



ABOUT REDINGTON

Since 1961 REDINGTON has offered products that have proven to be rugged and manufactured to the highest quality standards. Over several decades we have focused on bringing our customers quality products at competitive prices. This catalog contains several new and innovative products confirming our commitment to provide state-of-the-art solutions for our customers.

Over the past few years, we have committed to developing the capabilities to provide the finest electronic solutions for our customers' counting, elapsed time indicating and controlling needs. We have done this while continuing to supply and support our broad range of rugged mechanical and electromechanical products. We stand ready to work with our customers to provide cost effective solutions and to match the best technology with your applications.

CUSTOMER SERVICE

We are committed to providing the best customer service anywhere. We strive to provide our customers with prompt replies, on time delivery and hassle free customer satisfaction. Our goals are to serve our customers and take the extra steps necessary to satisfy your requirements.

We provide field assistance backed up by competent technical support from our headquarters location. We have Authorized Distributors and Representatives throughout North America that stand ready to assist our customers. Contact your local Sales Representative, or call us at the factory, to get the name of your nearest authorized distributor.

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Electronic

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HOURL METERS

Electronic

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Electromechanical

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Electronic

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DIGITAL PANEL METERS

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TOTALIZING COUNTERS

Totalizing counters are used to sum the total number of cycles or inputs to a device. These counters have no "outputs". Totalizers can be Mechanical, Electromechanical or Electronic.

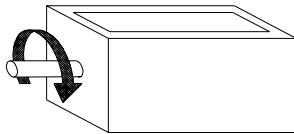
Totalizers are typically used to total cycle count, piece count, and linear length or to indicate position. Displays for Mechanical & Electromechanical Totalizers are molded figure wheels usually displaying 0-9 digits on a contrasting background and have a count capacity of 3-8 figures.

Mechanical Totalizers

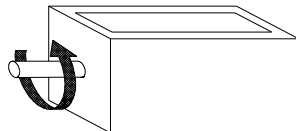
The input for Mechanical Totalizers can be Rotary, Stroke or Rotary Ratchet. Mechanical Totalizers require no operating power or sensor and are easy to install. For hand operated applications you need to consider our Model 18, Model 19 or Model 46 with thumb lever option.

SHAFT ROTATIONS: Arrows indicate shaft rotation to increase count.

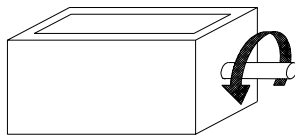
Left-hand top-coming:
(rotation #1)



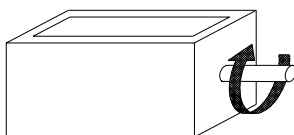
Left-hand top-going:
(rotation #2)



Right-hand top-coming:
(rotation #3)

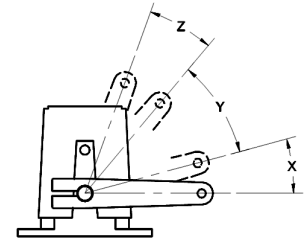


Right-hand top-going:
(rotation #4)



Basic operation of a mechanical stroke counter

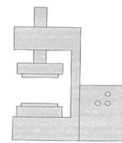
The illustration below shows the lever in the rest position with a total shaft rotation of $X+Y+Z$. Although these angles may differ from model to model, the total shaft rotation contains a pre-travel (X), a count stroke (Y), and an over-travel (Z). The lever must start in the pre-travel area and continue through to the over-travel area to register a count. It is recommended that the spring furnished with the counter be used to simplify adjustment of count stroke to drive mechanism.



Note: This illustrates rotations 2 and 3 only.

Typical Applications

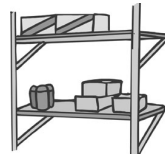
Punchpress



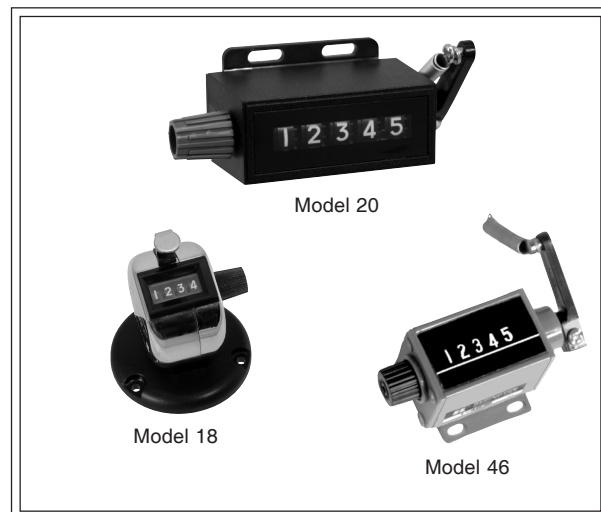
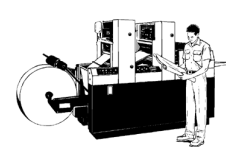
Gaming



Inventory



Printing Press

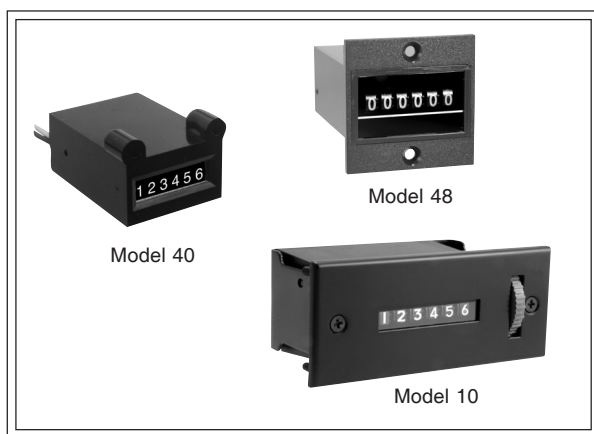
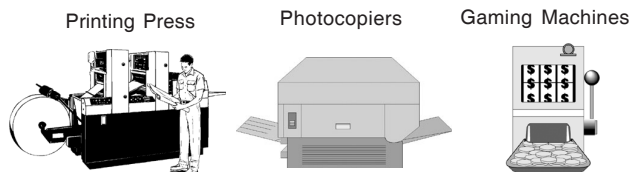




Electromechanical Totalizers

These count on AC or DC voltage input signals. Electro-mechanical Totalizers are often used when it is desirable to mount the totalizer in a “remote” location. The input can be from a variety of sensors including a Proximity switch, Photoelectric or Mechanical switch. Several choices are available for mounting, reset and add-subtract counting.

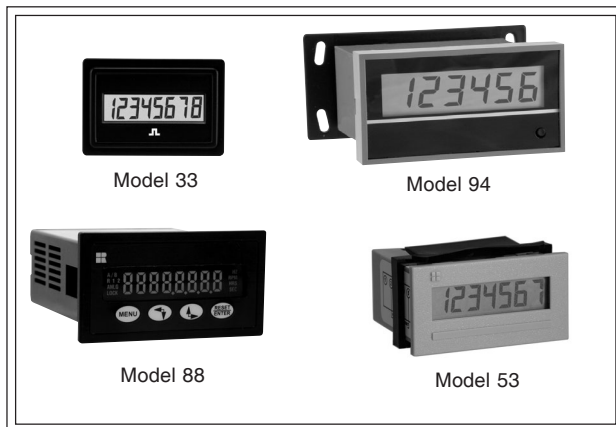
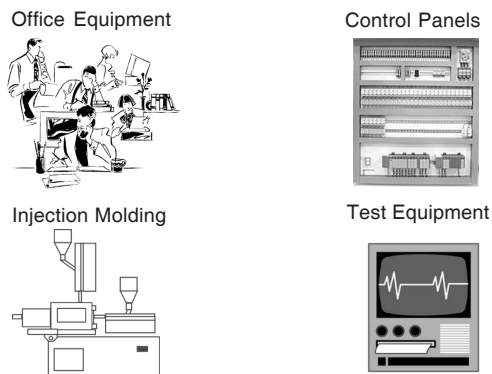
Typical Applications



Electronic Totalizers

Electronic Totalizers utilize LED's or LCD's as displays with a variety of colors and digits sizes. The count capacity can be up to 8 digits with leading “0” suppression. Electronic Totalizers provide the user with several advantages over Mechanical or Electromechanical Totalizers. Electronic Totalizers are silent, have high- speed count/input capability, interface easily with a variety of sensors, have communications, programmable decimal points, input scaling and quadrature inputs.

Typical Applications



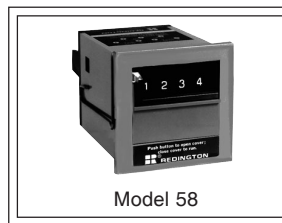
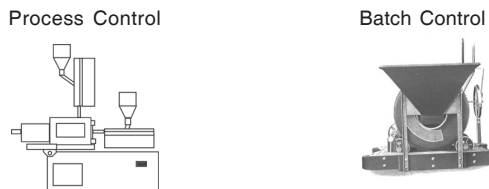
PREDETERMINING COUNTERS/TIMERS

Predetermining counters can provide the user with an output signal when a preset number is reached. Typical applications are controlling batch or lot size, positioning, punching, converting or cut-to-length.

Electromechanical Predetermining Counters

Electromechanical predetermining counters are easy to preset and apply. They are ideal for slow batch counting and remote locations. They are limited on their count speed and do not have automatic reset capability. The input signal is an AC/DC voltage source and can come from switch or relay contacts, photoelectric control or proximity switch.

Typical Applications



Electronic Predetermining Counters/Timers

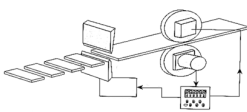
They provide an output signal, relay contacts or solid state, when a preset number is reached. They can be used for cut-to length, batch or cycle counting, punching and positioning. They can also interface with most sensors including Encoders, Proximity switches and Photoelectric controls. Some models are available with an analog input and output.



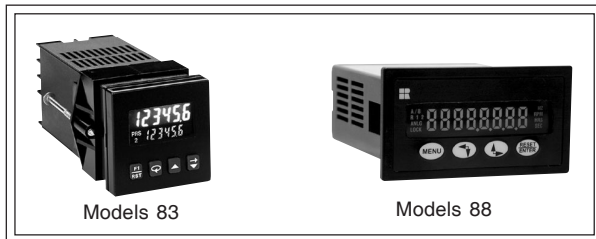
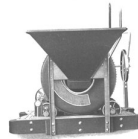
They feature high speeds, silent operation, instant reset, without loss of incoming counts, bi-directional count capability, data communications, LED or LCD displays, programmable decimal points and input scaling.

Typical Applications

Cut-to-Length



Batching

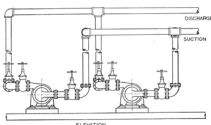


RATE INDICATORS AND CONTROLLERS

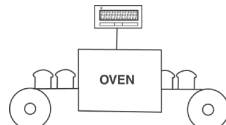
Rate Indicators and Controllers can be used to monitor or measure frequency or RPM. Hand Held Tachometers are available to measure RPM or Linear speed. Panel mount indicators/controllers can display and control High-Low set-point limits and provide an output signal for controlling.

Typical Applications

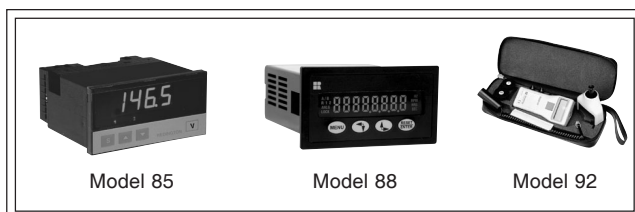
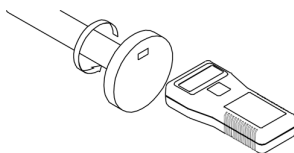
Flow Level and Control



Temperature



Hand-Held Tachometer

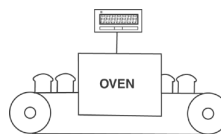


DIGITAL PANEL METERS

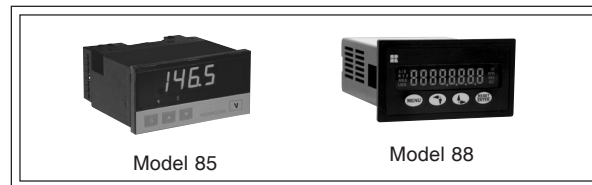
Digital Panel Meters can be used to solve a wide range of applications. These include, Indication or Controlling, Volts, Current, Ohms, Temperature, Frequency and RPM. The Redington Model 85 is modular and the main housing, with modules, can be utilized to solve all of the applications below. The Model 85 has "plug-in" modules, which can be configured to the users needs or specifications. The 1/8 DIN enclosure is rated for IP65 and is available with a RED or GREEN LED display.

Typical Applications

Temperature



Volts/Amps



HOURL/MAINTENANCE METERS

Hour/Maintenance Meters are used to record "running" hours for preventive maintenance or warranty purposes. There are several mounting variations available, 2-Hole rectangular, flush-round, flush rectangular, 3-Hole round and PCB Modules. Other models are available for mounting by a DIN rail kit. A wide range of voltages, AC DC or Inductive, makes the Meters adaptable to almost any application. Most Hour Meters are available with 6-7 figures or digits. "Redi-Alert" maintenance alarms can be programmed into the Electronic meters. When the maintenance is due the display will flash off - on and can provide an electrical output by relay or solid- state circuit. Some Meters can record Hour & Counts in the same model.

Electromechanical Hour Meters

Totally sealed Models are provided for harsh environments that conform to SAE J1378 specifications. Models are available with 6-7 figures on a contrasting background. Manual-reset, remote reset and non-reset models provide a wide choice of options. Most models are agency approved, UL/cUL/CSA recognized and CE compliant. This technology is time tested and has proven to be ultra reliable.

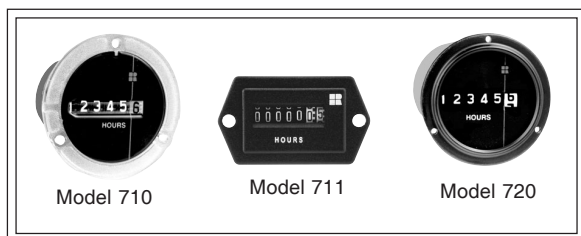
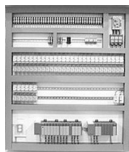


Typical Applications

Test Equipment



Control Panel



Electronic Hour Meters (LCD)

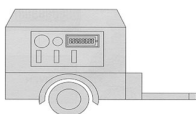
The standard mountings for the industry are available. These products are microprocessor based and can be specifically programmed for an application. Models are available with Redi-Alerts, electrical outputs, tachometers, battery operation, or EEPROM memory. Models are also available with an Hour Meter and Counter in the same meter. Totally sealed models conform to SAE-1378 and NEMA 4X specifications.

Typical Applications

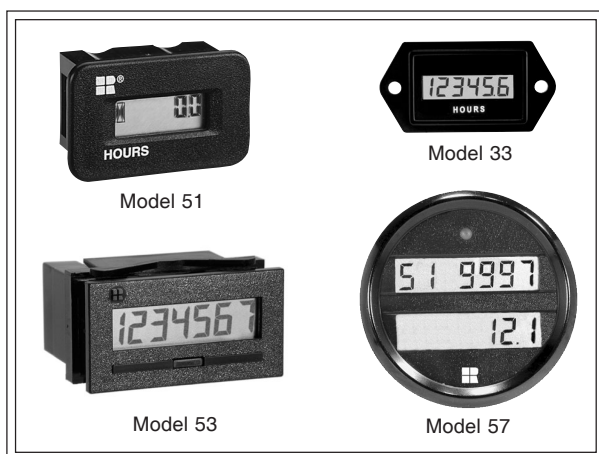
Construction Equipment



Generators



Medical Equipment





Description

The Redington Model 33 line of LCD counters provides a large display, 7mm high figures, in an eight digit counter. The counters are available in a variety of mountings: 2-hole rectangular, 3-hole round, flush-round and flush-rectangular. Voltage operating ranges are 10-277 VDC AND 20-277VAC. All models are totally sealed from moisture and dirt and conform to NEMA 4 & 4X specifications when mounted with the optional gasket. Their rugged construction makes them ideal replacements for current electromechanical counters. Units have polarized LCD for high visibility in sunlight.

Features

- AC or DC voltage input in the same unit
- Totally sealed from moisture and dirt
- Always on display
- Compact depth
- Clip retainer mount or screws (supplied)

Options

- Custom logos and bezels
- Terminations
- Remote reset - dry contact with 6" wire leads
- Gaskets
 - 5003-002S gasket for 2-hole mount
 - 5003-003S gasket for flush-rectangular mount
 - 5003-004S gasket for flush-round mount
 - 5003-005S gasket for 3-hole round mount

Specifications

Display: LCD with large 0.28" [7mm] high figures, black on light background
Records & Displays: 8 digit (99999999)
Inputs: 10 to 277VDC AND 20-277VAC
Vih* 20VAC or 10VDC minimum
Vil* 3VAC or 3VDC maximum
Speed: 25 counts per second
Battery Life: 7+ years
Shock: 44 to 55g's, SAE J1378
Vibration: 20 g @ 10 to 80 Hz, SAE J1378

Humidity: 95% SAE J1378
Operating Temperature: -40°F to +185°F [-40°C to +85°C]
Sealing: Totally sealed, panel gaskets-NEMA 4 & 4X
Agency Approvals: CE compliant
UL/cUL recognized (file# ELIY2.E36690)
Termination: 0.250" [6.4mm] spades
Reset: Optional - dry contact with 6" wire leads
Case Material: Polymer (black)
Weight: 1oz [28g]

* Vih is the input high voltage. This is specified as the minimum input voltage that the Model 33 will recognize as a high level.
Vil is the input low voltage. This is specified as the maximum input voltage that the Model 33 will recognize as a low level.

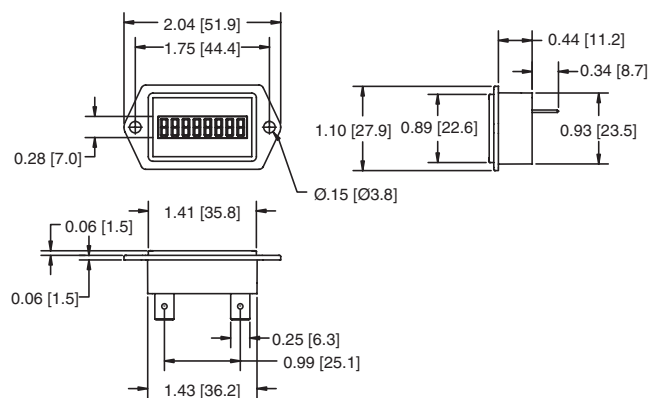
Note: When interfacing the Model 33 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

Models	Description	Models	Description
3301-0000	2-Hole Rect., 10-277 VDC AND 20-277VAC	3301-0010	2-Hole Rect., 10-277 VDC AND 20-277VAC, remote reset
3301-1000	3-Hole Round, 10-277 VDC AND 20-277VAC	3301-1010	3-Hole Round, 10-277 VDC AND 20-277VAC, remote reset
3301-2000	Flush-Rect., 10-277 VDC AND 20-277VAC	3301-2010	Flush-Rect., 10-277 VDC AND 20-277VAC, remote reset
3301-3000	Flush-Round, 10-277 VDC AND 20-277VAC	3301-3010	Flush-Round, 10-277 VDC AND 20-277VAC, remote reset

* All Items are normally in factory stock.

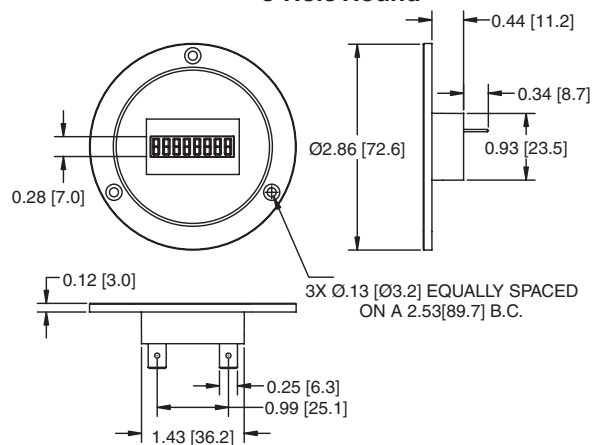
Dimensions

2-Hole



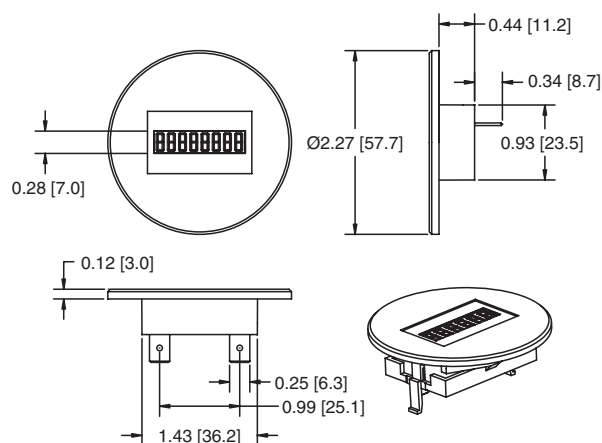
In-front panel cutout: 1.45 X 0.95 [24.0 x 37.0]
Behind panel cutout: 1.42 X 0.90 [22.9 x 36.1]

3-Hole Round



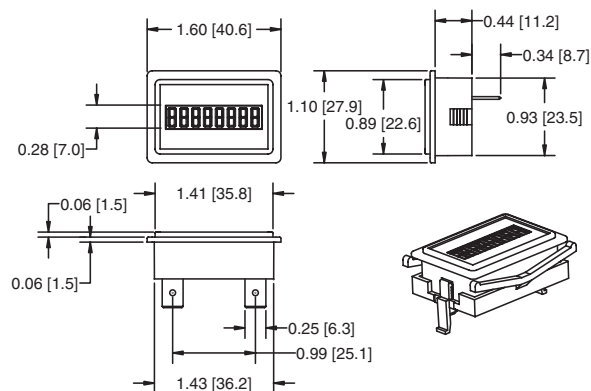
Panel cutout: 1.45 X 0.95 [24.0 x 37.0]

Flush-Round



Panel cutout: 1.45 X 0.95 [24.0 x 37.0]
Maximum panel thickness: 0.15 [3.8]

Flush-Rectangular



Panel cutout: 1.45 X 0.95 [24.0 x 37.0]
Maximum panel thickness: 0.15 [3.8]

Applications

Medical Devices



Control Panels



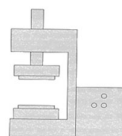
Secondary Equipment



Test Equipment

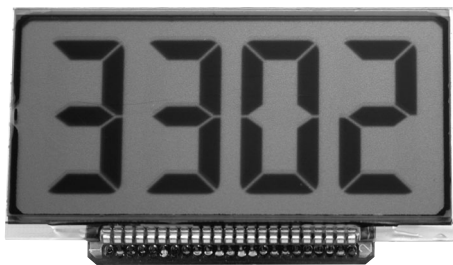


Production Equipment

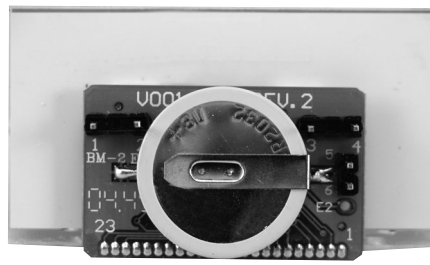


Office Equipment





Front



Back

Description

The Redington Model 3302-4322 LCD counter provides a very economical, large 4-digit display, 0.75" [19mm] with a PCB mount. The counter is designed to accept dry contact or other solid-state switch-mode inputs. It has remote reset capability that is compatible with dry contact or switch-mode inputs. The maximum pulse frequency is up to 30Hz. The counter is battery operated with a rated life of 5 years.

Features

- Large LCD display
- Always on display
- Contact closure input & remote reset
- PCB mount

Options

- Non-reset

Specifications

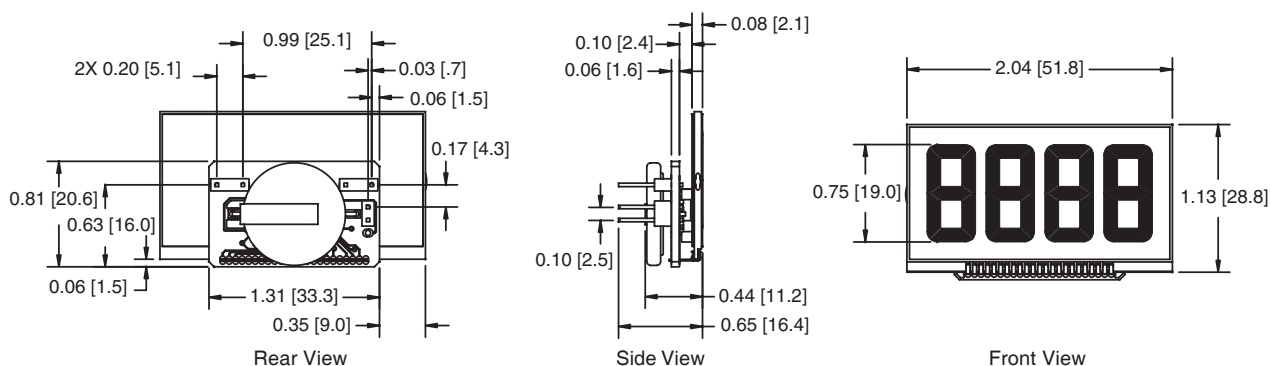
Display: Large 0.75" [19mm], LCD, black on light background
Displays: 4 digit (9999)
Inputs: Dry contact closure or solid-state switch-mode input
Remote Reset: Dry contact closure or solid-state switch-mode input
Battery Life: 5 years (with 50% input duty cycle)

Temp. Range: -40°F to 185°F [-40°C to 85°C]
Agency Approvals: CE Compliant
Termination: (6) 0.025 [0.64] square pins
Weight: 0.5oz, [14g]

Model Description

3302-4322 4-digit, LCD, 0.75" [19] PCB mount, dry contact closure input and remote reset

Dimensions



Applications

Panel Builders



Test Equipment



Medical Devices

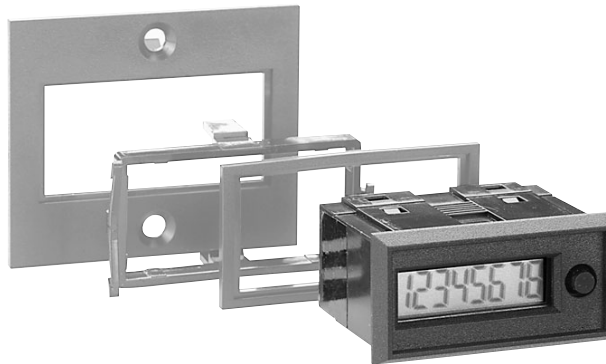


Events or People Counter



Office Equipment





Description

The Model 52 LCD 8-digit Miniature Electronic Counter offers a low cost general purpose miniature totalizer with a 10 year internal lithium battery. It is an economical replacement for electromechanical counters and is available for bi-directional or quadrature inputs. Front panel reset button can be enabled or disabled by a wiring connection or external contact closure. Easy snap in mount fits 0.94" x 1.89" [24 x 48mm] DIN panel cutout (0.98" x 1.97" [25 x 50mm] with adaptor).

Features

- Contact closure/open collector low speed count input with integral de-bounce circuitry (5200-0000)
- Quad signal compatible using 5211-0000 plug-in adaptor. This permits add/subtract counting in synchronization with forward/reverse motion without count loss or gaining additional counts. (5210-0000).
- Front panel meets NEMA4/IP65 specification for indoor use.
- Counting up to 10kHz.
- 7mm black characters, on a light background, LCD display.

Options

- Optional triggering from any voltage between 5 and 240VAC or VDC using the 5202-0000 adaptor and the Model 5200-0000.
- Choice of mounting available, front panel with supplied bezel or rear mounting clip.

Specifications

Power:	Internal lithium battery. Nominal life 10 years	Low Speed Count Input:	(Model 5200-0000) (PIN4) contact closure/open collector with integral de-bounce circuitry. 30Hz maximum, negative edge triggered, 0.7V threshold, 15 mS minimum closure time
Display:	8 digit black LCD, 0.3" [7.6mm] characters with leading zero blanking	High Speed Count Input:	(Model 5210-0000) (PIN 5) electronic input 10kHz maximum, negative edge triggered, 0.7 threshold 50µS minimum pulse length, TTL/CMOS compatible
Manual Reset Enable:	(PIN 2) link to COMMON (PIN 1) to enable front panel reset button	Operating Temperature:	+14°F to +140°F [-10°C to +60°C]
Count Range:	99,999,999 display rollover to zero, leading zeros suppressed	Storage Temperature:	-4°F to +140°F [-20°C to +60°C]
External Reset:	(PIN 3) contact closure/open collector, negative edge triggered. 0.7 threshold. 15mS minimum closure time	Environmental Protection:	Front panel is NEMA4/IP65 using gasket supplied.
Direction Input:	(Model 5210-0000) (PIN 4) connection or electronic input TTL/CMOS compatible. Add= no connection or > 2.4 volts (logic 1) ; subtract = connect to COMMON or, 0.7V (logic 0) direction input must precede count input by 5µS (minimum) for valid operation.	Mounting:	Either with clip mount or two front screws with bezel supplied.
		Approvals:	UL Recognized, CE Compliant
		Weight:	2 oz. [57g]

Models	Description	Models	Description
5200-0000	Counter/Unidirectional, count up	5202-0000	High voltage pulse adaptor (for use with 5200-0000 only)
5210-0000	Counter/Bidirectional, (Add/Subtract)	5211-0000	Quadrature adaptor (for use with 5210-0000 only)
5201-0000	Terminal block adaptor		

* Items in bold are normally in factory stock.



Accessory Descriptions

5201-0000 SCREW TERMINAL ADAPTOR

The 5201-0000 adaptor provides screw terminal connections for conductors up to 0.098in² [2.5mm²]. The adaptor snaps on to the rear of the counter. The terminals are protected to the touch and are easily accessible.

5202-0000 HIGH VOLTAGE ADAPTOR

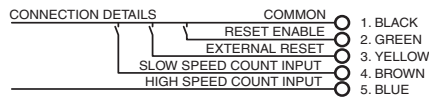
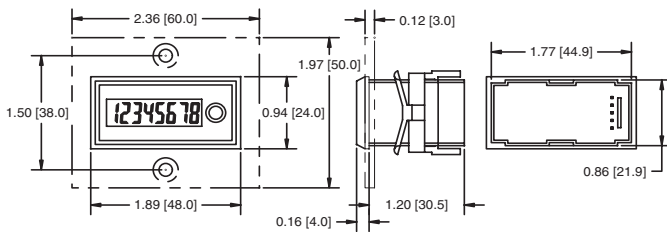
This is a plug in adaptor for use with the 5200-0000. This input adaptor module permits the use of high voltage input pulses from 5-240VAC or VDC. Opto-isolation provides input to output isolation of 5000V. The adaptor plugs into the rear of the counter by integral clips. Connection is by screw terminal for conductors up to 0.098in² [2.5mm²].

5211-0000 QUAD ADAPTOR

This is a plug-in adaptor for the (5210-0000) add/subtract counter. It converts the signal from a quadrature output sensor such as a shaft encoder into count and direction signals. The adaptor retains direct access to the external reset on the 5210-0000. Connection by screw terminals for conductors up to 0.098in² [2.5mm²].

Dimensions

Model 5200-0000



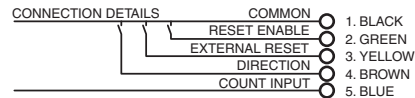
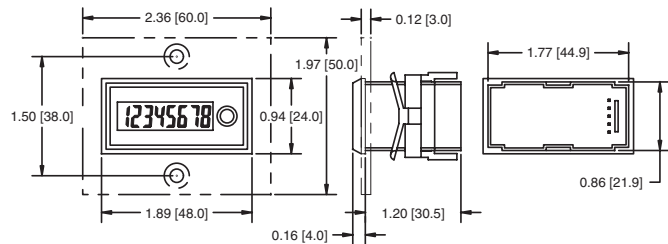
Panel Cutout

1.87" x 0.87" [47.5 x 22.1] +0.02 - 0.0, 1.97" X 0.98" [50.0 x 24.9] with panel adaptor.)

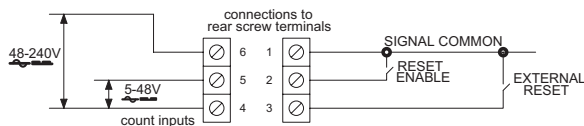
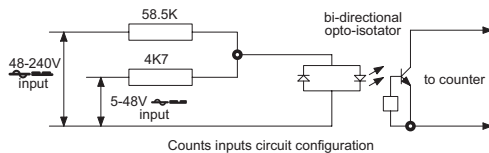
Maximum Panel Thickness

0.3" [7.5mm]

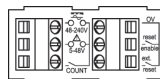
Model 5210-0000



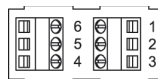
High Voltage Adaptor



High Voltage Adaptor



Quadrature

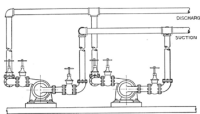


Terminal Block

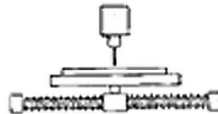


Applications

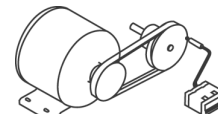
Flow Meter



Positioning



Rotation





Description

The Model 53 Electronic Totalizer with 7 or 8 LCD digits is ideal as a replacement for electromechanical totalizers or where external power is not available. Powered by an internal lithium battery these products are highly reliable and provide the user with a choice of several options; with or without reset and multiple count ranges for optimized performance. The case is available in either tan or black.

Features

- Lithium battery
- Choice of non-reset or remote reset
- Switch (no-voltage), 3-30VDC, 20-250VAC/VDC

Options

- Case color
- Mounting adapter plates
- 8 digits
- 5003-001S - gasket
- Low AC voltage (4-30 VAC)

Specifications

Figures:	7 or 8 LCD figures, 0.32" [8mm] high	Weight	2 oz. [57g]
Reset:	Remote, manual, and non-reset	Temperature:	
Speed:		Operating:	-4°F to +140°F [-20°C to +60°C]
7 Digit:	0-40 counts/second [min. 12.5ms - on, 12.5ms - off] 0-150 counts/second [min. 3.3ms - on, 3.3ms - off]	Storage:	-40°F to +165°F [-40°C to +75°C]
8 Digit:	0-35 count/second [min. 14.3ms - on, 14.3ms - off]	Humidity:	0 to 95% RH, non-condensing
Inputs:	Switch (no-voltage), 3-30VDC, 20-250VAC/VDC Vih 20VAC/3VDC minimum Vil 3VAC/1VDC maximum	Vibration	
Power:	Self-powered (internal lithium battery)	Operating:	10 to 55Hz, 0.01" [0.25mm] double amplitude
Mounting:	Panel with clip	Non-Operating:	10 to 55Hz, 0.03" [0.75mm] double amplitude
Terminations:	Terminal block, or connector with 8" [200mm] wire leads	Shock	
Battery Life:	~20years	Operating:	10G
		Non-Operating:	30G
		Dielectric:	1000VAC 50/60Hz for 1 minute
		Accuracy:	100% [Provided Signal Meets Stated Parameters]
		Approvals:	UL Recognized, CSA Certified, CE Compliant

Note: When interfacing the Model 53 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

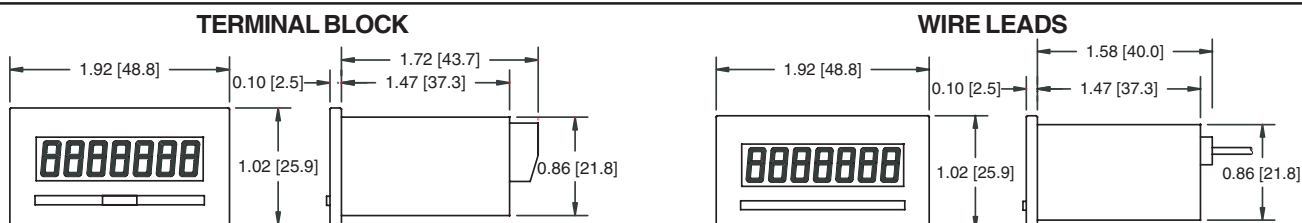
Models

Models	Reset			Input			Speed/cps		Terminations		Color	
	remote	none	manual	switch	3-30VDC	20-250VAC/VDC	40/150	40	term. block	8" wire leads	Tan	Black
5300-0000	X			X			X		X		X	
5300-0001	X			X			X		X			X
5300-0100	X		X	X			X		X		X	
5300-0101	X		X	X			X		X			X
5300-1000	X				X		X		X		X	
5300-1001	X				X		X		X			X
5300-1100	X		X		X		X		X		X	
5300-1010	X				X		X			X	X	
5300-1011	X				X		X			X		X
5300-2000	X					X		X	X		X	
5300-2001	X					X		X	X			X
5300-2100	X		X			X		X	X		X	
5300-2200		X				X		X	X		X	
5300-2201		X				X		X	X			X

* Items in bold are normally in factory stock.

All part numbers shown are for 7 digit models. Please contact the factory for information on 8 digit models.

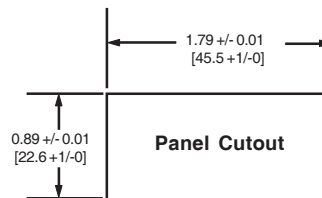
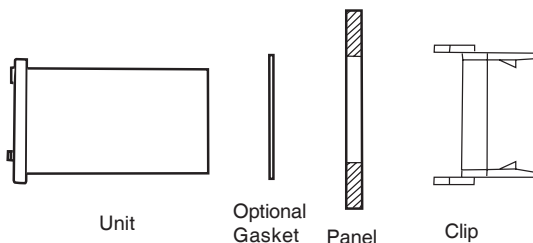
Dimensions





Operating Instructions

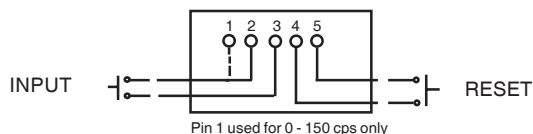
MOUNTING:



The mounting clip accommodates panel thicknesses up to 1/4" [6.4mm].

WIRING:

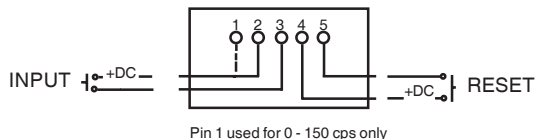
SWITCH (non-voltage)



Color code for the 8" [203mm] lead wires (24AWG) are:

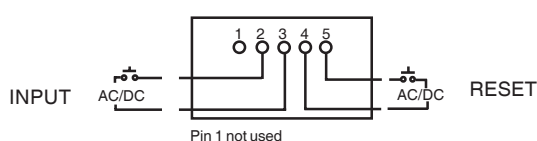
- 1 - Yellow
- 2 - Blue
- 3 - Black
- 4 - Violet
- 5 - Gray

3 - 30 VDC



Terminal block will accept wire sizes from 14 to 24AWG.

20 - 250VAC/VDC



3 - 30VDC units are protected for transient voltages up to 50 volts with pulse widths of up to 1 second at a 1% duty cycle (including reverse polarity).

The operating AC frequency range is 40 to 400Hertz.

NOTES:

INPUT / RESET PARAMETERS

To insure proper performance from totalizers the following minimum input durations are required:

0 to 35 cps totalizer	Minimum	14.3 ms "on"	14.3 ms "off"	The count is activated on the falling edge.
0 to 40 cps totalizer	Minimum	12.5 ms "on"	12.5 ms "off"	The count is activated on the falling edge.
0 to 150 cps totalizer	Minimum	3.3 ms "on"	3.3 ms "off"	The count is activated on the rising edge.

All resettable totalizers can be reset by a pulse with a minimum duration of 6 milliseconds.

DUAL RANGE TOTALIZER PROTECTION FEATURE:

Dual range totalizers have a built-in range protection feature. This feature will protect the totalizer from receiving a false signal from the unused input line. Once a totalizer has received an input from pin #1 or pin #2, it will only accept inputs from that pin until the unit has been reset. For example, if a totalizer is run in the low speed range and it is determined that a high speed range is preferred, simply switch the input from pin #2 to pin #1 and reset the totalizer to de-activate this range protection feature. Conversely, if a totalizer is run in high speed range and it is determined that a low speed range is preferred, simply switch the input from pin #1 to pin #2 and reset the totalizer.

SPECIAL WIRING OPTION

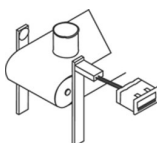
There is an internal connection between pin 3 and pin 5, a single wire can be used by connecting it to either pin 3 or pin 5. This option does not apply for units with input of 20 - 250VAC/VDC or manual reset enable.

OPTIONAL INPUTS:

Optional control circuitry (such as transistors) may be used as inputs provided that such circuitry provides the required parameters of the model used.

Applications

Number of Parts



Shear



Packaging Line





Description

The Model 54 is a 7 or 8 digit LCD Totalizer with PCB mounting. Ideal for applications where PCB mounting, high reliability and long life are important. Units are 7 or 8 digits and come with their own lithium battery. Totalizers have two count speed ranges, 40cps or 150cps and are customer selectable.

Features

- Remote or non-reset
- Selectable count speeds
- High reliability
- PCB mounting
- Long life lithium battery
- Dry contact closure or voltage pulse input

Options

- Hour Meter
- Tachometer
- Without battery
- 8 digits

Specifications

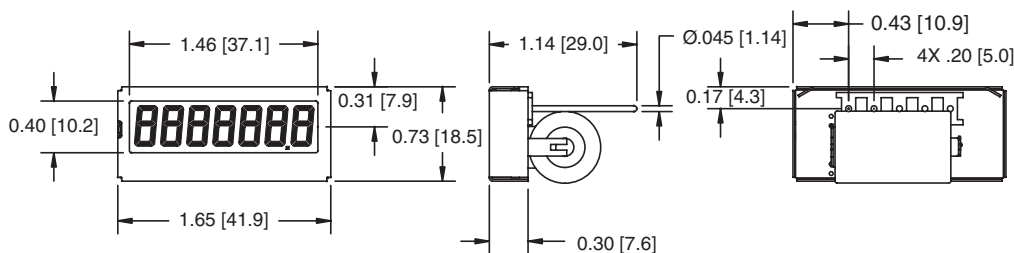
Figures:	7 LCD , 0.315" (8mm)	Power:	Lithium battery (rated @ ~ 20 years)
Reset:	Remote and non-reset	Mounting:	PCB: 0.45" Dia. [11.4mm] Pins, 0 .2" [5.1mm] spacing:
Speed: 7 Digit:	0 - 40 counts/second (min. 12.5ms-on, 12.5ms-off)	Temperature:	
	0 - 150 counts/second (min.3.3s-on, 3.3ms-off)	Operating:	-4°F to +140°F [-20°C to +60°C]
8 Digit:	0 - 35 counts/second (min. 14.3ms-on,14.3ms-off)	Storage:	-40°F to +165°F [-40°C to +75°C]
Inputs:	Switch (no-voltage), 3-30VDC, 20-250VAC/VDC	Weight:	2oz [57g]
	Vih 20VAC/3VDC minimum		
	Vil 3VAC/1VDC maximum		

Models	Description	Models	Description
5400-0010	40/150 cps, switch, remote reset, w/battery	5400-1010	40/150 cps, 3-30VDC, remote reset, w/battery

* All part numbers shown are for 7 digit models. Please contact the factory for information on 8 digit models.

