



VACON NXP AND NXC
THE SUPERLATIVE IN PERFORMANCE

vacon
DRIVEN BY DRIVES

THE DYNAMIC CHOICE

The Vacon NXP is a state-of-art AC drive for use in all applications where robustness, dynamic performance, precision and power are required.

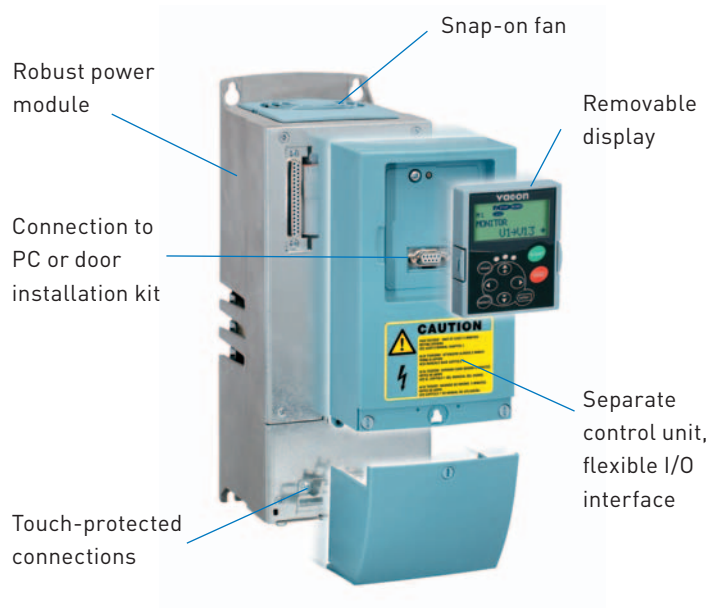
The quality and reliability of a machine or a process is in most cases the result of a precise and dynamic control of AC motors. The Vacon NXP has been designed to provide the best possible control under all circumstances and thus to ensure a high operational quality and availability for the entire lifetime of the system.

A forerunner in designing and manufacturing AC drives, Vacon has developed innovative solutions and leading-edge technology for demanding applications and high powers.

By bringing these solutions to the customer the Vacon NXP offers new opportunities and helps to create the best and most innovative products and to reach the most challenging targets.

Features

- Complete power and voltage range
- Wide set of applications adapts the Vacon NXP to virtually any need
- Controls induction and permanent magnet motors
- Dynamic open and closed loop vector control
- Complete range of communications and I/O options
- Fast drive to drive communication



FR4—FR9



TOP-CLASS FLEXIBILITY

The Vacon NXP offers, in addition to its control characteristics, a wide choice of products and cabinets for the varying needs in the high-power range.

There are three models available to meet various customer needs as follows:

- Vacon NXP IP21/IP54 wall-mounted or stand-alone drives for installation wherever there is space available
- Vacon NXP high-power IP00 drive modules for installation into the customer's cabinet
- Vacon NXC robust cabinet drive with top flexibility and a wide range of options



**VACON NXP
DRIVE MODULES**



**VACON NXP
STAND-ALONE DRIVES**



**VACON NXC
CABINET DRIVES**

WALL-MOUNTED VACON NXP

For the lower power range the Vacon NXP drives are available in a compact IP21 or IP54 enclosure. It is one of the most compact and complete drives on the market with all necessary components integrated into one single enclosure.

The wall-mounted units are equipped with internal EMC filtering, and the power electronics is integrated into an all-metal frame. The smaller frame sizes (FR4-FR6) have an integrated brake chopper as standard, and the 380-500 V units can be equipped with an integrated brake resistor. The larger frames (FR7-FR9) can be equipped with an integrated brake chopper as standard/option.

Mains voltage 208—240 V, 50/60 Hz, 3~

AC drive type	Loadability					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+50°C)		Maximum current I _S	230 V supply			
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overl. P (kW)	50% overl. P (kW)		
NXP 0003 2 A 2 H 1 SSS	3.7	4.1	2.4	3.6	4.8	0.55	0.37	FR4	128*292*190
NXP 0004 2 A 2 H 1 SSS	4.8	5.3	3.7	5.6	7.4	0.75	0.55	FR4	128*292*190
NXP 0007 2 A 2 H 1 SSS	6.6	7.3	4.8	7.2	9.6	1.1	0.75	FR4	128*292*190
NXP 0008 2 A 2 H 1 SSS	7.8	8.6	6.6	9.9	13.2	1.5	1.1	FR4	128*292*190
NXP 0011 2 A 2 H 1 SSS	11	12.1	7.8	11.7	15.6	2.2	1.5	FR4	128*292*190
NXP 0012 2 A 2 H 1 SSS	12.5	13.8	11	16.5	22	3	2.2	FR4	128*292*190
NXP 0017 2 A 2 H 1 SSS	17.5	19.3	12.5	18.8	25	4	3	FR5	144*391*214
NXP 0025 2 A 2 H 1 SSS	25	27.5	17.5	26.3	35	5.5	4	FR5	144*391*214
NXP 0031 2 A 2 H 1 SSS	31	34.1	25	37.5	50	7.5	5.5	FR5	144*391*214
NXP 0048 2 A 2 H 1 SSS	48	52.8	31	46.5	62	11	7.5	FR6	195*519*237
NXP 0061 2 A 2 H 1 SSS	61	67.1	48	72.0	96	15	11	FR6	195*519*237
NXP 0075 2 A 2 H 0 SSS	75	83	61	92	122	22	15	FR7	237*591*257
NXP 0088 2 A 2 H 0 SSS	88	97	75	113	150	22	22	FR7	237*591*257
NXP 0114 2 A 2 H 0 SSS	114	125	88	132	176	30	22	FR7	237*591*257
NXP 0140 2 A 2 H 0 SSS	140	154	105	158	210	37	30	FR8	285*721*288
NXP 0170 2 A 2 H 0 SSS	170	187	140	210	280	45	37	FR8	285*721*288
NXP 0205 2 A 2 H 0 SSS	205	226	170	255	336	55	45	FR8	285*721*288
NXP 0261 2 A 2 H 0 SSF	261	287	205	308	349	75	55	FR9	480*1150*362
NXP 0300 2 A 2 H 0 SSF	300	330	245	368	444	90	75	FR9	480*1150*362

Mains voltage 380—500 V, 50/60 Hz, 3~

AC drive type	Loadability					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+50°C)		Maximum current I _S	400 V supply			
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overl. P (kW)	50% overl. P (kW)		
NXP 0003 5 A 2 H 1 SSS	3.3	3.6	2.2	3.3	4.4	1.1	0.75	FR4	128*292*190
NXP 0004 5 A 2 H 1 SSS	4.3	4.7	3.3	5.0	6.2	1.5	1.1	FR4	128*292*190
NXP 0005 5 A 2 H 1 SSS	5.6	6.2	4.3	6.5	8.6	2.2	1.5	FR4	128*292*190
NXP 0007 5 A 2 H 1 SSS	7.6	8.4	5.6	8.4	10.8	3	2.2	FR4	128*292*190
NXP 0009 5 A 2 H 1 SSS	9	9.9	7.6	11.4	14	4	3	FR4	128*292*190
NXP 0012 5 A 2 H 1 SSS	12	13.2	9	13.5	18	5.5	4	FR4	128*292*190
NXP 0016 5 A 2 H 1 SSS	16	17.6	12	18.0	24	7.5	5.5	FR5	144*391*214
NXP 0022 5 A 2 H 1 SSS	23	25.3	16	24.0	32	11	7.5	FR5	144*391*214
NXP 0031 5 A 2 H 1 SSS	31	34	23	35	46	15	11	FR5	144*391*214
NXP 0038 5 A 2 H 1 SSS	38	42	31	47	62	18.5	15	FR6	195*519*237
NXP 0045 5 A 2 H 1 SSS	46	51	38	57	76	22	18.5	FR6	195*519*237
NXP 0061 5 A 2 H 1 SSS	61	67	46	69	92	30	22	FR6	195*519*237
NXP 0072 5 A 2 H 0 SSS	72	79	61	92	122	37	30	FR7	237*591*257
NXP 0087 5 A 2 H 0 SSS	87	96	72	108	144	45	37	FR7	237*591*257
NXP 0105 5 A 2 H 0 SSS	105	116	87	131	174	55	45	FR7	237*591*257
NXP 0140 5 A 2 H 0 SSS	140	154	105	158	210	75	55	FR8	285*721*288
NXP 0168 5 A 2 H 0 SSS	170	187	140	210	280	90	75	FR8	285*721*288
NXP 0205 5 A 2 H 0 SSS	205	226	170	255	336	110	90	FR8	285*721*288
NXP 0261 5 A 2 H 0 SSF	261	287	205	308	349	132	110	FR9	480*1150*362
NXP 0300 5 A 2 H 0 SSF	300	330	245	368	444	160	132	FR9	480*1150*362

