

## Introduction

Within the Danaher Controls A103 family you'll find a product to meet nearly every requirement for panel mounted control and indication. Housed in a DIN standard 36mm x 72mm case, the A103-003 meets the requirements for basic rate metering applications. No required programming leads to plug-and-play simplicity and minimal installation time.

The 4 digit supertwist LCD display provides easy viewing at a glance. For conditions where ambient light is poor, the display can be backlit by connecting an external DC (10-28 Volt) power supply. A single unit can accept NPN & dry contact inputs for low speed (30Hz) counting and PNP or square wave signals for high speed applications up to 10 kHz. In addition, magnetic inputs can also be used, thus providing a self-contained rate metering system that doesn't require external power.

Powered by either one or two replaceable 3V Lithium batteries, this unique design allows for a new battery to be installed before removing the old one, thereby retaining count total and program data. A low battery indicator appears on the screen to provide a warning several weeks before the end of battery life. If two batteries are used simultaneously, the individual expected life doubles to 10 years.

A NEMA 4X rating and a high level of noise immunity make this unit suitable for harsh environments. Several option modules are also available that provide added functionality and convenience.



## Features

- Large, easy to read 4-digit supertwist LCD with backlighting capability
- Time Interval Rate Measurement for increased accuracy
- 3 Volt lithium battery provides long life and eliminates the need for external power
- Accepts low speed (30 Hz) NPN & dry contact inputs, high speed (10 kHz) PNP signals or square wave signals, or magnetic inputs
- Option Modules provide added functionality and convenience
- Plug-and-Play simplicity
- NEMA 4X rated front panel for use in washdown environments

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**Technical Manual**  
**701954-0004**

**Dynapar brand**  
**A103-003**  
**Tachometer**

# O V E R V I E W

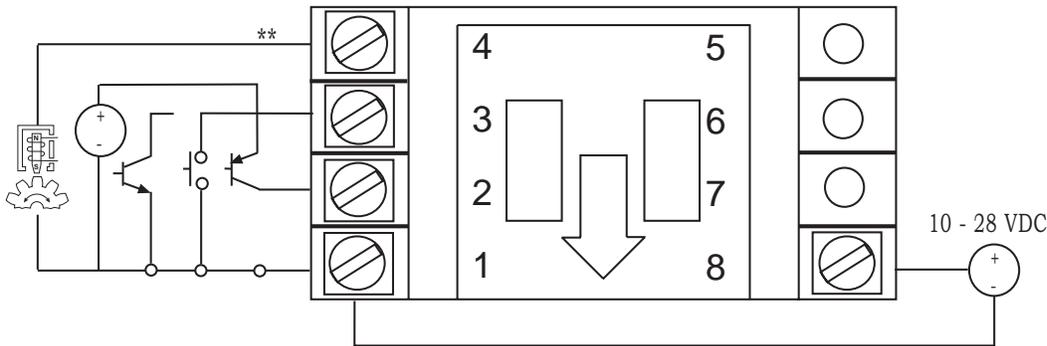
## OPERATION



1. Speed Display

1. Rate Display - Indicates the rate value equivalent to the input frequency based on a time interval (time between pulses) calculation. The displayed value will be equal to RPMs when a 60 PPR device is used as the input.

## REAR TERMINAL CONNECTIONS



1. Common

2. High Speed Input - PNP or square wave signals up to 10 kHz\*

3. Low Speed Input - NPN or dry contact inputs up to 30 Hz

4. Magnetic Input - Capacitive coupled inputs up to 10 kHz \*\*

5. Not Used

6. Not Used

7. Not Used

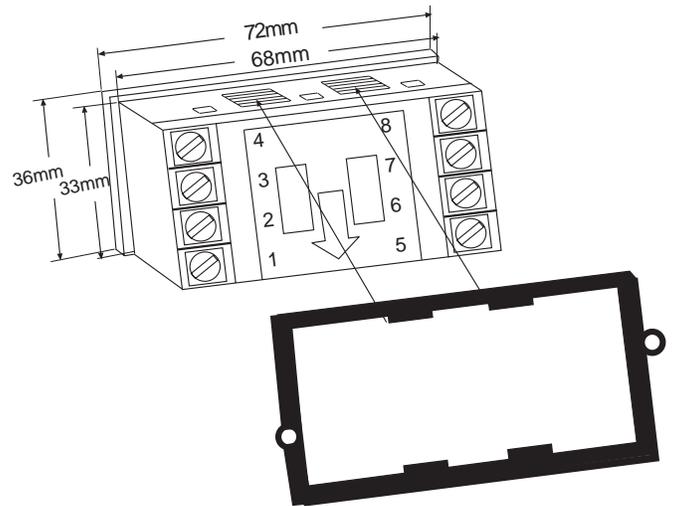
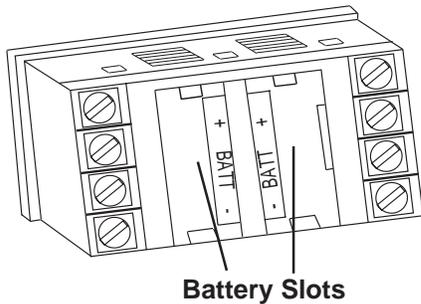
8. DC Supply Input - For backlighting

