

WE ARE DRIVES



VACON[®] NXS

DRIVE CENTRE 
Industrial Automation Systems Integrators

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FR4

FR5

FR6

FR7

FR8

FR9

THE RELIABLE CHOICE

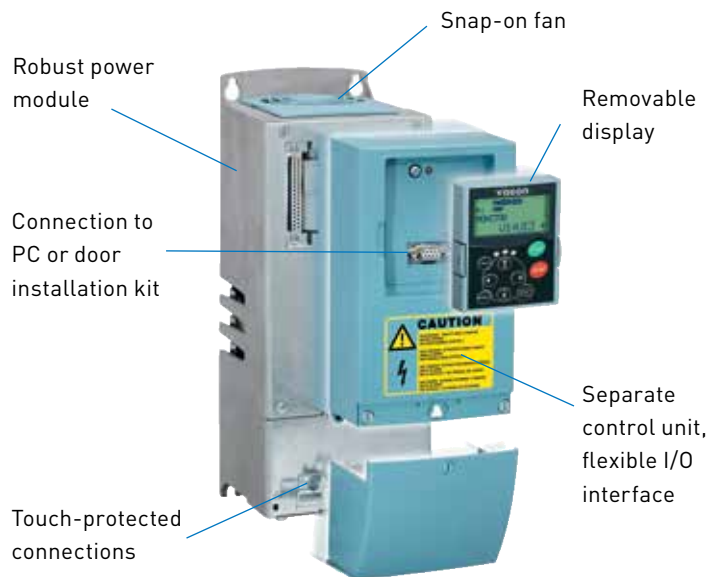
The VACON® NXS is a compact AC drive in the power range of 0.50—250 HP (0.55—190kW) and supply voltages of 208—690 V for heavy use in machines, buildings and all branches of industry.

The VACON® NXS is the drive that does it all and then some. No job is too simple or too complex for the seven built-in application packages to solve. The Vacon NX also has several free task specific applications available to make even the most demanding jobs that much quicker to start up.

The VACON® NXS features a modular design that offers several advantages for any installation. The robust power module is designed for efficient cooling and features a snap-on fan unit that is simple to remove and replace. The control box, found on every VACON® NXS drive, is designed to safely separate the control terminals from the power terminals. This modular design also allows the VACON® NXS to be field upgraded to a UL TYPE 12/IP55 enclosure without the need to increase the footprint of the drive.

FEATURES

- Easy to use display panel
- Interactive programming with Start-Up Wizard
- Versatile All-in-One Package
- PID controller and PFC for 1-5 pumps
- Special applications available (water application package, high speed, etc.)
- Five slots for control boards (2 basic boards and 3 option boards)
- High switching frequency, low noise
- Steady state speed error < 1%
- Low torque ripple
- Starting torque > 200%, depending on AC drive sizing
- Suitable for multi-motor applications



INTUITIVE INTERFACE

- Plain Text Display
- Common human interface across all frame sizes
- Multiple language packs for many countries
- Seven built in application packages for easy commissioning



- Simple programming
- Languages for many countries
- Reduces start up time

ULTIMATE FLEXIBILITY

- UL Type 1/IP21 and UL Type 12/IP54 in the same footprint
- Many free specialty application programs
- Built-in AC Line Reactors standard for every frame size
- Five option card slots for communications and additional I/O
- Flange mounting and remote keypad mounting kits available



- Reduces investment costs
- One drive for many applications
- Protection against incoming power spikes
- Mount on a wall or in a cabinet

VACON NX CONTROL UNIT

The Vacon NX Family offers a high-performance control platform for all demanding drive applications. There are five slots (A, B, C, D and E) for I/O boards, and a suitable board can be selected for each slot (see table below).

The Vacon NX Family drives are delivered with OPT-A1 and OPT-A2 boards if the I/O is not specified. In many countries, boards OPT-A1 and OPT-A3 are used as standard I/O as the galvanically isolated thermistor input is often required.

Removable terminals, snap-in card installation, automatic card identification and instructions on the drive help making quick connections. If necessary, the inputs, outputs and fieldbus boards can be added in the field. The Vacon NX Family is simply the most flexible frequency converter series on the market.

An external +24 V supply option enables communication with the control unit even if the mains supply is switched off (e.g. fieldbus communication and parameter settings).



