

**NXL Series Inverters**

**Honeywell**



**HVAC Inverters made simple**

Honeywell's 'Voice Of the Customer' process unveils a range of requirements expressed by specifiers and installers, that are ideally covered by the NXL inverter series:

# Simple . . .

## . . . to select!

- Suits all pumps and fans
- Power range from 0.25 kW to 30 kW
- EMC Class C RFI filter

## . . . to set up!

- Commissioned within 30 seconds
- Pre-configured applications
- Start-Up Wizard

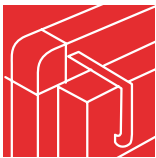
## . . . to install!

- Space-saving bookshelf design
- Panel or surface mount
- High protection classes (up to IP54)

## . . . to talk to!

- Modbus built-in
- Plug-In cards for Profibus, LONWORKS, CAN, BACnet, proprietary buses

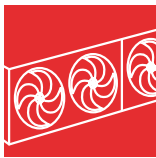
### Typical applications



#### HVAC systems

- Heating
- Ventilation
- Air conditioning
- Cooling
- Etc.

- Benefits:**
- Easy to control and monitor
  - Optimized energy management
  - Increased comfort
  - Reduction of mechanical resonances



#### Fans

- Air conditioning
- Cooling Towers
- Condensers
- Boilers
- Car parks
- Tunnels
- Etc.

- Benefits:**
- Efficiency
  - Comfort
  - Energy savings
  - Easy to integrate to HVAC systems
  - Fire Mode



#### Pumps

- Heating
- Cooling
- Water supply / treatment
- Irrigation
- Etc.

- Benefits:**
- Secured Water flow control
  - Monitored flow control
  - Flow limit control
  - Energy savings
  - Easy to integrate to HVAC systems



#### Other applications

- Lifts & Escalators
- Greenhouse controls
- Compressors
- Etc.

- Benefits:**
- Efficiency
  - Energy savings
  - Easy to apply

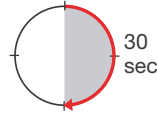


NXL series inverters optimise HVAC control solutions in buildings, thereby yielding energy savings of up to 50 %.

# NXL HVAC / The 30 sec solution!

The NXL HVAC series is specifically configured for use with fans & pumps. Through pre-configured applications 95 % of the usual requirements in the building controls industry are covered.

It's 'straight out of the box' concept and the Start-Up Wizard allow 30-seconds basic commissioning.



A free option board slot offers communication to a huge variety of standard and proprietary protocols.



**Type overview:** Mains voltage 380-500 V, 50/60 Hz, 3~, enclosure class IP54, EMC level C RFI filter

AC drive type	Loadability				Maximum current I <sub>s</sub>	Motor shaft power		Frame size
	Low		High			400V supply		
	Rated continuous current I <sub>L</sub> [A]	10 % overload current [A]	Rated continuous current I <sub>H</sub> [A]	50 % overload current [A]		10 % overload 40°C P [kW]	50 % overload 50°C P [kW]	
HVAC03C5	3.3	3.6	2.2	3.3	4.4	1.1	0.75	MF4
HVAC04C5	4.3	4.7	3.3	5.0	6.2	1.5	1.1	MF4
HVAC05C5	5.6	6.2	4.3	6.5	8.6	2.2	1.5	MF4
HVAC07C5	7.6	8.4	5.6	8.4	10.8	3	2.2	MF4
HVAC09C5	9.0	9.9	7.6	11.4	14	4	3	MF4
HVAC12C5	12.0	13.2	9.0	13.5	18	5.5	4	MF4
HVAC16C5	16.0	17.6	12.0	18.0	24	7.5	5.5	MF5
HVAC23C5	23.0	25.3	16.0	24.0	32	11	7.5	MF5
HVAC31C5	31.0	34.0	23.0	35	46	15	11	MF5
HVAC38C5	38.0	42.0	31.0	47	62	18.5	15	MF6
HVAC46C5	46.0	51.0	38.0	57	76	22	18.5	MF6
HVAC61C5	61.0	67.0	46.0	69	92	30	22	MF6



# NXL General-Purpose

Honeywell NXL General-Purpose drives have more general default configuration options, but still maintain the concept of 'minimal parameters'.

