

MCH Series Drive/Option Box Package

2 - 250 Hp



DESCRIPTION

The MCH Series variable frequency drive has been specifically designed for HVAC loads such as fans, pumps and cooling towers. The application specific keypad offers easy operation. Features especially useful for fan or pump applications include:

- HOA keys to mimic traditional Hand, Off, and Auto functions
- PID set point control
- Hour and kWh meters
- 32 character plain English backlit LCD display with adjustable viewing angle

The MCH Series is available with an Option Box that allows options such as input disconnect switch, input fuses, and/or input line reactor to be added to the drive. These options are factory assembled and wired in a NEMA 1 enclosure.

Refer to data sheet #DS-MH for more information on the basic MCH drive.

MCH Drive equipped with Line Reactor, Disconnect, and Fuses

GENERAL MCH/OPTION BOX PACKAGE FEATURES

DESIGN FEATURES

- 32 character, plain English, backlit LCD display with adjustable contrast
- Keypad with HOA functionality
- Speed reference sources:
 - 0-10 VDC (scalable)
 - 4-20 mA (scalable)
 - speed pot (scalable)
 - preset speeds (4 available)
 - keypad
- Loss of follower: fault or go to preset speed
- Analog outputs: two available
 - 0-10 VDC or 2-10 VDC (scalable)
 - proportional to speed and load
- Digital outputs:
 - two Form C relays
 - two open-collector outputs
- PID setpoint control
- RS-485 serial comm. (Modbus RTU)
- Password protection of parameters
- Surface mount technology
- UL, cUL, and CSA listed

SERVICE CONDITIONS

- Enclosure: NEMA Type 1
- Storage Temperature: -20°C to 70°C
- Ambient Operating Temp: -10°C to 40°C
- Ambient Humidity: Up to 95% (non-condensing)
- Altitude: 3300 ft/1000 m above sea level (higher with derating)

PERFORMANCE FEATURES

- Ratings:
 - 1 to 60 Hp at 240/200 Vac
 - 1 to 250 Hp at 480/400 Vac
 - 1 to 60 Hp at 590/480 Vac
- Accel time: 0.1 to 3600 seconds
- Decel time: 0.1 to 3600 seconds
- Current limit: adjustable up to 120%
- Carrier frequency: 2.5 kHz to 14 kHz
- Sleep Mode with adjustable threshold and time
- Adjustable Volts/Hz ratio
- DC injection braking: adjustable voltage and time
- Skip frequencies: two available with adjustable bandwidth (up to 10 Hz)
- Output frequency: 0-120 Hz
- Analog input filter: adjustable
- Start options:
 - Start upon application of power
 - Auto restart after fault (5 attempts)
 - Flying restart to catch a spinning motor
- 500 ms power loss ride-through

DRIVE OPTIONS

- Door interlocked disconnect switch or circuit breaker
- Input fuses
- Input line reactor (std on some models)
- Popular protocols such as MetaSys, LONWorks, BACnet, and Siemens P1

PROTECTIVE FEATURES

- 120% overload capacity for 60 seconds
- Overvoltage & undervoltage faults
- Output short circuit fault
- Phase to ground fault
- Phase to phase fault
- Electronic thermal overload
- Current limit: adjustable up to 120%
- Overtemperature fault
- External fault input for safety interlocks

ELECTRICAL SPECIFICATIONS

- Input voltage ratings: 240/200 Vac, 480/400 Vac, 590/480 Vac
- Input voltage tolerance: +10%, -15%
- Input frequency tolerance: 48 to 62 Hz
- Input phase sequence insensitive
- Output frequency: 0-120 Hz
- Output wave form: Sine-coded PWM
- Efficiency: > 97% over speed range
- Power factor (displacement): > 0.96

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DS-MHOB-OHOF

MCH Series Drive/Option Box Package

Option Box Features, Power Schematic, and Dimensions

OPTION BOX STANDARD FEATURES

- All customer wiring terminates in Option Box compartment; no need to access drive compartment.
- Two programmable Form C relays and two open-collector outputs.

AVAILABLE OPTIONS

- Door interlocked disconnect switch or circuit breaker
- Input fuses
- Input line reactor (standard on some models, see below)

HP	INPUT VOLTAGE	OUTPUT CURRENT	MODEL NUMBER	NEMA 1 DIMENSIONS		
				H	W	D
2	240 / 200	6.8	MH220BF	25.2	8.3	8.3
	480 / 400	3.4	MH420BF	25.2	8.3	8.3
	590 / 480	2.7	MH520BF	25.2	8.3	8.3
3	240 / 200	9.6	MH230BF	25.2	8.3	8.3
	480 / 400	4.8	MH430BF	25.2	8.3	8.3
	590 / 480	3.9	MH530BF	25.2	8.3	8.3
5	240 / 200	15.2	MH250BF	30.6	10.0	10.0
	480 / 400	7.6	MH450BF	25.2	8.3	8.3
	590 / 480	6.1	MH550BF	30.6	10.0	10.0
7.5	240 / 200	22	MH275BF	32.1	10.0	10.0
	480 / 400	11.0	MH475BF	32.1	10.0	10.0
	590 / 480	9.0	MH575BF	32.1	10.0	10.0
10	240 / 200	28	MH2100BF	34.0	10.0	10.0
	480 / 400	14.0	MH4100BF	32.1	10.0	10.0
	590 / 480	11.0	MH5100BF	32.1	10.0	10.0
15	240 / 200	42	MH2150BF	35.5	10.0	10.0
	480 / 400	21	MH4150BF	34.0	10.0	10.0
	590 / 480	17.0	MH5150BF	35.5	10.0	10.0
20	240 / 200	54	MH2200BF	37.5	12.4	10.8
	480 / 400	27	MH4200BF	35.5	10.0	10.0
	590 / 480	22	MH5200BF	35.5	10.0	10.0
25	240 / 200	68	MH2250BF	48.5	12.4	12.2
	480 / 400	34	MH4250BF	37.5	12.4	10.8
	590 / 480	27	MH5250BF	37.5	12.4	10.8
30	240 / 200	80	MH2300BF	48.5	12.4	12.2
	480 / 400	40	MH4300BF	37.5	12.4	10.8
	590 / 480	32	MH5300BF	37.5	12.4	10.8
40	240 / 200	104	MH2400BF*	55.5	19.6	13.2
	480 / 400	52	MH4400BF	40.5	12.4	10.8
	590 / 480	41	MH5400BF	40.5	12.4	10.8
50	240 / 200	130	MH2500BF*	55.5	19.6	13.2
	480 / 400	65	MH4500BF	52.5	12.4	12.2
	590 / 480	52	MH5500BF	52.5	12.4	12.2
60	240 / 200	154	MH2600BF*	59.5	19.6	13.2
	480 / 400	77	MH4600BF	52.5	12.4	12.2
	590 / 480	62	MH5600BF	52.5	12.4	12.2
75	240 / 200	96	MH4750BF*	59.5	19.6	13.2
100	480 / 400	124	MH41000BF*	59.5	19.6	13.2
125	480 / 400	156	MH41250BF*	59.5	27.4	13.2
150	480 / 400	180	MH41500BF*	59.5	27.4	13.2
200	480 / 400	240	MH42000BF*	59.5	39.6	13.2
250	480 / 400	300	MH42500BF*	59.5	39.6	13.2

* Input line reactor is standard.

