

H-Max IntelliPass and IntelliDisconnect Drives



Contents

<i>Description</i>	<i>Page</i>
H-Max Drives	V6-T2-170
H-Max IntelliPass and IntelliDisconnect Drives	
Catalog Number Selection	V6-T2-183
Product Selection	V6-T2-184
Technical Data and Specifications	V6-T2-194
Wiring Diagrams	V6-T2-195
Dimensions	V6-T2-197

H-Max IntelliPass and IntelliDisconnect Drives

Product Description

The IntelliPass electronic bypass is a two or optional three contactor design using a 24 Vdc **XT** Series contactor with an optional manual override switch that allows the unit to run in bypass without the H-Max Series drive.

The IntelliPass software parameters utilize engineering units common to the HVAC industry. Onboard startup wizard guarantees flawless commissioning with plug-and-play screen entry. Available in NEMA/UL Type 1, Type 12 and Type 3R with optional pre-engineered operator devices to meet all customized specification requirements.

The IntelliPass construction features allow for easy installation, reliable operation and serviceability with additional onboard wire space, and removable conduit plates with knockouts.

Features and Benefits

Industry-leading energy saving solution—uses the Eaton H-Max drive with Active Energy Control algorithm.

Built to be as tough as the application—Eaton’s robust design boasts an industrial grade enclosure and industry proven components.

- Industrial Power Supply
- **XT** Contactors
- 22 mm Pilot Devices

Built-in electronic bypass capability with external 24 Vdc power supply allows the H-Max drive to control the bypass circuit through the keypad, digital input or BMS communications and in fault conditions.

Designed with Our Customers in Mind

- Removable top and bottom entry panels
- Door-mounted graphic display and keypad
- Easily accessible connection terminals with removable I/O terminal connections

Engineered Product Solution

- The Eaton H-Max IntelliPass and IntelliDisconnect products are available with a variety of factory tested and certified options meeting or exceeding UL508C requirements

Standards and Certifications

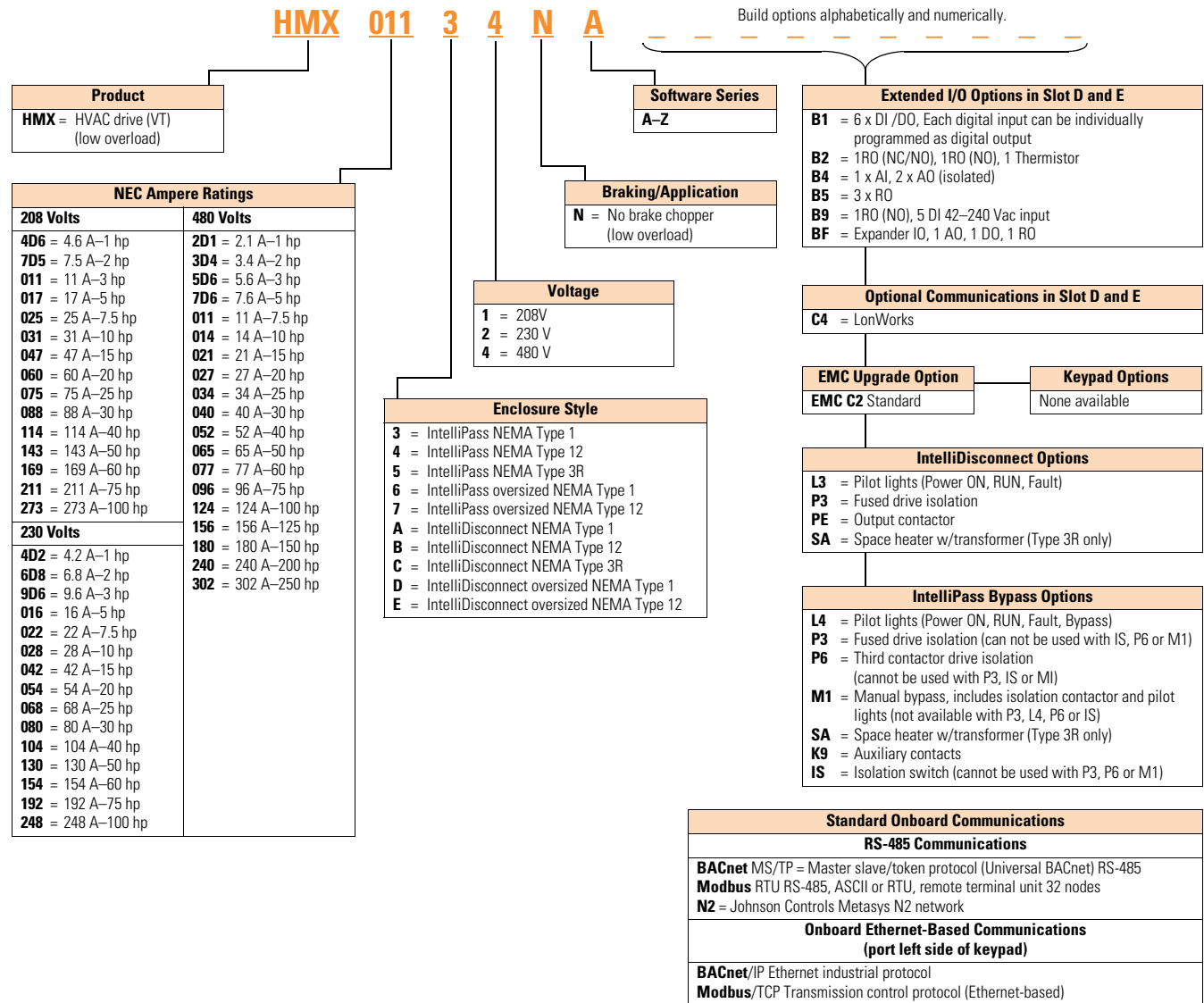
Product

- IEC 61800-5-1
- UL508C
- cUL
- OSHPD Seismic Certified



Catalog Number Selection

H-Max Series IntelliPass and IntelliDisconnect Drives



Notes

- IntelliPass—two contactor electronic bypass standard.
- All boards are varnished. Corrosion resistant.
- Battery included in all drives for real-time clock. Three year lifetime.
- Keypad kit includes HOA bypass.
- EMI/RFI filters included.
- DC link choke included.
- IntelliDisconnect includes 1 Form C and 1 Form A
- IntelliPass includes 1 Form A.
- When L3 or L4 option is selected, 1 Form A relay is used as well.
- For more relays required, select/order the B5 option card.

Product Selection

H-Max Series IntelliPass NEMA Type 1—Two Contactor Bypass Standard

2

HMX_

**208 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	4.6	HMX4D631NA
	2	7.5	HMX7D531NA
	3	11	HMX01131NA
FS5	5	17	HMX01731NA
	7.5	25	HMX02531NA
	10	31	HMX03131NA
FS6	15	47	HMX04731NA
FS7	20	60	HMX06031NA
	25	75	HMX07531NA
	30	88	HMX08831NA

230 Vac

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	4.2	HMX4D232NA
	2	6.8	HMX6D832NA
	3	9.6	HMX9D632NA
FS5	5	16	HMX01632NA
	7.5	22	HMX02232NA
	10	28	HMX02832NA
FS6	15	42	HMX04232NA
FS7	20	54	HMX05432NA
	25	68	HMX06832NA
	30	80	HMX08032NA

480 Vac

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	2.1	HMX2D134NA
	2	3.4	HMX3D434NA
	3	5.6	HMX5D634NA
	5	7.6	HMX7D634NA
	7.5	11	HMX01134NA
FS5	10	14	HMX01434NA
	15	21	HMX02134NA
	20	27	HMX02734NA
FS6	25	34	HMX03434NA
	30	40	HMX04034NA
	40	52	HMX05234NA
FS7	50	65	HMX06534NA
	60	77	HMX07734NA
	75	96	HMX09634NA

Notes

For Wiring Diagrams, see **Page V6-T2-196**.