WALL-MOUNTED VACON NXP

Mains voltage 525—690 V, 50/60 Hz, 3~

AC drive type	Loadability					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+50°C)		Maximum current I _S	690 V supply			
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overl. P (kW)	50% overl. P (kW)		
NXP 0004 6 A 2 L 0 SSS	4.5	5.0	3.2	4.8	6.4	3	2.2	FR6	195*519*237
NXP 0005 6 A 2 L 0 SSS	5.5	6.1	4.5	6.8	9.0	4	3	FR6	195*519*237
NXP 0007 6 A 2 L 0 SSS	7.5	8.3	5.5	8.3	11.0	5.5	4	FR6	195*519*237
NXP 0010 6 A 2 L 0 SSS	10	11.0	7.5	11.3	15.0	7.5	5.5	FR6	195*519*237
NXP 0013 6 A 2 L 0 SSS	13.5	14.9	10	15.0	20.0	11	7.5	FR6	195*519*237
NXP 0018 6 A 2 L 0 SSS	18	19.8	13.5	20.3	27	15	11	FR6	195*519*237
NXP 0022 6 A 2 L 0 SSS	22	24.2	18	27.0	36	18.5	15	FR6	195*519*237
NXP 0027 6 A 2 L 0 SSS	27	29.7	22	33.0	44	22	18.5	FR6	195*519*237
NXP 0034 6 A 2 L 0 SSS	34	37	27	41	54	30	22	FR6	195*519*237
NXP 0041 6 A 2 L 0 SSS	41	45	34	51	68	37.5	30	FR7	237*591*257
NXP 0052 6 A 2 L 0 SSS	52	57	41	62	82	45	37.5	FR7	237*591*257
NXP 0062 6 A 2 L 0 SSS	62	68	52	78	104	55	45	FR8	285*721*288
NXP 0080 6 A 2 L 0 SSS	80	88	62	93	124	75	55	FR8	285*721*288
NXP 0100 6 A 2 L 0 SSS	100	110	80	120	160	90	75	FR8	285*721*288
NXP 0125 6 A 2 L 0 SSF	125	138	100	150	200	110	90	FR9	480*1150*362
NXP 0144 6 A 2 L 0 SSF	144	158	125	188	213	132	110	FR9	480*1150*362
NXP 0170 6 A 2 L 0 SSF	170	187	144	216	245	160	132	FR9	480*1150*362
NXP 0208 6 A 2 L 0 SSF	208	229	170	255	289	200	160	FR9	480*1150*362



STAND-ALONE VACON NXP

High-power Vacon NXP drives are also available in a compact stand-alone 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 NXP stand-alone drives are fully enclosed at the factory and are ready for installation immediately. 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 the handling in the field.

Mains voltage 380—500 V, 50/60 Hz, 3~

AC drive type	Loadability					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+40°C)		Maximum current I _S	400 V supply			
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overload P (kW)	50% overload P (kW)		
NXP 0385 5 A 2 L 0 SSA	385	424	300	450	540	200	160	FR10	595*2020*602
NXP 0460 5 A 2 L 0 SSA	460	506	385	578	693	250	200	FR10	595*2020*602
NXP 0520 5 A 2 L 0 SSA	520	572	460	690	828	250	250	FR10	595*2020*602

Mains voltage 525—690 V, 50/60 Hz, 3~

AC drive type	Loadability					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+40°C)		Maximum current I _S	690 V supply			
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overload P (kW)	50% overload P (kW)		
NXP 0261 6 A 2 L 0 SSA	261	287	208	312	375	250	200	FR10	595*2020*602
NXP 0325 6 A 2 L 0 SSA	325	358	261	392	470	315	250	FR10	595*2020*602
NXP 0385 6 A 2 L 0 SSA	385	424	325	488	585	355	315	FR10	595*2020*602
NXP 0416 6 A 2 L 0 SSA [#]	416	458	325	488	585	400	315	FR10	595*2020*602

[#] max. ambient temperature of +35°C

HARDWARE CONFIGURATIONS

FUNCTION	AVAILABILITY
IP21	Standard
IP54 (contact factory for details)	Optional
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)



IPOO VACON NXP MODULES

The Vacon NXP high-power IP00 drive modules are intended for installation into a separate enclosure. Thanks to the robust and square-shaped design of the module, the enclosure design is easy and straightforward.

Mains voltage 380—500 V, 50/60 Hz, 3~

AC drive type	Loadability					Motor shaft power		Frame size	Module W*H*D (mm)	Chokes W*H*D (mm)
	Low (+40°C)		High (+40°C)		Maximum current I _S	400 V supply				
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overload P (kW)	50% overload P (kW)			
NXP 0385 5 A 0 N 0 SSA	385	424	300	450	540	200	160	FR10	500*1165*506	350*383*262 ¹⁾
NXP 0460 5 A 0 N 0 SSA	460	506	385	578	693	250	200	FR10	500*1165*506	497*399*244 ¹⁾
NXP 0520 5 A 0 N 0 SSA	520	572	460	690	828	250	250	FR10	500*1165*506	497*399*244 ¹⁾
NXP 0590 5 A 0 N 0 SSA	590	649	520	780	936	315	250	FR11	709*1206*506	2x(350*383*262)
NXP 0650 5 A 0 N 0 SSA	650	715	590	885	1062	355	315	FR11	709*1206*506	2x(350*383*262)
NXP 0730 5 A 0 N 0 SSA	730	803	650	975	1170	400	355	FR11	709*1206*506	2x(350*383*262)
NXP 0820 5 A 0 N 0 SSA	820	902	730	1095	1314	450	400	FR12	2x(500*1165*506)	2x(497*399*244)
NXP 0920 5 A 0 N 0 SSA	920	1012	820	1230	1476	500	450	FR12	2x(500*1165*506)	2x(497*399*244)
NXP 1030 5 A 0 N 0 SSA	1030	1133	920	1380	1656	560	500	FR12	2x(500*1165*506)	2x(497*399*244)

max. ambient temperature of +35°C

1) 12-pulse units, 2x(354*319*230)

Mains voltage 525—690 V, 50/60 Hz, 3~

AC drive type	Loadability					Motor shaft power		Frame size	Module W*H*D (mm)	Chokes W*H*D (mm)
	Low (+40°C)		High (+40°C)		Maximum current I _S	690 V supply				
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overload P (kW)	50% overload P (kW)			
NXP 0261 6 A 0 N 0 SSA	261	287	208	312	375	250	200	FR10	500*1165*506	354*319*230 ¹⁾
NXP 0325 6 A 0 N 0 SSA	325	358	261	392	470	315	250	FR10	500*1165*506	350*383*262 ¹⁾
NXP 0385 6 A 0 N 0 SSA	385	424	325	488	585	355	315	FR10	500*1165*506	350*383*262 ¹⁾
NXP 0416 6 A 0 N 0 SSA [#]	416	458	325	488	585	400	315	FR10	500*1165*506	350*383*262 ¹⁾
NXP 0460 6 A 0 N 0 SSA	460	506	385	578	693	450	355	FR11	709*1206*506	497*399*244 ²⁾
NXP 0502 6 A 0 N 0 SSA	502	552	460	690	828	500	450	FR11	709*1206*506	497*399*244 ²⁾
NXP 0590 6 A 0 N 0 SSA [#]	590	649	502	753	904	560	500	FR11	709*1206*506	2x(350*383*262)
NXP 0650 6 A 0 N 0 SSA	650	715	590	885	1062	630	560	FR12	2x(500*1165*506)	2x(350*383*262)
NXP 0750 6 A 0 N 0 SSA	750	825	650	975	1170	710	630	FR12	2x(500*1165*506)	2x(350*383*262)
NXP 0820 6 A 0 N 0 SSA [#]	820	902	650	975	1170	800	630	FR12	2x(500*1165*506)	2x(350*383*262)

max. ambient temperature of +35°C

1) 12-pulse units, 2x(354*319*230)

2) 12-pulse units, 2x(350*383*262)

HARDWARE CONFIGURATIONS

FUNCTION	AVAILABILITY
Integrated control unit	Standard
External control unit	Optional
Integrated brake chopper	Optional
6-pulse supply	Standard
12-pulse supply	Optional
EMC filtering N	Standard
EMC filtering T	Optional



VACON NXC, COMPACT AND FLEXIBLE

The Vacon NXC cabinet drive is compact and well tested, fully utilizing the flexibility of the Vacon NXP drive. The Vacon NXC is designed to meet the most demanding requirements on flexibility, robustness, compactness and service-friendliness. It is a safe choice for any application.

