

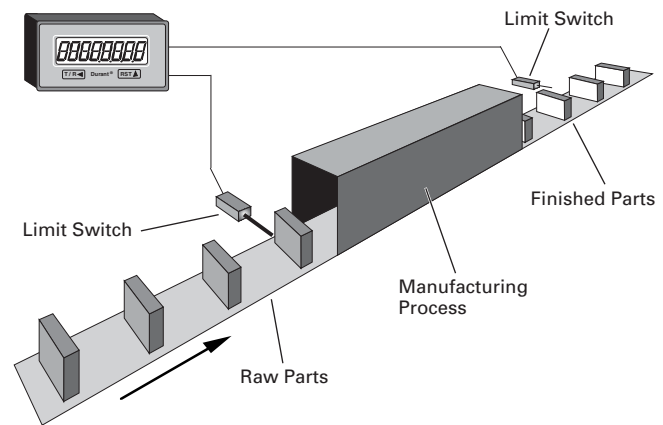
## Product Family Overview

## Introduction

Totalizers are used in a wide variety of applications where accurate totals are needed. Typical applications include counting the number of parts produced, amount of material used, or the number of machine cycles occurring. Totalizers are the simplest and most common type of counter. As an added bonus, some models can perform both totalizing and ratemeter functions.

## Application Example










Parts are fed into a machine or process, an operation is performed, and the finished parts exit the machine or process. The subtract totalizer is used to indicate the number of parts in process.



Application Example

## Totalizer Product Family Overview

Table 1. Product Family Overview

Product Family	Characteristics	Typical Applications	Panel Cutout in Inches (mm)	Page Number
 <i>E5-024-C</i>	<ul style="list-style-type: none"> <li>Non-replaceable battery (min. 8-yr. life)</li> <li>Compact, low cost and high efficiency</li> <li>8-Digit LCD totalizers</li> <li>Manual or electrical reset</li> <li>Various counting modes/inputs</li> </ul>	<ul style="list-style-type: none"> <li>Replacement for mechanical counters</li> <li>Transaction counting</li> <li>Parts counting</li> <li>Position indication or measurement</li> </ul>	0.870 x 1.772 (22 x 44)	22
 <i>E5-24-E</i>	<ul style="list-style-type: none"> <li>Compact device with bright, LED display</li> <li>Multiple functions available: count, time, rate, multifunction, double-function</li> <li>24V DC Power</li> </ul>	<ul style="list-style-type: none"> <li>Count, measure, time where small package and easy-to-read display required</li> <li>Position display</li> <li>Motor/pulley RPM</li> </ul>	0.870 x 1.772 (22 x 44)	24
 <i>E5-496-E</i>	<ul style="list-style-type: none"> <li>Economical, multifunction display</li> <li>Large, LED characters</li> <li>AC or DC power options</li> </ul>	<ul style="list-style-type: none"> <li>Large, easy-to-read display</li> <li>Position display</li> <li>Motor/pulley RPM</li> </ul>	1.772 x 1.622 (45 x 92)	27
 <i>Courier</i>	<ul style="list-style-type: none"> <li>Replaceable lithium battery</li> <li>8-digit, high-visibility LCD display</li> <li>Optional backlighting</li> <li>Various input options available</li> </ul>	<ul style="list-style-type: none"> <li>Portable/mobile/remote flow monitoring (e.g. sewer pumping, pesticide application)</li> <li>Position display, RPM</li> <li>Length measurement (e.g. carpet, cable)</li> </ul>	1.299 x 2.677 (33 x 68)	25
 <i>Eclipse</i>	<ul style="list-style-type: none"> <li>6-digit, super bright LED display</li> <li>Multiple models available: totalizers, ratemeters, count controls, digital panel meters and flow controls</li> </ul>	<ul style="list-style-type: none"> <li>Length measurement and control</li> <li>Flow monitoring and control</li> <li>Process monitoring and display</li> <li>Voltage and current monitoring and display</li> </ul>	1.772 x 1.622 (45 x 92)	28
 <i>Ambassador</i>	<ul style="list-style-type: none"> <li>8-digit, high-visibility, 2-line LCD display</li> <li>User-configurable control inputs</li> <li>Highly flexible control/display</li> </ul>	<ul style="list-style-type: none"> <li>Flow control where simultaneous total and rate display are required</li> <li>Cut-to-length and other simple processes where flexibility of inputs/outputs required</li> </ul>	2.667 x 2.667 (68 x 68)	34
 <i>President</i>	<ul style="list-style-type: none"> <li>Bright LED display w/14 mm characters</li> <li>Simple configuration with 14-button tactile keypad</li> <li>Many different versions fit almost any application</li> </ul>	<ul style="list-style-type: none"> <li>Cut-to-length machinery with batching</li> <li>Parts batching/palletizing</li> <li>Die press positioning control</li> <li>Applications where parameter changes are required</li> </ul>	2.667 x 5.433 (68 x 138)	30
 <i>Electromechanical</i>	<ul style="list-style-type: none"> <li>Various price, voltage and size ranges for different duty cycles and environments</li> <li>Long life and always readable display</li> </ul>	<ul style="list-style-type: none"> <li>Coin-operated equipment</li> <li>Gaming machines</li> <li>Printing presses</li> <li>Secondary machines (e.g. punch press)</li> </ul>	Various Mounting Configurations	16
 <i>Mechanical</i>	<ul style="list-style-type: none"> <li>Various size ranges for different duty cycles and environments</li> <li>No power supply needed</li> <li>Long life and always readable display</li> </ul>	<ul style="list-style-type: none"> <li>Winding and spooling equipment</li> <li>Position display</li> <li>Mechanical piece/cycle counting</li> </ul>	Various Mounting Configurations	3