For NEMA 12 or 3R enclosures, see Catalog Number Selection on **Page V6-T2-183**.

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

H-Max Series IntelliPass NEMA Type 12—Two Contactor Bypass Standard

HMX

**208 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	4.6	HMX4D641NA
	2	7.5	HMX7D541NA
	3	11	HMX01141NA
FS5	5	17	HMX01741NA
	7.5	25	HMX02541NA
	10	31	HMX03141NA
FS6	15	47	HMX04741NA
FS7	20	60	HMX06041NA
	25	75	HMX07541NA
	30	88	HMX08841NA
D	40	114	HMX11471NA
	50	143	HMX14371NA
	60	169	HMX16971NA
5	75	211	HMX21171NA
	100	273	HMX27371NA

230 Vac

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	4.2	HMX4D242NA
	2	6.8	HMX6D842NA
	3	9.6	HMX9D642NA
FS5	5	16	HMX01642NA
	7.5	22	HMX02242NA
	10	28	HMX02842NA
FS6	15	42	HMX04242NA
FS7	20	54	HMX05442NA
	25	68	HMX06842NA
	30	80	HMX08042NA
D	40	104	HMX10472NA
	50	130	HMX13072NA
	60	154	HMX15472NA
	75	192	HMX19272NA
5	100	248	HMX24872NA

NotesFor Wiring Diagrams, see **Page V6-T2-196**.For NEMA 12 or 3R enclosures, see Catalog Number Selection on **Page V6-T2-183**.

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

HMX_

**480 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	2.1	HMX2D144NA
	2	3.4	HMX3D444NA
	3	5.6	HMX5D644NA
	5	7.6	HMX7D644NA
	7.5	11	HMX01144NA
FS5	10	14	HMX01444NA
	15	21	HMX02144NA
	20	27	HMX02744NA
FS6	25	34	HMX03444NA
	30	40	HMX04044NA
	40	52	HMX05244NA
FS7	50	65	HMX06544NA
	60	77	HMX07744NA
	75	96	HMX09644NA
D	100	124	HMX12747NA
	125	156	HMX15674NA
	150	180	HMX18074NA
5	200	240	HMX24074NA
	250	302	HMX30274NA

H-Max Series IntelliPass NEMA Type 3R—Two Contactor Bypass Standard

HMX_

**208 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
A	1	4.6	HMX4D651NA
	2	7.5	HMX7D551NA
	3	11	HMX01151NA
A	5	17	HMX01751NA
	7.5	25	HMX02551NA
	10	31	HMX03151NA
B	15	47	HMX04751NA
C	20	60	HMX06051NA
	25	75	HMX07551NA
	30	88	HMX08851NA
D	40	114	HMX11451NA
	50	143	HMX14351NA
	60	169	HMX16951NA
F	75	211	HMX21151NA
	100	273	HMA27351NA

Notes

For Wiring Diagrams, see **Page V6-T2-196**.

For NEMA 12 or 3R enclosures, see Catalog Number Selection on **Page V6-T2-183**.

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

HMX_

**230 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
A	1	4.2	HMX4D252NA
	2	6.8	HMX6D852NA
	3	9.6	HMX9D652NA
A	5	16	HMX01652NA
	7.5	22	HMX02252NA
	10	28	HMX02852NA
	15	42	HMX04252NA
B	20	54	HMX05452NA
C	25	68	HMX06852NA
	30	80	HMX08052NA
D	40	104	HMX10452NA
	50	130	HMX13052NA
	60	154	HMX15452NA
	75	192	HMX19252NA
F	100	248	HMX24852NA

480 Vac

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
A	1	2.1	HMX2D154NA
	2	3.4	HMX3D454NA
	3	5.6	HMX5D654NA
	5	7.6	HMX7D654NA
	7.5	11	HMX01154NA
A	10	14	HMX01454NA
	15	21	HMX02154NA
	20	27	HMX02754NA
B	25	34	HMX03454NA
	30	40	HMX04054NA
	40	52	HMX05254NA
C	50	65	HMX06554NA
	60	77	HMX07754NA
	75	96	HMX09654NA
D	100	124	HMX12544NA
	125	156	HMX15654NA
	150	180	HMX18054NA
F	200	240	HMX24054NA
	250	302	HMX30254NA

Notes

For Wiring Diagrams, see [Page V6-T2-196](#).

For NEMA 12 or 3R enclosures, see Catalog Number Selection on [Page V6-T2-183](#).

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

H-Max Series IntelliDisconnect NEMA Type 1—Main Disconnect Standard

2

HMX

**208 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	4.6	HMX4D6A1NA
	2	7.5	HMX7D5A1NA
	3	11	HMX011A1NA
FS5	5	17	HMX017A1NA
	7.5	25	HMX025A1NA
	10	31	HMX031A1NA
FS6	15	47	HMX047A1NA
FS7	20	60	HMX060A1NA
	25	75	HMX075A1NA
	30	88	HMX088A1NA

230 Vac

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	4.2	HMX4D2A2NA
	2	6.8	HMX6D8A2NA
	3	9.6	HMX9D6A2NA
FS5	5	16	HMX016A2NA
	7.5	22	HMX022A2NA
	10	28	HMX028A2NA
FS6	15	42	HMX042A2NA
FS7	20	54	HMX054A2NA
	25	68	HMX068A2NA
	30	80	HMX080A2NA

480 Vac

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	2.1	HMX2D1A4NA
	2	3.4	HMX3D4A4NA
	3	5.6	HMX5D6A4NA
	5	7.6	HMX7D6A4NA
	7.5	11	HMX011A4NA
FS5	10	14	HMX014A4NA
	15	21	HMX021A4NA
	20	27	HMX027A4NA
FS6	25	34	HMX034A4NA
	30	40	HMX040A4NA
	40	52	HMX052A4NA
FS7	50	65	HMX065A4NA
	60	77	HMX077A4NA
	75	96	HMX096A4NA

Notes

For Wiring Diagrams, see **Page V6-T2-196**.

For NEMA 12 or 3R enclosures, see Catalog Number Selection on **Page V6-T2-183**.

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

H-Max Series IntelliDisconnect NEMA Type 12—Main Disconnect Standard

HMX

**208 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	4.6	HMX4D6B1NA
	2	7.5	HMX7D5B1NA
	3	11	HMX011B1NA
FS5	5	17	HMX017B1NA
	7.5	25	HMX025B1NA
	10	31	HMX031B1NA
FS6	15	47	HMX047B1NA
FS7	20	60	HMX060B1NA
	25	75	HMX075B1NA
	30	88	HMX088B1NA
D	40	114	HMX114E1NA
	50	143	HMX143E1NA
	60	169	HMX169E1NA
5	75	211	HMX211E1NA
	100	273	HMA273E1NA

230 Vac

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	4.2	HMX4D2B2NA
	2	6.8	HMX6D8B2NA
	3	9.6	HMX9D6B2NA
FS5	5	16	HMX016B2NA
	7.5	22	HMX022B2NA
	10	28	HMX028B2NA
FS6	15	42	HMX042B2NA
FS7	20	54	HMX054B2NA
	25	68	HMX068B2NA
	30	80	HMX080B2NA
D	40	104	HMX104E2NA
	50	130	HMX130E2NA
	60	154	HMX154E2NA
	75	192	HMX192E2NA
5	100	248	HMX248E2NA

Notes

For Wiring Diagrams, see **Page V6-T2-196**.

