Description

The Redington Model 34 LCD Totalizer/Preset Counter provides a large display, with 0.28" [7mm] high characters, in industry size housings. The Model 34 counts and displays the number of pulses that appear at its input terminal at a rate of 40 pulses per second (Hz). The input interface handles AC or DC inputs. The Totalizers are available in 7 different housings. All models are totally sealed and are capable of submersion in 6' [2 meters] of water. A wide operating voltage, 10-300VDC and 20-300VAC, makes the model 34 versatile for all indoor and outdoor applications. All models are NEMA 4/4X, 12, & IP66 rated when used with the optional gasket and have a polarized lens which assures high visibility in an outdoor environment.

Maintenance Meters are offered with a maximum of 3 preset "Redi-Alert's" icons to alert users when service intervals are due or other periodic timed events are due. Models are available with front panel field or factory programmable alerts. Not only does the display flash to get attention, but it displays a choice of 7 different .08" [2mm] maintenance icons. Models are available with an Open Drain MOSFET output for the actuation of external alarms or indicator lamps. Users can program or specify the count/service interval and flash duration for each Redi-Alert. Flash duration is the amount of time in hours that the specific icon flashes before and after the specified total count. If a front panel manual reset of the Redi-Alert is required, the front panel models with switches must be specified.

Features

- Totally sealed from moisture and dirt
- AC or DC voltage input in the same unit
- Compact depth
- Programmable output thresholds
- Preset count value
- Up to 3 Redi-Alerts/7 icons
- Fits in existing panel openings
- Always on display
- A choice of 7 housings
- A choice of reset modes
- Front panel programmable
- Preset Counter with output
- 15+ Year Battery Life

Specifications

Display: LCD with large 0.28" [7mm] high figures black on light background

Annunciators: LCD 0.08" [2mm]

Reset: Remote, manual and non-reset

Accuracy: 100% [provided signal meets stated parameters]

Displays: 8 digits (99999999)

Maximum pulse rate: 40 pulses per second (Hz)

Inputs: 10-300VDC and 20-300VAC - 50/60Hz
VIH 20VAC or 10VDC minimum
VIL 3VAC or 3VDC maximum

Power: Self powered - battery life 15+ years

Terminations: Standard 0.250" [6.4mm] spades

Output: Format: Open-Drain MOSFET with Source connected to Common (see note 3)
Maximum Withstanding voltage: 30VDC, reference to Common
Maximum Load current: 0.1Amp

Environmental:
Temperature: (Storage and Operating) -40 to +185˚F [-40 to +85˚C]
Humidity: 95% RH per SAE J1378
Vibration: 20g @ 10 to 80 Hz per SAE J1378
Shock: 44 to 55g's per SAE J1378
Dielectric: 1000VAC 50/60 Hz for 1 minute
Compliance: Compliant to the European WEEE and RoHS Directives

Sealing: Totally sealed

EMC Compliance: EN61326:1997 with A1:1998 and A2:2001 for industrial environments

Enclosure: Totally sealed from moisture and dirt, NEMA 4/4X, 12, & IP66 compliant from the front when properly mounted using the optional gasket. (Not applicable to Snap-In Model)

Approvals: UL and cUL Recognized (file # ELIY2.E36690), CE, SAE, NEMA 4/4X/IP66 compliant

Weight: 1oz [28g]

Functions

Preset Counter: The preset function is centered on the output signal. When the count reaches the preset value, the output signal is turned “on”. The Preset function is count “up”. In addition to the preset function, models are also available with 3 Redi-Alert set points. Upon reaching the preset value the preset can be automatically reset, or it can await an external reset.

Front Panel Switch Functions: Front panel switches can be used for reset, display selection and programming. The two front switches are used as follows:

SEL: During programming this switch is used to select options and to move horizontally in the programming chart.

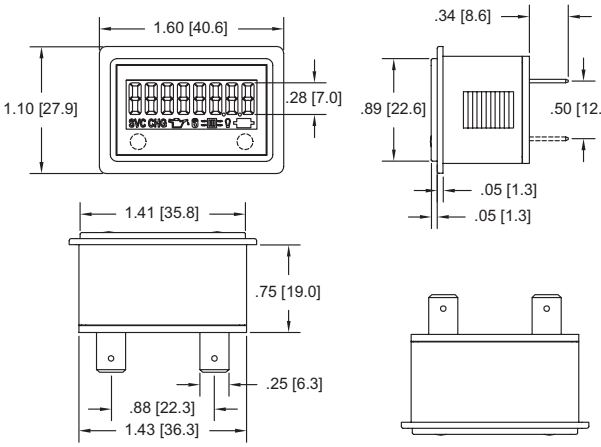
RST: This is the reset switch during normal operation. During programming this switch is used to select options and to move vertically in the programming chart.

Available Icons

SVC	SERVICE		OIL		AIR FILTER		MUFFLER
CHG	CHANGE		OIL FILTER		LAMP		

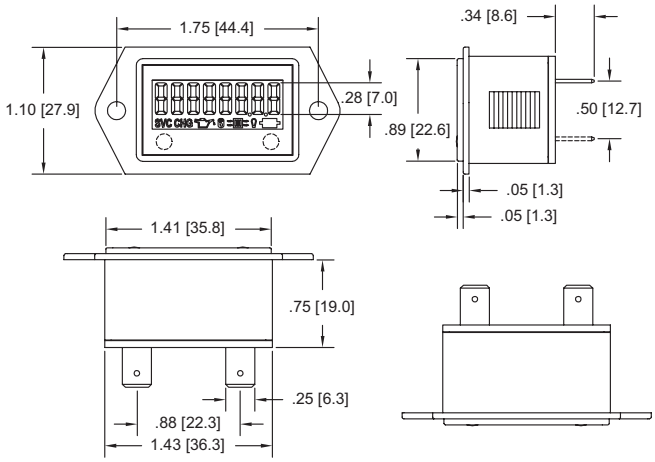
Dimensions

Rectangular Flush Mount



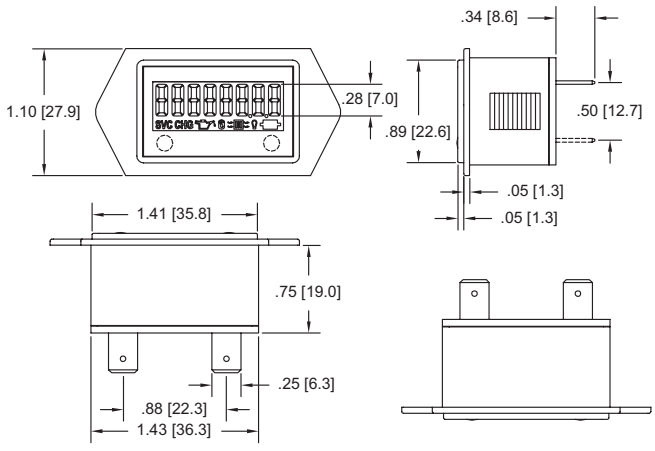
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]
Maximum Panel Thickness: 0.375” [9.5mm]

2-Hole Mount



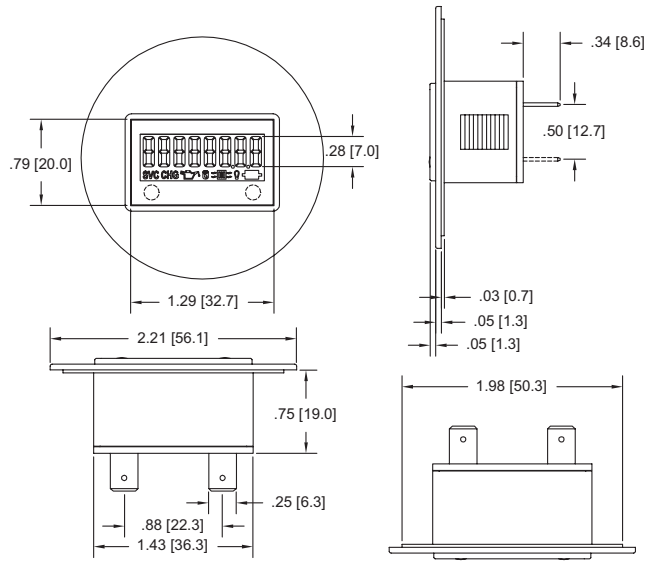
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]

2-Hole No-Hole Mount



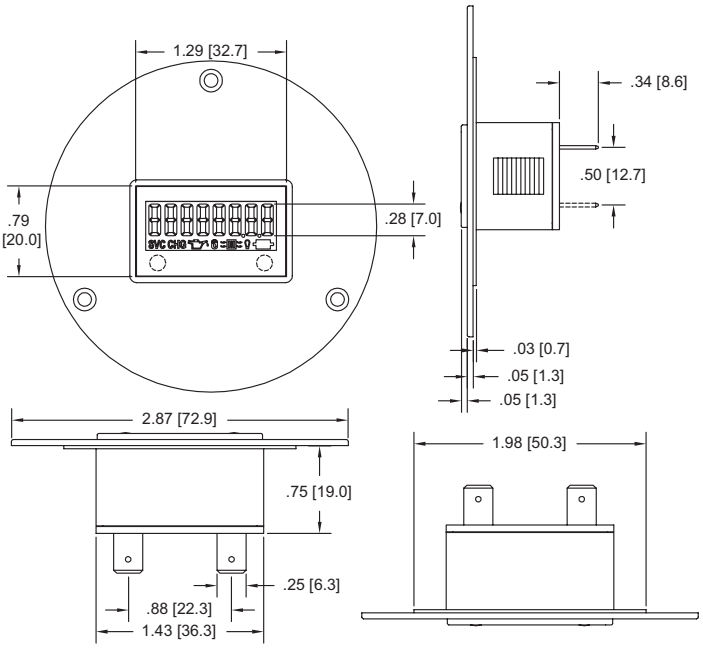
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]
Maximum Panel Thickness: 0.375” [9.5mm]

Round Flush Mount



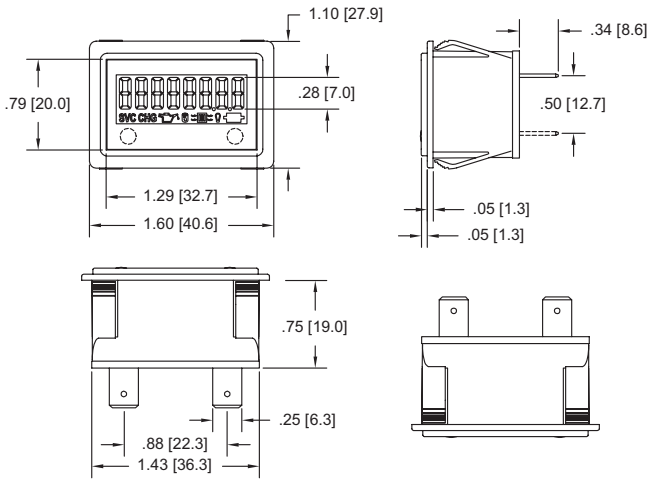
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]
Maximum Panel Thickness: 0.375” [9.5mm]

3-Hole Mount



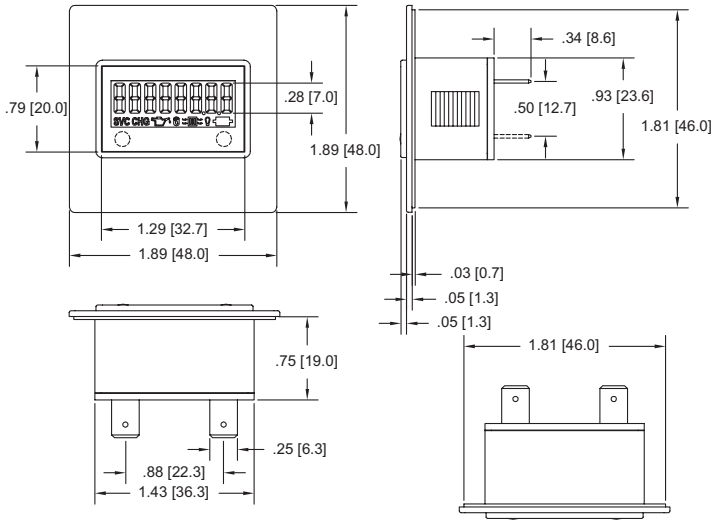
Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]

Snap-In Mount



Panel Cutout: 1.46" [37mm] x 0.95" [24.1mm]
Minimum Panel Thickness: 0.04" [1.0mm]
Maximum Panel Thickness: 0.125" [3.18mm]

Square Flush Mount



Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]
Maximum Panel Thickness: 0.375" [9.5mm]

Notes

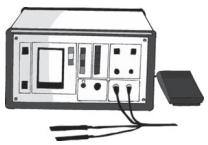
1. When interfacing the Model 34 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com

2. Exceeding the Absolute Voltage Range and the Absolute Maximum Limits may result in damage to the unit.

3. The open-drain MOSFET acts like an open-collector NPN trasistor. Care should be taken since there is no current limiting protection in the unit.

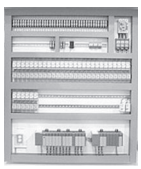
Applications

Medical Devices

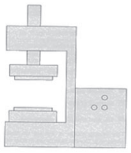


Test Equipment

Control Panels

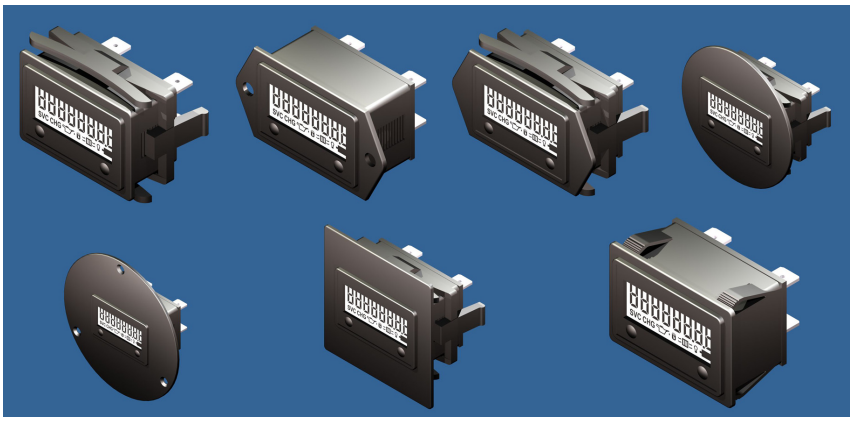


Production Equipment



Office Equipment

Secondary Equipment



Description

The Redington Model 34 LCD Frequency/Hour Meter provides a large display, with 0.28" [7mm] high characters, in industry size housings. The Model 34 keeps track of operational hours accumulated on equipment when a frequency input is applied. The unit counts the number of pulses per second. As long as pulsing continues the unit accumulates hours. The input interface handles AC or DC inputs. The Frequency/Hour Meters are available in 7 different housings. All models are totally sealed and are capable of submersion in 6' [2 meters] of water. A wide operating voltage,10-300VDC and 20-300VAC, makes the model 34 versatile for all indoor and outdoor applications. All models are NEMA 4/4X, 12, & IP66 rated when used with the optional gasket and have a polarized lens which assures high visibility in an outdoor environment.

Maintenance Meters are offered with a maximum of 3 "Redi-Alert's" icons 0.08" [2mm] to alert users when service intervals are due or other periodic timed events are due. Models are available with front panel field or factory programmable alerts. Not only does the display flash to get attention, but it displays a choice of 7 different maintenance icons. Models are available as a Preset Timer with a MOSFET output for the actuation of external alarms or indicator lamps. Users can program or specify the service interval and flash duration for each Redi-Alert. Flash duration is the amount of time in hours that the specific icon flashes before and after the service interval. If a front panel manual reset of the Redi-Alert is required the front panel models with switches must be specified.

