

CONTROL 
TECHNIQUES



UNIDRIVE M600

HIGH PERFORMANCE DRIVE FOR INDUCTION AND SENSORLESS
PERMANENT MAGNET MOTORS

DRIVE OBSESSED

UNIDRIVE M600

HIGH-PERFORMANCE AC DRIVES

Control Techniques has set the standards in motor control since 1973.

Unidrive M600 delivers increased machine performance with sensorless induction and sensorless permanent magnet motor control for dynamic and efficient machine operation. An optional encoder port can be used for precise closed loop velocity applications and digital lock/frequency following for induction motors. Additional I/O, encoder feedback options, industry standard fieldbuses and Ethernet communications maximize system connectivity and flexibility.

Other Unidrive M600 benefits include:

Onboard PLC

- Onboard PLC with a real-time task can be used for basic logic control, speed following and digital lock to enhance drive application capability

Maximize productivity with high performance control with all AC motors

- Advanced Rotor Flux Control (RFC) algorithm for maximum stability and control, especially with high power motors
- High bandwidth motor control algorithm with 62.5µs current loop update rates
- 200% motor overload for heavy industrial machinery applications

Save energy

- High performance control of open loop, energy-efficient industrial permanent magnet motors with dynamic control and high starting torque

Enhanced control

- High starting torque for extruders, slitters, material transport, compressors, manufacturing cranes, hydraulic replacement, ratio control, gearing, winding (coilers), web handling, metal cutting

Closed loop induction motor control

Add the SI-ENCODER module for closed loop induction motor control.



Open loop permanent magnet motor control

Paired with a DYNEO® LSRPM Permanent Magnet Motor to achieve up to 670 HP for high efficiency sensorless control.



UNIDRIVE M600

ORDERING INFORMATION

230 VAC, 3-Phase Input and Output, 50/60 Hz Input				
Unidrive M600 Order Code*	Normal Duty		Heavy Duty	
	HP	Amps	HP	Amps
M600-03200050A	1.5	6.6	1	5
M600-03200066A	2	8	1.5	6.6
M600-03200080A	3	11	2	8
M600-03200106A	3	12.7	3	10.6
M600-04200137A	5	18	3	13.7
M600-04200185A	7.5	25	5	18.5
M600-05200250A	10	30	7.5	25
M600-06200330A	15	50	10	33
M600-06200440A	20	58	15	44
M600-07200610A	25	75	20	61
M600-07200750A	30	94	25	75
M600-07200830A	40	117	30	83
M600-08201160A	50	149	40	116
M600-08201320A	60	180	50	132
M600-09201760A	75	216	60	176
M600-09202190A	100	266	75	219
M600-09201760E**	75	216	60	176
M600-09202190E**	100	266	75	219
M600-10202830E**	125	325	100	283
M600-10203000E**	150	360	125	300

460 VAC, 3-Phase Input and Output, 50/60 Hz Input				
Unidrive M600 Order Code*	Normal Duty		Heavy Duty	
	HP	Amps	HP	Amps
M600-03400025A	2	3.4	1	2.5
M600-03400031A	2	4.5	1.5	3.1
M600-03400045A	3	6.2	2	4.5
M600-03400062A	5	7.7	3	6.2
M600-03400078A	5	10.4	5	7.8
M600-03400100A	7.5	12.3	5	10
M600-04400150A	10	18.5	10	15
M600-04400172A	15	24	10	17.2
M600-05400270A	20	30	20	25.4
M600-05400300A	20	31	20	30
M600-06400350A	25	38	25	35
M600-06400420A	30	48	30	42
M600-06400470A	50	63	30	46
M600-07400660A	60	79	50	66
M600-07400770A	75	94	60	77
M600-07401000A	75	112	75	100
M600-08401340A	125	155	100	134
M600-08401570A	150	184	125	157
M600-09402000A	150	221	150	180
M600-09402240A	200	255	150	211
M600-09402000E**	150	221	150	180
M600-09402240E**	200	255	150	211
M600-10402700E**	250	320	200	270
M600-10403200E**	300	361	250	307
M600-11403770E**	350	437	300	377
M600-11404170E**	400	487	350	417
M600-11404640E**	450	507	400	464

Order String - Frame Size Key
Example: M600-XX_-----Y
XX = Frame Size (03-11 above)
Y = A - built-in reactor E - External line reactor