For NEMA 12 or 3R enclosures, see Catalog Number Selection on **Page V6-T2-183**.

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

HMX_

480 Vac

2



Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
FS4	1	2.1	HMX2D1B4NA
	2	3.4	HMX3D4B4NA
	3	5.6	HMX5D6B4NA
	5	7.6	HMX7D6B4NA
	7.5	11	HMX011B4NA
FS5	10	14	HMX014B4NA
	15	21	HMX021B4NA
	20	27	HMX027B4NA
FS6	25	34	HMX034B4NA
	30	40	HMX040B4NA
	40	52	HMX052B4NA
FS7	50	65	HMX065B4NA
	60	77	HMX077B4NA
	75	96	HMX096B4NA
D	100	124	HMX12E44NA
	125	156	HMX156E4NA
	150	180	HMX180E4NA
5	200	240	HMX240E4NA
	250	302	HMX302E4NA

Notes

For Wiring Diagrams, see **Page V6-T2-196**.

For NEMA 12 or 3R enclosures, see Catalog Number Selection on **Page V6-T2-183**.

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

H-Max Series IntelliDisconnect NEMA Type 3R—Main Disconnect Standard

HMX

**208 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
A	1	4.6	HMX4D6C1NA
	2	7.5	HMX7D5C1NA
	3	11	HMX011C1NA
A	5	17	HMX017C1NA
	7.5	25	HMX025C1NA
	10	31	HMX031C1NA
	15	47	HMX047C1NA
B	20	60	HMX060C1NA
C	25	75	HMX075C1NA
	30	88	HMX088C1NA
D	40	114	HMX114C1NA
	50	143	HMX143C1NA
	60	169	HMX169C1NA
F	75	211	HMX211C1NA
	100	273	HMA273C1NA

230 Vac

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
A	1	4.2	HMX4D2C2NA
	2	6.8	HMX6D8C2NA
	3	9.6	HMX9D6C2NA
A	5	16	HMX016C2NA
	7.5	22	HMX022C2NA
	10	28	HMX028C2NA
	15	42	HMX042C2NA
B	20	54	HMX054C2NA
C	25	68	HMX068C2NA
	30	80	HMX080C2NA
D	40	104	HMX104C2NA
	50	130	HMX130C2NA
	60	154	HMX154C2NA
F	75	192	HMX192C2NA
	100	248	HMX248C2NA

NotesFor Wiring Diagrams, see **Page V6-T2-196**.For NEMA 12 or 3R enclosures, see Catalog Number Selection on **Page V6-T2-183**.

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

HMX_

**480 Vac**

Enclosure Frame Size	Horsepower	Drive Rated NEC Amps	Catalog Number
A	1	2.1	HMX2D1C4NA
	2	3.4	HMX3D4C4NA
	3	5.6	HMX5D6C4NA
	5	7.6	HMX7D6C4NA
	7.5	11	HMX011C4NA
A	10	14	HMX014C4NA
	15	21	HMX021C4NA
	20	27	HMX027C4NA
B	25	34	HMX034C4NA
	30	40	HMX040C4NA
	40	52	HMX052C4NA
C	50	65	HMX065C4NA
	60	77	HMX077C4NA
	75	96	HMX096C4NA
D	100	124	HMX124C4NA
	125	156	HMX156C4NA
	150	180	HMX180C4NA
F	200	240	HMX240C4NA
	250	302	HMX302C4NA

Notes

For Wiring Diagrams, see **Page V6-T2-196**.

For NEMA 12 or 3R enclosures, see Catalog Number Selection on **Page V6-T2-183**.

Call Technical Support for NEMA 3R specifics. Enclosure size and weight differ from NEMA 1 and 12 products.

Onboard Network Communications**Johnson Controls Metasys N2**

H-Max Series provides communication between the drive and a Johnson Controls Metasys™ N2 network. With this connection, the drive can be controlled, monitored and programmed from the Metasys system. N2 can be selected and programmed by the drive keypad.

BACnet

H-Max Series provides communication to BACnet networks. Data transfer is master-slave/token passing (MS/TP) RS-485.

BACnet/IP

100Base-T interface.

Modbus TCP

Ethernet based protocol.

Modbus RTU

H-Max Series provides communication to Modbus RTU RS-485 as a slave on a Modbus network. Other communication parameters include an address range from 1 to 247; a parity of None, Odd or Even; and the stop bit is 1.

H-Max Series Option Board Kits Available for Slots D and E

The H-Max Series drives can accommodate a wide selection of expander and adapter option boards to

customize the drive for your application needs. The drive's control unit is designed to accept a total of two option boards.

The H-Max Series factory-installed standard board configuration includes an I/O board and a relay output board.

Option Boards Mounted in Slots D and E

Option Kit Description	Option Kit Catalog Number
6 x DI /DO, each digital input can be individually programmed as digital output	XXMX-IO-B1-A
1RO Form C (NO/NC), 1RO Form A (NO), 1 thermistor	XXMX-IO-B2-A
1 x AI, 2 x AO (isolated)	XXMX-IO-B4-A
3 x RO Form A (NO)	XXMX-IO-B5-A
1RO Form A (NO), 5DI 42–240 Vac input	XXMX-IO-B9-A
LonWorks	XXMX-COM-C4-A
1 x AO, 1 x DO, 1 x RO	XXMX-IO-BF-A

Extended I/O Options in Slot D and E

Description	Suffix Number
6 x DI /DO, Each digital input can be individually programmed as digital output	B1
1RO (NC/NO), 1RO (NO), 1 Thermistor	B2
1 x AI, 2 x AO (isolated)	B4
3 x RO	B5
1RO (NO), 5 DI 42–240 Vac input	B9
Expander IO, 1 AO, 1 DO, 1 RO	BF

Optional Communications in Slot D and E

Description	Suffix Number
LonWorks	C4

IntelliDisconnect Options

Description	Suffix Number
Pilot lights (Power ON, RUN, Fault)	L3
Fused drive isolation (cannot be used with PE)	P3
Output contactor (cannot be used with P3)	PE
Space heater w/transformer (Type 3R only)	SA

IntelliPass Bypass Options

Description	Suffix Number
Pilot lights (Power ON, RUN, Fault)	L4
Fused drive isolation (can not be used with P6)	P3
Third contactor drive isolation (cannot be used with P3 or IS)	P6
Manual bypass switch located on front door	M1
Space heater w/transformer (Type 3R only)	SA
Auxiliary contacts	K9
Isolation switch	IS

Standard Onboard Communications

Description	Suffix Number
RS-485 Communications	
BACnet MS/TP = Master slave/token protocol (Universal BACnet) RS-485	BACnet
Modbus RTU RS-485, ASCII or RTU, remote terminal unit 32 nodes	Modbus
Johnson Controls Metasys N2 network	N2
Onboard Ethernet-Based Communications (port left side of keypad)	
BACnet/IP Ethernet industrial protocol	BACnet
Modbus/TCP Transmission control protocol (Ethernet-based)	Modbus

Technical Data and Specifications

2

Primary Design Features

Description	IntelliPass	IntelliDisconnect
CB MMP	Standard	Standard
2 contactor bypass	Standard	N/A
Electrical interlock	Standard	N/A
Third contactor (isolation)	Optional	N/A

