## 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.
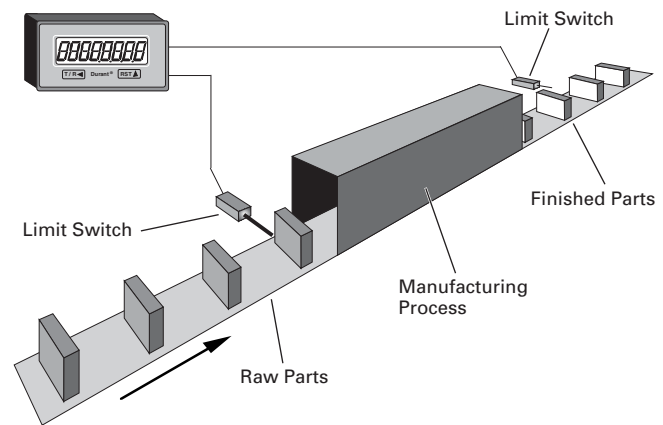
Application Example

Totalizer Product Family Overview

Table 1. Product Family Overview

Product Family	Characteristics	Typical Applications	Panel Cutout in Inches (mm)	Page Number
E5-024-C	■ Non-replaceable battery (min. 8-yr. life) ■ Compact, low cost and high efficiency ■ 8-Digit LCD totalizers ■ Manual or electrical reset ■ Various counting modes/inputs	■ Replacement for mechanical counters ■ Transaction counting ■ Parts counting ■ Position indication or measurement	0.870 x 1.772 (22 x 44)	22
E5-_24-E	■ Compact device with bright, LED display ■ Multiple functions available: count, time, rate, multifunction, double-function ■ 24V DC Power	■ Count, measure, time where small package and easy-to-read display required ■ Position display ■ Motor/pulley RPM	0.870 x 1.772 (22 x 44)	24
E5-496-E	■ Economical, multifunction display ■ Large, LED characters ■ AC or DC power options	■ Large, easy-to-read display ■ Position display ■ Motor/pulley RPM	1.772 x 1.622 (45 x 92)	27
Courier	■ Replaceable lithium battery ■ 8-digit, high-visibility LCD display ■ Optional backlighting ■ Various input options available	■ Portable/mobile/remote flow monitoring (e.g. sewer pumping, pesticide application) ■ Position display, RPM ■ Length measurement (e.g. carpet, cable)	1.299 x 2.677 (33 x 68)	25
Eclipse	■ 6-digit, super bright LED display ■ Multiple models available: totalizers, ratemeters, count controls, digital panel meters and flow controls	■ Length measurement and control ■ Flow monitoring and control ■ Process monitoring and display ■ Voltage and current monitoring and display	1.772 x 1.622 (45 x 92)	28
Ambassador	■ 8-digit, high-visibility, 2-line LCD display ■ User-configurable control inputs ■ Highly flexible control/display	■ Flow control where simultaneous total and rate display are required ■ Cut-to-length and other simple processes where flexibility of inputs/outputs required	2.667 x 2.667 (68 x 68)	34
President	■ Bright LED display w/14 mm characters ■ Simple configuration with 14-button tactile keypad ■ Many different versions fit almost any application	■ Cut-to-length machinery with batching ■ Parts batching/palletizing ■ Die press positioning control ■ Applications where parameter changes are required	2.667 x 5.433 (68 x 138)	30
Electromechanical	■ Various price, voltage and size ranges for different duty cycles and environments ■ Long life and always readable display	■ Coin-operated equipment ■ Gaming machines ■ Printing presses ■ Secondary machines (e.g. punch press)	Various Mounting Configurations	16
Mechanical	■ Various size ranges for different duty cycles and environments ■ No power supply needed ■ Long life and always readable display	■ Winding and spooling equipment ■ Position display ■ Mechanical piece/cycle counting	Various Mounting Configurations	3

President Series — Durant®

Cat. No. 58811400

Features

- 8-digit, LED display, 0.56" (14 mm)
- Programmable decimal point and count and rate scaling
- 15V DC @ 100 mA output power
- Rear panel screw terminals
- NEMA 4 front panel

Standards and Certifications

- UL Listed, CSA marked
- CE Marked

Technical Data and Specifications

Power Requirements

- AC Operation: 115/230V AC (+10%, -20%) 47 – 63 Hz
- DC Operation: 11 – 28V DC
- Power: 18 watts

DC Power Output

- 15V DC (+1, -2).
- 150 mA if powered from AC or less than 24V DC
- 100 mA if powered from 24V DC or greater

Note: DC power output is only regulated if unit is powered by AC or greater than 18.5V DC.

Environment

- Operating Temperature: 32 to 130°F (0 to 55°C)
- Storage Temperature: -40 to 160°F (-40 to 70°C)
- Operating Humidity: 85% non-condensing relative

Physical

- Memory Types: PROM, RAM, Non-volatile NVRAM

Counter

- Count Range: 8 digits (0 to 99,999,999) with rollover
- Offset Range: 8 digits (0 to 99,999,999) (Offset is used to reset to a non-zero number.)
- Count Modes —
  - Count with Add and Subtract inputs
  - Count with Up/Down direction input (Hardware doubling for above modes is provided)
  - Count with Count Inhibit input
  - Quadrature
  - Doubled Quadrature
- Count Speed (Scale Factor of 1.0000 assumed)
  - 0 to 7,500 counts per second (CPS) with Durant Shaft Encoders or solid-state sensors
  - 0 to 3,750 CPS when hardware doubling is implemented or when quadrature shaft encoders are used
  - 0 to 150 CPS when Low Frequency is selected

Count Input Ratings

The count inputs are designed to work with current sinking sensors (open-collector NPN transistor output with or without passive pull-up resistor) or contact closures to DC Common.

