

# UNIDRIVE

# SPECIFICATIONS

## Environmental safety and electrical conformance

IP20 / NEMA1 / UL TYPE 1 (UL open class as standard, additional kit needed to achieve 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, 10 & 11 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 IEC 60068-2-64
Mechanical Shock Tested in accordance with IEC 60068-2-29
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
With onboard EMC filter, complies with EN 61800-3 (2nd environment)
EN/IEC 61000-6-3 and EN/IEC 61000-6-4 with optional footprint EMC filter
EN/IEC 61800-5-1 (Electrical Safety)
EN/IEC 61131-2 I/O
Safe Torque Off, independently assessed by TÜV to IEC 61800-5-2 SIL3 and EN ISO 13849-1 PLe
UL 508C (Electrical Safety)

## Features and specification table

		M600	M700	M701	M702
Performance	Current loop update: 62 µs	✓	✓	✓	✓
	Heavy Duty peak rating: 200 % (3 s)	✓	✓	✓	✓
	Maximum output frequency: 599 Hz (open loop), 550 Hz (RFC-A & RFC-S)	✓	✓	✓	✓
	Switching frequency range: 2, 3, 4, 6, 8, 12, 16 kHz (3 kHz default)	✓	✓	✓	✓
	High performance current controllers	-	✓	✓	✓
On-board intelligence	Programmable Logic Control (PLC)	✓	✓	✓	✓
	Real-time tasks	✓	✓	✓	✓
	Digital lock control	✓	✓	✓	✓
	Advanced Motion Controller	-	✓	✓	✓
On-board comms	Ethernet (2 switched ports): EtherNet/IP, Modbus/TCP, RTMoE and PROFINET RT	-	✓	-	✓
	RS485: Modbus RTU	✓	-	✓	-
Mechanical attributes	Tile mounting on sizes 3, 4, 5	✓	✓	✓	✓
	Unidrive SP compatible mechanical footprint	✓	✓	✓	✓
	Common DC bus connections	✓	✓	✓	✓

Features and specification table		M600	M700	M701	M702
Parameter back-up	Ethernet	-	✓	-	✓
	Serial port cloning	✓	✓	✓	✓
	SD card (using SD-Card Adaptor)	✓	✓	✓	✓
	Smartcard reader support	✓	✓	✓	✓
	Electronic motor nameplate parameter storage (HIPERFACE, EnDat 2.2)	-	✓	✓	✓
Feedback	Encoder and resolver feedback input	-	2	2	2
	Simulated encoder output	-	1	1	1
	Optional SI-Encoder/SI-Universal Encoder	✓	✓	✓	✓
On-board I/O	Analogue input	3	3	3	-*
	Analogue output	2	2	2	-
	Digital input	3	3	3	2*
	Digital output	-	-	-	2
	Bidirectional digital input or output	3	3	3	-
	Relay output	1	1	1	1
Machine Safety	Single-channel Safe Torque Off (STO) input, certified to SIL3 / PLe	✓	✓	✓	-
	Dual-channel Safe Torque Off (STO) inputs, certified to SIL3 / PLe	-	-	-	✓
Power and motor control	Stationary autotune for permanent magnet motors	✓	✓	✓	✓
	Mechanical load resonance compensation	-	✓	✓	✓
	Wide operating range back-up DC supply	✓	✓	✓	✓
	24 V control back-up	✓	✓	✓	✓
Other	Temperature controlled fan operation with user adjustable speed limit	✓	✓	✓	✓
	User replaceable fan(s)	✓	✓	✓	✓
	Conformal coating	✓	✓	✓	✓
	Standby mode (energy saving)	✓	✓	✓	✓

\*Terminal 8 on the Unidrive M702, by default, is set as a digital input but can be configured as a motor protection thermistor input