H-Max Series Drives

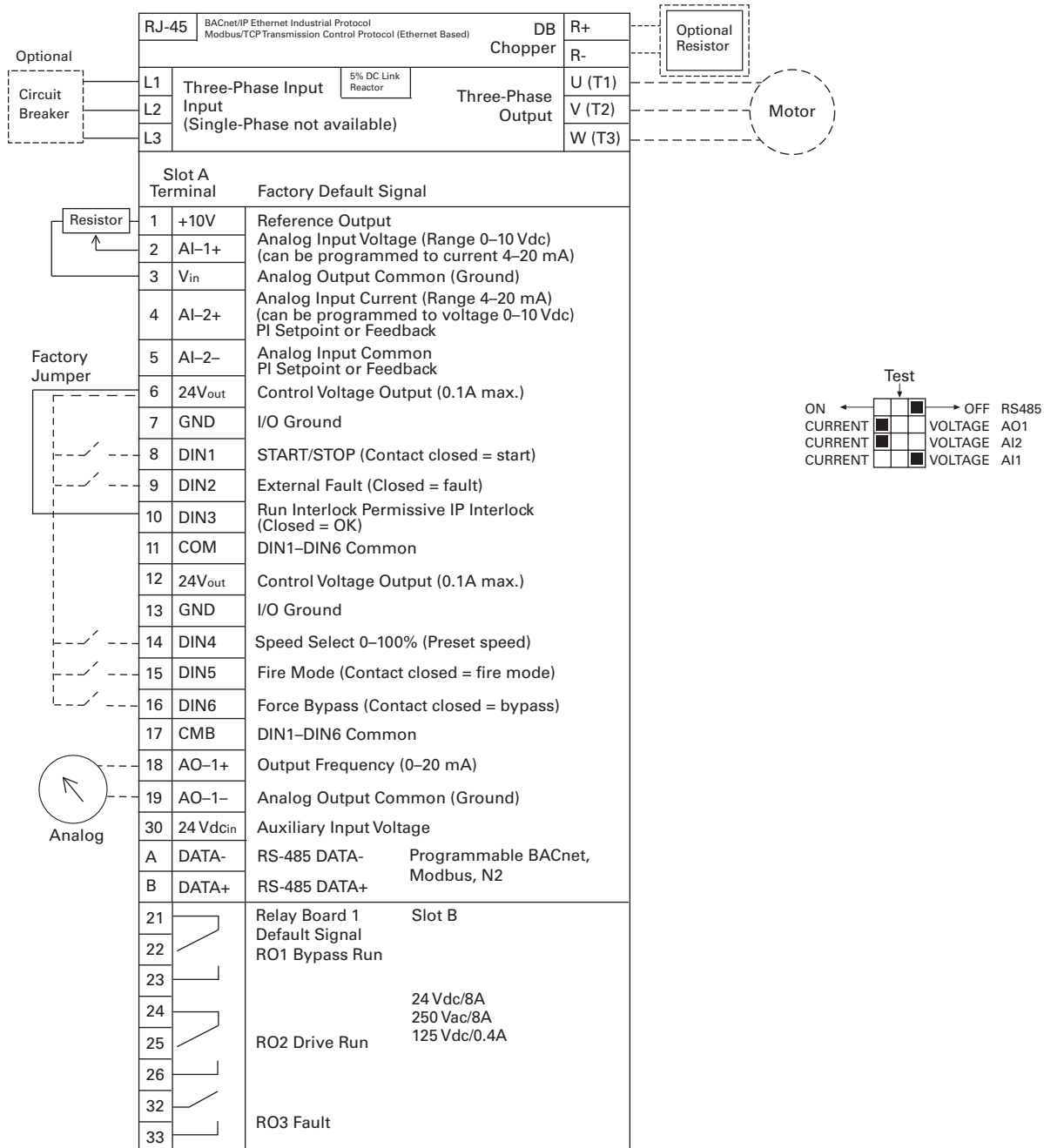
Description	Specification
Input Ratings	
Input voltage (V_{in})	208, 230, 480 Vac, $-10\%/+10\%$
Input frequency (f_{in})	50/60 Hz (variation up to 47–66 Hz)
Connection to power	Once per minute or less (typical operation)
Short-circuit withstand rating	65 kAIC combination
Output Ratings	
Output voltage	0 to V_{in}/U_{in} line voltage in
Continuous output current	Ambient temperature max. 104 °F (40 °C)
I_L overload	1.1 x I_L (1 min./10 min.)
Overload current	110% (1 min./10 min.)
Initial output current	150% for two seconds
Output frequency	0 to 320 Hz
Frequency resolution	0.01 Hz
Control Characteristics	
Control method	Frequency control (V/f) open loop sensorless vector control
Switching frequency	1–310 amps; adjustable with parameter 2.6.9 FS4–FS7: default 6 kHz
Frequency reference	Analog input: Resolution 0.1% (10-bit), accuracy $\pm 1\%$ Panel reference: Resolution 0.01 Hz
Field weakening point	8 to 320 Hz
Acceleration time	0.1 to 3000 seconds
Deceleration time	0.1 to 3000 seconds
Braking torque	DC brake: 30% x T_n
Ambient Conditions	
Ambient operating temperature	FS4–FS7: 14 °F (–10 °C), no frost to 104 °F (40 °C) (Drive can operate at 122 °F (50 °C))
Storage temperature	–40° to 158 °F (–40° to 70 °C)
Relative humidity	0 to 95% RH, noncondensing, non-corrosive, no dripping water
Air quality	Chemical vapors: IEC 60721-3-3, unit in operation, Class 3C2; Mechanical particles: IEC 60721-3-3, unit in operation, Class 3S2
Altitude	100% load capacity (no derating) up to 3280 ft (1000 m); 1% derating for each 328 ft (100 m) above 3280 ft (1000 m); max. 9842 ft (3000 m); 380–480 V
Enclosure class	NEMA Type 1/IP21 or NEMA Type 12/IP54 (keypad required for IP54/Type 12)

Description	IntelliPass	IntelliDisconnect
Isolation switch	Optional	N/A
Top entry (power)	Standard	Standard
Bottom entry (power)	Standard	Standard
Output contactor	Standard	Optional

Description	Specification
Standards	
EMC	Immunity: Fulfills all EMC immunity requirements; Emissions: EN 61800-3, LEVEL H (EMC C2)
Emissions	EMC level dependent— +EMC 2: EN61800-3 (2004) Category C2 Delivered with Class C2 EMC filtering as default.
Control Connections	
Analog input voltage	0 to 10 V, $R = 200$ kohms differential Resolution 0.1%; Accuracy $\pm 1\%$ DIP switch selection (voltage/current)
Analog input current	0(4) to 20 mA; R_i –250 ohms differential
Digital inputs (6)	Positive or negative logic; 18 to 30 Vdc
Auxiliary voltage	+24 V $\pm 10\%$, max. load 250 mA
Output reference voltage	+10 V $+3\%$, max. load 10 mA
Analog output	0–10 V, 0(4) to 20 mA; R_L max. 500 ohms; Resolution 10 bit; Accuracy $\pm 2\%$; DIP switch selection (voltage/current)
Relay outputs	IntelliDisconnect: 2 programmable, 1 Form C, 1 Form A IntelliPass: 1 programmable, 1 Form A With L3 or L4 option, 1 Form A relay is used Switching capacity: 24 Vdc/8 A, 250 Vac/8 A, 125 Vdc/0.4 A
Hard wire jumper	Between terminal 6 and 10 factory default
DIP switch setting default	RS-485 = off A01 = current A12 = current A11 = voltage
Protections	
Overcurrent protection	Yes
Overvoltage protection	Yes
DC bus regulation anti-trip	Yes (accelerates or decelerates the load)
Undervoltage protection	Yes
Earth fault protection	Yes (in case of earth fault in motor or motor cable, only the frequency converter is protected)
Input phase supervision	Yes (trips if any of the input phases are missing)
Motor phase supervision	Yes (trips if any of the output phases are missing)
Overtemperature protection	Yes
Motor overload protection	Yes
Motor stall protection	Yes
Motor underload protection	Yes
Short-circuit protection	Yes
Surge protection	Yes (varistor input)
Conformed coated (varnished) board	Yes (prevents corrosion)

