIMIZE YOUR DRIVE YOUR WAY WITH VACON SOFTWARE TOOLS

## VACON® PROGRAMMING

Machine builders or OEMs can achieve a high level of machine performance by optimizing the application with our new VACON Programming software tools. These licensed tools feature a built-in PLC functionality based on IEC61131-3. You can simply program and secure your own control logic into the drive and use its intelligence and IO resources for performing other machine related tasks.

## COMMISSIONING MADE EASY WITH VACON® LIVE

VACON Live is a PC tool which communicates directly with the VACON 100 drive via Ethernet or through a USB-to-RS485 interface. This makes for particularly easy installation, commissioning and maintenance.

The drive, as well as process-related values can be graphically monitored in real time. Parameters can be edited, saved for back-up and compared with defaults or a back-up file. You only need to send one service info file to your service provider for quick support. A service info file contains parameters and other data such as history of faults and alarms, as well as drive hardware and

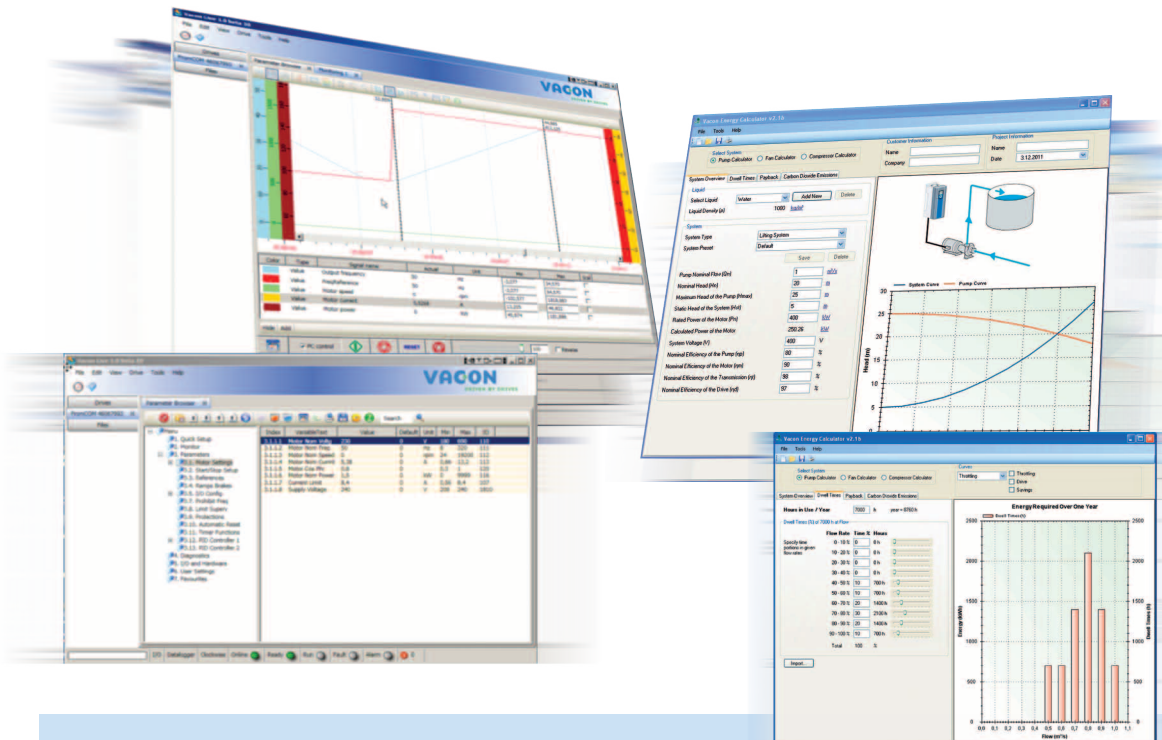
software details. Drive software and language support files can be loaded to the drive using VACON Loader software, which is included in the VACON Live tool.

## VACON® SAVE

Energy costs account for the majority of your installation's lifetime costs. With VACON Save you can calculate your energy savings in kWh when you implement a VACON 100 to the pumps and fans in your processes. While displaying savings in your own currency, it will also estimate the short payback time of your VACON 100 purchases as well as the reductions in carbon dioxide emissions in your country.

## VACON® HARMONICS

VACON 100 has built-in harmonics filtering. You can estimate the harmonics and power quality of your operations quickly using our VACON Harmonics tool. It illustrates the total harmonic effect of your existing or intended drives in your supply networks, so that you can plan for the effective solution in compliance with local harmonic standards.



