Drives and Motors

Digital Tachometer and Process Meter

OMDC-DM8000

1 Year Warranty
UL
RoHS

- Four Devices in One: Tachometer, Counter, Totalizer, and Zero Speed Switch
- Selectable Alarm Relay Output
- Control Modes are Selectable Between Rate, Time, and Counter
- User Inputs Allow for Special Functions: Counter Reset, Counter Gate, and Alarm Display
- Non-Volatile Memory for Storage of Custom Settings
- Universal AC Input Voltage from 85 to 265 Vac
- NEMA 4X Rating

The OMDC-DM8000 is an economical microprocessor-based digital tachometer system capable of measuring shaft speeds lower than 1 RPM. With an on-board microcomputer coupled with sophisticated internal software and a quartz crystal controlled reference frequency, the OMDC-DM8000 is able to maintain accuracy of ±0.04%, even if the shaft is uneven. The OMDC-DM8000 is field programmable through the easy-to-use frontpanel interface and can be configured to display any desired unit of measure. Large 13 mm (½”) 4-digit LED display numbers allow viewing under the most adverse conditions.

The isolated 5 amp form C relay output can be configured for many different alarming conditions. Designed to use a variety of inputs, including the hall-effect solid state OMDC-PUE-E Series pick-up, the system delivers trouble free operation at an economical cost. The OMDC-DM8000 offers the same enhanced display options and capabilities featured in our other digital control products, as well as the universal power supply and rugged European-style terminal strip.

The OMDC-DM8000 can be used in process applications for monitoring speeds and rates, or counting discrete input signals. Process applications using counting may be batching, filling, mixing, punching, cutting, drilling, diverting, or alarming. While process applications using speed or rate monitoring may be conveyors, conveyor ovens, material flow, rotational rpm, and testing.

**SPECIFICATIONS**

**ELECTRICAL**

* Line Input
  - Voltage: Any voltage from 85 to 265 Vac
  - Frequency: Any freq from 48 to 62 Hz

* Signal Input Frequency Range:
  - 0 to 100,000 pulses per minute
  - (higher frequencies are possible when using internal frequency divisor)

* Resolution: From 0.01 RPM

* Accuracy: ±0.04% display update every pulse or 0.5 seconds, whichever is longer

* Isolated High/Low Alarm Output:
  - 5 A, 230 Vac

* Settable Alarm Range: 0 to 9999

* Transducer Signal Input: 0 to 5 to 0 to 24 Vdc

* Display Range: 0.001 to 99,990

* Units of Operation: User programmable, any unit sensor/pickup

* Power Supply: 5V @ 50 mA

* Isolated Alarm Relay Output Ratings:
  - 240 Vac @ 5A

**MECHANICAL**

* Display Type: LED, red, 4 digit, 13 mm (½”) H

* Housing Type (With Supplied Gasket in NEMA 4X Panel): NEMA 4X

* Connector Style (Pluggable Connector Optional): 12-position 5 mm European-style

* Terminal Block Torque Setting:
  - 4.4 in-lb max or 0.5 N-M

* Faceplate Material: Polycarbonate with polycarbonate overlay

* Housing Material: Aluminum

* Dimensions:
  - Length (Panel Depth): 117.5 mm (4.6”)
  - Width: 115.3 mm (4.5”)

* Weight: 382 g (13.5 oz)

**ENVIRONMENTAL**

* Operating Temperature Range:
  - -10 to 45°C (15 to 115°F)

* Operating Humidity Range: 95%, non-condensing
**APPLICATIONS**

**Bi-directional Incremental Position Display**

*Description:*
A system is needed which will track the position of a bi-directional linear-motion platform and allow the user to select a home or zero position. The display should read in inches and indicate the position of the platform at all times.

**Drive Train Specs:**
40 revolutions = 3.5° of platform motion

**OMDC-DM8000 Meter**

**OMDC-PU-20EQUAD or equivalent**

**530BRE-36M Control**
**Drives and Motors**

**WIRING DIAGRAM**

**OMDC-DM8000**

- **P1-1**: NC2, Not Used
- **P1-2**: C2, Not Used
- **P1-3**: NO2, Not Used
- **P1-4**: NC1, Not Used
- **P1-5**: C1, Not Used
- **P1-6**: NO1, Not Used
- **P1-7**: N, Not Used
- **P1-8**: L, 2 Amp, AC Line Input 85 to 265 Vac, 50 to 60 Hz
- **P1-9**: +5V, black
- **P1-10**: brown or equivalent
- **P1-11**: S1, red
- **P1-12**: S2, white

**PARAMETER CONFIGURATION**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>VALUE</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>5</td>
<td>Up/down counter mode</td>
</tr>
<tr>
<td>20</td>
<td>35</td>
<td>Because the initial values were 40 revolutions per 3.5&quot; of platform motion, each is multiplied by 10 to give an even number to increase accuracy since the displays can be programmed in whole numbers. Additionally, because of the decimal point position, the display reference is multiplied by 10 to generate the proper display format. Without the second multiplication by 10, the display would only read 3.5&quot; when the driver motor turned 400 revolutions.</td>
</tr>
<tr>
<td>21</td>
<td>400</td>
<td>In count mode, the reference RPM is set in revolutions. 400 has been entered here to represent 40 revolutions and the display reference has also been multiplied by 10 to yield the whole numbers.</td>
</tr>
<tr>
<td>22</td>
<td>10</td>
<td>Pulses per revolution of shaft encoder or pick-up is 10 PPM</td>
</tr>
<tr>
<td>25</td>
<td>3</td>
<td>Decimal point position set to XXX.X on display</td>
</tr>
</tbody>
</table>

**APPLICATIONS**

**Conveyor Oven Time Monitor with Over-Heating Alarm**

**Description:**
An oven monitor displaying the "tunnel" time in minutes and seconds. The tunnel time is defined as the time it takes for the heated object on the conveyor to travel from point A to point B in the application diagram below. A visual indicator should activate if the tunnel time rises above a preset limit of 22 minutes and 30 seconds which could cause overheating of the processed material. The indicator should automatically reset when the tunnel time returns to the normal operating range. For ease of use, the display should be averaged over a period of 1 second.

**OMDC-PU-20EQUAD**
black
white
red
brown

**Drivetrain Specs:**
120 PM at non-reduced motor shaft equates to minutes and 1 seconds of tunnel time.
### To Order

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMDC-DM8000</td>
<td>Digital tachometer with alarm relay output</td>
</tr>
<tr>
<td>OMDC-DM8000-R</td>
<td>Digital tachometer with 2 alarm relay outputs</td>
</tr>
</tbody>
</table>

### Optional Speed Sensors

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>OMDC-PU-20E</td>
<td>Shaft-mounted NPN pickup sensor, 10 pulses per revolution</td>
</tr>
<tr>
<td>OMDC-PU-40E</td>
<td>Shaft-mounted NPN pickup sensor, 20 pulses per revolution</td>
</tr>
<tr>
<td>OMDC-PU-20EQUAD</td>
<td>Shaft-mounted NPN quadrature pickup sensor, 10 pulses per revolution</td>
</tr>
</tbody>
</table>

Comes complete with panel-mount hardware and operator’s manual.

**Ordering Example:** OMDC-DM800, digital tachometer with alarm relay output.