Easy ordering

The Vacon NXC incorporates the frequency converter and optional items such as mains switch, contactor, control options as well as output filtering in one compact unit which is easy to install and service. Ordering is made easy by integrating the Vacon NXC enclosure options into the typecode to which they are appended with “+” codes.

User-friendly

In the NXC, the control unit is mounted in a separate compartment at an easily accessible height together with all control options. Ample space around the power terminals allows easy installation and connection of power cables. Bottom plates and earthing clamps for 360-degree earthing of motor cable shields are provided as standard.

Well tested

All NXC drives are designed with more than 20 years of experience in enclosure design. It is a well tested and proven solution. The good thermal handling of the enclosure guarantees a long lifetime for the frequency converter and trouble-free operation also in most demanding environments. Approved EMC solutions ensure reliable operation of the converter without disturbing other electrical equipment.

Service-friendly

The NXC enclosures are designed to fully utilize the new and innovative installation features of the high-power Vacon NXP frequency converters. The NXP power units are mounted on rails which are extendable with a pull-out jig. The jig can be used for pulling the power unit out of the enclosure for service.



VACON NXP/NXC TYPE DESIGNATION CODE

NXC 0520 5 A 2 L 0 SSF A1A2000000 + IFD

- NXC "+" options, see table below
- Option PCBs; each slot is represented by two characters where:
Ax = basic I/O PCBs, Bx = expander I/O PCBs
Cx = fieldbus PCBs, Dx = special PCBs
- Control
S = standard FR4-FR8
F = standard FR9 and NXC
A = standard NXP FR10-FR12
V = as S, but varnished PCBs
G = as F, but varnished PCBs
B = as A, but varnished PCBs
- Cooling
S = standard air-cooled, T = through-hole mounting FR4-FR9
- Supply
S = 6-pulse, T = 12-pulse, O = 6-pulse + load switch (stand-alone)
- Brake chopper
0 = no brake chopper
1 = integrated brake chopper
- EMC emission level EN61800-3
C = 1st env., unrestr'd distr. T = for IT networks
H = 1st env., restr'd distr. N = enclosure required (FR10-FR14)
L = 2nd environment
- Enclosure class
0 = IP00 (module only)
2 = IP21 (Nema 1)
5 = IP54 (Nema 12)
- Control keypad
A = standard alphanumeric
B = no local keypad
F = dummy keypad
G = graphic display
- Nominal mains voltage
5 = 380-500 VAC, 6 = 525-690 VAC, 2 = 208-240 VAC
- Nominal current voltage
0520 = 520 A
- Product range
NXP = wall-mounted / stand-alone / module
NXC = cabinet

VACON NXC OPTIONS

Control terminal options (T groups)	
+TIO	Basic I/O wired to external terminals
+TID	Basic I/O wired to external terminals + additional terminals
+TUP	Terminals for 230 VAC control voltage
Input device options (I group)	
+ILS	Load switch
+IFD	Switch fuse and fuses
+ICB	Circuit breaker (MCCB)
+ICO	Input contactor
+IFU	Input fuses
Main circuit options (M group)	
+MDC	Terminals in cabinet for DC / brake chopper
Output filter options (O group)	
+OCM	Common mode filters
+ODU	du/dt filter
+OSI	Sine wave filter
Protection devices (P group)	
+PTR	External thermistor relay
+PES	Emergency stop [cat 0]
+PED	Emergency stop [cat 1]
+PAP	Arc protection
+PIF	Insulation fault sensor
General options (G group)	
+G40	400 mm empty cabinet
+G60	600 mm empty cabinet
+G80	800 mm empty cabinet
+GPL	100 mm base
Cabling options (C group)	
+CIT	Input (mains) cabling from top
+COT	Output (motor) cabling from top

Auxiliary equipment (A group)	
+AMF	Motor fan control
+AMF	Motor heater feeder
+AMB	Mechanical brake control
+AMO	Motor operator for +ICB
+ACH	Cabinet heater
+ACL	Cabinet light
+ACR	Control relay
+AAI	Analog signal isolator
+AAA	Auxiliary contact (control voltage devices)
+AAC	Auxiliary contact (input device)
+AT1	Auxiliary voltage transformer 200 VA
+AT2	Auxiliary voltage transformer 750 VA
+AT3	Auxiliary voltage transformer 2500 VA
+AT4	Auxiliary voltage transformer 4000 VA
+ADC	Power supply 24 VDC 10 A
+ADS	230 VAC customer socket
Door-mounted options (D group)	
+DLV	Pilot light (Control voltage on)
+DLD	Pilot light (DO1)
+DLF	Pilot light (FLT)
+DLR	Pilot light (RUN)
+DCO	Main contactor operation switch
+DRO	Local / Remote operation switch
+DEP	Emergency stop push-button
+DRP	Reset push-button
+DAM	Analog meter (AO1)
+DAR	Potentiometer for reference
+DCM	Analog meter + current trafo
+DVM	Analog voltage meter with selection switch

VACON NXC, 6-PULSE SUPPLY

Mains voltage 380—500 V, 50/60 Hz

AC drive type	Loadability					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+40°C)		Maximum current I _S	400 V supply			
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overload P (kW)	50% overload P (kW)		
NXC 0385 5 A 2 L 0 SSF	385	424	300	450	540	200	160	FR10	606*2275*605
NXC 0460 5 A 2 L 0 SSF	460	506	385	578	693	250	200	FR10	606*2275*605
NXC 0520 5 A 2 L 0 SSF	520	572	460	690	828	250	250	FR10	606*2275*605
NXC 0590 5 A 2 L 0 SSF	590	649	520	780	936	315	250	FR11	806*2275*605
NXC 0650 5 A 2 L 0 SSF	650	715	590	885	1062	355	315	FR11	806*2275*605
NXC 0730 5 A 2 L 0 SSF	730	803	650	975	1170	400	355	FR11	806*2275*605
NXC 0820 5 A 2 L 0 SSF	820	902	730	1095	1314	450	400	FR12	1206*2275*605
NXC 0920 5 A 2 L 0 SSF	920	1012	820	1230	1476	500	450	FR12	1206*2275*605
NXC 1030 5 A 2 L 0 SSF	1030	1133	920	1380	1656	560	500	FR12	1206*2275*605
NXC 1150 5 A 2 L 0 SSF	1150	1265	1030	1545	1854	630	560	FR13	1406*2275*605
NXC 1300 5 A 2 L 0 SSF	1300	1430	1150	1725	2070	710	630	FR13	1606*2275*605
NXC 1450 5 A 2 L 0 SSF	1450	1595	1300	1950	2340	800	710	FR13	1606*2275*605
NXC 1770 5 A 2 L 0 SSF	1770	1947	1600	2400	2880	1000	900	FR14	2806*2275*605
NXC 2150 5 A 2 L 0 SSF	2150	2365	1940	2910	3492	1200	1100	FR14	2806*2275*605