### KEY BENEFITS

#### Economical

- Save on operating & maintenance costs
- Reduce downtime
- Optimize energy savings
- Minimize costs due to harmonic disruptions

#### Easy

- Simple to configure and use
- Customize on field with Block Programming
- Easy commissioning & maintenance
- Meet harmonic standards the easy way

## RATINGS & DIMENSIONS

### Mains voltage 208—240 V, 50/60 Hz, 3~

AC drive type	Loadability				Max current I <sub>s</sub>	Motor shaft power				Frame size	Dimensions WxHxD (mm) WxHxD (inch)	Weight (kg) Weight (lbs)
	Low*		High*			230V supply		230V supply				
	Continuous current I <sub>L</sub> [A]	10% overload current [A]	Continuous current I <sub>H</sub> [A]	50% overload current [A]		10% overload 40°C [kW]	50% overload 50°C [kW]	10% overload 104°F [hp]	50% overload 122°F [hp]			
VACON 0100-3L-0003-2	3.7	4.1	2.6	3.9	5.2	0.55	0.37	0.75	0.5	MR4	128x328x190 5x12.9x7.5	6.0 13.0
VACON 0100-3L-0004-2	4.8	5.3	3.7	5.6	7.4	0.75	0.55	1.0	0.75			
VACON 0100-3L-0007-2	6.6	7.3	4.8	7.2	9.6	1.1	0.75	1.5	1.0			
VACON 0100-3L-0008-2	8.0	8.8	6.6	9.9	13.2	1.5	1.1	2.0	1.5			
VACON 0100-3L-0011-2	11.0	12.1	8.0	12.0	16.0	2.2	1.5	3.0	2.0			
VACON 0100-3L-0012-2	12.5	13.8	9.6	14.4	19.2	3.0	2.2	4.0	3.0			
VACON 0100-3L-0018-2	18.0	19.8	12.5	18.8	25.0	4.0	3.0	5.0	4.0	MR5	144x419x214 5.7x16.5x8.4	10.0 22.0
VACON 0100-3L-0024-2	24.0	26.4	18.0	27.0	36.0	5.5	4.0	7.5	5.0			
VACON 0100-3L-0031-2	31.0	34.1	25.0	37.5	46.0	7.5	5.5	10.0	7.5			
VACON 0100-3L-0048-2	48.0	52.8	31.0	46.5	62.0	11.0	7.5	15.0	10.0	MR6	195x557x229 7.7x21.9x9	20.0 44.0
VACON 0100-3L-0062-2	62.0	68.2	48.0	72.0	96.0	15.0	11.0	20.0	15.0			
VACON 0100-3L-0075-2	75.0	82.5	62.0	93.0	124.0	18.5	15.0	25.0	20.0	MR7	237x660x259 9.3x26x10.2	37.5 83.0
VACON 0100-3L-0088-2	88.0	96.8	75.0	112.5	150.0	22.0	18.5	30.0	25.0			
VACON 0100-3L-0105-2	105.0	115.5	88.0	132.0	176.0	30.0	22.0	40.0	30.0			
VACON 0100-3L-0140-2	140.0	154.0	114.0	171.0	210.0	37.0	30.0	50.0	40.0	MR8	290x966x343 11.4x38x13.5	66.0 145.5
VACON 0100-3L-0170-2	170.0	187.0	140.0	210.0	280.0	45.0	37.0	60.0	50.0			
VACON 0100-3L-0205-2	205.0	225.5	170.0	255.0	340.0	55.0	45.0	75.0	60.0			
VACON 0100-3L-0261-2	261.0	287.1	211.0	316.5	410.0	75.0	55.0	100.0	75.0	MR9	480x1150x365 18.9x45.3x14.4	108.0 238.0
VACON 0100-3L-0310-2	310.0	341.0	251.0	376.5	502.0	90.0	75.0	125.0	100.0			
VACON 0100-3L-0140-2	140.0	154.0	114.0	171.0	210.0	37.0	30.0	50.0	40.0	MR8 IP00	290x794x343 11.4x31.3x13.5	62.0 136.7
VACON 0100-3L-0170-2	170.0	187.0	140.0	210.0	280.0	45.0	37.0	60.0	50.0			
VACON 0100-3L-0205-2	205.0	225.5	170.0	255.0	340.0	55.0	45.0	75.0	60.0			
VACON 0100-3L-0261-2	261.0	287.1	211.0	316.5	410.0	75.0	55.0	100.0	75.0	MR9 IP00	480x970x365 18.9x38.2x14.4	97.0 213.8
VACON 0100-3L-0310-2	310.0	341.0	251.0	376.5	502.0	90.0	75.0	125.0	100.0			

\* For all VACON 100 drives, overloadability is defined as follows: High: 1.5 x I<sub>H</sub> (1 min/10 min) @ 50°C; Low: 1.1 x I<sub>L</sub> (1 min/10 min) @ 40°C; IS for 2 sec.

