



MD Series Digital Closed Loop DC Speed Control

The MD Series is a compact, programmable DC speed control with digital closed loop feedback and LED display for DC motors rated to 2 horsepower. An on-board microprocessor with non-volatile memory, coupled with sophisticated internal software, makes Dart's Micro-Drive the ultimate value in accuracy and control.

Friendly front-panel field programming permits customizing the MD for specific applications. The MD can be set to display the target speed directly in RPM, FPM, GPM, process time, or any other engineering unit. Programmable parameters include maximum and minimum set speed, decimal points, and operating mode (master or follower).

The Micro-Drive is simple to operate: set the desired RPM, rate, or time in the large 1/2" LED display by depressing the "Up" and "Down" pushbuttons on the front panel. Settings can be one digit at a time or fast sweep. **The Micro-Drive settings are exact and repeatable.** It will precisely control speed to $\pm 1/2$ RPM of set speed, long term. **No calibrations of the control are necessary.**

The MD10P and MD3P have 1/8 DIN and 1/4 DIN industry standard cutout dimensions respectively, providing easy panel installations.

TYPICAL APPLICATIONS

The flexibility of Dart's Micro-Drive design makes it uniquely suited for many commercial and industrial applications, such as:

- Conveyor ovens used in food preparation, UV curing processes, and heat shrink packaging
- Electronic solder re-flow and drying processes
- Industrial auger and mixing equipment
- Medical lab mixing equipment
- Industrial and commercial spray equipment
- Printing process equipment

MD SERIES STANDARD FEATURES

- Adjustable min/max
- Adjustable accel/decel
- Adjustable equivalent to proportional and integral gains
- Pulse input capacity of 50,000 PPM, 833Hz
- Programmable power-on initial settings
- Inhibit mode is selectable from many input options
- Jog function selectable from many input options
- Non-volatile memory allows all custom settings to be stored for future use
- Factory default function—reset drive to factory setting
- User-default storage capability allows user to store/recall a known good set of parameters while experimenting with new settings
- User-friendly programming from the front panel with parameter lockout capability
- Programming buttons allow for adjustable display scroll rate in a linear or non-linear mode
- Display is programmable for any engineering unit of measure
- Adjustable display options include decimal point positions and intensity
- Custom front panel artwork available
- Easy panel mounting with 2 or 4 bolts (supplied)
- NEMA 4X Rating (faceplate with supplied gasket)
- Universal power supply supports any AC voltage input 85–265 VAC
- Compatible with Dart line of low-cost digital pick-ups or other suitable pick-ups
- Programmable user output supporting up to 230 VAC @5A form C relay
- Multiple operational modes: Rate, Time, Follower

OPTION DESCRIPTION

OPTION	SUFFIX
Provision for remote pushbutton switches	-1
Blank lexan	-9
Pluggable terminal strip.....	-P
Magnetic pick-up input board	-3

MD SERIES SELECTION GUIDE

MODEL NUMBER	MAX. ARM DC AMPS	MAX H.P.	INPUT	OUTPUT
MD10P	5	1/2	120 VAC	0-90 VDC
5	1	240 VAC	0-180 VDC	
MD3P	10	1	120 VAC	0-90 VDC
10	2	240 VAC	0-180 VDC	
MD3E	10	1	120 VAC	0-90 VDC
	10	2	240 VAC	0-180 VDC

- All models accept 85-265 VAC Single Phase Input.
- Peak motor output voltage is equal to peak AC input voltage.
- Requires Dart PU-E or other suitable pick-up.
 - Sensor must have minimum output current of 10 mA.
 - Drive includes supply for external sensor of 5VDC @50 mA max.
 - Shipped set for 0-2400 RPM with one pulse per revolution.

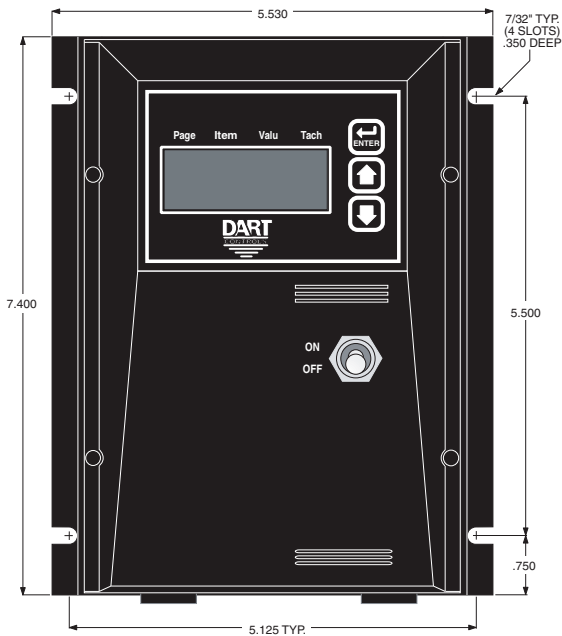
OPERATING SPECIFICATIONS

Temperature.....	-10° to +45° C
AC input voltage.....	85-265 VAC
Input frequency.....	50/60 Hz
Overload capacity.....	200% for 1 minute
Transducer signal input.....	0-5 to 0-24 VDC
On-board power supply	5 VDC, 50mA

