CONTROL TECHNIQUES



UNIDRIVE M400

Quick setup and diagnostics with real text display,
onboard PLC and safety inputs

DRIVE OBSESSED

UNIDRIVE M400

GENERAL-PURPOSE AC DRIVES

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



Unidrive M400 minimizes downtime with an intuitive backlit LCD keypad offering a real-text, multi-language display for rapid setup and clear diagnostic help. The integrated PLC can execute a substantial range of sequencing and logic programs. The Unidrive M400's impressive I/O count complete with two STO inputs, an optional SI interface for industry standard fieldbuses, Ethernet and Modbus RTU communications. Additionally, the intuitive display makes it an ideal solution for stand-alone machine control.

Other Unidrive M400 benefits include:

Enhance up-time and system flexibility

- Flexible system integration and remote diagnostics through optional industrial ethernet and fieldbus communication
- Flexible I/O that is expandable with SI-I/O option module
- Enhanced functionality and onboard PLC programming provides a low-cost system solution, minimizing the need for additional equipment such as PLCs

High performance open loop motor control

- RFC-A (Rotor Flux Control) algorithm provides exceptional induction motor control and high stability for demanding applications
- S-ramp accel / decal profiling provides smooth speed transitions to minimize "jerk"
- Speed control for conveyors, fans, pumps, mixers, extruders, and material payoffs where fast setup and diagnostics are required

Diagnostic Software

Our Drive Diagnostics APP allows users to quickly diagnose faults. In the unlikely event that you get a drive error, download our complimentary Diagnostics Tool app. Just input the error code on your device and you'll be given a solution.

Download our Diagnostics Tool App at: www.ctdrives.com/diagnotics

Diagnostic TOOL

SOFTWARE INCLUDED

2 YEAR Digital Drive Warranty

5 YEAR Digital Drive Warranty

RoHS Compliant

SIL3

WWW.CONTROLTECHNIQUES.COM

UNIDRIVE M400

ORDERING INFORMATION

115 VAC, Single Phase 50/60 Hz Input, 230 VAC, 3-Phase Output					
Unidrive M400 Order Code*	Input Phase	Normal Duty		Heavy Duty	
		HP	Amps	HP	Amps
M400-01100017A	1	0.33	1.7	0.33	1.7
M400-01100024A	1	0.5	2.4	0.5	2.4
M400-02100042A	1	1	4.2	1	4.2
M400-02100056A	1	1.5	5.6	1.5	5.6
230 VAC, Single & 3-Phase Input, 3-Phase Output, 50/60 Hz Input					
M400-01200017A	1	0.33	1.7	0.33	1.7
M400-01200024A	1	0.5	2.4	0.5	2.4
M400-01200033A	1	0.75	3.3	0.75	3.3
M400-01200042A	1	1	4.2	1	4.2
M400-02200024A	1, 3	0.5	2.4	0.5	2.4
M400-02200033A	1, 3	0.75	3.3	0.75	3.3
M400-02200042A	1, 3	1	4.2	1	4.2
M400-02200056A	1, 3	1.5	5.6	1.5	5.6
M400-02200075A	1, 3	2	7.5	2	7.5
M400-03200100A	1, 3	3	10	3	10
M400-04200133A	1, 3	3	13.3	3	13.3
M400-04200176A	3	5	17.6	5	17.6
M400-05200250A	3	10	30	7.5	25
M400-06200330A	3	15	50	10	33
M400-06200440A	3	20	58	15	44
M400-07200610A	3	25	75	20	61
M400-07200750A	3	30	94	25	75
M400-07200830A	3	40	117	30	83
M400-08201160A	3	50	149	40	116
M400-08201320A	3	60	180	50	132
M400-09201760x**	3	75	216	60	176
M400-09202190x**	3	100	266	75	219
460 VAC, 3-Phase Input, 3-Phase Output, 50/60 Hz Input					
M400-02400013A	3	0.5	1.3	0.5	1.3
M400-02400018A	3	0.75	1.8	0.75	1.8
M400-02400023A	3	1	2.3	1	2.3
M400-02400032A	3	1.5	3.2	1.5	3.2
M400-02400041A	3	2	4.1	2	4.1
M400-03400056A	3	3	5.6	3	5.6
M400-03400073A	3	3	7.3	3	7.3
M400-03400094A	3	5	9.4	5	9.4
M400-04400135A	3	7.5	13.5	7.5	13.5
M400-04400170A	3	10	17	10	17
M400-05400270A	3	20	30	20	27
M400-05400300A	3	20	30	20	30
M400-06400350A	3	25	38	25	35
M400-06400420A	3	30	48	30	42
M400-06400470A	3	50	63	30	47
M400-07400660A	3	60	79	50	66
M400-07400770A	3	75	94	60	77
M400-07401000A	3	75	112	75	100
M400-08401340A	3	125	155	100	134
M400-08401570A	3	150	184	125	157
M400-09402000x**	3	150	221	150	180
M400-09402240x**	3	200	255	150	211

*Add 10101AB100 to the base order code when ordering standard US (60Hz) default products

**x= A or E (9E frame requires an external AC Line Reactor)

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

Frame 11 is rated at 2 kHz switching frequency.