Two free option card slots for I/O expansion and communication are built-in.

<b>Type overview: Mains voltage 380-500 V, 50/60 Hz, 3~, enclosure class IP21, EMC level H</b>								
AC drive type	Loadability					Motor shaft power		Frame size
	Low		High		Maximum current I <sub>s</sub> [A]	400V supply		
	Rated continuous current I <sub>L</sub> [A]	10 % overload current [A]	Rated continuous current I <sub>H</sub> [A]	50 % overload current [A]		10 % overload 40°C P [kW]	50 % overload 50°C P [kW]	
NXL0003V35C2H1	3.3	3.6	2.2	3.3	4.4	1.1	0.75	MF4
NXL0004V35C2H1	4.3	4.7	3.3	5.0	6.2	1.5	1.1	MF4
NXL0005V35C2H1	5.6	6.2	4.3	6.5	8.6	2.2	1.5	MF4
NXL0007V35C2H1	7.6	8.4	5.6	8.4	10.8	3	2.2	MF4
NXL0009V35C2H1	9.0	9.9	7.6	11.4	14	4	3	MF4
NXL0012V35C2H1	12.0	13.2	9.0	13.5	18	5.5	4	MF4
NXL0016V35C2H1	16.0	17.6	12.0	18.0	24	7.5	5.5	MF5
NXL0023V35C2H1	23.0	25.3	16.0	24.0	32	11	7.5	MF5
NXL0031V35C2H1	31.0	34.0	23.0	35	46	15	11	MF5
NXL0038V35C2H1	38.0	42.0	31.0	47	62	18.5	15	MF6
NXL0046V35C2H1	46.0	51.0	38.0	57	76	22	18.5	MF6
NXL0061V35C2H1	61.0	67.0	46.0	69	92	30	22	MF6
<b>Type overview: Mains voltage 380-500 V, 50/60 Hz, 3~, enclosure class IP54, EMC level H</b>								
NXL0003V35C5H1	3.3	3.6	2.2	3.3	4.4	1.1	0.75	MF4
NXL0004V35C5H1	4.3	4.7	3.3	5.0	6.2	1.5	1.1	MF4
NXL0005V35C5H1	5.6	6.2	4.3	6.5	8.6	2.2	1.5	MF4
NXL0007V35C5H1	7.6	8.4	5.6	8.4	10.8	3	2.2	MF4
NXL0009V35C5H1	9.0	9.9	7.6	11.4	14	4	3	MF4
NXL0012V35C5H1	12.0	13.2	9.0	13.5	18	5.5	4	MF4
NXL0016V35C5H1	16.0	17.6	12.0	18.0	24	7.5	5.5	MF5
NXL0023V35C5H1	23.0	25.3	16.0	24.0	32	11	7.5	MF5
NXL0031V35C5H1	31.0	34.0	23.0	35	46	15	11	MF5
NXL0038V35C5H1	38.0	42.0	31.0	47	62	18.5	15	MF6
NXL0046V35C5H1	46.0	51.0	38.0	57	76	22	18.5	MF6
NXL0061V35C5H1	61.0	67.0	46.0	69	92	30	22	MF6



# NXL Compact

The NXL Compact drives are cabinet-mounted units for lower motor powers up to 2.2 kW, suitable for both 208 – 230 V and 380 – 500V supply voltages.

The compact size and flexible installation options make them suitable for installations where space is at a premium. The standard I/O can be extended with one I/O expander board or one fieldbus board.

**Type overview:** Mains voltage 380-500 V, 50/60 Hz, 3~, enclosure class IP20, EMC level N

AC drive type	Loadability					Motor shaft power		Frame size and dimensions [W x H x D]
	Low		High		Maximum current I <sub>s</sub>	400V supply		
	Rated continuous current I <sub>L</sub> [A]	10 % overload current [A]	Rated continuous current I <sub>H</sub> [A]	50 % overload current [A]		10 % overload 40°C P [kW]	50 % overload 50°C P [kW]	
NXL0001V35C1N0 NXL0002V35C1N0	1.9 2.4	2.1 2.6	1.3 1.9	2.0 2.9	2.6 3.8	0.55 0.75	0.37 0.55	MF2 60/130/150 MF2 60/130/150
NXL0003V35C1N1 NXL0004V35C1N1 NXL0005V35C1N1	3.3 4.3 5.4	3.6 4.7 5.9	2.4 3.3 4.3	3.6 5.0 6.5	4.8 6.6 8.6	1.1 1.5 2.2	0.75 1.1 1.5	MF3 84/184/172 MF3 84/184/172 MF3 84/220/172

