



**VACON 50X  
TOUGH INDUSTRIAL AC DRIVE**

**VACON**  
DRIVEN BY DRIVES

## BUILT FOR YOU AND THE WORLD YOU WORK IN

The Vacon 50X is designed to do more than run an AC drive in ideal conditions. It has been designed to keep on driving demanding processes in harsh environments from 0.37 to 132 kW (220 V, three-phase and 400 V, three-phase). It is built tough from the ground up to survive in hostile environments and still be simple to use and adaptable to the real world applications and requirements that you encounter every day.

The Vacon 50X range has been designed for worldwide use – with a dual voltage rating for 400 V and 460 V 50/60 Hz supplies as well as a dual power rating to adapt to all applications. The control is flexible, as it allows the control source to be the keypad, remote signals, computers or any combination. The built-in 9-step PLC functionality improves the usability of the AC drive and might, in some cases, even eliminate the need for a separate external PLC.

The rugged design of the Vacon 50X allows you to mount it close to the motors they drive. The IP66 enclosure (IP55 for bigger drives) allows you to use pressure water to clean the drive – at a pressure of 70 bars from 15 cm. The thick polycarbonate cover and the high-grade aluminium heatsink withstand the influence of most aggressive chemicals. The double labyrinth seal between cover and heatsink keeps dust, dirt, oil and water from entering the enclosure.

The small Vacon 50X AC drives are convection-cooled – no fan to worry about. In keeping with the tough basic design, the Vacon 50X has a built-in heater to allow use in frigid temperatures – as long as power is available. The standard “built-in” Dynamic Braking Resistor virtually eliminates nuisance trips, providing more uptime, and the 60:1 constant torque turn-down ratio provides low-speed performance when you need it.

### Features

- Large voltage and power range
- Designed for industrial environments
- Macros for easy operation of various basic applications
- Rugged IP66 enclosure for industrial use
- Clear multilingual text display
- Download parameters via IR



## SIZES AND RATINGS

High overload		Low overload		Order type code	Frame	Measurements WxHxD (mm)	Weight (kg)
Motor nominal power (kW)	Drive nominal current (A)	Motor nominal power (kW)	Drive nominal current (A)				

### 3 x 220 VAC\*, EMC category C4 (no EMC classification)

0.37	2.2	0.75	4.2	VACON0050-3L-0005-2-X	S0/IP66	165x241x155	3.9
0.75	4.2	1.5	6.8	VACON0050-3L-0008-2-X	S0/IP66	165x241x155	3.9
1.5	6.8	2.2	9.6	VACON0050-3L-0011-2-X	S0/IP66	165x241x155	3.9
2.2	9.6	4	15	VACON0050-3L-0018-2-X	S1/IP66	221x306x166	6.4
4	15.2	5.5	22	VACON0050-3L-0025-2-X	S1/IP66	221x306x166	6.4
5.5	22	7.5	28	VACON0050-3L-0037-2-X	S2/IP66	273x442x201	13
7.5	28	11	42	VACON0050-3L-0048-2-X	S2/IP66	273x442x201	13
11	42	15	54	VACON0050-3L-0062-2-X	S3/IP66	286x513x314	23
15	54	18.5	68	VACON0050-3L-0078-2-X	S3/IP66	286x513x314	23

### 3 x 380 – 460 VAC, EMC category C4 (no EMC classification)

0.55	1.8	0.75	2.4	VACON0050-3L-0002-5-X	S0/IP66	165x241x155	3.9
0.75	2.4	1.5	3.8	VACON0050-3L-0004-5-X	S0/IP66	165x241x155	3.9
1.5	3.8	2.2	5.1	VACON0050-3L-0005-5-X	S0/IP66	165x241x155	3.9
2.2	5.1	4	8.9	VACON0050-3L-0009-5-X	S1/IP66	221x306x166	6.4
4	8.9	5.5	12	VACON0050-3L-0012-5-X	S1/IP66	221x306x166	6.4
5.5	12	7.5	15.6	VACON0050-3L-0016-5-X	S1/IP66	221x306x166	6.4
7.5	15.6	11	23	VACON0050-3L-0023-5-X	S2/IP66	273x442x201	13
11	23	15	31	VACON0050-3L-0031-5-X	S2/IP66	273x442x201	13
15	31	18.5	37	VACON0050-3L-0037-5-X	S2/IP66	273x442x201	13
18.5	37	22	43	VACON0050-3L-0043-5-X	S2/IP66	273x442x201	13
22	43	30	61	VACON0050-3L-0061-5-X	S3/IP66	286x513x314	23
30	61	37	71	VACON0050-3L-0071-5-X	S3/IP66	286x513x314	23
37	71	45	86	VACON0050-3L-0086-5-X	S4/IP66	326x745x351	43
45	86	55	105	VACON0050-3L-0105-5-X	S4/IP66	326x745x351	43
55	105	75	140	VACON0050-3L-0140-5-X	S4/IP66	326x745x351	43
75	140	90	168	VACON0050-3L-0168-5-X	S5/IP55	414x1296x429	138
90	168	110	205	VACON0050-3L-0205-5-X	S5/IP55	414x1296x429	138
110	205	132	240	VACON0050-3L-0240-5-X	S5/IP55	414x1296x429	138