Mains voltage 525—690 V, 50/60 Hz

AC drive type	Loadability (+40°C)					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+40°C)		Maximum current I _S	690 V supply			
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overload P (kW)	50% overload P (kW)		
NXC 0261 6 A 2 L 0 SSF	261	287	208	312	375	250	200	FR10	606*2275*605
NXC 0325 6 A 2 L 0 SSF	325	358	261	392	470	315	250	FR10	606*2275*605
NXC 0385 6 A 2 L 0 SSF	385	424	325	488	585	355	315	FR10	606*2275*605
NXC 0416 6 A 2 L 0 SSF [#]	416	458	325	488	585	400	315	FR10	606*2275*605
NXC 0460 6 A 2 L 0 SSF	460	506	385	578	693	450	355	FR11	806*2275*605
NXC 0502 6 A 2 L 0 SSF	502	552	460	690	828	500	450	FR11	806*2275*605
NXC 0590 6 A 2 L 0 SSF [#]	590	649	502	753	904	560	500	FR11	806*2275*605
NXC 0650 6 A 2 L 0 SSF	650	715	590	885	1062	630	560	FR12	1206*2275*605
NXC 0750 6 A 2 L 0 SSF	750	825	650	975	1170	710	630	FR12	1206*2275*605
NXC 0820 6 A 2 L 0 SSF [#]	820	902	650	975	1170	800	630	FR12	1206*2275*605
NXC 0920 6 A 2 L 0 SSF	920	1012	820	1230	1410	900	800	FR13	1406*2275*605
NXC 1030 6 A 2 L 0 SSF	1030	1133	920	1380	1755	1000	900	FR13	1406*2275*605
NXC 1180 6 A 2 L 0 SSF [#]	1180	1298	1030	1463	1755	1150	1000	FR13	1406*2275*605
NXC 1500 6 A 2 L 0 SSF	1500	1650	1300	1950	2340	1500	1300	FR14	2406*2275*605
NXC 1900 6 A 2 L 0 SSF	1900	2090	1500	2250	2700	1800	1500	FR14	2806*2275*605
NXC 2250 6 A 2 L 0 SSF [#]	2250	2475	1900	2782	3335	2000	1800	FR14	2806*2275*605

max. ambient temperature of +35°C

HARDWARE CONFIGURATIONS

6-pulse	Enclosure		EMC		Brake chopper	Cabling		Input device					Output filters	
380-500 V	IP21	IP54	L	T		Top		Fuses	Load Sw.	Sw.-fuse	Contactor	MCCB	Cmn Mode	du/dt
						Bottom	+CIT/+COT							
FR10	S	0 (H: +130)	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR11	S	0 (H: +130)*	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR12	S	0 (H: +130)	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR13	S	1)	S	0	1)	S	0 (W: +400)	-	-	S	-	0	0	0
FR14	S	1)	S	0	1)	S	0 (W: +800)	-	-	S	-	0	0	0
525-690 V														
FR10	S	0 (H: +130)	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR11	S	0 (H: +130)*	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR12	S	0 (H: +130)	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR13	S	1)	S	0	1)	S	0 (W: +400)	-	-	S	-	0	0	0
FR14	S	1)	S	0	1)	S	0 (W: +800)	-	-	S	-	0	0	0

S = Standard 0 = Optional 1) = Contact factory *) NXC07305 and NXC05906, H: +170 mm

VACON NXC, 12-PULSE SUPPLY

Mains voltage 380—500 V, 50/60 Hz

AC drive type	Loadability					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+40°C)		Maximum current I _S	400 V supply			
	Rated continuous current I _L (A)	10% overload current (A)	Rated continuous current I _H (A)	50% overload current (A)		10% overload P (kW)	50% overload P (kW)		
NXC 0385 5 A 2 L 0 SSF	385	424	300	450	540	200	160	FR10	606*2275*605
NXC 0460 5 A 2 L 0 SSF	460	506	385	578	693	250	200	FR10	606*2275*605
NXC 0520 5 A 2 L 0 SSF	520	572	460	690	828	250	250	FR10	606*2275*605
NXC 0590 5 A 2 L 0 SSF	590	649	520	780	936	315	250	FR11	806*2275*605
NXC 0650 5 A 2 L 0 SSF	650	715	590	885	1062	355	315	FR11	806*2275*605
NXC 0730 5 A 2 L 0 SSF	730	803	650	975	1170	400	355	FR11	806*2275*605
NXC 0820 5 A 2 L 0 SSF	820	902	730	1095	1314	450	400	FR12	1206*2275*605
NXC 0920 5 A 2 L 0 SSF	920	1012	820	1230	1476	500	450	FR12	1206*2275*605
NXC 1030 5 A 2 L 0 SSF	1030	1133	920	1380	1656	560	500	FR12	1206*2275*605
NXC 1150 5 A 2 L 0 SSF	1150	1265	1030	1545	1854	630	560	FR13	1406*2275*605
NXC 1300 5 A 2 L 0 SSF	1300	1430	1150	1725	2070	710	630	FR13	2006*2275*605
NXC 1450 5 A 2 L 0 SSF	1450	1595	1300	1950	2340	800	710	FR13	2006*2275*605
NXC 1770 5 A 2 L 0 SSF	1770	1947	1600	2400	2880	1000	900	FR14	2806*2275*605
NXC 2150 5 A 2 L 0 SSF	2150	2365	1940	2910	3492	1200	1100	FR14	2806*2275*605

Mains voltage 525—690 V, 50/60 Hz

AC drive type	Loadability					Motor shaft power		Frame size	Dimensions W*H*D (mm)
	Low (+40°C)		High (+40°C)		Maximum current I _S	690 V supply			
	Rated continuous current I _L [A]	10% overload current [A]	Rated continuous current I _H [A]	50% overload current [A]		10% overload P [kW]	50% overload P [kW]		
NXC 0261 6 A 2 L 0 SSF	261	287	208	312	375	250	200	FR10	606*2275*605
NXC 0325 6 A 2 L 0 SSF	325	358	261	392	470	315	250	FR10	606*2275*605
NXC 0385 6 A 2 L 0 SSF	385	424	325	488	585	355	315	FR10	606*2275*605
NXC 0416 6 A 2 L 0 SSF [#]	416	458	325	488	585	400	315	FR10	606*2275*605
NXC 0460 6 A 2 L 0 SSF	460	506	385	578	693	450	355	FR11	806*2275*605
NXC 0502 6 A 2 L 0 SSF	502	552	460	690	828	500	450	FR11	806*2275*605
NXC 0590 6 A 2 L 0 SSF [#]	590	649	502	753	904	560	500	FR11	806*2275*605
NXC 0650 6 A 2 L 0 SSF	650	715	590	885	1062	630	560	FR12	1206*2275*605
NXC 0750 6 A 2 L 0 SSF	750	825	650	975	1170	710	630	FR12	1206*2275*605
NXC 0820 6 A 2 L 0 SSF [#]	820	902	650	975	1170	800	630	FR12	1206*2275*605
NXC 0920 6 A 2 L 0 SSF	920	1012	820	1230	1410	900	800	FR13	1406*2275*605
NXC 1030 6 A 2 L 0 SSF	1030	1133	920	1380	1755	1000	900	FR13	1406*2275*605
NXC 1180 6 A 2 L 0 SSF	1180	1298	1030	1463	1755	1150	1000	FR13	1406*2275*605
NXC 1500 6 A 2 L 0 SSF	1500	1650	1300	1950	2340	1500	1300	FR14	2806*2275*605
NXC 1900 6 A 2 L 0 SSF	1900	2090	1500	2250	2700	1800	1500	FR14	2806*2275*605
NXC 2250 6 A 2 L 0 SSF [#]	2250	2475	1900	2782	3335	2000	1800	FR14	2806*2275*605

max. ambient temperature of +35°C

HARDWARE CONFIGURATIONS

12-pulse	Enclosure		EMC		Brake chopper	Cabling		Input device					Output filters	
	IP21	IP54	L	T		Bottom	Top +CIT/+COT	Fuses	Load Sw.	Sw.-fuse	Contact	MCCB	Cmn Mode	du/dt
380-500 V								+IFU	+ILS	+IFD	+ICO	+ICB	+OCM	+ODU
FR10	S	0 (H: +130)	S	0	-	S	0 (W: +400)	0	-	-	-	0	0	0 (W: +400)
FR11	S	0 (H: +130)*	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR12	S	0 (H: +130)	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR13	S	1)	S	0	1)	S	0 (W: +400)	-	-	0	-	S	0	0
FR14	S	1)	S	0	1)	S	0 (W: +800)	-	-	0	-	S	0	0
525-690 V														
FR10	S	0 (H: +130)	S	0	-	S	0 (W: +400)	0	-	-	-	0	0	0 (W: +400)
FR11	S	0 (H: +130)*	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR12	S	0 (H: +130)	S	0	0	S	0 (W: +400)	0	0	0	0	0	0	0 (W: +400)
FR13	S	1)	S	0	1)	S	0 (W: +400)	-	-	0	-	S	0	0
FR14	S	1)	S	0	1)	S	0 (W: +800)	-	-	0	-	S	0	0

S = Standard

0 = Optional

1) = Contact factory

*) NXC07305 and NXC05906, H: +170 mm

VACON NXP CONTROL

The Vacon NXP 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).

