

**CONTROL**   
**TECHNIQUES**



# UNIDRIVE M700

CLASS LEADING INDUCTION AND PERMANENT MAGNET MOTOR PERFORMANCE  
WITH REAL-TIME ETHERNET

**DRIVE OBSESSED**

# UNIDRIVE M700

# HIGH-PERFORMANCE AC DRIVES

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

Unidrive M700 delivers maximum machine throughput through greater control with single and multi-axis network synchronization. Onboard real-time Ethernet (IEEE 1588 V2), advanced motion control and high speed I/O for position capture enables machine builders to easily create more sophisticated and flexible machines. The onboard Ethernet is also compatible with EtherNet/IP, Modbus TCP, and Real Time Motion over Ethernet (RTMoE) for network flexibility. The Unidrive M702 variant provides dual safety inputs while the Unidrive M701 replaces Ethernet connectivity with RS485 to provide an upgrade path for the Unidrive SP.

## Other Unidrive M700 benefits include:

### Maximize machine productivity through integration with centralized control systems

- Ethernet IEEE 1588 V2 hardware implementation for maximum synchronization accuracy
- Integrated dual port Ethernet switch for easy connectivity
- Up to three SI modules to add position feedback, I/O, machine control and industry standard fieldbuses and Ethernet communications

### Maximize machine productivity through shaft performance with any motor technology

- High bandwidth motor control algorithm for open and closed loop induction, synchronous permanent magnet, and servo motors with up to 3,300 Hz current loop bandwidth and 250 Hz speed loop bandwidth
- Increase flexibility and reduce system costs through simultaneously connecting up to three\* high performance encoder channels as standard

### Onboard PLC and Advanced Motion Controller

- Simple onboard PLC with real-time task for interfacing with the drive's 1.5 axis Advanced Motion Controller (AMC).
- MCI machine control module available for additional axis and network control

\*The functionality is dependent upon the encoder types being used.



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# UNIDRIVE M700

# ORDERING INFORMATION

230 VAC, Three Phase Input, 3-Phase Output, 50/60 Hz Input				
Unidrive M700 Order Code*	Normal Duty		Heavy Duty	
	HP	Amps	HP	Amps
M70x-03200050A	1.5	6.6	1	5
M70x-03200066A	2	8	1.5	6.6
M70x-03200080A	3	11	2	8
M70x-03200106A	3	12.7	3	10.6
M70x-04200137A	5	18	3	13.7
M70x-04200185A	7.5	24	5	18.5
M70x-05200250A	10	30	7.5	25
M70x-06200330A	15	50	10	33
M70x-06200440A	20	58	15	44
M70x-07200610A	25	75	20	61
M70x-07200750A	30	94	25	75
M70x-07200830A	40	117	30	83
M70x-08201160A	50	149	40	116
M70x-08201320A	60	180	50	132
M70x-09201760A	75	216	60	176
M70x-09202190A	100	266	75	219
M70x-09201760E**	75	216	60	176
M70x-09202190E**	100	266	75	219
M70x-10202830E**	125	325	100	283
M70x-10203000E**	150	360	125	300

460 VAC, Three Phase Input, 3-Phase Output, 50/60 Hz Input				
Unidrive M700 Order Code*	Normal Duty		Heavy Duty	
	HP	Amps	HP	Amps
M70x-03400025A	1.5	3.4	1	2.5
M70x-03400031A	2	4.5	1.5	3.1
M70x-03400045A	3	6.2	2	4.5
M70x-03400062A	5	7.7	3	6.2
M70x-03400078A	5	10.4	5	7.8
M70x-03400100A	7.5	12.3	5	10
M70x-04400150A	10	18.5	10	15
M70x-04400172A	15	24	10	17.2
M70x-05400270A	20	30	20	27
M70x-05400300A	20	31	20	30
M70x-06400350A	25	38	25	35
M70x-06400420A	30	48	30	42
M70x-06400470A	40	63	30	47
M70x-07400660A	50	79	50	66
M70x-07400770A	60	94	60	77
M70x-07401000A	75	112	75	100
M70x-08401340A	100	155	100	134
M70x-08401570A	125	184	125	157
M70x-09402000A	150	221	150	200
M70x-09402240A	200	255	150	211
M70x-09402000E**	150	221	150	200
M70x-09402240E**	200	255	150	211
M70x-10402700E**	250	320	200	270
M70x-10403200E**	300	361	250	320
M70x-11403770E**	350	437	300	377
M70x-11404170E**	400	487	350	417
M70x-11404800E**	450	507	400	464