Features

- Totally sealed from moisture and dirt
- AC or DC voltage input in the same unit
- Frequency/Hour Meter versions
- Compact depth
- Programmable output thresholds
- Preset Hour Meter/time up or down
- Up to 3 Redi-Alerts/7 icons
- Fits in existing panel openings (1.45 x 0.95" [36.8 x 24.1mm])
- Always on display
- A choice of 7 housings
- A choice of reset modes
- Front panel programmable
- Preset Timer with output

Specifications

Display: LCD with large 0.28" [7mm] high figures black on light background

Run indicator: Blinking decimal point

Reset: Remote, manual and non-reset

Hour Meter Resolution: 0.01 or 0.1 Hour, displayed;
1 second, internal

Accuracy: ± 0.1% @ room temperature
± 0.2% over the specified temperature range

Records & Displays: 9999999.9 - hours & 1/10's or
999999.99 - hours & 1/100's

Maximum pulse rate: 500 pulses per second
Accuracy is Resolution Dependent, better than 1% for inputs greater than 12 Hz

Inputs: 10-300VDC and 20-300VAC-50/60Hz
VIH 20VAC or 10VDC minimum
VIL 3VAC or 3VDC maximum

Power: Self powered - battery life 15+ years

Terminations: Standard 0.250" [6.4mm] spades

Output: Format: Open-Drain MOSFET with Source connected to Common (see note 3)
Maximum Withstanding voltage: 30VDC, reference to Common
Maximum Load current: 0.1Amp

Environmental:
Temperature: (Storage and Operating) -40 to +185˚F [-40 to +85˚C]
Humidity: 95% RH per SAE J1378
Vibration: 20g @ 10 to 80 Hz per SAE J1378
Shock: 44 to 55g's per SAE J1378
Dielectric: 1000VAC 50/60 Hz for 1 minute
Compliance: Compliant to the European WEEE and RoHS Directives

Sealing: Totally sealed, use panel gaskets for NEMA 4/4X, 12, & IP66 compliance

EMC Compliance: EN61326:1997 with A1:1998 and A2:2001 for industrial environments

Protection Against: Alternator load dump: 150V EMI (Electromagnetic Interface): +400V @ 500Hz inductive switching and reverse polarity

Enclosure: Totally sealed from moisture and dirt, NEMA 4/4X/IP66 compliant from the front when properly mounted using the optional gasket

Approvals: UL and cUL Recognized (file # ELIY2.E36690), CE, SAE, NEMA 4/4X, &, IP66 compliant

Weight: 1oz [28g]

Functions

Preset Hour Meter: The preset function is centered on the output signal. When the time reaches the preset value, the output signal is turned "on". The Preset function can be either a time "up" or time "down". In addition to the preset function models are also avail able with 3 Redi-Alert set points. Upon reaching the preset value the preset can be automatically reset, or it can await on an external reset.

Front Panel Switch Functions: Front panel switches can be used for reset, display selection and programming. The two front Panel switches are used as follows:

SEL: During programming this switch is used to select options. The SEL switch is used during programming to move horizontally in the programming flow chart.

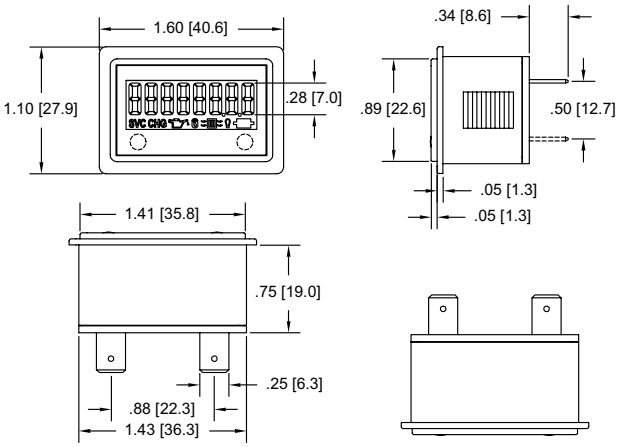
RST: This is the reset switch during normal operation. During programming the RST switch is used to enter an option. The RST switch is used during programming to move vertically in the programming flow chart.

Available Icons

SVC	SERVICE		OIL		AIR FILTER		MUFFLER
CHG	CHANGE		OIL FILTER		LAMP		

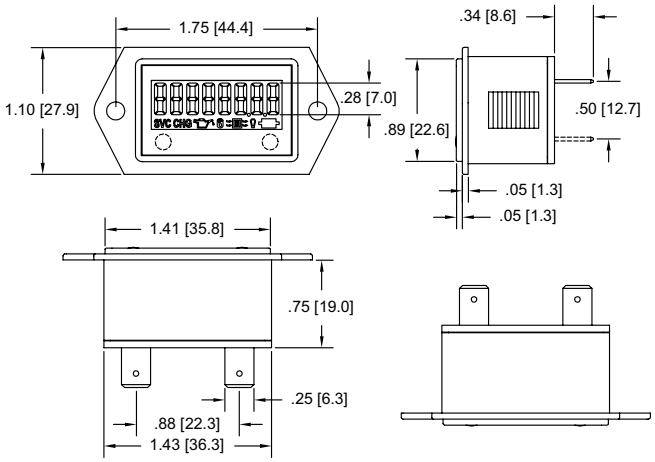
Dimensions

Rectangular Flush Mount



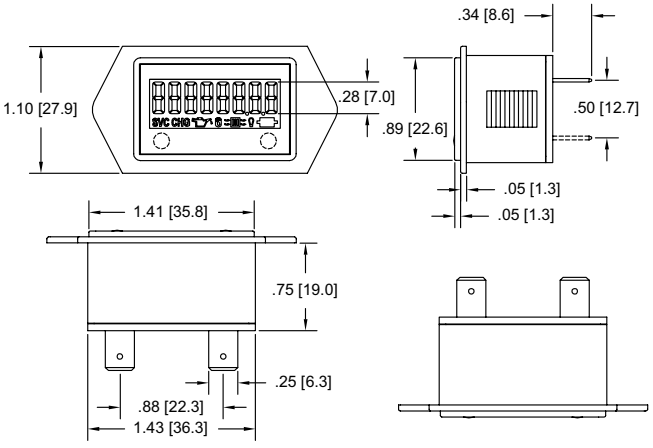
Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]
Maximum Panel Thickness: 0.375" [9.5mm]

2-Hole Mount



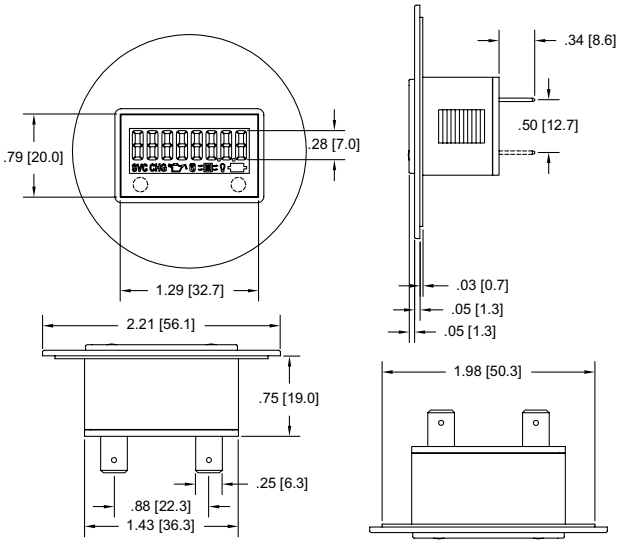
Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]
Maximum Panel Thickness: 0.375" [9.5mm]

2-Hole No-Hole Mount



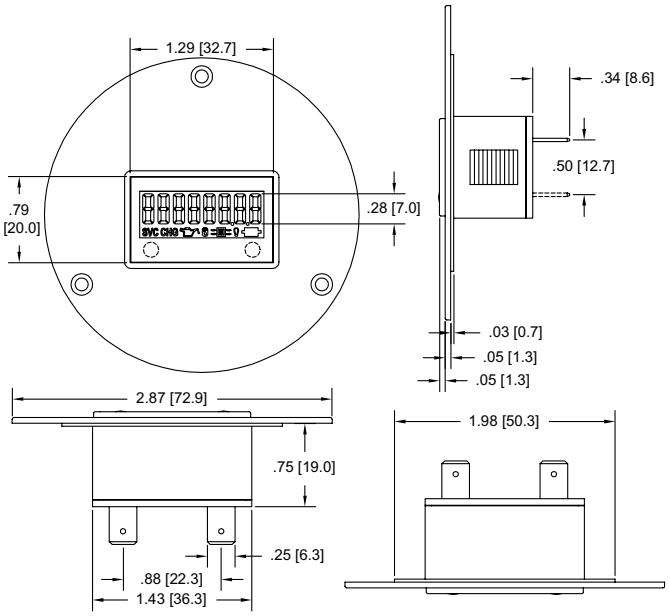
Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]
Maximum Panel Thickness: 0.375" [9.5mm]

Flush Rectangular Mount



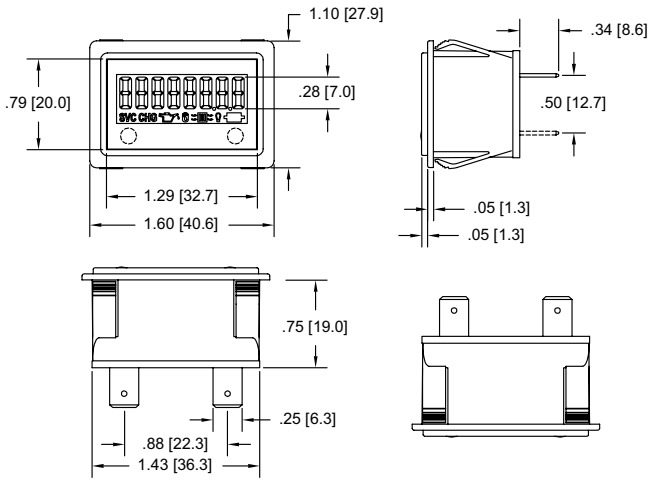
Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]
Maximum Panel Thickness: 0.375" [9.5mm]

3-Hole Mount



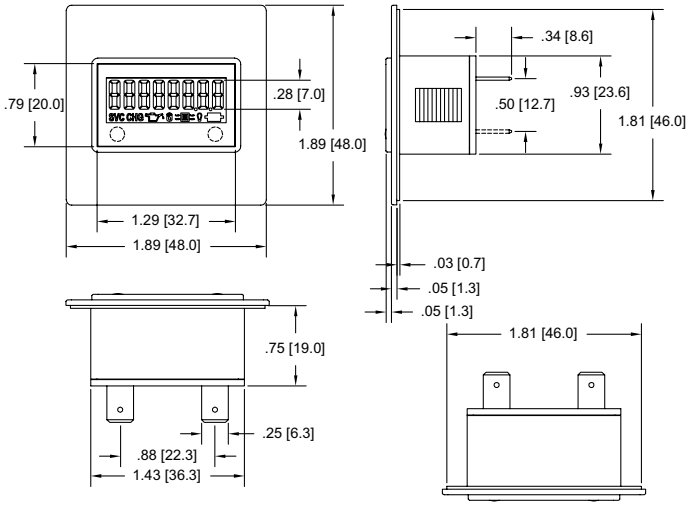
Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]
Maximum Panel Thickness: 0.375" [9.5mm]

Snap-In Mount



Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]
Minimum Panel Thickness: 0.04" [1.0mm]
Maximum Panel Thickness: 0.125" [3.18mm]

Square Flush Mount



Panel Cutout: 1.45" [36.8mm] x 0.95" [24.1mm]
Maximum Panel Thickness: 0.375" [9.5mm]

Notes

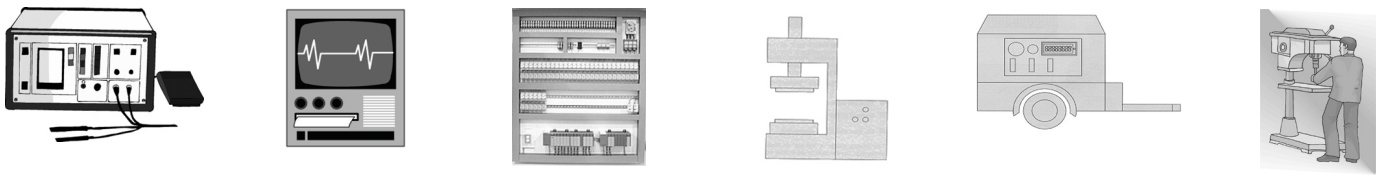
1. When interfacing the Model 34 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com

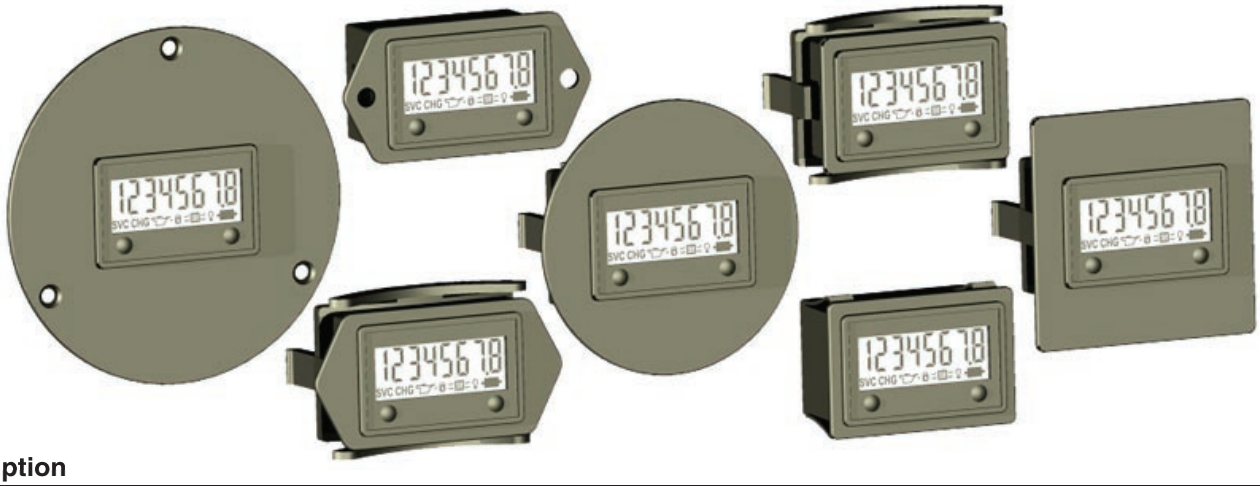
2. Exceeding the Absolute Voltage Range and the Absolute Maximum Limits may result in damage to the unit.

3. The open-drain MOSFET acts like an open-collector NPN trasistor. Care should be taken since there is no current limiting protection in the unit.

Applications

Medical Devices | Test Equipment | Control Panels | Production Equipment | Generator | Secondary Equipment





Description

The Redington Model 34 LCD Hour Meter provides a large display, with 0.28" [7mm] high characters, in the industry size housings. The Hour Meters are available in 8 different housings, including a surface mount inductive input model. All models are totally sealed and are capable of submersion in 6' [2 meters] of water. A wide operating voltage, 10-300VDC and 20-300VAC, and inductive input make the Model 34 versatile for all indoor and outdoor applications. All models are NEMA 4/4X, 12, & IP66 rated when used with the optional gasket and have a polarized lens which assures high visability in an outdoor environment.