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

The Vacon NXP supports both **induction motors** and **permanent magnet motors** in open and closed loop control modes. The Vacon NXP also supports special motors such as **high-speed** motors.

For closed loop control encoder, feedback from an incremental pulse encoder is normally used. It is also possible to use absolute encoders as the Vacon NXP is available with EnDat and resolver interfaces.

A fast drive-to-drive communication is possible by using Vacon's fast SystemBus fiber optic communication.



OPTION BOARDS

Type	Card slot					I / O signal																						Note	
A	B	C	D	E	DI	DO	DI	AI (mA/ V±V)	AI (mA) isolated	AO (mA/V)	AO (mA) isolated	RO (NO/ NC)	RO (NO)	RO (NC)	+10V _{ref}	Therm	+24V/ EXT +24V	pt100	42-240 VAC input	DI/DO Encoder [10...24V]	DI/DO/ Encoder [RS422]	Resolver	Out+5V/ +15V/ +24V	Out +15V/ +24V	Out+5V/ +12V/ +15V				
Basic I/O cards (OPT-A)																													
OPT-A1					6	1		2		1					1		2												
OPT-A2												2				1													
OPT-A3												1	1																
OPT-A4					2																3/0		1						
OPT-A5					2															3/0				1					
OPT-A7																				6/2				1			2 enc. input + 1 enc. output		
OPT-A8					6	1		2		1					1		2										1)		
OPT-A9					6	1		2		1					1		2										2.5 mm ² terminals		
OPT-AE						2														3/0				1			DO = Divider+Direction		
OPT-AF					2							2				1											3) Safe disable EN954-1, cat 3		
I/O expander cards (OPT-B)																													
OPT-B1						6											1										Selectable DI/DO		
OPT-B2												1	1			1													
OPT-B4								1		2							1												
OPT-B5													3														2)		
OPT-B8																	1	3											
OPT-B9						2							1						5										
OPT-BB					2																				1		+EnDat+Sin/Cos 1 Vp-p		
OPT-BC																				3/3		1					Encoder out = Resolver simulation		
Fieldbus cards (OPT-C)																													
OPT-C2					RS-485 (Multiprotocol)																							Modbus, N2	
OPT-C3					Profibus DP																								
OPT-C4					LonWorks																								
OPT-C5					Profibus DP (D9-type connector)																								
OPT-C6					CANopen (slave)																								
OPT-C7					DeviceNet																								
OPT-C8					RS-485 (Multiprotocol, D9-type connector)																						Modbus, N2		
OPT-CF					CAN / Euromap																								
OPT-CG					SELMA 2 protocol (SAMI)																								
OPT-CI					Modbus/TCP (Ethernet)																								
Communication cards (OPT-D)																													
OPT-D1					System Bus adapter (2 x fiber optic pairs)																								
OPT-D2					System Bus adapter (1 x fiber optic pair) & CAN-bus adapter (galvanically decoupled)																								
OPT-D3					RS232 adapter card (galvanically decoupled), used mainly for application engineering to connect another keypad																								
OPT-D6					CAN-bus adapter (galvanically decoupled)																								

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

1) analogue signals galvanically isolated as a group

2) analogue signals galvanically isolated separately

3) certification pending

OPT-A1

Terminal	Defaults settings	Programmable
1 +10V	Reference voltage	
2 AI1+	Frequency reference 0–10 V	-10–+10 V, 0/4–20 mA
3 AI1-	AI common (GND)	Differential
4 AI2+	Frequency reference 4–20 mA	0–20mA, 0/-10 V–10 V
5 AI2-	AI common (differential)	GND
6 +24V	Control supply (bidirectional)	
7 GND	I/O Ground	
8 DIN1	Start forward	Many possibilities
9 DIN2	Start reverse	Many possibilities
10 DIN3	External fault input	Many possibilities
11 CMA	Common for DIN1 - DIN3 (GND)	Floating
12 +24V	Control supply (bidirectional)	
13 GND	I/O Ground	
14 DIN4	Multi-step speed select 1	Many possibilities
15 DIN5	Multi-step speed select 2	Many possibilities
16 DIN6	Fault reset	Many possibilities
17 CMB	Common for DIN4 - DIN6 (GND)	Floating
18 AO1+	Output frequency (0–20 mA)	Many possibilities
19 AO1-	AO common (GND)	4–20 mA, 0–10 V
20 DO1	READY, $I \leq 50 \text{ mA}$, $U \leq 48 \text{ VDC}$	Many possibilities

OPT-A2

Terminal	Defaults settings	Programmable
21 R01	RUN	Many possibilities
22 R01		
23 R01		
24 R02	FAULT	Many possibilities
25 R02		
26 R02		

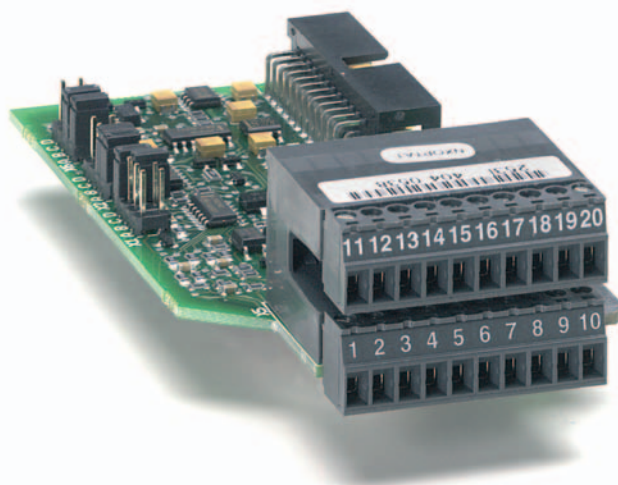
OPT-A3 (alternative)

Terminal	Defaults settings	Programmable
21 R01	RUN	Many possibilities
22 R01		
23 R01		
24 R02	FAULT	Many possibilities
25 R02		
26 R02		
28 TI1+	Thermistor	Warning, no response
29 TI1-	input fault	

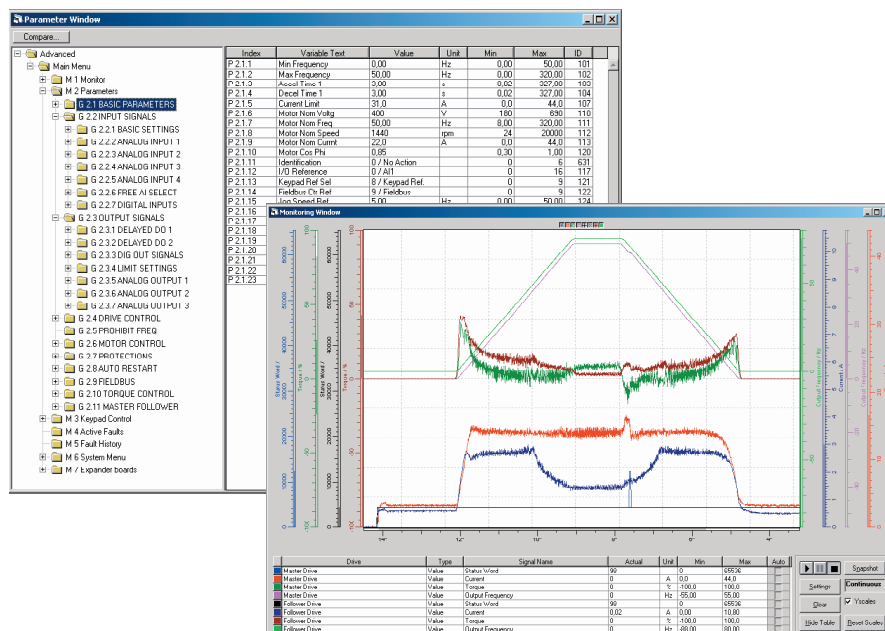
Default settings of OPT-A1, OPT-A2 and OPT-A3 for the Basic and Standard Applications.