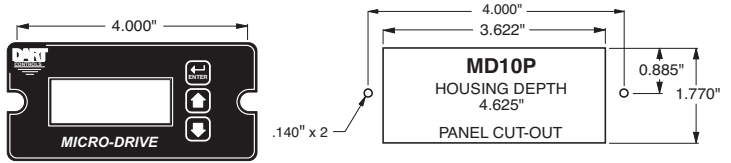
DIMENSIONAL SPECIFICATIONS

MODEL	WIDTH	HEIGHT	DEPTH
MD10P	inches (millimeters)		
Housing	3.620 (91.95)	1.656 (42.06)	4.625 (117.47)
Lens	4.539 (115.29)	2.289 (58.13)	0.375 (9.52)
MD3P	inches (millimeters)		
Housing	3.620 (91.95)	3.497 (88.82)	4.625 (117.47)
Lens	4.539 (115.29)	4.179 (106.15)	0.375 (9.52)

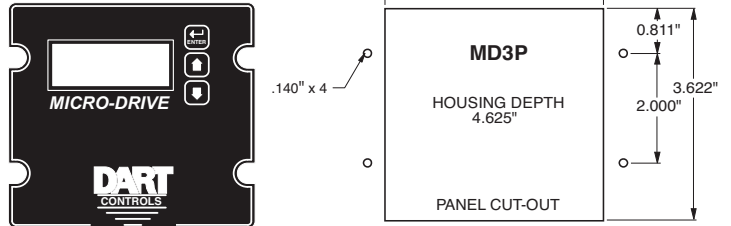
MOUNTING SPECIFICATIONS MD3E



MOUNTING SPECIFICATIONS

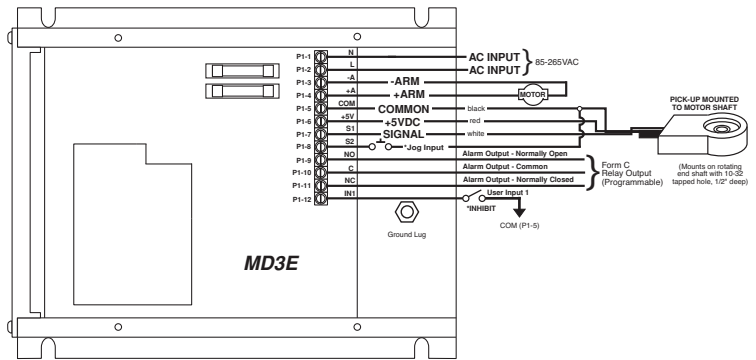


1/8 DIN

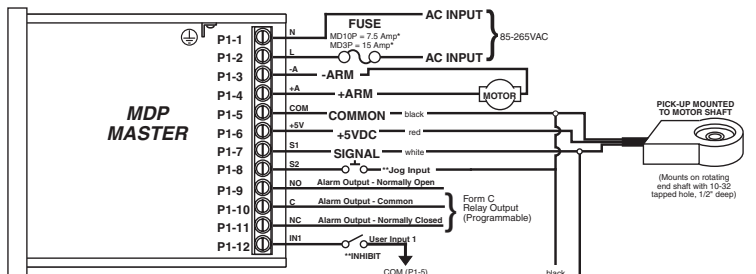


1/4 DIN

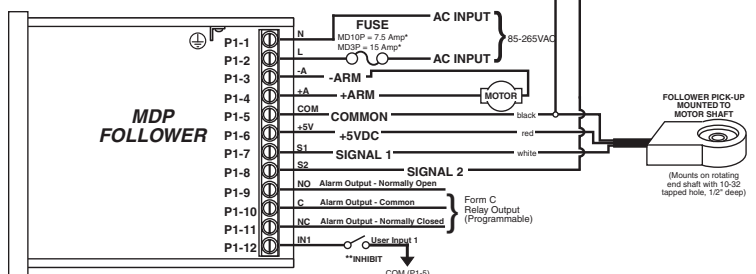
WIRING DIAGRAMS



* P1-8 & P1-12 user input may be programmed for a number of functions. Including (jog, inhibit, etc.)



* For AC inputs utilizing two hot lines, both inputs should be protected with appropriately sized fuses or circuit breakers.
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