Wiring Diagrams

Control Input/Output, PID Application

**Standards**

- Digital inputs D1–D6, relay out, analog in/out are freely programmed
- The user can assign a single input to multiple functions

Includes

- Six digital input
- Two analog input
- One analog output
- Three relay outputs (2 relays are factory wired for bypass operation in IntelliPass configurations)
- RS-485
- Ethernet

Reliability

- Pretested components
- Conformal coated (varnished) boards
- 40 °C rated
- 110% overload for one minute
- Eaton Electrical Services & Systems national network of AF drive specialists

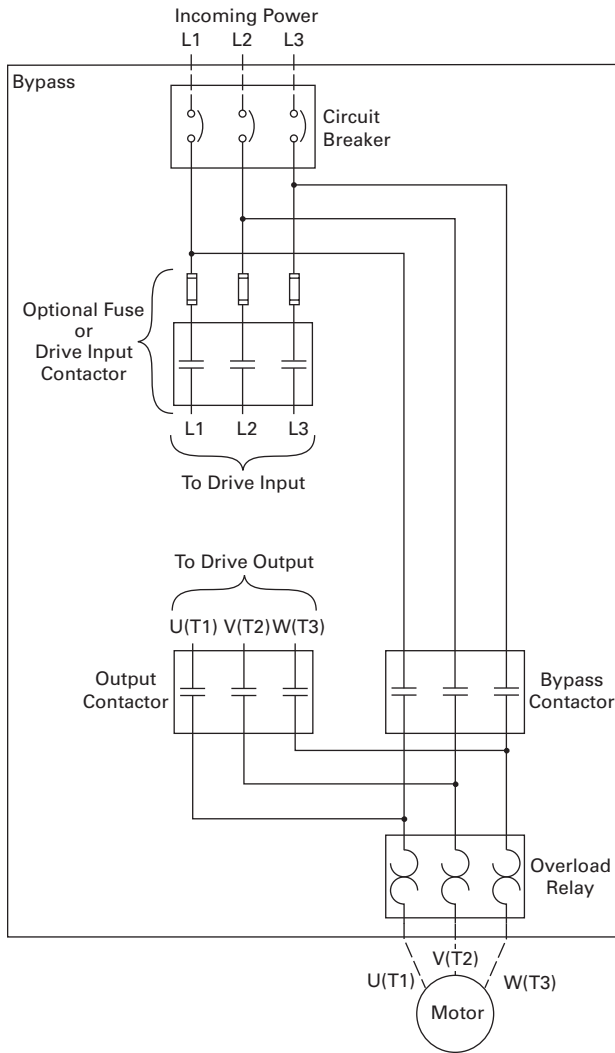
2.8

Adjustable Frequency Drives

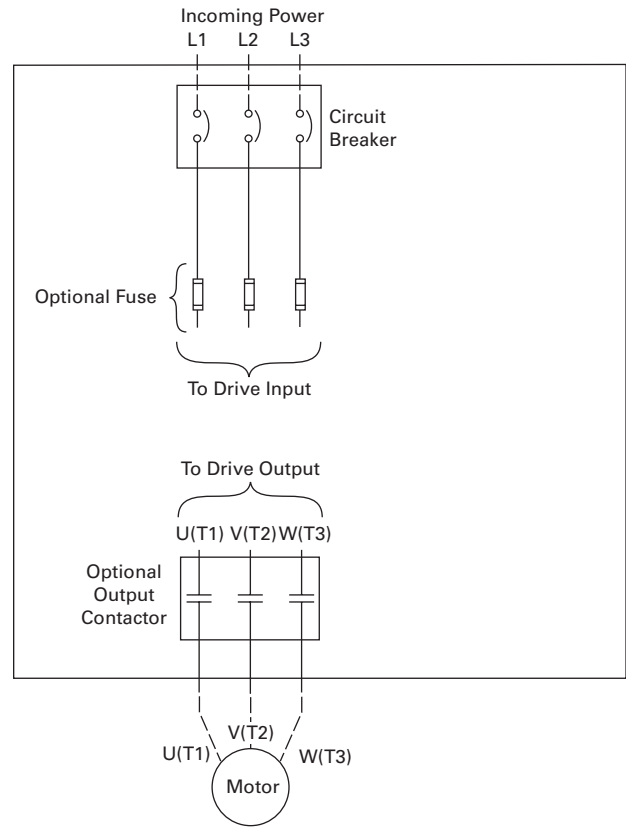
H-Max Series Drives

2

H-Max Series IntelliPass

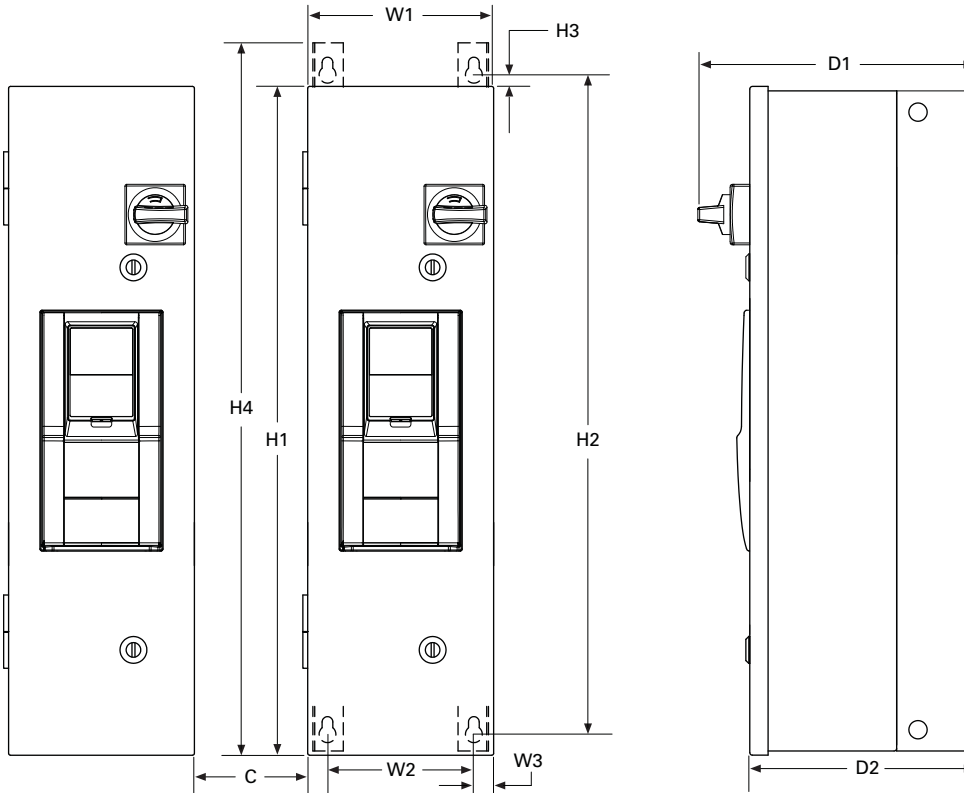


H-Max Series IntelliDisconnect Power Wiring



Dimensions

Approximate Dimensions in Inches (mm)

H-Max Series IntelliPass and IntelliDisconnect Drives

Distance to mount multiple drives.