OPT-A4 (encoder input example)

Terminal	Technical information
1 DIC1A+	Pulse input A
2 DIC1A-	
3 DIC2B+	Pulse input B; Phase shift of 90 degrees compared to pulse input A
4 DIC2B-	
5 DIC3Z+	Pulse input Z; one pulse per revolution
6 DIC3Z-	
7 ENCIQ	Qualifier input
8 DIC4	Fast DI
9 GND	Ground for control and inputs ENC1Q and CID4
10 +5V/+15V/+24V	Control voltage (auxiliary voltage) output to encoder: Output voltage selectable with jumper X4.



FIRST-CLASS USABILITY



The NCDrive communicates with the drive via the following interfaces:

- RS-232
- Ethernet TCP/IP
- CAN (fast multiple drive monitoring)
- CAN@Net (remote monitoring)



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

The Vacon PC tools are available for downloading from the Vacon website at <http://www.vacon.com>. These include:

- Vacon NCDrive for parameter setting, copying, storing, printing, monitoring and controlling
- Vacon NCLoad for software updating and uploading special software to the drive
- Vacon NC1131-3 Engineering is available for making tailor-made software. A license key and training required.

Basic

I/O	Defaults	
A11	fref	P
A12	fref	P
DI1	Start forward	P
DI2	Start reverse	P
DI3	External fault	P
DI4	Speed select 1	
DI5	Speed select 2	
DI6	Fault reset	
A01	fout	P
D01	Ready	
R01	Run	
R02	Fault	

Suitable for most purposes

Standard

I/O	Defaults	
A11	fref	P
A12	fref	P
DI1	Start forward	P
DI2	Start reverse	P
DI3	External fault	P
DI4	Speed select 1	
DI5	Speed select 2	
DI6	Fault reset	
A01	fout	P
D01	Ready	P
R01	Run	P
R02	Fault	P

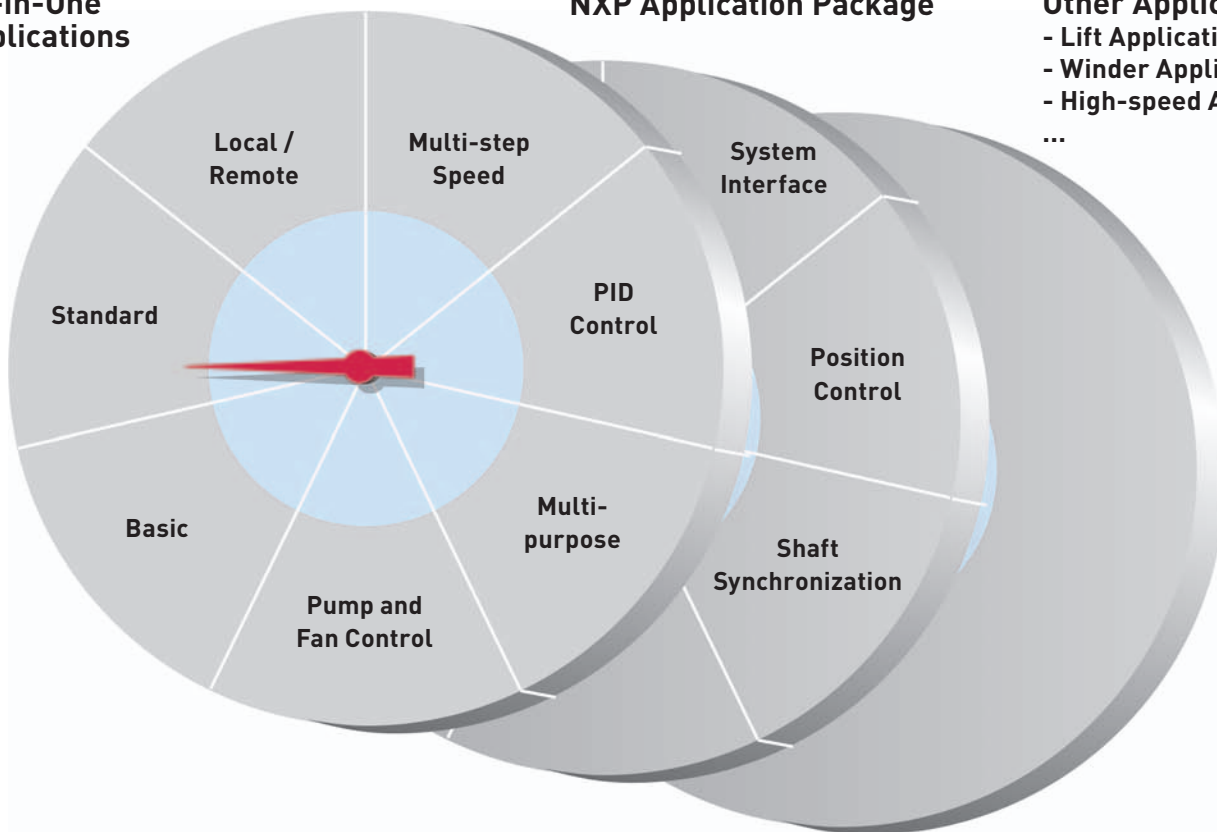
Basic, with more programming possibilities

Local/Remote

I/O	Defaults	
A11	B fref	P
A12	A fref	P
DI1	A Start forward	P
DI2	A Start reverse	P
DI3	External fault	P
DI4	B Start forward	P
DI5	B Start reverse	P
DI6	A/B selection	
A01	fout	P
D01	Ready	P
R01	Run	P
R02	Fault	P

Two external control places

All-in-One Applications



Other Applications
 - Lift Application
 - Winder Application
 - High-speed Application
 ...

The All-in-One application package has seven applications (=default settings and functionality of control inputs and outputs, see tables below) which can be selected with one parameter. The application will also be requested by the Start-up Wizard at the first power-up. With this single setting, the controls can be programmed e.g. for two external control places or a pressure control with the integrated PID controller. In most cases, the default basic application is suitable and only the min/max frequencies as well as motor nominal values must be set.

Thanks to the modular software applications made by the Vacon NC1131-3 Engineering tool, the All-in-One application package can be replaced by the NXP Application Package that turns the Vacon NXP into a full-featured high-performance drive. There are also several other general-purpose software applications available.

P = Programmable

Multi-step Speed Control

I/O	Defaults	
AI1	f_{ref}	P
AI2	f_{ref}	P
DI1	Start forward	P
DI2	Start reverse	P
DI3	External fault	P
DI4	Speed select 1	
DI5	Speed select 2	
DI6	Speed select 3	
A01	f_{out}	P
D01	Ready	P
R01	Run	P
R02	Fault	P

16 fixed speeds

PID Control

I/O	Defaults	
AI1	PID reference	P
AI2	PID actual value	P
DI1	PID start/stop	
DI2	External fault	P
DI3	Fault reset	P
DI4	f ctrl start/stop	
DI5	Jog speed select	P
DI6	PID/f ctrl select	
A01	f_{out}	P
D01	Ready	P
R01	Run	P
R02	Fault	P

When PID is required

Multi-purpose Control

I/O	Defaults	
AI1	f_{ref}	P
AI2	f_{ref}	P
DI1	Start forward	P
DI2	Start reverse	P
DI3	Fault reset	P
DI4	Jog speed sel	P
DI5	External fault	P
DI6	Acc/dec time sel	P
A01	f_{out}	P
D01	Ready	P
R01	Run	P
R02	Fault	P

Most flexible of all

Pump and Fan Control

I/O	Defaults	
AI1	PID reference	P
AI2	PID actual value	P
DI1	PID start/stop	P
DI2	Interlock 1	P
DI3	Interlock 2	P
DI4	f ctrl start/stop	P
DI5	Jog speed select	P
DI6	PID/f ctrl select	P
A01	f_{out}	P
D01	Fault	P
R01	Autochange 1	P
R02	Autochange 2	P