Overload ratings by operating mode				
Operating mode	RFC from cold	RFC from 100 %	Open loop from cold	Open loop from 100 %
Normal duty overload with motor rated current = drive rated current (size 11 and below)	110 % for 165 s	110 % for 9 s	110% for 165 s	110% for 9 s
Normal duty overload with motor rated current = drive rated current (size 12)	110 % for 180 s	110 % for 10 s	110 % for 180 s	110 % for 10 s
Heavy duty overload with motor rated current = drive rated current (size 9A, 9E, 10, 11)	170 % for 42 s	170 % for 5 s	150 % for 60 s	150% for 7 s
Heavy duty overload with motor rated current = drive rated current (size 12)	140 % for 60 s	140 % for 10 s	140 % for 60 s	140 % for 10 s

# UNIDRIVE

# ORDERING GUIDE



Frame size	Dimensions H x W x D mm (in)	Weight kg (lb)	DC Bus Choke/AC Line Choke	
			Internal	External
3	365 x 83 x 200 (14.4 x 3.3 x 7.9)	4.5 (9.9)	✓	-
4	365 x 124 x 200 (14.4 x 4.9 x 7.9)	6.5 (14.3)	✓	-
5	365 x 143 x 200 (14.4 x 5.6 x 7.6)	7.4 (16.3)	✓	-
6	365 x 210 x 227 (14.4 x 8.3 x 8.9)	14 (30.9)	✓	-
7	508 x 270 x 280 (20 x 10.6 x 11.0)	28 (61.7)	✓	-
8	753 x 310 x 290 (29.7 x 12.2 x 11.4)	52 (114.6)	✓	-
9A	1049 x 310 x 290 (41.3 x 12.2 x 11.4)	66.5 (146.6)	✓	-
9E	1010 x 310 x 290 (41.3 x 12.2 x 11.4)	46 (101.4)	-	✓
10E	1010 x 310 x 290 (41.3 x 12.2 x 11.4)	46 (101.4)	-	✓
11E	1190 x 310 x 312 (46.9 x 12.2 x 12.3)	63 (138.9)	-	✓
12	1750 x 295 x 526 (68.9 x 11.6 x 20.7)	130 (286.6)	-	✓

## PRODUCT CODE STRUCTURE

**M700**    **03**    **4**    **0073**    **A**    **10100A**    **B**    **100**

Drive Range    Frame Size    Voltage Rating    Current Rating (A): Heavy Duty Rating x 10    A = AC in AC out (with internal line choke)    B = Brake Transistor included  
D = DC in AC out (inverter)    N = No Brake Transistor  
E = AC in AC out (external line choke required)  
T = AC in AC out (12 pulse rectifier plus inverter)

M700 = Multi-protocol  
M701 = RS485 Modbus RTU  
M702 = Safety enhanced  
M600 = Open loop  
M000 = Unassigned power module\*

2 = 200 V  
4 = 400 V  
5 = 575 V  
6 = 690 V

\* Frame Size 12 is only available in this format and must have a control module added.

UNIDRIVE

# MODEL NUMBER AND RATINGS

## 200/240 VAC +/-10%

Product Code M600/M700/M701/M702	Supply Phases	Heavy Duty			Normal Duty		
		Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)
Mxxx - 03200050A	3	5	0.75	1	6.6	1.1	1.5
Mxxx - 03200066A	3	6.6	1.1	1.5	8	1.5	2
Mxxx - 03200080A	3	8	1.5	2	11	2.2	3
Mxxx - 03200106A	3	10.6	2.2	3	12.7	3	3
Mxxx - 04200137A	3	13.7	3	3	18	4	5
Mxxx - 04200185A	3	18.5	4	5	24	5.5	7.5
Mxxx - 05200250A	3	25	5.5	7.5	30	7.5	10
Mxxx - 06200330A	3	33	7.5	10	50	11	15
Mxxx - 06200440A	3	44	11	15	58	15	20
Mxxx - 07200610A	3	61	15	20	75	18.5	25
Mxxx - 07200750A	3	75	18.5	25	94	22	30
Mxxx - 07200830A	3	83	22	30	117	30	40
Mxxx - 08201160A	3	116	30	40	149	37	50
Mxxx - 08201320A	3	132	37	50	180	45	60
Mxxx - 09201760A	3	176	45	60	216	55	75
Mxxx - 09202190A	3	219	55	75	266	75	100
Mxxx - 09201760E	3	176	45	60	216	55	75
Mxxx - 09202190E	3	219	55	75	266	75	100
Mxxx - 10202830E	3	283	75	100	325	90	125
Mxxx - 10203000E	3	300	90	125	360	110	150