OPTION BOARDS

Type	Card slot					Suitability		I / O signal																	Note				
	A	B	C	D	E	NXS	NXP	DI	DO	DI	AI	AI	AO	AO	RO	RO	+10V _{ref}	Therm	+24V/pt100	42-240 VAC input	DI/DO	DI/DO	DI	Resolver		Out +5V/ +15V/ +24V	Out +15V/ +24V	Out +5V/ +12V/ +15V	
Basic I/O cards (OPT-A)																													
OPT-A1								6	1		2		1																
OPT-A2															2														
OPT-A3														1	1		1												
OPT-A4								2															3/0		1				
OPT-A5								2														3/0			1				
OPT-A8								6	1		2		1				1												1)
OPT-A9								6	1		2		1				1												2.5 mm ² terminals
OPT-AE									2														3/0			1			DO = Divider+Direction
I/O expander cards (OPT-B)																													
OPT-B1									6										1										Selectable DI/DO
OPT-B2														1	1		1												
OPT-B4											1		2						1										2)
OPT-B5																3													
OPT-B8																			1	3									
OPT-B9								2										1				5							
OPT-BB								2																					
OPT-BC																							3/3		0/2	2		1	Sin/Cos+EnDat
OPT-BE																													Encoder out=Resolver simulation EnDat/SSI
Fieldbus cards (OPT-C)																													
OPT-C2																													Modbus RTU
OPT-C3																													
OPT-C4																													
OPT-C5																													
OPT-C6																													
OPT-C7																													
OPT-C8																													Modbus RTU
OPT-CG																													
OPT-CI																													
OPT-CJ																													
OPT-CP																													
OPT-CQ																													

NOTES: Allowed slots for the board are marked in blue.

1) analogue signals galvanically isolated as a group

2) analogue signals galvanically isolated separately

The mechanical design is extremely compact. The UL Type 12 units in particular are the smallest AC drives on the market. All units are suitable for both wall and enclosure mounting with all necessary components: integrated EMC filters, AC chokes, cable protection, dust and water protection. The effective super-cooling principle allows high ambient temperatures and high switching frequencies without derating.

PRODUCT RANGE

VACON NXS 208-240V, 50/60HZ, 3~

Product Code For UL Type 12, replace '2' with '5', e.g. NXS00042A5H1....	Motor Shaft Power and Current						Frame Size	Dimensions W x H x D (mm) W x H x D (in)	Weight (kg) Weight (lbs)
	High Overload (150%)			Low Overload (110%)					
	Power (HP)	Power (kW)	I _H (A)	Power (HP)	Power (kW)	I _L (A)			
NXS 0004	2A2H1SSSA1A2	0.75	0.55	3.7	1	0.75	4.8	FR4 128.01 x 292.1 x 189.99 5.04 x 11.50 x 7.48	4.989 11
NXS 0007	2A2H1SSSA1A2	1	0.75	4.8	1.5	1.1	6.6		
NXS 0008	2A2H1SSSA1A2	1.5	1.1	6.6	2	1.5	7.8		
NXS 0011	2A2H1SSSA1A2	2	1.5	7.8	3	2.2	11		
NXS 0012	2A2H1SSSA1A2	3	2.2	11	4	3	12.5		
NXS 0017	2A2H1SSSA1A2	4	3	12.5	5	4	17.5	FR5 144.01 x 390.9 x 214.12 5.67 x 15.39 x 8.43	8.164 18
NXS 0025	2A2H1SSSA1A2	5	4	17.5	7.5	5.5	25		
NXS 0031	2A2H1SSSA1A2	7.5	5.5	25	10	7.5	31		
NXS 0048	2A2H1SSSA1A2	10	7.5	31	15	11	48	FR6 195.07 x 518.92 x 236.98 7.68 x 20.43 x 9.33	18.597 41
NXS 0061	2A2H1SSSA1A2	15	11	48	20	15	61		
NXS 0075	2A2H0SSSA1A2	20	15	61	25	18.5	75	FR7 236.98 x 591.05 x 257.04 9.33 x 23.27 x 10.12	34.926 77
NXS 0088	2A2H0SSSA1A2	25	18.5	75	30	22	88		
NXS 0114	2A2H0SSSA1A2	30	22	88	40	30	114		
NXS 0140	2A2H0SSSA1A2	40	30	105	50	37	140	FR8 291.08 x 757.93 x 343.91 11.46 x 29.84 x 13.54	58.059 128
NXS 0170	2A2H0SSSA1A2	50	37	140	60	45	170		
NXS 0205	2A2H0SSSA1A2	60	45	170	75	55	205		
NXS 0261	2A2H0SSFA1A2	75	55	205	100	75	261	FR9 480.06 x 1,150.11 x 361.95 18.90 x 45.28 x 14.25	146.056 322
NXS 0300	2A2H0SSFA1A2	100	75	245	125	90	300		