	Top	Bottom
FR4	4.00 (101.6)	2.00 (50.8)
FR5	4.75 (120.7)	2.50 (63.5)
FR6	6.50 (165.1)	3.25 (82.6)
FR7	10.00 (254.0)	4.00 (101.6)

Consult factory or use manual for final dimensions.

Frame Size	Voltage	Horsepower (I _L)	H1	H2	H3	H4	C	W1	W2	W3	D1	D2	Weight in Lbs (kg)
FS4	208	1–3	30.00 (762.0)	29.41 (747.1)	0.25 (6.35)	31.00 (787.4)	3.00 (76.2)	7.88 (200.2)	6.25 (158.8)	0.75 (19.1)	12.49 (317.2)	10.36 (263.1)	45 (20.41)
	230	1–3											
	480	1–7.5											
FS5	208	5–10	37.00 (939.8)	36.72 (932.7)	0.25 (6.35)	38.31 (973.0)	3.00 (76.2)	9.60 (243.8)	7.97 (202.4)	0.75 (19.1)	15.35 (390.0)	13.22 (335.8)	57.5 (26.10)
	230	5–10											
	480	10–20											
FS6	208	15–20	45.45 (1154.4)	44.81 (1138.2)	0.25 (6.35)	46.4 (1178.6)	4.00 (101.6)	11.44 (290.6)	9.75 (247.6)	0.75 (19.1)	15.80 (401.3)	13.67 (347.2)	98.0 (44.45)
	230	15–20											
	480	25–40											
FS7	208	25–30	58.51 (1486.2)	57.87 (1470.0)	0.25 (6.35)	59.46 (1510.3)	5.00 (127.0)	14.52 (368.8)	12.83 (325.9)	0.75 (19.1)	15.68 (398.3)	13.72 (348.5)	165.0 (74.84)
	230	25–30											
	480	50–75											

Note: C distance is spacing required to mount multiple drives.

2.8

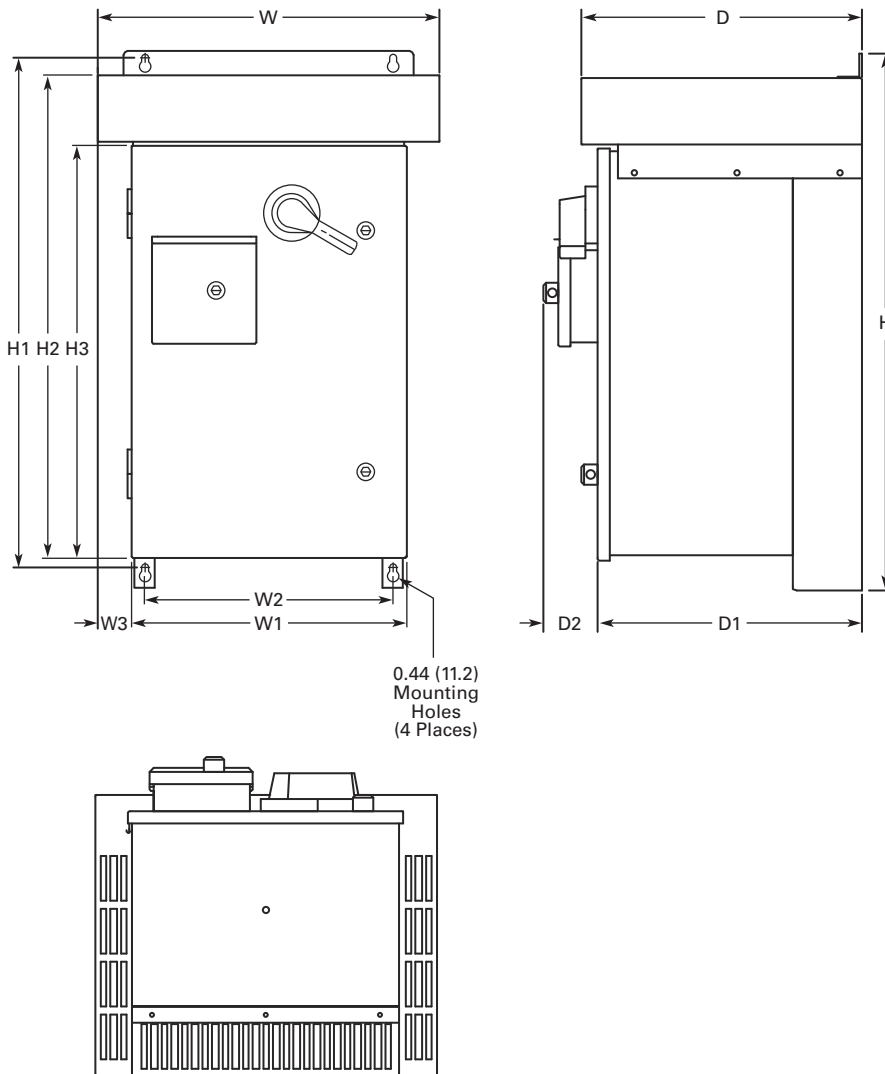
Adjustable Frequency Drives

H-Max Series Drives

Approximate Dimensions in Inches (mm)

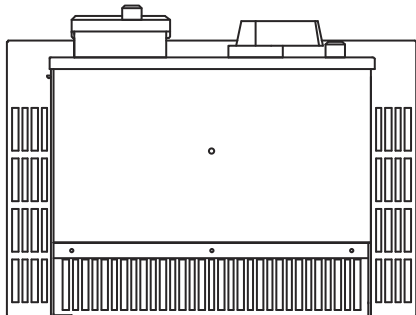
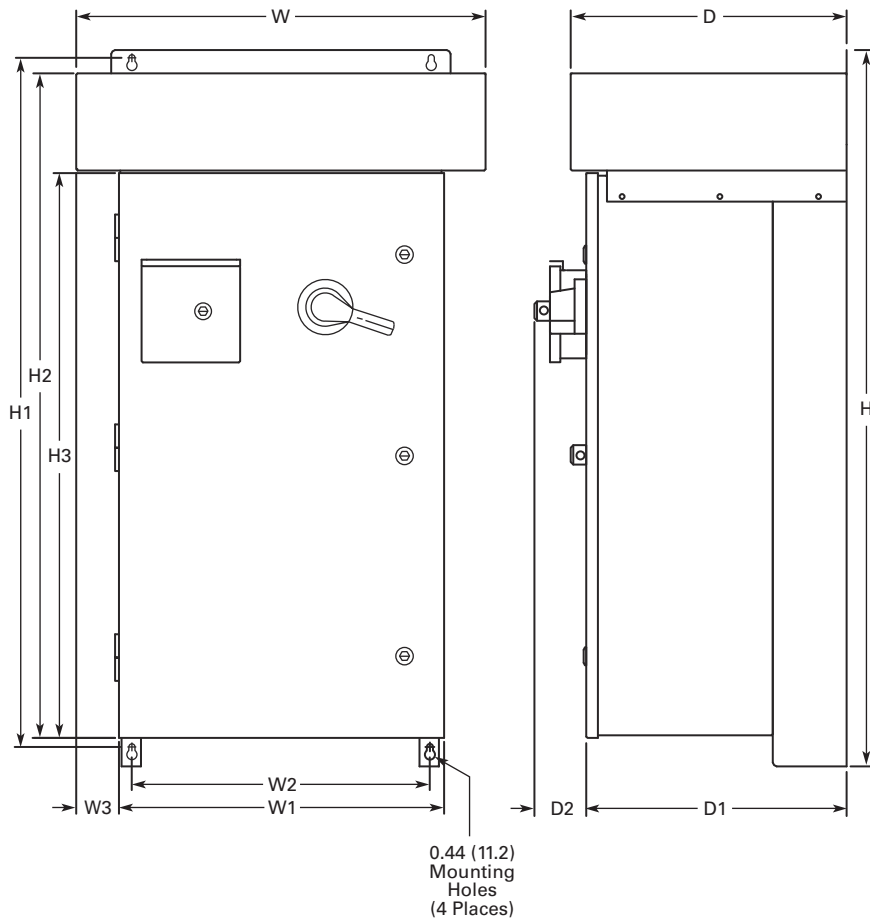
Enclosure Box A NEMA Type 3R