### Mains voltage 380—500 V, 50/60 Hz, 3~

AC drive type	Loadability				Max current I <sub>s</sub>	Motor shaft power				Frame size	Dimensions WxHxD (mm) WxHxD (inch)	Weight (kg) Weight (lbs)
	Low*		High*			400V supply		480V supply				
	Continuous current I <sub>L</sub> [A]	10% overload current [A]	Continuous current I <sub>H</sub> [A]	50% overload current [A]		10% overload 40°C [kW]	50% overload 50°C [kW]	10% overload 104°F [hp]	50% overload 122°F [hp]			
VACON 0100-3L-0003-5	3.4	3.7	2.6	3.9	5.2	1.1	0.75	1.5	1.0	MR4	128x328x190 5x12.9x7.5	6.0 13.0
VACON 0100-3L-0004-5	4.8	5.3	3.4	5.1	6.8	1.5	1.1	2.0	1.5			
VACON 0100-3L-0005-5	5.6	6.2	4.3	6.5	8.6	2.2	1.5	3.0	2.0			
VACON 0100-3L-0008-5	8.0	8.8	5.6	8.4	11.2	3.0	2.2	4.0	3.0			
VACON 0100-3L-0009-5	9.6	10.6	8.0	12.0	16.0	4.0	3.0	5.0	4.0			
VACON 0100-3L-0012-5	12.0	13.2	9.6	14.4	19.2	5.5	4.0	7.5	5.0			
VACON 0100-3L-0016-5	16.0	17.6	12.0	18.0	24.0	7.5	5.5	10.0	7.5	MR5	144x419x214 5.7x16.5x8.4	10.0 22.0
VACON 0100-3L-0023-5	23.0	25.3	16.0	24.0	32.0	11.0	7.5	15.0	10.0			
VACON 0100-3L-0031-5	31.0	34.1	23.0	34.5	46.0	15.0	11.0	20.0	15.0			
VACON 0100-3L-0038-5	38.0	41.8	31.0	46.5	62.0	18.5	15.0	25.0	20.0	MR6	195x557x229 7.7x21.9x9	20.0 44.0
VACON 0100-3L-0046-5	46.0	50.6	38.0	57.0	76.0	22.0	18.5	30.0	25.0			
VACON 0100-3L-0061-5	61.0	67.1	46.0	69.0	92.0	30.0	22.0	40.0	30.0			
VACON 0100-3L-0072-5	72.0	79.2	61.0	91.5	122.0	37.0	30.0	50.0	40.0	MR7	237x660x259 9.3x26x10.2	37.5 83.0
VACON 0100-3L-0087-5	87.0	95.7	72.0	108.0	144.0	45.0	37.0	60.0	50.0			
VACON 0100-3L-0105-5	105.0	115.5	87.0	130.5	174.0	55.0	45.0	75.0	60.0			
VACON 0100-3L-0140-5	140.0	154.0	105.0	157.5	210.0	75.0	55.0	100.0	75.0	MR8	290x966x343 11.4x38x13.5	66.0 145.5
VACON 0100-3L-0170-5	170.0	187.0	140.0	210.0	280.0	90.0	75.0	125.0	100.0			
VACON 0100-3L-0205-5	205.0	225.5	170.0	255.0	340.0	110.0	90.0	150.0	125.0			
VACON 0100-3L-0261-5	261.0	287.1	205.0	307.5	410.0	132.0	110.0	200.0	150.0	MR9	480x1150x365 18.9x45.3x14.4	108.0 238.0
VACON 0100-3L-0310-5	310.0	341.0	251.0	376.5	502.0	160.0	132.0	250.0	200.0			
VACON 0100-3L-0140-5	140.0	154.0	105.0	157.5	210.0	75.0	55.0	100.0	75.0	MR8 IP00	290x794x343 11.4x31.3x13.5	62.0 136.7
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VACON 0100-3L-0261-5	261.0	287.1	205.0	307.5	410.0	132.0	110.0	200.0	150.0	MR9 IP00	480x970x365 18.9x38.2x14.4	97.0 213.8
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\* For all VACON 100 drives, overloadability is defined as follows: High: 1.5 x I<sub>H</sub> (1 min/10 min) @ 50°C; Low: 1.1 x I<sub>L</sub> (1 min/10 min) @ 40°C; IS for 2 sec.