\* For high speed current sinking devices, provide a pull-up resistor from terminal 2 to a DC source

\*\* If not used, must be tied to common

# SETUP

## INSTALLATION



**Battery Installation** - The unit is shipped with one battery, which is not installed. Remove the battery cover by pushing inward and down. Install the battery in either of the two slots. The unit runs on a single battery, and the second slot is provided to allow for installing a new battery before removing the old one, retaining count total and program data. The unit can also be run on two batteries to extend the battery life to 10 years. Once the battery is in place the unit will go into a self test mode, and all the segments on the LCD display will be illuminated. The self test mode is exited by switching terminal 4 to terminal 1 (common), which will then display the model number (3). Again switch terminal 4 to terminal 1 for exit to normal operating mode.

**Front Panel Installation** - Place the unit in the panel through the 33mm x 68mm cutout. Slide the included gasket over the rear of the unit, then slide the panel mount bracket into place so that the 4 tabs catch in the groves on the top and the bottom of the unit (the bracket should be oriented so that the tabs are on the side nearest the panel). Use the provided panel mount screws to tighten the bracket until there is a secure seal against the gasket.

## SPECIFICATIONS

### High Speed Input (Terminal 2):

Type: PNP Signal or square wave pulse  
Count Speed: 10 kHz max (50% duty cycle),  
Logic: Low < 1.0 VDC, High > 2.0 VDC,  
Minimum Pulse Width: 45  $\mu$ second  
Maximum Input: 28VDC  
Impedance: 1 M $\Omega$  to battery

### Low Speed Input (Terminal 3):

Type: NPN Signal, Contact Closure  
Count Speed: 30 Hz max (50% duty cycle)  
Logic: Low < 1.0 VDC, High > 2.0 VDC  
Minimum Pulse Width: 12 ms  
Maximum Input 28VDC  
Impedance: 1 M $\Omega$  to battery

### Magnetic Input (Terminal 4)

Impedance: Capacitive coupled input  
Count Speed: 10kHz (50% duty cycle)  
Sensitivity: 0.2 volt peak  
Maximum input: 28 VDC

### Power Source:

Type: Single or dual 3V Lithium battery  
Expected Life: 5 years typical-single battery, 10 years typical-dual batteries  
Low Power Indicator: "Low Bat" flashes on display approx. 2 weeks prior to end of battery life

### Display:

Type: Supertwist LCD for use with or without backlighting  
Number: 4 digits  
Height: 12mm  
Backlighting: Green Illumination over whole viewable area with a 10 to 28 VDC supply (Terminal 8)

### Physical:

Dimensions: 36mm x 72mm, 38mm deep  
Mounting: Panel Mount (mounting bracket supplied)  
33mm x 68mm (+ 0.3mm) panel cutout  
Connections: Up to 8 screw terminals  
Weight: Approximately 2.25 ounces

## WARRANTY

Standard products manufactured by the Company are warranted to be free from defects in workmanship and material for a period of one year from the date of shipment, and products which are defective in workmanship or material will be repaired or replaced, at the option of the Company, at no charge to the Buyer. Final determination as to whether a product is actually defective rests with the Company. The obligation of the Company hereunder shall be limited solely to repair and replacement of products that fall within the foregoing limitations, and shall be conditioned upon receipt by the Company of written notice of any alleged defects or deficiency promptly after discovery within the warranty period, and in the case of components or units purchased by the Company, the obligation of the Company shall not exceed the settlement that the Company is able to obtain from the supplier thereof. No products shall be returned to the Company

without its prior consent. Products which the Company consents to have returned shall be shipped F.O.B. the Company's factory. The Company cannot assume responsibility or accept invoices for unauthorized repairs to its components, even though defective. The life of the products of the Company depends, to a large extent, upon the type of usage thereof, and THE COMPANY MAKES NO WARRANTY AS TO FITNESS OF ITS PRODUCTS FOR SPECIFIC APPLICATIONS BY THE BUYER NOR AS TO PERIOD OF SERVICE UNLESS THE COMPANY SPECIFICALLY AGREES OTHERWISE IN WRITING AFTER THE PROPOSED USAGE HAS BEEN MADE KNOWN TO IT.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.