Maintenance Meters are offered with a maximum of 3 "Redi-Alerts" to alert users when service is due. Models are available with front panel field or factory programmable alerts. Not only does the display flash to get attention, but it displays a choice of 7 different .08"[2mm] maintenance icons. Models are available as a Preset Timer with a MOSFET output for the actuation of external alarms or indicator lamps. Users can program or specify the service interval and flash duration for each Redi-Alert. Flash duration is the amount of time in hours that the specific icon flashes before and after the service interval. If a front panel manual reset of the Redi-Alert is required the front panel models with switches must be specified.

Features

- Totally sealed from moisture and dirt
- AC or DC voltage input in the same unit
- Tachometer/Hour Meter versions
- Compact depth
- Programmable output thresholds
- Preset Hour Meter/time up or down
- Up to 3 Redi-Alerts/7 icons
- Fits in existing panel openings
- Always on display
- A choice of 8 housings
- A choice of reset modes
- Front panel programmable
- Preset Timer with output
- Can be programmed with starting time
- 15+ Year Battery Life

Specifications

Display: LCD with large 0.28" [7mm] high figures black on light background

Run indicator: Blinking decimal point

Reset: Remote, manual and non-reset (remote reset not available on surface mount housing)

Hour Meter Resolution: 0.01 or 0.1 Hour, displayed;
1 second, internal

Accuracy: ± 0.1% @ room temperature
± 0.2% over the specified temperature range

Records & Displays: 9999999.9 - hours & 1/10's or
999999.99 - hours & 1/100's

Inputs: 10-300VDC and 20-300VAC-50/60Hz
VIH 20VAC or 10VDC minimum
VIL 3VAC or 3VDC maximum

Power: Self powered - battery life 15+ years

Terminations: Standard 0.250" [6.4mm] spades
1 meter wire (inductive)

Output: Format: Open-Drain MOSFET with Source connected to Common (see note 3)
Maximum Withstanding voltage: 30VDC, reference to Common
Maximum Load current: 0.1Amp

Environmental:
Temperature: (Storage and Operating) -40 to +185˚F [-40 to +85˚C]
Humidity: 95% RH per SAE J1378
Vibration: 20g @ 10 to 80 Hz per SAE J1378
Shock: 44 to 55g's per SAE J1378
Dielectric: 1000VAC 50/60 Hz for 1 minute
Compliance: Compliant to the European WEEE and RoHS Directives

Sealing: Totally sealed

EMC Compliance: EN61326:1997 with A1:1998 and A2:2001 for industrial environments

Protection Against: Alternator load dump: 150V EMI (Electromagnetic Interface): +400V @ 500Hz inductive switching and reverse polarity

Enclosure: Totally sealed from moisture and dirt, NEMA 4/4X, 12, & IP66 compliant from the front when properly mounted using the optional gasket. (Not applicable to Snap-In Model)

Approvals: UL and cUL Recognized (file # ELIY2.E36690), CE, SAE, NEMA 4/4X compliant

Weight: 1oz [28g]

Functions

Preset Hour Meter: The preset function is centered on the output signal. When the time reaches the preset value, the output signal is turned “on”. The Preset function is time “up”.Upon reaching the preset value the preset can be automatically reset, or it can await an external reset.

Inductive Models: The surface mount Inductive unit is designed with an inductive interface. The unit will sense the firing of a spark plug on most small gasoline powered internal combustion engines. The wire lead from the unit is wrapped around the spark plug wire. Inductive models are available with and without tachometers. Most small engines provide 1 spark per RPM, in which case the maximum RPM is 30,000. Some small engines provide 2 sparks per RPM, the maximum RPM is then 15,000. Models are available that can be field (front panel switches) or factory programmed for 1.0, 2.0, or 0.5 sparks/pulses per RPM.

Front Panel Switch Functions: Front panel switches can be used for reset, display selection and programming. The two front Panel switches are used as follows:

SEL: During programming this switch is used to select options. The SEL switch is used during programming to move horizontally in the programming flow chart.

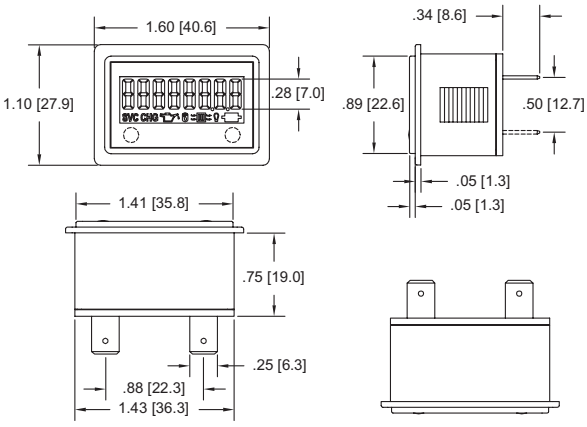
RST: This is the reset switch during normal operation. During programming the RST switch is used to enter an option. The RST switch is used during programming to move vertically in the programming flow chart.

Available Icons

SVC	SERVICE		OIL		AIR FILTER		MUFFLER
CHG	CHANGE		OIL FILTER		LAMP		

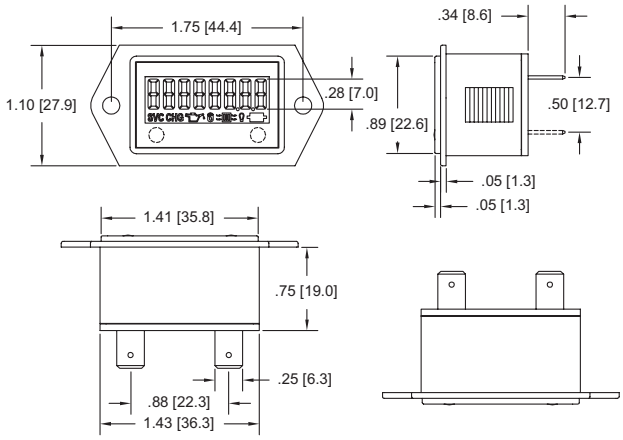
Dimensions

Rectangular Flush Mount



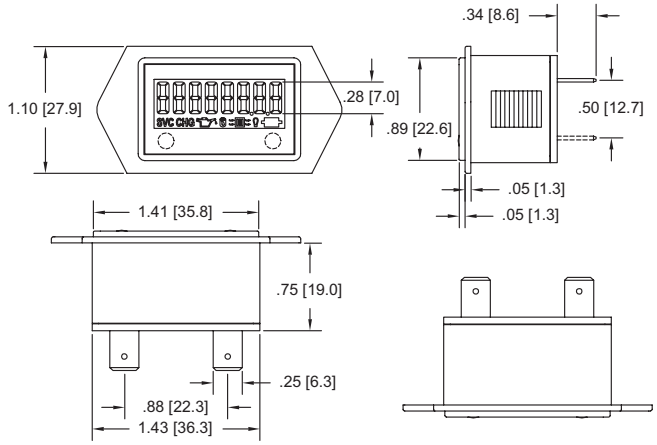
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]
Maximum Panel Thickness: 0.375” [9.5mm]

2-Hole Mount



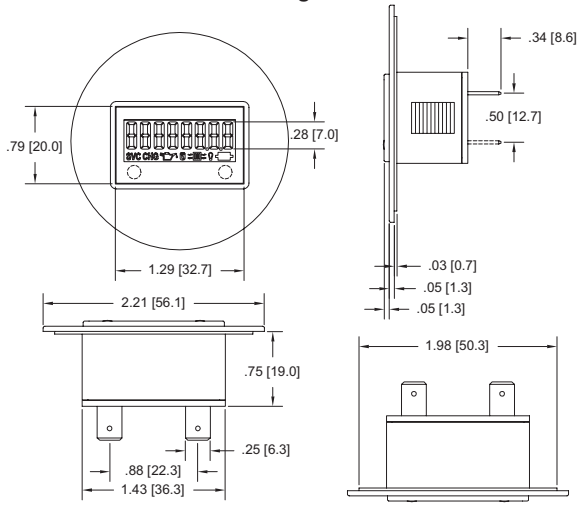
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]

2-Hole No-Hole Mount



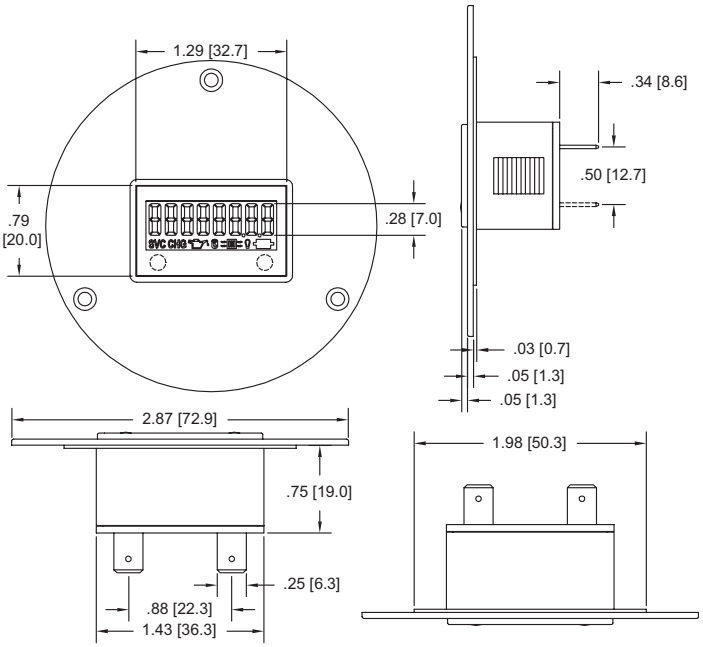
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]
Maximum Panel Thickness: 0.375” [9.5mm]

Flush Rectangular Mount



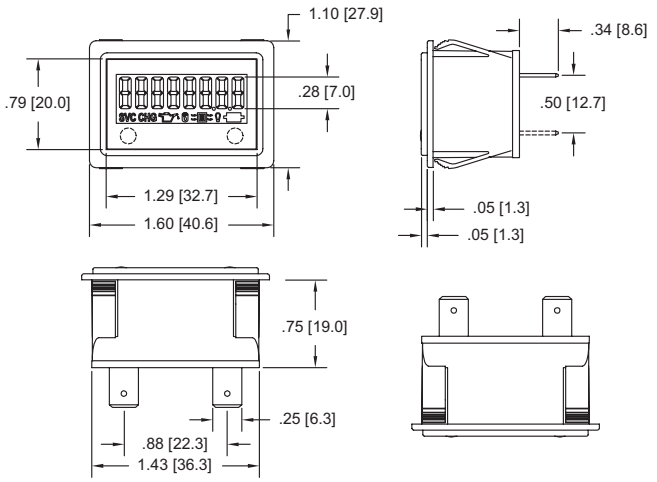
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]
Maximum Panel Thickness: 0.375” [9.5mm]

3-Hole Mount



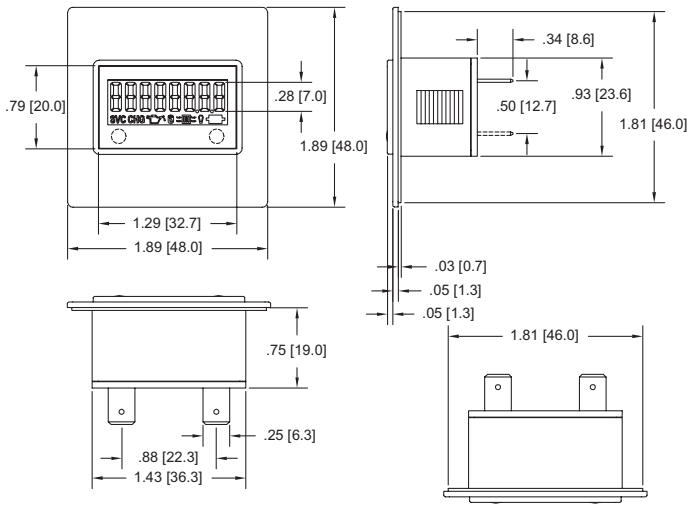
Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]

Snap-In Mount



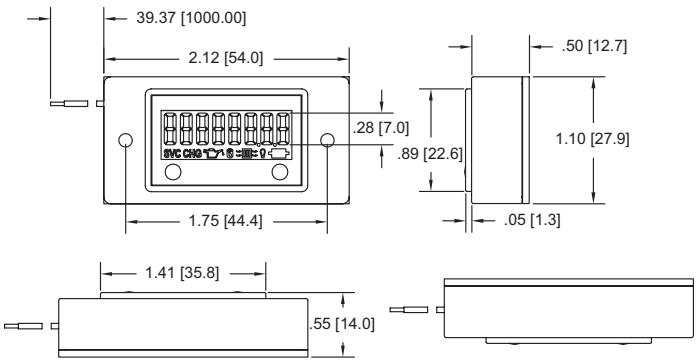
Panel Cutout: 1.46” [37mm] x 0.95” [24.1mm]
Minimum Panel Thickness: 0.04” [1.0mm]
Maximum Panel Thickness: 0.125” [3.18mm]

Square Flush Mount



Panel Cutout: 1.45” [36.8mm] x 0.95” [24.1mm]
Maximum Panel Thickness: 0.375” [9.5mm]

Surface Mount



Notes

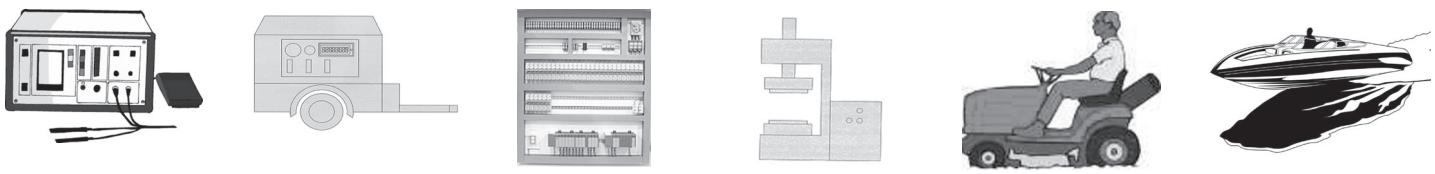
1. When interfacing the Model 34 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com

2. Exceeding the Absolute Voltage Range and the Absolute Maximum Limits may result in damage to the unit.

3. The open-drain MOSFET acts like an open-collector NPN trasistor. Care should be taken since there is no current limiting protection in the unit.

Applications

Medical Devices | Generators | Control Panels | Production Equipment | Garden Tractor | Marine Equipment



Model 51 Electronic LCD Hour Meter/Maintenance Meter

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

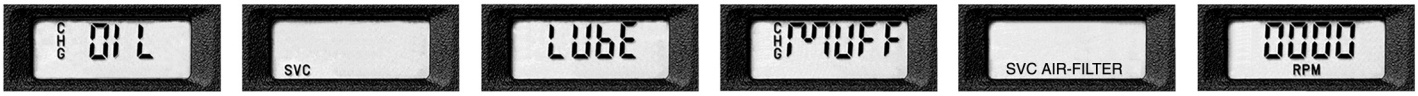
Display:	Large 0.20" [5mm] LCD, black on light background
Records & Displays:	5 digits (9999.9)
Resolution:	0.1 hours
Quartz Accuracy:	0.02% over entire voltage & temp. range
Inputs:	8-32 VDC, 32-277 VAC-50/60HZ
Operating Temperature:	-40°F to +160°F [-40°C to +71°C]
Battery Life:	15 years
Current Consumption: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

* 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)

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

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

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)

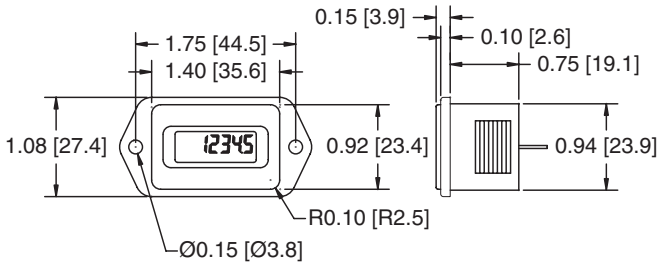
Available icons: CHG OIL, LUBE, CHG MUFF, SVC-AIR FILTER, SVC-Lower left/right side of display

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

Alarms flash specified icon 4 seconds then flash hour 4 seconds throughout alarm duration.