### 3 x 380 – 460 VAC, EMC category C3

2.2	5.1	4	8.9	VACON0050-3L-0009-5-X+EMC3	S1/IP66	221x306x166	6.4
4	8.9	5.5	12	VACON0050-3L-0012-5-X+EMC3	S1/IP66	221x306x166	6.4
5.5	12	7.5	15.6	VACON0050-3L-0016-5-X+EMC3	S1/IP66	221x306x166	6.4
7.5	15.6	11	23	VACON0050-3L-0023-5-X+EMC3	S2/IP66	273x442x201	13
11	23	15	31	VACON0050-3L-0031-5-X+EMC3	S2/IP66	273x442x201	13
15	31	18.5	37	VACON0050-3L-0037-5-X+EMC3	S2/IP66	273x442x201	13
18.5	37	22	43	VACON0050-3L-0043-5-X+EMC3	S2/IP66	273x442x201	13
22	43	30	61	VACON0050-3L-0061-5-X+EMC3	S3/IP66	286x513x314	23
30	61	37	71	VACON0050-3L-0071-5-X+EMC3	S3/IP66	286x513x314	23
37	71	45	86	VACON0050-3L-0086-5-X+EMC3	S4/IP66	326x745x351	43

\*1 For single-phase applications, derate the nominal current by 50%

# TECHNICAL DATA

<b>Mains connection</b>	Input voltage $U_{in}$	200...230 V; 380...460 V; -15%...+15%
	Input frequency	48...62 Hz
	Maximum source kVA	10 times rated unit kVA, maximum 65 kVA
<b>Motor connection</b>	Output voltage	0... $U_{in}$
	Continuous output current	Ambient temperature max. +40°C, overload 1.2 x $I_N$ (1 min./10 min.)
	Output frequency	0.1...400 Hz
	Frequency resolution	0.1 Hz
<b>Control characteristics</b>	Control method	Open Loop Sensorless Vector Control
	Switching frequency	1...16 kHz
	Frequency reference	Analog (0...10 V, 0...20 mA, 4...20 mA, 0-5-10 V bipolar)
	Analogue input	Digital (keypad)
	Panel reference	Pulse train < 100 kHz
	Field weakening point	25...400 Hz
	Acceleration time	0.1...3200 sec
	Deceleration time	0.1...3200 sec
<b>Ambient conditions</b>	Braking torque	DC brake: 30% x $T_N$ (without brake option)
	Ambient operating temperature	-10°C (no frost)...+40°C: $I_H$
	Storage temperature	-20°C...+65°C
	Relative humidity	0 to 95% RH, non-condensing, non-corrosive, no dripping water
	Altitude	100% load capacity (no derating) up to 1,000 m. 1% derating for each 100 m above 1,000 m; max. 2,000 m with $U_L$ , max. 4,000 m without $U_L$
	Vibration EN50178/EN60068-2-6	5...150 Hz Displacement amplitude 1 mm (peak) at 5...15.8 Hz Max. acceleration amplitude 1 G at 15.8...150 Hz
	Shock EN50178, EN60068-2-27	UPS Drop Test (for applicable UPS weights) Storage and shipping: max 15 G, 11 ms (in package)
<b>EMC</b>	Enclosure class	IP66, IP55
	Immunity	Fulfils EN61800-3, first and second environment
<b>Safety</b>	Emissions	Fulfils EN61800-3, second environment, class C4, class C3 with +EMC3 option
		EN 50178 (1997), EN 60204-1 (2006), CE, UL, cUL [see unit nameplate for more detailed approvals]
<b>Control connections</b>	Analogue input voltage	0...+10 V, $R_i = 200 \text{ k}\Omega$ . Resolution 0.1%, accuracy $\pm 1\%$
	Analogue input current	0(4)...20 mA, $R_i = 250 \text{ }\Omega$ differential
	Digital inputs (3)	Positive or negative logic; 18...30 VDC
	Output reference voltage	+10 V, +3%, max. load 10 mA
	Analogue output	0(4)...20 mA; $R_i$ max. 500 $\Omega$ . Resolution 10 bits, accuracy $\pm 2\%$
	Digital outputs	2 open collector output, 50 mA / 24 V
	Relay outputs	2 NO/NC relay output. Switching capacity: 130 VAC / 1 A, 250 VAC / 0.5 A Min. switching load: 5 V / 10 mA
<b>Protections</b>	Overvoltage trip limit	200 V class, 406 VDC; 400 V class, 814 VDC
	Undervoltage trip limit	200 V class, 199 VDC; 400 V class, 397 VDC
	Earth fault protection	In case of earth fault in motor or motor cable, only the frequency converter is protected
	Mains supervision	Trips if any of the input phases is missing (programmable ON/OFF)
	Motor phase supervision	Trips if any of the output phases is missing
	Overcurrent protection	Yes
	Unit overtemperature protection	Yes
	Motor overload protection	Yes
	Motor stall protection	Yes
	Motor underload protection	Yes
Short-circuit protection of +10 V reference voltages	Yes	

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