VACON NXS 380-500V, 50/60HZ, 3~

Product Code For UL Type 12, replace '2' by '5', e.g. NXS00035A5H1....	Motor Shaft Power and Current						Frame Size	Dimensions W x H x D (mm) W x H x D (in)	Weight (kg) Weight (lbs)
	High Overload (150%)			Low Overload (110%)					
	Power (HP)	Power (kW)	I _H (A)	Power (HP)	Power (kW)	I _L (A)			
NXS 0003	5A2H1SSSA1A2	1	0.75	2.2	1.5	1.1	3.3	FR4 128.01 x 292.1 x 189.99 5.04 x 11.50 x 7.48	4.989 11
NXS 0004	5A2H1SSSA1A2	1.5	1.1	3.3	2	1.5	4.3		
NXS 0005	5A2H1SSSA1A2	2	1.5	4.3	3	2.2	5.6		
NXS 0007	5A2H1SSSA1A2	3	2.2	5.6	5	3	7.6		
NXS 0009	5A2H1SSSA1A2	5	3	7.6	5	4	9		
NXS 0012	5A2H1SSSA1A2	5	4	9	7.5	5.5	12	FR5 144.01 x 390.9 x 214.12 5.67 x 15.39 x 8.43	8.164 18
NXS 0016	5A2H1SSSA1A2	7.5	5.5	12	10	7.5	16		
NXS 0022	5A2H1SSSA1A2	10	7.5	16	15	11	23		
NXS 0031	5A2H1SSSA1A2	15	11	23	20	15	31	FR6 195.07 x 518.92 x 236.98 7.68 x 20.43 x 9.33	18.597 41
NXS 0038	5A2H1SSSA1A2	20	15	31	25	18.5	38		
NXS 0045	5A2H1SSSA1A2	25	18.5	38	30	22	46		
NXS 0061	5A2H1SSSA1A2	30	22	46	40	30	61	FR7 236.98 x 591.05 x 257.04 9.33 x 23.27 x 10.12	34.926 77
NXS 0072	5A2H0SSSA1A2	40	30	61	50	37	72		
NXS 0087	5A2H0SSSA1A2	50	37	72	60	45	87		
NXS 0105	5A2H0SSSA1A2	60	45	87	75	55	105	FR8 291.08 x 757.93 x 343.91 11.46 x 29.84 x 13.54	58.059 128
NXS 0140	5A2H0SSSA1A2	75	55	105	100	75	140		
NXS 0168	5A2H0SSSA1A2	100	75	140	125	90	170		
NXS 0205	5A2H0SSSA1A2	125	90	170	150	110	205	FR9 480.06 x 1,150.11 x 361.95 18.90 x 45.28 x 14.25	146.056 322
NXS 0261	5A2H0SSFA1A2	150	110	205	200	132	261		
NXS 0300	5A2H0SSFA1A2	200	132	245	200	160	300		

PRODUCT RANGE

VACON NXS 525-690V, 50/60HZ, 3~

Product Code For UL Type 12, replace '2' by '5', e.g. NXS00035A5H1....			Motor Shaft Power and Current						Frame Size	Dimensions W x H x D (mm) W x H x D (in)	Weight (kg) Weight (lbs)
			High Overload (150%)			Low Overload (110%)					
			Power (HP)	Power (kW)*	I _L (A)	Power (HP)	Power (kW)*	I _L (A)			
NXS	0004	6A2L0SSSA1A2	2	1.5	3.2	3	2.2	4.5	FR6	195.07 x 518.92 x 236.98 7.68 x 20.43 x 9.33	18.597 41
NXS	0005	6A2L0SSSA1A2	3	2.2	4.5	-	3	5.5			
NXS	0007	6A2L0SSSA1A2	-	3	5.5	5	4	7.5			
NXS	0010	6A2L0SSSA1A2	5	4	7.5	7.5	5.5	10			
NXS	0013	6A2L0SSSA1A2	7.5	5.5	10	10	7.5	13.5			
NXS	0018	6A2L0SSSA1A2	10	7.5	13.5	15	11	18			
NXS	0022	6A2L0SSSA1A2	15	11	18	20	15	22			
NXS	0027	6A2L0SSSA1A2	20	15	22	25	18.5	27			
NXS	0034	6A2L0SSSA1A2	25	18.5	27	30	22	34			
NXS	0041	6A2L0SSSA1A2	30	22	34	40	30	41			
NXS	0052	6A2L0SSSA1A2	40	30	41	50	37	52	FR7	236.98 x 591.05 x 257.04 9.33 x 23.27 x 10.12	34.926 77
NXS	0062	6A2L0SSSA1A2	50	37	52	60	45	62	FR8	291.08 x 757.93 x 343.91 11.46 x 29.84 x 13.54	58.059 128
NXS	0080	6A2L0SSSA1A2	60	45	62	75	55	80			
NXS	0100	6A2L0SSSA1A2	75	55	80	100	75	100			
NXS	0125	6A2L0SSSA1A2	100	75	100	125	90	125			
NXS	0144	6A2L0SSFA1A2	125	90	125	150	110	144	FR9	480.06 x 1,150.11 x 361.95 18.90 x 45.28 x 14.25	146.056 322
NXS	0170	6A2L0SSFA1A2	150	110	144	-	132	170			
NXS	0208	6A2L0SSFA1A2	-	132	170	200	160	208			