**Type overview:** Mains voltage 208-240 V, 50/60 Hz, 1/3~ (3~ motor), enclosure class IP20, EMC level N

NXL0002V32C1N0*	2.4	2.6	1.7	2.6	3.4	0.37	0.25	MF2 60/130/150
NXL0003V32C1N1 NXL0004V32C1N1 NXL0006V32C1N1	3.7 4.8 6.6	4.1 5.3 7.2	2.8 3.7 4.8	4.2 5.6 7.2	5.6 7.4 9.6	0.75 1.1 1.5	0.55 0.75 1.1	MF3 84/184/172 MF3 84/184/172 MF3 84/220/172

\*single-phase in, 3-phase out



# Option Boards

Card type/code	Slot	I/O Signal									Note
		DI	DO	AI mA isol.	AO mA isol.	EO NO NC	RO NO	Therm	+24 EXT +24 V		
<b>Basic I/O cards [OPT-A]</b>											
OPT-AA OPT-AI	• •	3 3	1			1	1	1			included in NXL HVAC series
<b>I/O expander cards [OPT-B], typical</b>											
OPT-B2 OPT-B4 OPT-B5	• • •			1	2	1	1 3	1	1		analog signals galvanically isol. separat.
<b>Fieldbus card [OPT-C]</b>											
OPT-C2 OPT-C3 OPT-C4 OPT-C5 OPT-C6 OPT-C7 OPT-C8 OPT-CI OPT-CJ	•										RS-485 (Multiprotokol) Profibus DP LonWorks Profibus DP (D9 type connector) CANopen (slave) DeviceNet RS-485 (Multiprotokol, D9 type connector) Modbus/TCP (Ethernet) BACnet  N2 (Modbus as standard)  N2 (Modbus as standard)

# Control Inputs/Outputs

## Standard I/O

Terminal	Signal, default settings
1 <b>+10 V</b>	Reference voltage
2 <b>AI1+</b> 3 <b>AI1-</b>	Analog input, 0-10 V (0/4-20mA) AI common
4 <b>AI2+</b> 5 <b>AI1-</b>	Analog input, 0/4-20 mA (0-10 V) AI common
6 <b>+24 V</b> 7 <b>GND</b>	24 V auxiliary voltage I/O ground
8 <b>DIN1</b> 9 <b>DIN2</b> 10 <b>DIN3</b>	Start forward Start reverse Preset speed 1
11 <b>GND</b>	I/O ground
18 <b>AO1+</b> 19 <b>AO1-</b>	Analog output, output frequency AO common
A <b>RS485</b>	Serial bus (modbus RTU)
B <b>RS485</b>	Serial bus
30 <b>+24 V</b>	External control voltage supply
21 <b>R01</b> 22 <b>R01</b> 23 <b>R01</b>	Relay output 1, FAULT

All inputs and outputs of the standard I/O and option boards are freely programmable

## OPT-AA [typical option]

Terminal	Signal, default settings
1 <b>+24 V</b>	24 V auxiliary voltage
2 <b>GND</b>	I/O ground
3 <b>DIN1</b> 4 <b>DIN2</b> 5 <b>DIN3</b>	Preset speed 2 Fault reset Disable PID
6 <b>D01</b>	Digital output, Ready
24 <b>R01</b> 25 <b>R01</b> 26 <b>R01</b>	Relay output 1, RUN

## OPT-AI [typical option]\*

Terminal	Signal, default settings
12 <b>+24 V</b>	24 V auxiliary voltage
13 <b>GND</b>	I/O ground
14 <b>DIN1</b> 15 <b>DIN2</b> 16 <b>DIN3</b>	Preset speed 2 Fault reset Disable PID
25 <b>R01</b> 26 <b>R01</b>	Relay output 1, RUN
28 <b>T11+</b> 29 <b>T11-</b>	Thermistor input (galvanically isolated)