Control of up to five pumps with auto-change

NXP APPLICATION PACKAGE

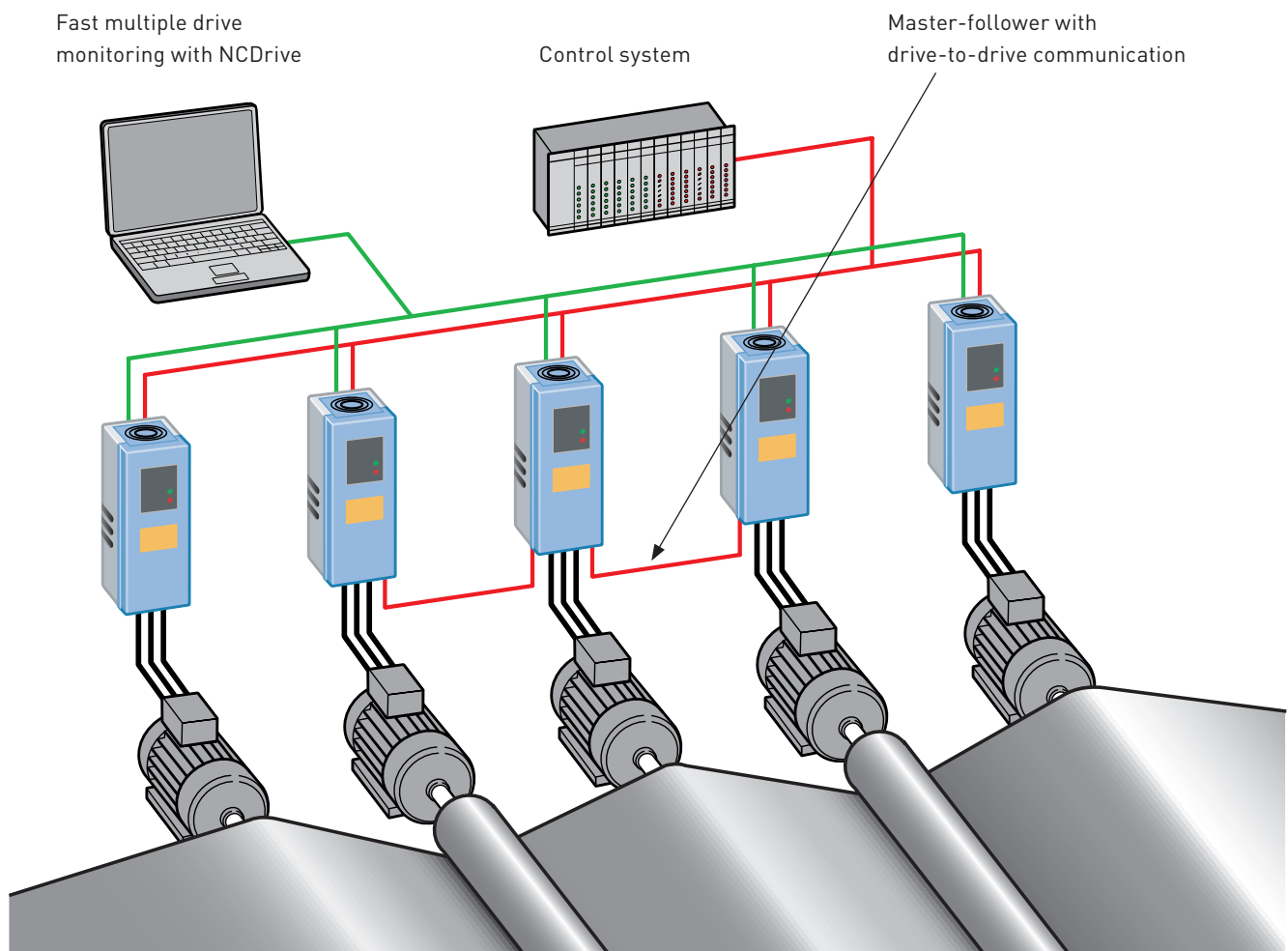
An alternative to the default All-in-One application package, the Vacon NXP can also be equipped with the NXP Application Package. It is designed to meet the requirements in demanding automation applications.

SYSTEM INTERFACE APPLICATION

The System Interface Application is designed to provide a logical and flexible interface to machine controllers for use in demanding applications requiring co-ordinated drives. Typical applications can be found in drive systems for paper machines, drives on metal industry and processing lines. It is also suitable for any general application.

Features

- Flexible fieldbus process data connections
- Flexible speed and torque reference chains
- Adaptive speed controller
- Inertia compensation and oscillation damping features
- Fast drive-to-drive communication for master-follower applications
- Supports permanent magnet motors
- Integrated mechanical brake and motor fan control
- Emergency stop with separate ramp time



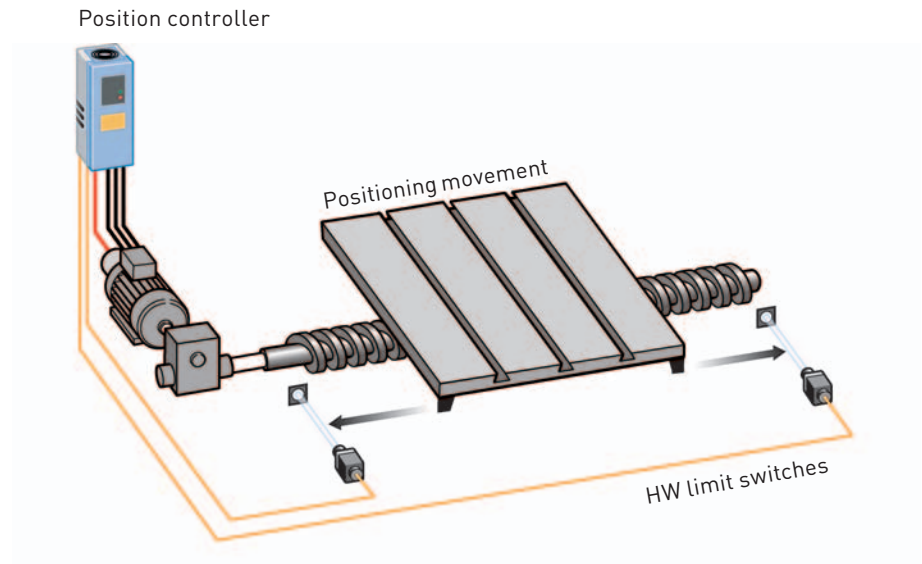
NXP APPLICATION PACKAGE

POSITION CONTROL APPLICATION

The Position Control Application offers an integrated single-axis interpolating positioning controller for the Vacon NXP. By the use of the application the Vacon NXP can control machine movement to run a certain distance in linear movements or to run a certain angle in rotary axis applications.

Features

- User-specified units for positions
- Alternative zero calibration cycles
- Home position
- Absolute and relative positioning
- Sequencing
- Hardware or software based end limits
- I/O or fieldbus control

