

Nidec

Drives

Unidrive M608

Industrial general-purpose drive



Unidrive M608

Advanced Motor Control

0.75-110 kW (HEAVY DUTY) 400 V | 690 V

Motor Controls:

Asynchronous motors (Open-loop, RFC-A Sensorless, RFC-A)
Synchronous reluctance motors (Open-loop)

Encoder Support

AB (Incremental)
Resolver (2 to 30 Poles)
SSI (Absolute)

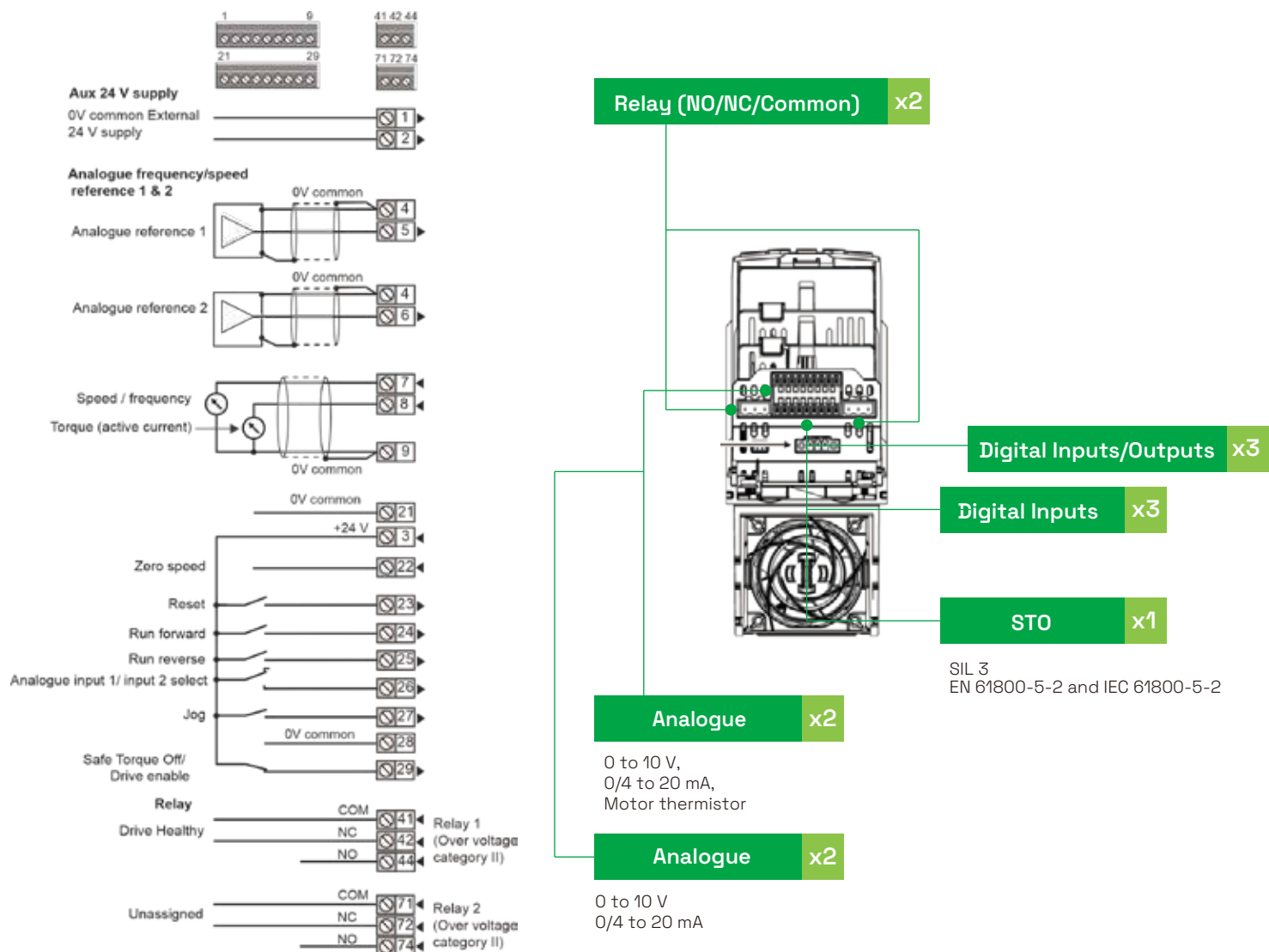
Key Benefits:

- Built-in position and velocity feedback interface
- Enables multi-motor load balancing
- Built in AMC function for relative position, absolute position, and position profiles
- On-board PLC
- On-board Ethernet/PROFINET multi protocol
- Supports three expansion cards



Unidrive M608

Wiring Terminals



- No 10V Power Supply
- 2 x analogue inputs for unipolar current or unipolar single-ended analogue voltage
- 2 x analogue outputs (motor active current) as unipolar single-ended analogue voltage or unipolar current
- 2 x Relay : 3xTerminal with Normally Open and Normally Closed Contacts

Unidrive M608

Specification

Environmental safety and electrical conformance	
IP20 / NEMA1 / ULTYPE1 (ULopen category as standard, additional kit required for Type 1)	
Frames 3 to 8 achieve IP65 / NEMA4 / UL TYPE 12 rating on the rear of the drive when through panel mounted	
Frames 9 achieve IP55 / NEMA4 / UL TYPE 12 rating on the rear of the drive when through panel mounted	
Ambient temperature -20 °C to 40 °C (-4 °F to 104 °F) as standard. Up to 55 °C (131 °F) with derating	
Humidity 95 % maximum (non-condensing) at 40 °C (104 °F)	
Altitude: 0 to 3000 m (9900 ft), derate 1 % per 100 m (330 ft) between 1000 m (3300 ft) and 3000 m (9900 ft)	
Random vibration: Tested in accordance with IEC60068-2-64	
Mechanical shock tested according to IEC60068-2-29	
Storage temperature -40 °C to 55 °C (-40 °F to 131 °F) or up to 70 °C (158 °F) for short-term storage	
Electromagnetic immunity complies with EN 61800-3 and EN 61000-6-2	
On-board EMC filter according to EN 61800-3 (second environment)	
EN/IEC 61000-6-3 and EN/IEC 61000-6-4 with optional footprint EMC filter	
EN/IEC61800-5-1 (Electrical Safety)	
EN/IEC61131-21/0	
Safe Torque Off, independently assessed by TÜV to IEC 61800-5-2 SIL 3 and EN ISO 13849-1 PL e	
UL508C (Electrical Safety)	

Features and Specification	
Performance	Current loop update time: 62 µs
	Heavy load peak rating: 200 % (3 s)
	Maximum output frequency: 599 Hz (Open Loop), 550 Hz (RFC-A)
	Switching frequency range: 2, 3, 4, 6, 8, 12 and 16 kHz (default 3 kHz)
On-board intelligence	High performance current controller
	Programmable Logic Control (PLC)
	Real-time tasks
	Digital Lock Control
On-board communication	Advanced Motion Controller
	EtherNet (2 switching ports): EtherNet/IP, Modbus TCP/IP, RTMoE and PROFINET RT
Mechanical features	Tile mounting on sizes 3, 4, 5
	Unidrive SP compatible mechanical footprint
	Common DC bus connections

Features and Specification

Parameter backup	Ethernet	
	Serial port cloning	
	SD card (using the SD-Card Adaptor)	
	Smartcard reader support	
Feedback	Encoder and resolver feedback inputs	2
	Simulated encoder output	1
	Analogue inputs	2
On-board I/O	Analogue output	2
	Digital inputs	3
	Bi-directional digital inputs or outputs	3
	Relay outputs	2
	Single-channel Safe Torque Off (STO) input, certified to SIL3 / PLe	1
Equipment safety	Mechanical load resonance compensation	
Power and motor control	Wide operating range back-up DC supply	
	24 V control back-up	
	Temperature controlled fan operation with user adjustable speed limit	
Other	User replaceable fan	
	Conformal coating	
	Standby mode (energy saving)	