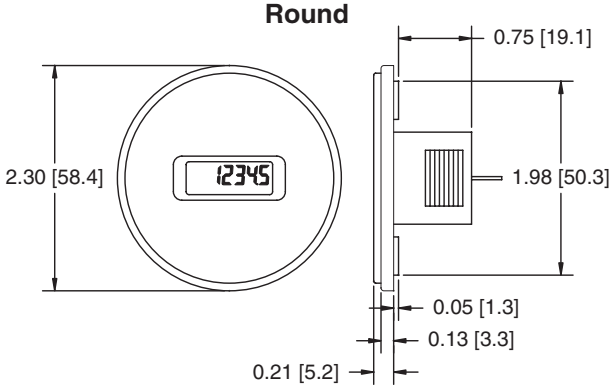
Dimensions

2 Hole Dual Mount



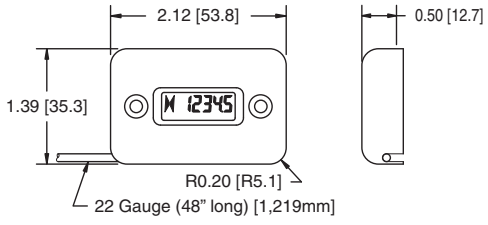
Above panel cutout 1.46 x 0.95 [37.1 x 24.1] opening
Behind panel cutout 1.41 x 0.93 [35.8 x 23.6] opening

Round



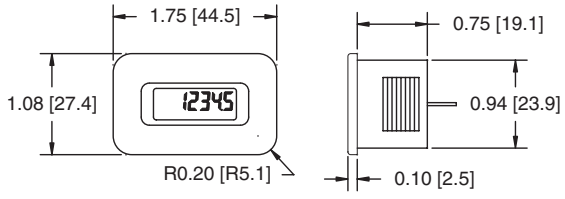
Spring clip retainer, Fast installation
Panel cutout 2.0 [50.8] diameter

Surface Mount



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

Mini Rectangular

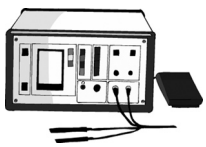


Compact Bezel Design, Spring clip retainer, Fast installation, Panel cutout 1.46 x 0.95 [37.1 x 24.1] opening.

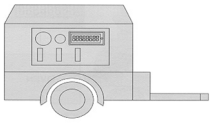
Applications

Construction Equipment

Medical Devices



Generators



Marine Applications

Garden Tractors



Description

The 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, and prewarn.

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 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	
Quartz Accuracy:	0.01%	
Input Voltage:	12/24 VDC/ ±25%	
	115-240 VAC 50/60 Hz/±10%	
Special Voltages:	24-48 VDC/±25%	
	24 VAC 50/60 Hz/VDC/±10%	
Current Consumption:	12-24 VDC & 24-48 VDC/2-4 mA	
	24 VAC/VDC/2 mA	
	115-240 VAC/7-15 mA	
Protection:	Without reset button-IP 65, gasket supplied, with reset button-IP54	
EMC:	EN 55011, EN 50082-2	
Vibration:	1 g (10-500)	IEC 68-2-34
Shock:	30 g (18 msec.)	IEC 68-2-27
	25 g (6 msec.)	IEC 68-2-29

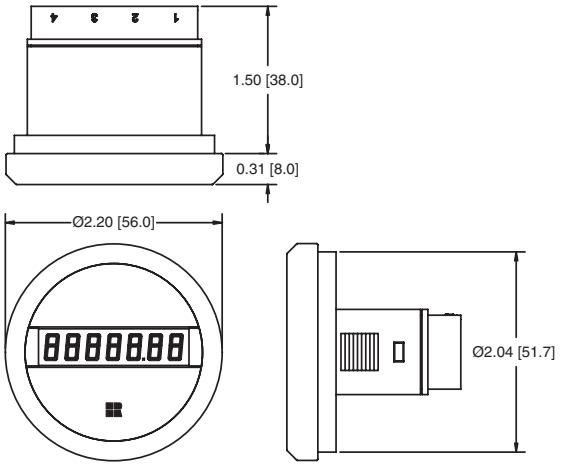
Max. Count Speed:	30, 200Hz DC or (10 Hz AC or AC/DC) (specify)
Memory:	EEPROM (no battery)
Approvals:	UL Recognized, CE Compliant
Mounting:	Retaining clip
Electrical Connection:	1/4” [6.4mm] spade or screw terminals
Case Material:	Black, ABS plastic with glass lens on round model only
Reset:	Manual and remote, non-reset and remote only No manual reset for round model
Operating Temperature:	-22°F to +158°F [-30°C to +70°C]
Weight:	2 oz [57g]
Service Alert:	Factory set - one “Redi-Alert”, 4 digits
Prewarn Signal:	Factory set, 4 digits

Models Description

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

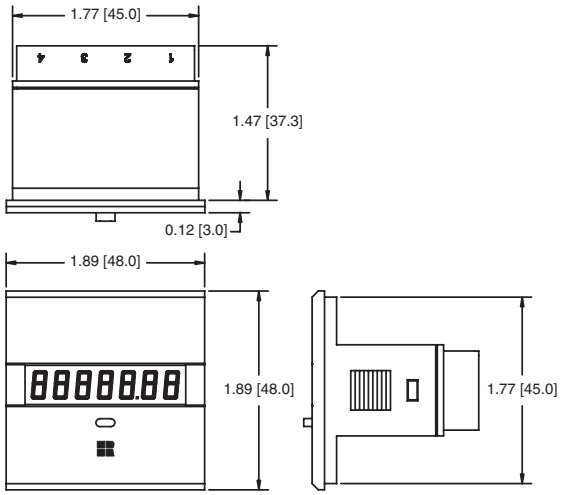
Dimensions

Round



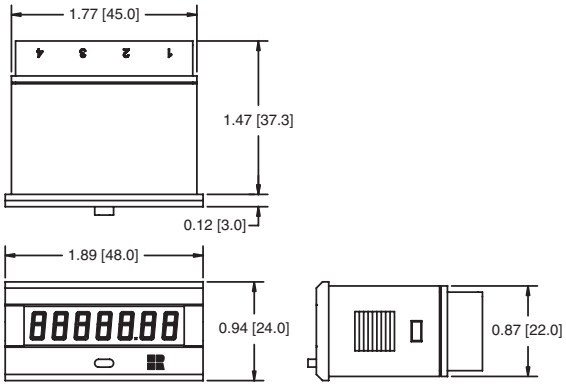
PANEL CUT OUT: Ø2.055 [52.2]

Square



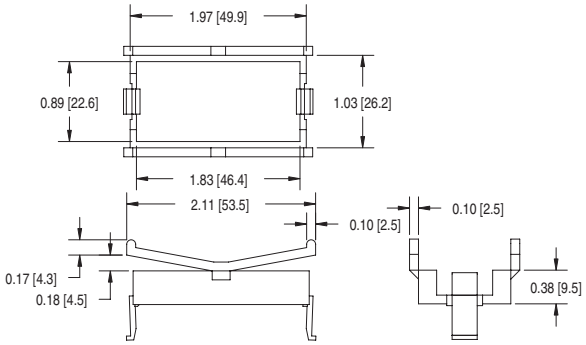
PANEL CUT OUT: 1.78 [45.2] SQUARE

Rectangular



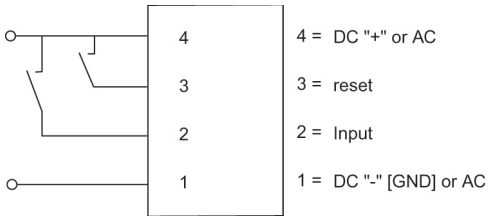
PANEL CUT OUT: .876 [22.2] X 1.772 [45]

Mounting Clip



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

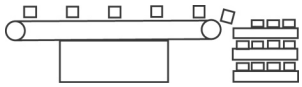
Wiring Diagram



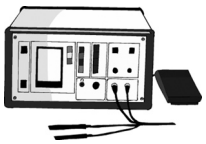
Applications

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)

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

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

Specifications

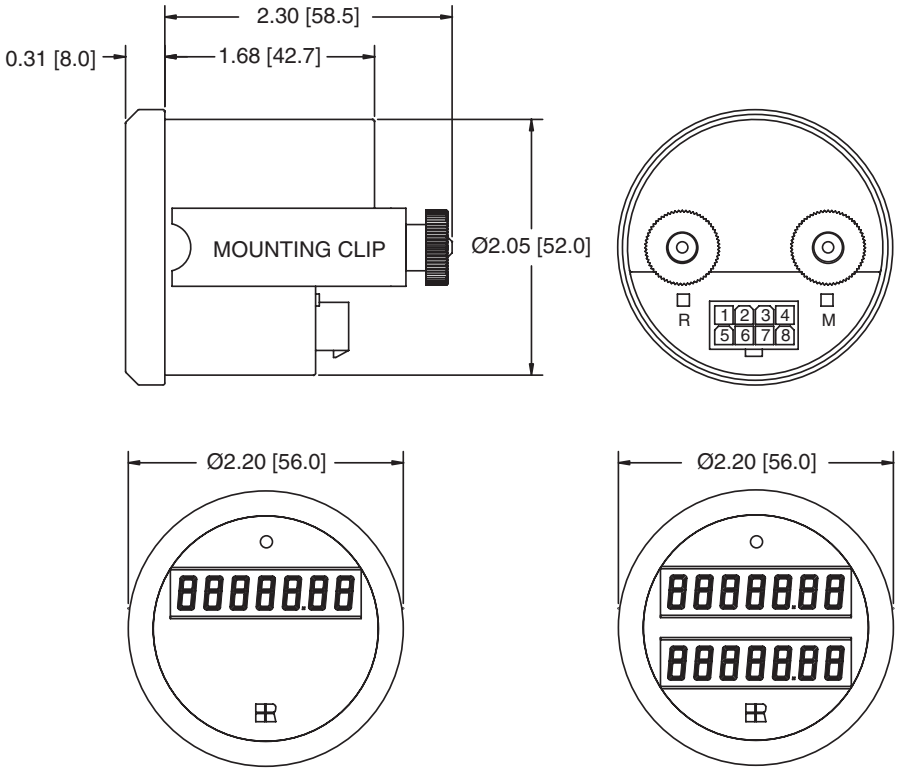
Display:	Large 7 digit, 0.28 [7mm], LCD 1 or 2 displays
Quartz Accuracy:	0.01% over entire voltage & temp. range
Input Voltage:	12-24 VDC/ ±25% 24 VDC/ ±25% - with relay output
Special Voltages:	24-48 VDC/ ±25% 12,36,48 VDC/ ±25%-with relay output
Current Consumption:	12-24 VDC/<10 mA, 24-48 VDC/<10 mA (12 V/< 35 mA, 24 V/< 25 mA, 36 V/<25 mA, 48 V/< 20 mA) with relay
Relay Contact:	1 dry contact / breaking capacity 12 V/2 A, 24 V/2 A, 36 V/1.5 A, 48 V/1 A
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 to +158 °F [-30 °C to +70 °C]

Approvals:	CE Compliant
Protection:	IP 65 front panel/gasket supplied
EMC:	EN 55011,EN 50082-2
Vibration:	1g (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 or 200 Hz (specify)
Memory:	EEPROM (no battery)
Mounting:	Metal clamp
Electrical Connection:	8 pole compact plug with lock
Case Material:	Black, ABS plastic w/glass lens
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
Weight:	3.5 oz [99g]

Models Description

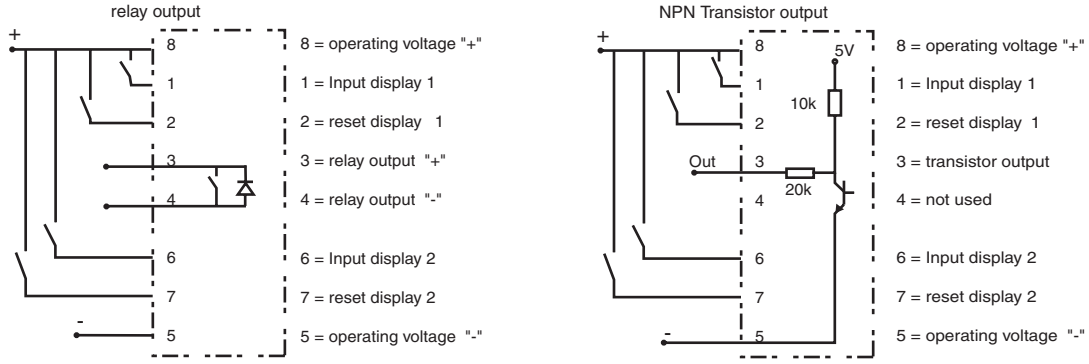
For Details on Models and Descriptions, see the Ordering Information section.

Dimensions



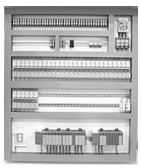
Maximum Panel Thickness: 0.20" [5.1mm]
Panel Cutout: 2.06" [52.2mm]

Wiring Diagram

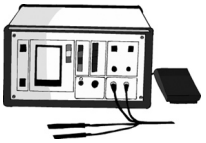


Applications

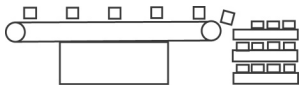
Panel Builders



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

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

Display 1

Indication of time for Hour Meter: *(check only ☐)*
1/100☐ 1/10th

Max. counting frequency for Counter: (*check only ☐)*
30 H☐ 200 Hz

Reset types: *(check only ☐)*
non-r☐set remote reset ☐
remote & manual (manual reset on rear of housing)

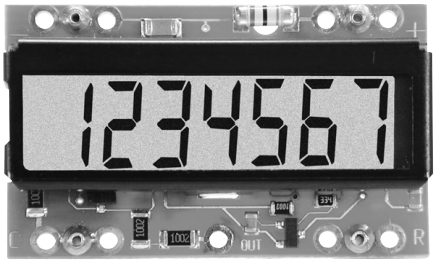
Service interval *(optiona☐)*
"Redi-Alert": _____ (4 digits ma☐)
Prewarn: _____ (4 digits max.)

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)



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

Specifications

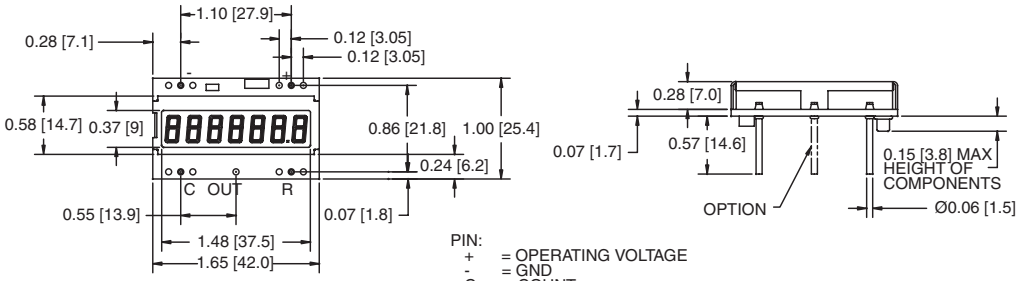
Display: 7 digit, 0.28 [7mm], LCD
Quartz Accuracy: 0.01%
Input Voltage: 12-24 VDC/ ±25%
Current Consumption: 2-4 mA
Transistor Output: V_{OH} 4.5 VDC, minimum through 30 KW
V_{OL} 0.4 VDC, maximum through 20 KW
I_{SINK} 1.0 mA, maximum
Operating Temperature: -22°F/+158°F [-30°C to +70°C]
Max Count Speed: 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
Prewarn Signal: Factory set, 4 digits

Models Description

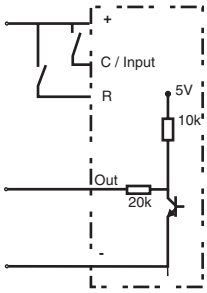
For Details on Models and Descriptions, see the Ordering Information section.