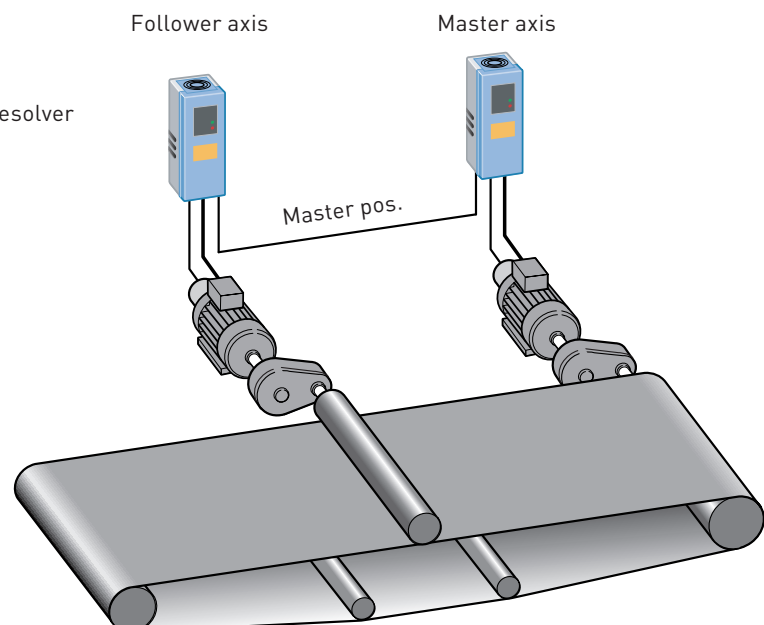


SHAFT SYNCHRONIZATION APPLICATION

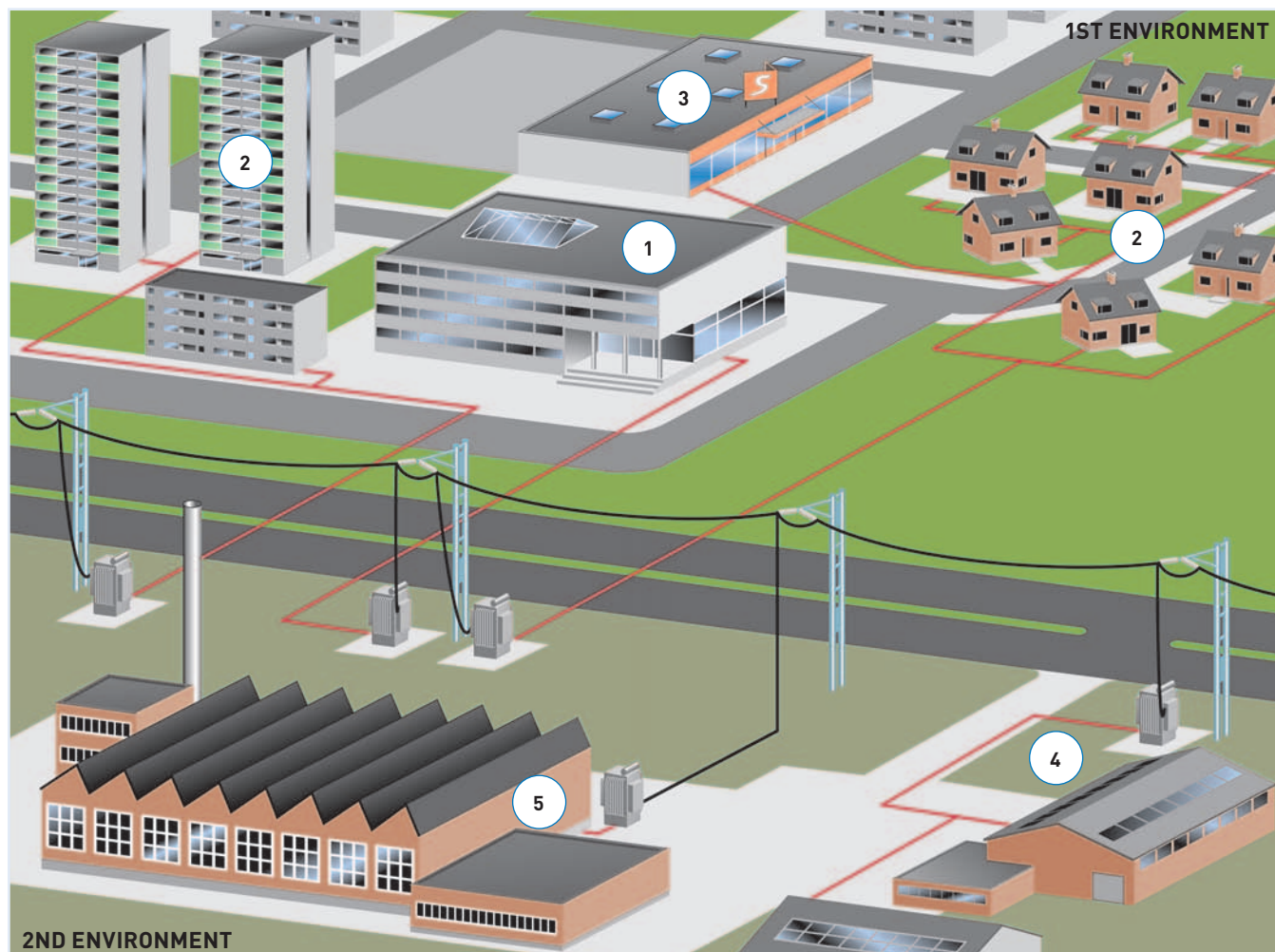
The Shaft Synchronization Application controls the position or the angle of the follower axis directly or in an adjustable proportion to the master axis. The shaft synchronization can be used to replace mechanical shafts in everything from conveyors to processing machines.

Features

- Master position from secondary encoder input
- Follower position from incremental encoder or resolver
- Adjustable gear ratio
- Trim +/- inputs for ratio change during run
- I/O or fieldbus control



EMC AND INSTALLATION ENVIRONMENT



The product family standard EN61800-3 sets limits for both emissions and immunity of radio frequency disturbances. The environment has been divided into the 1st and 2nd environments, i.e. in practice, the public and industrial networks, respectively.

Radio Frequency Interference (RFI) filters are typically required to meet the EN61800-3 standard. These filters are integrated in the Vacon NXP as standard.

The 208–240 V and 380–500 V ranges of the Vacon NXP fulfill all the requirements of the 1st and 2nd environments (H level:

EN61800-3, 1st and 2nd environment, restricted distribution). No additional RFI filters or cabinets are required. The 525–690 V range of the Vacon NXP fulfills the requirements of the 2nd environment (L level: EN61800-3, 2nd environment).

The units in the frame sizes of FR4, FR5 and FR6 (the voltage range from 380 to 500 V) are also available with extremely low-emission integrated EMC filters (C level: EN61800-3, 1st and 2nd environment, restricted and unrestricted distribution; EN55011 class B). This is sometimes required in very sensitive locations such as hospitals.

EMC Selection Table, restricted distribution

	1	2	3	4	5	
VACON NXP EMC	Hospital	Residential Area	Commercial	Light Industry Area	Heavy Industry	Marine
C	O					
H	R	R	R	O	O	
L				R	R	
T					R (IT Network)	R (IT Network)

R = Required ; O = Optional

Mains connection	Input voltage U_{in}	208...240 V; 380...500 V; 525...690 V; -10%...+10%
	Input frequency	45...66 Hz
	Connection to mains	Once per minute or less (normal case)
Motor connection	Output voltage	$0-U_{in}$
	Continuous output current	High overloadability: I_H , ambient temperature max. +50°C (FR10 and up + 40°C) Low overloadability: I_L , ambient temperature max. +40°C
	Overloadability	High: $1.5 \times I_H$ (1 min/10 min), Low: $1.1 \times I_L$ (1 min/10 min)
	Max. starting current	I_s for 2 s every 20 s
	Output frequency	0...320 Hz; up to 7200 Hz with special software
	Control performance	Open loop vector control (5-150% of base speed): speed control 0.5%, dynamic 0.3%sec, torque lin. <2%, torque rise time ~5 ms Closed loop vector control (entire speed range): speed control 0.01%, dynamic 0.2%sec, torque lin. <2%, torque rise time ~2 ms
Control characteristics	Switching frequency	NX_2/ Up to and including NX_0061: NX_5: 1...16 kHz; Factory default 10 kHz From NX_0072: 1...10 kHz; Factory default 3.6 kHz NX_6: 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 operating temperature	-10°C (no frost)...+50°C: I_H (FR10 and up + 40°C) -10°C (no frost)...+40°C: I_L
	Storage temperature	-40°C...+70°C
Ambient conditions	Relative humidity	0 to 95% RH, non-condensing, non-corrosive, no dripping water
	Air quality: - chemical vapours - mechanical particles	IEC 721-3-3, unit in operation, class 3C2 IEC 721-3-3, unit in operation, class 3S2
	Altitude	100% load capacity (no derating) up to 1000 m 1% derating for each 100 m above 1000 m; max. 3000 m
	Vibration EN50178/EN60068-2-6	5...150 Hz: Displacement amplitude 1 mm (peak) at 5...15.8 Hz (FR10 and up: 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)
	Immunity	Fulfil all EMC immunity requirements
	Emissions	EMC level H: EN 61800-3 (1996)+A11 (2000) (1st environment, restricted use); EN 61000-6-4, EN50081-2; EN55011 class A. EMC level C: EN 61800-3 (1996)+A11 (2000) (1st environment, unrestricted use); EN 61000-6-3, EN50081-1,-2; EN55011 class B. EMC level L: EN 61800-3 (1996)+A11 (2000) (2nd environment). EMC level T: Low earth-current solution suitable for IT networks (can be modified from H-level units)
Safety		EN 50178 (1997), EN 60204-1 (1996), EN 60950 (2000, 3rd edition) (as relevant), 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, $R_i = 250 \text{ }\Omega$ 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



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