Overload rating in run mode

Running Mode	RFC Cold start	RFC from 100 %	Open loop from cold	Open loop from 100 %
Normal duty overload with motor rated current = drive rated current	110 % for 165 s	110 % for 9 s	110 % for 165 s	110 % for 9 s
Heavy duty overload with motor rated current = drive rated current (type 8 and below)	200 % continuous 28 s	200 % continuous 3 s	150 % continuous 60 s	150 % continuous 7 s
Heavy duty overload with motor rated current = drive rated current (9A,9E)	170 % continuous 42 s	170 % continuous 5 s	150 % continuous 60 s	150 % continuous 7 s

Unidrive M608

Ordering Guide



Frame Size	Dimintions H x W x D mm (in)	Weight kg (lb)	DC reactor built-in	AC input reactor built-in
3	365×83×200 (14.4×3.3×7.9)	4.5 (9.9)	✓	-
4	365×124×200 (14.4×4.9×7.9)	6.5 (14.3)	✓	-
5	365×143×200 (14.4×5.6×7.6)	7.4 (16.3)	✓	-
6	365×210×227 (14.4×8.3×8.9)	14 (30.9)	✓	-
7	508×270×280 (20×10.6×11.0)	28 (61.7)	✓	-
8	753×310×290 (29.7×12.2×11.4)	52 (114.6)	✓	-
9A	1049×310×290 (41.3×12.2×11.4)	66.5 (146.6)	-	✓
9E	1010×310×290 (41.3×12.2×11.4)	46 (101.4)	-	-

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Frame

Drive type

M608=Multi-protocol

4

Rated voltage

4=400V
6=690V

00078

Rated current (A) :
Heavy load rating X10

A

A=AC in AC out (built-in line choke)

E=AC in AC out (external line choke required)

10100A

B

B = Built-in brake unit
N = Without brake unit

100

380 to 480 VAC+/-10%

Product Code M608	Supply Phase	Maximum Continuous Current (A)	Heavy duty		Maximum Continuous Current (A)	Normal Load	
			Motor Power (kW)	Motor Power (HP)		Motor Power (kW)	Motor Power (HP)
M608-03400025A	3	2.5	0.75	1	3.4	1.1	1.5
M608-03400031A	3	3.1	1.1	1.5	4.5	1.5	2
M608-03400045A	3	4.5	1.5	2	6.2	2.2	3
M608-03400062A	3	6.2	2.2	3	7.7	3	5
M608-03400078A	3	7.8	3	5	10.4	4	5
M608-03400100A	3	10	4	5	12.3	5.5	7.5
M608-04400150A	3	15	5.5	10	18.5	7.5	10
M608-04400172A	3	17.2	7.5	10	24	11	15
M608-05400270A	3	27	11	20	30	15	20
M608-05400300A	3	30	15	20	31	15	20
M608-06400350A	3	35	15	25	38	18.5	25
M608-06400420A	3	42	18.5	30	48	22	30
M608-06400470A	3	47	22	30	63	30	40
M608-07400660A	3	66	30	50	79	37	50
M608-07400770A	3	77	37	60	94	45	60
M608-07401000A	3	100	45	75	112	55	75
M608-08401340A	3	134	55	100	155	75	100
M608-08401570A	3	157	75	125	184	90	125
M608-9402000A/E	3	200	90	150	221	110	150
M608-9402240A/E	3	224	110	150	266*	132	200

500 to 690 VAC+/-10%

Product Code M608	Supply Phase	Maximum Continuous Current (A)	Heavy duty		Maximum Continuous Current (A)	Normal Load	
			Motor Power (kW)	Motor Power (HP)		Motor Power (kW)	Motor Power (HP)
M608-07600190A	3	19	15	20	23	18.5	25
M608-07600240A	3	24	18.5	25	30	22	30
M608-07600290A	3	29	22	30	36	30	40
M608-07600380A	3	38	30	40	46	37	50
M608-07600440A	3	44	37	50	52	45	60
M608-07600540A	3	54	45	60	73	55	75
M608-08600630A	3	63	55	75	86	75	100
M608-08600860A	3	86	75	100	108	90	125
M608-9601040A	3	104	90	125	125	110	125
M608-9601310A	3	131	110	150	155	132	175

