

# 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 / decel 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/diagnostics](http://www.ctdrives.com/diagnostics)



# 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

Unidrive M400 Order Code*	Input Phase	Normal Duty		Heavy Duty	
		HP	Amps	HP	Amps
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

Unidrive M400 Order Code*	Input Phase	Normal Duty		Heavy Duty	
		HP	Amps	HP	Amps
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 10101A8100 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	CONNECT
	Drive to PC USB cable (requires a 485 adaptor)	CT-USB-CABLE
	Parameter cloning 4 GB (includes 4 GB SD card)	AI-SMART-ADAPTOR
	Parameter cloning (requires an SD card)	AI-BACKUP-ADAPTOR
Operator Interfaces	8 GB SD card	CTS08GB
	Drive Keypad	CI-KEYPAD-LCD
	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	CI-485-ADAPTOR
	Modbus RTU	AI-485-ADAPTOR
	Modbus RTU with 24 V PROFIBUS DP	AI-485-24V-ADAPTOR
	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
Power Accessories	External EMC filter	Consult factory
	Line & load reactors	
	Dynamic braking resistors	
Environmental Protection & Cable Management	UL Type 1 conduit kits	Consult factory
	Retrofit for Commander SK	
	Fan replacement kits	

\*\*\*frame sizes 2 and up accept 1 SI option

\*\*\*\*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)

### 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](http://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 x 5.1	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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