

Unidrive M600 AC Drives

High performance drive for induction and sensorless permanent magnet motors



Unidrive M600 Frame Size 3

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:

Enhance Enhanced 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.

| Voltage ratings | |
|--|-----|
| 200 / 240 VAC ± 10% | ✓ |
| 380 / 480 VAC ± 10% | ✓ |
| 500 / 575 VAC ± 10% | ✓ |
| 500 / 690 VAC ± 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 |
| Active Front End (AFE) power quality converter | ✓ |

Key data:

| | |
|------------------------|---|
| 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 |

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.

Closed loop induction motor control



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

SI-ENCODER

Order Information & Ratings

| 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 |

*Add 10101AB100 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.

Order String - Frame Size Key

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

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 8 | 16.3 |
| 06 | 14.4 x 8.3 x 8.9 | 30.9 |
| 07 | 20 x 10.6 x 11.02 | 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 |



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 |
| 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

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.