## TECHNICAL DATA

<b>Mains connection</b>	Input voltage U <sub>in</sub>	208...240 V; 380...500 V; -10%...+10%	
	Input frequency	47 - 65Hz	
	Connection to mains	Once per minute or less	
	Starting delay	4 s (MR4 to MR6); 6 s (MR7 to MR9)	
<b>Motor connection</b>	Output voltage	0-U <sub>in</sub>	
	Continuous output current	IL: Ambient temperature up to 40°C (104°F) overload 1.1 x I <sub>L</sub> (1 min./10 min). IH: Ambient temperature up to 50°C (122°F) overload 1.5 x I <sub>H</sub> (1 min./10 min).	
	Output frequency	0...320 Hz (standard)	
	Frequency resolution	0.01 Hz	
<b>Control characteristics</b>	Switching frequency	1.5...10 kHz; Automatic switching frequency reduction in case of overheating	
	Frequency reference	Resolution 0.01 Hz	
	Analog input	Resolution 0.1% (10-bit)	
	Field weakening point	8...320 Hz	
	Acceleration time	0.1...3000 sec	
	Deceleration time	0.1...3000 sec	
<b>Ambient conditions</b>	Ambient operating temperature	IL : -10°C (-14°F) (no frost)... +40°C (104°F) IH: -10C (-14°F)(no frost)... +50°C (122°F)	
	Storage temperature	-40°C (-40°F)...+70°C (158°F)	
	Relative humidity	0 to 95% RH, non-condensing, non-corrosive	
	Air quality: EN/IEC 60068-2-60 • chemical vapors • mechanical particles	EN/IEC 60721-3-3, unit in operation, class 3C2 EN/IEC 60721-3-3, unit in operation, class 3S2	
	Altitude	100% load capacity (no derating) up to 1.000 m (3280 ft) 1% derating for each 100 m (328 ft) above 1.000 m (3280 ft) Max. altitudes: 4000 m (13123 ft) (TN and IT systems) 240V relay voltage up to 3000m (9842 ft) from 3000 m ...4000m (9842 ft ... 13123 ft) 120V relay voltage can be used.	
	Vibration	EN/IEC 61800-5-1 EN/IEC 60068-2-6	
	Shock	EN/IEC 61800-5-1 EN/IEC 60068-2-27	
	Enclosure class	IP21/UL Type 1 standard in entire range IP54/UL Type 12 option IP00 for frames MR8, MR9	
<b>EMC (at default settings)</b>	Immunity	Fulfils EN/IEC 61800-3, first and second environment	
	Emissions	61800-3, Category C2 Vacon 100 will be delivered with class C2 EMC filtering, if not otherwise specified. Vacon 100 can be modified for IT networks	
<b>Emissions</b>	Average sound pressure level in dB(A) (1 m from the drive)	MR4: 45...56 MR5: 57...65 MR6: 63...72 MR7: 43...73 MR8: 58...73 MR9: 54...75	Sound pressure depends on the cooling fans speed which is controlled in accordance with the drive temperature.
<b>Safety and Approvals</b>		EN/IEC 61800-5-1, EN/IEC 61800-3, EN/IEC 61000-3-12, UL 508 C, CE, UL, cUL, GOST-R, C-Tick; [see unit nameplate for more detailed approvals]	
<b>Functional safety *</b>	STO	EN/IEC 61800-5-2 Safe Torque Off (STO) SIL3, EN ISO 13849-1 PL"e" Category 3, EN 62061: SILCL3, IEC 61508: SIL3.	
	SS1	EN /IEC 61800-5-2 Safe Stop 1 (SS1) SIL2, EN ISO 13849-1 PL"d" Category 3, EN /IEC62061: SILCL2, IEC 61508: SIL2.	
	ATEX Thermistor input	94/9/EC, CE 0537 Ex 11 (2) GD	