\* included in NXL HVAC Series

# Other typical options:

Option	Oder Typecode	Suitability	
IP54 enclosure	Factory option IP5-FR-	MF4-MF6 MF4-MF6	Replace '2' by '5' in the type code, e.g. NXL00315C5H1 (SSS...) IP54 kit, e.g. IP5-FR4
Through-hole mounting	Factory option	MF4-MF6	E.g. NXL00,15CTH1STS..., IP54 back, IP21 front, kits available
External brake resistors	BRR-0022-LD-5 BRR-0031-LD-5 BRR-0045-LD-5 BRR-0061-LD-5	00035-000225 00315 00385-00465 00615	LD = Light Duty: 5 sec nominal torque braking from nominal speed decreasing linearly to zero, once per 120 sec. HD = Heavy Duty: 3 sec nominal torque braking at nominal speed + 7 sec nominal torque braking from nominal speed decreasing linearly to zero, once per 120 sec. Replace LD by HD in the type code, e.g. BRR-0031-HD-5 The brake resistor manual is available for more precises selection
Panel door installation sets	DRA-02L DRA-04L	All	Door installation set with a 2-m RS232C cable Door installation set with a 4-m RS232C cable
PC adapter	PAN-RS	All	Adapter PAN-RS and RS232C cable are required for PC connection
RS232C cables	RS232C-2M RS232C-4M	All	2-meter-long RS232C cable for PC connection 4-meter-long RS232C cable for PC connection
Varnished circuit boards	Factory option	MF4-MF6	Replace the 'S' by 'V', e.g. NXL00315C5H1SSV..
C-level RFI filters	Factory option	MF4-MF6	Replace 'H' by 'C' in the type code, e.g. NXL00315C2C1 (SSS...)
<b>Options for compact units [IMF2-MF3]</b>			
RFI filters	RFI-0012-2-1 RFI-0013-2-1 RFI-0008-5-1	00022-00062 00022-00062 00015-00055	RFI filter for 208-230 V units, H level, 1~ supply RFI filter for 208-230 V units, H level, 1~ supply, footprint installation RFI filter for 380-500 V units, H level, footprint installation
DIN rail installation	Factory option	MF2-MF3	Replace 'S' by 'D' in the type code, e.g. NXL00025C1H0 SDS

## Technical distinctions for selecting an inverter.

### Low Overload

Low overload applications are normally machine related to Variable Torque (pls see below) i.e.. centrifugal fans and pumps. Low over load allows you to overload the motor 110 % for 1 minute in every 10 minutes with starting torque of 150 % The max ambient temperature in full load is 40 °C.

### High Overload

High overload applications are normally machine related to Constant Torque (pls see below). High overload allows you to overload the motor 150 % 1 minute in every 10 minutes with starting torque of 200 %. Constant ambient temperature in full load is 50 °C.

### Overloadability

For all NXL drives, overloadability is defined as follows: High: 1.5 x IH (1 min/10 min) at 50 °C; Low: 1.1 x IL (1 min/10 min) at 40 °C; IS for 2 seconds every 20 seconds.

### Variable Torque rating

This typically describes the torque curve of a centrifugal pump or centrifugal/axial flow fan. The torque required at zero speed is very close to zero. As the machine increases in speed, the torque increases by the square of the change in speed and the power increases by the cube of the speed change.

### Constant Torque Rating

This typically describes the torque curve of machines other than those that fit within the variable torque category. This is a more generic term which is used to encompass groups of machines which do not follow the rule above, but may not have constant torque characteristics. These would be for example, cranes, elevator, conveyors, extruders, mixers, stirrers, machine tools etc.

**Find out more**

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**Automation and Control Solutions**

ACS Products  
Honeywell Control Systems Ltd  
Honeywell House  
Arlington Business Park  
Bracknell, Berkshire, RG12 1EB  
Tel 013 44 65 66 55  
Fax 013 44 65 66 44  
[www.honeywell.com/uk](http://www.honeywell.com/uk)

Honeywell GmbH  
Böblinger Strasse 17  
D-71101 Schönaich / Germany  
Tel 07031 637 01  
Fax 07031 637 493  
[www.honeywell.com](http://www.honeywell.com)

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