* Power ratings in kW are at 575V. Contact your local Vacon Sales Representative for 690V ratings.



NXS KEYPAD

The text display with functions such as multi-monitoring, parameter copy, parameter backup and start-up wizard makes commissioning easy.

High-power VACON® NXS drives are also available in a compact standalone IP21 or IP54 enclosure. These units are designed for use in applications where the drive has to be compact and easy to install.

The VACON® NXS standalone drives are fully enclosed at the factory and are ready for immediate installation. The drive has integrated fuses as standard and no extra protections are required by the drive. It is also possible to equip the drive with an optional integrated load switch, which further simplifies handling in the field.

VACON NXS 380-500V, 50/60HZ, 3~

Product Code For UL Type 12, replace '2' by '5', e.g. NXS00035A5H1....	Motor Shaft Power and Current						Frame Size	Dimensions W x H x D (mm) W x H x D (in)	Weight (kg) Weight (lbs)
	High Overload (150%)			Low Overload (110%)					
	Power (HP)	Power (kW)	I _H (A)	Power (HP)	Power (kW)	I _L (A)			
NXS 0385 5A2L0SSAA1A2	200	160	300	300	200	385	FR10 595 x 2018 x 602 23.425 x 79.448 x 23.700	340 749.57	
NXS 0460 5A2L0SSAA1A2	300	200	385	350	250	460			
NXS 0520 5A2L0SSAA1A2	350	250	460	450	250	520			
NXS 0590 5A2L0SSAA1A2	450	250	520	500	315	590	FR11 794 x 2018 x 602 31.259 x 79.448 x 23.700	470 1,036.17	
NXS 0650 5A2L0SSAA1A2	500	315	590	550	355	650			
NXS 0730 5A2L0SSAA1A2	550	355	650	600	400	730			

VACON NXS 525-690V, 50/60HZ, 3~

Product Code For UL Type 12, replace '2' by '5', e.g. NXS00035A5H1....	Motor Shaft Power and Current						Frame Size	Dimensions W x H x D (mm) W x H x D (in)	Weight (kg) Weight (lbs)
	High Overload (150%)			Low Overload (110%)					
	Power (HP)	Power (kW)	I _H (A)	Power (HP)	Power (kW)	I _L (A)			
NXS 0261 6A2L0SSAA1A2	200	200	208	250	250	261	FR10 595 x 2018 x 602 23.425 x 79.448 x 23.700	340 749.57	
NXS 0325 6A2L0SSAA1A2	250	250	261	300	315	325			
NXS 0385 6A2L0SSAA1A2	300	315	325	400	355	385			
NXS 0416 6A2L0SSAA1A2	400	355	385	450	400	416			
NXS 0460 6A2L0SSAA1A2	450	400	416	*	450	460			
NXS 0502 6A2L0SSAA1A2	*	450	460	500	500	502	FR11 794 x 2018 x 602 31.259 x 79.448 x 23.700	470 1,036.17	
NXS 0590 6A2L0SSAA1A2	500	500	502	550	560	590			

HARDWARE CONFIGURATIONS, STANDALONE UNITS

FUNCTION	AVAILABILITY
IP21 / UL Type 1	Standard
IP54 (FR10 only) / UL Type 12	Optional (H: +20mm)
Integrated fuses	Standard
Integrated load switch	Optional
EMC filtering L	Standard
EMC filtering T	Optional
Integrated brake chopper (cabling top entry)	Optional (H: +122 mm)