Dimensions



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

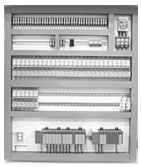
Wiring Diagram
NPN Transistor Output



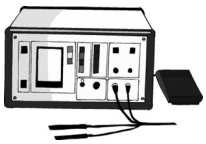
Applications

Test Equipment

Panel Builders

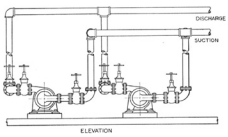


Medical Devices



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: _____ Phone: _____
Address: _____ Fax: _____
_____ Email: _____
Contact: _____ 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)

Description

The Model 63 Electronic Counter with 8 LCD digits brings more features to the user than ever before. Models are available that are simple 8-digit totalizers, while other models can bring together enough features to control a significant process.

A long list of features includes a programmable output, an external electronic reset, a front panel reset enable, and programmable alert or preset capability. In addition, the unit can be configured to operate from an external DC power supply or an internal 15+ year lithium battery. An EEPROM is available with the externally powered units to retain last data when power goes down. The front end of the Model 63 Counter utilizes a high-contrast, reflective, 8-digit LCD with 0.32 inch [8mm] digits and seven icons, while at the back end Dry Contact, Low Voltage DC, and High Voltage DC and AC Inputs are available.

The Model 63 family is designed with a rugged plastic housing that is qualified to NEMA 4/4X when properly installed in a panel using a gasket that is supplied. In addition, the unit is compliant with CE EMC standards to EN61326:2001 for industrial applications, the unit is recognized by UL for U.S. and Canadian safety standards, and it is compliant to European RoHS and WEEE standards.

Features

- Reflective LCD Display with 8 large (8mm) digits
- Choice of four counter types
  - Dual Range
  - Dual Counter
  - Up/Down Counter
  - Twin Counter
- Choice of I/O compliment that includes
  - One or two inputs
    - Switch Input (No voltage)
    - Low DC Voltage (3-30VDC)
    - High Voltage (20-300VAC or 10-300VDC)
  - Control Inputs
    - External Electronic Reset
    - Front Panel Reset Enable
  - Discrete Output
    - Open-Drain MOSFET
- Choice of external power (with EEPROM) or internal 15+ year battery
- Optional Front Panel Programming for flexible Redi-Alert or Preset Counter functionality
- Optional Redi-Alert Functions
  - 3 Redi-Alerts are available with Front Panel Programming option
  - 4 Redi-Alerts are available with Factory Programming
- Optional Preset Counter Mode
  - Available with Front Panel Programming option or with Factory Programming
- NEMA 4/4X, 12, and IP66 rated
- EMC Compliant to EN61326:2001 for industrial environments
- CE compliant, UL and cUL recognized
- European WEEE & RoHS Compliant

Capabilities

Counter Operation
Any of four different counting methods may be specified in each unit. These counting methods are factory set.

Dual Range:
In the Dual Range Mode, the counter waits for a pulse on either Input A or Input B. The first input to have a pulse is recognized and its pulses are counted. The other input is ignored until the counter is reset. The rated speed for one of the inputs is 40 Hz and for the other input it is 500 Hz. This mode is best for single up-counter operation.

Dual Counter:
In the Dual Counter Mode, the pulses on Input A are counted in twocounters, Counter A and Counter B. Counter A is resettable and Counter B is not. Pressing and releasing the SEL switch swaps the counters on the display. This mode is good for maintenance applications where a total counts accumulated during operation is desired. The Dual Counter is only available with front panel programming.

Up/Down Counter:
In the Up/Down Counter Mode, the pulses on Input A are added to the accumulated count and the pulses on Input B are subtracted from the accumulated count. The Up/Down Counter is capable of displaying negative numbers.

Twin Counter:
The Twin Counter behaves as two counters in one package. The pulses on Input A are accumulated in Counter A and the pulses on Input B are accumulated in Counter B. Both counters are reset at the same time. The displayed counters can be swapped by pressing and releasing the SEL switch. The Twin Counter is only available with front panel programming.

I/O Functions
The I/O functions can be mixed and matched to maximize the functionality of the counter. There are three types of inputs that the counter can accept. The interfaces for each are factory set. The inputs can be

- Switch – open circuit or switch closure
- Low Voltage DC – Low input is less than 1VDC and High Input is 3 – 30VDC.
- High Voltage DC or AC – Low is less than 3VDC or 3VAC. A High Input is either 10 – 300VDC or 20-300VAC.

For the Switch and Low Voltage DC Counters, there are six screw terminals for all of the I/O. For the High Voltage Counters, there are four screw terminals for the I/O. The combinations of the I/O and power supply are factory set.

Pulse Inputs: The pulse inputs are those inputs that are counted.
Remote Reset: When the remote reset is at a high level, the counter will reset.
Front Panel Reset Enable: The counter will reset when the Front Panel Reset Enable is at a high level, and the Front Panel Reset Switch is pressed. The counter will not reset when the Front Panel Reset Enable is at a low level and the Front Panel Reset Switch is pressed.
Output: The output is an open-drain MOSFET. The output is used when operating in the Preset Counter Mode, and it can be option ally used when using Redi-Alerts.

Preset Function
Each counter may be placed in a preset operating mode. This mode can be programmed through the front panel for those units that have the front panel programming option. It may also be factory programmed. IT IS NOT RECOMMENDED THAT THE PRESET FUNCTION BE USED AT THE SAME TIME THAT ALERTS ARE ENABLED.

Basically, a preset counter is a counter that counts to a preset value and then turns on an output device. At some point, the output device is turned off, the counter is reset, and the process begins again. There are two things to determine. One is when and how to turn off the output device, and the second is when and how to reset the counter.

The preset counters can be set up for either automatic reset or external (front panel or remote) reset. The outputs can be turned off by either time out or external reset. In addition to the output, an icon can be turned on when the output is turned on for a visual indication of the preset condition.

Alert Functions
The Model 63 Counter can be programmed to operate as a maintenance device in which alerts notify the user of certain maintenance actions to be taken after accumulation of a predefined number of counts. When the accumulated count equals the predefined alert value, an icon is illuminated on the display. When the alert is reset, the icon is turned off, but the count value is not reset.

There are two types of alerts. The first is a break-in alert. A break-in alert only occurs once at the start of unit operation. The second type of alert is recurring. A recurring alert occurs continuously at a predefined period. When tied to a break-in alert, the recurring alert will not begin its count until the break-in alert has occurred.

The intervals for the recurring alert can be performed as start-to start or end-to-start. A start-to-start interval count starts when the last alert is turn on. The end-to-start interval count starts when the last alert is turned off.

The Model 63 Counter can support three alerts using front panel programming and four alerts when factory programmed. IT IS NOT RECOMMEDED THAT THE PRESET FUNCTION BE USED AT THE SAME TIME THAT ALERTS ARE ENABLED. In both cases, Alert #1 is a break-in alert that is tied to Alert #2, which is recurring. Alert #3 is recurring, and Alert #4 can be factory set as either break-in or recurring. If Alert #4 is break-in, then it is tied to Alert #3.

The Model 63 Counter can be programmed to be latched or kept on for a predetermined number of counts. When latched, an external reset is required to turn off the alert. Each alert can also force the output on when the alert is on.

Front Panel
The liquid crystal display is reflective with dark characters on a light background. There are 8 digits on the display. The standard display contains seven icons which can be assigned as desired to either alerts or a preset.

Model 63 Counters with the front panel programming option are capable of being programmed for either alerts or the preset function. There are two front panel switches. To begin programming, the two switches are pressed simultaneously. The programming menu must be completed in its entirety to return to normal operation. The switch functions are described as follows:

SEL: During normal operation, the displayed counters will be swapped when the SEL switch is pressed and released. During programming, this switch is used to select options.

RST: During normal operation, the RST switch is used for front panel reset. During programming, the RST switch is used to enter an option.

Resets
Unless using alerts, a reset returns the display to zero. If using alerts, the reset turns an alert off. There are three different reset configurations available:

Non-Reset: The counter can never be reset. A non-reset unit also has no front panel programming option.

Remote Reset: A model with Remote reset has a dedicated terminal for performing the reset function. The unit resets when the remote reset signal is at a high level. When the reset signal is at a low level, accumulating counts can occur.

Manual Reset: Manual reset occurs when the RST switch on the front of the counter is pressed. Counting resumes upon release of the RST switch. The exception to this operation is in the Dual Counter case in which the non-resettable counter can not be reset.

Note: Some counters are equipped with a Manual Reset Enable Input. In this case, the Manual Reset Enable Input must be high for the RST switch to be functional.

Specifications

Display: Figures: 8 LCD digits 0.32" [8mm] high
Annunciators Icon: A choice of 7 Icons 0.08" [2mm] high
Reset: Remote, manual & non-reset. Manual reset enable is available on some models
Speed: Low speed: 0-40 counts per second (min. 12.5ms-on, 12.5ms-off
High speed: 0-500 counts per second (min. 1.0 ms-on, 1.0 ms-off
Inputs: Switch (no voltage)
DC Voltage:

Absolute voltage range:	-0.5 VDC, minimum to 30.0VDC, maximum
VIH:	3.0 VDC, maximum
VIL:	1.0 VDC, minimum

High Voltage AC/DC:

Absolute Maximum voltage:	300VAC/VDC
VIH:	10VDC/20 VAC, max.
VIL:	3VDC/3 VAC, minimum

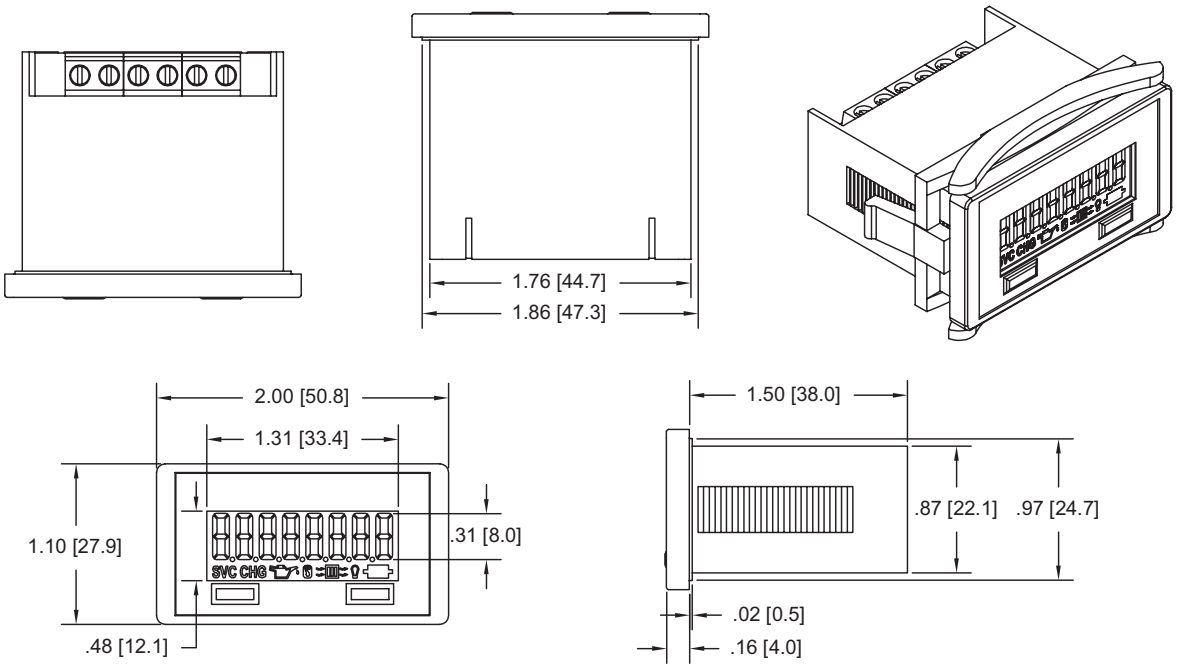
Power: Internally powered models: Self powered (+15yrs lithium battery)
Externally Powered models: 5-28 VDC , externally supplied
Absolute Maximum external power: 30.0 VDC
Output: Format: Open-Drain MOSFET with Source connected to Common (see note 3)
Maximum Withstanding voltage: 30VDC, reference to Common
Maximum Load current: 0.1Amp

EEPROM: (When installed) 40 years
Maximum data writes: 100,000
Battery Life: 15 years +
Mounting: Panel with clip
Terminations: Terminal block
Weight: 2 oz. [57g]
Environmental: Temp. (Storage & Operating):
-4˚F to + 140˚F [-20˚C to +60˚C]
Humidity: 0 to 95% RH, non-condensing
Vibration: Operating: 10 to 55 Hz, 0.01" [0.25mm] double amplitude
Non-operating: 10 to 55 Hz, 0.03" [0.75mm] double amplitude
Shock: Operating: 10G's
Non-operating: 30G's
Dielectric: 1000 VAC 50/60Hz for 1 minute
Accuracy: 100% (provided signal meets stated parameters)
EMC Compliance: EN61326:1997 with A1: 1998 & A2:2001 for industrial environments
Enclosure: NEMA 4/4X, 12, & IP66 compliance (from the front) when properly mounted using the optional gasket
Approvals: CE compliant, UL & cUL recognized
Environmental Compliance: Compliant to the European WEEE & RoHS

Notes

1. When interfacing the Model 63 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.
2. The Absolute Voltage Range and the Absolute Maximum Voltage are the voltages at which operation beyond the specified limits may result in damage to the unit.
3. Operates like open-collector NPN. Care should be taken when interfacing to this input since there is no current limiting protection in the counter.

Dimensions



Panel Cutout: 1.79" [45.5mm] x 0.89" [22.6mm]
Recommended Panel Thickness: 0.875" [22.2mm]

Available Icons

SVC	SERVICE		OIL		AIR FILTER		MUFFLER
CHG	CHANGE		OIL FILTER		LAMP		

Description

The Model 63 Electronic Hour Meter with 8 LCD digits brings more features to the user than ever before. Models are available that are simple Hour Meters, while other models can bring together enough features to control a significant process.

A long list of features includes a programmable output, an external electronic reset, a front panel reset enable, and programmable alert or preset capability. In addition, the unit can be configured to operate from an external DC power supply or an internal 15+ year lithium battery. An EEPROM is available with the externally powered units to retain last data when power goes down. The front end of the Model 63 Hour Meter utilizes a high-contrast, reflective, 8-digit LCD with 0.32 inch [8mm] digits and seven icons, while at the back end Dry Contact, Low Voltage DC, and High Voltage DC and AC Inputs are available.

The Model 63 family is designed with a rugged plastic housing that is qualified to NEMA 4/4X when properly installed in a panel using an optional gasket. In addition, the unit is compliant with CE EMC standards to EN61326:2001 for industrial applications, the unit is recognized by UL for U.S. and Canadian safety standards, and it is compliant to European RoHS and WEEE standards.