\*Add 10101AB100 to the base order code when ordering standard US (60 Hz) default products  
 \*\*Available to order without dynamic braking transistor, see Unidrive M700 for full product offering.

**Notes:**  
 Frames 3-10 are rated at 3 kHz switching frequency.  
 Frame 11 is rated at 2 kHz switching frequency.

Order String - Frame Size Key	M70x Drive Range:
Example: M70x-XX-_____-Y	M700 = Ethernet M701 = Unidrive SP replacement (RS485) M702 = Dual STO inputs
XX = Frame Size (03-11 above)	
Y = A - built-in reactor E - External line reactor	

## OPTIONS AT-A-GLANCE

Option	Description	Order Code
Safety	Motion Safety	MiS210
Drive Configuration & Programming	Configuration software	UNIDRIVE-M-CONNECT
	Drive to PC USB cable (requires a 485 adaptor)	CT-USB-CABLE
	8 GB SD card	CTSD8GB
	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***
	Extended I/O	SI-I/O
Communications	Modbus RTU	KI-485-ADAPTOR
	PROFIBUS DP	SI-PROFIBUS
	DeviceNet	SI-DEVICENET
	CANopen	SI-CANOPEN
	PROFINET RT	SI-PROFINET-V2
	EtherCAT	SI-ETHERCAT
	EtherNet/IP, Modbus TCP	SI-ETHERNET
	Powerlink	SI-POWERLINK
Machine & Motion Control	Interbus	SI-INTERBUS-500K, SI-INTERBUS-2M
	Applications, SyPTPro	SI-APPS-COMPACT
	Machine Control Studio	MCI200
	MCS with Ethernet	MCI210
Application Programming Software & Diagnostics	Motion Made Easy®	PTI210
	PLC programming	MACHINE-CONTROL-STUDIO
Feedback	Digital oscilloscope	CTSCOPE
	DB15 to terminal breakout board	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 M700 Brochure
	UL Type 1 conduit kits	
	Retrofit kits for Unidrive SP	
	Fan replacement kits	
	IP65 & IP55 through panel mounting kits	

\*\*\*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)

\*\*\*\*See Unidrive M700 Brochure for complete product details

See the Unidrive M700 brochure for our full product offering including 575 V, 690 V solutions and high horsepower solutions up to 4,200 HP.

# UNIDRIVE M700

# 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)	✓
Closed loop permanent magnet motor control (RFC-S)	✓
Active Front End (AFE) power quality converter	✓

## 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



Heavy Duty rating:	1.0 HP to 4,200 HP (0.75 kW to 2.8 MW)
Normal Duty rating:	1.5 HP to 4,200 HP (1.0 kW to 2.8 MW)
Control connections:	<b>M700/M701 models</b> 3 x Analog inputs, 3 x Digital inputs, 2 x Analog outputs, 3 x Digital I/O, 1 x Safe torque off input (STO), 1 x Relay
	<b>M702 models</b> 3 x Digital inputs, 3 x Digital output, 2 x Safe torque off input (STO), 1 x Relay
Intelligence:	Onboard PLC and Advanced Motion Controller
Onboard comms:	M700 & M702 – Ethernet, M701 – RS485
Feedback:	2 x Encoder inputs 1 x Simulated encoder output
Keypad:	No keypad as standard, order separately
SI option slots:	3
Parameter cloning via:	PC tools, Smartcard, SD card



**Nidec**

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