- Input Voltage —
  - High state (Logical "1", sensor off or contact open)
    - 10.5 – 24.5V DC when control is powered by AC line
    - 7.0 – 24.5V DC when control is powered by 11V DC
    - 11.0 – 24.5V DC when control is powered by 16V DC
  - Low state (Logical "0", sensor on or contact closed)
    - 0 – 4.5V DC when control is powered by AC line
    - 0 – 3.3V DC when control is powered by 11V DC
    - 0 – 4.8V DC when control is powered by 16V DC
- Input Impedance —
  - 6800 ohms to 15V DC when control is powered by AC line
  - 6800 ohms to 10V DC when control is powered by DC supply
- Input Current: 20 mA peak, 3 mA steady state

Input Response —

- High State (Logical "1", sensor off or contact open)
  - High Speed (Low Speed jumpers not connected)
  - 110 µS minimum at 15V DC (6,800 ohms to +DC)
  - 160 µS minimum at 13.5V DC (50,000 ohms to +DC)
- High State (Logical "1", sensor off or contact open)
  - Low Speed (Low Speed jumpers connected)
  - 5.5 mS minimum at 15V DC (6,800 ohms to +DC)
  - 7.5 mS minimum at 13.5V DC (50,000 ohms to +DC)
- Low State (Logical "0", sensor on or contact closed)
  - High Speed (Low Speed jumpers not connected)
  - 20 µS minimum at 0.1V DC (0 ohms to DC Common)
  - 45 µS minimum at 1.5V DC (500 ohms to DC Common)
- Low State (Logical "0", sensor on or contact closed)
  - Low Speed (Low Speed jumpers connected)
  - 1.0 mS minimum at 0.1V DC (0 ohms to DC Common)
  - 2.0 mS minimum at 1.5V DC (500 ohms to DC Common)

Scale Factor

- Range: 5 digits (0.0001 to 9.9999)

Control Inputs

- Input Voltage —
  - High State (Logical "1", contact open) 15V DC maximum
  - Low State (Logical "0", contact closed) 1.2V DC maximum
- Input Impedance: 4.75K ohms to +5V DC.
- Threshold —
  - High: +3.5 to +22V DC
  - Low: +0.0 to +1.0V DC
- Response Time —
  - Min. High: 5.3 mS
  - Min. Low: 3.9 mS

Note: The reset and unlatch signals will both occur in less than 200 microseconds after the input signal is detected. The start of the print will occur within 2 milliseconds after the input is detected if the unit is not counting.

Diagnostic Modes
- ROM Checksum
- RAM Bit Test
- NVRAM Read/Write Test
- NVRAM Store Test
- NVRAM Checksum
- Watchdog Timer
- Display and LED Indicator Test

Communications
- Interface Type: Dual port 20 mA current loop
- Speed: 110, 300 and 1200 Baud, user selectable
- Data Type: Standard ASCII code
- Format: Start bit, 7 ASCII data bits, Parity bit, one or two Stop bits (Even parity for Serial Data Output, no parity for Serial Data Input)
- Information Transmitted —
  - Count value
  - Offset value
  - Scale Factor
- Information Received —
  - Print request
  - Offset value
  - Scale Factor

Product Selection

Table 33. Product Selection — President Series Totalizers

Description	Catalog Number	*
115/230V AC, LED Red Display	**58811400**	
115/230V AC, LED Red Display, 1/Tau Ratemeter	**58815400**	

Dimensions
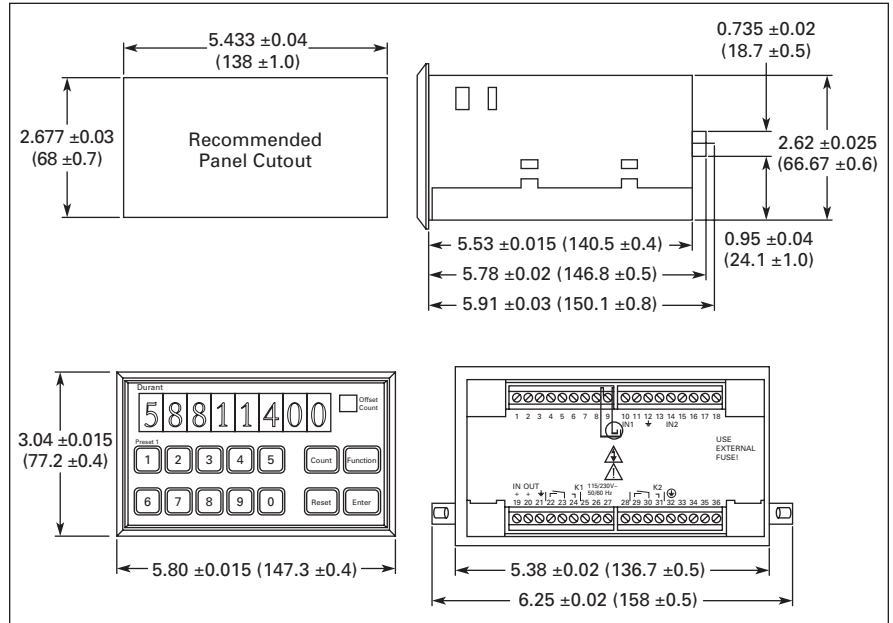
Figure 42. President Series Totalizers — Approximate Dimensions in Inches (mm)