575 VAC, 3-Phase Input, 3-Phase Output, 50/60 Hz Input					
Unidrive M400 Order Code*	**Input Phase**	**Normal Duty**		**Heavy Duty**	
		HP	**Amps**	**HP**	**Amps**
M400-05500030A	3	3	3.9	2	3
M400-05500040A	3	5	6.1	3	4
M400-05500069A	3	7.5	10	5	6.9
M400-06500100A	3	10	12	7.5	10
M400-06500150A	3	15	17	10	15
M400-06500190A	3	20	22	15	19
M400-06500230A	3	25	27	20	23
M400-06500290A	3	30	34	25	29
M400-06500350A	3	40	43	30	34
M400-07500440A	3	50	53	40	44
M400-07500550A	3	60	73	50	55
M400-08500630A	3	75	86	60	63
M400-08500860A	3	100	108	75	86
M400-09501040x**	3	125	125	100	104
M400-09501310x**	3	150	150	125	131

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	CTSD8GB
	Smartcard 8k memory	SMARTCARD
	Smartcard 64k memory	SMARTCARD-64
	Smartcard with SD card adaptor, no SD card	SD-CARD-ADAPTOR
Operator Interfaces	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
	Remote display cable	UM-LCD-485-XXX****
Input / Output	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
Application Programming Software & Diagnostics	PLC programming	MACHINE-CONTROL-STUDIO
	Digital oscilloscope	CTSCOPE
Feedback	DB15 to terminal breakout board for encoder feedback cable	SM-ETC
	Encoder module*****	SI-ENCODER
	Universal encoder***	SI-UNI-ENCODER
Power Accessories	External EMC filter	See the Unidrive M Accessories catalog
	Line & load reactors	
	Dynamic braking resistors	
Environmental Protection & Cable Management	UL Type 1 conduit kits	See the Unidrive M600 brochure
	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

Order String - Frame Size Key
Example: M400-XX_ _ _ _ _ _ _
XX = Frame Size (01-09 above)

690 V products are also available, for details visit: www.controltechniques.us

UNIDRIVE M400

RATINGS & DIMENSIONS

Ratings

Voltage ratings	
100 V - 120 V ± 10%	✓
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)	✓

Heavy Duty Ratings:	0.33 HP to 150 HP (0.25 kW to 110 kW)
Normal Duty Ratings:	0.33 HP to 200 HP (0.25 kW to 132 kW)
Supply phases:	Frame size 1 and 2: 115 V drives 1Ø, 230 V drives 1Ø or 3Ø; Frame size 7 and larger 3Ø; 460, 575 and 690 V drives 3Ø
Control connections:	4x Analog I/O, 7x Digital I/O, 2x STO, 1x Relay
Drive rating:	IP21 / UL open class as standard
Keypad:	No keypad as standard
Option slots:	1 (frame size 2 and above)
Parameter cloning via:	PC tools, SD card

Dimensions & Weights

Frame Size	Dimensions H x W x D (in)	Weight (lbs)
01	6.3 x 3.0 x5.1	1.7
02	8.1 x 3.1 x 5.9	2.2
03	8.9 x 3.5 x 6.3	3.3
04	10.9 x 4.5 x 6.9	6.9
05	15.4 x 5.6 x 7.9	16.3
06	15.4 x 8.3 x 9.0	30.9
07	21.9 x 10.6 x 11.0	61.7
08	31.7 x 12.2 x 11.4	114.6
09A	43.6 x 12.2 x 11.4	146.6
09E	39.8 x 12.2 x 11.4	101.4

Additional distance should be added to the height dimension (H) when the AI options are fitted.



How to select a drive

(Consult online catalog for complete drive information)

1. Electrical Considerations
   - What is the supply voltage?
   - Single or 3Ø input power?
   - What is the motor rating?
     - Continuous current – FLA (Full Load Amps)
     - Select the drive based on motor Amps rather than horsepower
2. Load Type (choose one)
   - Normal Duty: Peak current is 110% of drive rating (fans, pumps, etc.)
   - Heavy Duty: Peak current is 180% (mixers, conveyors, etc.)
3. Drive Mechanical Mounting
   - Panel mounting – as standard
   - Wall mounting – UL conduit kits are available
   - Through panel mounting – frames 5 and up

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Control Techniques Americas. Registered Office: 7078 Shady Oak Road Eden Prairie, MN 55344-3505 USA
+1 800 893-2321

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