Features

- Reflective LCD Display with 8 large (8mm) digits
- Choice of four Hour Meter types
  - Hour Meter
  - Minute Meter
  - Seconds Meter
  - Dual hour Meter
  - Twin Hour Meter
- Choice of I/O compliment that includes
  - One or two inputs
    - Switch Input (No voltage)
    - Low DC Voltage (3-30VDC)
    - High Voltage (20-300VAC or 10-300VDC)
  - Control Inputs
    - External Electronic Reset
    - Front Panel Reset Enable
  - Discrete Output
    - Open-Drain MOSFET
- Choice of external power (with EEPROM) or internal 15+ year battery
- Optional Front Panel Programming for flexible Redi-Alert or Preset Hour Meter functionality
- Optional Redi-Alert Functions
  - 3 Redi-Alerts are available with Front Panel Programming option
  - 4 Redi-Alerts are available with Factory Programming
- Optional Preset Hour Meter Mode
  - Available with Front Panel Programming option or with Factory Programming
- NEMA 4/4X, 12, and IP66 rated
- EMC Compliant to EN61326:2001 for industrial environments
- CE compliant, UL and cUL recognized
- European WEEE & RoHS Compliant

Capabilities

Hour Meter Operation
Any of four different counting methods may be specified. These counting methods are factory set.

Hour Meter: The Hour Meter displays hours in a resolution of hours and tenths. A front panel programmable unit or a factory programmed unit can be programmed to display a resolution of 0.01 hours.

Minute Meter: The Minute Meter displays minutes to a displayed resolution of 0.1 minutes.

Seconds Meter: The Seconds Meter displays seconds to a displayed resolution of 0.1 seconds.

Dual Hour Meter: The Dual Hour Meter measures the time that Input A is at a high level in two accumulated times. One of the times can be reset, while the other cannot. The displayed times can be swapped on the display be pressing and releasing the SEL switch. The Dual Hour Meter is only available with the front panel programming option.

Twin Hour Meter: The Twin Hour Meter behaves as two Hour Meters in one package. One Hour Meter is enabled by Input A and the second is en abled by Input B. The displayed Hour Meters can be swapped by pressing and releasing the SEL switch. The Twin Hour Meter is only available with the front panel programming option.

I/O Functions
The I/O functions can be mixed and matched to maximize the functionality of the Hour Meter. There are three types of inputs that the Hour Meter can accept. The interfaces for each are factory set. The inputs can be

- Switch – open circuit or switch closure
- Low Voltage DC – Low input is less than 1VDC and High Input is 3 – 30VDC.

- High Voltage DC or AC – Low is less than 3VDC or 3VAC. A High Input is either 10 – 300VDC or 20-300VAC.

For the Switch and Low Voltage DC Hour Meters, there are six screw terminals for all of the I/O. For the High Voltage Hour Meters, there are four screw terminals for the I/O. The combinations of the I/O and power supply are factory set.

Enable Inputs: The enable inputs are those inputs that enable the accumulation of time.

Remote Reset: When the remote reset is at a high level, the Hour Meter will reset.

Front Panel Reset Enable: The Hour Meter will reset when the Front Panel Reset Enable is at a high level, and the Front Panel Reset Switch is pressed. The Hour Meter will not reset when the Front Panel Reset Enable is at a low level and the Front Panel Reset Switch is pressed.

Output: The output is an open-drain MOSFET. The output is used when operating in the Preset Mode, and it can be optionally used when using Redi-Alerts.

Preset Function
Each Hour Meter may be placed in a preset operating mode. This mode can be programmed through the front panel for those units that have the front panel programming option. It may also be factory programmed. IT IS NOT RECOMMENDED THAT THE PRESET FUNCTION BE USED AT THE SAME TIME THAT ALERTS ARE ENABLED.

Basically, a preset Hour Meter is an Hour Meter that times to a preset value and then turns on an output device. At some point, the output device is turned off, the Hour Meter is reset, and the process begins again. There are two things to determine. One is when and how to turn off the output device, and the second is when and how to reset the Hour Meter.

The preset Hour Meters can be set up for either automatic reset or external (front panel or remote) reset. The outputs can be turned off by either time out or external reset. In addition to the output, an icon can be turned on when the output is turned on for a visual indication of the preset condition.

Alert Functions
The Model 63 Hour Meter can be programmed to operate as a maintenance device in which alerts notify the user of certain maintenance actions to be taken after accumulation of a predefined time. When the accumulated time equals the predefined alert value, an icon is illuminated on the display. When the alert is reset, the icon is turned off, but the accumulated time is not reset.

There are two types of alerts. The first is a break-in alert. A break-in alert only occurs once at the start of unit operation. The second type of alert is recurring. A recurring alert occurs continuously at a predefined period. When tied to a break-in alert, the recurring alert will not begin its count until the break-in alert has occurred.

The intervals for the recurring alert can be performed as start-to-start or end-to-start. A start-to-start interval count starts when the last alert is turned on. The end-to-start interval count starts when the last alert is turned off.

The Model 63 Hour Meter can support three alerts using front panel programming and four alerts when factory programmed. IT IS NOT RECOMMEDED THAT THE PRESET FUNCTION BE USED AT THE SAME TIME THAT ALERTS ARE ENABLED. In both cases, Alert #1 is a break-in alert that is tied to Alert #2, which is recurring. Alert #3 is recurring, and Alert #4 can be factory set as either break-in or recurring. If Alert #4 is break-in, then it is tied to Alert #3.

The Model 63 Hour Meter can be programmed to be latched or kept on for a predetermined time. When latched, an external reset is required to turn off the alert. Each alert can also force the output on when the alert is on.

Front Panel
The liquid crystal display is reflective with dark characters on a light background. There are 8 digits on the display. The standard display contains seven icons which can be assigned as desired to either alerts or a preset.

Model 63 Hour Meters with the front panel programming option are capable of being programmed for either alerts or the preset function. There are two front panel switches. To begin programming, the two switches are pressed simultaneously. The programming menu must be completed in its entirety to return to normal operation. The switch functions are described as follows:

SEL: During normal operation, the displayed Hour Meters will be swapped when the SEL switch is pressed and released. During programming, this switch is used to select options.

RST: During normal operation, the RST switch is used for front panel reset. During programming, the RST switch is used to enter an option.

Resets
Unless using alerts, a reset returns the display to zero. If using alerts, the reset turns an alert off. There are three different reset configurations available:

Non-Reset: The Hour Meter can never be reset. A non-reset unit also has no front panel programming option.

Remote Reset: A model with Remote reset has a dedicated terminal for performing the reset function. The unit resets when the remote reset signal is at a high level. When the reset signal is at a low level, accumulating time can occur.

Manual Reset: Manual reset occurs when the RST switch on the front of the Hour Meter is pressed. Accumulating time resumes upon release of the RST switch. The exception to this operation is in the Dual Hour Meter case; the non-resettable Hour Meter can not be reset.

Note: Some Hour Meters are equipped with a Manual Reset Enable Input. In this case, the Manual Reset Enable Input must be high for the RST switch to be functional.

Specifications

Display: Figures: 8 LCD digits 0.32" [8mm] high
Annunciators Icon: A choice of 7 Icons 0.08" [2mm] high
Reset: Remote, manual & non-reset. Manual reset enable is available on some models
Speed: Low speed: 0-40 counts per second (min. 12.5ms-on, 12.5ms-off
High speed: 0-500 counts per second (min. 1.0 ms-on, 1.0 ms-off
Inputs: Switch (no voltage)
DC Voltage:

Absolute voltage range:	-0.5 VDC, minimum to 30.0VDC, maximum
VIH:	3.0 VDC, maximum
VIL:	1.0 VDC, minimum

High Voltage AC/DC:

Absolute Maximum voltage:	300VAC/VDC
VIH:	10VDC/20 VAC, max.
VIL:	3VDC/3 VAC, minimum

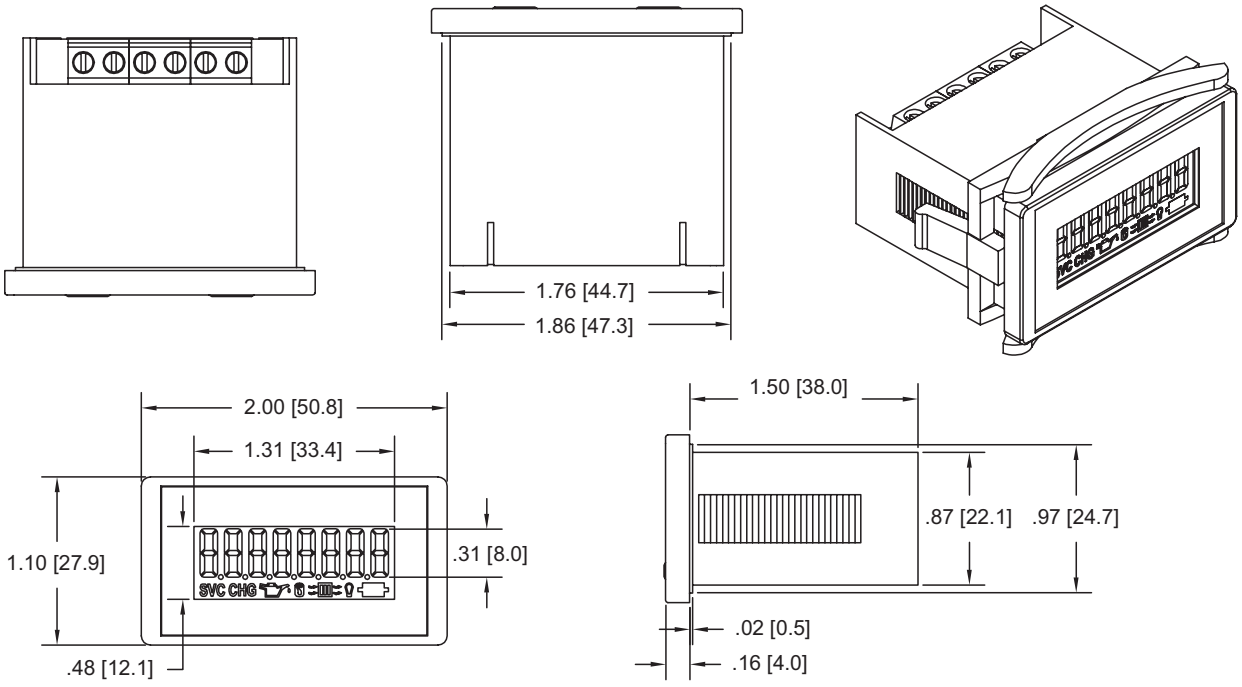
Power: Internally powered models: Self powered (+15yrs lithium battery)
Externally Powered models: 5-28 VDC , externally supplied
Absolute Maximum external power: 30.0 VDC
Output: Format: Open-Drain MOSFET with Source connected to Common (see note 3)
Maximum Withstanding voltage: 30VDC, reference to Common
Maximum Load current: 0.1Amp

EEPROM: (When installed) 40 years
Maximum data writes: 100,000
Battery Life: 15 years +
Mounting: Panel with clip
Terminations: Terminal block
Weight: 2 oz. [57g]
Environmental: Temp. (Storage & Operating):
-4˚F to + 140˚F [-20˚C to +60˚C]
Humidity: 0 to 95% RH, non-condensing
Vibration: Operating: 10 to 55 Hz, 0.01" [0.25mm] double amplitude
Non-operating: 10 to 55 Hz, 0.03" [0.75mm] double amplitude
Shock: Operating: 10G's
Non-operating: 30G's
Dielectric: 1000 VAC 50/60Hz for 1 minute
Accuracy: 100% (provided signal meets stated parameters)
EMC Compliance: EN61326:1997 with A1: 1998 & A2:2001 for industrial environments
Enclosure: NEMA 4/4X, 12, & IP66 compliance (from the front) when properly mounted using the optional gasket
Approvals: CE compliant, UL & cUL recognized
Environmental Compliance: Compliant to the European WEEE & RoHS

Notes

1. When interfacing the Model 63 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.
2. The Absolute Voltage Range and the Absolute Maximum Voltage are the voltages at which operation beyond the specified limits may result in damage to the unit.
3. Operates like open-collector NPN. Care should be taken when interfacing to this input since there is no current limiting protection.

Dimensions



Panel Cutout: 1.79" [45.5mm] x 0.89" [22.6mm]
Recommended Panel Thickness: 0.875" [22.2mm]

Available Icons

SVC	SERVICE		OIL		AIR FILTER		MUFFLER
CHG	CHANGE		OIL FILTER		LAMP		

Description

For those requiring either tachometer (RPM) functions or frequency measurement in Hz, the Model 63 LCD Rate Indicators offer the user the solution. With a 5-digit LCD display, and front panel programmability, the Model 63 is flexible for use in many applications, and it is capable of interfacing to Dry Contact, Low Voltage DC, and High Voltage AC/DC inputs.

Capable of measuring up to 30,000 RPM the Tachometer is capable of being programmed for use with one- or two- cycle engines. The Frequency indicator is capable of measurements up to 500 Hz, making it perfect for 50, 60, and 400 Hz applications.

Features

- Tachometer measures up to 30,000 RPM
- Frequency measurements for 50, 60, and 400 Hz applications
- Choice of external power or 15+ year internal lithium battery
- Choice of Switch (no voltage), 3-30VDC, 20-300VAC, and 10-300VDC inputs
- Programmable scale factors for interfacing with one- and two-cycle engines
- Open-drain MOSFET output

Specifications

Display: Figures: 5 reflective LCD digits 0.32" [8mm] high

Inputs: Switch (no voltage)

DC Voltage

Absolute voltage range:	-0.5 VDC, minimum to 30.0VDC, maximum
VIH	3.0 VDC, maximum
VIL	1.0 VDC, minimum

High Voltage AC/DC:

Absolute Maximum voltage:	300VAC/VDC
VIH:	10VDC/20 VAC, max.
VIL:	3VDC/3 VAC, minimum

Scale Factors: 0.5 pulses per revolution, 1 pulse per revolution, and 2 pulses per revolution. Units can be factory or user programmed by optional front panel switches.

Accuracy: Resolution Dependent, better than 1% for inputs greater than 700RPM or 12 Hz.

Power: Internally powered models: Self powered (15+yr battery)
Externally Powered models: 5-28 VDC , externally supplied
Absolute Maximum external power: 30.0 VDC

Output: Format: Open-Drain MOSFET with Source connected to Common (see note 3)
Maximum Withstanding voltage: 30VDC, reference to Common
Maximum Load current: 0.1Amp

EEPROM: (When installed) 40 years, externally powered
Maximum data writes: 100,000

Mounting: Panel with clip

Terminations: Terminal block

Weight: 2 oz. [57g]

Environmental:

Temp. (Storage & Operating):	-4˚F to + 140˚F [-20˚C to +60˚C]
Humidity:	0 to 95% RH, non-condensing

Vibration:

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

Shock:

Operating:	10G's
Non-operating:	30G's

Dielectric: 1000 VAC 50/60Hz for 1 minute

Accuracy: 100% (provided signal meets stated parameters)

EMC Compliance: EN61326:1997 with A1: 1998 & A2:2001 for industrial environments

Enclosure: NEMA 4/4X, 12, & IP66 compliance (from the front) when properly mounted using the optional gasket

Approvals: CE compliant, UL & cUL recognized

Environmental Compliance: Compliant to the European WEEE & RoHS Directives

Rate Indicator Types

Tachometer: Displayed resolution is one RPM. The maximum rate that the unit can measure is 30,000 RPM. The unit can also be programmed to vary the “scale factor” for the tachometer input to RPM’s for one and two-stroke engines.

Frequency Meter: The Model 63 can measure frequency from 0-500 Hz, making it ideal for 50, 60 and 400 Hz applications.