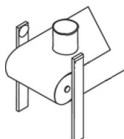
Dimensions

5400-0010

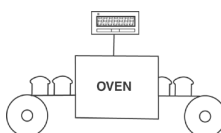


Applications

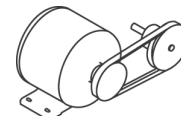
Number of Parts



Total Operating Time



Motor/Pulley Speed





Description

A 6 figure, battery powered, push-button or key reset, electronic counter, available in base mount or panel mount configuration. No external power supply is required. Large 0.50" [12mm] LCD figures for fast, easy reading. Operates at 6-240 VAC or VDC. Long lasting internal lithium battery. Attractive styling and silent operation make these models equally well-suited for lab or office equipment applications.

Features

- No external power supply needed
- Long life lithium battery
- Large easy reading display
- Operates at 6 to 240 VAC or VDC

Options

- Non-reset
- Remote reset

Specifications

Figures: 6 LCD figures, 0.50" [12mm] high
Reset: Push-button, or lock and key
Speed: 0-40 counts/second, (min. 12.5ms - on, 12.5ms - off)
Input: 6-240VAC or VDC
Vih 6VAC/VDC minimum
Vil 2VAC/VDC maximum

Mounting: Base or panel
Terminations: (2) #22 AWG 221°F [105° C] wire leads, 8" [203mm] long
Temp. Range: -14°F to +122°F [-26°C to +50°C]
Power Source: Internal lithium battery
Weight: 18 oz. [510g]

Note: When interfacing the Model 94 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

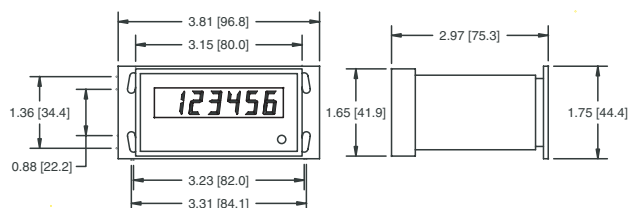
Models Description

9415-001 6 figure, base mount, push-button reset
9415-003 6 figure, panel mount, push-button reset
9415-005 6 figure, panel mount, lock and key reset

* Items in bold are normally in factory stock.

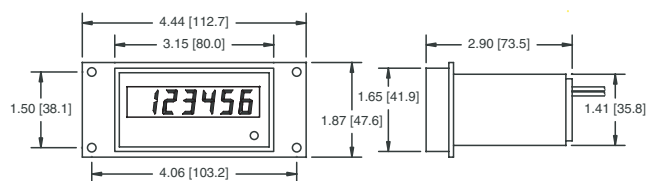
Dimensions

Base Mount



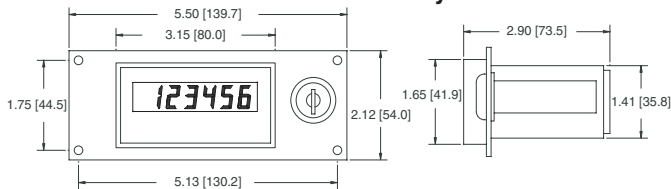
Mounting holes: 0.14" x 0.24" [3.6mm x 6.1mm] slots

Panel Mount



Panel cutout: 3.0" x 1.75" [76.2mm x 44.5mm]
Mounting holes: 0.17" [4.3mm] Dia.

Panel Mount/Lock & Key Reset



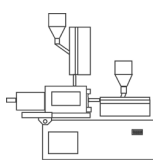
Panel cutout: 4.75" x 1.50" [76.2mm x 44.5mm]
Mounting holes: 0.17" [4.3mm] Dia.

Applications

Office equipment



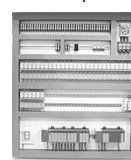
Production



Test labs



Control panels





Description

A hand-held reset counter with a 4 digit LCD display and push-button actuator. Case is made of a high impact plastic and comes with a key chain for ease of use. All electronic construction provides a long life counter with no mechanical parts to wear out. The Tally is a handy way to count inventory, attendance, traffic, blood cells, or food portions.

Features

- LCD display
- Long life

Specifications

Digits: 4 LCD's 0.24" [6mm] high
(maximum count 9999)

Reset: Push button

Battery Operating Life: 250 days (typical)

Weight: 0.7 oz [20g]

Color: Gray body with yellow buttons

Models Description

E1-1804 Electronic Hand Tally

* Item is normally in factory stock.

Dimensions

2.0"L x 1.7"W x 0.7"D [50.8mmL x 43.2mmW x 17.8mmD]

Operating Instructions

1. Press ON/RESET key to power ON the unit.
2. Press STEP key once, the LCD will display '1'
3. Press START key, the LCD will display '1'
4. Press COUNT key to continue the counting, the LCD will display from 1 to 2 to 3 to 4 etc.

Anytime you want to restart the count from '0', repeat the above steps.

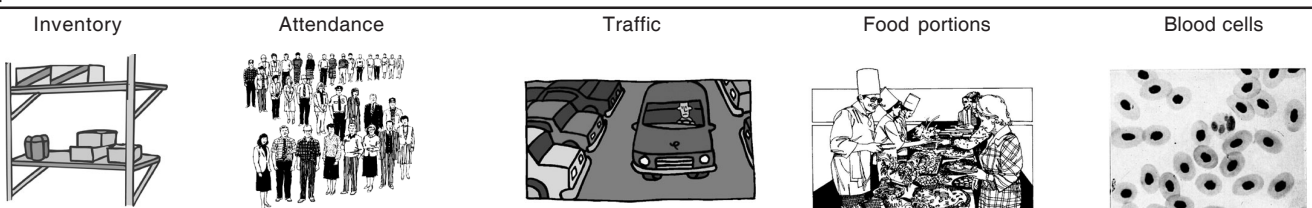
Note: If '0000' is displayed, you can press 1 ON/RESET to reset to '0'

Battery Replacement

When the display gets dim or the counter works erratically, replace the button type battery. Use 1 X G13A or equivalent.



Applications





Add Model



Add/Subtract Model

Description

The Redington Models E2 & E3 offer an electronic version of the popular Hand Tally counter and are available with a choice of Add only or Add/Subtract models. Counts are input using large positive action buttons. The Add model has a single count button and the Add/Subtract model has two separate count buttons. The "+" button (green) will add a count to the total and the "-" button (red) will subtract a count from the total. When activated, an audible "beeper" sounds every count to verify that a count has been registered. All electronic components provides a long life counter with no moving parts to wear out. The counter is manufactured from impact-resistant plastic, combining lightweight with outstanding durability.

Features

- Add or Add/Subtract models
- Beep at every count with the option of switching the sound off for silent operation
- Cannot accidentally reset or turn off; On/Off/Reset button must be held down for 3 seconds to reset
- Long life battery (replaceable) - typically 250 days without sound
- Large LCD display
- No mechanical parts to wear out
- Large rubber buttons for comfort of use
- Ergonomically designed for ease of use
- Carrying cord
- Light weight

Specifications

Display:	4 digit LCD 0.35" [9mm] high	Operating Temperature:	+32°F to +122°F [0°C to +50°C]
Battery Operating Life:	250 days (without sound)	Weight:	0.7 oz (20g)
Reset:	Push button	Color:	Black case with blue buttons (Add Only) or green and red buttons (Add/Subtract)

Models Description

E2-1804	Electronic Hand Tally (Add only)
E3-1804	Electronic Hand Tally (Add/Subtract)

Dimensions

2.4" L x 1.4" W x 0.6" D [60mm x 35mm x 15mm]

* All Items are normally in factory stock.

Operating Instructions

- Press On/Off/Reset button to power ON the unit
- Add model - Press count button to increment count
- Add/Subtract model - Press the "+" button to Add, Press the "-" button to Subtract
- To reset counter press the On/Off/Reset button for 3 seconds
- To switch the sound Off/On at any time, hold the count button down for 3 seconds
- To turn Off, press the On/Off/Reset for 3 seconds when counter display is at "0"

Battery Replacement

When the display gets dim, replace the battery.
Use 1 type AG10 1.5 V or equivalent
Observe polarity (±) during replacement

Applications

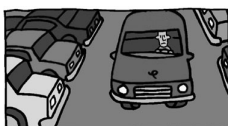
Inventory



Attendance



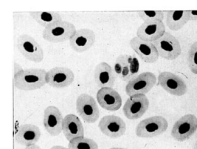
Traffic



Food portions



Blood cells





Description

A 6 figure general purpose, rugged, electromechanical counter, either panel or base mounted, with manual knob reset, key reset, or non-reset. Frame and housing provides rigid support for accurate alignment and trouble-free use. Distinctive numerals enhance visibility under adverse viewing conditions.

Features

- Panel or base mount
- Rigid support for accurate alignment
- Enhanced visibility
- Manual knob, key or non-reset

Options

- Voltages
- Lead lengths
- Terminations
- Mounting
- 1071-024S - additional key for model 1026

Specifications

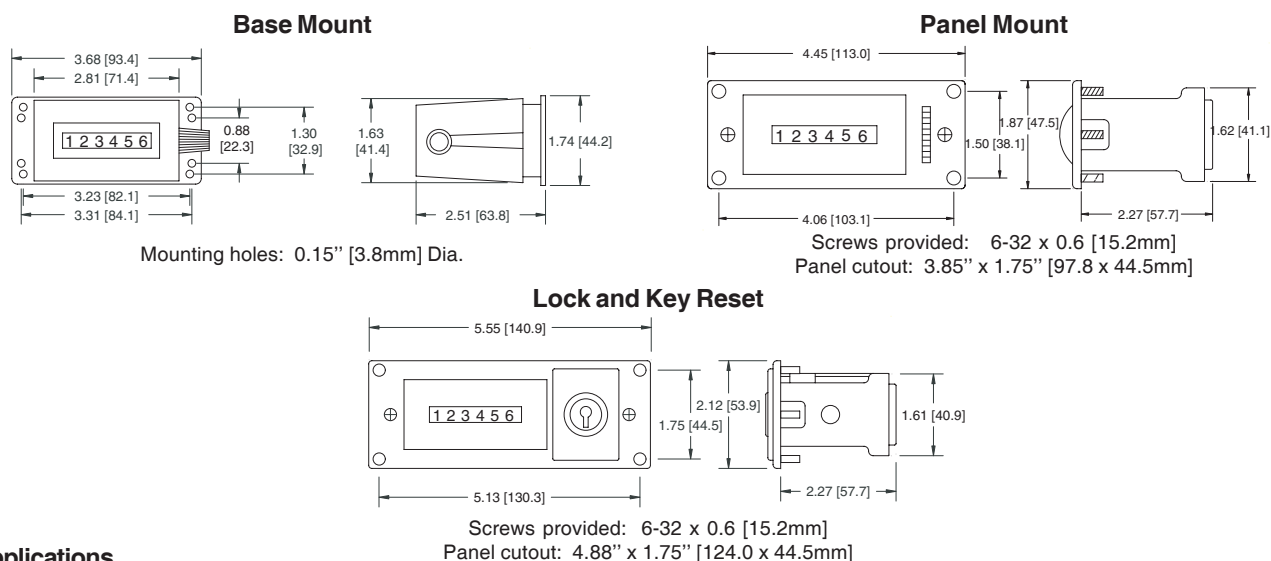
Figures: 6 figures, white on black, 0.19" [5mm] high
Reset: Knob, lock and key, or non-reset
Speed: 1,000 counts/minute (min. 30ms - on, 30ms - off)
Voltage: 24, 115, 230 VAC or 24 VDC
(+/- 10%, but not to exceed 10 volts)
Power: 7.8 watts (nominal)

Mounting: Base or panel
Terminations: (2)#22 AWG 105°C wire leads, 8" [203mm] long
Operating Life: Beyond 50 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Approvals: UL Recognized, CSA Certified, CE Compliant
Weight: 18 to 22 oz. [510 to 624g]

Models	Description	Models	Description
1-1006	230VAC, base mount, knob reset	P3-1006	24VAC, panel mount, knob reset
2-1006	115VAC, base mount, knob reset	P8-1006	24VDC, panel mount, knob reset
3-1006	24VAC, base mount, knob reset	P2-1016	115VAC, panel mount, non-reset
8-1006	24VDC, base mount, knob reset		
2-1016	115VAC, base mount, non-reset	P31-1026	230VAC, panel mount, lock and key reset
P1-1006	230VAC, panel mount, knob reset	P32-1026	115VAC, panel mount, lock and key reset
P2-1006	115VAC, panel mount, knob reset	P33-1026	24VAC, panel mount, lock and key reset
		P38-1026	24VDC, panel mount, lock and key reset

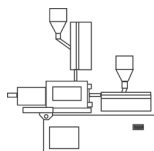
* Items in bold are normally in factory stock.

Dimensions

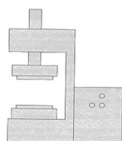


Applications

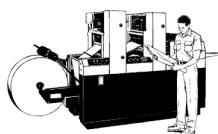
Molding machines



Punch press



Printing presses



Test labs



Secondary Machines





Description

A 7 figure, rugged, electromechanical counter, either panel or base mounted, with manual knob reset, key reset, or non-reset. Frame and housing provides rigid support for accurate alignment and trouble-free use. Large, easy-to-read numerals assure readability.

Features

- 7 figure
- Panel or base mount
- Rigid support for accurate alignment
- Large easy to read numerals

Options

- Voltages
- Lead lengths
- Terminations
- Wheel color

Specifications

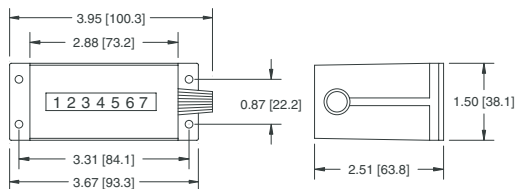
Figures: 7 figures, white on black, 0.19" [5mm] high
Reset: Knob, lock and key, or non-reset
Speed: 1,000 counts/minute
(min. 30ms - on, 30ms - off)
Voltage: 24, 115, 230 VAC or 24 VDC
(+/- 10%, but not to exceed 10 volts)
Power: 7.8 watts (nominal)

Mounting: Base, panel, or behind the panel
Terminations: (2)#22 AWG 105°C wire leads, 8" [203mm] long
Operating Life: Beyond 50 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Approvals: UL Recognized, CSA Certified, CE Compliant
Weight: 14 to 18 oz. [397 to 510g]

Models	Description	Models	Description
1-1007	230VAC, base mount, knob reset	P2-1007	115VAC, panel mount, knob reset
2-1007	115VAC, base mount, knob reset	P2-1027	115VAC, panel mount, lock and key reset
3-1007	24VAC, base mount, knob reset	P8-1027	24VDC, panel mount, lock and key reset
8-1007	24VDC, base mount, knob reset		
2-1017	115VAC, base mount, non-reset	R2-1007	115VAC, behind the panel, knob reset
		R2-1017	115VAC, behind the panel, non-reset

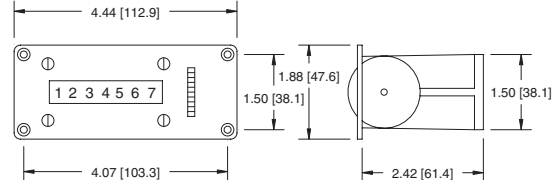
Dimensions

Base Mount



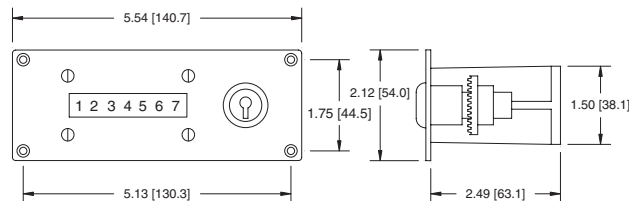
Mounting holes: 0.15" [3.8mm] Dia.

Panel Mount



Screws provided: 6-32 x 0.6 [15.2mm]
Panel cutout: 3.85" x 1.75" [97.8 x 44.5mm]

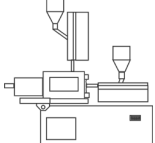
Lock and Key Reset



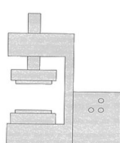
Screws provided: 6-32 x 0.6 [15.2mm]
Panel cutout: 4.88" x 1.75" [124.0 x 44.5mm]

Applications

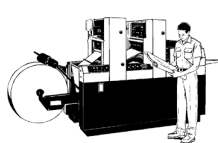
Molding machines



Punch press



Printing presses

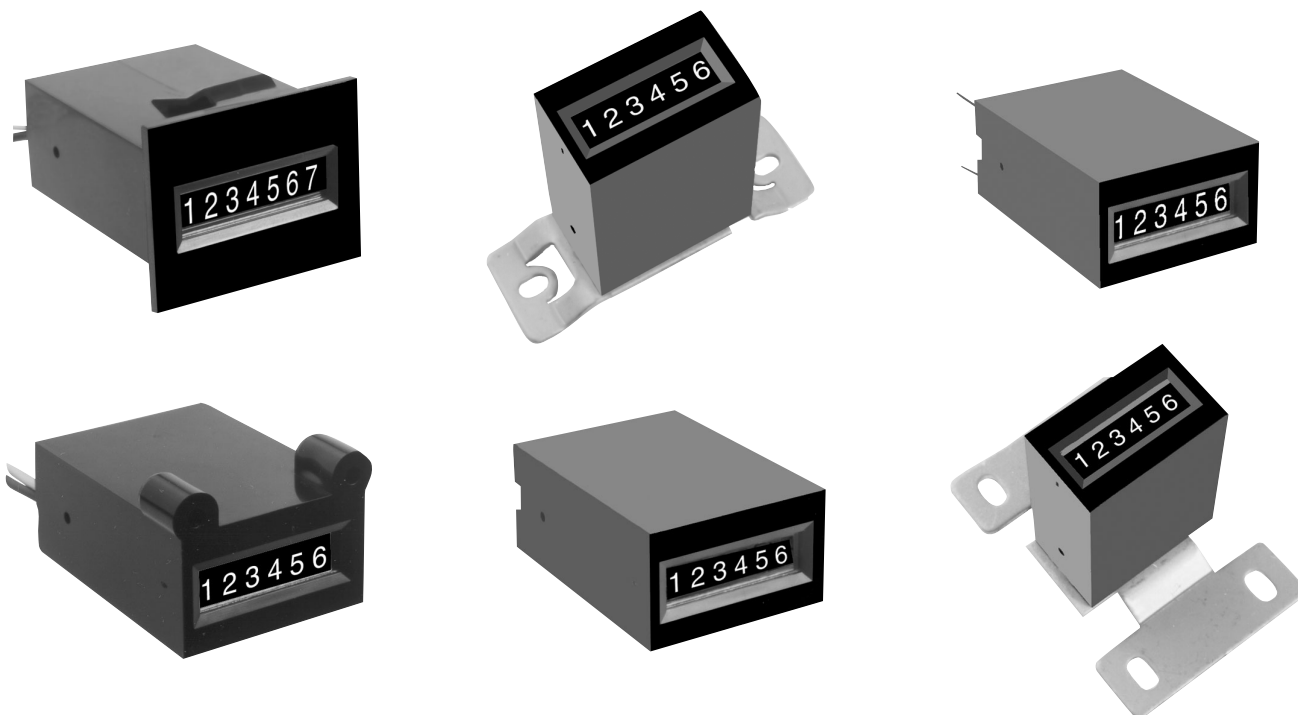


Test labs



Secondary Machines





Description

The Model 40 is a low cost, non-reset totalizer, available with 6-7 figures (white on black background). A wide choice of operating voltages and mountings make this product adaptable for most applications. The Model 40 is an ideal solution for applications that require low cost and product reliability.

Features

- Low cost
- Small size
- DC and AC

Options

- 6 or 7 figure
- Multiple mounting choices
- Voltages

Specifications

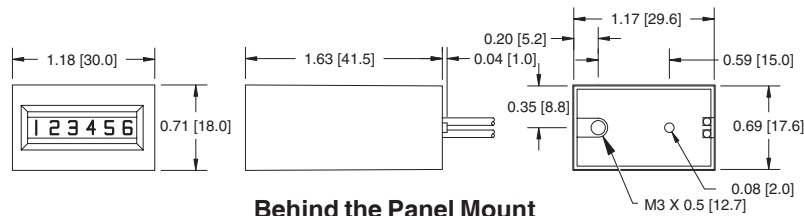
Figures: 6 or 7 figures, white on black, 0.12" (3 mm) high
Reset: Non-reset
Speed: 600 counts/minute (min. 50ms - on, 50ms - off)
Voltage: 115 VAC, 5, 12 or 24 VDC (+ 10/-15% tolerance)
Power: 1.4 watts AC, 1.0 watts DC (nominal)
Mounting: Rear, behind the panel, snap-in, base or PCB mount

Terminations: (2)#22 AWG 221°F [105°C] wire leads, 10.5" [266.7mm] long or (2) 0.03" [0.8mm] Dia. pins for PCB mounting
Operating Life: Beyond 3 million counts
Temp. Range: +23°F to +104°F [-5°C to +40°C]
Weight: Less than 1 oz. [28g]

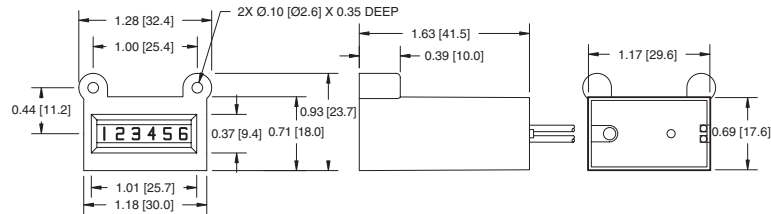
Models	Description	Models	Description
2-4016	115VAC, 6 figure, rear mount, wire leads	2-4017	115VAC, 7 figure, rear mount, wire leads
R2-4016	115VAC, 6 figure, behind the panel mount, wire leads	R2-4017	115VAC, 7 figure, behind the panel mount, wire leads
R9-4016	12VDC, 6 figure, behind the panel mount, wire leads	R9-4017	12VDC, 7 figure, behind the panel mount, wire leads
SR2-4016	115VAC, 6 figure, snap-in panel mount, wire leads	SR2-4017	115VAC, 7 figure, snap-in panel mount, wire leads
T2-4016	115VAC, 6 figure, PCB mount, pins	T2-4017	115VAC, 7 figure, PCB mount, pins
V8-4016	24VDC, 6 figure, V-base mount, wire leads	V8-4017	24VDC, 7 figure, V-base mount, wire leads

Dimensions

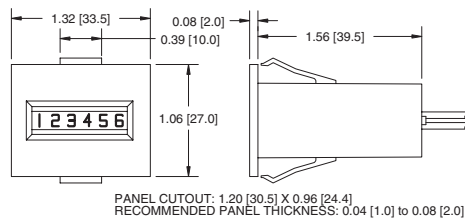
Rear Mount



Behind the Panel Mount

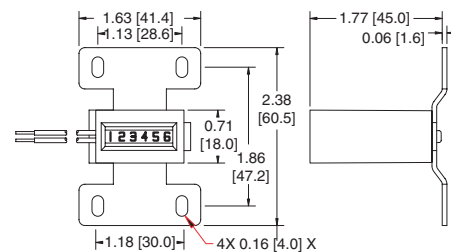


Snap-In Panel Mount

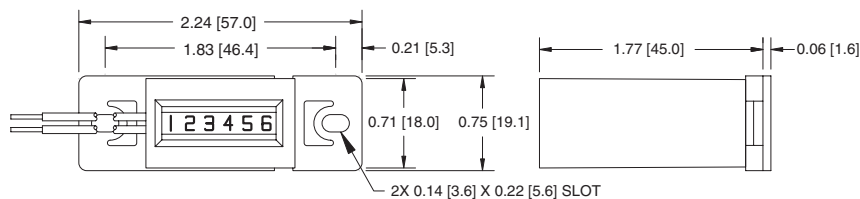


PANEL CUTOUT: 1.20 [30.5] X 0.96 [24.4]
RECOMMENDED PANEL THICKNESS: 0.04 [1.0] to 0.08 [2.0]

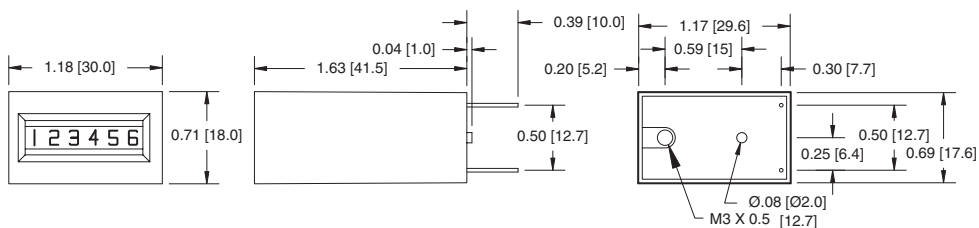
V-Base Mount



D-Base Mount

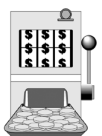


PCB Mount



Applications

Vending/Gaming machines

Photocopi-
ers

Items dis-
pe



Office equipment





Description

A 6 figure, non-reset counter. Metal/plastic frame assembly assures ruggedness while one piece cover discourages tampering. Precision molded internal gearing requires no lubrication for long, accurate count life. Applications include warranty verification, electronic game counting, coin box tallies, or wherever small size, highly visible numerals, and solid construction are critical.

Features

- Small size
- Highly visible numerals
- Solid construction

Options

- Voltages
- 7 figure
- Lead length
- Special connectors
- Extended temperature range
- Count x 2

Specifications

Figures: 6 figures, white on black, 0.18" [4.6mm] high
Reset: None
Speed: 600 counts/minute
(min. 50ms - on, 50ms - off)
Voltages: 115VAC, 24VDC
(+/- 10%, but not to exceed 10 volts)
Power: 1.5 watts (nominal)

Mounting: Rear, behind the panel, base, or combination
Terminations: (2) #22 AWG 221°F [105°C] wire leads, 10" [254mm] long
Operating Life: Beyond 3 million counts
Temp. Range: +23°F to +104°F [-5°C to +40°C]
Approvals: UL Recognized, CE Compliant
Weight: 2.5 oz. [71g]

Models

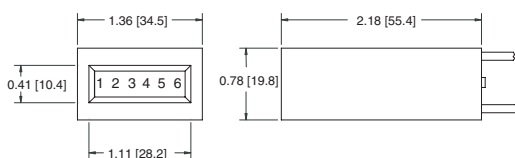
Models	Description
2-4416	115VAC, 6 figure, rear mount
8-4416	24VDC, 6 figure, rear mount
R2-4416	115VAC, 6 figure, behind the panel mount
R8-4416	24VDC, 6 figure, behind the panel mount

Models

Models	Description
V2-4416	115VAC, 6 figure, base mount
V8-4416	24VDC, 6 figure, base mount
RV2-4416	115VAC, 6 figure, combination mount
RV8-4416	24VDC, 6 figure, combination mount

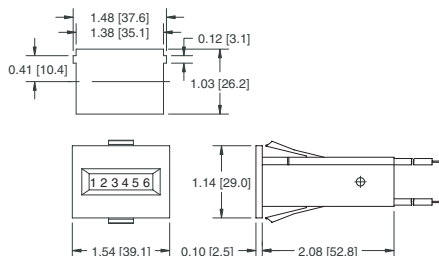
Dimensions

Rear Mount

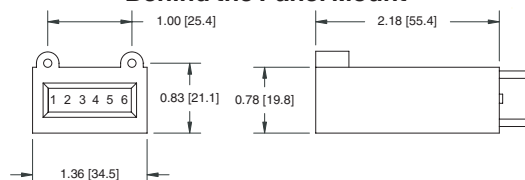


Mounting hole: For M3 screw

Snap-In Panel Mount

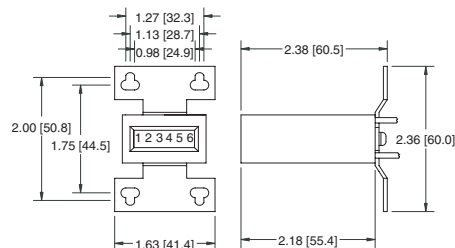


Behind the Panel Mount



Mounting holes: For M3 self tapping screw

Base Mount



Mounting holes: 0.14" [3.6mm] Dia.

Applications

Warranty verification



Coin box tallies



Electronic game counting





Description

A compact, economical, 6 or 7 figure, non-reset, electromechanical counter designed for general purpose industrial and commercial counting applications. It is designed for a variety of mounting methods as required by the application. Commonly used for coin-operating equipment, photocopiers and vending machines.

Features

- 6 or 7 figure
- Compact
- Non-reset
- Variety of mounting options

Options

- Voltages
- Lead lengths
- 5 figure

Specifications

Figures: 6 or 7 figures, white on black, 0.17" [4.3mm] high
Reset: None
Speed: 1,000 counts/minute AC, (min. 30ms - on, 30ms - off)
 1,200 counts/minute DC, (min. 25ms - on, 25ms - off)
Power: AC: 24VAC ~ 4 watts
 115VAC ~ 3.5 watts
 230VAC ~ 5 watts
 DC: 12/24VDC ~ 2 watts

Mounting: Panel or base
Terminations: (2) #22 AWG 105°C wire leads, 12" [305mm] long
Operating Life: Beyond 10 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Approvals: UL Recognized, CSA Certified, CE Compliant
Weight: 3.5 oz. [99g]

Models

P2-4816 115VAC, 6 figures, P panel mount
P8-4816 24VDC, 6 figures, P panel mount
R2-4816 115VAC, 6 figures, R panel mount
SR2-4816 115VAC, 6 figures, SR panel mount
SR8-4816 24VDC, 6 figures, SR panel mount
V1-4816 230VAC, 6 figures, V base mount
V2-4816 115VAC, 6 figures, V base mount
V3-4816 24VAC, 6 figures, V base mount
V8-4816 24VDC, 6 figures, V base mount
V9-4816 12VDC, 6 figures, V base mount

Models

D8-4817 24VDC, 7 figures, D base mount
P2-4817 115VAC, 7 figures, P panel mount
P8-4817 24VDC, 7 figures, P panel mount
R8-4817 24VDC, 7 figures, R panel mount
SR8-4817 24VDC, 7 figures, SR panel mount
V2-4817 115VAC, 7 figures, V base mount
V8-4817 24VDC, 7 figures, V base mount

* Items in bold are normally in factory stock.

Applications

Control panels



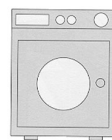
Gaming machines



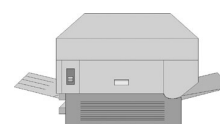
Vending machines

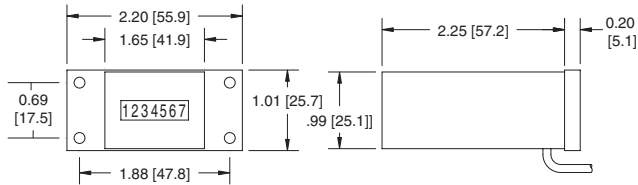


Coin-operated equipment

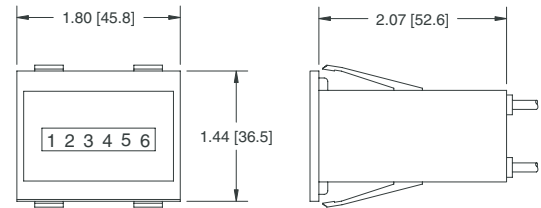


Photocopiers

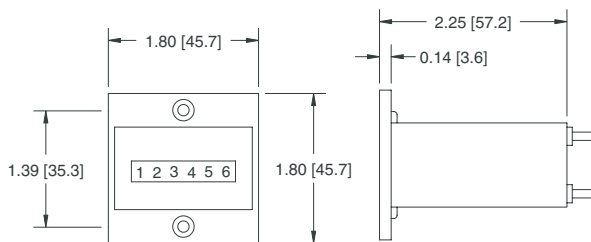


**Dimensions****D - Mount**

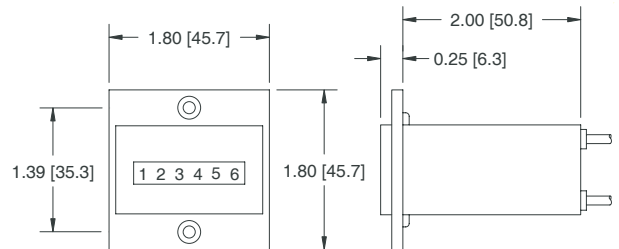
Mounting holes: 0.15" [3.8] Dia.

SR - Mount

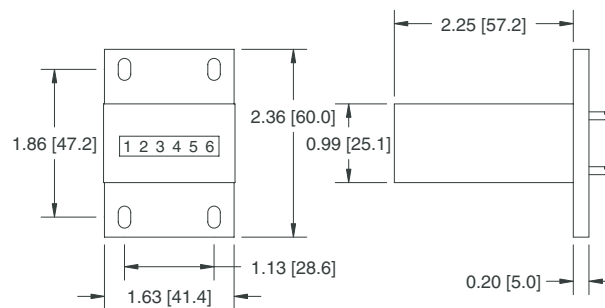
Panel cutout: 1.67" x 1.29" [42.4 x 32.8mm]
Recommended panel thickness: 0.04" to 0.08" [1.0 to 2.0mm]

P - Mount

Mounting holes: For #5 flat head screw
Panel cutout: 1.72" x 1.05" [43.7 x 26.7mm]

R - Mount

Mounting holes: For #5 flat head screw
Panel cutout: 1.72" x 1.05" [43.7 x 26.7mm]

V - Mount

Mounting holes: 0.16" x 0.28" [4.1 x 7.1mm] slots



Description

Economically priced 4 and 6 figure push-button reset, electromechanical counter designed for use where limited space is a factor and when reliability is critical. Rugged operating mechanisms require no lubrication or maintenance. Compact size and minimum space requirements make the Model 49 ideally suited for use in control panels, business machines, and test equipment.

Features

- Compact
- No maintenance
- Quick reset

Options

- Voltages
- Extended temperatures
- 4 or 6 figure

Specifications

Figures: 4 or 6 figures, white on black, 0.16" [4mm] high
Reset: Push-button
Speed: 600 counts/minute
(min. 50ms - on, 50ms - off)
Voltages: 115VAC, 24VDC
(+10% to - 15%)
Power: AC: 115VAC ~ 3 watts
DC: 24VDC ~ 2 watts

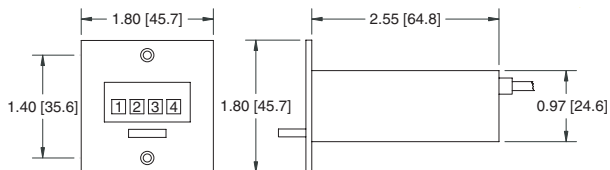
Mounting: Panel, base, or bail
Termination: (2) #22 AWG 105°C wire leads, 10" [254mm] long
Operating Life: Beyond 100 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Approvals: UL Recognized, CE Compliant
Weight: 4 oz. [113g] (4 fig.), 5 oz. [142g] (6 fig.)

Models	Description	Models	Description
B2-4904	115VAC, 4 figure, bail mount	B2-4906	115VAC, 6 figure, bail mount
B8-4904	24VDC, 4 figure, bail mount	B8-4906	24VDC, 6 figure, bail mount
D2-4904	115VAC, 4 figure, base mount	D2-4906	115VAC, 6 figure, base mount
P2-4904	115VAC, 4 figure, panel mount	P2-4906	115VAC, 6 figure, panel mount
P8-4904	24VDC, 4 figure, panel mount	P8-4906	24VDC, 6 figure, panel mount
P9-4904	12VDC, 4 figure, panel mount	P9-4906	12VDC, 6 figure, panel mount

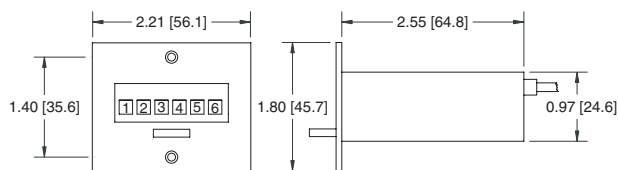
* Items in bold are normally in factory stock.



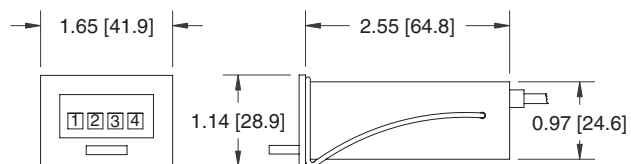
Dimensions

Panel Mount - 4 Figure

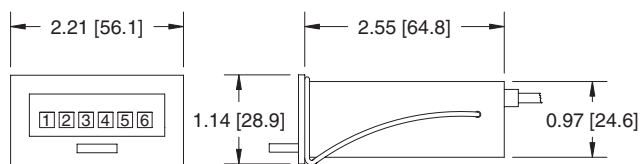
Panel cutout: 1.46" x 1.01" [37.1 x 25.7mm]
Mounting holes: For #4 flat head screw

Panel Mount - 6 Figure

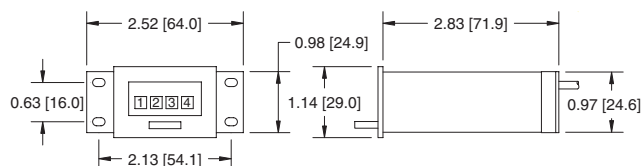
Panel cutout: 2.00" x 1.01" [50.8 x 25.7mm]
Mounting holes: For #4 flat head screw

Bail Mount - 4 Figure

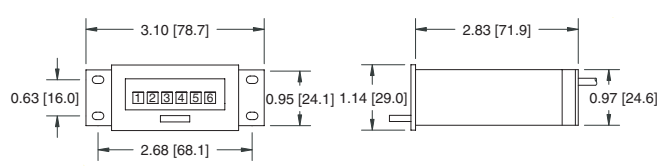
Panel cutout: 1.46" x 1.01" [37.1 x 25.7mm]

Bail Mount - 6 Figure

Panel cutout: 2.00" x 1.01" [50.8 x 25.7mm]

Base Mount - 4 Figure

Mounting holes: 0.12" x 0.20" [3.1 x 5.1mm] slots

Base Mount - 6 Figure

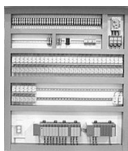
Mounting holes: 0.12" x 0.20" [3.1 x 5.1mm] slots

Applications

Test Equipment



Control Panels



Business Machines



Medical devices





Description

A general purpose, 4 figure electromechanical reset counter perfect for applications where long life, reliability, and accuracy are mandatory. Several mounting alternatives and large, easy-to-read numbers are combined in a rugged housing.

Features

- Rugged housing
- Long life
- Reliable
- Accurate

Options

- Voltages
- Lead lengths
- Terminations

Specifications

Figures: 4 figures, white on black, 0.19" [5mm] high
Reset: Knob
Speed: 1,000 counts/minute
(min. 30ms - on, 30ms - off)
Voltage: 115 VAC
(+/-10%, but not to exceed 10 volts)
Power: 5 watts (nominal)

Mounting: Base, panel, or behind the panel
Terminations: (2)#22 AWG 105°C wire leads, 8" [203mm] long
Operating Life: Beyond 50 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Approvals: UL Recognized, CSA Certified, CE Compliant
Weight: 10 oz. [284g]

Models

Description

2-1284 115VAC, Base mount, knob reset
D2-1284 115VAC, D panel mount, knob reset

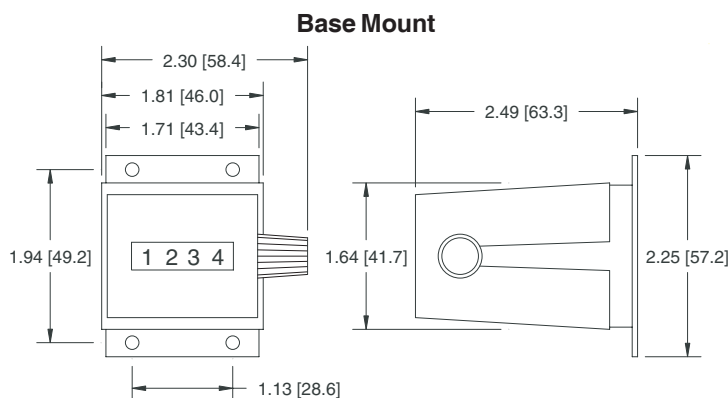
Models

Description

P2-1284 115VAC, P panel mount, knob reset
PR2-1284 115VAC, PR panel mount, knob reset

* Items in bold are normally in factory stock.

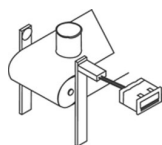
Dimensions



Mounting holes: 0.15" [3.8mm] Dia.

Applications

Production totals



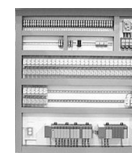
Medical devices



Office machines



Control Panels





Description

An extremely long life, 6 figure, electromechanical counter available in panel mounting versions with manual push-button reset. High count speeds, bold numbers, and contemporary design make this ideal in office, graphic arts, medical and computer applications.

Features

- High count speed
- Bold numbers
- Contemporary design

Options

- Voltages
- Lead lengths
- Terminations

Specifications

Figures: 6 figures, white on black, 0.15" [4mm] high

Reset: Push-button

Speed: 1,000 counts/minute AC, (min. 30ms - on, 30ms - off)
1,500 counts/minute DC, (min. 20ms - on, 20ms - off)

Voltages: 115VAC, 24VDC
(+/- 10%, but not to exceed 10 volts)

Power: 2.8 watts (nominal)

Mounting: Panel

Terminations: Solder terminals

Operating Life: Beyond 200 million counts

Temp. Range: -15°F to +140°F [-26°C to +60°C]

Approvals: UL Recognized, CSA Certified, CE Compliant

Weight: 8 oz. [227g]

Models

Description

P2-3106 115VAC, P panel mount, manual reset

R2-3106 115VAC, R panel mount, manual reset

P8-3206 24VDC, P panel mount, manual reset

Models

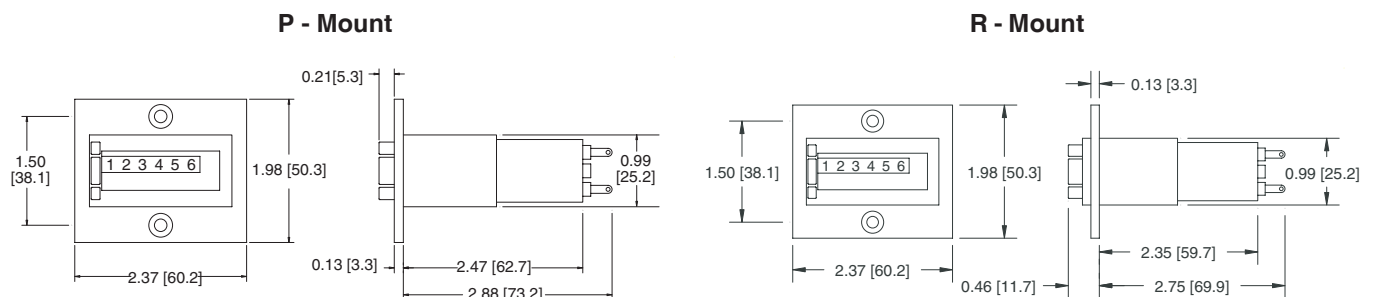
Description

P9-3206 12VDC, P panel mount, manual reset

R8-3206 24VDC, R panel mount, manual reset

* Items in bold are normally in factory stock.

