



NXS Variable Frequency Drives

Variable Frequency Drives (VFD) accept a control input and then output tailored control signal(s) to operate as many as six devices (fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

SPECIFICATIONS

Wiring:

- ☐ Wire Type and Size is Model and Application Dependant.
- ☐ For NXS details, see form 63-2600.

Power Supply:

- ☐ 208-240 Vac, 45-66 Hz, +10%, -15%.
- ☐ 380-500 Vac, 45-66 Hz, +10%, -15%.
- ☐ 525-690 Vac, 45-66 Hz, +10%, -15%.

Ambient Ratings:

- ☐ Temperature Ranges:
 - ☐ Operating: 14°F to 104°F (-10°C to 40°C).
 - ☐ Storage: -40°F to 140°F (-40°C to 60°C).
- ☐ Humidity Range: 5 to 95% RH (non-condensing).

Control Inputs:

- ☐ Voltage (Analog): 0-10 Vdc, 200k ohm differential.
 - ☐ Resolution: 0.1%, $\pm 1\%$ accuracy.
- ☐ Current (Analog): 4-20 mA, 250 ohm differential.
- ☐ Digital: up to six, 24 Vdc, positive or negative logic.

Control Output:

- ☐ Reference Voltage: 10V, +3%; maximum load 10 mA.
- ☐ Auxiliary Voltage: 24V, $\pm 15\%$; maximum 250 mA.
- ☐ Current (Analog): 0-20 mA, 500 ohm maximum.
 - ☐ Resolution: 10 bit.
 - ☐ Accuracy: $\pm 2\%$.
- ☐ Relay: Two programmable changeover relay outputs.
 - ☐ Switching Capacity: 24 Vdc, 8A; 250 Vac, 8A; 125 Vdc, 0.4A.
- ☐ Digital: Open collector output, 50 mA, 48V.

Motor Connection:

- ☐ Continuous Output Overload Current:
 - ☐ Low: Maximum ambient temperature: 104°F (40°C); $1.1 \times I_L$ (low overload current).
 - ☐ High: Maximum ambient temperature: 122°F (50°C); $1.5 \times I_H$ (high overload current).
- ☐ Starting Torque:
 - ☐ Low Overload: 150%.
 - ☐ High Overload: 200%.
- ☐ Starting Current: $2.0 \times I_H$ 2 seconds every 20 seconds if output frequency is less than 30 Hz and temperature of heatsink is less than 140°F (up to 400k W).
- ☐ Frequency:
 - ☐ Range: 0-320 Hz.
 - ☐ Resolution: 0.01 Hz.

Switching Frequency Range:

- ☐ Up to and including 40 HP: 1 to 16 KHz (default: 10 KHz).
- ☐ 50 HP and higher: 1 to 10 KHz (default: 3.6 KHz).

SPECIFICATION DATA

FEATURES

- Seven configurable applications built in.
- Easy commissioning through software or control panel.
- Devices can be wall-mounted or panel-mounted.
- Eleven protective functions (see Form 63-2600, Users Manual, Technical Data section).
- Compact Size.
- Insulated gate bi-polar transistor (IGBT) technology.

Mounting:

- ☐ Mount vertically on a wall or other flat surface using four screws or bolts sized for the particular unit.

Approvals (Model Dependant):

- ☐ NEMA1.
- ☐ NEMA12.
- ☐ Underwriters Laboratories, Inc. (UL)
- ☐ Canadian Underwriters Laboratories, Inc. (CUL).
- ☐ CE.

Accessories:

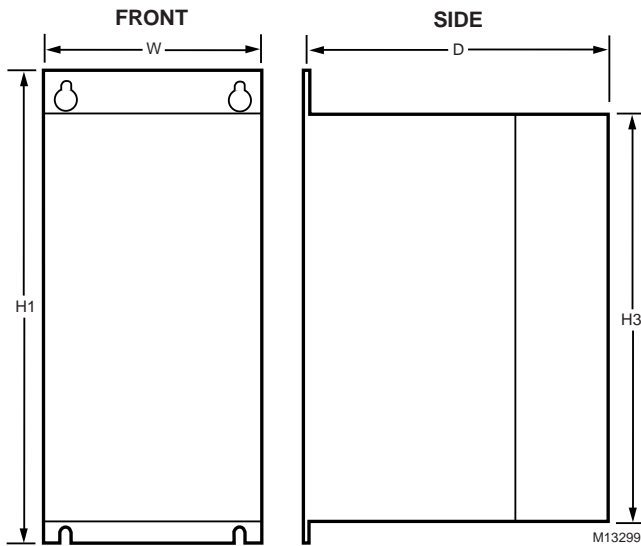
- ☐ 32006627-001 RFI Filter for NXL units up to 3HP, 460V.
- ☐ 32006628-001 Panel Mount Kit, NEMA12, 6 ft.
- ☐ 32006629-001 Blank Display.
- ☐ 32006629-002 Alphanumeric Display.
- ☐ 32006629-003 Seven-Segment Display for NXL.
- ☐ 32006630-001 Lonbus Card.
- ☐ 32006630-002 Modbus Card.
- ☐ 32006630-003 I/O Expander Card, 2RO (NO/NC).
- ☐ 32006630-004 I/O Expander Card, 6DI/DO Programmable.
- ☐ 32006630-005 I/O Expander Card, 6DI, 1DO, 2AI, 1AO.
- ☐ 32006630-006 I/O Expander Card, 1RO (NO/NC), 1RO (NO).
- ☐ 32006630-007 I/O Expander Card, 3RO (NO/NC), 1RO (NO).
- ☐ 32006630-008 I/O Expander Card, 1AI (mA), 2AO (mA).
- ☐ 32006662-001 NXL Demo Case.
- ☐ 32006662-002 NXS Demo Case.
- ☐ 32006803-001 Control Module, NXS.
- ☐ 32006803-002 Fan Assembly, up to 7.5HP.
- ☐ 32006803-003 Fan Assembly, 10-20HP.
- ☐ 32006803-004 Fan Assembly, 25-40HP.
- ☐ 32006803-005 Fan Assembly, 50-75HP.
- ☐ 32006803-006 Fan Assembly, 100-150HP.
- ☐ 32006803-007 Power Module, 1.5HP, 460V.
- ☐ 32006803-008 Power Module, 2HP, 460V.
- ☐ 32006803-009 Power Module, 3HP, 460V.
- ☐ 32006803-010 Power Module, 4HP, 460V.
- ☐ 32006803-011 Power Module, 5HP, 460V.
- ☐ 32006803-012 Power Module, 7.5HP, 460V.
- ☐ 32006803-013 Power Module, 10HP, 460V.
- ☐ 32006803-014 Power Module, 15HP, 460V.
- ☐ 32006803-015 Power Module, 20HP, 460V.



Accessories (continued):

- ❑ 32006803-016 Power Module, 25HP, 460V.
- ❑ 32006803-017 Power Module, 30HP, 460V.
- ❑ 32006803-018 Power Module, 40HP, 460V.
- ❑ 32006803-019 Power Module, 50HP, 460V.
- ❑ 32006803-020 Power Module, 60HP, 460V.
- ❑ 32006803-021 Power Module, 75HP, 460V.
- ❑ 32006803-022 Power Module, 100HP, 460V.
- ❑ 32006803-023 Power Module, 125HP, 460V.
- ❑ 32006803-024 Power Module, 150HP, 460V.

Dimensions [in in. (mm)]:



**Fig. 1. Dimensions of the NXS Variable Frequency Drives
(See Table 1).**

Table 1. NXS VFD Dimension Details.

Model Number	HP	Weight (lbs)	H1	W	D	H3	Motor Terminal Torque Rating (lb-in.)	Volts AC
			(inches)					
NXS0015A	1.5	53	12-7/8	5-1/16	7-1/2	11-1/2	18 - 20	480
NXS0020A	2							
NXS0030A	3							
NXS0040A	4							
NXS0050A	5							
NXS0075A	7.5	68						
NXS0100A	10	70	16-1/2	5-11/16	8-7/16	15-3/8		
NXS0150A	15							
NXS0200A	20	98						
NXS0250A	25	98	22	7-11/16	9-5/16	20-7/16	32 - 35	
NXS0300A	30							
NXS0400A	40	150						
NXS0500A	50	150	24-13/16	9-5/16	10-1/8	23-1/4	45 - 50	
NXS0600A	60							
NXS0010B	1	53	12-7/8	5-1/16	7-1/2	11-1/2	18 - 20	230
NXS0015B	1.5							
NXS0020B	2							
NXS0030B	3	68						
NXS0040B	4							
NXS0050B	5	70	16-1/2	5-11/16	8-7/16	15-3/8		
NXS0075B	7.5							
NXS0100B	10	98						
NXS0150B	15	98	22	7-11/16	9-5/16	20-7/16	32 - 35	
NXS0200B	20	150						
NXS0250B	25	150	24-13/16	9-5/16	10-1/8	23-1/4	45 - 50	
NXS0300B	30							

Dimensions [in in. (mm)]:

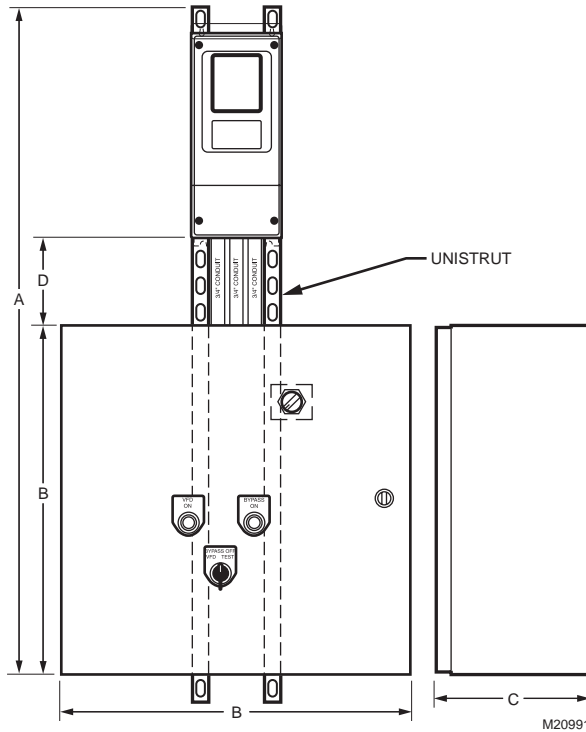


Fig. 2. Dimensions of the NXS NEMA1 Assemblies
(See Table 2).

Table 2. NXS/Bypass Assembly Dimension Details.

Model Number	HP	Weight (lbs)	A	B	C	D	Motor Terminal Torque Rating (lb-in.)	Volts AC				
			(inches)									
NXS0015J	1.5	53	33-1/2	16	7	5	18 - 20	480				
NXS0020J	2											
NXS0030J	3											
NXS0040J	4											
NXS0050J	5											
NXS0075J	7.5								68			
NXS0100J	10									70		
NXS0150J	15								70	37-1/2	16	9
NXS0200J	20	98	41-1/2	20								
NXS0250J	25	98	41-1/2	20	9	5	32 - 35					
NXS0300J	30	98	46-1/2									
NXS0400J	40	150	46-1/2	24								
NXS0500J	50	150	46-1/2	24	9	6	45 - 50					
NXS0600J	60	150	49-1/2									
NXS0010S	1	53	33-1/2	16	7	5	18 - 20	230				
NXS0015S	1.5											
NXS0020S	2											
NXS0030S	3								68			
NXS0040S	4											
NXS0050S	5								70	33-1/2		
NXS0075S	7.5								70	37-1/2	16	9
NXS0100S	10								98	41-1/2	20	
NXS0150S	15	98	41-1/2	20	9	5	32 - 35					
NXS0200S	20	150	46-1/2	24								
NXS0250S	25	150	46-1/2	24	9	6	45 - 50					
NXS0300S	30	150	49-1/2									
NXS0010K	1	53	33-1/2	16	7	5	18 - 20	200 / 208				
NXS0015K	1.5											
NXS0020K	2											
NXS0030K	3								68			
NXS0040K	4											
NXS0050K	5								70			
NXS0075K	7.5								98	41-1/2	20	9
NXS0100K	10								98	41-1/2	20	
NXS0150K	15	150	46-1/2	24	9	6	32 - 35					
NXS0200K	20	150	46-1/2	24								
NXS0250K	25	150	49-1/2		9	6	45 - 50					
NXS0300K	30											

Models:

NXS	Variable Frequency Drive; includes standard RFI filter			
	0007	Motor Power	0.75 HP	No choke
	0010		1.0 HP	
	0015		1.5 HP	
	0020		2.0 HP	
	0030		3.0 HP	Includes AC line choke
	0040		4.0 HP	
	0050		5.0 HP	
	0075		7.5 HP	
	0100		10 HP	
	0150		15 HP	
	0200		20 HP	
	0250		25 HP	
	0300		30 HP	
	0400		40 HP	
	0500		50 HP	
	0600		60 HP	
	0750		75 HP	
	1000		100 HP	
	1250		125 HP	
	1500		150 HP	
	1750		175 HP	
	2000		200 HP	
	A	460V, three-phase circuitry		
	B	208/230V, three-phase circuitry		
	C	575V, three-phase circuitry		
	J	460V, with bypass		
	K	208V with bypass		
	S	230V, with bypass		
	10	NEMA 1 Enclosure		
	12	NEMA 12 Enclosure		
	XX	Varies by model		
NXS	0100	A	10	XX

NOTE: Refer also to the Quick Selection Guide
(form 63-9251)

TYPICAL SPECIFICATION

Alternating current (AC) motors with squirrel-cage rotors require a variable frequency control. The variable frequency drive (VFD) shall generate the required variable frequency through three main input voltage lines connected to an LC filter and diode bridge. This shall produce a DC voltage for an insulated gate bi-polar transistor (IGBT) bridge. The IGBT bridge shall produce a pulse-width modulated (PWM) AC voltage for the motor. A microprocessor shall control the motor according to measured signals and control commands set from the VFD control panel.

The VFD shall have seven programmable applications which can be modified using a personal computer-based commissioning tool with an optional software package, or a control panel with either an alpha-numeric or graphic LCD.

The VFD shall be UL and CE approved. The VFD shall be include built-in RFI filters and all models with 3 HP or more shall include an AC choke.