Functions

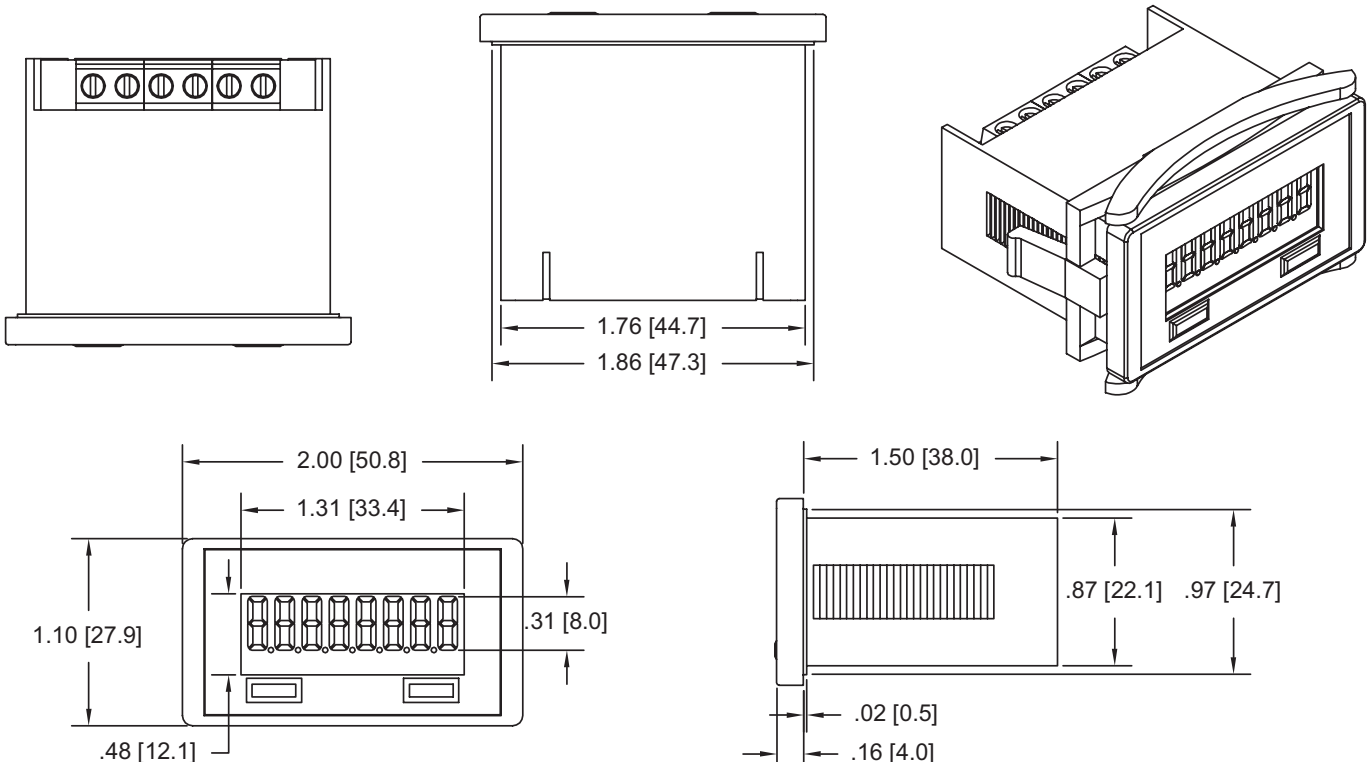
Front Panel Switch Functions: Front panel switches can be used for reset, display selection and programming.

SEL: The background function is displayed while this switch is pressed and held during normal operation. During programming, this switch is used to select options.

RST: This is the reset switch during normal operation, during programming the RST switch is used to enter an option.

Unit Programming: Units with front panel switches can be field programmed for a scale factor that can be programmed to comply with one and two-stroke engines.

Dimensions



Panel Cutout: 1.79” [45.5mm] x 0.89” [22.6mm]
Recommended Panel Thickness: 0.875” [22.2mm]

Notes

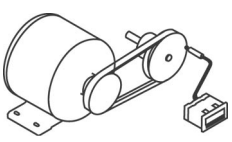
1. When interfacing the Model 63 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

2. The Absolute Voltage Range and the Absolute Maximum Voltage are the voltages at which operation beyond the specified limits may result in damage to the unit.

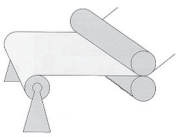
3. Operates like open-collector NPN. Care should be taken when interfacing to this input since there is no current limiting protection in the counter.

Applications

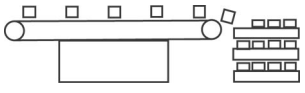
Motor/Pulley Speed



Rate Indication



Speed Control



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

- 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

Options

- 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	QUAD X2	QUAD 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	QUAD X2	QUAD 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 8303
With 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	QUAD X2	QUAD 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 8303
With 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	QUAD X2	QUAD 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	QUAD X2	QUAD 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}= 100mA max. @ V_{OL} = 1.1 VDC max. ;V_{OH}= 30 VDC max.

PNP Open Collector: I_{SRC} = 100mA 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.

PRESCALER 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.

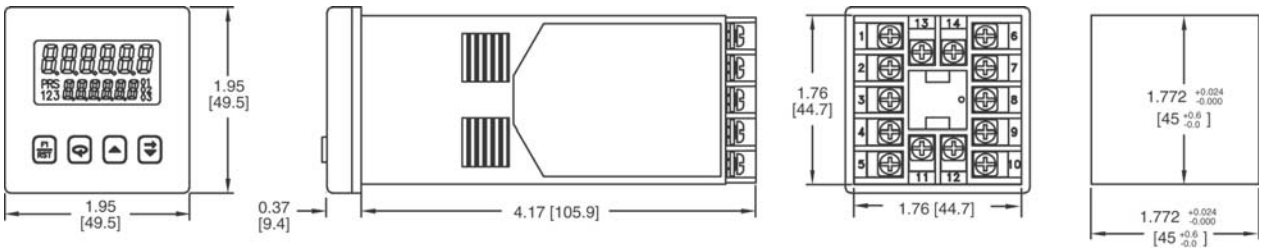
- Selects next available mode in programming mode.
- Increments digit in digit Entry mode.
- Increments value in Auto Scrolling entry mode.

- 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

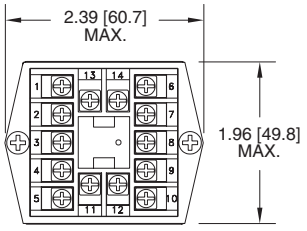
Dimensions



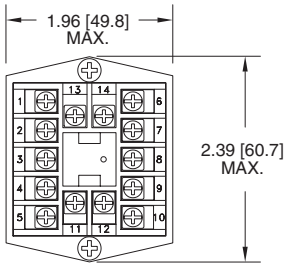
MULTIPLE UNIT STACKING

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.

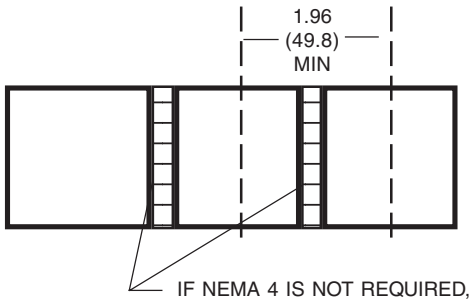


PANEL LATCH INSTALLED FOR VERTICAL UNIT STACKING



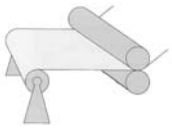
PANEL LATCH INSTALLED FOR HORIZONTAL UNIT STACKING

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



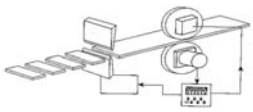
Applications

Convert-

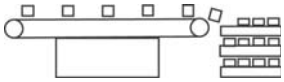


Batching

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, Usr. In1, Usr. In2, and Usr. 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} = 100mA max. @ V_{OL} = 1.1 VDC max.; V_{OH} = 30 VDC max.
PNP Open Collector:
I_{SRC} = 100mA 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

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.

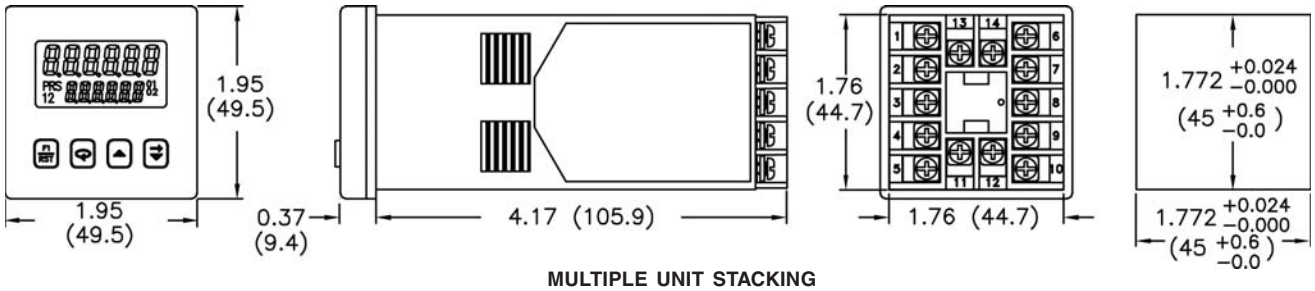
DUAL PRESET MODELS

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

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

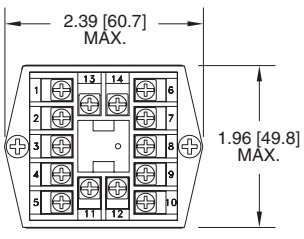
Dimensions



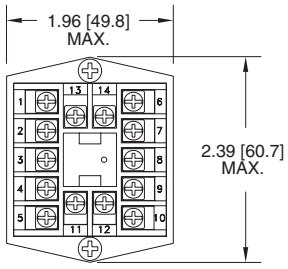
MULTIPLE UNIT STACKING

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.

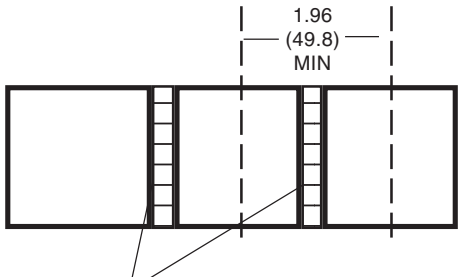


PANEL LATCH INSTALLED FOR VERTICAL UNIT STACKING



PANEL LATCH INSTALLED FOR HORIZONTAL UNIT STACKING

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

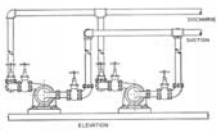


IF NEMA 4 IS NOT REQUIRED, THIS PANEL MATERIAL MAY BE REMOVED.

Applications

Mixing

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 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/Counter 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, 8802-0000, or similar units can be programmed for Elapsed Time, Rate, Preset Count/Time, count Add/Sub, or Quadrature. The count inputs can be prescaled from -9.9999 to 99.9999. On the 8802 units, the prescale can be further multiplied by 10^{-3}. Rate can be displayed as the prescaled rate of the count per seconds (Hz) or per minute (rpm). On the 8802 units, the rate can be either prescaled count per hours (PPH) or per minute (rpm). The two independent control outputs are open-collector (NPN) outputs that can be controlled by either count inputs, time, rate, the analog input, or combinations of these 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/0 function. I/0 functions and 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)

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.

Available Functions:
Totalizer
Directional Counting
Rate/Count
Three different quadrature resolutions
Add-Add
Add-Subtract
Dual Count
Elapsed Time
Analog Input
Predetermining

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.

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 L.P.
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). The 8802 and 8812 units have an option for prescaling the A & B counters from -9.9999 x 10^{-3} to 99.9999 x 10^{-3}

Quadrature Counting:
Software selectable X1, 2, 4

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

Input Impedence: 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. The 8802 and 8812 units can express rates in terms of scaled counts per minute (rP) or scaled counts per hour of counter A.

Rate Indicator Accuracy:
±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: ± 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]
Altitude: Up to 6561Ft. (2000 Meters)
Operating & Storage Humidity: to 95% (non-condensing) from -4°F to +140°F [-20°C to +60°C]

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)

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
8802-0000	Base Unit, Red Trans., 10-30VDC, Expanded Prescale, PPH Rate	X				
8812-0000	Base Unit, Reflective, 10-30VDC, Expanded Prescale, PPH Rate		X			
8802-0100	Red Trans., 10-30VDC, Expanded Prescale, PPH Rate, Serial Comm	X				X
8812-0100	Reflective, 10-30VDC, Expanded Prescale, PPH Rate, Serial Comm		X			X
8802-0010	Red Trans., 10-30VDC, Analog Input, Expanded Prescale, PPH Rate	X		X		
8812-0010	Reflective, 10-30VDC, Analog Input, Expanded Prescale, PPH Rate		X	X		
8802-0110	Red Trans., 10-30VDC, Analog Input, Expanded Prescale, PPH Rate, Serial Comm	X		X		X
8812-0110	Reflective, 10-30VDC, Analog Input, Expanded Prescale, PPH Rate, Serial Comm		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

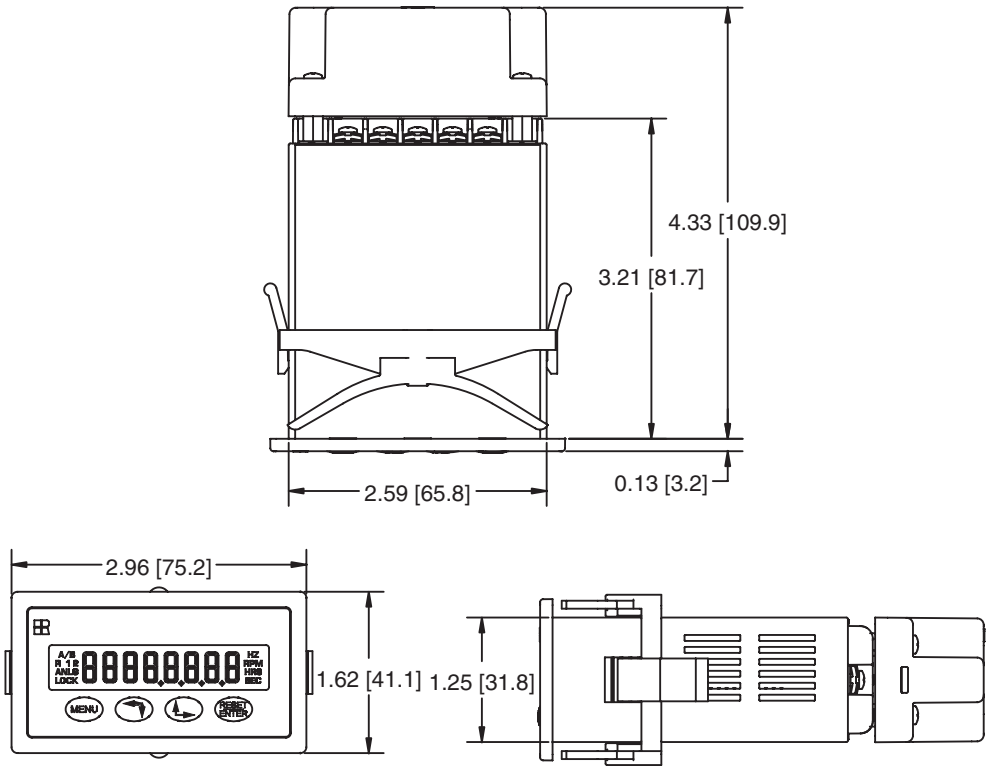
* All parts are normally in factory stock.