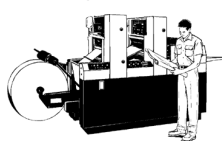
Dimensions



Mounting holes: For #8 flat head screw
Panel cutout: 2.02" x 1.05" [51.3 x 26.7mm]

Applications

Graphic arts



Office equipment



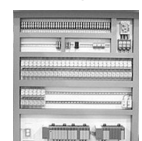
Computer applications



Medical equipment



Control panels



**Description**

A 5 figure medium duty counter designed for applications where a rotary counter with a quick reset is desirable. When a 1' circumference measuring wheel is used with our standard counter, the counter will display feet and inches. Consult the factory if you have custom applications.

Features

- Counter will add and subtract
- Push button reset
- Versatile mounting
- 1,000 revolutions per minute (100 feet per minute)

Options

- Double shaft
- Wheel color
- Figure color
- Ratios
- Mounting
- Case color
- 98WF - Measuring Wheel - 12" circumference

Specifications

Figures: 5 figures, 0.20" [5mm] high
Reset: Push-button
Rotation: Top going
Shaft Extension: 0.250" diameter, left hand or right hand

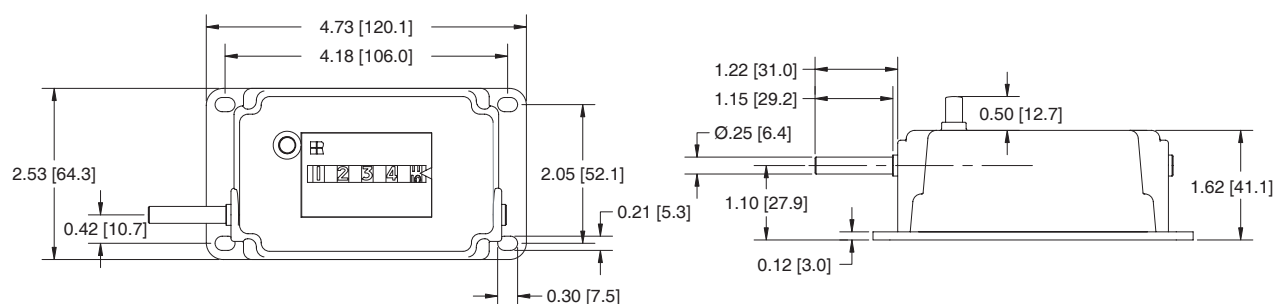
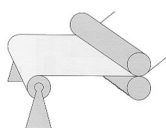
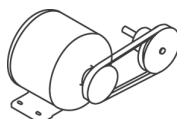
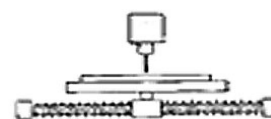
Speed: 1,000 revolutions/minute (100 feet/minute)
Operation Life: Beyond 50 million
Temp. Range: -15°F to 140°F [-26°C to +60°C]
Weight: 10 oz. [283g]

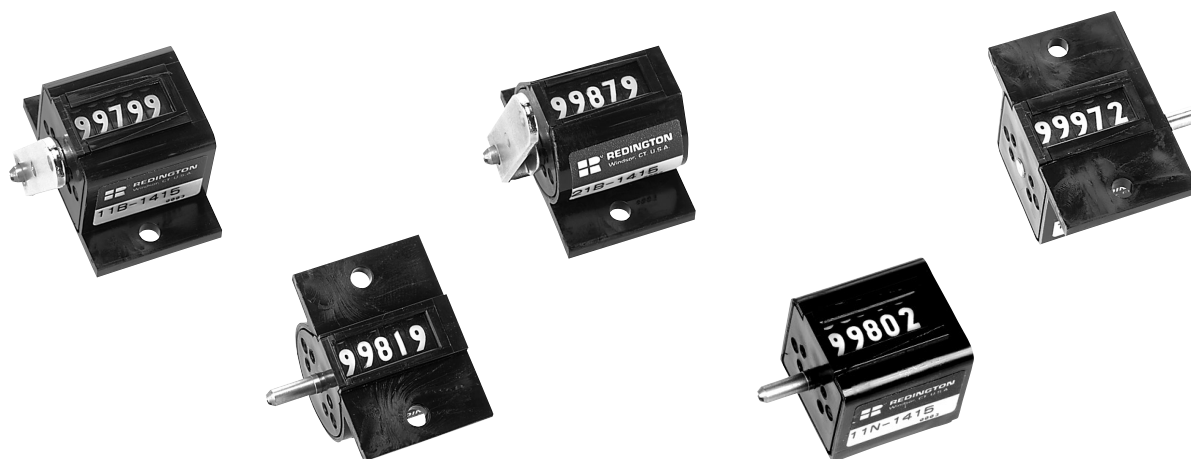
Models**Description**

11-0825 Left-hand, top-going, add & subtract

Models**Description**

11-0845 Right-hand, top-going, add & subtract

Dimensions**Left - Hand Shaft****Applications****Linear measuring****Machine revolutions****Positioning**



Description

The Model 14 is a compact, 5 figure, non-reset totalizer in a molded case with stainless steel shaft. Four types of drives are available and five case configurations. An ideal solution when application requirements call for a low cost and compact totalizer.

Features

- Four types of drives
- Choice of five case configurations
- Built-in non-overthrow mechanism on stroke counters
- Built-in internal stops on stroke counters
- 5 Figure: white on black background

Options

- Mounting
- Double shafts
- Figure background and case colors
- Sealed

Specifications

Figures: 5 figures, white on black, 0.16" [4mm] high
Reset: Non-reset
Rotation: Top-coming or top-going
Shaft Extension: Right-hand or left-hand
Shaft Diameter: 0.125" [3.2mm]
Speed: Stroke: 1,000 counts/minute
 Revolution: 3,000 counts/minute
 Direct: 15,000 counts/minute
 Rotary Ratchet:
 3,000 counts/minute rotary mode
 1,500 counts/minute in oscillating mode
Weight: 0.5 oz. [14g]
Temp: -40°F to +160°F [-40°C to +71°C]
Operating Torque: Stroke; 0.8 to 2.0 in/oz
 at 75°F Revolution; 0.15 in/oz
 Direct; 0.15 in/oz
 Rotary Ratchet; 0.3 to 1.0 in/oz

Case Types: Square base mount
 Square panel mount
 Square - no flange
 Cylindrical base mount
 Cylindrical panel mount

Drive Types:
Stroke: typical count stroke 39° to 48°
 typical total stroke 50° to 52°
Revolution: adds or subtracts one(1) count per revolution.
Direct: adds or subtracts ten (10) counts per revolution
Rotary Ratchet: adds ten (10) counts per revolution
 adds only one (1) count per 36° to 60° oscillation.

Models	Description	Models	Description
11B-1415	lh, top coming, stroke, sq case, base mt	11B-1435	rh, top coming, stroke, sq case, base mt
11B-1515	lh, top coming, rev. drive, sq case, base mt	11B-1535	rh, top coming, rev. drive, sq case, base mt
11B-1615	lh, top coming, direct drive, sq case, base mt	11B-1635	rh, top coming, direct drive, sq case, base mt
11B-1715	lh, top coming, rotary rat., sq case, base mt	11B-1735	rh, top coming, rotary rat., sq case, base mt
11B-1425	lh, top going, stroke, sq case, base mt	11B-1445	rh, top going, stroke, sq case, base mt
11B-1525	lh, top going, rev. drive, sq case, base mt	11B-1545	rh, top going, rev drive, sq case, base mt
11B-1625	lh, top going, direct drive, sq case, base mt	11B-1645	rh, top going, direct drive, sq case, base mt
11B-1725	lh, top going, rotary rat., sq case, base mt	11B-1745	rh, top going, rotary rat., sq case, base mt
rat = ratchet		lh = left hand	
rev = revolution		rh = right hand	
		sq = square	
		mt = mount	

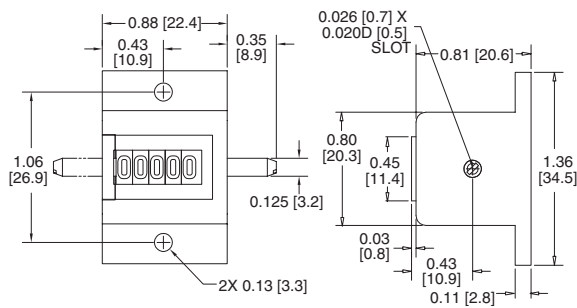
Similar products are also available in the following configurations:

Square case - panel mount change 11B to 11P
 Square case - without flange change 11B to 11N
 Cylindrical case - base mount change 11B to 21B
 Cylindrical case - panel mount change 11B to 21P

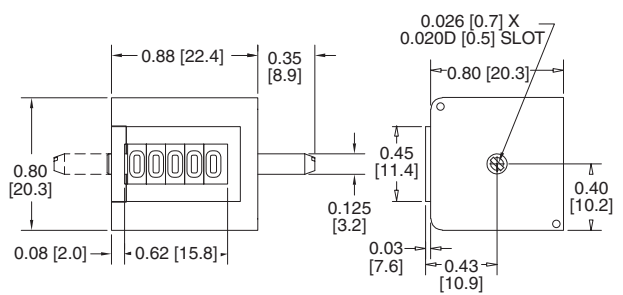


Dimensions

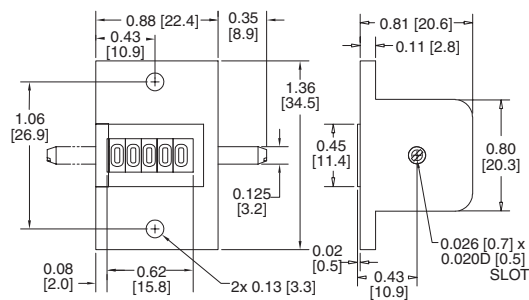
Square Case Base Mount



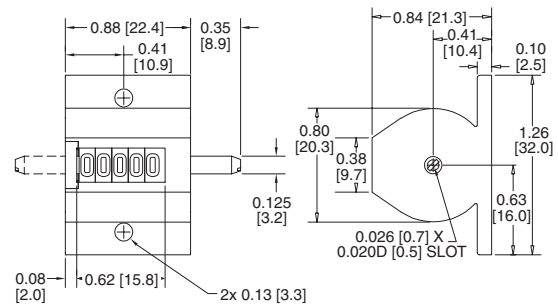
Square Case Without Flange



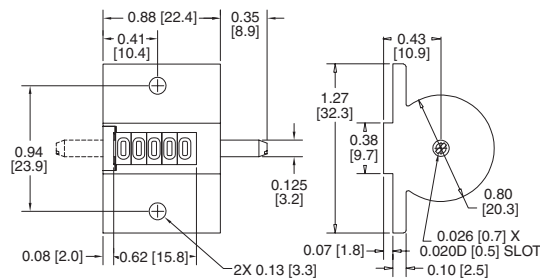
Square Case Panel Mount



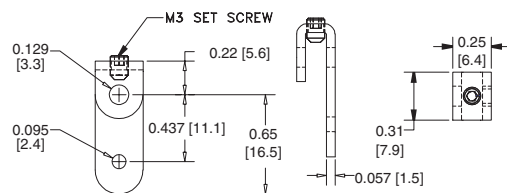
Cylindrical Case Base Mount



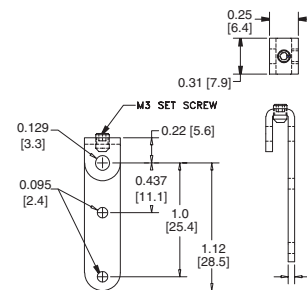
Cylindrical Case Panel Mount



Short Lever (10006-028S)



Standard Lever (10006-027S)



Applications

Circuit breakers



Vending machines



Gaming machines



Business and office equipment





Description

A 4 figure, hand-held or desk mounted reset counter with push-button actuator. Case is chrome plated steel. Hand-held model comes with thumb ring for ease of use. Single desk mounted style has plastic base with mounting holes. Multiple desk units, from 2 to 10, mounted on a single base with a common reset. These tallies are a convenient way to count inventory, attendance, traffic, blood cells, or food portions.

Features

- Chrome plated steel housing
- Long life

Options

- Multiple units

Specifications

Figures: 4 figures, white on black, 0.16" [4mm] high
Reset: Knob
Operating Life: Beyond 5 million counts

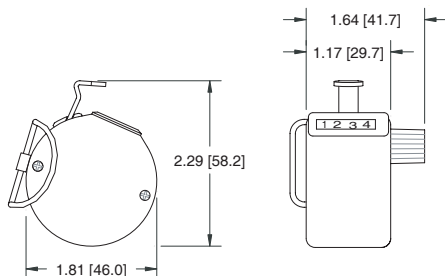
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Weight: 3.5 oz. [99g]

Models	Description	Models	Description
12-1804	Hand Tally with finger ring	3-1804-6	Versa Tally: 6 units, common reset and base
13-1804	Desk Tally with mounting base	3-1804-7	Versa Tally: 7 units, common reset and base
3-1804-2	Versa Tally: 2 units, common reset and base	3-1804-8	Versa Tally: 8 units, common reset and base
3-1804-3	Versa Tally: 3 units, common reset and base	3-1804-9	Versa Tally: 9 units, common reset and base
3-1804-4	Versa Tally: 4 units, common reset and base	3-1804-10	Versa Tally: 10 units, common reset and base
3-1804-5	Versa Tally: 5 units, common reset and base		

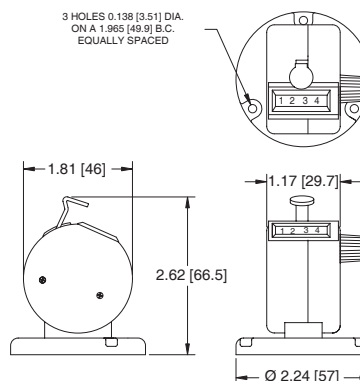
* Items in bold are normally in factory stock.

Dimensions

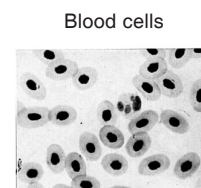
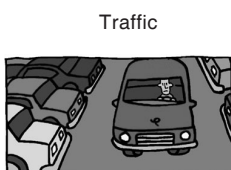
Model 12-1804



Model 13-1804



Applications





Description

The Redington "Victor" counters are manually operated mechanical totalizers ideal for use when you need to count more than one item at the same time. Models are available from a single counter to a maximum of 20 units (4 wide X 5 high). All modules have 4-figure counters and a common rotary reset for the entire row. Each unit can be easily labeled using removable paper tabs. Applications include Lab Counters, Traffic Surveys, Inventory Control, Inspection Tallies, QC Counters, Bus Counters and Point-of-Sale Records.

Features

- Paper tabs for labeling
- Common reset for each row
- Positive action pushbutton
- Lubrication not required
- Quick, simple to operate and accurate

Options

- Multiple units - up to 20 counters

Specifications

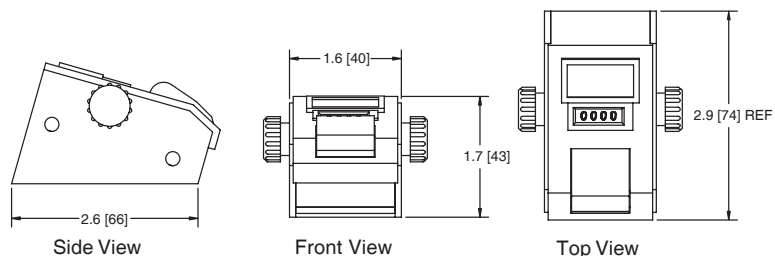
Figures: 4 figures, white on black, 0.12" [3mm] high
Reset: Knob

Weight: ~3.0oz. [85g] per unit

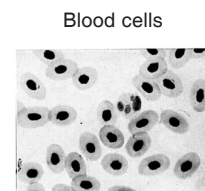
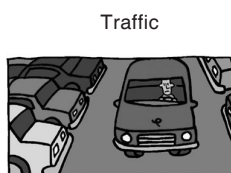
Models	Description	Models	Description
11-1904	Modular Tally, single unit	14-1904	Modular Tally, 1 unit wide x 4 units high
21-1904	Modular Tally, 2 units wide x 1 unit high	24-1904	Modular Tally, 2 units wide x 4 units high
31-1904	Modular Tally, 3 units wide x 1 unit high	34-1904	Modular Tally, 3 units wide x 4 units high
41-1904	Modular Tally, 4 units wide x 1 unit high	44-1904	Modular Tally, 4 units wide x 4 units high
12-1904	Modular Tally, 1 unit wide x 2 units high	15-1904	Modular Tally, 1 unit wide x 5 units high
22-1904	Modular Tally, 2 units wide x 2 units high	25-1904	Modular Tally, 2 units wide x 5 units high
32-1904	Modular Tally, 3 units wide x 2 units high	35-1904	Modular Tally, 3 units wide x 5 units high
42-1904	Modular Tally, 4 units wide x 2 units high	45-1904	Modular Tally, 4 units wide x 5 units high
13-1904	Modular Tally, 1 unit wide x 3 units high		
23-1904	Modular Tally, 2 units wide x 3 units high		
33-1904	Modular Tally, 3 units wide x 3 units high		
43-1904	Modular Tally, 4 units wide x 3 units high		

Dimensions

Dimensions for a single unit are shown to the right. To calculate the approximate size of an assembled unit, add 1.5" [37] to the width for each additional unit in a row, and add 2.6" [66] to the depth and 1.5" [37] to the height, for each additional row.



Applications





Description

A highly versatile, 5 figure stroke counter. Numbers are large and distinctive for easy viewing even when above or below eye level. Ruggedly built for years of trouble-free use. An excellent choice for counting parts produced.

Features

- Durable
- Large figures
- Reliable

Options

- Non-reset
- Large reset knob
- Right or left-hand shaft extension
- 10007-010S - additional lever and spring

Specifications

Figures: 5 figures, white on black, 0.19" [5mm] high
Reset: Knob
Speed: 1,000 counts/minute
Rotation: Top-coming or top-going
Count Stroke: 49° Min. - 60° Max.

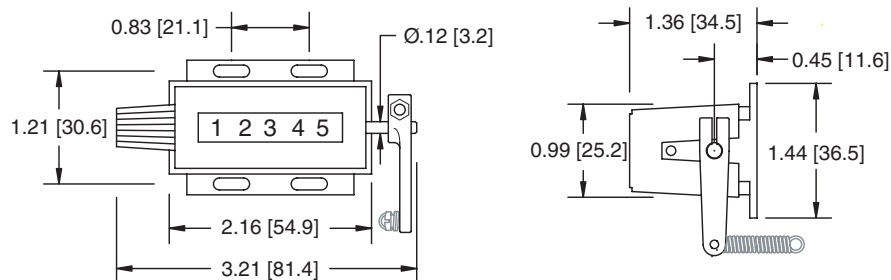
Shaft Extension: Right-hand or left-hand
Shaft Diameter: 0.125" [3.2mm]
Operating Life: Beyond 50 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Weight: 5 oz. [142g]

Models	Description	Models	Description
1-2015	Left-hand, top-coming, standard reset knob	1-2035	Right-hand, top-coming, standard reset knob
1-2025	Left-hand, top-going, standard reset knob	1-2045	Right-hand, top-going, standard reset knob

* Items in bold are normally in factory stock.

Dimensions

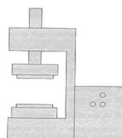
Right-Hand Shaft



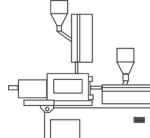
Mounting holes: 0.13" x 0.38" [3.3 x 9.7mm] slots

Applications

Punch press



Machine cycles



Secondary machines





Description

A compact, 5 figure, rotary counter, indicating 10 counts/revolution. Design and compact size make it ideally suited for office and test equipment, coin counting and other direct reading instruments.

Features

- Compact size
- 5 figures
- Long life

Options

- Large reset knob
- Special shaft

Specifications

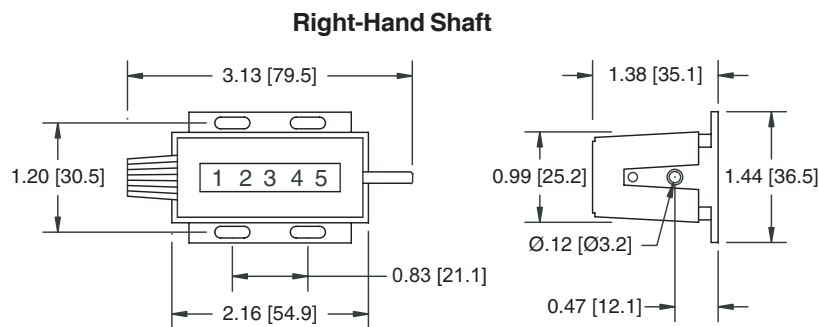
Figures: 5 figures, white on black, 0.19" [5mm] high
Reset: Knob
Speed: 1,000 revolutions/minute
Rotation: Top-coming or top-going
Shaft Extension: Right-hand or left-hand

Shaft Diameter: 0.125" [3.2mm]
Ratio: 10 counts/revolution
Operating Life: Beyond 50 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Weight: 4 oz. [113g]

Models	Description	Models	Description
1-2215	Left-hand, top-coming, add only	7-2225	Left-hand, top-going, add and subtract
1-2225	Left-hand, top-going, add only	7-2235	Right-hand, top-coming, add and subtract
1-2235	Right-hand, top-coming, add only	7-2245	Right-hand, top-going, add and subtract
1-2245	Right-hand, top-going, add only	1-2315	Left-hand, top-coming, add and subtract, non-reset
7-2215	Left-hand, top-coming, add and subtract	1-2325	Left-hand, top-going, add and subtract, non-reset

* Items in bold are normally in factory stock.

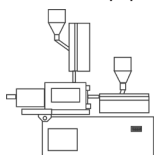
Dimensions



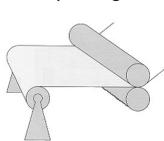
Mounting holes: 0.13" x 0.38" [3.3 x 9.7] slots

Applications

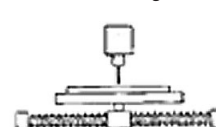
Production equipment



Spooling



Positioning





Description

A heavy-duty, 5 figure, internal reset, stroke counter. Available in either right-hand or left-hand shaft extension.

Features

- Heavy-duty
- Internal reset

Options

- Right or left-hand shaft extension
- 1022-006S - additional spring

Specifications

Figures: 5 figures, white on black, 0.31" [8mm] high
Reset: Internal - lift cover, reset wheels
Speed: 750 counts/minute
Rotation: Top-coming
Count Stroke: 36° Min. - 45° Max.

Shaft Extension: Right-hand or left-hand
Operating Life: Beyond 200 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Weight: 24 oz. [680g]

Models

1-2715 Left-hand, top-coming

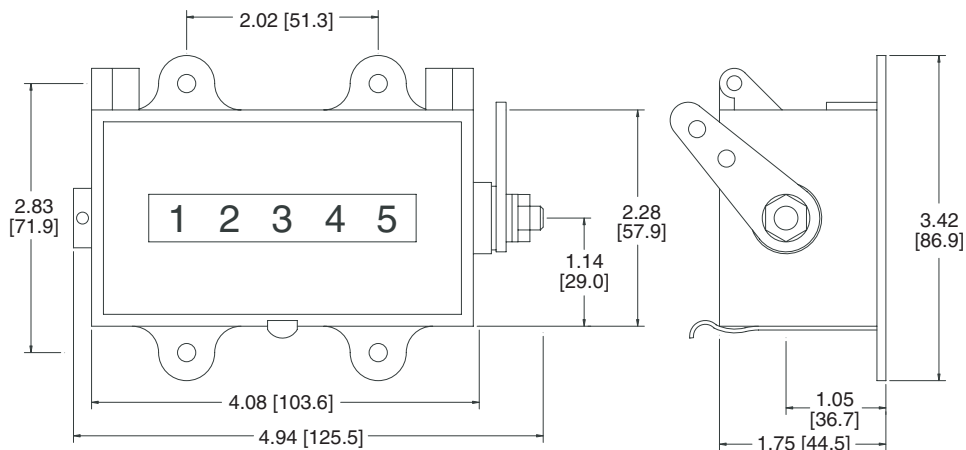
Models

1-2735 Right-hand, top-coming

* Items in bold are normally in factory stock.

Dimensions

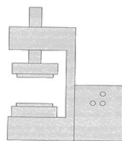
Right-Hand Shaft



Mounting holes: 0.19" [4.8mm] Dia.

Applications

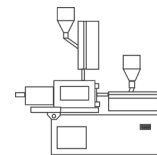
Punch press



Secondary Machines



Machine cycles





Description

A 5 figure, rugged stroke counter, with right-hand shaft extension, operating lever and attached spring. Rated at 600 counts per minute, this heavy-duty model is well suited for most industrial applications.

Features

- Heavy-duty
- 600 CPM
- 5 Figures

Options

- Lever modifications
- 1022-006S - additional spring

Specifications

Figures: 5 figures, white on black, 0.27" [7mm] high
Reset: Knob, internal, or lock and key
Speed: 600 counts/minute
Rotation: Top-coming
Count Stroke: 36° Min. - 45° Max.

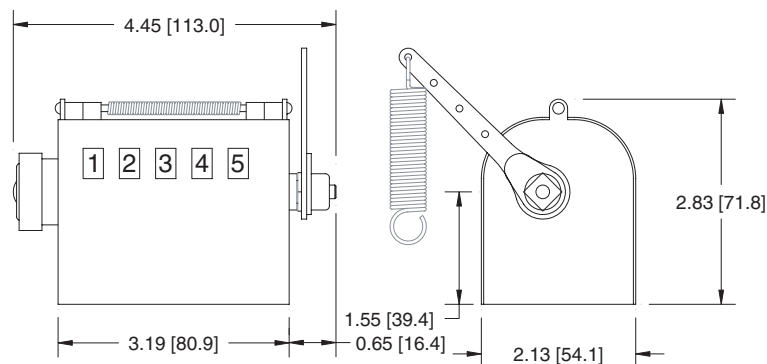
Shaft Extension: Right-hand
Operating Life: Beyond 200 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Weight: 20 oz. [567g]

Models	Description	Models	Description
3-2835	Right-hand, top-coming, internal reset	5-2835	Right-hand, top-coming, lock and key reset
4-2835	Right-hand, top-coming, knob reset		

* Items in bold are normally in factory stock.

Dimensions

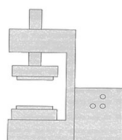
Right - Hand Shaft



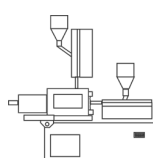
Mounting holes: 0.18" [4.6mm] Dia.

Applications

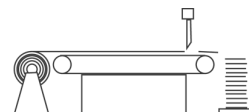
Punch press



Machine cycles



Shears





Description

A 6 figure, general purpose heavy duty industrial stroke counter designed for high count rates and continuous operation even under the most adverse operating conditions. Corrosion resistant material and finishes. Large, easy-to-read numbers.

Features

- Heavy duty
- High count rates
- Corrosion resistant

Options

- Non-reset
- Double shaft extensions
- Special mounting bases
- Weatherized versions
- 1022-006S - additional spring
- 1255-004S - additional lever

Specifications

Figures: 6 figures, white on black, 0.30" [7.6mm] high
Reset: Knob or lock and key
Speed: 1,000 counts/minute
Rotation: Top-coming or top-going
Count Stroke: 40° Min. - 70° Max.

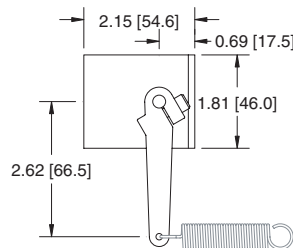
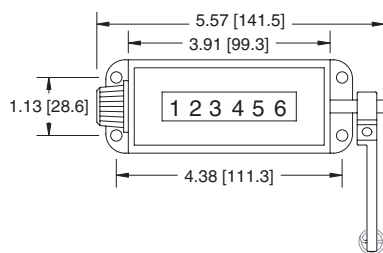
Shaft Extension: Right-hand or left-hand
Shaft Diameter: 0.25" [6.4mm]
Operating Life: Beyond 100 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Weight: 18 oz. [510g]

Models	Description	Models	Description
1-2916	Left-hand, top-coming, standard reset knob	1-2946	Right-hand, top-going, standard reset knob
1-2926	Left-hand, top-going, standard reset knob	2-2936	Right-hand, top-coming, lock and key reset
1-2936	Right-hand, top-coming, standard reset knob	V1-2936	Right-hand, top-coming, standard reset knob, V-base

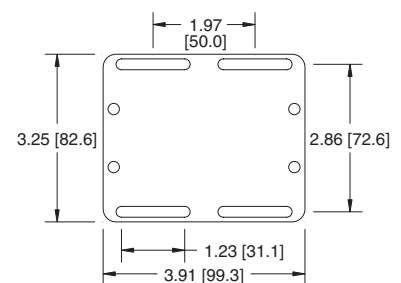
* Items in bold are normally in factory stock.

Dimensions

Right - Hand Shaft



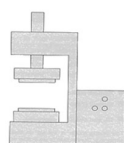
V - Mount



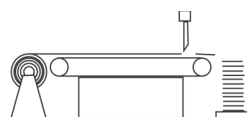
Mounting holes: 0.22" [5.6mm] Dia.

Applications

Punch presses



Shears



Cement trucks





Description

A 6 figure, general purpose, industrial rotary counter designed for use on equipment where environmental conditions are far from ideal. Various count ratios make it suitable for winding equipment, measuring devices and direct reading instruments.

Features

- Heavy duty
- High count rates
- Corrosion resistant

Options

- Non-reset
- Subtractive
- Double shaft extensions
- Special mounting bases
- Weatherized versions
- 98WF - Measuring Wheel - 12" circumference

Specifications

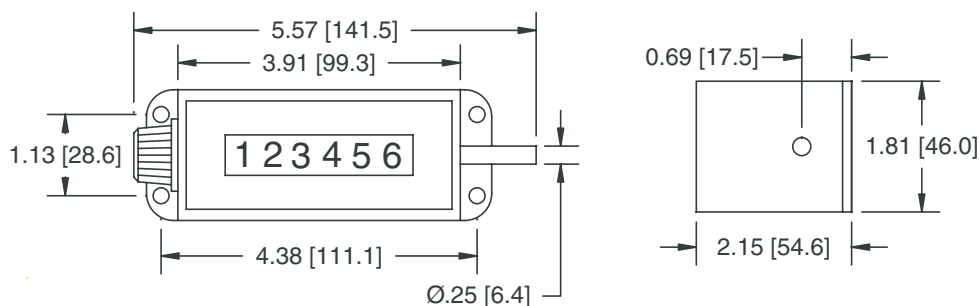
Figures: 6 figures, white on black, 0.30" [7.6mm] high
Reset: Knob or lock and key
Speed: 2,500 counts/minute or revolutions/minute, whichever is lower
Rotation: Top-coming or top-going, to add.
Will not subtract if rotation is reversed

Shaft Extension: Right-hand or left-hand
Shaft Diameter: 0.25" [6.4mm]
Ratio: 1 count/revolution or 10 counts/revolution
Operating Life: Beyond 100 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Weight: 18 oz. [510g]

Models	Description	Models	Description
11-2916	Left-hand, top-coming, 10 counts/revolution	21-2936	Right-hand, top-coming, 1 count/revolution
11-2936	Right-hand, top-coming, 10 counts/revolution	21-2946	Right-hand, top-going, 1 count/revolution
21-2916	Left-hand, top-coming, 1 count/revolution	22-2936	Right-hand, top-coming, 1 count/revolution, lock & key reset,
21-2926	Left-hand, top-going, 1 count/revolution		

Dimensions

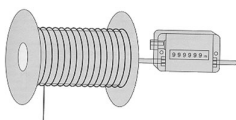
Right - Hand Shaft



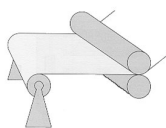
Mounting holes: 0.22" [5.6mm] Dia.

Applications

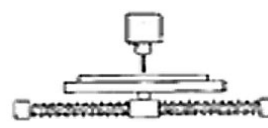
Winding equipment

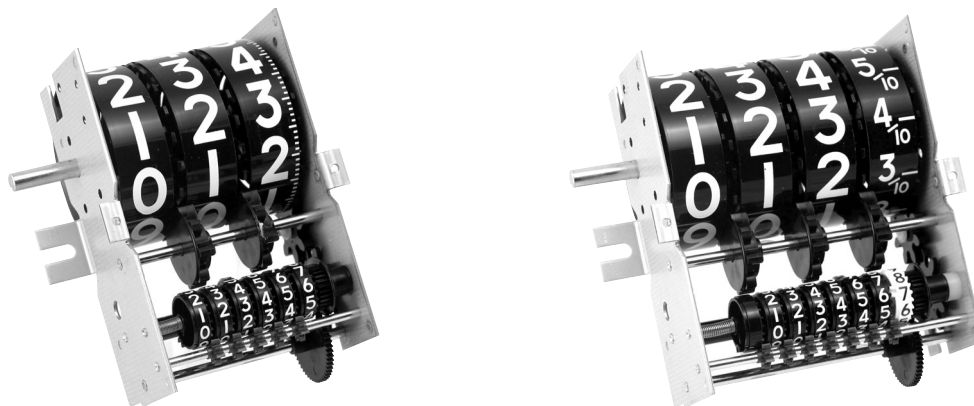


Spooling



Positioning





Description

The Model 41 is a 3-figure or 4-figure mechanical register and is used to display gallons or liters output from a dispenser or pump. The large figure display can be reset with the rotary reset shaft. A smaller, non-reset, mechanical totalizer is also included to record total product dispensed.

Features

- Large easy to read figures
- Time tested, reliable and durable
- Wide operating temperature range
- All non-corrosive parts
- Spring loaded totalizer is pre-settable
- No lubrication required

Options

- Gallons or liters
- Reset shaft configuration
- Reset shaft: right hand, left hand, or both

Specifications

Figures:

Main Display: 3 or 4 figures, white on black, 0.65" [16.5mm] high

Totalizer: 0.19" [5mm] white on black

Reset: Rotary reset. Reset knob supplied by customer

Reset Shaft: 0.25" [6.4mm] diameter

Speed:

40 gallons per/minute, 400 liters per/minute

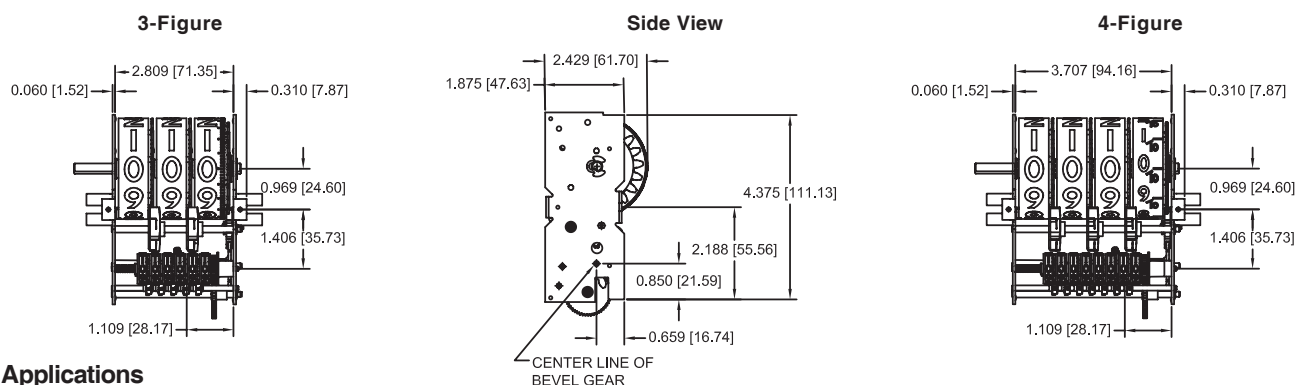
Operation Life: 1 million gallons, 10 million liters

Temp. Range: -40°F to +150°F [-40°C to +65°C]

Weight: 3-figure - 9oz [255g], 4-figure - 11oz [312g]

Models	Description	Models	Description
1-4103	3-figures, gallon display	2-4103	3-figures, liter display
2-4104	4-figures, gallon display	3-4104	4-figures, liter display

Dimensions



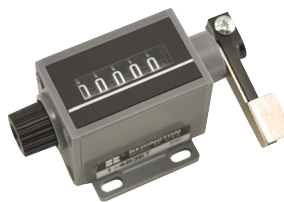
Applications

Pumps and Flow Meters





With Lever & Spring



With Thumb Lever

Description

These 5 figure stroke counters are especially designed for limited space and high count life applications. The advanced drive system translates into exceptionally high operating speeds, extended operating life, for fast and accurate readings. Ideal for copiers, printing presses, cut-off machines, and piece-part counting applications. Also available with a thumb lever for use as a tally counter.

Features

- Compact size
- Reliability
- Low cost

Options

- Special levers
- 10011-001S - additional spring
- 10007-009S - lever and spring

Specifications

Figures: 5 figures, white on black, 0.19" [5mm] high
Reset: Standard or large knob, non-reset
Speed: 500 counts/minute
Rotation: Top-coming or top-going
Count Stroke: 40° Min. - 45° Max.

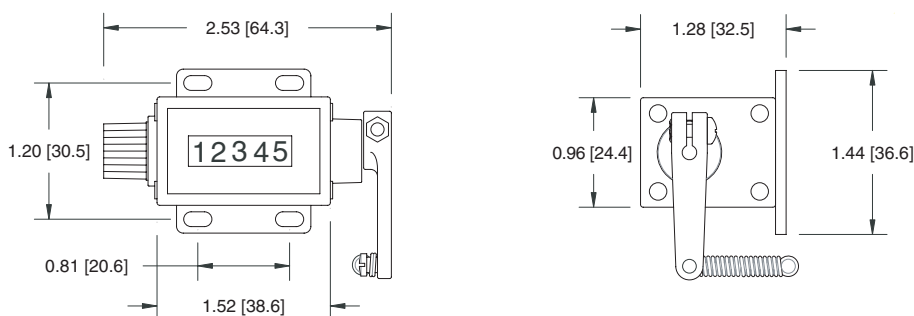
Shaft Extension: Right-hand or left-hand
Shaft Diameter: 0.156" [4.0mm]
Operating Life: Beyond 5 million counts
Temp. Range: -15°F to +140°F [-25°C to +60°C]
Weight: 2 oz. [57g]

Models	Description	Models	Description
1-4615	Left-hand, top-coming, standard reset knob	2-4615	Left-hand, top-coming, large reset knob
1-4625	Left-hand, top-going, standard reset knob	2-4625	Left-hand, top-going, large reset knob
1-4635	Right-hand, top-coming, standard reset knob	2-4635	Right-hand, top-coming, large reset knob
1-4645	Right-hand, top-going, standard reset knob	2-4645	Right-hand, top-going, large reset knob
1-4635T	Right-hand, top-coming, std. reset knob, with thumb lever	5-4645	Right-hand, top-going, non-reset

* Items in bold are normally in factory stock.

Dimensions

Right - Hand Shaft



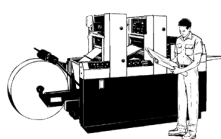
Mounting holes: 0.13" x 0.24" [3.3 x 6.1mm] slots

Applications

Copiers



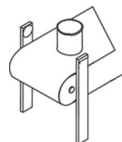
Printing presses



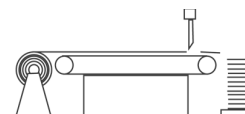
Farm equipment



Piece-part counting



Cut-off machines





Description

These rugged revolution counters are completely sealed, tamper resistant, and maintenance-free. They can be mounted on a rotating shaft or wheel. Adds in either direction, and records revolutions, miles, kilometers, or acres. They are used on material handling equipment, farm machinery, rapid transit vehicles, street sweepers, golf carts, and construction equipment.

Features

- Sealed
- Tamper resistant
- Bi-directional

Options

- Face plate
- Custom calibrations

Specifications

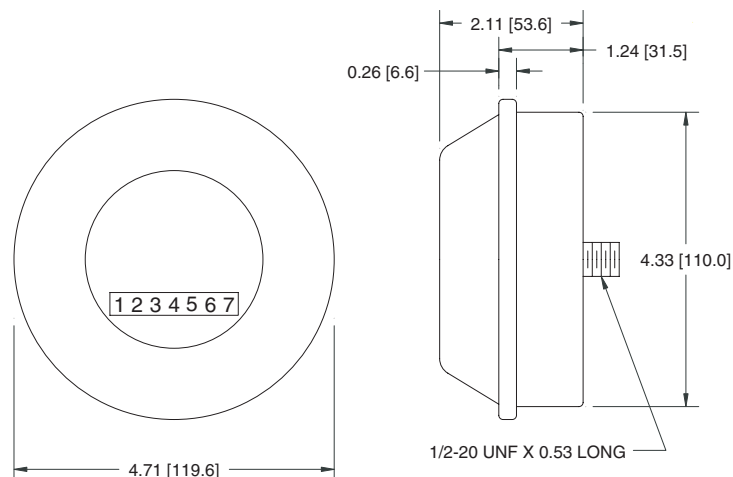
Figures: 7 figures, 0.19" [5mm] high
Temp. Range: -50°F to +180°F [-45°C to +82°C]
Weight: 1.5 Lbs. [0.7kg]

Models	Description	Models	Description
750-0002	Reading x 10 = Total Revolutions (Revolutions)	750-0114	Reading x 100 = Revolutions (Revolutions)
750-0007	(9.5L - 15) x 15' (Acres)	750-0156	798 Revolutions per Acre (Acres)
750-0016	364 Revolutions per Acre (Acres)		

Consult factory for a counter to meet your specific needs.

Dimensions

Hubodometer



Applications

Rapid transit vehicles



Farm machinery



Golf carts



Construction equipment





Description

This 3 or 4 figure stroke counter with operating lever, spring assembly and reset knob, requires minimal space for mounting plus offers a high count rate and long life. The Model PCU can be reset during operation without damage. All PCU's are designed to minimize internal contamination, making them an excellent choice for outdoor use.

Features

- 3 or 4 figure
- Compact size
- Suitable for outdoor use

Options

- Non-reset
- Large reset knob

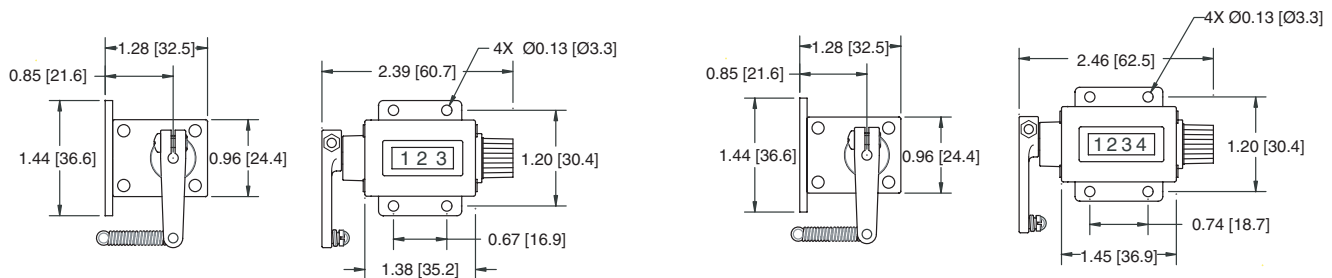
Specifications

Figures: 3 or 4 figures, white on black, 0.19" [5mm] high
Reset: Knob
Speed: 600 counts/minute
Rotation: Top-coming or top-going
Count Stroke: 40° Min. - 45° Max.