Cat. No. 57601401

### Features

- AC/DC powered, 2-line LCD display
- 8-digit totalizer
- 1/Tau ratemeter
- Totalizer and ratemeter scaling
- Four user-configurable control inputs
- Up to two output relays
- Two solid-state outputs
- RS-485 Serial communications
- Feet/Inches control available

### Standards and Certifications

- UL Listed
- CE Marked

### Technical Data and Specifications

#### Power Input

- AC Operation —
  - 115V AC ( $\pm 15\%$ ) std., 50 to 60 Hz, 7W
  - 230V AC ( $\pm 15\%$ ) opt., 50 to 60 Hz, 7W
- DC Operation: 10 – 15V DC opt., 300 mA maximum

#### DC Power Output

- 12V DC ( $\pm 25\%$ ), 100 mA maximum (includes all line and load variations)

#### Environmental

- Operating Temperature: 32 to 131°F (0 to 55°C)
- Storage Temperature: -4 to 158°F (-20 to 70°C)
- Operating Humidity: 85% Relative, non-condensing
- NEMA 4 rating when mounted with gasket provided

#### Main Counter

- Type: Bi-directional
- Digits: 6
- Presets: Varies by Model
- Reset modes: Auto or manual reset to zero or preset
- Scaler Range: 0.00001 to 9.99999
- Decimal Point: 5 positions, (6 on 4-preset models)
- Output Latency: See **Table 40**

#### Batch Counter

- Type: Increment with main counter recycle or final preset signal
- Digits: 6
- Presets: 1
- Output Latency: < 1 mS

#### Totalizer

- Type: Bi-directional, same or opposite of main counter
- Digits: 8
- Scaler: Shared with main counter
- Decimal Point: Tracks main counter

#### Count Input Speeds

- See **Tables 42** and **43**

#### Count Inputs

- Sink —
  - Impedance: 4.6k ohms to +5V DC
  - Voltage —
    - High: 3.5 to 34.0
    - Low: 0.0 to 1.9V DC
- Source (high) —
  - Impedance: 2.3k ohms to common
  - Voltage —
    - High: 3.5 to 17.0V DC (100% duty cycle)
    - Low: 0.0 to 1.9V DC
- Source (low) —
  - Impedance: 2.3k ohms to common
  - DC Voltage —
    - High: 0.6 to 17.0V DC
    - Low: -17.0 to -0.6V DC
  - AC Voltage: 17V AC (48V Peak-Peak) maximum