Accessories

Ordering Guides

Optional Drive	Ordering Codes	
Connect PC Tool		
Machine Control Studio		
KI – Keypad Plus (For Remote Mounting)		82400000022700
KI-Keypad		82400000016000
KI-Keypad RTC		82400000016300
KI – Keypad Plus (grey)		82400000022700
Remote keypad RTC		82400000019600
Operator Interface (HMI)		eSMART04-MCh040 eSMART07M-MCh070

Drive Programming and Operator Interface Options	Ordering Codes	
Smartcard		2214-0010
SD card using SD Card Adaptor		82400000016400
KI-485		82500000000003

System			Part number
Optional	SI-I/O		82400000017800
	Applications with PLC or Motion Functionality		
	MCi200 Advanced machine control using industry standard IEC61131-3 programming languages		82400000017000
	MCi210 Extended advanced machine control using industry standard IEC61131-3 programming languages with EtherNet/TCP, Modbus TCP/IP, RTMoE		82400000016700
Communication	SI-PROFIBUS		82400000019600
	SI-Ethernet		82400000017500
	SI-DeviceNet		82400000017700
	SI-CANopen		82400000017600
	SI-PROFINET		82500000018200
	SI-Interbus 500kb		82400000021220
	SI-Interbus 2Mb		82400000021230

Auxiliary components	Frame size	Part Number
Heat sink mounted braking resistors	3	1220-2752
	4 and 5	1299-0003
DC bus parallel kit	3	3470-0048
	4	3470-0061
	5	3470-0068
	6	3470-0063
	6 (connected to frame 3, 4 and 5)	3470-0111
Through-hole IP65 kits	3	3470-0053
IP65/UL TYPE 12 rating on the rear of the drive when wall mounted using the following kits	4	3470-0056
	5	3470-0067
	6	3470-0055
	7	3470-0079
	8	3470-0083
IP55 through-hole kit	9A	3470-0119
IP55/UL TYPE 12 rating can be achieved for Types 9A and 9E using the following kits	9E	3470-0105
UL type 1 conduit kit	3 and 4	6521-0071
	5	3470-0069
	6	3470-0059
	7	3470-0080
	8 and 9A	3470-0088
	9E	3470-0115

Auxiliary components	Frame	Part number
These mounting brackets ensure the drive can be mounted on existing Unidrive SP surface mount & Commander SK installations.	4	3470-0062
	5	3470-0066
	6	3470-0074
	7	3470-0078
	8	3470-0087
	9A, 9E	3470-0118
Finger-guard grommet	9	3470-0107
Lifting Tool	8 and 9A	7778-0045
	9E	7778-0016
Fan Replacement Kit	1	3470-0092
	2	3470-0095
	3	3470-0099
	4	3470-0103
Cable grommet kit	7	3470-0086
IP55 / UL TYPE 12 rating can be achieved for frame sizes 9A and 9E using the following kits:	8- Single cable	3470-0089
UL1 Class 1 standard conduit kits	8- Dual cable	3470-0090
	9A, 9E	3470-0107
Tile mount kit	3	3470-0049
	4	3470-0060
	5	3470-0073
General kit items	Keypad blanking cover (10 pieces in pack)	3470-0058
	Frame size 3 & 4 power connector split kit	3470-0064
	Discrete Kits	3000-0009

Auxiliary components	Frame	Part number
Optional external EMC filter		
Unidrive M built-in EMC filter complies with EN 61800-3. External EMC filters are required for compliance with EN 61000-6-4.	3 - 400 V	4200 - 3480
	4 - 400 V	4200 - 0252
	5 - 400 V	4200 - 0402
	6 - 400 V	4200 - 4800
	7 - 400 V	4200 - 1132
	7 - 690 V	4200 - 0672
	8 - 400 V	4200 - 1972
	8 - 690 V	4200 - 1662
	9A - 400 V	4200 - 3021
	9A - 690 V	4200 - 1660
	9E - 400 V	4200 - 4460



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Nidec, the world's leading motor brand

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