Shaft Extension: Right-hand or left-hand
Shaft Diameter: 0.156" [4mm]
Operating Life: Beyond 50 million counts
Temp. Range: -15°F to +140°F [-26°C to +60°C]
Weight: 2 oz. [57g]

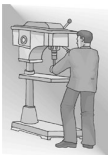
Models	Description	Models	Description
1-PCU-13	Left-hand, top-coming, 3 figure	1-PCU-14	Left-hand, top-coming, 4 figure
1-PCU-33	Right-hand, top-coming, 3 figure	1-PCU-24	Left-hand, top-going, 4 figure
1-PCU-33T	Right-hand, top-coming, 3 figure, with thumb lever	1-PCU-34	Right-hand, top-coming, 4 figure
1-PCU-43	Right-hand, top-going, 3 figure	1-PCU-44	Right-hand, top-going, 4 figure

Dimensions

1-PCU-13**1-PCU-14**

Applications

Secondary Machines



Shears



Farm Machinery





Description

Designed for use in a wide variety of production, batching and packaging applications. These 4 or 6 figure electromechanical predetermining counters count down from a preset number and activate a SPDT switch. Convenient preset controls and built-in manual reset with guard are standard. A surge absorbing circuit protects against damage due to voltage spikes. Heavy duty bail mount secures counter in place.

Features

- 4 or 6 figures
- Heavy duty mount
- SPDT switch

Options

- Voltages

Specifications

Figures: 4 or 6 figures, white on black, 0.16" [4mm] high
Reset: Manual, or electric reset (min. 100ms - on, 1min - off)
Speed: 600 counts/minute (min. 50ms - on, 50ms - off)
Voltages: 115VAC, 24VDC
(+/-10%, but not to exceed 10 volts)
Power: 5.5 watts count, 20 watts reset (nominal)
Mounting: Bail

Termination: Screw type
Operating Life: Beyond 100 million counts
Temp. Range: -15°F to +140°F [-26°C to + 60°C]
Output Switch: SPDT 5 Amp. @ 250 VAC resistive
Output Duration: Until reset
Approvals: UL Recognized, CE Compliant
Weight: 10 oz. [284g]

Models Description

B2-5804 115VAC, 4 figure, manual reset
B2-5804/E2 115VAC, 4 figure, 115VAC electric reset
B8-5804 24VDC, 4 figure, manual reset
B8-5804/E8 24VDC, 4 figure, 24VDC electric reset

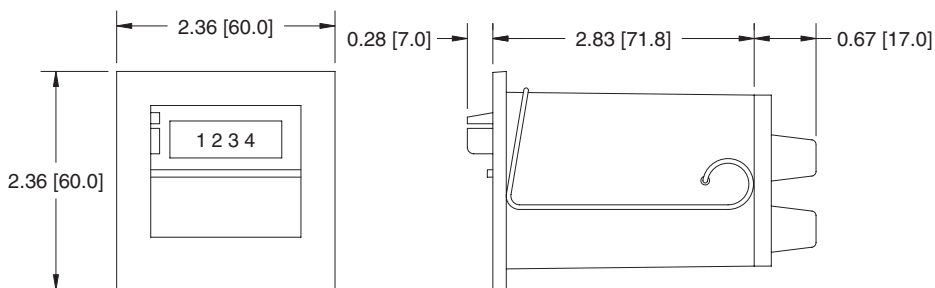
Models Description

B2-5806 115VAC, 6 figure, manual reset
B2-5806/E2 115VAC, 6 figure, 115VAC electric reset
B8-5806 24VDC, 6 figure, manual reset
B8-5806/E2 24VDC, 6 figure, 115VAC electric reset

* Items in bold are normally in factory stock.

Dimensions

Bail Mount



Panel cutout: 2.17" x 2.17" [55.1 x 55.1]

Applications

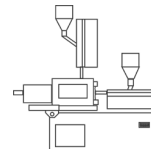
Packaging



Batching



Production





Description

The Redington Model 33 line of LCD hour meters provides a large display, 7mm high figures, in the industry size housings. The hour meters are available in a variety of mountings: 2-hole rectangular, 3-hole round, flush-round and flush-rectangular. Voltage operating ranges are 10-277 VDC AND 20-277VAC 50/60Hz. All models are totally sealed from moisture and dirt and conform to NEMA 4 & 4X specifications when mounted with the optional gasket. Their rugged construction makes them ideal replacements for current hour meters. Units have polarized LCD for high visibility in sunlight.

Features

- AC or DC voltage input in the same unit
- Totally sealed from moisture and dirt
- Run indicator-blinking decimal point
- Always on display
- Compact depth
- AC Voltage input is not frequency sensitive
- Clip retainer mount or screws (supplied)

Options

- Custom logos and bezels
- Terminations
- Remote reset - dry contact with 6" wire leads
- Gaskets
 - 5003-002S gasket for 2-hole mount
 - 5003-003S gasket for flush-rectangular mount
 - 5003-004S gasket for flush-round mount
 - 5003-005S gasket for 3-hole round mount

Specifications

Display:	LCD with large 0.28" [7mm] high figures, black on light background
Run Indicator:	Blinking decimal point
Quartz Accuracy:	0.02% over entire voltage & temperature range
Records & Displays:	6 digit (99999.9)
Inputs:	10 to 277VDC AND 20-277VAC-50/60Hz
	Vih* 20VAC or 10VDC minimum
	Vil* 3VAC or 3VDC maximum
Battery Life:	7+ years
Shock:	44 to 55g's, SAE J1378
Vibration:	20 g @ 10 to 80 Hz, SAE J1378
Humidity:	95% SAE J1378

Operating Temperature:	-40°F to +185°F [-40°C to +85°C]
Sealing:	Totally sealed, panel gaskets-NEMA 4 & 4X
Agency Approvals:	CE compliant
	UL/cUL recognized (file# ELIY2.E36690)
Termination:	0.250" [6.4mm] spades
Reset:	Optional - dry contact with 6" wire leads
Case Material:	Polymer (black)
Weight:	1oz [28g]
Protection Against:	Alternator load dump: 150V
	EMI(Electromagnetic Interference): +400V
	@ 500Hz inductive switching and reverse polarity

* Vih is the input high voltage. This is specified as the minimum input voltage that the Model 33 will recognize as a high level.
Vil is the input low voltage. This is specified as the maximum input voltage that the Model 33 will recognize as a low level.

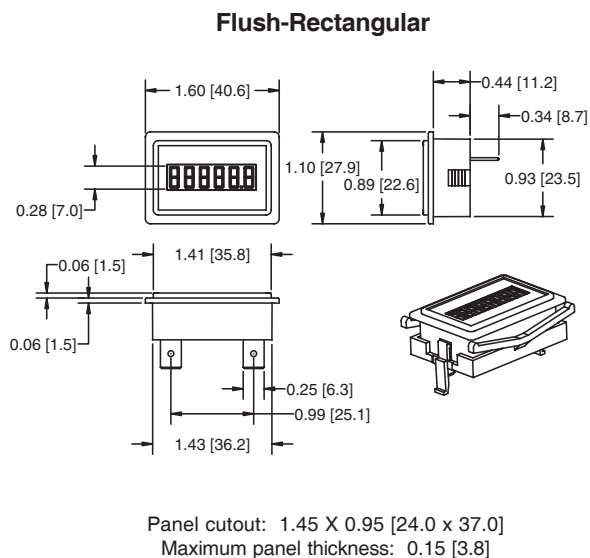
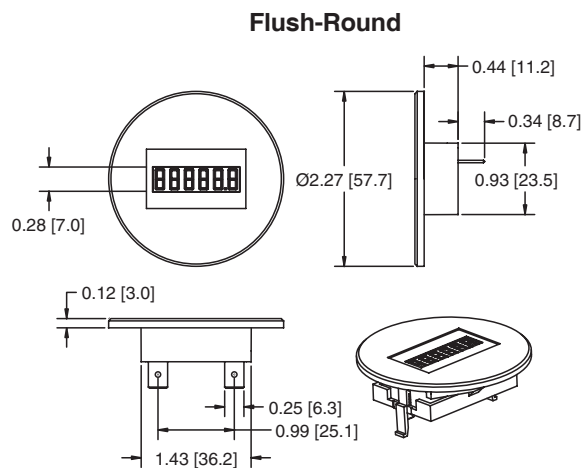
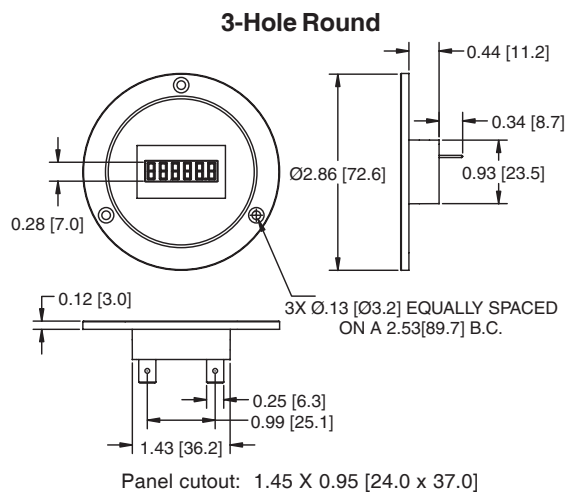
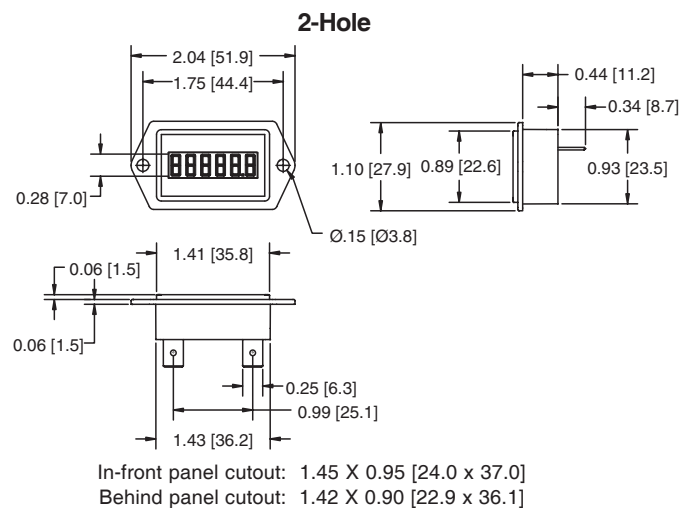
Note: When interfacing the Model 33 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

Models	Description	Models	Description
3311-0000	2-Hole Rect., 10-277 VDC AND 20-277VAC	3311-0010	2-Hole Rect., 10-277 VDC AND 20-277VAC, remote reset
3311-1000	3-Hole Round, 10-277 VDC AND 20-277VAC	3311-1010	3-Hole Round, 10-277 VDC AND 20-277VAC, remote reset
3311-2000	Flush Rect., 10-277 VDC AND 20-277VAC	3311-2010	Flush Rect., 10-277 VDC AND 20-277VAC, remote reset
3311-3000	Flush-Round, 10-277 VDC AND 20-277VAC	3311-3010	Flush-Round, 10-277 VDC AND 20-277VAC, remote reset

All parts are normally in factory stock.



Dimensions



Applications

Agricultural Equipment



Medical Devices



Pressure Washers



Sweepers



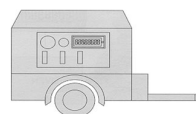
Construction Equipment



Marine Applications



Generators



Office Equipment



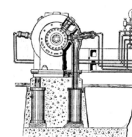
Test Equipment



Boom Lifts



Compressors



Utility Vehicles





Description

The Redington Model 51 line of 5 figure LCD meters provides a large display in the industry size package. A choice of mountings, Round, 2 Hole Dual, Mini Rectangular or Surface Mount. A custom microprocessor, capable of being programmed to create an almost infinite matrix of models is ideally suited for OEM applications. Available in 3 inputs, DC, AC or Inductive. Maintenance Meters are offered with a "Redi-Alert" to alert users when service is due. Not only does the display flash to get attention, but it displays specific maintenance service needs to be done. Units have Polarized LCD for high visibility in sunlight. Servicing equipment on time is critical to efficient operation and long equipment life. That is why you should consider Redington's "Redi-Alert" meters. Redi-Alert offers two independent alarms (both fully programmable) to alert users when service is due. Alarms are fully automatic; coming on and shutting off at times determined by the OEM.

Features

- Totally sealed from moisture and dirt
- Fits in existing panel openings
- "Redi-Alert" for preventive maintenance
- Icons for specific maintenance needs
- Tachometer/Hour Meter versions
- Automatic rollover
- Hour glass symbol appears & flashes on/off to indicate running time
- Various voltage inputs
- Short depth
- Always on display

Options

- Various voltage inputs
- Alarm outputs: audible or visual (external voltage required)
- Custom logos & bezels
- Terminations: stud, wire, screw, or blade
- Alternator and filtered versions
- Key Kancel (alarm reset via external key or wand)

Specifications

Display:	Large 0.20" [5mm] LCD, black on light background
Records & Displays:	5 digits (9999.9)
Resolution:	0.1 hours
Quartz Accuracy:	0.02% over entire voltage & temp. range
Inputs:	8-32 VDC, 32-277 VAC-50/60HZ
Operating Temperature:	-40°F to +160°F [-40°C to +71°C]
Battery Life:	15 years
Current Consumption:	1 mA (for multi-range voltages 1 mA applies to lower voltage)
Approvals:	AC-UL/cUL Recognized, CE Compliant

Protection Against:	Transient voltage, inductive switching, reverse polarity, frequency variations
Alternator Load Dump:	150 V
Shock:	SAE J1378 55g
Vibration:	SAE J1378 20g
Humidity:	SAE J1378 95% RH
Termination:	Panel mount standard terminals, 0.250 male blade (s), surface mount- wire lead
Case Material:	ABS, black, 100% epoxy filled
Weight:	1 oz. [28g]

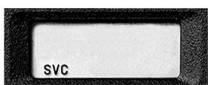
Models Description

DC Models	
5120-1000	Panel Mount, Round, 8-32 VDC, Hours & 1/10's
5120-1100	Panel Mount, Mini, 8-32 VDC, Hours & 1/10's
5120-1200	Panel Mount, 2 Hole, 8-32 VDC, Hours & 1/10's
AC Models	
5120-2000	Panel Mount, Round, 32-277VAC, 50/60 Hz, Hours & 1/10's
5120-2100	Panel Mount, Mini, 32-277 VAC, 50/60 Hz, Hours & 1/10's
5120-2200	Panel Mount, 2 Hole, 32-277 VAC, 50/60 Hz, Hours & 1/10's

Models Description

Inductive Models	
5120-0000	Panel Mount, Round, Inductive, Hours
5120-0100	Panel Mount, Mini, Inductive, Hours
5120-0200	Panel Mount, 2 Hole, Inductive, Hours
5140-0000	Panel Mount, Round, Inductive, Hours & 1:1Tach
5140-0100	Panel Mount, Mini, Inductive, Hours & 1:1Tach.
5140-0200	Panel Mount, 2 Hole, Inductive, Hours & 1:1Tach.
5120-0310	Surface Mount, Inductive, Hours
5140-0311	Surface Mount, Inductive, Hours w/1:1Tach. Change oil Alert @ 25hr./2 hr. flash Lube Alert @ 25hr./2 hr. flash
5140-0312	Surface Mount, Inductive, Hours w/1:1Tach. Change oil Alert @ 100hr./4 hr. flash Lube Alert @ 25 1hr./2 hr. flash

* Items in bold are normally in factory stock.

**Alarm Specifications****Alarms programmable for your applications****ALARM # 1**

Programmable for a "first time" (break in service) or a normal recurring service interval.

ALARM # 2

Same as alarm # 1, but without the "first time" interval.

ALARM/FLASH DURATION

OEM's specify the service interval and flash duration for each alarm. Flash duration is the amount of time in hours that the specified icon flashes before and after the service interval.

ALARM RESET

The standard alarm alert is fully automatic with no operator interface necessary. The alarm simply flashes the specified icon for the duration called out by the OEM. Controlled reset options are available for a higher level of security. *Contact factory for additional information.*

MAINTENANCE METER ALARM SPECIFICATIONS**ALARM #1**

1st time service interval range
(2 to 99 hrs. occurs only once)

Normal service interval range:
2 to 999 hrs. (Recurring)

Flash duration: 1 to 99 hrs.
(Time flashing before & after
service interval)

Available icons: CHG OIL, LUBE,
CHG MUFF, SVC-AIR FILTER,
SVC-Lower left/right side of display

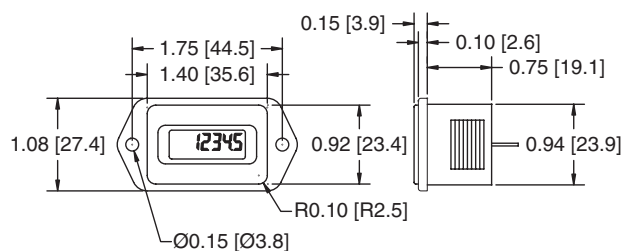
ALARM # 2

Normal service interval range:
2 to 999 hrs. (Recurring)

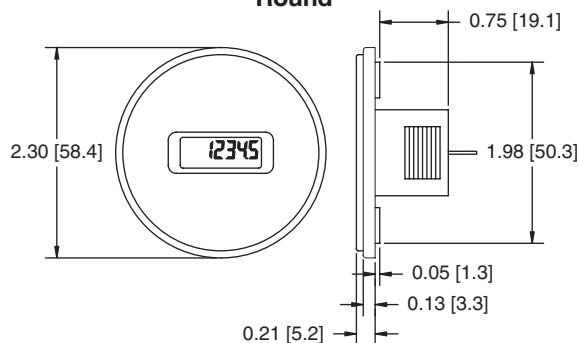
Flash duration: 1 to 99 hrs.
(Time flashing before & after
service interval)

Available icons: CHG OIL, LUBE,
CHG MUFF, SVC-AIR FILTER,
SVC-Lower left/right side of display

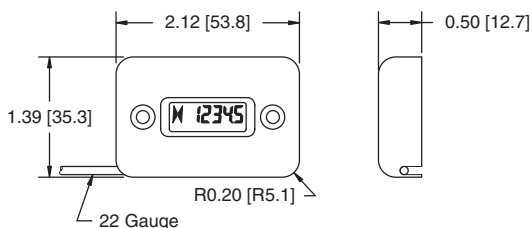
Alarms flash specified icon 4 seconds then flash hour 4 seconds through-out alarm duration.

Dimensions**2 Hole Dual Mount**

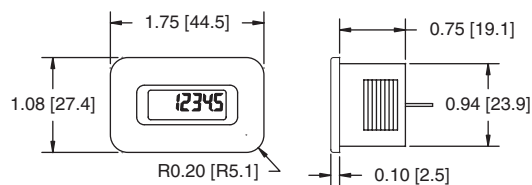
Above panel cutout 1.46 x 0.95 [37.1 x 24.1] opening
Behind panel cutout 1.41 x 0.93 [35.8 x 23.6] opening

Round

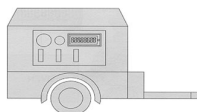
Spring clip retainer, Fast installation
Panel cutout 2.0 [50.8] diameter

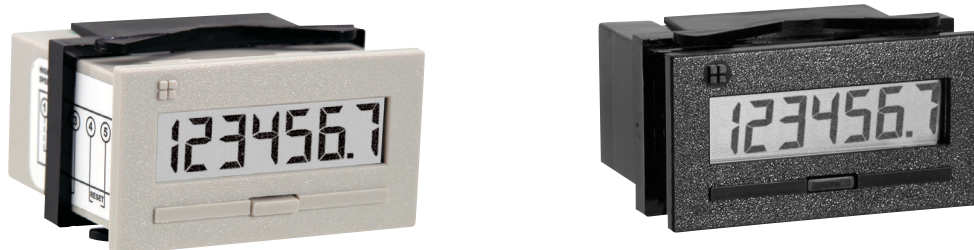
Surface Mount

Mounting holes are 1 1/2" [38.1] spacing
Hole Diameter is 1/8" [3.2]

Mini Rectangular

Compact Bezel Design, Spring clip retainer, Fast
installation, Panel cutout 1.46 x 0.95 [37.1 x 24.1] opening.

Applications**Construction Equipment****Medical Devices****Generators****Marine Applications****Garden Tractors**



Description

The Model 53 Hour Meter with 7 LCD digits, 999999.9, and internal lithium battery, is ideal for applications requiring time accumulation for maintenance scheduling, warranty monitoring, lease time or fee computation. Applications include test equipment, panel builders, mobile equipment and medical devices. A choice of time ranges, in hours, minutes or seconds provides the user with a wide choice of recording increments.

Features

- Lithium battery
- Choice of manual reset, remote reset or non-reset
- Switch (no-voltage), 3-30VDC, 20-250VAC/VDC

Options

- Termination
- Case color
- Private labeling
- Mounting adapter plates
- 5003-001S - gasket
- Low AC voltage (4-30 VAC)

Specifications

Figures: 7 LCD figures, 0.32" [8mm] high
Reset: Remote, manual, and non-reset
Inputs: Switch (no-voltage), 3-30VDC, 20-250VAC/VDC (50/60Hz)
 Vih* 20VAC/3VDC minimum
 Vil* 3VAC/1VDC maximum
Power: Self-powered (internal lithium battery)
Mounting: Panel with clip
Terminations: Terminal block, or connector - 8" [200mm] wire leads
Weight: 2 oz. [57g]
Battery Life: ~20years
Accuracy: Quartz accuracy (better than 0.01%)
Approvals: UL Recognized, CSA Certified, CE Compliant

Temperature

Operating: -4°F to +140°F [-20°C to +60°C]
Storage: -40°F to +165°F [-40°C to +75°C]

Humidity:

0 to 95% RH, non-condensing

Vibration

Operating: 10 to 55Hz, 0.01" [0.25mm] double amplitude
Non-Operating: 10 to 55Hz, 0.03" [0.75mm] double amplitude

Shock

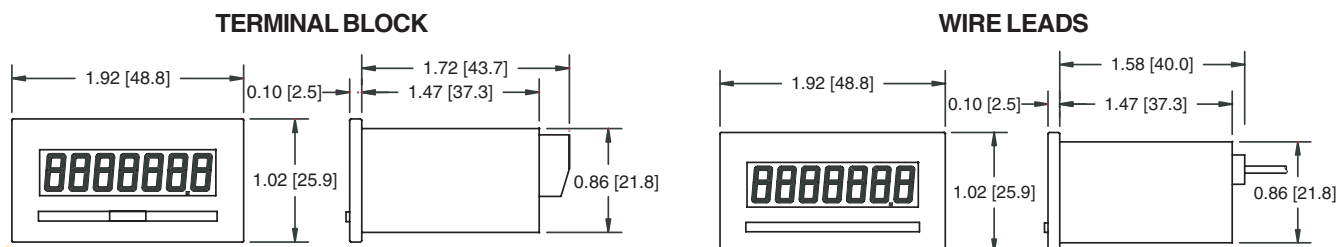
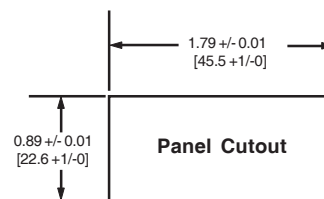
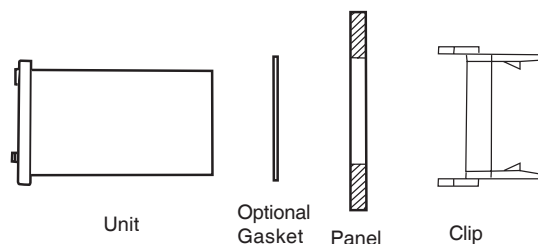
Operating: 10G
Non-Operating: 30G
Dielectric: 1000VAC 50/60Hz for 1 minute

Note: When interfacing the Model 53 with a Solid State Relay or AC Sensor, the leakage current need to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

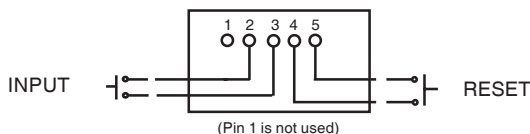
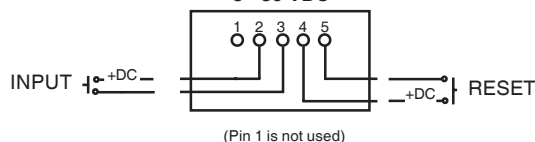
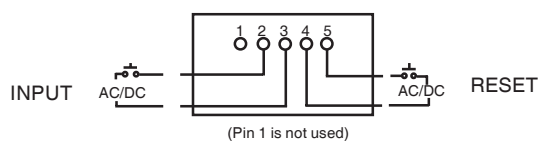
Models

Part#	Function			Reset			Input			Terminations		Color	
	hours	min.	sec.	remote	none	manual	switch	3-30VDC	20-250VAC/VDC	term. block	8" wire leads	tan	black
5320-0000	X			X			X			X		X	
5320-0001	X			X			X			X			X
5321-0000		X		X			X			X		X	
5321-0001		X		X			X			X			X
5322-0000			X	X			X			X		X	
5322-0001			X	X			X			X			X
5320-0100	X			X		X	X			X		X	
5320-0101	X			X		X	X			X			X
5320-1000	X			X				X		X		X	
5320-1001	X			X				X		X			X
5320-1010	X			X				X			X		
5320-1011	X			X				X			X		X
5320-1100	X			X		X		X		X		X	
5320-2000	X			X					X	X		X	
5320-2001	X			X					X	X			X
5320-2200	X				X				X	X		X	
5320-2201	X				X				X	X			X
5320-2100	X			X		X			X	X		X	

* Items in bold are normally in factory stock.

**Dimensions****Operating Instructions****MOUNTING:**

The mounting clip accommodates panel thicknesses up to 1/4" [6.4mm].

WIRING:**SWITCH (non-voltage)****3 - 30 VDC****20 - 250VAC/VDC**

Color code for the 8" [203mm] lead wires (24AWG) are:

- 1 - Yellow
- 2 - Blue
- 3 - Black
- 4 - Violet
- 5 - Gray

Terminal block will accept wire sizes from 14 to 24AWG.

3 - 30VDC units are protected for transient voltages up to 50 volts with pulse widths of up to 1 second at a 1% duty cycle (including reverse polarity).

The operating AC frequency range is 40 to 400Hz.

NOTES:

All resettable hour meters can be reset by a pulse with a minimum duration of 6 milliseconds.

SPECIAL WIRING OPTION

There is an internal connection between pin 3 and pin 5, a single wire can be used by connecting it to either pin 3 or pin 5. This option **does not** apply for units with input of 20 - 250VAC/VDC or manual reset enable.

OPTIONAL INPUTS:

Optional control circuitry (such as transistors) may be used as inputs provided that such circuitry provides the required parameters of the model used.

Applications**Medical Equipment****Test Equipment****Office Equipment**



Description

The Model 55 LCD hour meters and counters offer a flexible choice for basic hour meter or counter function. Three variations of cases make the Model 55 flexible for your installation requirements. Because all information is saved in an internal EEPROM memory, no battery is required. A broad range of AC or DC input voltages make the Model 55 a versatile product for most applications. Two operating versions of the hour meter and three operating versions of the counter are offered. These include hour meters that display hours to resolutions of 1/100th or 1/10th of an hour and counters that operate with maximum input rates of 30 Hz or 200 Hz for DC inputs and 10 Hz for AC inputs. The Model 55 includes models with reset options that include remote reset, manual and remote reset, and non-reset. A model designed to mount to a printed circuit board is available upon request.

Features

- Manual, remote or non-reset
- EEPROM for memory (no battery)
- AC or DC input voltages
- 3 housing configurations
- 1/10th or 1/100th hours indication
- IP 65 front panel, without reset button
- Display hours or counts
- Choice of count frequency

Options

- 1/10th or 1/100th hour indication, or counts
- Reset type
- Case configuration
- Termination
- Count speed

Specifications

Figures: 7 LCD figures, 0.28" [7mm] high

Quartz Accuracy: 0.01%

Reset: Manual and remote, non-reset and remote only
No manual reset for round model

Input Voltage: 12/24 VDC $\pm 25\%$

115-240 VAC $\pm 10\%$ 50/60 Hz

Special Voltage: 24 VAC/DC $\pm 10\%$, 24-48 VDC $\pm 25\%$

Current: 12-24 VDC & 24-48 VDC/2-4 mA
24 VAC/DC/2 mA
115-240 VAC/7- 15 mA

Mounting: Retaining clip

Terminations: 1/4" spade or screw terminals

Approvals: UL Recognized, CE Compliant

Operating Temp: -22 °F to +158 °F [-30°C to +70°C]

Humidity: 0 to 95% RH, non-condensing

Protection: Without reset button-IP 65, gasket supplied,
With reset button-IP54

EMC: EN 55011, EN 50082-2

Vibration: 1 g (10-500 Hz) IEC 68-2-34

Shock: 30 g (18 msec.) IEC 68-2-27

25 g (6 msec.) IEC 68-2-29

Max Count Speed: 30, 200 Hz DC or (10 Hz AC or AC/DC)

Memory: EEPROM (no battery)

Case Material: Black, ABS plastic with glass lens on round model only

Weight: 2 oz. [57g]

Models Description

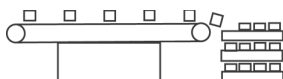
For Details on Models and Descriptions, see the Ordering Information section.

Applications

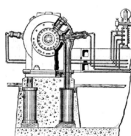
Test equipment



Packaging machinery



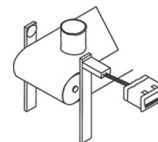
Compressors



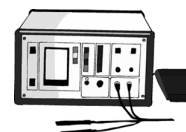
Panel builders



Piece count



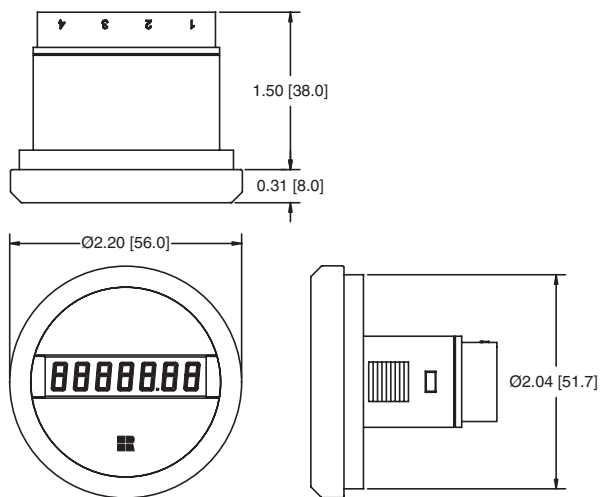
Medical devices





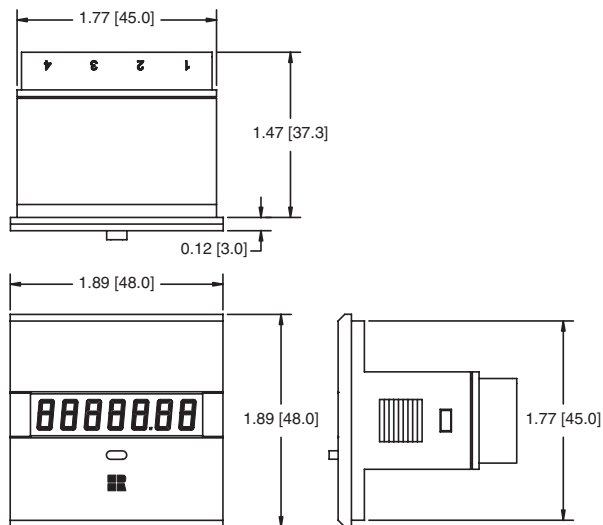
Dimensions

Round



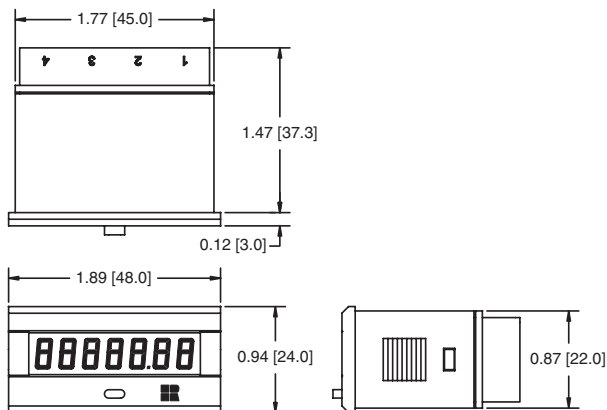
PANEL CUT OUT: Ø2.055 [52.2]

Square



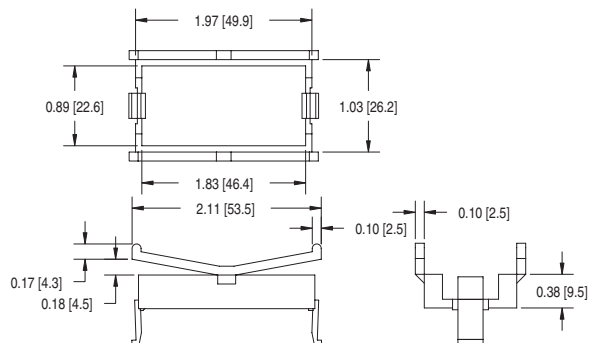
PANEL CUT OUT: 1.78 [45.2] SQUARE

Rectangular



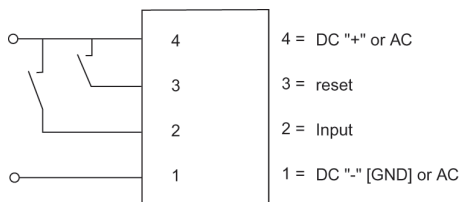
PANEL CUT OUT: .876 [22.2] X 1.772 [45]

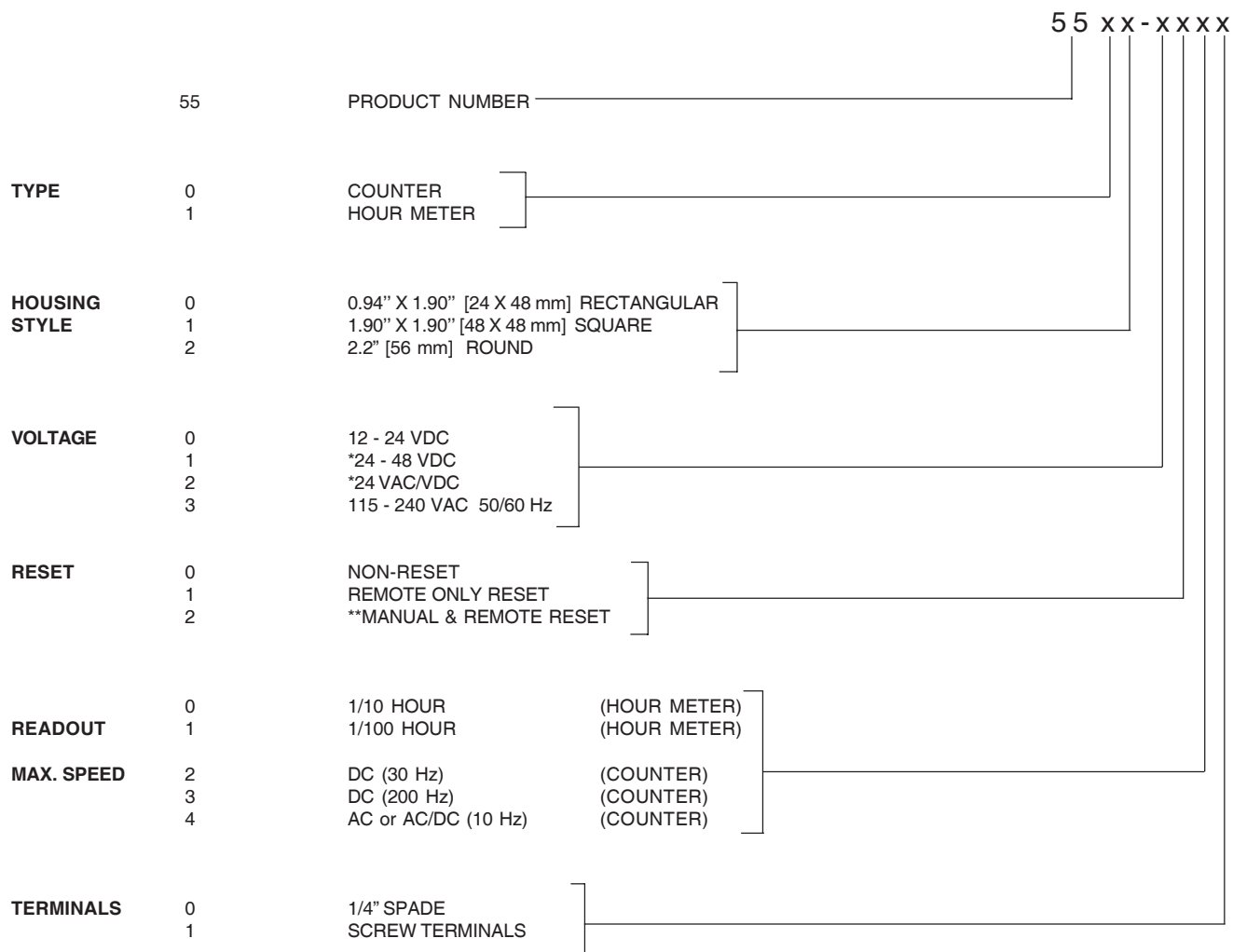
Mounting Clip



Maximum Panel Thickness for all units: 0.15" [6.4mm]

Wiring Diagram





* Special voltage - consult factory

** Manual reset not available on round case style.

Note: The counter display is updated on the trailing edge of the input signal.



Description

The Redington Model 56 family of LCD indicators offers a variety of options to fulfill your count/hour meter requirements. This indicator can display hours, counts or both with a single-line shared display. You decide which value should be displayed permanently and which one will be in the background. The background indication will appear for approximately 10 seconds every time you apply power to the meter.

The Model 56 family offers you many features that are set at the factory at your request. These features include, input voltages, maximum count speeds or minimum hour meter indication times, connector terminations, reset configurations, a Redi-Alert Service Interval feature, prewarn, and input scaling.

The Model 56 family can be ordered to accommodate any of a number of AC or DC input voltages and reset configurations. The counter can be ordered for maximum input count speeds of 10 Hz for AC or AC/DC voltages and 30 Hz or 200 Hz for DC voltages. The hour meter can be ordered to display time intervals of 1/100th or 1/10th of hours. When using a counter and an hour meter in combination, the counter will count the number of input pulses while the hour meter will record the total duration of the input pulses.

The Redi-Alert Service Interval feature notifies operators of service requirements when service intervals are a function of the number of events or time. If a Redi-Alert Service Interval is specified, the display will show the count (or time) remaining until the service interval is reached. The Redi-Alert Service Interval feature can be considered to be a down-counter (or down-timer) since the count (or time) that is displayed shows what remains until service is required. When the Redi-Alert Service Interval gets to zero, the indicator will flash the display. If the Redi-Alert Service Interval is not reset, the indicator will continue to operate, and the display will show negative counts (or time) indicating how far the system has gone past the service interval. If the prewarn feature is included, the display will begin flashing when the prewarn count (or time) is reached. When the Service Interval is in the background, it will come to the foreground when it reaches the service interval or the prewarn. Resetting the indicator resets the Service Interval to its specified setting and returns the Service Interval to the background.

You can configure your Model 56 meter using the Ordering Information sheet.

Features

- Display hours or hours and counts
- "Redi-Alert" for service hours or counts
- Manual, remote or non-reset
- EEPROM for memory (no battery)
- Divider/multiplier on inputs
- AC or DC input voltage
- 3 housing configurations
- Choice of 1/100th or 1/10th hours (specify)

Options

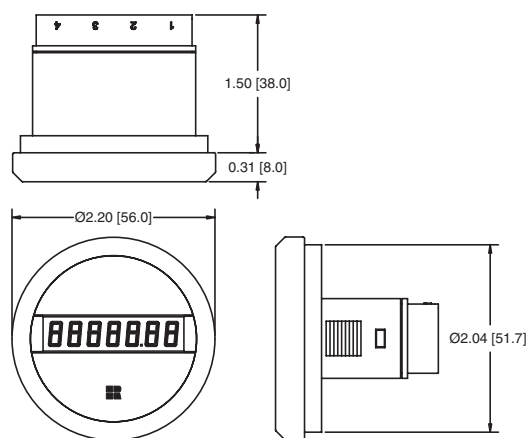
- Input scaling
- Input frequency
- Reset type
- Indication of time/count
- Wide selection of input voltage
- Service "Redi-Alert"

Specifications

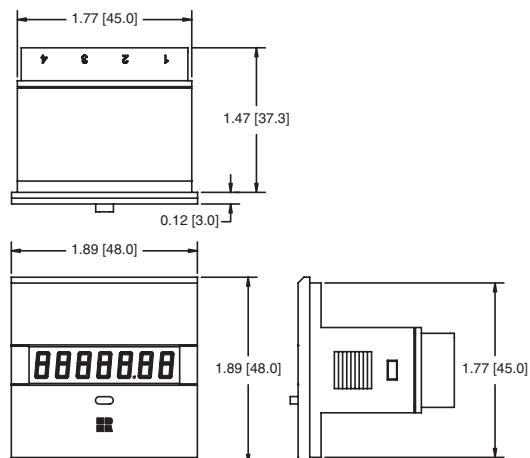
Display:	7 digit, 0.28 [7mm], LCD, 1 display	Memory:	EEPROM (no battery)
Quartz Accuracy:	0.01%	Approvals:	UL Recognized, CE Compliant
Input Voltage:	12/24 VDC/ $\pm 25\%$ 115-240 VAC 50/60 Hz/ $\pm 10\%$	Mounting:	Retaining clip
Special Voltages:	24-48 VDC/ $\pm 25\%$ 24 VAC 50/60 Hz/VDC/ $\pm 10\%$	Electrical Connection:	1/4" [6.4mm] spade or screw terminals
Current Consumption:	12-24 VDC & 24-48 VDC/2-4 mA 24 VAC/VDC/2 mA 115-240 VAC/7-15 mA	Case Material:	Black, ABS plastic with glass lens on round model only
Protection:	Without reset button-IP 65, gasket supplied, with reset button-IP54	Reset:	Manual and remote, non-reset and remote only No manual reset for round model
EMC:	EN 55011, EN 50082-2	Operating Temperature:	-22°F to +158°F [-30°C to +70°C]
Vibration:	1 g (10-500) IEC 68-2-34	Weight:	2 oz [57g]
Shock:	30 g (18 msec.) IEC 68-2-27 25 g (6 msec.) IEC 68-2-29	Service Alert:	Factory set - one "Redi-Alert", 4 digits
Max. Count Speed:	30, 200Hz DC or (10 Hz AC or AC/DC) (specify)	Input Scaling:	Factory set, 4 digits
		Prewarn Signal:	Factory set, 4 digits

**Models Description**

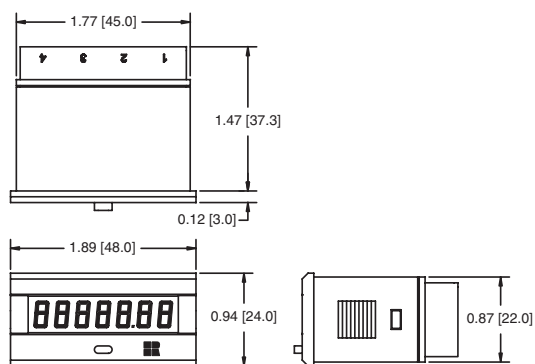
For Details on Models and Descriptions, see the Ordering Information section.