2



Voltage AC	hp (I _L)	H	H1	H2	H3	W	W1	W2	W3	D	D1	D2	Approx. Weight Lbs (kg)	Approx. Shipping Weight Lbs (kg)
Three-Phase														
208 V	1-10	33.00 (838.2)	31.36 (796.5)	29.67 (753.6)	25.35 (643.9)	21.05 (534.7)	16.92 (429.8)	15.30 (388.6)	2.07 (52.6)	17.24 (437.9)	16.26 (413.0)	3.31 (84.1)	170 (77)	215 (98)
230 V	1-10													
480 V	1-20													

Approximate Dimensions in Inches (mm)

Enclosure Box B NEMA Type 3R

Voltage AC	hp (I _L)	H	H1	H2	H3	W	W1	W2	W3	D	D1	D2	Approx. Weight Lbs (kg)	Approx. Shipping Weight Lbs (kg)
Three-Phase														
208 V	15	46.09 (1170.7)	44.45 (1129.0)	42.77 (1086.4)	36.35 (923.3)	26.31 (668.3)	20.92 (531.4)	19.30 (490.2)	2.69 (68.3)	17.74 (450.6)	16.76 (425.7)	3.31 (84.1)	235 (107)	290 (132)
230 V	15													
480 V	25-40													

2.8

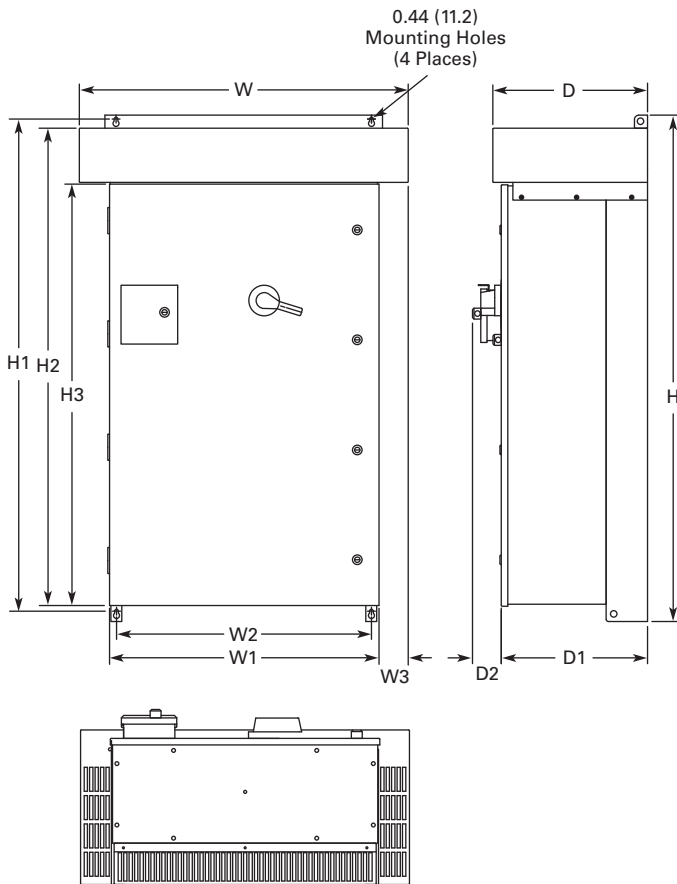
Adjustable Frequency Drives

H-Max Series Drives

Approximate Dimensions in Inches (mm)

Enclosure Box C NEMA Type 3R

2



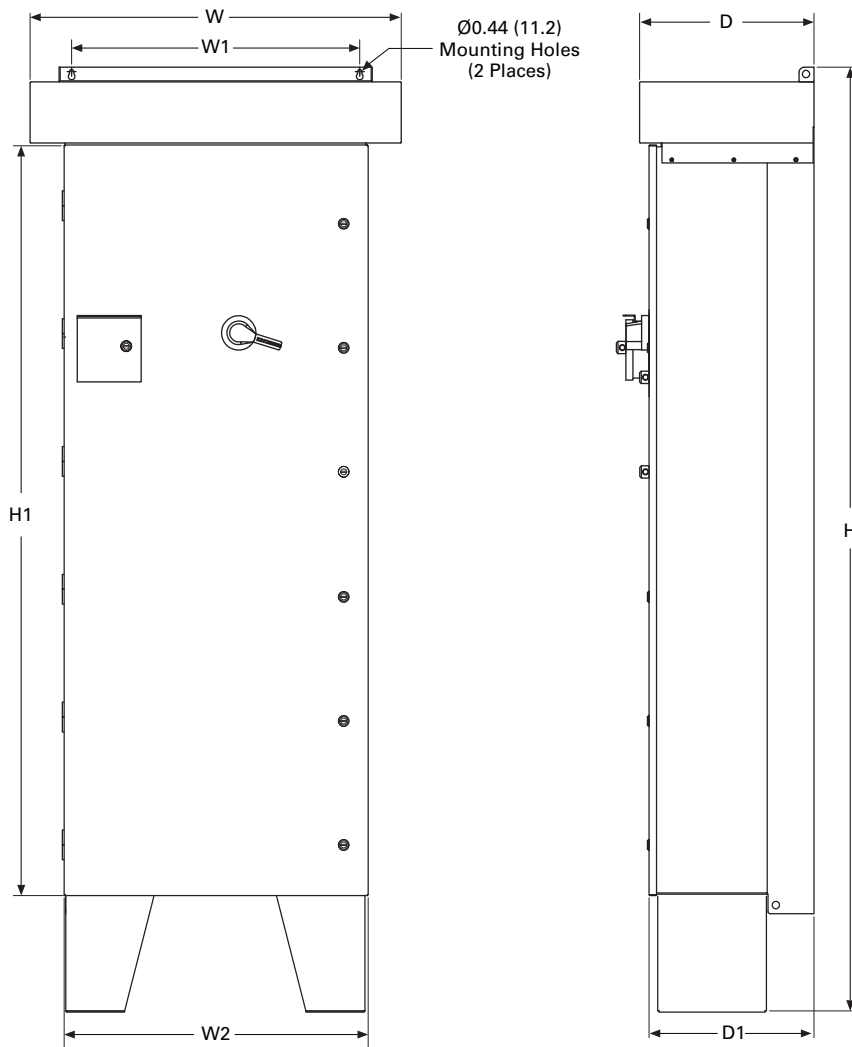
Voltage AC	hp (I _L)	H	H1	H2	H3	W	W1	W2	W3	D	D1	D2	Approx. Weight Lbs (kg)
Three-Phase													
208	20–30	58.09 (1475.5)	56.45 (1433.8)	54.77 (1391.2)	48.35 (1228.1)	37.73 (958.3)	30.92 (785.4)	29.30 (744.2)	3.34 (84.8)	17.74 (450.6)	16.77 (426.0)	3.31 (84.1)	①
230	20–30												
480	50–75												

Note

① Consult factory.