## 380/480 VAC +/-10%

Product Code M600/M700/M701/M702	Supply Phases	Heavy Duty			Normal Duty		
		Max Cont. Current (A)	Motor Power (kW)	Motor Power (hp)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (hp)
Mxxx - 03400025A	3	2.5	0.75	1	3.4	1.1	1.5
Mxxx - 03400031A	3	3.1	1.1	1.5	4.5	1.5	2
Mxxx - 03400045A	3	4.5	1.5	2	6.2	2.2	3
Mxxx - 03400062A	3	6.2	2.2	3	7.7	3	5
Mxxx - 03400078A	3	7.8	3	5	10.4	4	5
Mxxx - 03400100A	3	10	4	5	12.3	5.5	7.5
Mxxx - 04400150A	3	15	5.5	10	18.5	7.5	10
Mxxx - 04400172A	3	17.2	7.5	10	24	11	15
Mxxx - 05400270A	3	27	11	20	30	15	20
Mxxx - 05400300A	3	30	15	20	31	15	20
Mxxx - 06400350A	3	35	15	25	38	18.5	25
Mxxx - 06400420A	3	42	18.5	30	48	22	30
Mxxx - 06400470A	3	47	22	30	63	30	40
Mxxx - 07400660A	3	66	30	50	79	37	50
Mxxx - 07400770A	3	77	37	60	94	45	60
Mxxx - 07401000A	3	100	45	75	112	55	75
Mxxx - 08401340A	3	134	55	100	155	75	100
Mxxx - 08401570A	3	157	75	125	184	90	125
Mxxx - 09402000A	3	200	90	150	221	110	150
Mxxx - 09402240A	3	224	110	150	266	132	200
Mxxx - 09402000E	3	200	90	150	221	110	150
Mxxx - 09402240E	3	224	110	150	266	132	200
Mxxx - 10402700E	3	270	132	200	320	160	250
Mxxx - 10403200E	3	320*	160	250	361	200	300
Mxxx - 11403770E	3	377	185	300	437	225	350
Mxxx - 11404170E	3	417*	200	350	487*	250	400
Mxxx - 11404640E	3	464*	250	400	507*	280	450
Mxxx - 12404800T	3	480*	250	400	608*	315	500
Mxxx - 12405660T	3	566*	315	450	660*	355	550
Mxxx - 12406600T	3	660*	355	550	755*	400	650
Mxxx - 12407200T	3	720*	400	600	865*	500	700

\*At 2 kHz switching frequency

500/575 VAC +/-10%

Product Code M600/M700/M701/M702	Supply Phases	Heavy Duty			Normal Duty		
		Max Cont. Current (A)	Motor Power (kW)	Motor Power (hp)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (hp)
Mxxx - 05500030A	3	3	1.5	2	3.9	2.2	3
Mxxx - 05500040A	3	4	2.2	3	6.1	4	5
Mxxx - 05500069A	3	6.9	4	5	10	5.5	7.5
Mxxx - 06500100A	3	10	5.5	7.5	12	7.5	10
Mxxx - 06500150A	3	15	7.5	10	17	11	15
Mxxx - 06500190A	3	19	11	15	22	15	20
Mxxx - 06500230A	3	23	15	20	27	18.5	25
Mxxx - 06500290A	3	29	18.5	25	34	22	30
Mxxx - 06500350A	3	35	22	30	43	30	40
Mxxx - 07500440A	3	44	30	40	53	45	50
Mxxx - 07500550A	3	55	37	50	73	55	60
Mxxx - 08500630A	3	63	45	60	86	75	75
Mxxx - 08500860A	3	86	55	75	108	90	100
Mxxx - 09501040A	3	104	75	100	125	110	125
Mxxx - 09501310A	3	131	90	125	150	110	150
Mxxx - 09501040E	3	104	75	100	125	110	125
Mxxx - 09501310E	3	131	90	125	150	110	150
Mxxx - 10501520E	3	152	110	150	200	130	200
Mxxx - 10501900E	3	190	132	200	200	150	200
Mxxx - 11502000E	3	200	150	200	248	185	250
Mxxx - 11502540E	3	254*	185	250	288*	225	300
Mxxx - 11502850E	3	285*	225	300	315*	250	350