\* Optional

## TYPE CODE KEY

### VACON 0100 - 3L - 0009 - 5 + OPTION CODES

Product	Input phase	Current rating	Voltage rating	+ Options

## I/O CONFIGURATIONS & OPTIONS

Basic I/O board		
Terminal		Signal
1	+10 V <sub>ref</sub>	Reference output
2	AI1+	Analog input, voltage or current
3	AI1-	Analog input common (current)
4	AI2+	Analog input, voltage or current
5	AI2-	Analog input common (current)
6	24 V <sub>out</sub>	24 V aux. voltage
7	GND	I/O ground
8	DI1	Digital input 1
9	DI2	Digital input 2
10	DI3	Digital input 3
11	CM	Common A for DI1-DI6
12	24 V <sub>out</sub>	24 V aux. voltage
13	GND	I/O ground
14	DI4	Digital input 4
15	DI5	Digital input 5
16	DI6	Digital input 6
17	CM	Common A for DI1-DI6
18	A01+	Analog signal (+output)
19	A0-/GND	Analog output common
30	+24 V <sub>in</sub>	24 V auxiliary input voltage
A	RS485	Differential receiver/transmitter
B	RS485	Differential receiver/transmitter

Standard relay board			Optional relay board *		
Terminal		+SBF3	Terminal		+SBF4
21	RO1/1 NC	Relay output 1	21	RO1/1 NC	Relay output 1
22	RO1/2 CM		22	RO1/2 CM	
23	RO1/3 NO		23	RO1/3 NO	
24	RO2/1 NC	Relay output 2	24	RO2/1 NC	Relay output 2
25	RO2/2 CM		25	RO2/2 CM	
26	RO2/3 NO		26	RO2/3 NO	
32	RO3/1 CM	Relay output 3	28	TI1+	Thermistor input
33	RO3/2 NO		29	TI1-	

\* Standard relay board SBF3 (3XR0) can be replaced by SBF4 (2 x RO + Thermistor)

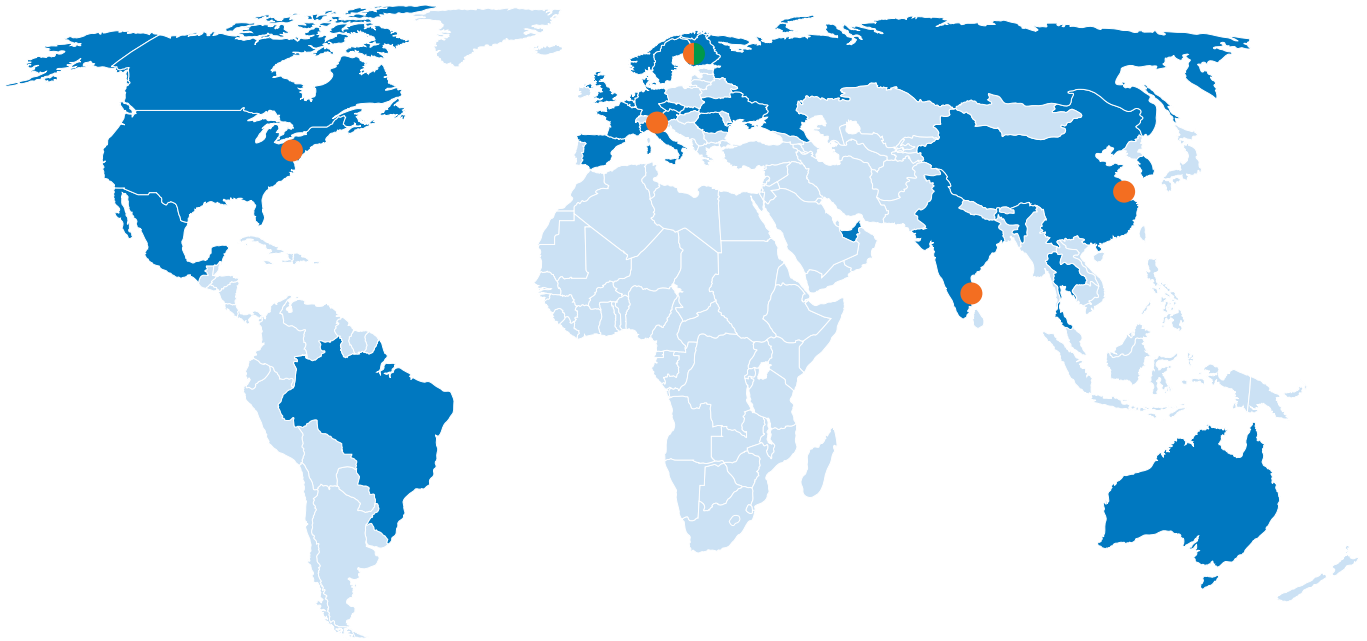
Option boards (all boards are varnished)		Option slot		
		C	D	E
OPT-F3-V	3 x Relay output	-	-	-
OPT-F4-V	2 x Relay output + Thermistor	-	-	-
OPT-B1-V	6 x DI/DO, each I/O can be individually programmable as input or output	●	●	●
OPT-B2-V	2 x Relay output + Thermistor	●	●	●
OPT-B4-V	1 x AI, 2 x AO (isolated)	●	●	●
OPT-B5-V	3 x Relay output	●	●	●
OPT-B9-V	1 x RO, 5 x DI (42-240 VAC)	●	●	●
OPT-BF-V	1 x AO, 1 x DO, 1 x RO	●	●	●
OPT-BH-V	3 x Temperature measurement (support for PT100, PT1000, NI1000, KTY84-130, KTY84-150, KTY84-131 sensors)	●	●	●
OPT-BJ-V	Safe torque-off, ATEX thermistor input, Safe Stop 1	-	-	●
OPT-E3-V	Profibus DPV1 (Screw connector)	-	●	●
OPT-E5-V	Profibus DPV1 (D9 connector)	-	●	●
OPT-E6-V	CANopen	-	●	●
OPT-E7-V	DeviceNet	-	●	●