Dimensions**Round**

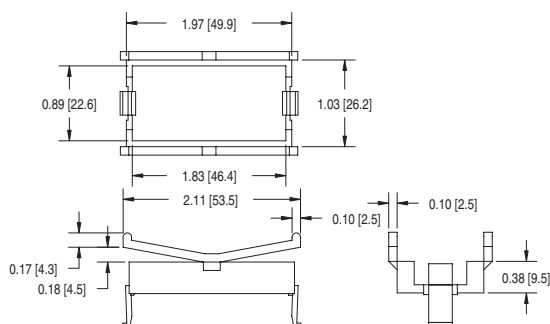
PANEL CUT OUT: Ø2.055 [52.2]

Square

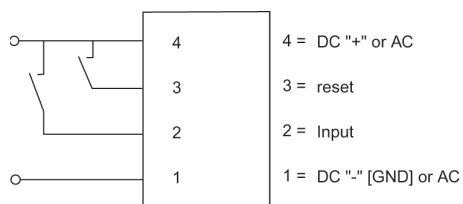
PANEL CUT OUT: 1.78 [45.2] SQUARE

Rectangular

PANEL CUT OUT: .876 [22.2] X 1.772 [45]

Mounting Clip

Maximum Panel Thickness for all units: 0.15" [6.4mm]

Wiring Diagram**Applications****Test Equipment****Packaging Machinery****Medical Devices**



Ordering Information

FUNCTION	HOUSING DIMENSIONS			NOTES
	1 X 2 INCH	2 X 2 INCH	ROUND 2.2 INCH	
HM WITH HM (bg)*	5600	5601	5602	Only HM is resettable
C WITH C (bg)*	5610	5611	5612	Only C is resettable
HM WITH C (bg)*	5620	5621	5622	Both are resettable
C WITH HM (bg)*	5630	5631	5632	Both are resettable
HM WITH SHM (bg)*	5640	5641	5642	Only SHM (bg) is resettable
C WITH SC (bg)*	5650	5651	5652	Only SC (bg) is resettable
SHM WITH HM (bg)*	5660	5661	5662	Only SHM is resettable
SC WITH C (bg)*	5670	5671	5672	Only SC is resettable

*HM= Hour Meter *C= Counter *bg= Background *SHM= Service Hour Meter *SC= Service Counter

Note: The counter display is updated on the trailing edge of the input signal

Model 56 Specification Sheet

Company: _____ Phone: _____
 Address: _____ Fax: _____
 _____ Email: _____
 Contact: _____ Date: _____

Model No. _____ (4 digits) *SELECTED FROM ABOVE TABLE.*

Input Voltage: (check only 1)

☐ 12-24 VDC ☐ 115-240 VAC 50/60 Hz Special voltages available, consult factory.

Indication of time for Hour Meter: (check only 1)

☐ 1/100th ☐ 1/10th

Max. counting frequency for Counter: (check only 1)

☐ 30 Hz (DC) ☐ 200 Hz (DC) ☐ 10 Hz @ (AC) or (AC/DC)

Termination : (check only 1)

☐ 1/4" spade ☐ screw terminals

Reset Types: (check only 1)

☐ non-reset ☐ remote reset ☐ remote and manual reset (No manual reset for 2.2 " Round Model)

Service Interval: (optional)

☐ "Redi-Alert" : _____ (4 digits max) ☐ Prewarn : _____ (4 digits max)

Input scaling: (optional - check only 1)

☐ Divider: _____ (4 digits max) ☐ Multiplier: _____ (4 digits max)



Description

The Redington Model 57 family of LCD indicators offers a variety of options to fulfill your count/hour meter requirements. This indicator can display hours, counts or both with a single-line shared display. This model is available with an LED indication for service and relay or transistor output. You decide which value should be displayed permanently and which one will be in the background. The background indication will appear for approximately 10 seconds every time you apply power to the meter.

When using a counter and an hour meter in combination, the counter will count the number of input pulses while the hour meter will record the total duration of the input pulses.

The Redi-Alert Service Interval feature notifies operators of service requirements when service intervals are a function of the number of events or time. If a Redi-Alert Service Interval is specified, the display will show the count (or time) remaining until the service interval is reached. The Redi-Alert Service Interval feature can be considered to be a down-counter (or down-timer) since the count (or time) that is displayed shows what remains until service is required. When the Redi-Alert Service Interval gets to zero, the indicator will flash the display. If the Redi-Alert Service Interval is not reset, the indicator will continue to operate, and the display will show negative counts (or time) indicating how far the system has gone past the service interval. If the prewarn feature is included, the display will begin flashing when the prewarn count (or time) is reached. When the Service Interval is in the background, it will come to the foreground when it reaches the service interval or the prewarn. Resetting the indicator resets the Service Interval to its specified setting and returns the Service Interval to the background.

The LED indicator and output will come on once the Redi-Alert is reached and stay on until reset.

The Model 57 family also offers the option of an additional display for those applications that require dual indications.

Features

- Choice of single or dual displays
- Display counts/hours or both
- Factory programmed service alert
- Divide/multiply on inputs (factory set)
- With or without reset
- Output signal: none, relay or transistor
- Service indicator available
- DC input voltages
- IP 65 sealed front panel
- EEPROM for memory (no battery)

Options

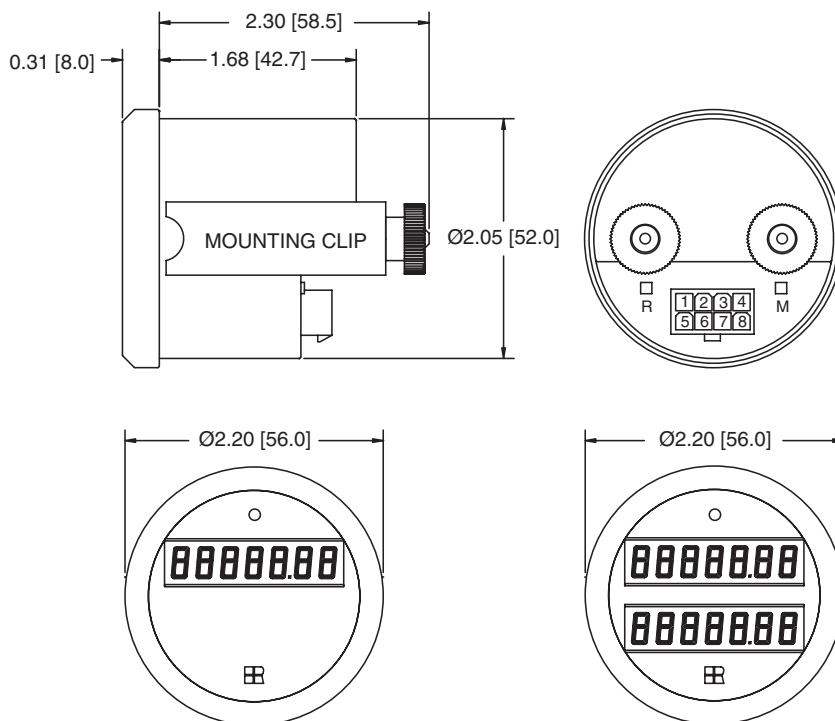
- Input scaling
- Count speed
- Reset type
- Indication of time/count
- Type of output
- One or two displays
- LED indication for service
- Maintenance Redi-Alert output

Specifications

Display:	Large 7 digit, 0.28 [7mm], LCD 1 or 2 displays	Protection:	IP 65 front panel/gasket supplied
Quartz Accuracy:	0.01% over entire voltage & temp. range	EMC:	EN 55011, EN 50082-2
Input Voltage:	12-24 VDC/ $\pm 25\%$ 24 VDC/ $\pm 25\%$ - with relay output	Vibration:	1g (10...500 Hz) IEC 68-2-34 30 g(18 msec.) IEC 68-2-27 25 g(6 msec) IEC 68-2-29
Special Voltages:	24-48 VDC/ $\pm 25\%$ 12,36,48 VDC/ $\pm 25\%$ -with relay output	Max Count Speed:	30 or 200 Hz (specify)
Current Consumption:	12-24 VDC/<10 mA, 24-48 VDC/<10 mA (12 V/< 35 mA, 24 V/< 25 mA, 36 V/<25 mA, 48 V/< 20 mA) with relay	Memory:	EEPROM (no battery)
Relay Contact:	1 dry contact / breaking capacity 12 V/2 A, 24 V/2 A, 36 V/1.5 A, 48 V/1 A	Mounting:	Metal clamp
Transistor Output:	V _{OH} 4.5 VDC, minimum through 30 KW V _{OL} 0.4 VDC, maximum through 20 KW I _{SINK} 1.0 mA, maximum	Electrical Connection:	8 pole compact plug with lock
Operating Temperature :	-22 °F to +158 °F [-30 °C to +70 °C]	Case Material:	Black, ABS plastic w/glass lens
Approvals:	CE Compliant	Reset:	Manual & remote (manual button on the rear of housing), non-reset, remote
		Service Alert:	Factory set - one Redi-Alert, 4 digits
		Prewarn Signal:	Factory set, 4 digits
		Input Scaling:	Factory set, 4 digits
		Weight:	3.5 oz [99g]

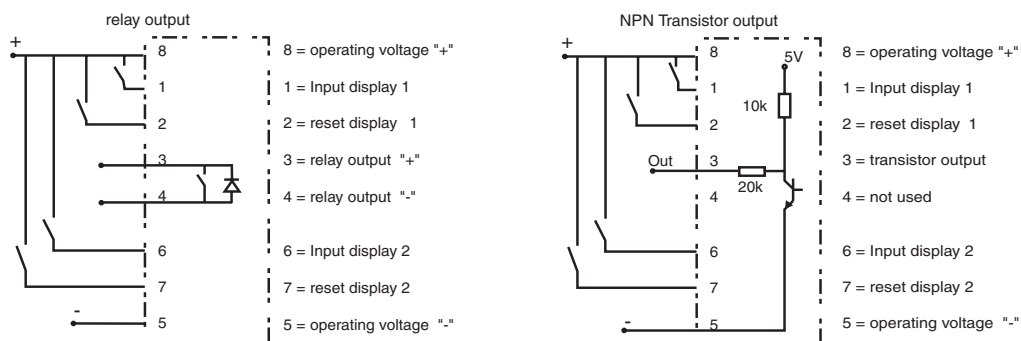
**Models Description**

For Details on Models and Descriptions, see the Ordering Information section.

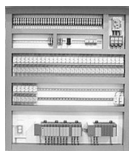
Dimensions

Maximum Panel Thickness: 0.20" [5.1mm]

Panel Cutout: 2.06" [52.2mm]

Wiring Diagram**Applications**

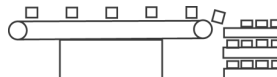
Panel Builders



Medical Devices



Packaging Machinery



Test Equipment





Ordering Information

Model No.	Voltage	Function	Reset	Notes
5700	12 - 24 VDC	HM*	HM	without output or LED
5701	12 - 24 VDC	C*	C	without output or LED
5702	12 - 24 VDC	HM with HM (bg)*	HM	without output or LED
5703	12 - 24 VDC	C with C (bg)*	C	without output or LED
5704	12 - 24 VDC	HM with C (bg)*	BOTH	without output or LED
5705	12 - 24 VDC	C with HM (bg)*	BOTH	without output or LED
5706	24 VDC	HM with SHM (bg)*	SHM	with relay output and LED
5707	12 - 24 VDC	HM with SHM (bg)*	SHM	with transistor output and LED
5708	24 VDC	C with SC (bg)*	SC	with relay output and LED
5709	12 - 24 VDC	C with SC (bg)*	SC	with transistor output and LED
5710	24 VDC	SHM with HM (bg)*	SHM	with relay output and LED
5711	12 - 24 VDC	SHM with HM (bg)*	SHM	with transistor output and LED
5712	24 VDC	SC with C (bg)*	SC	with relay output and LED
5713	12 - 24 VDC	SC with C (bg)*	SC	with transistor output and LED

*HM= Hour Meter *C= Counter *bg= Background *SHM= Service Hour Meter *SC= Service Counter

Model 57 Specification Sheet

Company: _____
 Address: _____
 Contact: _____

Phone: _____
 Fax: _____
 Email: _____
 Date: _____

Model No. _____ (4 digits) *SELECTED FROM ABOVE TABLE*

Display 1

Indication of time for Hour Meter: (check only 1)

☐ 1/100th ☐ 1/10th

Max. counting frequency for Counter: (check only 1)

☐ 30 Hz ☐ 200 Hz

Reset types: (check only 1)

☐ non-reset ☐ remote reset
☐ remote & manual (manual reset on rear of housing)

Service interval (optional)

☐ "Redi-Alert": _____ (4 digits max)
☐ Prewarn: _____ (4 digits max.)

Input scaling (optional - check only 1)

☐ Divider _____ (4 digits max)
☐ Multiplier _____ (4 digits max)

Display 2 (Optional)

☐ Yes

☐ No

Indication of time for Hour Meter: (check only 1)

☐ 1/100th ☐ 1/10th

Max. counting frequency for Counter: (check only 1)

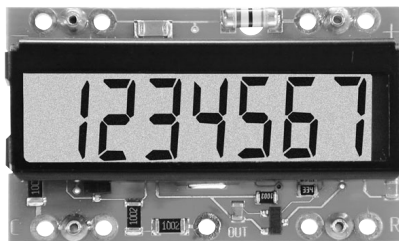
☐ 30 Hz ☐ 200 Hz

Reset types: (check only 1)

☐ non-reset ☐ remote reset
☐ remote & manual (manual reset on rear of housing)

Input scaling: (optional - check only 1)

☐ Divider _____ (4 digits max)
☐ Multiplier _____ (4 digits max)



Description

The Redington Model 59 line of LCD modules can easily be integrated into your equipment or machinery. These functions are also available in cased versions, ask for more information, or see Model 55, 56 & 57.

Single Indicator:

Can be used to display hours or count.

Twin Indicator:

These models can supply two indications in one display. You can decide which function should be indicated permanently and which one in the background. The background function displays for approximately 10 seconds every time you power-up the display. When using a counter and an hour meter in combination, the counter will count the number of input pulses while the hour meter will record the total duration of the input pulses. Presettable "prewarn" signals can also be programmed into the modules. If you specify a prewarn the display will flash when it reaches its specified value. A wide range of reset functions are also available to provide you with the exact configuration for your application. Model 57 is available with an output function to "alert" when service or preventive maintenance should occur.

Redi-Alert:

The Redington Model 59 LCD Maintenance Meter modules can easily be integrated into your equipment or machinery. This module can display hours, counts or both with a single-line, shared display. You can decide which function should be indicated permanently and which one is in the background. The background function, value, appears for approximately 10 seconds every time you power-up the display. When using a hour meter and counter in combination, the counter will count the number of input pulses while the hour meter will record the total duration of the input pulses. A wide range of reset functions are available to provide you with the exact configuration for your application.

The Redi-Alert Service Interval feature notifies operators of service requirements when service intervals are a function of the number of events or time. If a Redi-Alert Service Interval is specified, the display will show the count (or time) remaining until the service interval is reached. The Redi-Alert Service Interval feature can be considered to be a down-counter (or down-timer) since the count (or time) that is displayed shows what remains until service is required. When the Redi-Alert Service Interval gets to zero, the indicator will flash the display. If the Redi-Alert Service Interval is not reset, the indicator will continue to operate, and the display will show negative counts (or time) indicating how far the system has gone past the service interval. If the prewarn feature is included, the display will begin flashing when the prewarn count (or time) is reached. When the Service Interval is in the background, it will come to the foreground when it reaches the service interval or the prewarn. Resetting the indicator resets the Service Interval to its specified setting and returns the Service Interval to the background. The LED indicator and output will come on once the Redi-Alert is reached and stay on until reset.

Features

- Display time/count or both
- "Redi-Alert" function for service
- Choice of non-reset or remote reset
- EEPROM for memory (no battery)
- Divider/multiplier
- 30 or 200 Hz, max input frequency
- 1/10th or 1/100th hour indication
- 12 to 24 VDC power range

Options

- Input scaling
- Input frequency
- Remote reset
- Service "Redi-Alert"
- Display functions

Specifications

Display:	7 digit, 0.28 [7mm], LCD
Quartz Accuracy:	0.01%
Input Voltage:	12-24 VDC/ $\pm 25\%$
Current Consumption:	2-4 mA
Transistor Output:	V_{OH} 4.5 VDC, minimum through 30 KW V_{OL} 0.4 VDC, maximum through 20 KW I_{SINK} 1.0 mA, maximum
Operating Temperature:	-22°F/+158°F [-30°C to +70°C]
Max Count Speed:	30 or 200 Hz
Memory:	EEPROM (no battery)
Approvals:	UL/cUL Recognized
Mounting:	Electrical connection pins for soldering

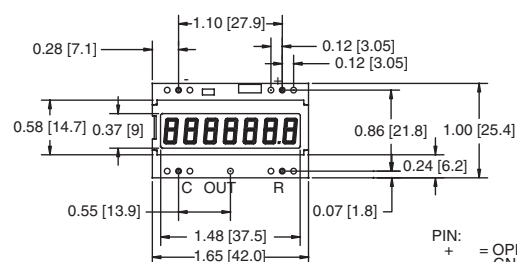
Electrical Connection:	Pins for soldering
Reset:	Non-reset, remote
Protection:	
EMC:	EN 55011, EN 50082-2
Vibration:	1 g (10 to 500 Hz) IEC 68-2-34
Shock:	30 g (18 msec.) IEC 68-2-27
	25 g (6 msec.) IEC 68-2-29
Weight:	0.5 oz [14g]
Service Alert:	1 "Redi-Alert", 4 digits, factory set
Input Scaling:	Factory set, 4 digits
Prewarn Signal:	Factory set, 4 digits

Models Description

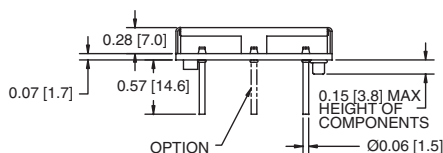
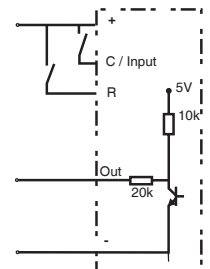
For Details on Models and Descriptions, see the Ordering Information section.



Dimensions



PIN:
 + = OPERATING VOLTAGE
 - = GND
 C = COUNT
 OUT = SERVICE COUNTER OUTPUT (OPTION)
 ALTERNATIVE POSITIONS OF THE CONNECTION PINS
 ARE OPTIONALLY POSSIBLE.

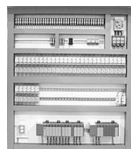
Wiring Diagram
NPN Transistor Output

Applications

Test Equipment



Panel Builders



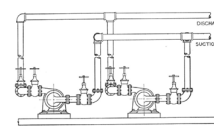
Medical Devices



Office Equipment



Flow Meters



Ordering Information

Model#	Function	Output Signal	Notes
	SINGLE FUNCTION		
5902	HM*	-	HM is resettable
5912	C*	-	C is resettable
	TWO FUNCTION		
5922	HM with HM (bg)*	-	Only HM is resettable
5932	C with C (bg)*	-	Only C is resettable
5942	HM with C (bg)*	-	Both are resettable
5952	C with HM (bg)*	-	Both are resettable
5962	HM with SHM (bg)*	included	Only SHM (bg) is resettable
5972	C with SC (bg)*	included	Only SC (bg) is resettable
5982	SHM with HM (bg)*	included	Only SHM is resettable
5992	SC with C (bg)*	included	Only SC is resettable

*HM=HOUR METER *C= COUNTER *bg=BACKGROUND *SC= SERVICE COUNTER *SHM= SERVICE HOUR METER

Model 59
Specification Sheet

Company: _____
 Address: _____
 Contact: _____

Phone: _____
 Fax: _____
 Email: _____
 Date: _____

Model No. _____ (4 digits) SELECTED FROM ABOVE TABLE .

Input voltage: (check only 1)

☐ 12-24 VDC Special voltages available, consult factory.

Indication of time for Hour Meter: (check only 1)

☐ 1/100th ☐ 1/10th

Max. counting frequency for Counter: (check only 1)

☐ 30 Hz (DC) ☐ 200 Hz DC

Reset type: (check only 1)

☐ non-reset ☐ remote reset

Service interval: (optional)

☐ "Redi-Alert" : _____ (4 digits max) ☐ Prewarn : _____ (4 digits max)

Input scaling: (optional - check only 1)

☐ Divider: _____ (4 digits max) ☐ Multiplier: _____ (4 digits max)

**Description**

A 6 figure, battery powered, push-button or key reset, electronic hour meter, available in base mount or panel mount configuration. No external power supply is required. Large 0.50" [12mm] LCD figures for fast, easy reading. Operates at 6-240 VAC or VDC. Long lasting internal lithium battery. Attractive styling and silent operation make these models equally well-suited for lab or office equipment applications.

Features

- No external power supply needed
- Long life lithium battery
- Large easy reading display
- Operates at 6 to 240 VAC or VDC

Options

- Non-reset
- Remote reset
- Minutes meter
- Seconds meter

Specifications

Figures: 6 LCD figures, 0.50" [12mm] high
Reset: Push-button, or lock and key
Input: 6-240VAC (50/60Hz) or 6-240VDC
 Vih 6VAC/VDC minimum
 Vil 2VAC/VDC maximum

Mounting: Base or panel

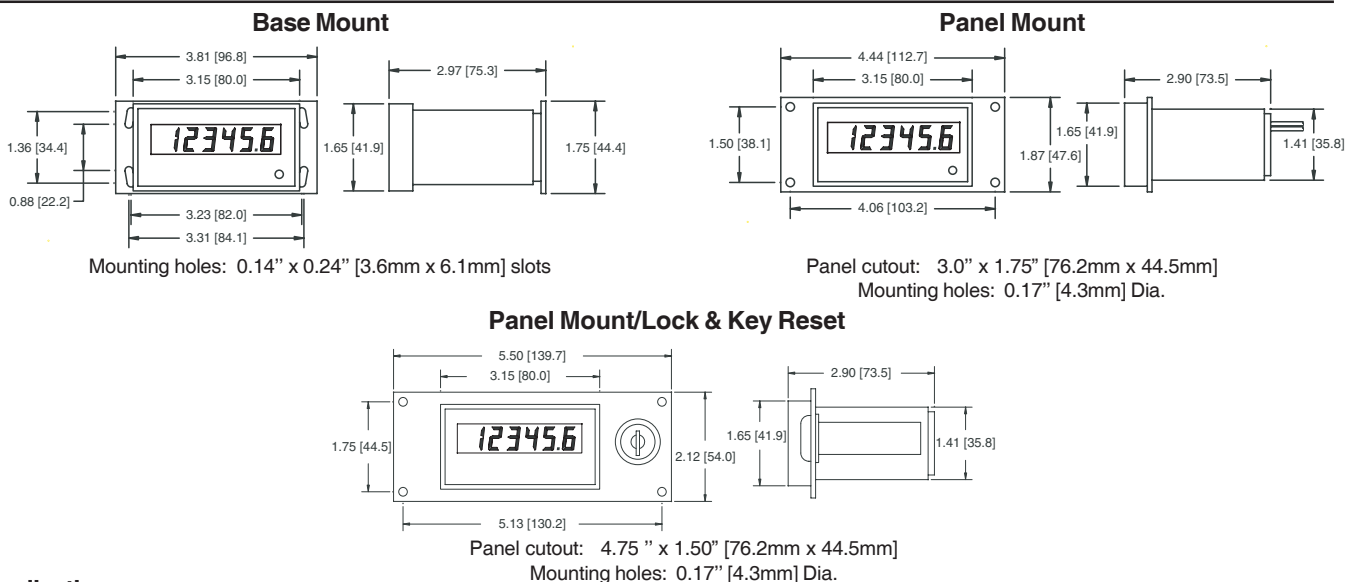
Terminations: (2) #22 AWG 221°F [105° C] wire leads, 8" [203mm] long
Temp. Range: -14°F to +122°F [-26°C to +50°C]
Power Source: Internal lithium battery
Weight: 18 oz. [510g]

Note: When interfacing the Model 94 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

Models**Description**

9425-001 6 figure, base mount, push-button reset
9425-003 6 figure, panel mount, push-button reset
9425-005 6 figure, panel mount, lock and key reset

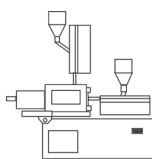
* Items are normally in factory stock.

Dimensions**Applications**

Office equipment



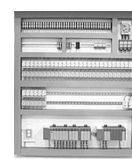
Production



Test labs



Control panels





Description

The Redington Model 720 Electronic Hour Meter offers a large 7 digit LCD display, (999999.9) 0.32" (8mm) high, with an input operating voltage of 85-500VAC. The front of the unit is totally sealed, and the Hour Meter is housed in a rugged steel enclosure that is interchangeable with the Redington Model 720 Electro Mechanical Hour Meters. The wide operating voltage makes this product ideal for almost any application.

Features

- Operating voltage 85-500VAC
- Rugged steel housing
- Lithium battery
- Quartz accuracy (better than 0.01%)
- Popular 3-hole mounting

Options

- Gasket (721-0004)
- Special termination available
- DC

Specifications

Display: Large 7 digit LCD (999999.9), 0.32" [8mm] high
Reset: Non-reset
Voltage: 85-500VAC 50/60Hz
Hour Meter Memory: Self-powered (internal lithium battery)
Termination: Wire leads 6" [152mm]
Mounting: Panel (3-Hole)
Temp. Range:
Operating: -4°F to + 140°F (-20°C to +60°C)
Storage: -40°F to +165°F (-40°C to +75°C)

Humidity: 0 to 95% RH, non-condensing, front totally sealed
Vibration: 10 to 80 Hz, 0.06 double amplitude
Shock: 50G
Dielectric: 1000VAC 50/60Hz for 1 minute
Accuracy: Quartz accuracy (better than 0.01%)
Weight: 5.0 oz (142g)

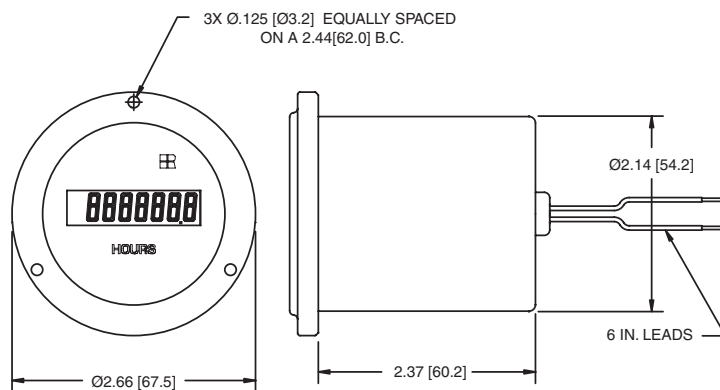
Models Description

720-5300 85-500VAC, non-reset, 3-hole round, 6" (152mm) wire leads

* Item is normally in factory stock.

Dimensions

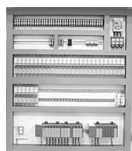
720-5300



Panel cutout: 2.16" [54.9] Dia.
Mounting holes: 0.125" [3.2] Dia. on 2.44" [62.0] B.C.

Applications

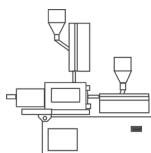
Control panels



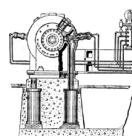
Outdoor Lighting



Industrial Equipment



Compressors



Test equipment





Description

The Model 77 is a compact, non-reset, 6 figure, 99999.9, electromechanical hour meter. Available with several mounting styles, panel, behind the panel and "snap-in" mount. Products are UL Recognized, CSA Certified and CE Compliant.

Features

- Panel or snap-in mount
- Compact size
- Non-reset

Options

- Voltage
- Frequency
- Mounting

Specifications

Figures: 6 figures, 0.11" [3mm] high

99,999.9 hours

Reset: Non-reset

Voltages: 115VAC, (+/- 10%) 60Hz.

Power: 3 watts (nominal)

Mounting: Panel (front, behind, or snap-in)

Termination: Screw type, round terminals

Temp. Range: -60°F to +154°F [-51°C to +68°C]

Approvals: UL Recognized, CSA Certified, CE Compliant

Weight: 2.5 oz. [71g]

Models

Description

P2-7717/60 115VAC/60Hz, non-reset, panel mount

R2-7717/60 115VAC/60Hz, non-reset, behind the panel mount

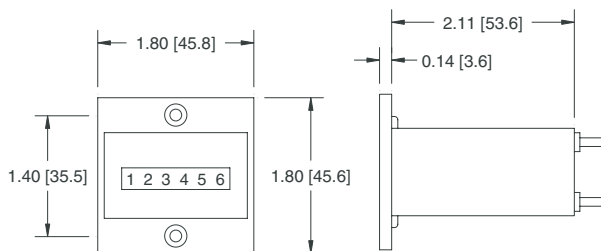
Models

Description

SR2-7717/60 115VAC/60Hz, non-reset, snap-in mount

Dimensions

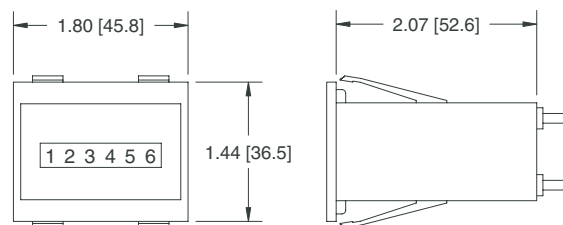
P-7717



Panel cutout: 1.72" x 1.05" [43.7 x 26.7]

Mounting holes: For #5 flat head screw

SR-7717



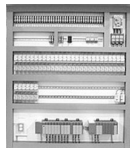
Panel cutout: 1.68" x 1.31" [42.7 x 33.3]

Applications

Test equipment



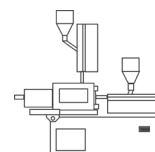
Control panels



Office machines



Industrial equipment





Description

The model 710 AC hour meters and minute meters are widely used in panel applications where number size and visibility are critical. Its tough, Lexan bezel and distinctive styling enhance appearance and durability. Available in 5 figure reset or 6 figure non-reset versions.

Features

- Large figures
- Tough, Lexan case
- Reset or non-reset

Options

- Private label faceplates
- Bracket mount
- Mounting bracket (721-0003)
- Splash proof kit (721-0017)
- Heavy duty splash proof kit (721-0018)
- Gasket (721-0004)

Specifications

Figures: 5 figures, 9999.9 (reset) or 6 figure, 99999.9 (non-reset), 0.19" [5mm] high
Reset: Reset (on front or side) or non-reset
Voltages: 24, 115 or 230VAC, (+/-10%), 50 or 60 Hz.
Power: 3 watts (nominal)
Mounting: Panel (3-hole)

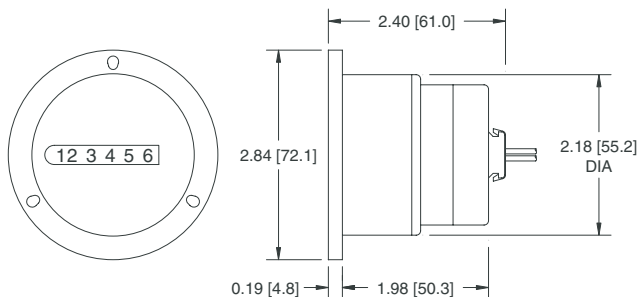
Terminations: 8" [203.2mm] wire leads or terminal block
Temp. Range: -20°F to +160°F [-29°C to +71°C]
Approvals: UL Recognized, CSA Certified, CE Compliant
Weight: 6 oz. [170g]

Models	Description	Models	Description
710-0001	115VAC/60Hz, non-reset, 99,999.9 hrs, 8" [203mm] wire leads	710-0014	230VAC/60Hz, non-reset, 99,999.9 hrs, terminal block
710-0002	115VAC/60Hz, non-reset, 99,999.9 hrs, terminal block	710-0018	115VAC/60Hz, non-reset, 99,999.9 min, 8" [203mm] wire leads
710-0003	230VAC/60Hz, non-reset, 99,999.9 hrs, 8" [203mm] wire leads	710-0024	24VAC/60Hz, non-reset, 99,999.9 hrs, terminal block
710-0006	24VAC/60Hz, non-reset, 99,999.9 hrs, 8" [203mm] wire leads	710-0026	115VAC/50Hz, non-reset, 99,999.9 hrs, terminal block
710-0008	115VAC/60Hz, non-reset, 99,999 hrs, 8" [203mm] wire leads	710-0032	115VAC/60Hz, front reset, 9,999.9 hrs, terminal block
710-0009	115VAC/50Hz, non-reset, 99,999.9 hrs, 8" [203mm] wire leads	710-0051	115VAC/60Hz, non-reset, 99,999 hrs, terminal block
710-0013	115VAC/60Hz, front reset, 9,999.9 hrs, 8" [203mm] wire leads		

* Items in bold are normally in factory stock.

Dimensions

8" [203mm] Wire Leads



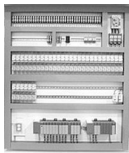
Mounting holes: For #4 screws on 2.44" [62.0] B.C.
and #6 screws on 2.53" [64.3] B.C.
Panel cutout: 2.21" [56.1] Dia.

Applications

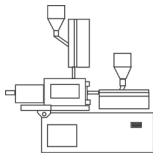
Office equipment



Control panels



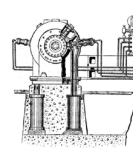
Industrial equipment



Test equipment



Compressors





Description

The Redington Model 711/731 provides a family of compact 7 figure, AC or DC Hour Meters. Models are available in the standard industry housings, 2-Hole rectangular, flush-round and flush-rectangular. DC Models are quartz controlled for high reliability and accuracy. A choice of two rectangular panel cutouts are offered 1.45" X 0.95" [36.8mm X 24.1mm] or 1.45" X 0.87" [36.8mm X 2.1mm]. The Round meter has a panel cutout of 1.99" [50.5mm].

Features

- 7 figure, 99999.99
- Various voltage inputs
- Quartz accuracy (DC)
- Large figures, 0.14" [3.6mm]
- CE Compliant
- UL Recognized/CSA Certified for AC
- UL/cUL Recognized for DC

Options

- Special voltages
- Terminations
- Panel cutout

Specifications

Figures: 7 figures, 0.14" [3.6mm] 99999.99
Reset: Non-reset
Voltages: 24, 115 or 230VAC ($\pm 10\%$), 50 or 60 Hz 10-28VDC
Power: 2 watts AC, 0.4 watts DC
Mounting: Clip or mounting holes
Termination: 1/4" [6.3mm] spade terminals with screws (AC)
 1/4" [6.3mm] spade terminals (DC)
Accuracy: 0.01% (DC) quartz
Case Material: Black polymer
Agency Approvals: CE Compliant
 UL Recognized/CSA Certified for AC
 UL/cUL Recognized for DC
Weight: 1.2oz. [35g]

Environmental:

Front Panel: IP65
Operating Temperature: -40°F to +180°F [-40°C to +82°C]
Storage Temperature: -40°F to +185°F [-40°C to +85°C]
Humidity: 95% RH- SAE J 1378
Vibration: 20g's @ 10-80 Hz- SAE J 1378
Shock: 55g's @ 9-13 msec.- SAE J 1378
Transient Immunity: EMI: $\pm 400V@ 500Hz$
Alternator Load Dump: 150V inductive switching, reverse polarity and over voltage protection

Models

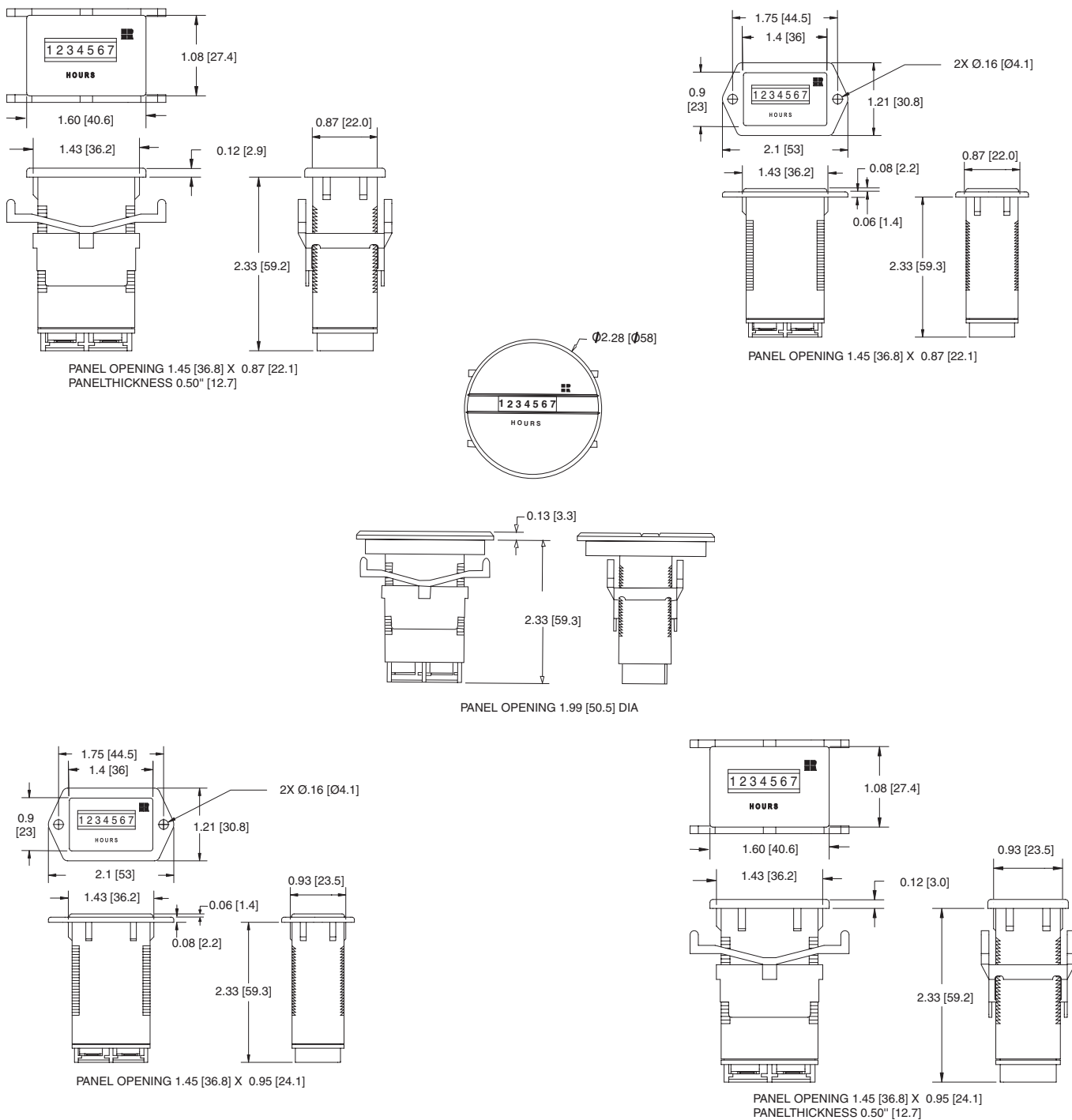
Models	Voltage AC	Mount	Panel Cut-out		
			1.45 X .87	1.45 X .95	1.99
711-0013	115VAC/60Hz	Round			X
711-0014	230VAC/60Hz	Round			X
711-0015	24VAC/60Hz	Round			X
711-0113	115VAC/60Hz	Flush Rect	X		
711-0114	24VAC/60Hz	Flush Rect.	X		
711-0120	115VAC/60Hz	Flush Rect		X	
711-0123	230VAC/60Hz	Flush Rect.		X	
711-0124	24VAC/60Hz	Flush Rect.		X	
711-0130	115VAC/60Hz	2-Hole	X		
711-0131	230VAC/60Hz	2-Hole	X		
711-0132	24VAC/60Hz	2-Hole	X		
711-0133	115VAC/50Hz	2-Hole	X		
711-0134	230VAC/50Hz	2-Hole		X	
711-0138	230VAC/60Hz	Flush Rect.	X		
711-0215	115VAC/60Hz	2-Hole		X	
711-0216	230VAC/60Hz	2-Hole		X	
711-0217	24VAC/60Hz	2-Hole		X	

Models	Voltage DC	Mount	Panel Cut-out		
			1.45 X .87	1.45 X .95	1.99
731-0006	10-28VDC	Round			X
731-0040	10-28VDC	2-Hole			
731-0041	10-28VDC	Flush Rect	X		
731-0042	10-28VDC	Flush Rect		X	
731-0051	10-28VDC	2-Hole		X	

* Items in bold are normally in factory stock.



Dimensions



Applications

Medical equipment



Test equipment



Office equipment





Description

These 7 figure, AC or DC hour meters with running indicators, offer crisp, distinctive styling for many panel applications. Available in square and round bezel, flush mount, or three-hole round panel mount. Each is light-weight, low power, and carry UL, CSA and CE approvals.

Features

- 7 figure, 99999.99
- Various voltage inputs
- Distinctive styling

Options

- Terminations
- Din rail
- Voltages

Specifications

Figures: 7 figures, 0.14" high [3.6mm], 99,999.99 hours
Reset: Non-reset
Voltages: 24, 115, or 230VAC (+/-10%), 50 or 60Hz., 10-80 VDC
Power: 3 watts (AC), 1.2 watt maximum (DC)
Terminations: 1/4" [6.3mm] spade terminals, with removable screws, or 8" [203mm] wire leads

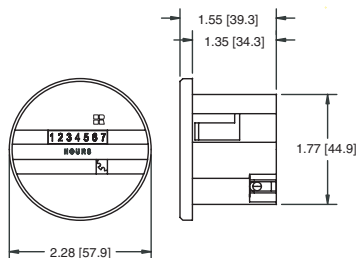
Mounting: Panel (mounting hardware included)
Temp. Range: -22°F to +158°F [-30°C to +70°C]
Approvals: UL Recognized and CSA Certified (AC only), CE Approved
Weight: 2 oz. [57g]

Models	Description	Models	Description
711-0150	115VAC/60Hz, 2.28" Dia., Flush mount, screw termination	711-0182	24VAC/60Hz, 1.89" Sq., Flush mount, screw termination
711-0152	230VAC/60Hz, 2.28" Dia., Flush mount, screw termination	711-0190	115VAC/60Hz, 2.05" Sq., Flush mount, screw termination
711-0160	115VAC/60Hz, 2.93" Dia., 3-hole round, screw termination	711-0191	230VAC/60Hz, 2.05" Sq., Flush mount, screw termination
711-0161	115VAC/50Hz, 2.93" Dia., 3-hole round, screw termination	711-0192	24VAC/60Hz, 2.05" Sq., Flush mount, screw termination
711-0162	230VAC/60Hz, 2.93" Dia., 3-hole round, screw termination	711-0193	115VAC/50Hz, 2.05" Sq., Flush mount, screw termination
711-0163	230VAC/50Hz, 2.93" Dia., 3-hole round, screw termination	711-0194	230VAC/50Hz, 2.05" Sq., Flush mount, screw termination
711-0164	24VAC/60Hz, 2.93" Dia., 3-hole round, screw termination	711-0195	24VAC/50Hz, 2.05" Sq., Flush mount, screw termination
711-0170	230VAC/60Hz, 2.93" Dia., 3-hole round, 8" wire leads		
711-0171	115VAC/60Hz, 2.93" Dia., 3-hole round, 8" wire leads	731-0046	10-80VDC, 2.93" Dia., 3-hole round, screw termination
711-0180	115VAC/60Hz, 1.89" Sq., Flush mount, screw termination		

* Items in bold are normally in factory stock.