\*At 2 kHz switching frequency









## 690 VAC +/-10%

Product Code M600/M700/M701/M702	Supply Phases	Heavy Duty			Normal Duty		
		Max Cont. Current (A)	Motor Power (kW)	Motor Power (hp)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (hp)
Mxxx - 07600190A	3	19	15	20	23	18.5	25
Mxxx - 07600240A	3	24	18.5	25	30	22	30
Mxxx - 07600290A	3	29	22	30	36	30	40
Mxxx - 07600380A	3	38	30	40	46	37	50
Mxxx - 07600440A	3	44	37	50	52	45	60
Mxxx - 07600540A	3	54	45	60	73	55	75
Mxxx - 08600630A	3	63	55	75	86	75	100
Mxxx - 08600860A	3	86	75	100	108	90	125
Mxxx - 09601040A	3	104	90	125	125	110	150
Mxxx - 09601310A	3	131	110	150	150	132	175
Mxxx - 09601040E	3	104	90	125	125	110	150
Mxxx - 09601310E	3	131	110	150	155	132	175
Mxxx - 10601500E	3	150	132	175	172	160	200
Mxxx - 10601780E	3	178	160	200	197	185	250
Mxxx - 11602100E	3	210	185	250	225	200	250
Mxxx - 11602380E	3	238*	200	250	275*	250	300



















\*At 2 kHz switching frequency

# ACCESSORIES

# ORDERING GUIDE

Optional Drive Programming and Operator Interface		Part No.
Connect PC Tool		
Machine Control Studio		
KI-Keypad		82400000016000
KI-Keypad RTC		82400000016300
Remote Keypad		82500000000001
Remote keypad RTC		82400000019600
Operator Interface (HMI)		eSMART04-MCh040 eSMART07M-MCh070
Smartcard		2214-0010
SD card using SD Card Adaptor		82400000016400
KI-485 Adaptor		825000000000003



System Integration Modules			Part No.
Optional Input/Output	Remote I/O (M700/M701/M702 only)		
	SI-I/O		82400000017800
Applications with PLC or Motion Functionality	SI-Applications Plus compatible module which allows existing SyPTPro application programs to be re-compiled for M700		82400000016500
	SI-Apps Compact		82400000020700
	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 simultaneous Connectivity to 2 separate Ethernet networks		82400000016700
	PTi210 Motion Made Easy module		82400000021400
Communications	SI-EtherCAT		82400000018000
	SI-PROFIBUS		82400000019600
	SI-Ethernet		82400000017500
	SI-DeviceNet		82400000017700
	SI-CANopen		82400000017600
	SI-PROFINET		82500000018200
	SI-POWERLINK		82400000021600
	SI-Interbus 500kbps		82400000021220
	SI-Interbus 2Mbps		82400000021230
Feedback	SI-Encoder		82400000018110
	SI-Universal Encoder		82400000018300
Safety	MiS210		82400000021100