Factory options	Description
+SBF4	2 x Ro + Thermistor (Replaces 3 relay standard board)
+IP54	IP54 / UL Type 12
+IP00	IP00 (for MR8 and MR9)
+SRBT	Real-time clock battery
ENC-QFLG-MR	Flange mounting kit for MR4-7
+HMTX	Text keypad
+HMPA	Panel adapter
+S_B1	6 x DI/DO
+S_B2	2 x RO + Thermistor
+S_B4	1 x AI, 2 x AO
+S_B5	3 x RO
+S_B9	1 x RO, 5 x DI (42-240 VAC)
+S_BF	1 x AO, 1 x DO, 1 x RO
+S_BH	Temperature measurement
+S_E3	Profibus DPV1
+S_E5	Profibus DPV1 (D9)
+S_E6	CANopen
+S_E7	DeviceNET
+S_BJ	Safe Torque Off/ATEX
+FBPN	Profinet IO (software option onboard)
+FBEI	Ethernet IP (software option onboard)
+QFLG	Flange mounting (MR4-MR7, for MR8 and MR9 with IP00)
+QGLC	Conduit plate with inch holes
+EMC4	Change to EMC-level c4 for IT networks
+DBIN	Dynamic braking (for MR7-MR9)
<b>Language packages</b>	
+FL01	English, German, Italian, French, Finnish, Swedish
+FL02	English, German, Finnish, Danish, Swedish, Norwegian
+FL03	English, Spanish, French, Italian, Dutch, Portuguese
+FL04	English, German, Czech, Polish, Russian, Slovakian
+FL05	English, German, Estonian, Hungarian, Romanian, Turkish

## VACON AT YOUR SERVICE

Vacon is driven by a passion to develop, manufacture and sell the best AC drives and inverters in the world - and to provide customers with efficient product life-cycle services. Our AC drives offer optimum process control and energy efficiency for electric motors. Vacon inverters play a key role when energy is produced from renewable sources. Vacon has production and R&D facilities in Europe, Asia and North America, and sales and service operations in nearly 90 countries. In 2011, Vacon's revenues amounted to EUR 380.9 million, and the company employed globally approximately 1,500 people. The shares of Vacon Plc (VAC1V) are quoted on the main list of the Helsinki stock exchange (NASDAQ OMX Helsinki).

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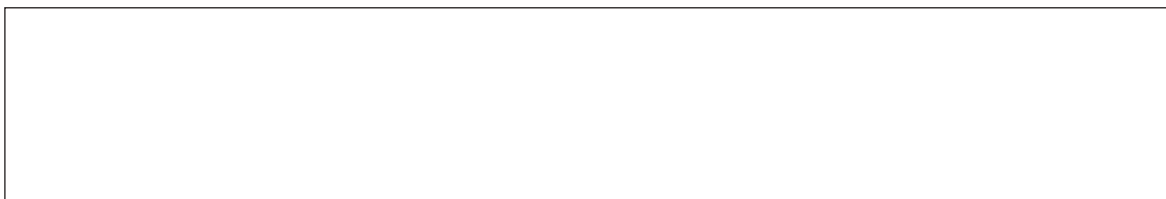
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