OPTIONS AT-A-GLANCE

Option	Description	Order Code
Drive Configuration & Programming	Configuration software	UNIDRIVE-M-CONNECT
	Drive to PC USB cable (requires a 485 adaptor)	CT-USB-CABLE
	8 GB SD card	CTS08GB
	Smartcard 8k memory	SMARTCARD
	Smartcard 64k memory	SMARTCARD-64
Operator Interfaces	Smartcard with SD card adaptor, no SD card	SD-CARD-ADAPTOR
	Plain text LCD display	KI-KEYPAD-LCD
	Plain text LCD keypad with real-time clock	KI-KEYPAD-RTC
	Remote LCD display	REMOTE-KEYPAD
	Remote LCD display with real-time clock	REMOTE-KEYPAD-RTC
Input / Output	Remote display cable	UM-LCD-485-XXX****
Communications	Extended I/O	SI-I/O
	Modbus RTU	KI-485-ADAPTOR
	PROFIBUS DP	SI-PROFIBUS
	DeviceNet	SI-DEVICENET
	CANopen	SI-CANOPEN
	PROFINET RT	SI-PROFINET-V2
	EtherCAT	SI-ETHERCAT
Application Programming Software & Diagnostics	EtherNet/IP, Modbus TCP	SI-ETHERNET
	PLC programming	MACHINE-CONTROL-STUDIO
Feedback	Digital oscilloscope	CTSCOPE
	DB15 to terminal breakout board for encoder feedback cable	SM-ETC
	Encoder module****	SI-ENCODER
Power Accessories	Universal encoder***	SI-UNI-ENCODER
	External EMC filter	See the Unidrive M Accessories catalog
	Line & load reactors	
Environmental Protection & Cable Management	Dynamic braking resistors	See the Unidrive M600 brochure
	UL Type 1 conduit kits	
	Retrofit kits for Unidrive SP	
	Fan replacement kits	
	IP65 & IP55 through panel mounting kits	

***See Unidrive M Options catalog for complete product details

****Shielded RS485 patch cable, CAT5e, conductive metal RJ45 connectors, XXX=cable length in 5 foot increments (max 330 ft), standard lengths are (005, 010, 015, 025 and 050)

*****Encoder module required for closed-loop induction motor control, see Unidrive M Options catalog for further details

*Add 10101A8100 to the base order code when ordering standard US (60 Hz) default products

**Available to order without dynamic braking transistor, see Unidrive M600 for full product offering.

Notes:

Frames 3-10 are rated at 3 kHz switching frequency.

Frame 11 is rated at 2 kHz switching frequency.

See the Unidrive M600 brochure for our full product offering including 575 V, 690 V solutions and high horsepower solutions up to 4,200 HP.

UNIDRIVE M600

RATINGS & DIMENSIONS

Ratings

Voltage ratings	
200 V - 240 V ± 10%	✓
380 V - 480 V ± 10%	✓
500 V - 575 V ± 10%	✓
500 V - 690 V ± 10%	✓
Control mode	
Open loop vector or V/Hz control for induction motor control	✓
Open loop Rotor Flux Control for induction motor control (RFC-A)	✓
Open loop permanent magnet motor control (RFC-S)	✓
Closed loop Rotor Flux Control for induction motors (RFC-A)	Opt
Closed loop permanent magnet motor control (RFC-S)	✓
Active Front End (AFE) power quality converter	✓

Heavy Duty rating:	1.5 HP to 4,200 HP (1.0 kW to 2.8 MW)
Supply phases:	3Ø
Control connections:	3 x Analog inputs, 4 x Digital inputs, 2 x Analog outputs, 3 x Digital I/O, 1 x Digital output, 1 x Relay
Intelligence:	Onboard PLC and Digital Lock Control
Onboard comms:	RS485
Machine Safety:	1 x Safe Torque Off input (STO)
Keypad:	No keypad as standard, order separately
SI option slots:	3
Parameter cloning via:	PC tools, Smartcard, SD card

Dimensions & Weights

Frame Size	Dimensions H x W x D (in)	Weight (lbs)
03	14.4 x 3.3 x 7.9	9.9
04	14.4 x 4.9 x 7.9	14.3
05	14.4 x 5.6 x 7.6	16.3
06	14.4 x 8.3 x 8.9	30.9
07	20 x 10.6 x 11.0	61.7
08	29.7 x 12.2 x 11.4	114.6
09A	41.3 x 12.2 x 11.4	146.6
09E	41.3 x 12.2 x 11.4	101.4
10E	41.3 x 12.2 x 11.4	101.4
11E	46.9 x 12.2 x 12.3	138.9



Nidec

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