Auxiliary Components	Frame Size	Part No.
Internal brake resistor	3	1220-2752
	4 & 5	1299-0003
DC bus paralleling kit	3	3470-0048
	4	3470-0061
	5	3470-0068
	6	3470-0063
	6 (connect to frame 3,4 & 5)	3470-0111
Through hole IP65 kit	3	3470-0053
IP65 / UL TYPE 12 rating is achieved on the rear of the drive when through panel mounted using the following kits.	4	3470-0056
	5	3470-0067
	6	3470-0055
	7	3470-0079
	8	3470-0083
Through hole IP55 kit	9A	3470-0119
IP55 / UL TYPE 12 rating can be achieved for frame sizes 9A and 9E using the following kits:	9E & 10E	3470-0105
	10D Inverter	3470-0108
	10C Rectifier	3470-0106
	11E & 11T	3470-0126
	11D Inverter	3470-0130
	11C Rectifier	3470-0123
UL type 1 conduit kit	3 & 4	6521-0071
	5	3470-0069
	6	3470-0059
	7	3470-0080
	8 & 9A	3470-0088
	9E & 10	3470-0115
	11	3470-0136

Auxiliary Components	Frame Size	Part No.
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 (M700 only), 9E & 10	3470-0118
<b>Line reactor</b>		
	9E (200 V/400 V)	4401-0181
	9E (575 V/690 V)	4401-0183
	10 (200 V/400 V)	4401-0182
	10 (575 V/690 V)	4401-0184
	11 (400 V)	4401-0259
	11 (575 V/690 V)	4401-0261
<b>Finger-guard grommet</b>		
	9 & 10	3470-0107
<b>Lifting tool</b>		
	8 & 9A	7778-0045
	9E, 10 & 11	7778-0016
<b>Fan replacement kit</b>		
	1	3470-0092
	2	3470-0095
	3	3470-0099
	4	3470-0103
<b>Cable grommet kit</b>		
	7	3470-0086
	8 - Single cable	3470-0089
	8 - Dual cable	3470-0090
	9A, 9E, 10 & 11	3470-0107
<b>Tile mount kit</b>		
	3	3470-0049

Auxiliary Components	Frame Size	Part No.	
	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	
	I/O commissioning extender adaptor	3000-0009	
<b>Optional external EMC filters</b>			
Unidrive M built-in EMC filter complies with EN 61800-3. External EMC filters are required for compliance with EN 61000-6-4.	3 - 200 V	4200-3230	
	3 - 400 V	4200-3480	
	4 - 200 V	4200-0272	
	4 - 400 V	4200-0252	
	5 - 200 V	4200-0312	
	5 - 400 V	4200-0402	
	5 - 575 V	4200-0122	
	6 - 200 V	4200-2300	
	6 - 400 V	4200-4800	
	6 - 575 V	4200-3690	
	7 - 400 V	4200-1132	
	7 - 575/690 V	4200-0672	
	8 - 400 V	4200-1972	
	8 - 575/690 V	4200-1662	
	9A - 400 V	4200-3021	
	9A - 575/690 V	4200-1660	
	9E & 10 - 400 V	4200-4460	
	9E & 10 - 575/690 V	4200-2210	
	11 - 400 V	4200-0400	
	11 - 575/690 V	4200-0690	
Frame 12 Kits and accessories	Description	Source	Part No.
	Input wiring kit VX25/TS8	CT	6772-0006
	Output wiring kit VX25/TS8	CT	6772-0007
	Earth kit VX25/TS8	CT	6772-0008
	Fitting kit VX25	CT	6772-0009
	+/- DC input busbar kit	CT	6772-0012
	Pallet truck lifting kit VX25	CT	6500-0159
	Pallet kit ramp VX25	CT	6500-0158
	External brake chopper	NIS	GTBU580F
	VX25 roof plate	Rittal	9681.846
	Wall bracket	Rittal	4595
	Outlet filter with filter mat	Rittal	3243.2
	TS8 fitting kit	CT Support Suite	Drawing
	TS8 Pallet truck lifting kit	CT Support Suite	Drawing
	TS8 Pallet kit ramp	CT Support Suite	Drawing