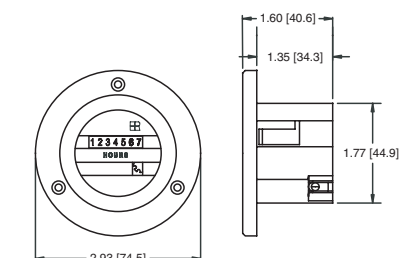
Dimensions

2.28" Dia. Flush



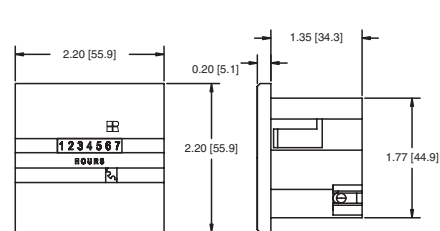
Panel cutout: 1.99" [50] Dia. or 1.81" [46] Sq.

3 - Hole Round



Panel cutout: 1.99" [50] Dia. or 1.81" [46] Sq.
 Screws provided: 4-40 x 5/8" [16]
 Bolt hole circle: 2.44" [62]

1.89" or 2.05" Square



Panel cutout: 1.99" [50] Dia. or 1.81" [46] Sq.
 (for 1.89" Sq. use 1.81" [46] Sq. cutout only)

Applications

Medical equipment



Test equipment



Office equipment





Description

A rectangular style AC hour meter designed to complement existing meters in control panels. Available in 6 figure reset or 7 figure non-reset. The non-reset model incorporates a retaining clip to lock into panel, while the reset version has a metal bracket and screw.

Features

- Large figures
- 6 or 7 digits
- UL Recognized, CSA Certified, CE Compliant

Options

- Reset or non-reset

Specifications

Figures: 6 figure (reset) or 7 figure (non-reset), 0.19" [5mm] high
9,999.99 hours. (reset version)
99,999.99 hours. (non-reset models)

Reset: Push-button, or non-reset

Voltages: 115VAC (+/- 10%), 50 or 60 Hz.

Power: 2 watts (nominal)

Mounting: Panel (mounting hardware included)

Termination: 19" [483mm] wire leads

Temp. Range: -4°F to +158°F [-20°C to +70°C]

Approvals: UL Recognized, CSA Certified, CE Compliant

Weight: 2 oz. [57g]

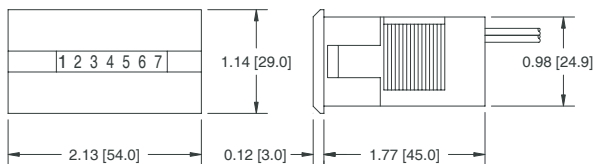
Options: Voltages

Models

Models	Description
711-0019	115VAC/60Hz, reset, 6 figure, 9,999.99 hrs., 19" [483mm] wire leads
711-0020	115VAC/60Hz, non-reset, 7 figure, 99,999.99 hrs., 19" [483mm] wire leads
711-0041	115VAC/50Hz, non-reset, 7 figure, 99,999.99 hrs., 19" [483mm] wire leads

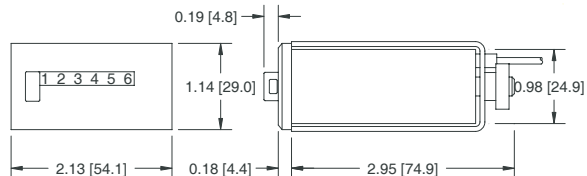
Dimensions

Non-Reset



Panel cutout: 1.98" x 0.99" [50.3 x 25.1]

Reset



Panel cutout: 1.98" x 0.99" [50.3 x 25.1]

Applications

Medical equipment



Test equipment



Office equipment





Description

A 5 figure (reset) or 6 figure (non-reset), AC hour meter encased in a rugged steel housing and designed to mil-spec environmental requirements. The non-reset models are completely sealed, and meet NEMA 4 standards. Reset models are available, as are both wire lead and terminal block versions.

Features

- Rugged steel housing
- Mil-spec

Options

- Chrome bezel
- Readouts to 9999.99 hrs.
- Minute meter
- Voltages
- Gasket (721-0004)

Specifications

Figures: 5 figure (reset) or 6 figure (non-reset), 0.19" [5mm] high, 9,999.9 (reset) or 99,999.9 (non-reset)
Reset: Reset or non-reset
Voltages: 24, 115, and 230VAC (+/- 10%), 50 or 60Hz.
Power: 2.5 watts (nominal)

Mounting: Panel (3-hole or metal clamp)
Termination: Terminal block or 6" [152mm] wire leads
Temp. Range: -65°F to +155°F [-54°C to +68°C]
Approvals: UL Recognized, CSA Certified, CE Compliant
Weight: 10 oz. [284g]

Models Description

720-0001 24VAC/60Hz, non-reset, 3-hole round, 6" [152.4mm] wire leads
720-0003 115VAC/60Hz, M3971/2-1 and M3971/2-5
720-0004 115VAC/60Hz, non-reset, 3-hole round, terminal block
720-0007 115VAC/60Hz, non-reset, 3-hole round, 6" [152.4mm] wire leads
720-0008 115VAC/60Hz, non-reset, metal clamp, terminal block

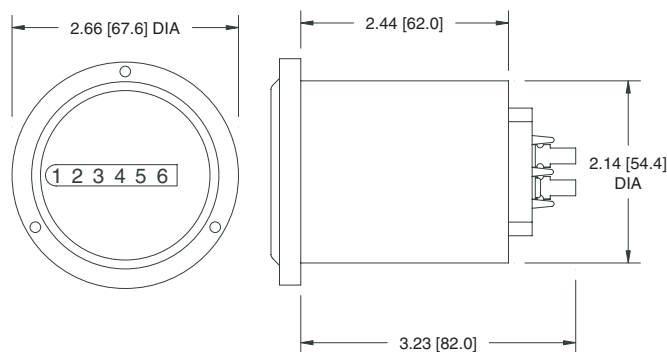
Models Description

720-0011 115VAC/60Hz, non-reset, metal clamp, 6" [152.4mm] wire leads
720-0012 115VAC/60Hz, front reset, 3-hole round, 6" [152.4mm] wire leads
720-0030 115VAC/50Hz, non-reset, 3-hole round, 6" [152.4mm] wire leads
720-0031 230VAC/60Hz, non-reset, 3-hole round, terminal block
720-0036 230VAC/60Hz, non-reset, 3-hole round, 6" [152.4mm] wire leads

* Items in bold are normally in factory stock.

Dimensions

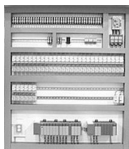
Non-Reset / Terminal Block



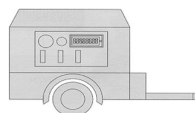
Panel cutout: 2.16" [54.9] Dia.
Mounting holes: 0.125" [3.2] Dia. on 2.44" [62.0] B.C.

Applications

Control panels



Industrial equipment



Test equipment





Description

The Redington Model 722 provides an AC Hour Meter with an operating range of 90-240VAC ($\pm 10\%$) 50/60 Hz. You no longer require two separate meters, one for 115VAC and one for 230VAC. Models are available in the standard industry housings, 2-Hole Rectangular, Flush-Rectangular, Flush-Round and 3-Hole Round. Models 722-0001 and 722-0002 fit a panel opening of 1.45" X 0.95" [36.8mm X 24.1mm]. The Flush-Round Model 722-0003 and 3-Hole Model 722-0004 have a panel opening of 2.0" [50.6mm]. The Model 722 quartz time base insures accurate long-term time keeping. The Totally Sealed case protects against the environment and provides years of reliable service. Model 722-0004, 3-Hole mount, is NEMA 4X,12 rated when mounted with optional gasket.

Features

- Operating voltage 90-240VAC 50/60Hz
- Totally sealed
- UL/CSA Recognized, CE Compliant
- 6 Figure, 99999.9
- Quartz accuracy

Options

- Wire leads
- 3-hole mount gasket kit (part# 5003-007S) (for NEMA 4X, 12 rating)

Specifications

Figures: 6 - digits, 0.125" [3.2mm] 99999.9
Hours - white on black
Tenths - red on white
Reset: Non-reset
Voltage: 90-240VAC ($\pm 10\%$)
Frequency: 50/60Hz
Power: Less than 0.6 watts
Mounting: Clip or mounting holes
Termination: ¼" [6.3mm] spade terminals
Weight: 2 oz [57 g]

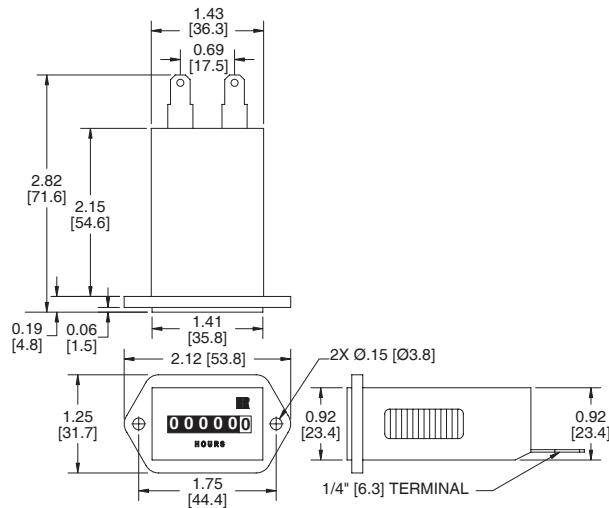
Accuracy: ± 0.02 over entire range
Case Material: Black polymer
Agency Approvals: UL/CSA Recognized, CE Compliant
Environmental: Totally sealed (all models)
Front Panel: Model: 722-0004, NEMA 4X, 12 rated with optional gasket (part# 5003-007S)
Temperature: -40°F to +185°F [-40°C to + 85°C]
Vibration: 10-75 Hz @ 1 to 8g's

Models

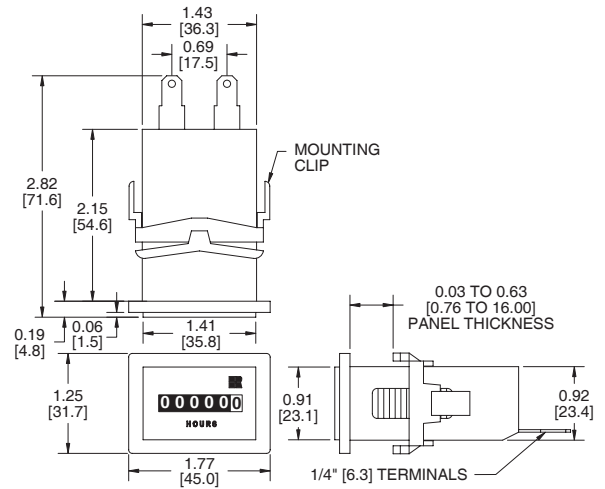
Description

722-0001	2-Hole Rectangular, 90-240VAC 50/60Hz, ¼" [6.3mm] spade terminals, hours & 1/10's
722-0002	Flush-Rectangular, 90-240VAC 50/60Hz, ¼" [6.3mm] spade terminals, hours & 1/10's
722-0003	Flush-Round, 90-240VAC 50/60Hz, ¼" [6.3mm] spade terminals, hours & 1/10's
722-0004	3-Hole Round, 90-240VAC 50/60Hz, ¼" [6.3mm] spade terminals, hours & 1/10's
5003-007S	NEMA 4X, 12 Gasket kit and hardware for 3-Hole Round model (722-0004)

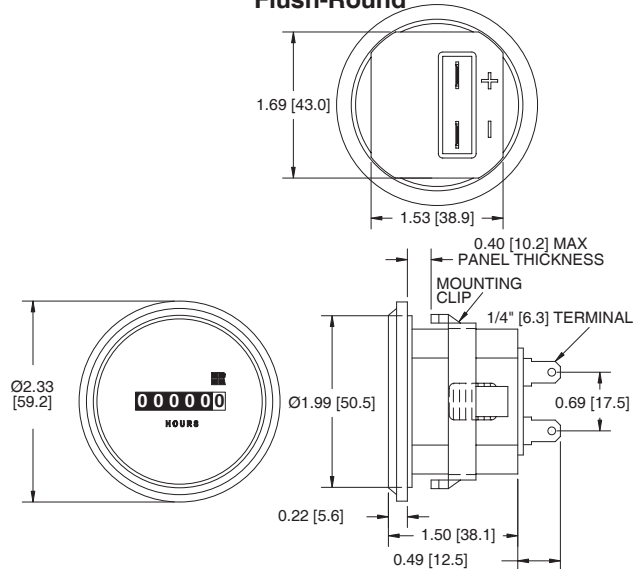
* All items are normally in factory stock

**Dimensions****2-Hole**

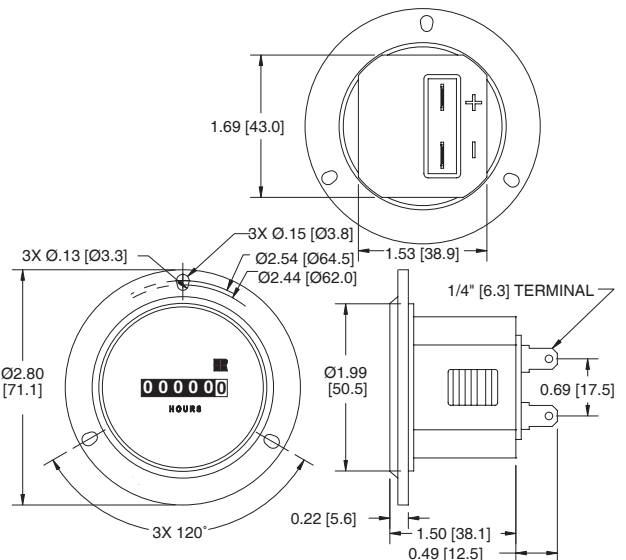
Panel Opening: 1.45" X 0.95" [36.8 X 24.1]

Flush-Rectangular

Panel Opening: 1.45" X 0.95" [36.8 X 24.1]
Panel Thickness: 0.03 to 0.63 [0.76 to 16.00]

Flush-Round

Panel Opening: 2.0" [50.6]
Panel Thickness: 0.40 [10.2] Max.

3-Hole Round

Panel Opening: 2.0" [50.6]

Applications**Medical Equipment****Test Equipment****Office Equipment**



Description

The Redington Model 732 provides a DC Hour Meter with an operating range of 10-80VDC. Models are available in the standard industry housings, 3-Hole Round, Flush-Rectangular, Flush-Round and 2-Hole Rectangular. Models 732-0002 and 732-0004 fit a panel opening of 1.45" X 0.95" [36.8mm X 24.1mm]. The Flush-Round Model 732-0003 and 3-Hole Model 732-0001 fit a panel opening of 2.0" [50.6mm]. Its quartz time base insures accurate long-term time keeping. The Totally Sealed case protects against the environment and provides years of reliable service. The 3-Hole Round housing is NEMA 4X,12 rated when mounted with optional gasket.

Features

- Operating voltage 10-80VDC
- Totally sealed
- UL/CSA Recognized, CE Compliant
- 6 Figure, 99999.9
- Quartz accuracy

Options

- Wire leads
- 3-hole mount gasket kit (part# 5003-007S) (for NEMA 4X, 12 rating)

Specifications

Figures: 6 - digits, 0.125" [3.2mm] 99999.9
Hours - white on black
Tenths - red on white
Reset: Non-reset
Voltage: 10-80VDC
Power: 0.3 watts @ 12VDC
Mounting: Clip or mounting holes
Termination: ¼" [6.3mm] spade terminals
Weight: 2.0 oz [57 g]

Accuracy: ± 0.02 over entire range
Case Material: Black polymer
Agency Approvals: UL/CSA Recognized, CE Compliant
Environmental: Totally sealed (all models)
Front Panel: Model: 732-0001, NEMA 4X, 12 rated with optional gasket (part# 5003-007S)
Temperature: -40°F to +185°F [-40°C to + 85°C]
Vibration: 10-75 Hz @ 1 to 8g's

Models

Description

732-0001	3-Hole Round, 10-80VDC, ¼" [6.3mm] spade terminals, hours & 1/10's
732-0002	Flush-Rectangular, 10-80VDC, ¼" [6.3mm] spade terminals, hours & 1/10's
732-0003	Flush-Round, 10-80VDC, ¼" [6.3mm] spade terminals, hours & 1/10's
732-0004	2-Hole Rectangular, 10-80VDC, ¼" [6.3mm] spade terminals, hours & 1/10's

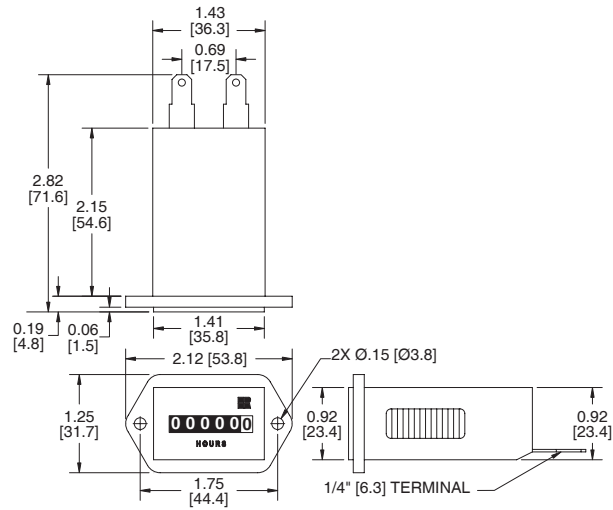
5003-007S NEMA 4X, 12 Gasket kit and hardware for 3-Hole Round model (732-0001)

* All items are normally in factory stock.



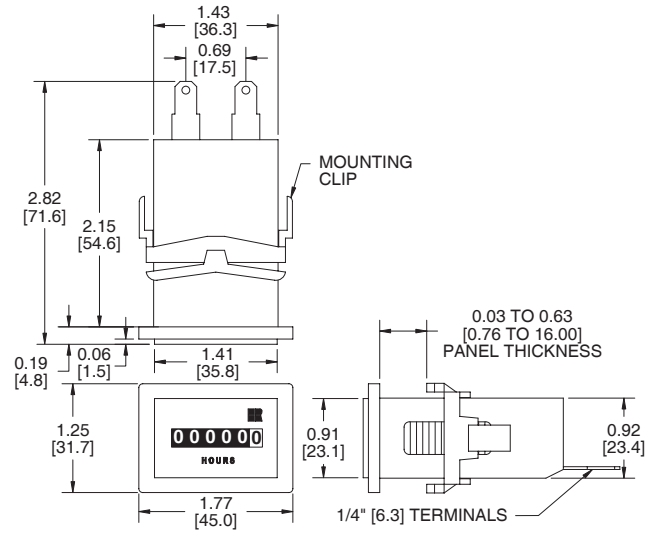
Dimensions

2-Hole

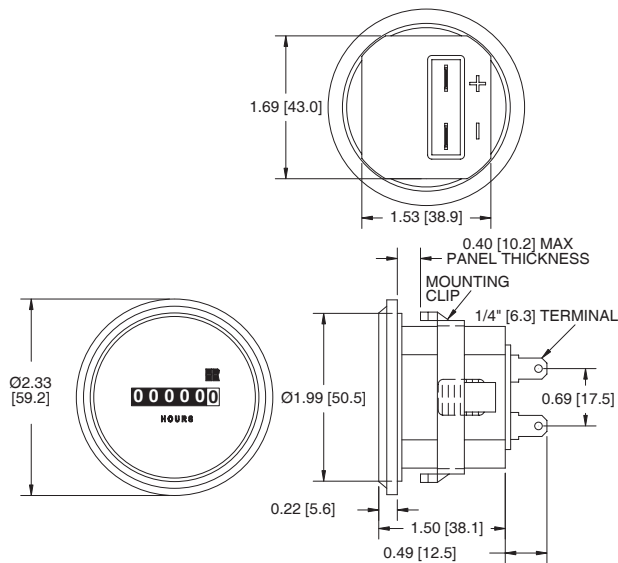


Panel Opening: 1.45" X 0.95" [36.8 X 24.1]

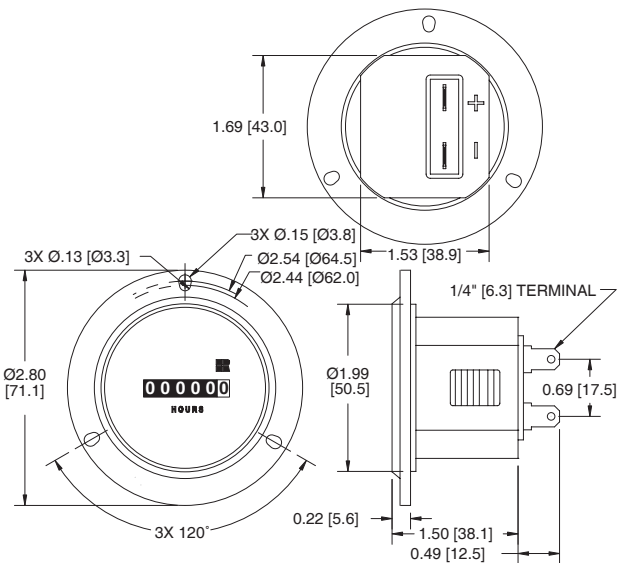
Flush-Rectangular

Panel Opening: 1.45" X 0.95" [36.8 X 24.1]
Maximum Panel Thickness: 0.03 to 0.63 [0.76 to 16.00]

Flush-Round

Panel Opening: 2.0" [50.6]
Maximum Panel Thickness: 0.40 [10.2]

3-Hole Round



Panel Opening: 2.0" [50.6]

Applications

Medical Equipment



Outdoor power equipment



Utility Vehicles





Description

The Model 53 Tachometers are self-powered by an internal lithium battery. They provide a low cost solution to accurately measure speed or production rates for a number of manufacturing and process applications. A wide selection of inputs, dry contact closure, 3-30VDC or 20-250VAC/VDC, make the Model 53 adaptable to most applications. When used with the appropriate sensor, the unit can display units per minute, length per minute or revolutions per minute. The maximum input rate is 10,000 counts per minute.

Features

- Lithium battery
- Choice of non-reset or remote reset
- Switch (no-voltage), 3-30VDC, 20-250VAC/VDC

Options

- Termination
- Case color
- Private labeling
- Mounting adapter plates
- 5003-001S - gasket

Specifications

Figures: 4 LCD figures, 0.32" [8mm] high
Reset: Remote, manual, or non-reset
Speed: 10,000 counts/minute
Inputs: Switch (no-voltage), 3-30VDC, 20-250VAC/VDC
Power: Self-powered (internal lithium battery)
Mounting: Panel
Terminations: Terminal block, or connector -w/ 8" [200mm] wire leads
Battery Life: ~20years
Temperature:
Operating: -4°F to +140°F [-20°C to +60°C]
Storage: -40°F to +165°F [-40°C to +75°C]

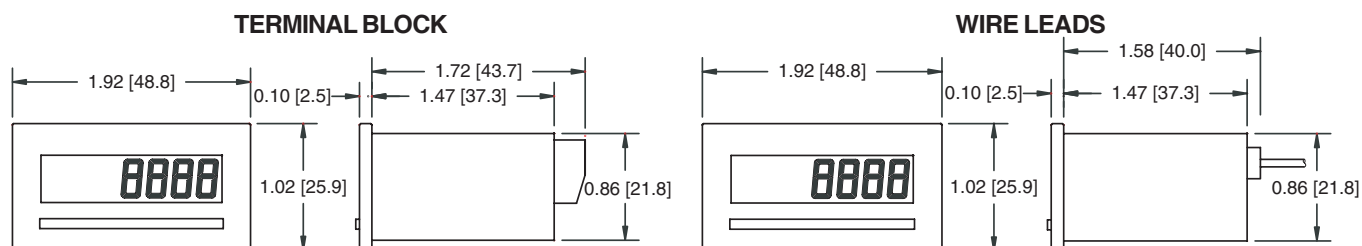
Humidity: 0 to 95% RH, non-condensing
Vibration:
Operating: 10 to 55Hz, 0.01" [0.25mm] double amplitude
Non-Operating: 10 to 55Hz, 0.03" [0.75mm] double amplitude
Shock:
Operating: 10G
Non-Operating: 30G
Dielectric: 1000VAC 50/60Hz for 1 minute
Accuracy: Typically within 1% above 700Hz
Weight: 2 oz. [57g]
Approvals: UL Recognized, CSA Certified, CE Compliant

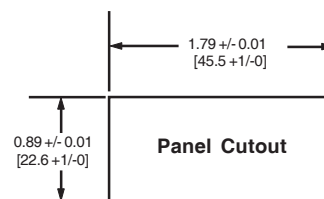
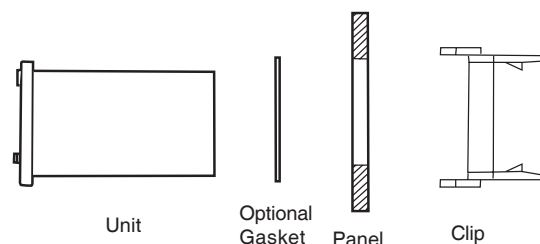
Models

Models	Reset			Input			Speed/RPM		Terminations		Color	
	remote	none	manual	switch	3-30VDC	20-250VAC/VDC	10,000	2500	term. block	8" wire leads	Tan	Black
5330-0000	X			X			X		X		X	
5330-0001	X			X			X		X			X
5330-1000	X				X		X		X		X	
5330-1001	X				X		X		X			X
5330-2000	X					X		X	X		X	
5330-2001	X					X		X	X			X
5330-2200		X				X		X	X		X	
5330-2201		X				X		X	X			X

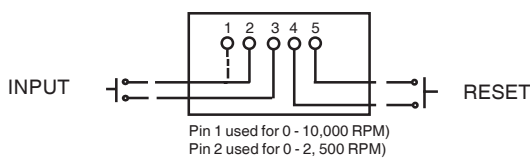
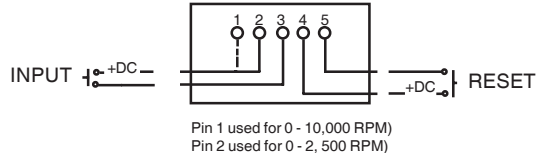
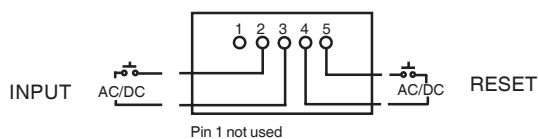
* All part numbers shown are for 7 digit models. Please contact the factory for information on 8 digit models.

Dimensions



**Operating Instructions****MOUNTING:**

The mounting clip accommodates panel thicknesses up to 1/4" [6.4mm].

WIRING:**SWITCH (non-voltage)****3 - 30 VDC****20 - 250VAC/VDC**

Color code for the 8" [203mm] lead wires (24AWG) are:

- 1 - Yellow
- 2 - Blue
- 3 - Black
- 4 - Violet
- 5 - Gray

Terminal block will accept wire sizes from 14 to 24AWG.

3 - 30VDC units are protected for transient voltages up to 50 volts with pulse widths of up to 1 second at a 1% duty cycle (including reverse polarity).

The operating AC frequency range is 40 to 400Hertz.

NOTES:

All resettable hour meters can be reset by a pulse with a minimum duration of 6 milliseconds.

SPECIAL WIRING OPTION

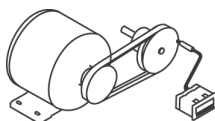
There is an internal connection between pin 3 and pin 5, a single wire can be used by connecting it to either pin 3 or pin 5. This option **does not** apply for units with input of 20 - 250VAC/VDC or manual reset enable.

OPTIONAL INPUTS:

Optional control circuitry (such as transistors) may be used as inputs provided that such circuitry provides the required parameters of the model used.

Applications

Motor/pulley Speed





Description

The Model 85 is a 3 1/2 digit, Modular Digital Panel Meter, where input and output modules can be selected to suit multiple applications. Input Modules are available to indicate Voltage, Amperage, Pressure, Temperature, Rate, Ohms and Frequency. User -friendly programming allows the user to program scaling and set points. The Model 85 includes peak/valley (min/max) and password protection as standard features. The housing is easy to mount and ensures a protection degree of IP 65. The Model 85 can be ordered with or without Program Lock.

Features

- Modular Panel Meter 3 1/2 digit
- Optional bright red or green display
- Multirange input modules reduce inventory
- Popular 1/8 DIN mounting
- Indicating or controlling current, voltage, resistance, temperature, tachometer or frequency
- Easily programmed
- Optional password protection of programming parameters
- Data hold
- Peak/valley (min/max) function
- Programmable hysteresis and time delay (up to 2 set points)
- IP 65 front cover

Options

- Display color
- Output type
- Input voltage
- Value to display or control
- Program lock

Specifications

General Specifications

Display:	7-segment LED, 0.55" [14mm] high, (2 LED's for indication of relay ON). Min./max. indication, -1999/1999
Over range indication:	EE (under range: -EE)
Accuracy:	See module specifications
Temperature drift:	See module specifications
Scaling:	
Electrical input range:	Program within whole range
Display range:	Program within whole range
Decimal point position:	Programmable
Module Connection:	Screw terminals
Environment:	
Degree of protection:	IP 65 (front)
Operating temperature:	+32°F to +122°F [0°C to +50°C]
Humidity:	R.H. <90% non-condensing
Storage temperature:	+14°F to +140°F [-10°C to 60°C]
Humidity:	R.H. <90% non-condensing
Weight:	Approx. 12.4 oz [352g]
Housing:	
Dimensions:	1.9" x 3.9" x 3.5" [48.3 x 99.1 x 88.9mm]
Material:	
Housing:	ABS/Polycarbonate blend
Front:	Polycarbonate
Color:	Black housing Red front with red display Gray front with green display
Approvals:	UL, cUL, CE Compliant

Power Supply Specification

Power Supply AC:	Over voltage cat.III (IEC 60664)
Rated operational voltage:	230 VAC $\pm$ 10% 115 VAC $\pm$ 10% 48 VAC $\pm$ 10% 24 VAC $\pm$ 10%
Frequency:	50/60 Hz $\pm$ 5 Hz
Voltage interruption:	$\leq$ 20ms
Rated insulation voltage:	250 VAC basic rms
Rated impulse withstand voltage:	6kV (1.2/50 msec) IEC 60664-1
Power Supply DC:	
Rated operational voltage:	12 to 48 VDC $\pm$ 15%
Voltage interruption:	$\leq$ 10 ms (voltage = 10 VDC)
Rated insulation voltage:	150 VDC basic
Rated impulse withstand voltage:	4.0 kV (1.2/50 msec) IEC 60664-1
Rated Operational Power:	< 7 VA
ECM:	Electromagnetic compatibility
Immunity:	Acc. to IEC 60801-4 Acc. to IEC 60801-5



Input Specifications - Modules

Voltmeters DC (85KSVD/85KLVD)
AC (85KSVA/85KLVA)

Measuring Range	Jumper position	Range Code AC DC	Resolution	Input Impedance	Max. Overload
199.9 mV	1-4	7 1	0.1 mV	100 KW	50 V
1.999 V	2-5	8 2	1 mV	100 KW	230 V
19.99	2-5	9 3	10 mV	1 MW	690 V
199.9 V	3-6	10 4	0.1 V	1 MW	690 V
600 V*	5-6	12 6	1 V	1 MW	690 V

*Nominal voltage according to IEC 664-1. The measuring range includes 15% tolerance to 690 V.

Accuracy

AC voltmeter 0.3% of reading ± 3 dgt

DC voltmeter 0.2% of reading ± 2 dgt

Temperature Drift

AC voltmeter ± 150 ppm/ $^{\circ}$ F ± 0.2 dgt/ $^{\circ}$ F

DC voltmeter ± 100 ppm/ $^{\circ}$ F ± 0.05 dgt/ $^{\circ}$ F

Ammeters DC (85KSCD/85KLCD)
AC (85KSCA/85LCA)
AC/DC (85KSAD/85KLAD)

Measuring Range	Jumper position	Range Code AC DC	Resolution	Max. Overload
199.9 mA	1-2	7 1	0.1 mA	20 mA
1999 mA	2-3	8 2	1 mA	100 mA
19.99 mA	4-5	9 3	10 mA	200 mA
199.9 mA	5-6	10 4	0.1 mA	500 mA
1999 mA	2-5	11 5	1 mA	4 A
5.00 A	2-5	12 6	10 mA	8 A
10 A DC	1-2(DC)	6	10 mA	10 A
10 A AC	2-3(AC)	12	10 mA	10 A

Accuracy

AC ammeter 0.3% of reading ± 3 dgt

AC ammeter (10 A) 0.5% of reading ± 3 dgt

DC ammeter 0.2% of reading ± 2 dgt

DC ammeter (10 A) 0.5% of reading ± 2 dgt

Temperature Drift

AC ammeter ± 150 ppm/ $^{\circ}$ F ± 0.5 dgt/ $^{\circ}$ F

AC ammeter (2A,5A) ± 200 ppm/ $^{\circ}$ F ± 0.1 dgt/ $^{\circ}$ F

AC ammeter (10A) ± 200 ppm/ $^{\circ}$ F ± 0.5 dgt/ $^{\circ}$ F

DC ammeter ± 100 ppm/ $^{\circ}$ F ± 0.05 dgt/ $^{\circ}$ F

DC ammeter (2A,5A) ± 200 ppm/ $^{\circ}$ F ± 0.5 dgt/ $^{\circ}$ F

DC ammeter (10A) ± 200 ppm/ $^{\circ}$ F ± 0.5 dgt/ $^{\circ}$ F

Voltage Drop

<200 mV (all ranges)

Pressure Indicator

The Model 85 can be used to indicate pressure by using the DC Amperage or DC Voltage input module. You can then program the unit to limit the range to 20mA or 20VDC and program the engineering units to display the corresponding pressure reading.

Ohmmeter (85KSIR/85KLIR)

Measuring Ranges	Jumper position	Range Code AC	Resolution
199.9 W	1-4	7	0.1 Ω
1999 W	2-5	8	1 Ω
19.99 kW	3-6	9	0.01 k Ω
199.9 kW	1-2	10	0.1 k Ω

Accuracy

0.2% of reading ± 2 dgt

Temperature Drift

± 150 ppm/ $^{\circ}$ F ± 0.1 dgt/ $^{\circ}$ F

Tachometers (85KSTK/85KLTK)

Measuring	Jumper	Range	Resolution
199.9 RPM @ 30PPR*	J4, 1-2	7	0.1 RPM
199.9 RPM @ 60PPR*	J5, 1-2	8	0.1 RPM
199.9 RPM @ 100PPR*	J6, 1-2	9	0.1 RPM
1999 RPM @ 30PPR*	J4, 2-3	10	1 RPM
1999 RPM @ 60PPR*	J5, 2-3	11	1 RPM
1999 RPM @ 100PPR*	J6, 2-3	12	1 RPM

* Pulses per revolution

Input Selection

Namur J1

NPN, PNP, Contact J2

Accuracy 1% of reading ± 5 dgt

Temperature Drift ± 200 ppm/ $^{\circ}$ F

Input Impedance

Namur 1 kW

NPN, PNP, Contact 5 kW

Time Constant (tc) 1 sec.

Frequency Meters (85KSFQ/85KLFFQ)

Measuring Ranges	Jumper Position	Range Code	Resolution
199.9 Hz	J7	7	0.1 Hz
1999 Hz	J8	8	1 Hz

Input Selection

Namur J1, J4 and J6

NPN, PNP, Contact J2 and J5

600 VAC J3

Accuracy 1% of reading ± 5 dgt

Temperature Drift ± 200 ppm/ $^{\circ}$ F

Input Impedance

Namur 1 kW

NPN, PNP, Contact 5kW

600 VAC 600 kW

Time Constant (tc) 1 sec.

**Thermometers****Pt 100: RTD (85KSRT/85KLRT)**

Range	Resolution	Accuracy	Temperature Drift
-100.0 to 199.9 °C	0.1 °C	±0.2% of reading ± 2dgt	± 150 ppm/°C ± 0.05 dgt/°C
-148 to 199.9 °F	0.2 °F	±0.2% of reading ± 4 dgt	± 180 ppm/°F ± 0.10 dgt/°F
-148 to 392 °F	1 °F	±0.2% of reading ± 4 dgt	± 180 ppm/°F ± 0.10 dgt/°F

Pt 100, 1562°F/850°C (85KSPT/85KLPT)

Range	Resolution	Accuracy	Temperature Drift
-100.0 to 850 °C	1 °C	±0.2% of reading ± 3 dgt	± 150 ppm/°C ± 0.05 dgt/°C
-148 to 1562 °F	2 °F	±0.4% of reading ± 6 dgt	± 180 ppm/°F ± 0.10 dgt/°F

Thermocouple type J (85KSJT/85KLJT)

Range	Resolution	Accuracy	Temperature Drift
-100.0 to 760 °C	1 °C	±0.1% of reading ± 4 dgt	± 100 ppm/°C ± 0.05 dgt/°C
-148 to 1400 °F	1 °F	±0.1% of reading ± 8 dgt	± 180 ppm/°F ± 0.10 dgt/°F

Thermocouple type K (85KSKT/85KLKT)

Range	Resolution	Accuracy	Temperature Drift
-100.0 to 1250 °C	1 °C	±3% of reading ± 3 dgt	± 100 ppm/°C ± 0.05 dgt/°C
-100 to -50 °C	1 °C	±1% of reading +5/-1 dgt	± 100 ppm/°C ± 0.05 dgt/°C
-50.0 to 780 °C	1 °C	±0.1% of reading ± 3 dgt	± 100 ppm/°C ± 0.05 dgt/°C
780 to 1250 °C	1 °C	±0.25% of reading +1/-3 dgt	± 100 ppm/°C ± 0.05 dgt/°C
-148.0 to 1999 °F	2 °F	±3% of reading ± 6 dgt	± 180 ppm/°F ± 0.10 dgt/°F
-148 to -58 °F	2 °F	±1% of reading +10/-2 dgt	± 180 ppm/°F ± 0.10 dgt/°F
-58.0 to 1436 °F	2 °F	±0.1% of reading ± 6 dgt	± 180 ppm/°F ± 0.10 dgt/°F
1436 to 1999 °F	2 °F	±0.25% of reading +2/-6 dgt	± 180 ppm/°F ± 0.10 dgt/°F

Output Specifications - Modules**Relay Outout 1 or 2 Relays (85KSR1/85KSR2)**

Power Supply	Supplied by main unit	
Output	1 or 2 SPDT relays	
Rated Insulation Voltage	250 V basic RMS	
Contact Ratings (AgCdO)		
Resistive	AC 1	5A, 250 VAC
	DC 1	5A, 24 VDC
Small inductive loads	AC 11	2A, 250 VAC
	DC 11	3A, 24 VDC
Mechanical Life	≥ 40 x 10 ⁶ operations	
Electrical Life	≥ 10 ⁵ operations (at max load)	
Operating Frequency	max. 10Hz (50% duty cycle)	
Dielectric Strength		
Dielectric voltage	2 kVAC (rms)	
Rated impulse withstand voltage	4 kV (1.2/50ms)	

NPN Output 2 Transistor Outputs (85KSNP)

NPN Open Collector: $I_{SNK} = 100\text{mA max. @ } V_{OL} = 1.0\text{ VDC max.}$
 $V_{OH} = 30\text{ VDC max.}$
 12VDC/±15%, 40 mA,
 voltage output is provided

Excitation Output (85KSDC)

Power Supply	Supplied by main unit	
Output Voltage		
12 VDC: jumper position 3-6	tolerance ±20%	
24 VDC: jumper position 1-4	tolerance ±20%	
Output Current		
12 VDC	≤ 35 mA DC	
24 VDC	≤ 20 mA DC	
EMC	Electromagnetic compatibility	
Immunity	Acc. to IEC 60801-4	
	Acc. to IEC 60801-5	

Analog output (85KSAN)

Measuring Range	Load Resistance	Accuracy
0 to 20 mA	≤ 500 Ω	±1% of reading ±0.1 mA
4 to 20 mA	≤ 500 Ω	±1% of reading ±0.1 mA
0 to 10 V	≤ 1,000 Ω	±1% of reading ±0.05 V

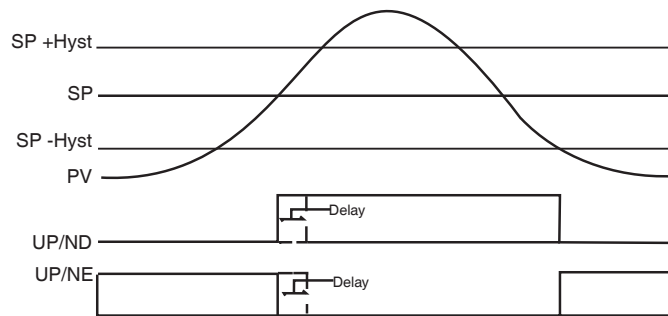
Temperature Drift	±200 ppm/°C
Short-Circuit Protection	yes
Analog Output Porportional to Input Signal.	
low input signal = low analog output	
high input signal = high analog output	
Time Constant	1 sec.



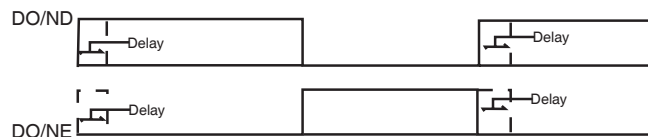
Operation Details

Operation Diagrams

Setpoint Operation

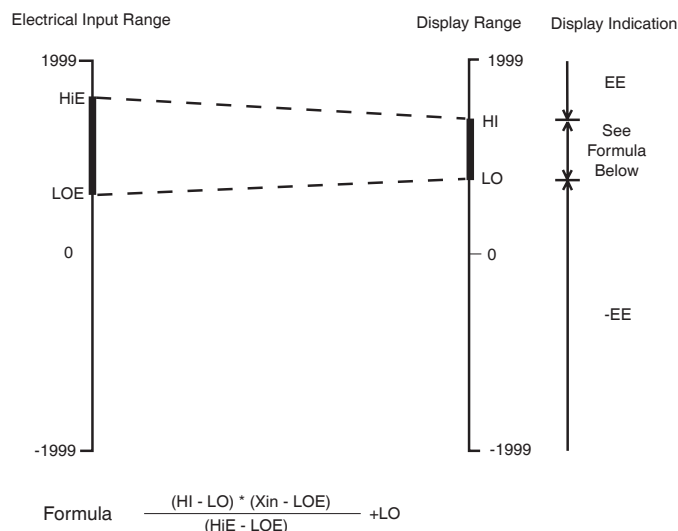


Output activates as input signal rises above setpoint (High Alarm)



Output activates as input signal drops below setpoint (Low Alarm)

Scaling Operation



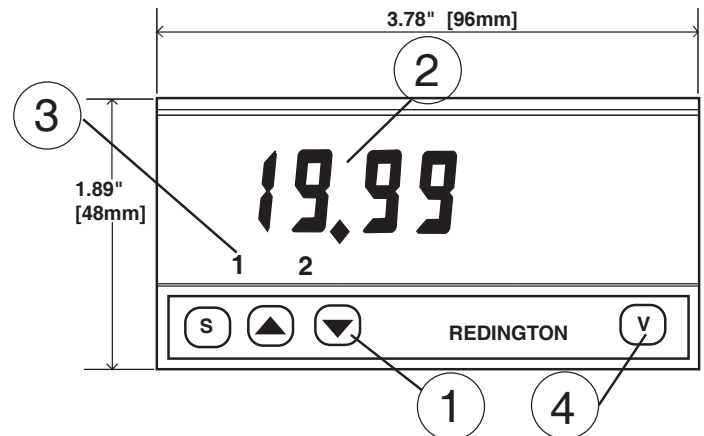
Mode of Operation

Depending upon the input modules used, it is possible to measure current, voltage, or resistance ...etc. The range is selected with a jumper on the input module and programming. Without an output module the Model 85 is an indicator - by inserting an output module the Model 85 is a controller.