Approximate Dimensions in Inches (mm)

Enclosure Box D



Voltage AC	hp (I _L)	H	H1	W	W1	W2	D	D1	Approx. Weight Lbs (kg)
NEMA Type 12									
208	40–60	80.00	76.27	31.00	29.30	30.92	16.76	16.76	850
230	40–75	(2032.0)	(1937.3)	(787.4)	(744.2)	(785.4)	(425.7)	(425.7)	(386)
480	100–150								
NEMA Type 3R									
208	40–60	96.00	76.27	37.73	29.30	30.92	17.74	16.76	900
230	40–75	(2438.4)	(1937.3)	(958.3)	(744.2)	(785.4)	(450.6)	(425.7)	(409)
480	100–150								

2.8

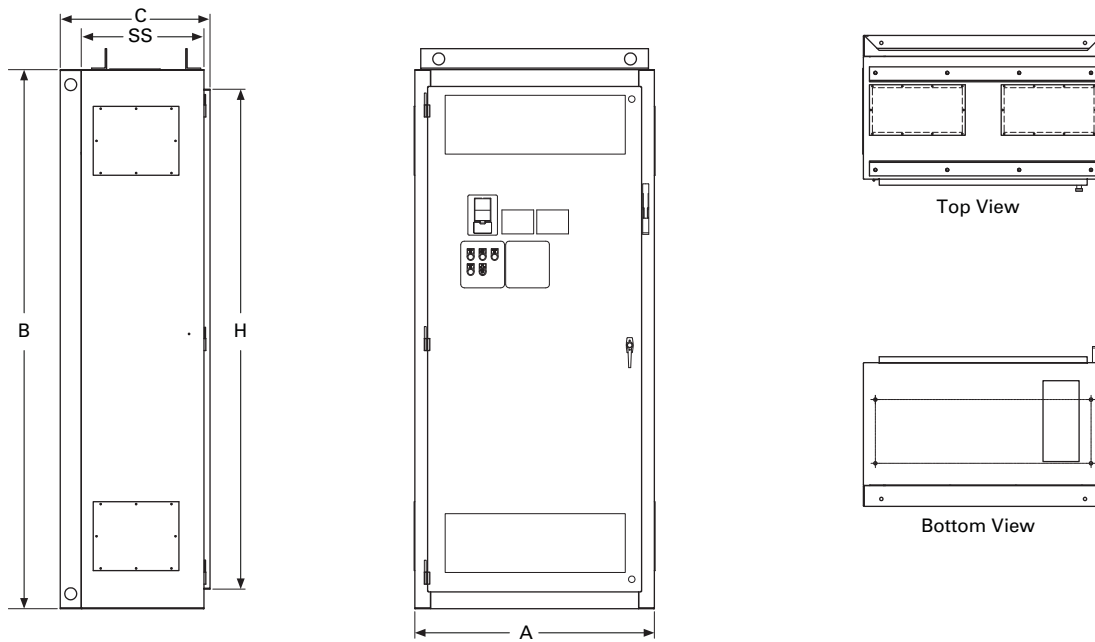
Adjustable Frequency Drives

H-Max Series Drives

Approximate Dimensions in Inches (mm)

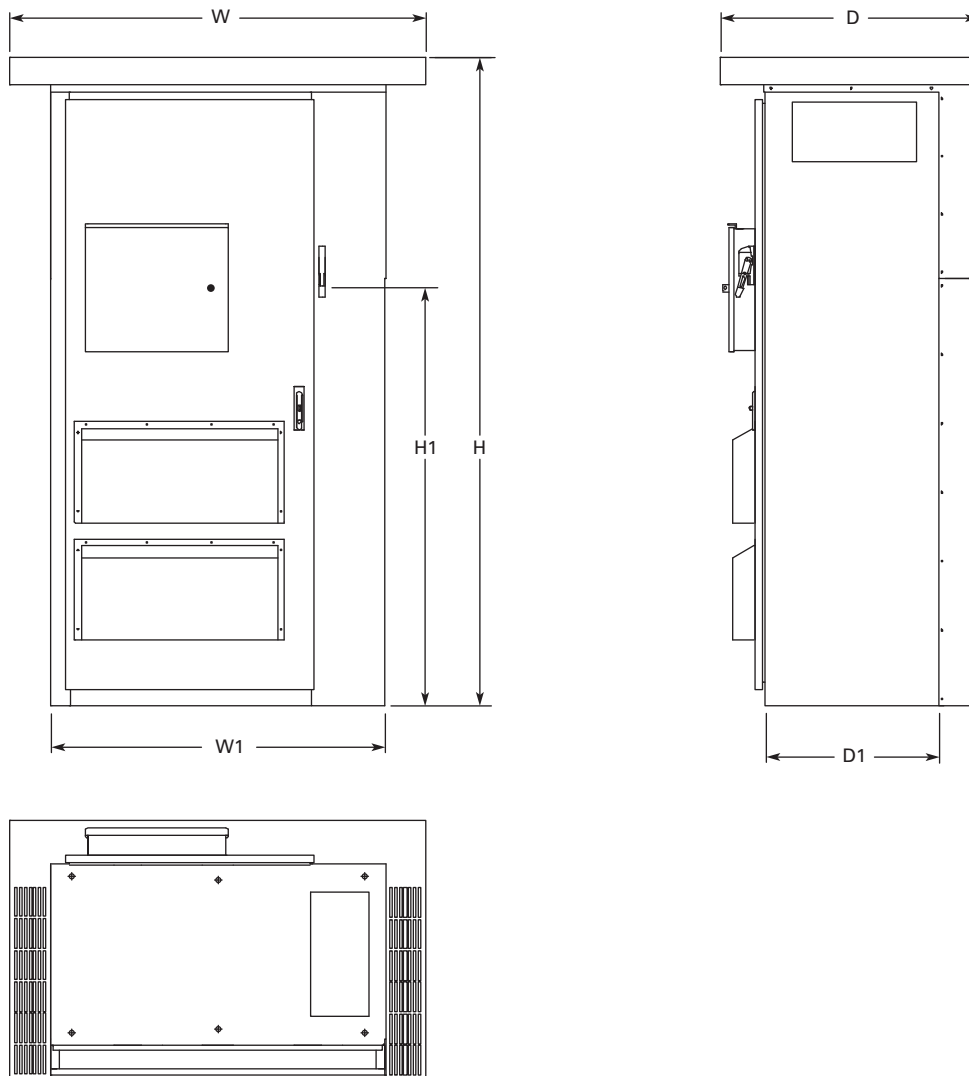
Enclosure Box 5

2



Voltage AC	hp (I _L)	Wide A	High B	Deep C	SS	Mounting D	D1	F	G	Door Height (H)	Approx. Weight Lbs (kg)
Three-phase											
208	75-100	40.00 (1016.0)	90.00 (2286.0)	25.00 (635.0)	20.50 (520.7)	36.00 (914.4)	2.00 (50.8)	8.00 (203.2)	10.80 (274.3)	83.45 (2119.6)	1275 (578)
230	100										
480	200-250										

Approximate Dimensions in Inches (mm)

Enclosure Box F

Voltage AC	hp (I _L)	H	H1	W	W1	D	D1	Approx. Weight Lbs (kg)
Three-Phase								
208	75–100	93.58 (2377.0)	69.51 (1765.5)	60.00 (1524.0)	48.00 (1219.2)	37.50 (952.5)	26.00 (660.4)	1700 (772)
230	100							
480	200–250							