N3
Compact AC Drive
N3 Compact Variable Speed Drive

We have made **BACnet Protocol** a standard for this product!

The N3 series variable speed drives feature a compact design, sensorless vector operation, auto-cycle capabilities, Modbus RTU communication, and direct BACnet capabilities. With 2 to 3 parameter settings, users can now talk BACnet to other control devices through either the RS485 connection or the RS-232 connection port.

- Full level of information can be accessed via BACnet
- Operate and control through BACnet or locally with BACnet in a monitor only mode
- Selection via parameter between BACnet or Modbus RTU

**BACnet Applications**

- Energy Management
- Building Management
- HVAC
- Wastewater Industries
**Wiring Diagrams**

**1-2 hp**

**3-75 hp (Prior to Firmware Version 1.3)**

TERMINAL DESIGNATIONS FOR POWER DEVICE INPUTS FOR VARIOUS HORSEPOWER

(See Sec. 7.0 for further details)

**AC Input Voltage**

L1(R)  L2(S)  L3(T)

**MULTIFUNCTION DIGITAL INPUTS**

(See parameters A050 - A057)

S6/12 can be configured for pulse input. (A054 = 0019) (See also parameter A090)

S6/12 can be configured as a digital/analog input.

SW3 = V (0-10VDC) or (2-10VDC)

SW3 = I (0 - 20 mA) or (4 - 20 mA)

(See parameters *A049, (A050 - A056), A057 & A154)

*A049 - Version 1.3 or later

For SOURCE mode connect to +24V and set SW1 to the PNP position

For SINK mode connect to COM and set SW1 to the NPN position (Factory Default)

Example - An external pot is connected to the AIN terminal as shown providing 0 - 10 VDC input

The AIN/57 input terminal can be configured as an Analog input:

SW2 = V (0-10VDC) or *V2 - 10VDC

SW2 = I (0 - 20 mA) or *I2 - 20 mA

*See Note

AIN/57 can also be configured as a digital input:

0 - 10 VDC ANALOG OUTPUT

(See parameters A105 & A106)

*Note: For versions prior to 1.3, to set AIN (2-10V) or (4-20mA), parameters A92-A96 were used. For versions 1.3 or higher it can be set directly with parameter A154. Also see parameters A090 - A056.
Wiring Diagrams - Continued

3-75 hp (Firmware Version 1.3 or Later)

Terminal Designations for Power Device Inputs for Various Horsepower.
(See Sec. 7.0 for further details)

AC Input Voltage

Terminal Designations for Power Device Inputs for Various Horsepower.
(See Sec. 7.0 for further details)

3-40 HP at 230V & 3-75 HP at 460V
(Ver. 1.3 or Later)

DC Power Supply or External Braking Unit

Note - Ground Connection Resistance to be:
230V Class: ≤1000
460V Class: ≤500

Ground Terminal Designation

For SOURCE mode connect to +24V and set SW1 to the PNP position.

For 3N0 mode connect to COM and set SW1 to the NPN position. (Factory Default)

A12 Analog input input terminal:
SW2 = Y (0-10VDC) or (0-20mA)
SW3 = Y (2-10VDC) or (4-20 mA)
(See parameters A049, A097, A050 – A062 & A154)

Example - An external pot is connected to the A1N terminal as shown providing 0 - 10 VDC input

The AIN/S7 input terminal can be configured as an Analog input:
SW2 = Y (0-10VDC)
SW3 = Y (0-20mA)

AIN/S7 can also be configured as a digital input.
(See parameters A066, A092 – A096 & A154)

Dry contacts rated
230VAC / 30 VDC @ 2A
(See parameters A105 & A106)
N3 Compact Drive Features

- Sensorless Vector AC Drive
- BACnet and Modbus RTU Protocols Embedded
- PID Control with Sleep Mode
- PC Programming Software (Available at No Charge)
- RS 485 Interface Option
- .5-3 hp, 200-240V, 50/60Hz, 1-Phase/ 3-Phase Output
- .5-40 hp, 200-240V, 50/60Hz, 3-Phase/ 3-Phase Output
- 1-75 hp, 380-480V, 50/60Hz, 3-Phase/ 3-Phase Output
- UL, cUL, and CE Approved
- EEPROM Program Copy Unit (Optional)

N3 Compact Drive Operator Interface Features

- Configuration Mode Indication
- LEDs Indicate Mode Sequence
- Bright 4-Digit LED Display
- LEDs Indicate Units of Measure
- On-Board Speed Potentiometer
- Can choose to operate remotely (PLC Driven) or locally
- Removable Keypad can be installed up to 16 ft from the N3 drive
### Dimensions and Weights

#### 230V 1-Phase Input / 3-Phase Output

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>HP</th>
<th>DRIVE AMPS</th>
<th>DIMENSIONS (INCHES)</th>
<th>APPROX. WT. (lbs)</th>
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</thead>
<tbody>
<tr>
<td>*N3-2P5-CS</td>
<td>.5</td>
<td>3.1</td>
<td>6.42 3.54 5.79</td>
<td>3</td>
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<tr>
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<td>7.36 5.04 5.83</td>
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#### 230V 3-Phase Input/ 3-Phase Output***

<table>
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<tr>
<th>MODEL NO.</th>
<th>HP</th>
<th>DRIVE AMPS</th>
<th>DIMENSIONS (INCHES)</th>
<th>APPROX. WT. (lbs)</th>
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<td>*N3-201-C</td>
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<tr>
<td>*N3-202-C</td>
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<td>6.42 3.54 5.79</td>
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<tr>
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#### 460V 3-Phase Input/ 3-Phase Output

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<th>MODEL NO.</th>
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<th>DIMENSIONS (INCHES)</th>
<th>APPROX. WT. (lbs)</th>
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<td>14.17 10.43 9.70</td>
<td>27</td>
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<tr>
<td>N3-425-N1</td>
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<tr>
<td>N3-430-N1</td>
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<td>102</td>
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</tbody>
</table>

Note: Suffix CS = Chassis Unit 1-Phase
C = Chassis Unit 3-Phase
N1 = NEMA 1

All Chassis Units will Ship with NEMA 1 Boxes for Field Installation
* Includes Dynamic Braking Transistor
** Includes DC Bus Link Reactor
*** Do Not Apply Single Phase Input Power to these Models.

### SPECIFICATIONS

**Control Mode**
- Sensorless Vector and V/Hz

**Input Voltage Rating**
- 230V 1-Phase and 3-Phase; 460V 3-Phase

**Input Voltage Tolerance**
- +10%, -15%

**Frequency Control Range**
- 0 to 400 Hz

**Speed Control Accuracy**
- +/- 0.5% (Sensorless Vector Mode)

**Speed Commands**
- 0 to 10VDC, 0 to 20mA, Pulse Input

**Overload Capacity**
- 150% Current of Drive Rating for 1 Minute

**Braking**
- DC Injection Braking; Dynamic Braking (optional)

**Protective Functions**
- Motor and Inverter Overload, Overvoltage, Overheating, Peak Overcurrent

**Programmable I/O**
- 6 Digital Inputs (NPN or PNP), 2 Relay Outputs, 2 Analog inputs (0-10V or 4-20mA), 1 Analog Output (0-10V)

**Ambient Temperature**
- -10°C to +50°C (14°F to 122°F)

**Enclosure**
- IP20 Protective Chassis/ NEMA 1