The input range and the display range are fully programmable, and so are the setpoint(s) if a relay output module is inserted. A hold function is available for freezing a measured value. Passwords 0 to 99 are for overall programming with passwords 100 to 199 allow direct setpoint programming outside the password protection. See user manual for further details.

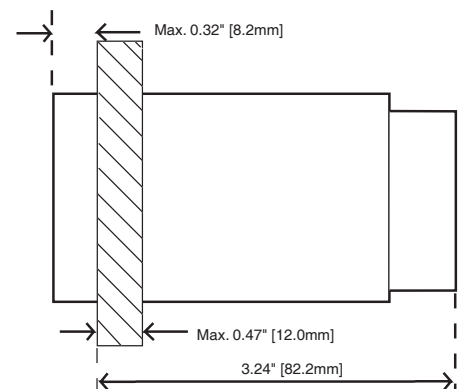
Overall Dimensions

Front View

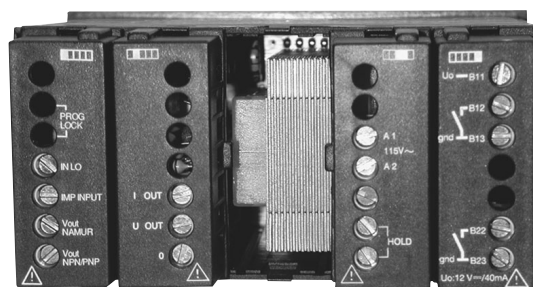
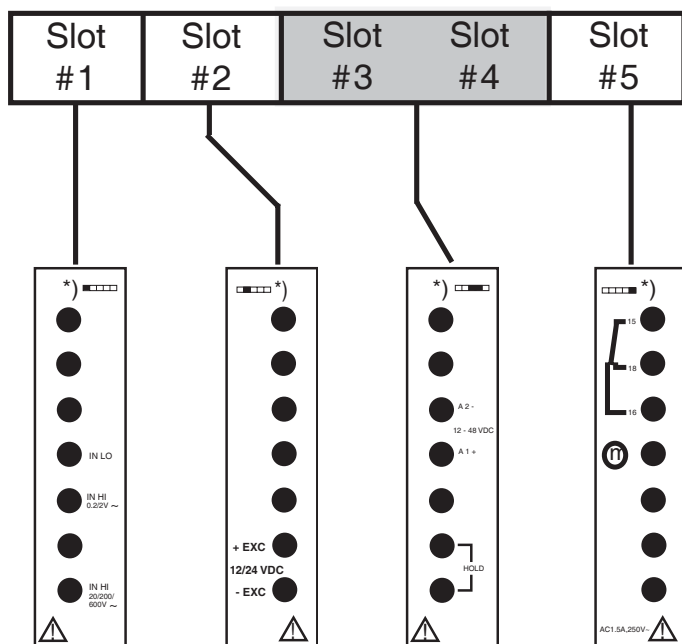


Panel Cutout 1.77" [45mm] X 3.62" [92mm]
Cutouts can be up to .02" [0.5mm] larger

SideView



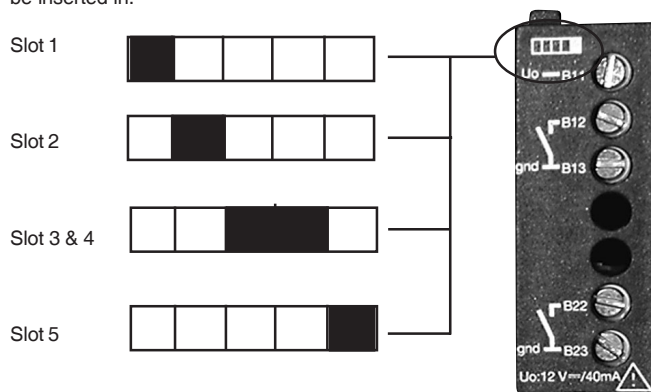
Rear view of main unit



Rear View Assembled Unit

Module Slot Identification:

Each module is clearly marked with a diagram showing which slot it should be inserted in.



Input Module:

VAC
VDC
AAC
ADC
10A AC/DC
W
PT 100
J-type Thermocouple
K-type Thermocouple
Tachometer
Frequency

Output

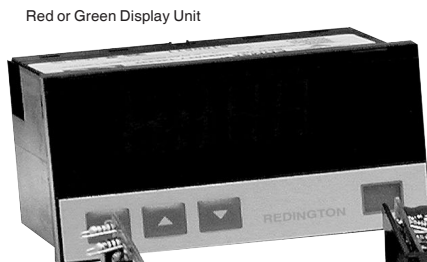
Modules:
12 VDC Excitation
24 VDC Excitation
or
Analog output
0-20 mA
4 - 20 mA
0 - 10 VDC

Power Supply Modules:

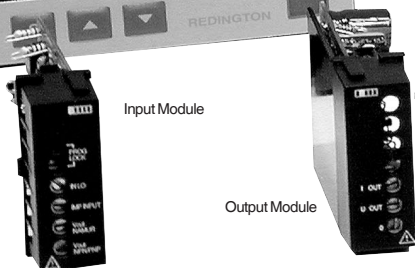
(Requires 2 slots)
24 VAC
48 VAC
115 VAC
230 VAC
12 - 48 VDC

Relay Output Modules:

1 SPDT(Form C),
5A
2 SPDT(Form C),
5A
2 NPN



Red or Green Display Unit

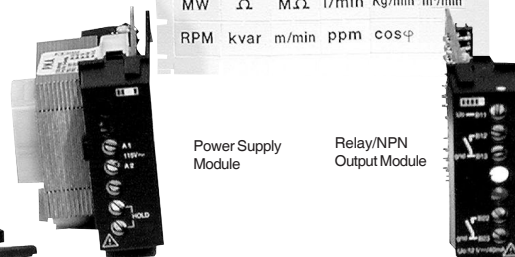


Input Module

Output Module

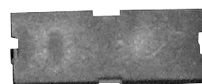


Mounting Adapter



Power Supply Module

Relay/NPN Output Module

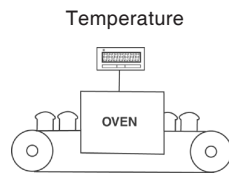


Blank Rear Inserts

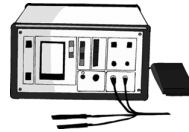
V	kV	A	mA	W	kW
k Ω	Hz	kHz	$^{\circ}\text{C}$	$^{\circ}\text{F}$	%
mbar	bar	psi	kg/cm ²	mm H ₂ O	mm Hg
m ³ /h	mm	cm	m	Kg	kA
MW	Ω	M Ω	l/min	Kg/min	m ³ /min
RPM	kvar	m/min	ppm	cos ϕ	



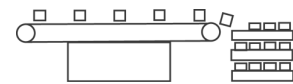
Applications



Volts/Amps/Ohms



Speed Control



Ordering Information

Component Selection - Part Number

To order assembled (built-up) panel meters, see following "Part Number Selection" section.

To order components, select modules from each of the categories below to construct an Indicator or Controller. For additional guidance, consult the flowchart on the right.

Main Unit

Red Display (standard red)
Red Display (high efficiency red)
Green Display

Ordering Number

85KSRD
85KSHR
85KSHG

w/Program Lock

Component Selection Flowchart

To build an indicator, choose display color, power supply, and input module. For a controller, also choose an analog/excitation output and/or output module.

Power Supply Modules

12 to 48 VDC
24 VAC
48 VAC
115 VAC
230 VAC

85KSP1
85KSP2
85KSP3
85KSP4
85KSP5

Input Modules

DC Voltage
AC Voltage
DC Amperage
AC Amperage
AC/DC Amperage (10A)
Resistance (Ohms)
PT 100 RTD (can be scaled to °F)
PT 100 RTD (up to 1562°F/850°C)
J-Type Thermocouple (can be scaled to °F)
K-Type Thermocouple (can be scaled to °F)
Tachometer
Frequency

85KSVD
85KSVA
85KSCD
85KSCA
85KSAD
85KSIR
85KSRT
85KSPT
85KSJT
85KSKT
85KSTK
85KSFQ

85KLVD
85KLVA
85KLCD
85KLCA
85KLAD
85KLIR
85KLRT
85KLPT
85KLJT
85KLKT
85KLTK
85KL FQ

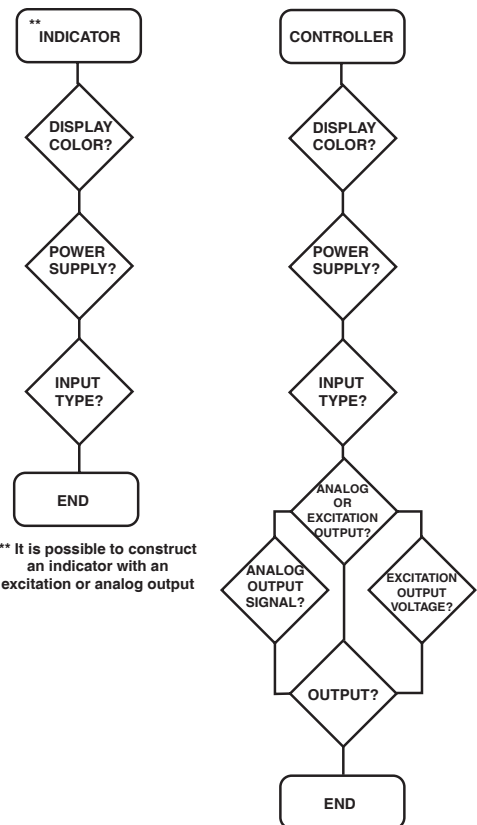
Output Modules (optional)

1 Relay
2 Relays
2 NPN Transistors
*12/24 VDC Excitation Output/for sensor supply
*Analog Output

85KSR1
85KSR2
85KSNP
85KSDC
85KSAN

*Analog and excitation output modules occupy the same plug-in location, therefore only one selection is possible.

*Items in bold are normally in factory stock.



**Part Number Selection - Assembled Unit(s)**

Note: There is a 10 piece minimum of various assembled meters, not one specific part number.

Ordering Key

Model Number Model 85

Input Type and Range Code

DC Ammeters

CD1	-199.9 to +199.9 mA
CD2	-1.999 to +1.999 mA
CD3	-19.99 to +19.99 mA
CD4	-199.9 to +199.9 mA
CD5	-1999 to +1999 mA
CD6	-5.00 to +5.00 A
CD7	-10.00 to +10.00 A

AC Ammeters

CA1	0 to 199.9 mA
CA2	0 to 1.999 mA
CA3	0 to 19.99 mA
CA4	0 to 199.9 mA
CA5	0 to 1999 mA
CA6	0 to 5.00 A
CA7	0 to 10.00 A

AC Voltmeters

VA1	0 to 199.9 mV
VA2	0 to 1.999 V
VA3	0 to 19.99 V
VA4	0 to 199.9 V
VA5	0 to 600 V*

* Nominal voltage according to IEC60-664-1. The measuring range includes 15% tolerance equal to 690 V.

DC Voltmeters

VD1	-199.9 to +199.9 mV
VD2	-1.999 to +1.999 V
VD3	-19.99 to +19.99 V
VD4	-199.9 to +199.9 V
VD5	-600 to +600 V

Ohmmeters

RO1	0 to 199.9 W
RO2	0 to 1.999 kW
RO3	0 to 19.99 kW
RO4	0 to 199.9 kW

Tachometer**NAMUR Input**

TA1	8.0 to 199.9 RPM @ 30PPR
TA2	5.0 to 199.9 RPM @ 60PPR
TA3	2.0 to 199.9 RPM @ 100PPR
TA4	20 to 1999 RPM @ 30PPR
TA5	10 to 1999 RPM @ 60PPR
TA6	120 to 1999 RPM @ 100PPR

NPN, PNP or Contact Input

TB1	8.0 to 199.9 RPM @ 30PPR
TB2	5.0 to 199.9 RPM @ 60PPR
TB3	2.0 to 199.9 RPM @ 100PPR
TB4	20 to 1999 RPM @ 30PPR
TB5	10 to 1999 RPM @ 60PPR
TB6	10 to 1999 RPM @ 100PPR

Frequency Meters**Namur Inputs**

FO1	5.0 to 199.9 Hz
FO2	10.0 to 1999 Hz

NPN, PNP or**Contact Input**

FS1	5.0 to 199.9 Hz
FS2	10.0 to 1999 Hz

NPN, PNP or**600 VAC Input**

F61	5.0 to 199.9 Hz
F62	10.0 to 1999 Hz

Thermometers**J-Type TC:**

JC1	-100 to 760°C
JF1	-148 to 1400°F

K-Type TC

KC1	-100 to 1250°C
KF1	-148 to 1999°F

PT100 RTD

PC1	-100.0 to 199.9 °C
PF1	-100 to 850°C
PC2	-148.0 to 199.9°F
PF2	-148 to 392°F
PF3	-148 to 1562°F

Power Supply

- 1) 12-48 VDC 2) 24 VAC 3) 48VAC 4) 115 VAC 5) 230 VAC

Relay Output

- N) None 1) One Relay 2) Two Relays 3) NPN

Output Modules

- N) None 1) 0-20mA 2) 4-20mA 3) 0-10 VDC 4) 12 VDC Excitation
5) 24 VDC Excitation

Display Color

- R) Red G) Green H) High Efficiency Red

Hardware Lock of Programming

- S) None L) Program Lock

Engineering Label

- 01 to 47 (see front panel description #4)

85 x x x x x x x x x x



Description

The Model 88 is a family of LCD Indicators/Controllers, with eight 7-segment digits that are 0.35" [9mm] in height. The standard display is a backlit LCD, providing red characters on a dark background. An optional reflective LCD with dark characters on a light background is available. Unit programming is accomplished using four front-panel switches, or programming can be done using the optional serial data interface and dedicated PC-based software (Redi-Ware), which is available from Redington free of charge. Upon power up, the Indicator/Controller performs internal diagnostics and flashes all segments of the display "ON" and "OFF" several times. The Indicator/Controller then configures itself per previous programming, loads the internal Counters and Timers with their values prior to power down, and begins normal operation.

The Model 88 Indicator/Controller is capable of receiving counts and/or analog inputs, processing those inputs in a number of different selectable ways, and then providing outputs in several formats. Base units, i.e.; #8800-0000, or similar units can be programmed for Elapsed Time, Rate, Preset Count/Time, count Add/Add, count Add/Sub., or count Quadrature. The two independent control outputs are open-collector (NPN) outputs that can be controlled by either count inputs, time, the analog input, or combinations of the analog input/time and count inputs. Based on two inputs, the indicator is capable of displaying two counts, a rate indicator and an elapsed time at the same time. The base unit provides the display, programming, and processing functions for the final configuration as well as the counter I/O function. I/O functions and factory installed modules are available that allow the user to configure complex functions into a small enclosure. Other models add analog input/output functions to the base unit, and serial communication functions, which supports RS232/RS422/RS485, providing the user with a broad selection of configurations.

Each Model 88 base unit is normally powered from a DC voltage of +10V to +32 V. However, an AC power supply module # 200557-002S can be attached to the rear of the unit that converts +90VAC to +250VAC, to +12VDC, which can be used to power the Model 88 and an external sensor. Another module, 200557-001S, can be added that converts the discrete outputs of the Model 88 base unit to relay contacts.

Features

- Dual up counting
- Preset of time, rate or count
- Directional counting
- 1,2,4x quadrature
- Add/add counting
- Add/subtract counting
- Rate indication on count inputs
- Analog ranges: 0 to 10 VDC or 4 to 20 mA
- Prescaling of analog inputs and counts
- Elapsed timer function available for all modes of operation
- NEMA 4X/IP56 sealed panel
- UL, cUL Recognized, CE Compliant UL file # E19514

Options

- Relay Module 200557-001S
2 form C, 5 amp relays
- Serial Comm. (RS232, RS422, RS485)
- Analog input/outputs
- Display color
- AC Power Module 200557-002S
+90 VAC to +285 VAC, 50/60 Hz (unit is normally powered from +10 VDC to +32 VDC)

Specifications

Display:	LCD, 8 digits, 0.35" [9mm] negative image transmissive red or positive image reflective display. In the negative count mode the display will be 7 digits with a "-" sign. (Reflective display recommended in sunlight)	Three different quadrature resolutions Add-Add Add-Subtract Dual Count Elapsed Time Analog Input Predetermining
Annunciators:	A, B, R, 1, 2 ANLG, LOCK, HZ, RPM, HRS, SEC. 0.039" [1mm]	
Programming:	Programming is accomplished through the front panel switches or by serial data interface and dedicated PC software, supplied by Redington Counters, Inc.	Predetermining Functions: Preset units provide two discrete outputs which can be controlled as a function of count, rate, elapsed time, or analog input. Each control output can be set by any of the four functions and reset by the same or a different function. For example, control output 1 could be set when a specific count is reached and reset when an analog input level is reached.
Available Functions:	Totalizer Directional Counting Rate/Count	

**Predetermining Timer:****Programmable Ranges:**

Hours
Seconds
Hours, Minutes & Seconds

Programmable Decimal Point:

Counter A: 4 decimal point locations may be selected.
Counter B: 4 decimal point locations may be selected.
Rate Display: 4 decimal point locations may be selected.
Analog Input: 4 decimal point locations may be selected.
Time: 4 decimal point locations may be selected.

Power Requirements:

Base unit: +10VDC TO +32VDC @ 50mA max.
Relay Module: Model 200557-001S; +10VDC to +32VDC @ 50mA, max.
AC Power Supply: Model 200557-002S; +90VAC to +250 VAC 50/60 Hz @ 6 VA max.

Memory: Nonvolatile EEPROM retains all program parameters and values when power is removed. EEPROM provides 20 year data retention.

Sensor Power: +12VDC @ 100mA, minimum (200557-002S Module)

Front Panel Lockout:

Two front panel lockouts are available. In the programming mode, the operator is prohibited from entering new parameters. In the operating mode, the lockout disallows manual reset of any displayed inputs.

Count/Timer Inputs (Input A & Input B):

Software selectable: switch contact or voltage input
Software Selectable: filter: no filter or 160 Hz 1st order LP.
Voltage Mode V_{IH} : 2.4VDC, min.
Voltage Mode V_{IL} : 0.8VDC, max. or open circuit
Switch Mode V_{IH} : 2.4 VDC, min. or open circuit
Switch Mode V_{IL} : 0.8VDC, max.
Maximum Input voltage: 32.0VDC
Minimum Input voltage: -0.8VDC

Counter/Timer Operational Format:

Input A is used for all count functions
Input B is used for timer enable and all dual Input counter functions (i.e. ADD/ADD, ADD-SUB, DIRECTIONAL COUNT, QUADRATURE, and DUAL COUNT).

Input Scaling: A & B Counters and analog input, (- 9.9999 to 99.9999)

Quadrature Counting:

Software selectable X1, 2, 4

Analog Input: 0 to 10VDC or 4 to 20 mA
Resolution: 4 digit

Input Impedance:

150K ohms, for 0 to 10VDC
100 ohms, for 4 to 20 mA

Max. Count Rate: 40 KHz for single counter mode.
20 KHz for dual count modes

Rate Input Units: The rate input can be expressed in terms of scaled counts per minute (rP) or scaled counts per second (HZ) of counter A.

Rate Indicator Accuracy:

$\pm 0.01\%$, References Time Base @T=25°C

Minimum Input Frequency:

1 pulse in 10 seconds

Maxium Input

Frequency: 40 K HZ

Reset Functions: (Automatic & manual)

Reset-to-Zero: Can be programmed so that the output activates when counter equals the preset value, counter returns to zero when reset.

Reset-to-Preset: Can be programmed so that the output activates when counter equals zero, Counter returns to Preset value when reset.

Resets: Automatic or manual.

Outputs: Base unit; Solid-state NPN: (2) Open collector: $I_{SNK}=100mA$ @ $V_{OL}=1.1VDC$ $V_{OH}=40VDC$

Relay Module: Model 200557-001S; 2 form "C" relays rated @ 5 amps 250 VAC, 30VDC(resistive load) 1/10th HP @ 120VAC (inductive load)

Relay Life Expectancy:

100,000 cycles min. @ max. rated load.

Programmable Timed Outputs:

Both control outputs can be timed.

Elapsed Timer Accuracy: $\pm 0.01\%$ @T=25°C

Analog Output: 0 TO 10VDC OR 4 TO 20mA

Accuracy: 0.25% of full scale @ T = 25°C

Resolution: 14 bits

RS232/RS485/RS422 Serial Communications: (Optional)

Baud Rate: Selectable 2400, 4800, 9600, or 19.2K

Data Length/Parity/Stop Bits: 8n1

RS485 Address: Programmable from 0 to 99.

Transceiver Loading: RS232/RS485/RS422- up to 16 loads

Certifications & Compliances:

UL, cUL- Recognized Component, file # E 195514
CE-Compliant to EN 61326: 1998 for industrial equipment

Environmental Conditions:

Operating Temperature: -4°F to +140°F [-20°C to +60°C]

Storage Temperature: -40°F to +185°F [-40°C to +85°C]

Operating & Storage Humidity: to 95% (non-condensing) from -4°F to +140°F [-20°C to +60°C]

Altitude: Up to 6561Ft. (2000 Meters)

Electrical Connection: Wire clamping screw terminals

Construction:

High impact black plastic case with "Clip" type mount. Front panel meets NEMA 4X/IP65 requirements for indoors use, when properly installed. Oversized front panel flange insures proper sealing of panel cutouts. Gaskets for front panel are provided.

Panel Thickness: 0.05" to 0.20" [1.3 to 5.1mm]

Weight: Less than 3 oz. (85g)

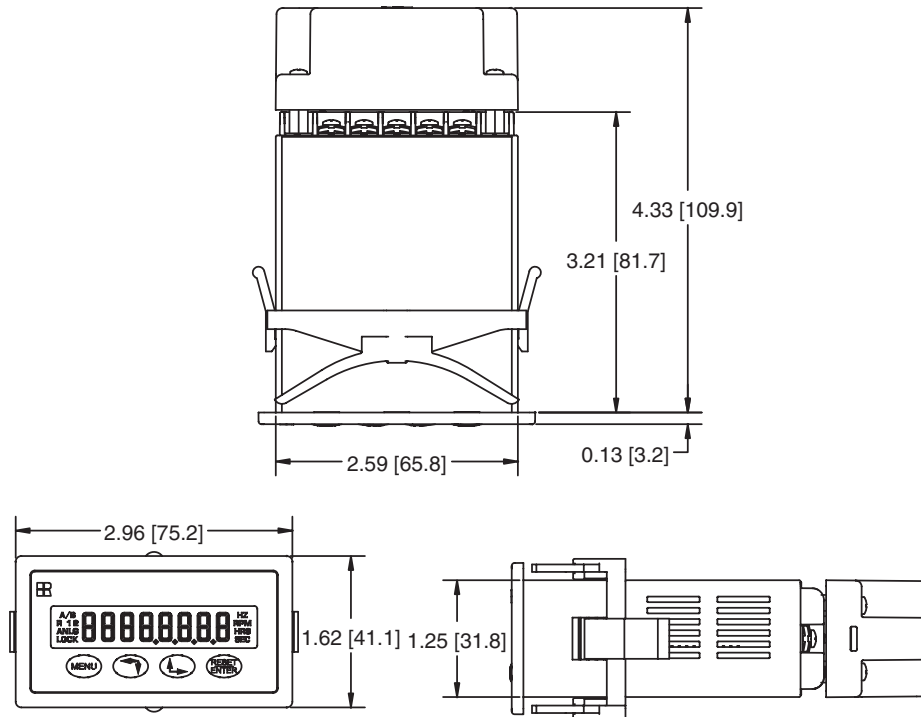


Models Description

For Models and Descriptions see the Ordering Information section

Dimensions

Model 88



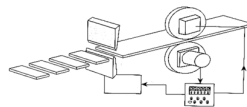
Panel Cutout 2.63" to 2.605" x 1.28" to 1.26" [66.8 to 66.2 x 32.5 to 32.0]
Max. thickness of panel 0.5" [12.7]

Applications

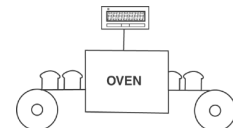
Batching



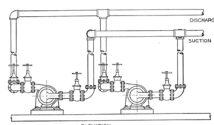
Cut-to-length



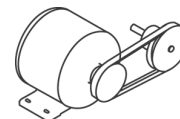
Elapsed time indicator



Flow and level control



Rate/Indication or control





Ordering Information

MODEL NUMBER	DESCRIPTION	DISPLAY RED TRANSMISSIVE	DISPLAY REFLECTIVE	ANALOG INPUT	ANALOG OUTPUT	RS-485 RS-232 RS 422
8800-0000	Base unit, Red Trans., 10-30VDC, Prescale	X				
8810-0000	Base unit, Reflective, 10-30VDC, Prescale		X			
8800-0100	Red Trans., 10-30VDC, Prescale, Serial Communications	X				X
8810-0100	Reflective, 10-30VDC, Prescale, Serial Communications		X			X
8800-0010	Red Trans., 10-30VDC, Analog input, Prescale	X		X		
8810-0010	Reflective, 10-30VDC, Analog input, Prescale		X	X		
8800-0001	Red Trans., 10-30VDC, Analog output, Prescale	X			X	
8810-0001	Reflective, 10-30VDC, Analog output, Prescale		X		X	
8800-0110	Red Trans., 10-30VDC, Analog input, Prescale, Serial Communications	X		X		X
8810-0110	Reflective, 10-30VDC, Analog input, Prescale, Serial Communications		X	X		X
8800-0101	Red Trans., 10-30VDC, Analog output, Prescale, Serial Communications	X			X	X
8810-0101	Reflective, 10-30VDC, Analog output, Prescale, Serial Communications		X		X	X
8800-0011	Red Trans., 10-30VDC, Analog I/O, Prescale	X		X	X	
8810-0011	Reflective, 10-30VDC, Analog I/O, Prescale		X	X	X	
8800-0111	Red Trans., 10-30VDC, Analog I/O, Prescale, Serial Communications	X		X	X	X
8810-0111	Reflective, 10-30VDC, Analog I/O, Prescale, Serial Communications		X	X	X	X

ACCESSORIES

200557-001S Relay module 2 form C relays

200557-002S AC Voltage module, +90VAC to +250VAC also outputs +12VDC for base unit & sensor

Note: Reflective display is recommended for applications that will be exposed to direct sunlight

* All parts are normally in factory stock.



Description

The 83 Counter features a 7 segment, 2 lines by 6-digit backlit LCD display. The main display line is red and shows the count value or the batch/total value when preset 3 or output 3 is viewed in the secondary display. The smaller secondary display line is green and can be used to view the prescaler value, preset values, output count values or batch/total count values (batch model only).

The 83 Counter offers a choice of nine programmable counting modes for use in applications requiring bidirectional, anti-coincidence, and quadrature counting. The unit may be programmed to detect counts on both edges of the input signal resulting in a doubling of frequency. DIP switches are used for input configuration setup and to provide a program disable function.

Four front panel push buttons are used for ease of programming the operating modes and data values, to change the viewed display, and performing user programmable functions, e.g. reset, etc. The 83 Counter can be configured for one of two numeric date entry methods.

Digital - The digital entry allows for the selection and incrementing of digits individually.

Automatic Scrolling - This method allows for the progressive change of one through all digits positions by pressing and holding the **up** or **down** button.

Protection of data value and unit configuration - The program disable DIP switch, a user-programmable code value, and an external user input selected for program disable can be utilized to provide multilevel protection.

The standard with dual presets is available with solid-state and relay outputs. The batch counter has relay outputs for output 2 and the batch/total output 3, with output 1 available as solid-state. For all 83 Counters, the solid-state outputs are available in a choice of NPN current sinking or PNP current sourcing, open- collector transistor outputs. All relay output boards are field replaceable.

Prescaler output is available as a dual preset, with solid-state outputs. The prescaler output is useful for providing a lower frequency scaled pulse train to a PLC or another external totalizer. The prescaler output provides a programmable width for every count or every 10 counts registered on the display

RS485 communications - optional serial communication capability allows for interrogation and modification of the preset, count and prescaler values.

Construction - The unit is made of lightweight, high impact plastic with a textured front panel and a clear display window. The front panel meets NEMA4X/IP65 specifications when properly installed. Multiple units can be stacked horizontally or vertically. SMT, extensive testing, plus high immunity to noise interference make the 83 Counter extremely reliable in industrial environments.

Features

Options

- | | |
|---|---|
| <ul style="list-style-type: none">• Quadrature sensing• Bidirectional counting, up/down control• Count values to (999999)• Prescaler output model (dual preset only)• Field replaceable relay output boards• Solid State and relay output models• NEMA4X/IP65 sealed bezel• Status indicators for outputs• Security via programmable operator access privileges and protected values menu• Programmable user inputs and front panel function key• Horizontal or vertical stacking of multiple units• 85 to 250VAC or 18 to 36VDC/24 VAC power units• RS485 communications option• Choice of numeric data entry modes | <ul style="list-style-type: none">• Output type• Serial communications• Voltage input• Display color• Number of presets |
|---|---|



Display: 2 line by 6 digits LCD display, negative image transmissive with RED (top line) and GREEN (bottom line) backlighting. Positive image reflective display units are non-stock available.

Main: 0.3" (7.6mm) high digits

Secondary: 0.2" (5mm) high digits

Annunciators:

Value: PRS, 1,2 and 3

Output: 01, 02 and 03

POWER REQUIREMENTS:**AC Versions****AC Power:** 85 to 250 VAC, 50/60Hz, 9VA max.**DC Power:** 11 to 14 VDC @ 159 mA max.
(Non PNP output models)*Note: Models with PNP current sourcing outputs must be powered from AC***DC Versions****DC Power:** 18 to 36 VDC: 5.5 W max.**AC Power:** 24 VAC +/- 10%: 50/60 Hz: 7VA max.*Note: The 10% tolerance range on AC input voltage must be strictly adhered to DO NOT EXCEED 26.4 VAC***PEAK (START-UP CURRENT)****AC or DC Power:** 500mA peak start-up current for 10 msec. max.**DC OUT/ VSCR IN-terminal 10**

For units that do not have PNP current sourcing outputs, this terminal provides a DC output for sensor power + 12 VDC (+/- 15%). The maximum sensor current is 100mA.

For units with PNP current sourcing outputs this terminal serves a dual purpose depending on the application PNP output voltage level and current requirements.

1. The terminal may be used as a +12 VDC output for sensor power. In this case, the PNP output voltage level will be +12 VDC (+/-15%). A maximum of 100 mA is available for the combination of sensor and PNP output sourcing current.
2. If a higher PNP output voltage level or additional output sourcing current is needed, an external DC supply may be connected between the "DC OUT (V SRC IN)" and "COMM." terminals. This supply will determine the PNP output voltage level, and must be in the same range of +13 to +30 VDC.
An external DC supply can also provide the additional output sourcing current required in applications where two or more PNP outputs are "ON" simultaneously. However, the maximum current range of 100mA per individual output must not be exceeded, regardless of external supply capacity.

3. Memory: Nonvolatile FRAM retains all program parameters and count values.**4. SENSOR POWER:** + 12 VDC (+/- 15%) @ 100mA max.**5. COUNT INPUTS A & B:** Accepts count pulses from a variety of sources, DIP switch selectable.**Current Sourcing: (active high):** $V_{in,max.} = 3.9K$ ohm pull-down to 30 VDC.**Current Sinking: (active low):** 7.8 K ohm pull-up to 12 VDC : $I_{snk} = 1.8mA$ max.**Debounce :** 50 Hz**Lo Bias:** $V_{IL} = 1.5$ VDC max., $V_{IH} = 3.75$ VDC min.**Hi Bias:** $V_{IL} = 5.5$ VDC max., $V_{IH} = 7.5$ VDC min.**6. MAX. COUNT RATE:** Model dependent. All listed values are in Khz.

Note: Max. count rates for X2 & X4 modes are given for 50% duty cycle signals and quad signals with 90° phase shift.

Single Preset Model 8301

Prescaler Value	C1-Usr C1-Ud	C2-usr C2-Ud	*Ad-sub Ad-Ad	QUAD		
				X1	X2	X4
0.00001-0.99999	8.4	4.1	9.4	5.4	4.5	2.1
1.00000	12.0	5.9	12.4	6.5	6.0	3.0
1.00001-2	6.6	3.2	6.8	4.3	3.3	1.6
2.00001-3	5.3	2.6	5.6	3.7	2.6	1.3
3.00001-4	4.3	2.1	4.6	3	2.2	1.1
4.00001-5	3.6	1.8	3.8	2.7	1.8	0.9
5.00001-6	3.1	1.5	3.4	2.4	1.6	0.8
6.00001-7	2.8	1.4	3.2	2.1	1.4	0.7
7.00001-8	2.6	1.3	2.8	1.9	1.3	0.6
8.00001-9	2.3	1.1	2.4	1.8	1.1	0.5
9.00001-9.99999	2.1	1.0	2.3	1.7	1.1	0.5

Dual Preset Model 8302

Prescaler Value	C1-Usr C1-Ud	C2-usr C2-Ud	*Ad-sub Ad-Ad	QUAD		
				X1	X2	X4
0.00001-0.99999	8.3	4.1	8.6	4.5	4.1	2.1
1.00000	11.5	5.7	11.5	6.0	5.8	3.0
1.00001-2	6.5	3.2	6.6	4.0	3.2	1.6
2.00001-3	5.0	2.4	5.2	3.4	2.5	1.3
3.00001-4	4.1	2.0	4.4	2.8	2.0	1.0
4.00001-5	3.4	1.7	3.8	2.5	1.7	0.8
5.00001-6	2.9	1.4	3.2	2.2	1.4	0.7
6.00001-7	2.7	1.3	2.8	2.0	1.3	0.6
7.00001-8	2.2	1.1	2.4	1.8	1.2	0.6
8.00001-9	2.2	0.9	2.3	1.6	1.1	0.5
9.00001-9.99999	1.9	0.9	2.0	1.5	0.9	0.4

Batch Model 8303With Counter 2 configured as a Batch Counter ($C2 A5n = bAtch$)

Prescaler Value	C1-Usr C1-Ud	C2-usr C2-Ud	*Ad-sub Ad-Ad	QUAD		
				X1	X2	X4
0.00001-0.99999	8.3	4.1	8.4	3.7	3.6	2.2
1.00000	11.4	5.5	11.8	4.3	4.2	3.0
1.00001-2	6.5	3.2	6.6	3.2	3.0	1.6
2.00001-3	5.0	2.5	5.4	2.8	2.5	1.3
3.00001-4	4.1	2.0	4.2	2.4	2.0	1.0
4.00001-5	3.4	1.7	3.8	2.1	1.7	0.8
5.00001-6	2.9	1.4	3.2	1.9	1.5	0.7
6.00001-7	2.7	1.3	2.8	1.7	1.3	0.6
7.00001-8	2.4	1.1	2.6	1.6	1.2	0.6
8.00001-9	2.2	1.1	2.4	1.5	1.1	0.5
9.00001-9.99999	1.9	0.9	2.2	1.4	1.0	0.4

Batch Model 8303With Counter 2 configured as a Total Counter ($C2 A5n = totAL$)

Prescaler Value	C1-Usr C1-Ud	C2-usr C2-Ud	*Ad-sub Ad-Ad	QUAD		
				X1	X2	X4
0.00001-0.99999	6.5	3.3	6.6	3.5	3.3	1.6
1.00000	8.5	3.6	8.6	4.0	4.0	2.1

Prescaler Output Model 8304

Prescaler Value	C1-Usr C1-Ud	C2-usr C2-Ud	*Ad-sub Ad-Ad	QUAD		
				X1	X2	X4
0.00001-0.99999	6.2	N/A	N/A	N/A	N/A	N/A
1.00000	8.0	N/A	N/A	N/A	N/A	N/A

* Inputs A & B rates summed.



- 7. USER INPUTS:** Configurable as current sinking (active low), or current sourcing (active high) inputs via a single plug jumper.

Current Sinking: (active low) : $V_{IL} = 1.5$ VDC max. 22 K ohm pull-ups to 5 VDC

Current Sourcing: (active high): $V_{IH} = 3.5$ min. V_{IN} max. = 30 VDC; 22K ohm pull-down.

Response Time: 10 msec. max.

Inhibit Response Time: 250 microsec max.

- 8. OUTPUTS:** (Output type and quantity model dependent)

Solid-State:

NPN Open Collector: $I_{SNK} = 100$ mA max. @ $V_{OL} = 1.1$ VDC max.; $V_{OH} = 30$ VDC max.

PNP Open Collector: $I_{SRC} = 100$ mA max. (See note) ; $V_{OH} = 12$ VDC +/-15% (using internal supply); $V_{OH} = 13$ to 30 VDC (using external supply).

Note: The internal supply of the 83 counter can provide a total of 100 mA for the combination of sensor current and PNP output sourcing current. The supply voltage is +12 VDC (+/-15 %), which will be the PNP output voltage level when using only the internal supply.

If additional PNP output sourcing current or a higher output voltage level is desired, an external DC supply may be connected between the "DC Out/In" and "Comm" terminals. This supply will determine the PNP output voltage level, and must be in range of +13 to 30 VDC.

An external supply can provide the additional output sourcing current required in applications where two or more outputs are "ON" simultaneously. However, the maximum rating of 100mA per individual output must not be exceeded, regardless of external supply capacity.

Relay: Form A contact, rating = 5 A @ 250 VAC, 30 VDC (resistive load) , 1/10 HP @ 120 VAC (inductive load).

Relay Life Expectancy: 100,000 cycles min. at max. load rating.

Programmable Timed Output: User selectable output time resolutions.

0.01 Second Resolution: 0.01 to 99.99 sec., +/-0.01% +20 msec max. (Prescalers less than 2)

0.1 Second Resolution: 0.1 to 999.9 sec. +/- 0.01 + 100 msec max. (Prescalers less than 2)

- 9. RS485 SERIAL COMMUNICATIONS (Optional):** Up to 32 units can be connected.

Baud Rate: Programmable from 1200 to 9600 baud.

Address: Programmable from 0 to 99.

Data Format: 10 Bit Frame, 1 start bit , 7 or 8 data bits, 1 or no Parity bit, and 1 stop bit.

Parity: Programmable for Odd (7 data bits), Even (7 data bits) or None (8 data bits).

- 10. CERTIFICATIONS AND COMPLIANCES:**

UL Recognized Component, File # E195514

Recognized to U.S. and Canadian requirements under the Component Recognition Program of Underwriters Laboratories, Inc.

CE Compliant:

ELECTROMAGNETIC COMPATIBILITY

Immunity to EN 50082-2

electrostatic discharge	EN 61000-4-2
electromagnetic RF fields	EN 61000-4-3
fast transients	EN 61000-4-4
RF conducted interference	EN 61000-4-6
simulation of cordless phone	EN V502204

Emissions to EN 50081-2

RF interference EN 55011 enclosure class A

- 11. ENVIRONMENTAL CONDITIONS:**

Operating Temperature: +32°F to +122°F [0°C TO +50°C]

Storage Temperature: -40°F to +158°F [-40°C to +70°C]

Operating and Storage Humidity: 85% max. relative humidity (non-condensing) from +32°F to +122°F [0°C to +50°C]

Altitude : Up to 6500 Feet [1981 Meters]

- 12. ELECTRICAL CONNECTIONS:** Wire clamping screw terminals.

- 13. CONSTRUCTION:** Black plastic case with collar style panel latch.

The panel latch can be installed for horizontal or vertical stacking.

Black plastic textured bezel can be removed from the case without removing the case from the panel or disconnecting the wiring. Front panel meets NEMA4X/IP65 requirements for indoor use, when properly installed. Installation Category II, Pollution Degree 2.

- 14. WEIGHT:** 6.0 oz [170g]

SINGLE PRESET MODELS

The 8301 has a solid-state output that operates in parallel with a relay output. The solid-state output is available as an NPN or PNP open collector transistor.

DUAL PRESET MODELS

The 8302 has two outputs that are activated from presets 1 and 2.

These outputs can be relay or solid-state outputs. The solid-state outputs are available as NPN or PNP open-collector transistors. Units with solid-state outputs can be ordered with an optional prescaler output.

3 PRESET BATCH MODELS

The 8303 has a secondary counter that can be used for batch counting, or to keep a total count. This second counter can be programmed to operate in one of eight operating modes. Output 1 and 2 are assigned to the primary process counter (C1). Output 3 is assigned to the secondary Batch/Total counter (C2). The three preset batch unit can be ordered with solid-state or relay outputs. Units with solid-state outputs have a User Input 2 terminal available. The relay model has a relay output for Output 2 and Output 3 (Batch/Total). Output 1 is available only as solid-state.

PRESALER OUTPUT MODELS

The 8304 is a dual preset counter with solid-state outputs. These models have an additional output configured as a prescaler output. Each time the least significant digit of the display increments, the Prescaler output provides a pulse. The width of this pulse is variable in that the output will turn off after a programmed number of count input pulses has occurred (1-9). The Prescaler output can also be programmed to activate when the 10's digit of the display increments, rather than the least significant digit.

Note: Prescaler Output Models are limited to two programmable count modes and prescaler values of 1.00000 or less. See Count Input Modes for available modes.

FRONT PANEL KEYPAD



- Performs user Programmed Function.



- Cycles through secondary displays.
- Enters Programming Mode or Protected Value Menu when pushed and held for 2 seconds.
- Scrolls through programming displays.
- Enters Data Values.



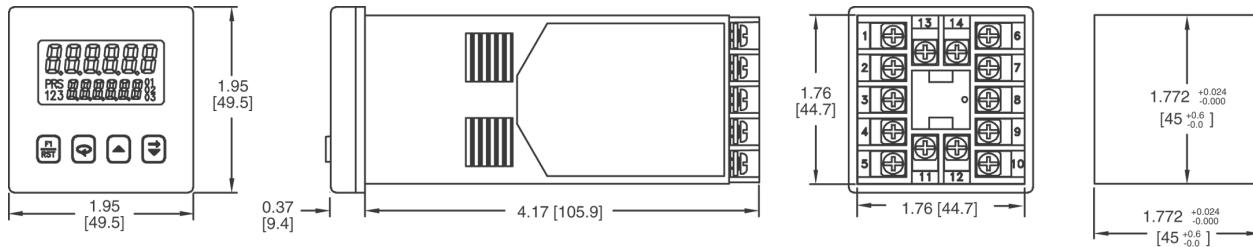
- Selects next available mode in programming mode.
- Increments digit in digit Entry mode.
- Increments value in Auto Scrolling entry mode.