#### Control Inputs

- Impedance: 4.7k ohms to +5V DC
- Voltage —
  - High: +3.7 to +24V DC
  - Low: 0.0 to 0.9V DC
  - Response: Minimum low 15 mS, minimum high 15 mS

#### Relay Outputs

- Type: SPDT contacts
- UL Ratings: 250V AC, 360V A Pilot Duty

#### Transistor Outputs (2)

- Type: NPN open collector with transient protection
- Maximum Voltage (OFF state): 30V DC
- Maximum Current (ON state): 200 mA @ 1.3V DC

#### Communication

- Type: RS-485
- Format: 1 start bit, 7 data bits (ASCII), 1 parity bit, 1 stop bit
- Protocol: Opto-22 compatible
- Speed: 300, 1200, 2400, 4800, 9600 and 19200 baud
- Parity: Odd, Even, None (space transmitted, ignore received)

#### Rate Indicator (Not available on models 57601-415 and 57601-485)

- Type: 1/Tau
- Digits: 6
- Presets: 2
- Scaler Range: 0.00001 to 99999
- Decimal Point: 5 positions, programmable
- Accuracy:  $\pm 0.015\%$  of reading
- Update Time: See **Table 41**
- Zero Time: See **Table 41**

#### Connections

- Type: Dual depluggable screw terminal strips
- Conductor Size: 14 – 22 AWG (2.1 – 0.38 mm<sup>2</sup>), 600V, solid, stranded, or fused (preferred)

## Ambassador Series — Durant®

Table 40. Output Latency for Ambassador Control

Style Number	Output Latency
5760X401	0.7 to 2 mS
5760X402	0.7 to 2 mS
5760X403	0.7 to 2.7 mS
5760X404	0.7 to 2.7 mS
5760X405	< 1 mS
5760X415	< 1 mS

Table 41. Rate Indicator Specs for Ambassador Control

Style Number	Update Time	Zero Time
5760X401	1 second, fixed	10 seconds, fixed
5760X402	1 second, fixed	10 seconds, fixed
5760X403	1 second, fixed	10 seconds, fixed
5760X404	1 second, fixed	10 seconds, fixed
5760X405	0.1 to 99.9 sec, programmable	0.1 to 99.9 sec, programmable
5760X415	0.1 to 999.9 sec, programmable	0.1 to 999.9 sec, programmable

Table 42. Ambassador Count Input Speeds — 5760X405, 5760X415 ①

Solid-State	A or B	A and B
A - B	8250/8250	3000/3000
A + B	8250/8250	4000/4000
-A + B	8000/8000	3000/3000
A, B Dir	8000/40	—
2A, B Dir	4500/40	—
A, B Rst	8250	—
Quad x 1	—	3250
Quad x 2	—	3250
Quad x 4	—	2000
Tot A/Cnt B	14000/9000	6500/6500
Tot + Cnt B	16000/8500	6500/6500

① Contact inputs = 40 Hz; B Direction inputs = 40 Hz and B Reset input = 10  $\mu$ S Min. Low. Input A not active on Feet/Inches control.

Table 43. Ambassador Count Input Speeds — 5760X401, 5760X402, 5760X403, 5760X404

Mode Input A/B	Maximum Speed ②	
	Solid-State (High Speed)	Contact (Low Speed)
Add/Sub	20 kHz	40 kHz
Add/Add	20 kHz	40 kHz
Count/Direction	15 kHz	40 kHz
Count x 2/Direction	7.5 kHz	—
Quadrature	6.5 kHz	—
Quadrature x 2	6.5 kHz	—