FR10



FR11

TECHNICAL DATA

Mains connection	Input voltage U_{in}	208...240 V; 380...500 V; 525...690 V; (-10%...+10%)
	Input frequency	50...60 Hz ($\pm 10\%$)
	Connection to mains	Once per minute or less (normal case)
Motor connection	Output voltage	$0 - V_{in}$
	Continuous output current	High overloadability Amps
		Low overloadability Amps
	Overload Capacity	High: 150% Nominal Amps; 1 min, Low: 110% Nominal Amps; 1 min
	Output frequency	0...320 Hz
	Frequency resolution	0.01 Hz
Control characteristics	Control method	Frequency control V/f; Open Loop Vector Control (speed, torque) Closed Loop Control, Permanent Magnet Synchronous Motor Control (NXP Only)
	Switching frequency	208..240V/380..500V: FR4-6: 1...16 kHz; Factory default: 10 kHz FR7-9: 1...10 kHz; Factory default: 3.6 kHz FR10-11: 1...6 kHz; Factory default: 3.6 kHz 525..690V: FR4-11: 1...6 kHz, Factory default: 1.5 kHz
	Field weakening point	8...320 Hz
	Acceleration time	0...3000 sec
	Deceleration time	0...3000 sec
	Braking	DC brake: 30% * T_N (without brake resistor), flux braking
	Ambient conditions	Ambient operating temperature
	Storage temperature	-40F...158 F
	Relative humidity	0 to 95% RH, non-condensing, non-corrosive, no dripping water
	Air quality: - chemical vapours - mechanical particles	IEC 60721-3-3, unit in operation, class 3C2 IEC 60721-3-3, unit in operation, class 3S2
	Altitude	100% load capacity (no derating) up to 3280 feet 1-% derating for each 328 feet above 3280 feet; max. 9840 feet
	Vibration EN50178/EN60068-2-6	5...150 Hz: Displacement amplitude 1 mm (peak) at 5...15.8 Hz (FR10-FR11: 0.25 mm (peak) at 5...31 Hz) Max acceleration amplitude 1 G at 15.8...150 Hz (FR10 and up: 1 G at 31...150 Hz)
	Shock EN50178, EN60068-2-27	UPS Drop Test (for applicable UPS weights) Storage and shipping: max 15 G, 11 ms (in package)
	Enclosure class	UL Type 1/IP21 and UL Type 12/IP54
EMC	Immunity	Fulfil all EMC immunity requirements
	Emissions	EMC level C1: IEC/EN61800-3 (2004), category C1 EMC level C2: IEC/EN61800-3 (2004), category C2 EMC level C3: IEC/EN61800-3 (2004), category C3 EMC level C4: Low earth-current solution suitable for IT networks, IEC/EN61800-3 (2004), category C4
Safety		EN 50178 (1997), EN 60204-1 (2006), IEC 61800-5, CE, UL, CUL; (see unit nameplate for more detailed approvals)
Control connections (OPT-A1, -A2 or OPT-A1, -A3)	Analogue input voltage	0...+10 V (-10 V...+10 V joystick control), $R_i = 200 \text{ k}\Omega$, resolution 0.1%, accuracy $\pm 1\%$
	Analogue input current	0(4)...20 mA, $R_i = 250 \Omega$ differential, resolution 0.1%, accuracy $\pm 1\%$
	Digital inputs	6, positive or negative logic; 18...30 VDC
	Auxiliary voltage	+24 V, $\pm 15\%$, max. 250 mA
	Output reference voltage	+10 V, +3%, max. load 10 mA
	Analogue output	0(4)...20 mA; R_L max. 500 Ω , resolution 10 bit, accuracy $\pm 2\%$
	Digital output	Open collector output, 50 mA/48 V
	Relay outputs	2 programmable change-over (NO/NC) relay outputs (OPT-A3: NO/NC+NO) Switching capacity: 24 VDC/8 A, 250 VAC/8 A, 125 VDC/0.4 A. Min. switching load: 5 V/10 mA
	Thermistor input (OPT-A3)	Galvanically isolated, $R_{trip} = 4.7 \text{ k}\Omega$
Protections		Overvoltage, undervoltage, earth fault, mains supervision, motor phase supervision, overcurrent, unit overtemperature, motor overload, motor stall, motor underload, short-circuit of +24 V and +10 V reference voltages