- Selects Digit to right when in Digit Entry mode.
- Decrements value in Auto Scrolling entry mode.

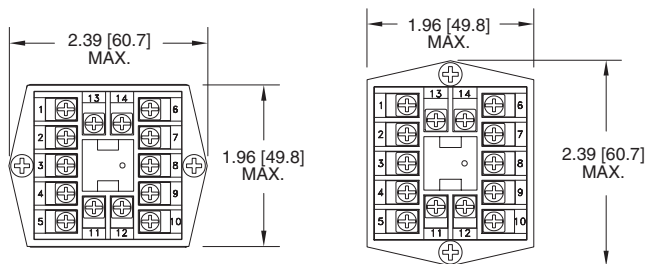
**Models Description**

For Details on Models and Descriptions, see the Ordering Information section

Dimensions**MULTIPLE UNIT STACKING**

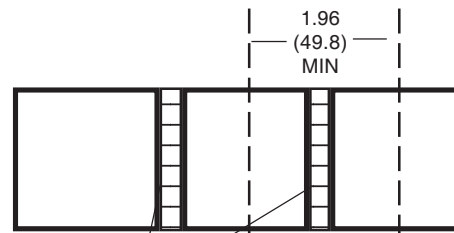
The Model 83 is designed for close spacing of multiple units. Units can be stacked either horizontally or vertically. For vertical stacking, install the panel latch with screws to the sides of the unit. For horizontal stacking, the panel latch screws should be at the top and bottom of the unit. The minimum spacing from center line to center line of the units is 1.96" (49.8 mm). This spacing is the same for vertical or horizontal stacking.

Note: When stacking units, provide adequate panel ventilation to ensure that the maximum operating temperature range is not exceeded.



PANEL LATCH INSTALLED FOR
VERTICAL UNIT STACKING

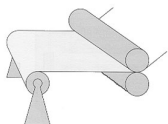
PANEL LATCH INSTALLED FOR
HORIZONTAL UNIT STACKING

**PANEL CUTOUT SPACING FOR MULTIPLE UNIT STACKING.
HORIZONTAL ARRANGEMENT SHOWN.**

IF NEMA 4 IS NOT REQUIRED,
THIS PANEL MATERIAL MAY BE REMOVED.

Applications

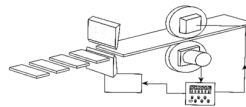
Convert-



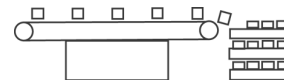
Batching



Cut-to-length



Packag-
ing





Ordering Information

MODEL NO.	DESCRIPTION	NPN O.C. OUTPUT(S)	*PNP O.C. OUTPUT(S)	RELAY OUTPUT(S)	RS485	PART NUMBERS FOR AVAILABLE SUPPLY VOLTAGES	
						18-36 VDC/24 VAC	85 TO 250 VAC
8301	1 Preset Counter Backlit LCD	Yes	No	Yes	No	8301-0110	8301-1110
8302	2 Preset Counter Backlit LCD	Yes	No	No	No	8302-0100	8302-1100
	2 Preset Counter Backlit LCD	Yes	No	No	Yes	8302-0101	8302-1101
	2 Preset Counter Backlit LCD	No	No	Yes	No	8302-0010	8302-1010
	2 Preset Counter Backlit LCD	No	No	Yes	Yes	8302-0011	8302-1011
8304	2 Preset Counter w/Prescaler Output Backlit LCD	Yes	No	No	No	8304-0100	8304-1100
	2 Preset Counter w/Prescaler Output Backlit LCD	Yes	No	No	Yes	8304-0101	8304-1101
8303	3 Preset Batch Counter Backlit LCD	Yes(01)	No	Yes	No	8303-0110	8303-1110
	3 Preset Batch Counter Backlit LCD	Yes(01)	No	Yes	Yes	8303-0111	8303-1111
	3 Preset Batch Counter Backlit LCD	Yes	No	No	No	8303-0100	8303-1100
	3 Preset Batch Counter Backlit LCD	Yes	No	No	Yes	8303-0101	8303-1101

Note: On batch Relay Models, Outputs 2 and 3 are relays, and Output 1 (01) is a solid-state output.

* PNP outputs are non-stock items

* Items in bold are normally in factory stock.

RELAY OUTPUT BOARDS

DESCRIPTION	NPN O.C.	* PNP O.C.	RELAY	PART NUMBER
Single Preset	Yes	No	Yes	1726-044S
Dual Preset	No	No	Yes	1726-045S
Batch	Yes	No	Yes	1726-046S



Description

The Model 83 Timer is available in single or dual preset models. The 83 Timer features a 7 segment, 2 lines by 6-digit backlit LCD display. The main display line is red and shows the timer value. The smaller secondary display line is green and can be used to view the preset values or output time values.

The 83 Timer can be configured for a variety of different operating modes to meet most timing application requirements. Twelve timing ranges are available from thousands of a second to hours and minutes. Decimal points are used to separate the time units (hours, minutes, seconds). Timing can be cumulative or can reset and start upon each power cycle. "on delay" or "off delay", "single shot", "repetitive auto cycling" modes are all supported.

The 83 Timer can also be configured to continue or stop timing upon reaching preset. The display can be programmed to stop at the preset value (reset to zero mode) or zero (reset to preset mode), or automatically reset to zero or preset and hold. Once stopped, the timer can be restarted by manually resetting it, or it can be programmed to restart when power is reapplied. The 83 Timer has a run/stop input, 3 programmable user inputs, and a programmable front panel function key. The run/stop and user inputs can be configured as sinking (active low) or sourcing (active high) inputs via a single plug jumper. The user inputs and the front panel function key can be configured to provide a variety of functions.

Four front panel push-buttons are used for ease of programming the operating modes and data values, changing the viewed display, and performing user programmable functions, e.g. reset, etc. The 83 Timer can be configured for one of two numeric data entry methods digit or automatic scrolling.

Digital - The digital entry allows for the selection and incrementing of digits individually.

Automatic scrolling - This method allows for the progressive change of one through all digits positions by pressing and holding the **up** or **down** button.

The dual preset models are available with solid-state or relay outputs. The single preset model has a solid-state and relay output in parallel. All solid-state outputs are available in a choice of NPN current sinking or PNP current sourcing, open-collector transistor outputs. All relay output boards are field replaceable.

RS485 communications - optional serial communication capability allows for interrogation and modification of the preset, and timer values.

Construction- The unit is made of lightweight, high impact plastic with a textured front panel and a clear display window. The front panel meets NEMA4X/IP65 specifications when properly installed. Multiple units can be stacked horizontally or vertically. SMT, extensive testing, plus high immunity to noise interference make the 83 Timer extremely reliable in industrial environments.

Features

- Displays values to (999999)
- 12 timing ranges
- Field replaceable relay output boards
- Solid state and relay output models
- NEMA4X/IP65 sealed bezel
- Status indicators for outputs
- Security via programmable operator access privileges and protected values menu
- Programmable user inputs and front panel function key
- Horizontal or vertical stacking of multiple units
- 85 to 250VAC or 18 to 36VDC/24 VAC power units
- RS485 communications option
- Choice of numeric data entry modes

Options

- Output type
- Serial communications
- Voltage input
- Display color
- Number of presets



Specifications

Display: 2 line by 6 digits LCD display, negative image transmissive with RED (top line) and GREEN (bottom line) backlighting. Positive image reflective display units are non-stock available.

Main: 0.3" (7.6mm) high digits

Secondary: 0.2" (5mm) high digits

Annunciators:

Value: PRS, 1, and 2

Output: 01 and 02

POWER REQUIREMENTS:

AC Versions

AC Power: 85 to 250 VAC, 50/60Hz, 9VA max.

DC power: 11 to 14 VDC @ 159 mA max. (Non PNP output models)

Note: Models with PNP current sourcing outputs must be powered from AC

DC Versions

DC Power: 18 to 36 VDC: 5.5 W max.

AC Power: 24 VAC +/- 10%: 50/60 Hz: 7VA max.

Note: The 10% tolerance range on AC input voltage must be strictly adhered to > DO NOT EXCEED 26.4 VAC

PEAK (START-UP CURRENT)

AC or DC Power: 500mA peak start-up current for 10 msec. max.

DC OUT/ VSCR IN-terminal 10

For units that do not have PNP current sourcing outputs, this terminal provides a DC output for sensor power (+ 12 VDC +/-15%). The maximum sensor current is 100mA. For units with PNP current sourcing outputs this terminal serves a dual purpose depending on the application PNP output voltage level and current requirements.

1. The terminal may be used as a +12 VDC output for sensor power. In this case, the PNP output voltage level will be +12 VDC (+/-15%). A maximum of 100 mA is available for the combination of sensor and PNP output sourcing current.
2. If a higher PNP output voltage level or additional output sourcing current is needed, an external DC supply may be connected between the "DC OUT" (V SRC IN) and "COMM." terminals. This supply will determine the PNP output voltage level, and must be in the same range of +13 to +30 VDC.
An external DC supply can also provide the additional output sourcing current required in applications where two or more PNP outputs are "ON" simultaneously. However, the maximum current range of 100mA per individual output must not be exceeded, regardless of external supply capacity.

3. MEMORY: Nonvolatile FRAM retains all program parameters and Timer values.

4. SENSOR POWER: +12 VDC (+/- 15%) @ 100mA max.

5. INPUTS: Run/Stop, Ustr. In1, Ustr. In2, and Ustr. In3.
Configurable as current sinking (active low), or current sourcing (active high) inputs via a single plug jumper.

Current Sinking: (active low) :

$V_{IL} = 1.5$ VDC max. 22 K ohm pull-ups to 5 VDC

Current Sourcing: (active high): $V_{IH} = 3.5$ min.

V_{IN} max. = 30 VDC; 22K ohm pull-down.

Run/Stop Response Time : 250 microseconds max.

User Input Response Time: 5 msec. max.

6. TIME ACCURACY: +/- 0.01%

7. OUTPUTS: (Output type and quantity model dependent)

Solid-State:

NPN Open Collector:

$I_{SNK} = 100$ mA max. @ $V_{OL} = 1.1$ VDC max.;

$V_{OH} = 30$ VDC max.

PNP Open Collector:

$I_{SRC} = 100$ mA max. (See note) ; $V_{OH} = 12$ VDC +/-15% (using internal supply); $V_{OH} = 13$ to 30 VDC (using external supply).

Note: The internal supply of the 83 Timer can provide a total of 100 mA for the combination of sensor current and PNP output sourcing current. The supply voltage is +12 VDC (+/-5 %), which will be the PNP output voltage level when using only the internal supply.

If additional PNP output sourcing current or a higher output voltage level is desired, an external DC supply may be connected between the " DC Out/In" and "Comm" terminals. This supply will determine the PNP output voltage level, and must be in range of +13 to 30 VDC.

An external supply can provide the additional output sourcing current required in applications where two or more outputs are "ON" simultaneously. However, the maximum rating of 100mA per individual output must not be exceeded, regardless of external supply capacity.

Relay: Form A contact, rating = 5 A @ 250 VAC, 30 VDC (resistive load) 1/10 HP @ 120 VAC (inductive load).

Relay Life Expectancy:

100,000 cycles min. at max. load rating.

Programmable Timed Output:

User selectable output time resolutions.

0.01 Second Resolution: 0.01 to 99.99 sec., +/- 0.01% +10 msec max.

0.1 Second Resolution: 0.1 to 999.9 sec. +/- 0.01 % +100 msec max.

8. RS485 SERIAL COMMUNICATIONS (Optional):

Up to 32 units can be connected.

Baud Rate: Programmable from 1200 to 9600 baud.

Address: Programmable from 0 to 99

Data Format: 10 Bit Frame, 1 start bit , 7 or 8 data bits, 1 or no Parity bit, and 1 stop bit.

Parity: Programmable for Odd (7 data bits), Even (7 data bits) or None (8 data bits).

9. CERTIFICATIONS AND COMPLIANCES:

UL Recognized Component, File # E195514

Recognized to U.S. and Canadian requirements under the Component Recognition Program of Underwriters Laboratories, Inc.

CE COMPLIANT :

ELECTROMAGNETIC COMPATIBILITY

Immunity to EN 50082-2

electrostatic discharge	EN 61000-4-2
electromagnetic RF fields	EN 61000-4-3
fast transients	EN 61000-4-4
RF conducted interference	EN 61000-4-6
simulation of cordless phone	ENV50204

Emissions to EN 50081-2

RF interference	EN 55011	enclosure class A
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10. ENVIRONMENTAL CONDITIONS:

Operating Temperature: +32°F to +122°F [0°C to +50°C]

Storage Temperature: -40°F to +158°F [-40°C to +70°C]

**Operating and Storage Humidity:**

85% max. relative humidity (non-condensing) from
+32°F to +122°F [0°C to +50°C]

Altitude: Up to 6500 Feet

11. ELECTRICAL CONNECTIONS:

Wire clamping screw terminals.

12. CONSTRUCTION: Black plastic case with collar style panel latch.

The panel latch can be installed for horizontal or vertical stacking. Black plastic textured bezel can be removed from the case without removing the case from the panel or disconnecting the wiring. Front panel meets NEMA4X/IP65 requirements for indoor use, when properly installed. Installation Category II, Pollution Degree 2.

13. WEIGHT: 6.0 oz [170g]

SINGLE PRESET MODELS

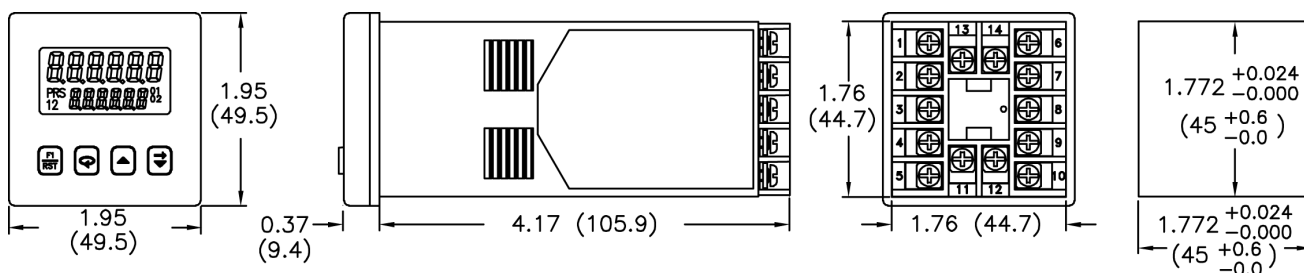
The 8321 Timer offers a choice of twelve timing ranges with eighteen different operating modes. The unit has a solid-state output that operates in parallel with a relay output. The solid-state output is available as an NPN or PNP open collector transistor.

DUAL PRESET MODELS

The 8322 Timer offers a choice of twelve timing ranges with 44 operating modes. The unit is available with solid-state or relay outputs. The solid-state outputs are available as NPN or PNP open collector transistors.

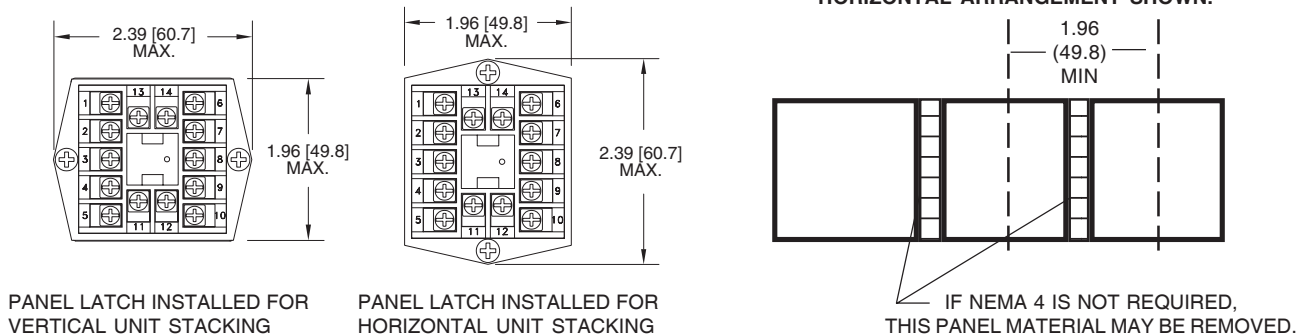
Models	Description
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For Details on Models and Descriptions, see the Ordering Information section

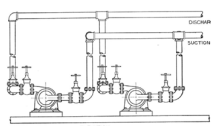
Dimensions**MULTIPLE UNIT STACKING**

The Model 83 is designed for close spacing of multiple units. Units can be stacked either horizontally or vertically. For vertical stacking, install the panel latch with screws to the sides of the unit. For horizontal stacking, the panel latch screws should be at the top and bottom of the unit. The minimum spacing from center line to center line of the units is 1.96" (49.8 mm). This spacing is the same for vertical or horizontal stacking.

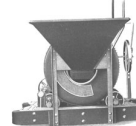
Note: When stacking units, provide adequate panel ventilation to ensure that the maximum operating temperature range is not exceeded.

PANEL CUTOUT SPACING FOR MULTIPLE UNIT STACKING. HORIZONTAL ARRANGEMENT SHOWN.**Applications**

Volumetric measurement



Batch Control





Ordering Information

MODEL NO.	DESCRIPTION	NPN O.C. OUTPUT(S)	* PNP O.C. OUTPUT(S)	RELAY OUTPUT(S)	RS485	PART NUMBERS FOR AVAILABLE SUPPLY VOLTAGES	
						18-36 VDC/24 VAC	85 TO 250 VAC
8321	1 Preset Timer Backlit LCD	Yes	No	Yes	No	8321-0110	8321-1110
8322	2 Preset Timer Backlit LCD	No	No	Yes	No	8322-0010	8322-1010
	2 Preset Timer Backlit LCD	No	No	Yes	Yes	8322-0011	8322-1011
	2 Preset Timer Backlit LCD	Yes	No	No	No	8322-0100	8322-1100
	2 Preset Timer Backlit LCD	Yes	No	No	Yes	8322-0101	8322-1101

* PNP Outputs are non-stock items

* Items in bold are normally in factory stock.

RELAY OUTPUT BOARDS

DESCRIPTION	NPN O.C.	* PNP O.C.	RELAY	PART NUMBER
Single Preset	Yes	No	Yes	1726-044S
Dual Preset	No	No	Yes	1726-045S
3 Preset	Yes	No	Yes	1726-046S

* PNP Outputs are non-stock items



Description

The Redington Model 9200-HTK hand tachometer kit combines low cost with convenience. Simple to use... push the measurement button to record the speed. The tachometer can be used for contact or non-contact measurement on rotating machinery or surface speed. The photoelectric probe is used with reflective tape to detect rotating objects. The accessory adaptor with pointed tip can be added for contact measurement or wheels can be used for surface speed measurement. For measuring in tight or confined spaces, an optional remote sensor is available.

Features

- Combination unit - photo and contact
- Wide speed range - 6.0 - 99,999.9 RPM, 0.1 resolution
- Sampling time of 1-10 seconds
- Automatic shutoff after 3 minutes
- Digital display with low battery alarm and reflective light input indicator
- Carrying case included

Options

- Remote sensor for measurement in hard to reach places

Specifications

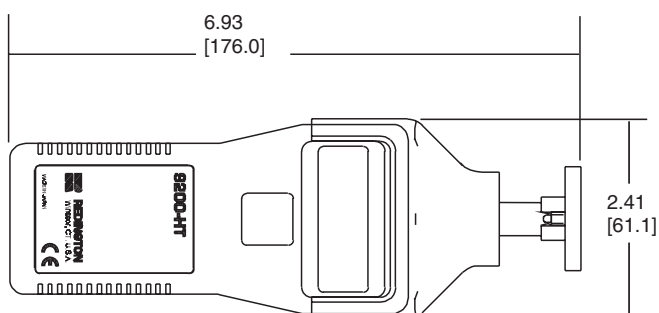
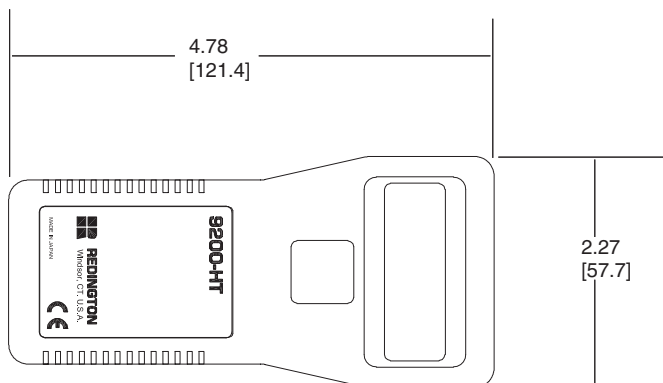
Power Source:	4 alkaline batteries (AAA, 1.5 V) continuous measurement 20 hours.	Automatic Power Cutoff:	After 3 minutes from last measurement.
Accuracy:	$\pm 0.01\% \pm 1$ digit RPM f/min. (others $\pm 0.05\%$ or ± 1 digit including tolerance for conversion).	Display:	6 digit LCD
Measurement Distance:	2"-14" (50-300mm) with reflective tape.	Approvals:	CE Compliant, passed EMC tests EMI: EN50081-1 & EMS: EN50082-1
Measurement Range:	6.0 - 99,999.9 RPM	Weight:	7 oz [199g] (with in-line contact adaptor).
Sampling Time:	1.0-10.2 sec.	Operating Temperature:	+41°F to +104°F [+5°C to +40°C]

Models	Description	Models	Description
9200-HTK	Hand Tachometer Kit: includes, Hand Tach. (Photo), In-Contact adaptor, Rubber tips (3), Reflective Tape (10 sheets), Surface Speed wheels, 1 ea. (1/10 m/min., and 1/10 yd./min.), Carrying Case, Batteries (4 AAA size, 1.5 V, Instructions Manual).	9200-HT	Hand Held Tachometer
		1887-021S	Remote Probe
		1895-004S	Rubber Tips
		1895-005S	Surface Wheel (1/10 Meter)
		1895-006S	Surface Wheel (1/10 Yard)
		200507-046S	Reflective Tape (10 Sheets)

* Items in bold are normally in factory stock.

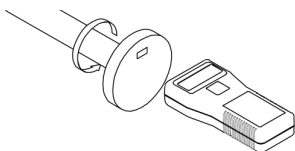


Dimensions

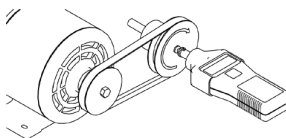


Applications

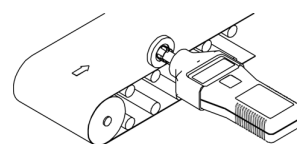
Speed of many rotating objects



Check motor speeds



Conveyor line speed





Description

These versatile, dependable and rugged encoders are ideal for use with electronic counters, PLC's, motion controllers and motor drives. A wide selection of resolutions (Pulse Per Revolution, PPR) makes the Model 65 ideal for a wide variety of applications. The sealed aluminum housing offers greater protection from wash down, sprays, dust, moisture, shock and other hazards found in industrial environments.

Features

- Quadrature or unidirectional output
- 3/8" [9.5mm] shaft diameter, 303, stainless steel
- Double shaft extension
- NPN transistor output

Options

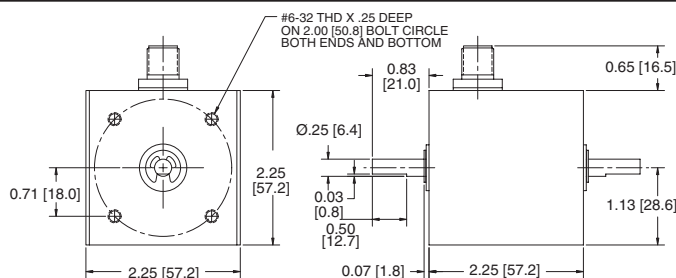
- Rugged duty housing
- +5 to +28VDC input power
- Wide selection of resolutions
- Heavy duty sealed bearings
- IP 65 shaft seal

Specifications

Input:	Voltage: +5 to +28VDC Current: 80mA with no output load	Radial Load:	40 pounds maximum
Output:	Current sinking NPN open collector Transistor Single channel, 250mA max quadrature, 250mA max per output.	Axial Shaft Loading:	30 pounds maximum
Connections:	Eurofast connector	Starting Torque:	3.00 oz-inches
Cable /Connector:	(8 pin) RKC 8T2/S618, (Turck P/N) 2 meters long	Moment of Inertia:	6.5 X 10 ⁻⁶ oz in sec ²
Housing:	Black non-corrosive finished, aluminum	Mounting:	Tapped mounting holes on three sides for base or face mounting
Max. Shaft Speed:	6,000 RPM	Weight:	1lb ([284g])
Frequency Response:	0-125 kHz	Operating Temp:	32°F to 185°F [0°C to 85°C]
Bearings:	ABEC 3 double sealed shaft ball bearings	Storage Temp:	-13°F to +212°F [-25° to +100°C]
		Shock:	50 g's @ 100ms duration
		Vibration:	10 g's @ 58 to 500 cps
		Humidity:	98% RH non-condensing

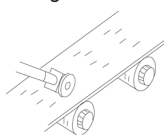
Models	Description	PPR*	Models	Description	PPR*
6510-0060	SINGLE CHANNEL	60	6520-0010	DUAL CHANNEL (QUADRATURE)	10
6510-0100		100	6520-0012		12
6510-0600		600	6520-0100		100
6510-1000		1,000	6520-0120		120
6510-1200		1,200	6520-0500		500
*Only popular PPR's are listed, other PPR's are available on special order.			6520-0600		600
			RKC 8T2/S618	8 Pin Cable 6' (2 meters) long	

Dimensions

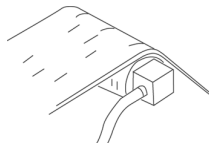


Applications

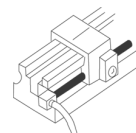
Measuring Wheel
Length sensors

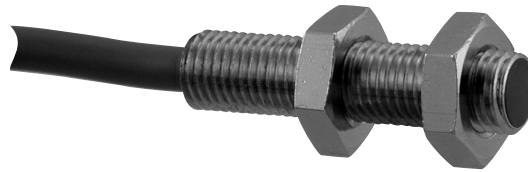


Generating pulses from
idler roll with RPG



Generating Quadrature signal for
position from lead screw rotation using
RPG





Description

The Redington Model 65 proximity switch has an all-metal housing, nickel plated brass, compact size and a long operating distance, 1.5 mm. The Model 65 has a NEMA 6 & 6P, IP67 rating. Its all-metal housing and sealing makes it ideal for most extreme environmental conditions. The Model 65 has built - in protection for short-circuit protection, polarity reversal and power on reset.

Features

- Embeddable mounting
- 5,000 Hz switching frequency
- IP 67 rating
- 10-32 VDC operating range
- LED output state indicator
- 8mm diameter

Models

DW-AD-601-M8

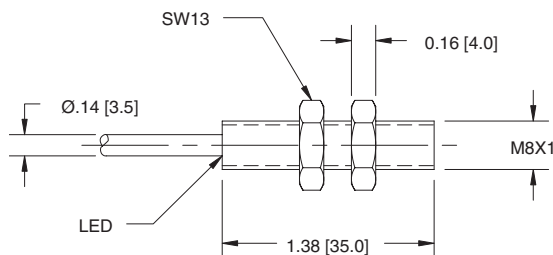
* Item is normally in factory stock.

Specifications

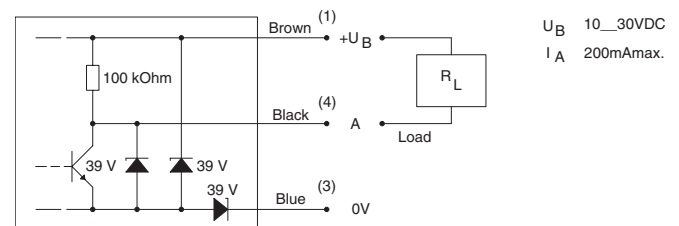
Supply Voltage:	10-30VDC
Sensing Range:	0.1" [1.5mm]
Sensor Diameter:	8mm
Connection:	PVC cable 6' [2m]
Degree of Protection:	IP67
Mounting:	Embeddable
Max. Switching Frequency:	5,000 Hz
Out-put Status Indicator:	LED
Out-put Type:	NPN/N.O. output
Built-in Protection:	Short-circuit Polarity reversal Power-on reset

Permissible Ripple Content:	$\leq 20\%$
No-load Supply Current:	$\leq 10\text{mA}$
Output Current:	$\leq 200\text{mA}$
Leakage Current at Output:	$\leq 0.1\text{mA}$
Voltage Drop, Switched State:	$\leq 2.0\text{V}$
Ambient Temperature Range:	-13°F to 158°F [-25°C to 70°C]
Temperature Drift:	$\leq 10\%$
Hysteresis% Sr:	1 to 15% (5% typ.)
Repeat Accuracy:	(IEC 60947-5-2): $\leq 5\%$ Sr
Approvals:	CE Compliant

Dimensions

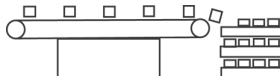


Wiring Diagram

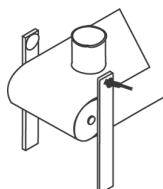


Applications

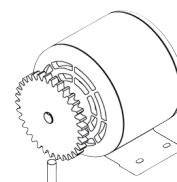
Parts Counting



Object Detection



Tachometer input/gear-tooth profile





Glossary

TERM	DEFINITION		
A-B Input	The B input pulses are subtracted from the A input pulses. This type of input is used on counters & indicators.		Directives. For electrical and electronic “finished products”, such as electronic and electromechanical counters, hour meters, these include the Low Voltage Directive and, where relevant, the Electromagnetic Compatibility (EMC) Directive.
A+B Input	The A and B input pulses are added together. This type input is used on counters and position indicators.	Color code	The ANSI established color code for the thermocouple wires in the negative lead is always RED. Color code for base metal thermocouples is YELLOW for Type K, BLACK for type J, PURPLE for Type E and BLUE for Type T.
AC	Alternating current; an electric current that reverses its direction at recurring intervals.	Control point	The set point at which a system is to be maintained.
Accuracy	The closeness of an indication or reading of a measurement device to the actual value of the quantity being measured. Usually expressed as a $\pm$ percent of full scale output or reading,	CSA	(Canadian Standards Association) An independent Canadian testing and standards-making org. similar to Underwriters Laboratories (UL) in the USA. “CSA -certified “ products meet relevant CSA electrical and safety standards.
Add/Subtract	The ability to count up and down.	Current sinking /Open collector	In the “off” state the transistor can be viewed as an open switch. When energized it turns “ON”, connecting the output to the ground return lead. The transistor is usually NPN.
Ammeter	An instrument used to measure current.	Current sourcing/Open collector	In the “off” state the transistor can be viewed as an open switch. When energized it turns “ON”, connecting the output to the voltage supply lead. The transistor is usually PNP.
Analog	A signal that varies continuously in amplitude without interruption.	DC	Direct current: An electric current flowing in one direction only and substantially constant in value.
Analog Output	A circuit whose output is a reproduction of its input..	Die	A single piece of silicon onto which a semiconductor circuit has been fabricated. (Plural= Dice)
Automatic Reset	A reset that is based on a pre-programmed event. Used in counters or timers.	Digit	A measurement of the display span of a panel meter. By convention, a full digit can assume any value from 0 through 9, a 1/2 digit will display a 1 and overload at 2. For example, the full scale value of a 3 1/2 digit display is 1999.
Baud Rate	The rate at which each bit is transferred to and from a device.	Digital Volt Meter	A device used to measure voltages and give a digital read out.
Bidirectional	The counter or encoder can count in both directions.		
Bit	This is the name for a binary digit.		
Byte	A sequence of adjacent binary digits operated on as a single unit. A byte is eight bits in length.		
Capacitor	An assembly of one or more pairs of conductors separated by insulators used to store an electrical charge. The capacitance of is measured in FARADS or parts thereof.		
CE	(Conformite Europeene mark) A symbol (CE) applied to finished products and machinery indicating it meets all applicable European		



Glossary

DIN	A D eutsche I ndustrial N orme standard. Some RCI products utilize these dimensional standards.		sandwich the crystal material. When a voltage is applied molecules in the liquid crystal align themselves with the field generated preventing light from passing, creating a display segment. The pattern on the display forms the required picture or numeral.
Direct drive	Refers to the gear ratio in a mechanical counter one revolution of the input shaft equals 10 counts.	LED	(Light Emitting Diode) A diode which emits light of a particular wavelength when a current is passed through it.
Drift	A change of a reading or a set point value over long periods due to several factors including change in ambient temperature, time, and line voltage.	LSI	(Large Scale Integration) Used to refer to integrated circuits which today have from thousands to millions of components on one silicon chip.
EMF	Electromotive force. A rise in (electrical) potential energy. The principle unit is the volt.	Load	The electrical demand of a process expressed as power (watts), current (amps), or resistance (ohms).
EMI	Electromagnetic interference.	Maximum operating temperature	The maximum temperature at which an instrument can be operated and still be within operating specifications.
Encoder	An electromechanical device that translates mechanical motion into electrical pulses.	Micro	A prefix meaning one millionth.
FRAM	Nonvolatile memory. Uses the ferroelectric effect for a storage mechanism.	Milli	A prefix meaning one thousandth.
Hertz	(Hz) Units in which the frequency is expressed. Synonymous with cycles per second.	Multiplication	Any technique used to obtain an output resolution different from the line count.
Hysteresis	In an ON-OFF controller it defines the difference between the two switching points. It refers to the difference between the value at which the alarm switches on and the value at which the alarm switches off again.	Nano	A prefix meaning one thousand-millionth.
Incremental encoder	A device that provides a series of periodic signals due to mechanical motion. The number of successive cycles corresponds to the resolvable mechanical increments of motion.	Noise	An unwanted electrical interference on the signal wires.
Impedance	The total opposition to electrical flow (resistive plus reactive).	OHM	The unit of electrical resistance. A constant voltage of one volt across a resistance of one OHM will produce a current in it of one ampere. OHMS LAW $V=IR$
Input impedance	The resistance of a panel meter as seen from the source. In the case of a voltmeter, this resistance has to be taken into account when the source impedance is high; in the case of an ammeter, when the impedance is low.	Ohmmeter	An instrument used to measure resistance.
Joule	The basic unit of thermal energy.	Optical Isolator	Sometimes referred to as an optocoupler. A device that isolates two stages of a circuit; e.g., input and output from each other so that interference in one will not effect the other.
LCD	(Liquid Crystal Display) A liquid crystal display is made of two glass plates, each with a transparent conductive coating, which	Optical Isolation	A method of reducing noise interference between two circuits using optical isolators.
		Predetermining	The counter can provide an "output" signal at a predetermined count or time.



Prescaler	Used to convert a pulse input signal to the desired units of indication.	RTD	Resistance temperature detector. The resistance changes as a function of temperature.	
Quadrature Signals	A dual output encoder used for bidirectional motion control. One channel leads the other by 90 degrees.	Scaling	For direct readout in engineering units, scaling is the capability of the product to associate any desired value to the electrical input range.	
RAM	(Random Access Memory) A memory device which may be accessed at random and which may be written to (altered) or read at any time.	Seebeck effect	This is the basis of thermocouples. When a circuit is formed by a junction of two dissimilar metals and the junctions are held at different temperatures, a current will flow in the circuit caused by the difference in temperature between the two junctions.	
Range	The values specified by upper and lower limits.	Silicon	The basic element used in the manufacturer of most semiconductor devices.	
Rate	Velocity or distance/unit time; can be rotational distance.	Solid-State Relays	Use switching elements such as transistors for DC loads and SCR's or FET's for AC loads.	
Relays/Electromechanical	Relays offer one or more “hard” contacts (metal-to metal) and are switched to the open or closed position by applying voltage to an electromagnetic coil.	Stroke Counter	Refers to the input shaft of a mechanical counter. The counter will count when the lever is moved through an arc.	
Resistance	The resistance to the flow of electric current measured in ohms. For a conductor, a resistance is a function of diameter, resistivity (an intrinsic) property of the material and length.	Thermocouple	The junction of two dissimilar metals which has a voltage output proportional to the difference in temperature between the hot junction and the wires (cold junction).	
Resistor	A device used primarily for its resistance, which is measured in OHMS. Its primary use is to limit the flow of electrons through a circuit.	Thermocouple type	Type	Material (ANSI Symbol)
Resolution	The number of increments on an encoder disc. Also, the smallest possible value that an instrument can measure.		J	Iron/Constantan
Revolution drive	Refers to the gear ratio in a mechanical counter. One revolution of the input shaft equals 1 count.		K	Chromel/Alumel
ROM	(Ready Only Memory) A device is programmed with information which should not be lost and which only needs to be read by a computer. Once programmed it cannot be reprogrammed.		T	Copper/Constantan
RS 485/422/232	Standards established by the EIA for serial data transmission between two devices.		E	Chromel/Constantan
			R	Platinum/Platinum 13% Rhodium
			S	Platinum/Platinum 10% Rhodium
			B	Platinum 6% Rhodium/Platinum /30% Rhodium
			G*	Tungsten Tungsten 26% Rhenium
			C*	Tungsten 5% Rhenium/Tungsten 26% Rhenium
			D*	Tungsten 3% Rhenium/Tungsten /25% Rhenium
				*Not ANSI symbols

*Not ANSI symbols



Top coming	The input shaft rotates towards you, when viewing the counter from the front.
Top going	The input shaft rotates away from you, when viewing the counter from the front.
Totalizer	A type of counter with no outputs, which is used for accumulating the number of input pulses.
Transistor	From “transfer resistor”, it is a semiconductor device with three electrodes that act as either an amplifier or switch.
Transducer	A device (or medium) that converts energy from one form to another. The term is generally applied to devices that take physical phenomena (pressure, temperature, humidity, flow, etc.) and convert them to electrical signal. Sometimes referred to as “sensor”.
UL	Underwriters Laboratories, Inc. An independent laboratory that establishes safety standards for commercial and industrial products.
Unidirectional	The counter or encoder can only count in one direction.
Volt	The (electrical) potential difference between two points in a circuit. The fundamental unit is derived as work per unit charge- ($V=W/Q$). One volt is the potential difference required to move one coulomb of charge between two points in a circuit using one joule of energy.
X2,X4 Logic	A type of logic that multiplies the signal by a factor of 2 or 4 respectively.

NEMA STANDARDS**NEMA Standards Publication No. 250 guidelines**

NEMA 1	Indoor use- Protects against accidental contact by personnel & falling dirt.
NEMA 2	Indoor use-Protects against falling dirt, liquid, & light splash.
NEMA 3	Outdoor use-Protects against rain, sleet, snow, dirt & dust.
NEMA 3S	Outdoor use- Protects against rain, sleet, snow, dirt, dust & ice buildup.
NEMA 4	In-or-Outdoor-Protects against dirt, dust, hose down, (and heavy splash).

NEMA 4X	In-or Outdoor- Protects against dirt, dust, hose down & corrosion.
NEMA 6	In-or Outdoor- Protects against dirt, dust, hose down & occasional submersion.
NEMA 6P	In-or Outdoor- Protects against dirt, dust, hose down & prolonged submersion.
NEMA 7	Indoor Use- For use in areas of explosive gases or vapors or combustible dust.
NEMA 9	Indoor Use- For use in areas of atmospheres containing combustible dust.
NEMA 12	Indoor Use- Protects against dirt, dust, light splash & oil or coolant spray.
NEMA 13	Indoor Use- Protects against dirt, dust, light splash, & oil or coolant spray.

The rating system established by IEC Publications 144 and 529 define the following “IP” ratings:

1ST CHARACTERISTIC:

Protection against and penetration of solid bodies.

Numeral	Short Description
0	Non-protected
1	Protected against solid objects greater than 50mm
2	Protected against solid objects greater than 12mm
3	Protected against solid objects greater than 2.5mm
4	Protected against solid objects greater than 1.0mm
5	Dust protected
6	Dust-tight

2nd CHARACTERISTIC:

Protection against and penetration of liquids.

Numeral	Short Description
0	Non-protected
1	Protected against dripping water
2	Protected against dripping water when tilted up to 15 degrees
3	Protected against spraying water
4	Protected against splashing water
5	Protected against water jets
6	Protected against heavy seas
7	Protected against the effects of immersion
8	Protected against submersion



1	2	3	4	5	6
1-1006 19	2-1006 19	42-1904 34	5330-2200 76		
1-2015 35	2-1007 20	43-1904 34	5330-2201 76		
1-2025 35	2-1016 19	44-1904 34	5400-0010 15		
1-2035 35	2-1017 20	45-1904 34	5400-1010 15		
1-2045 35	2-1284 28		55XX 54		
1-2215 36	2-2936 39		5600 57		
1-2225 36	2-4016 21	5-2835 38	5601 57		
1-2235 36	2-4017 21	5-4645 42	5602 57		
1-2245 36	2-4103 41	5003-001S 13, 50, 76	5610 57		
1-2315 36	2-4104 41	5003-002S 8, 46	5611 57		
1-2325 36	2-4416 23	5003-003S 8, 46	5612 57		
1-2715 37	2-4615 42	5003-004S 8, 46	5620 57		
1-2735 37	2-4625 42	5003-005S 8, 46	5621 57		
1-2916 39	2-4635 42	5003-007S 72, 74	5622 57		
1-2926 39	2-4645 42	5120-0000 48	5630 57		
1-2936 39	200507-046S 98	5120-0100 48	5631 57		
1-2946 39	200557-001S 85, 88	5120-0200 48	5632 57		
1-4103 41	200557-002S 85, 88	5120-0310 48	5640 57		
1-4615 42	21-1904 34	5120-0310 48	5641 57		
1-4625 42	21-2916 40	5120-1000 48	5642 57		
1-4635 42	21-2926 40	5120-1100 48	5650 57		
1-4635T 42	21-2936 40	5120-1200 48	5651 57		
1-4645 42	21-2946 40	5120-2000 48	5652 57		
1-PCU-13 44	22-1904 34	5120-2100 48	5660 57		
1-PCU-14 44	22-2936 40	5120-2200 48	5661 57		
1-PCU-24 44	23-1904 34	5140-0000 48	5662 57		
1-PCU-33 44	24-1904 34	5140-0100 48	5670 57		
1-PCU-33T 44	25-1904 34	5140-0200 48	5671 57		
1-PCU-34 44		5140-0311 48	5672 57		
1-PCU-43 44		5140-0312 48	5700 60		
1-PCU-44 44		5200-0000 11	5701 60		
10007-009S 42	3-1006 19	5201-0000 11	5702 60		
10007-010S 35	3-1007 20	5202-0000 11	5703 60		
10011-001S 42	3-1804-10 33	5210-0000 11	5704 60		
1022-006S 37, 38, 39	3-1804-2 33	5211-0000 11	5705 60		
1071-024S 19	3-1804-3 33	5300-0000 13	5706 60		
11-0825 30	3-1804-4 33	5300-0001 13	5707 60		
11-0845 30	3-1804-5 33	5300-0100 13	5708 60		
11-1904 34	3-1804-6 33	5300-0101 13	5709 60		
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