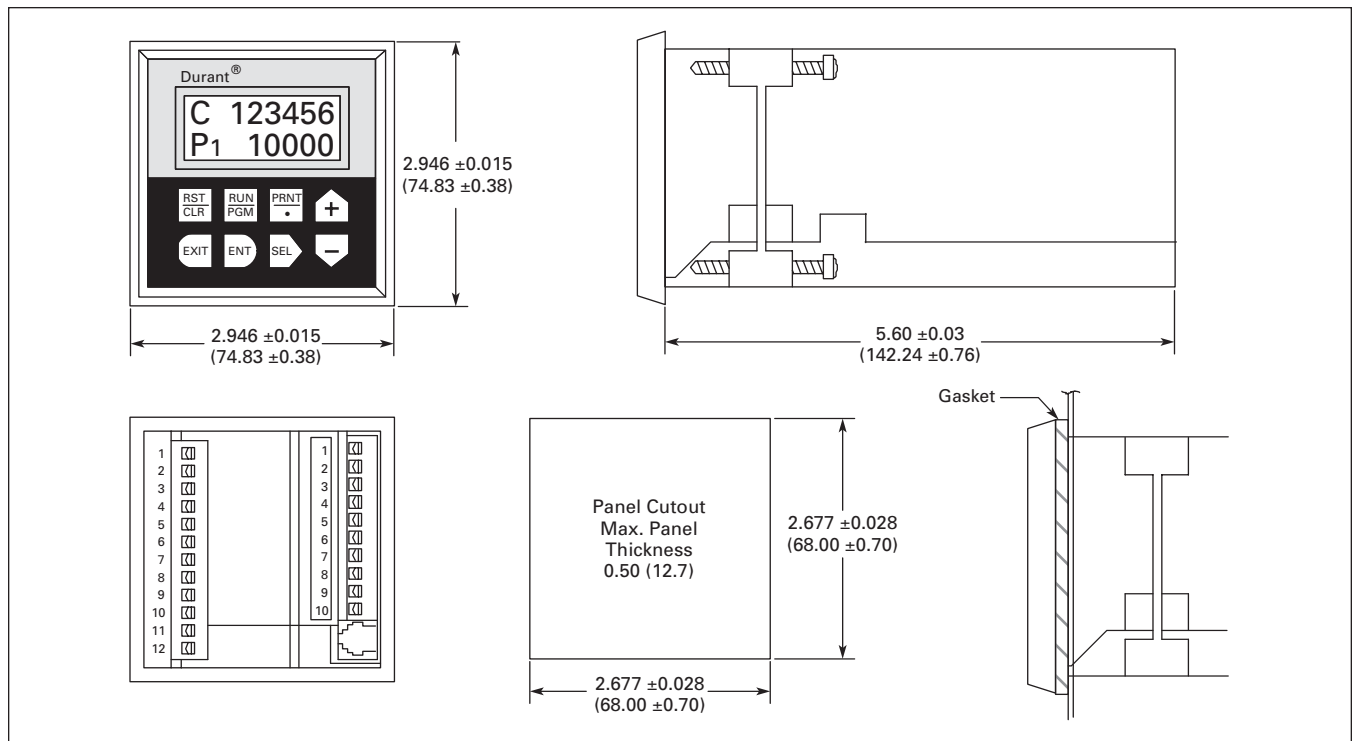
② The maximum count speed depends on the selected count mode. All maximum speeds are shown with square waves (50% duty cycle) input.

**Product Selection**

**Table 44. Product Selection — Ambassador Series Count Control**

Description	Catalog Number	*
Single Preset with Rate, 115V AC	<b>57601401</b>	
Single Preset with Rate, Batch and Totalizer, 115V AC	<b>57601402</b>	
Dual Preset with Rate, 115V AC	<b>57601403</b>	
Dual Preset with Rate, Batch and Totalizer, 115V AC	<b>57601404</b>	
Four Preset with Rate, Batch and Totalizer, 10 – 15V DC	<b>57600405</b>	
Four Preset with Rate, Batch and Totalizer, 115V AC	<b>57601405</b>	
Four Preset with Rate, Batch and Totalizer, 230V AC	<b>57602405</b>	
Feet/Inches Control, 115V AC	<b>57601415</b>	
Feet/Inches Control, 230V AC	<b>57602415</b>	

**Dimensions**



**Figure 48. Ambassador Series Count Control — Approximate Dimensions in Inches (mm)**