Models Description

For Models and Descriptions see the Ordering Information section

Dimensions

Model 88

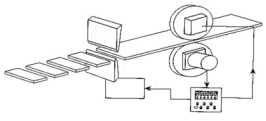


Panel Cutout 2.63” to 2.605” x 1.28” to 1.26” [66.8 to 66.2 x 32.5 to 32.0]
Max. thickness of panel 0.5” [12.7]

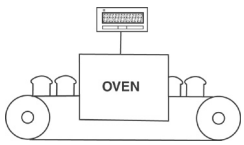
Applications

Batching

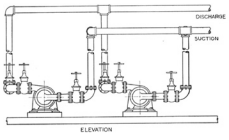
Cut-to-length



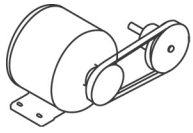
Elapsed time indicator



Flow and level control



Rate/Indication or control



Description

With two preset outputs, the Model 88 Preset Counter is a panel-mounted instrument that provides the user with incredible flexibility. The Model 88 Preset Counter can be programmed for a number of different input configurations. Programming of the Preset Counter is accomplished through a 4-switch front panel or through an optional serial interface using Redington Counters Redi-Ware, which is downloadable from the Redington Counters website. The unit has an 8-digit LCD display, which also includes a number of annunciators for ease of use. Constructed in a rugged, black plastic housing, the Model 88 Preset Counter operates from +10VDC to +32 VDC power at less than 1 watt.

The Model 88 Preset Counter uses two inputs for counting, which can be set up for various counter applications such as quadrature, add-add, add-subtract, or directional counting. A prescaler is available that ranges from 0 to 99.9999 or from 0 to 0.0999999. The prescaled inputs are added to a 15-digit counter, in which 7 digits are to the right of the decimal point, and 8 digits are to the left. Of the 15 digits, the 12 most significant digits are displayable. The user can define which 8 of the 12 displayable digits are to be displayed by setting the decimal point on the display.

The Model 88 Preset Counter has two open-collector npn outputs. Each is triggered independently by a user-programmable preset count. Each can be automatically reset, manually reset, or reset via an external reset input. The automatic reset can be based on time in seconds, or it can be tied to the other preset output. In this case, a preset output can be on until the other preset output turns on. In addition, the on-state of the output transistor can be defined by the user.

Another feature of the Model 88 Preset Counter is an inhibit input that stops counting on the counter if the feature is enabled by the user. When the inhibit signal is present and active, the counter stops counting until the inhibit signal returns to its inactive state.

The Model 88 Preset Counter is constructed of a printed circuit board assembly housed in a rugged, black plastic housing. The front panel of the unit is composed of an 8-digit LCD. The standard display is transmissive with a red backlight. An optional reflective LCD with dark characters on a silver background is also available. There are also four switches on the front panel that are used for programming and manual resetting of the unit. All of this has been tested to NEMA 4X requirements when properly mounted in a panel. In addition, the unit is UL and cUL recognized, and when properly installed, it is compliant to CE EMC requirements.

The Model 88 Preset Counter comes with a number of options. There is a relay module, which can be attached to the end of the unit. The relay module contains two Form C relays that are controlled by the open-collector npn outputs. There is a Power Supply module that can be attached to the end of the unit. The power supply module generates 12VDC at up to 0.25A to power the Model 88 Preset Counter, a relay module, and still have 100mA for sensor excitation. Finally, the Model 88 can be ordered with a Serial I/O option that can be programmed to provide serial data into and out of the unit in RS232, RS485, and RS422 formats.

Features

- Directional counting
- 1,2,4x quadrature
- Add/add counting
- Add/subtract counting
- 2 presets: reset to zero, reset to preset
- Automatic, manual, or external reset
- 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)
- 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)

Annunciators: A, 1, 2, LOCK, 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.

Available Functions:
Directional Counting
Three different quadrature resolutions
Add-Add
Add-Subtract

Predetermining Functions: Preset units provide two discrete outputs which can be controlled as a function of count. Each output can be latched, timed, or held on until the other preset is reset

Programmable Decimal Point:
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 Inputs (Input A & Input B):
Software selectable: switch contact or voltage input
Software Selectable: filter: no filter or 160 Hz 1st order L.P.
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 Operational Format:
Input A is used for all count functions
Input B is used for timer dual Input counter functions (i.e. ADD/ADD, ADD-SUB, DIRECTIONAL COUNT, & QUADRATURE)

Input Scaling: 0 to 99.9999 x 10^0 or x 10^{-3}

Quadrature Counting:
Software selectable X1, 2, 4

Max. Count Rate: 40 KHz

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, manual, and external.

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.

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]
Altitude:	Up to 6561Ft. (2000 Meters)
Operating & Storage Humidity:	to 95% (non-condensing) from -4°F to +140°F [-20°C to +60°C]

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)

Ordering Information

MODEL NUMBER	DESCRIPTION	DISPLAY RED TRANSMISSIVE	DISPLAY REFLECTIVE	RS-485 RS-232 RS 422
8804-0000	Base unit, Red Trans., 10-30VDC, Prescale	X		
8814-0000	Base unit, Reflective, 10-30VDC, Prescale		X	
8804-0100	Red Trans., 10-30VDC, Prescale, Serial Communications	X		X
8814-0100	Reflective, 10-30VDC, Prescale, Serial Communications		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

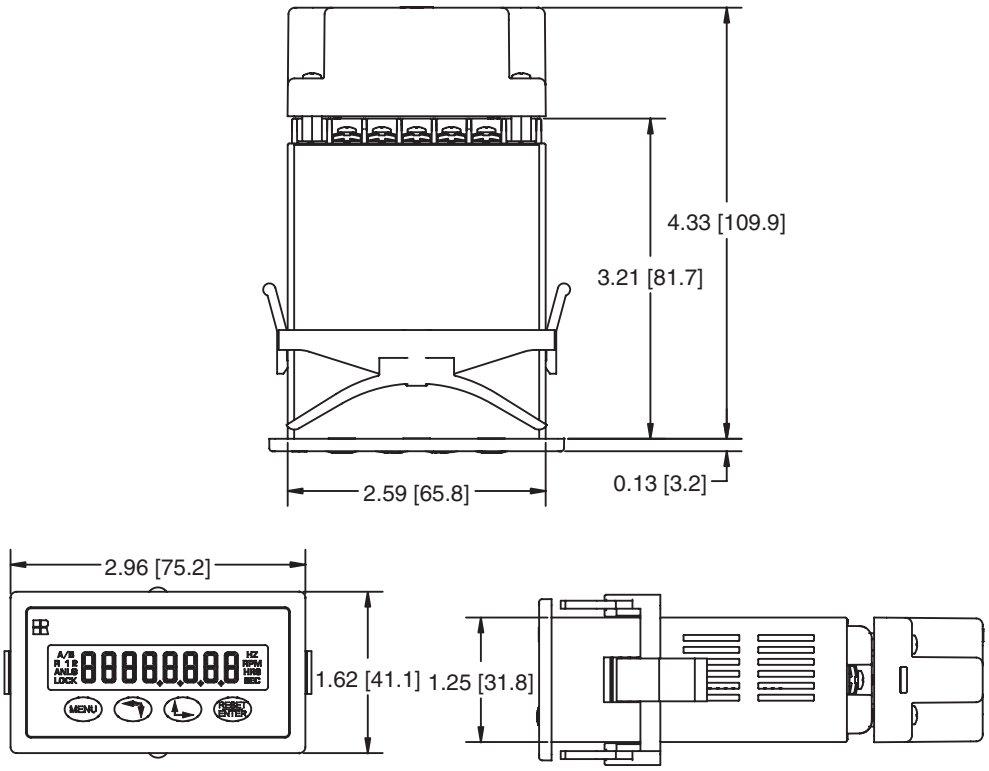
* All parts are normally in factory stock.

Models Description

For Models and Descriptions see the Ordering Information section

Dimensions

Model 88

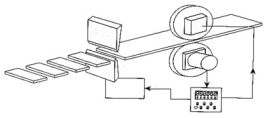


Panel Cutout 2.63" to 2.605" x 1.28" to 1.26" [66.8 to 66.2 x 32.5 to 32.0]
Max. thickness of panel 0.5" [12.7]

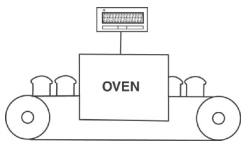
Applications

Batching

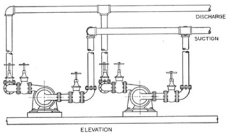
Cut-to-length



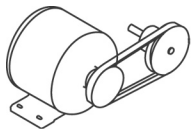
Elapsed time indicator



Flow and level control



Rate/Indication or control



Description

With two preset outputs, the Model 88 Preset Timer is a panel-mounted instrument that provides powerful timing control to any number of applications. The Model 88 Preset Timer can be programmed to operate as either an Hours Timer or a Seconds Timer. In addition, it has a powerful set of user-programmable options for two discrete outputs. At the input side of the unit, the inputs can be configured for voltage or dry contact inputs. Programming of the Preset Timer is accomplished through a 4-switch front panel or through an optional serial interface using Redington Counters Redi-Ware, which is downloadable from the Redington Counters website. The unit has an 8-digit LCD display, which also includes a number of annunciators for ease of use. Constructed in a rugged, black plastic housing, the Model 88 Preset Timer operates from +10VDC to +32VDC power at less than 1 watt.

The Model 88 Preset Timer has two open-collector npn outputs. Each is triggered independently by a user-programmable preset time. Each can be automatically reset, manually reset, or reset via an external reset input. The automatic reset can be based on time in seconds, or it can be tied to the other preset output. In this case, a preset output can be on until the other preset output turns on. In addition, the on-state of the output transistor can be defined by the user.

Another feature of the Model 88 Preset Timer is an inhibit input that stops timing on the timer if the feature is enabled by the user. When the inhibit signal is present and active, the timer stops timing until the inhibit signal returns to its inactive state.

The Model 88 Preset Timer is constructed of a printed circuit board assembly housed in a rugged, black plastic housing. The front panel of the unit is composed of an 8-digit LCD. The standard display is transmissive with a red backlight. An optional reflective LCD with dark characters on a silver background is also available. There are also four switches on the front panel that are used for programming and manual resetting of the unit. All of this has been tested to NEMA 4X requirements when properly mounted in a panel. In addition, the unit is UL and cUL recognized, and when properly installed, it is compliant to CE EMC requirements.

The Model 88 Preset Timer comes with a number of options. There is a relay module, which can be attached to the end of the unit. The relay module contains two Form C relays that are controlled by the open-collector npn outputs. There is a Power Supply module that can be attached to the end of the unit. The power supply module generates 12VDC at up to 0.25A to power the Model 88 Preset Timer, a relay module, and still have 100mA for sensor excitation. Finally, the Model 88 can be ordered with a Serial I/O option that can be programmed to provide serial data into and out of the unit in RS232, RS485, and RS422 formats.

Features

- Programmable for hours or seconds
- Hours displayed to .0001 hrs
- Seconds with 1 msec resolution
- Add/subtract counting
- 2 presets: reset to zero, reset to preset
- Automatic, manual, or external reset
- 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)
- 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)

Annunciators: A, 1, 2, LOCK, 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.

Available Functions: Hours
Seconds

Predetermining Functions: Preset units provide two discrete outputs which can be controlled as a function of count. Each output can be latched, timed, or held on until the other preset is reset

Programmable Decimal Point: 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.

Enable Input: Software selectable: switch contact or voltage input
Software Selectable: filter: no filter or 160 Hz 1st order L.P.
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

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

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

Resets: Automatic, manual, and external.
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.

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]
Altitude:	Up to 6561Ft. (2000 Meters)
Operating & Storage Humidity:	to 95% (non-condensing) from -4°F to +140°F [-20°C to +60°C]

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)

Ordering Information

MODEL NUMBER	DESCRIPTION	DISPLAY RED TRANSMISSIVE	DISPLAY REFLECTIVE	RS-485 RS-232 RS 422
8805-0000	Base unit, Red Trans., 10-30VDC, Prescale	X		
8815-0000	Base unit, Reflective, 10-30VDC, Prescale		X	
8805-0100	Red Trans., 10-30VDC, Prescale, Serial Communications	X		X
8815-0100	Reflective, 10-30VDC, Prescale, Serial Communications		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

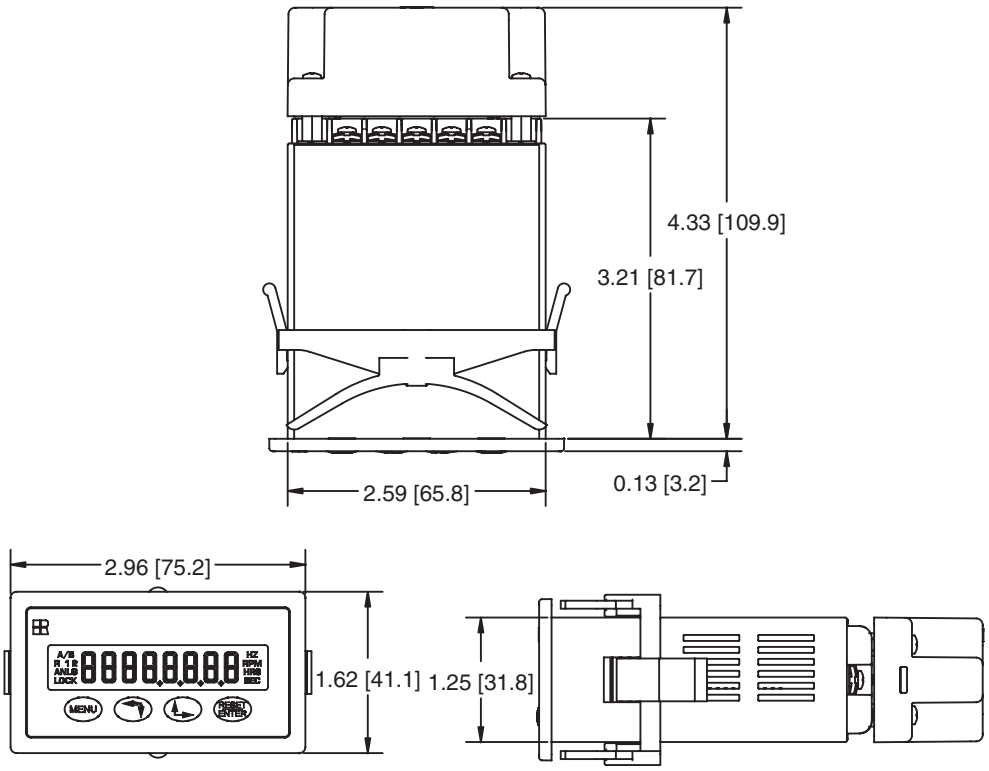
* All parts are normally in factory stock.

Models Description

For Models and Descriptions see the Ordering Information section

Dimensions

Model 88

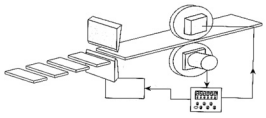


Panel Cutout 2.63" to 2.605" x 1.28" to 1.26" [66.8 to 66.2 x 32.5 to 32.0]
Max. thickness of panel 0.5" [12.7]

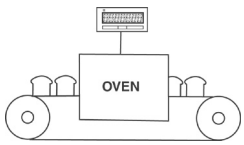
Applications

Batching

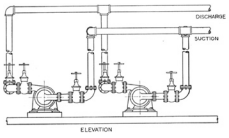
Cut-to-length



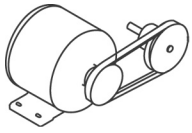
Elapsed time indicator



Flow and level control



Rate/Indication or control



Description

The Model 88 is a programmable LCD Totalizer, 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 Totalizer performs internal diagnostics and flashes all segments of the display "ON" and "OFF" several times. The Totalizer 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 Programmable Totalizer is capable of receiving input pulses, processing those input pulses in a number of different, selectable ways, and then displaying the results. The Totalizer is capable of operating in a single-up count mode, as well as add-subtract, directional counting, add-add, and three levels of quadrature. In addition, the unit can support independent counting of two separate inputs. Counts can be pre-scaled by scale factors ranging from -9.9999 to 99.9999 or from -9.9999 x 10^{-3} to 99.9999 x 10^{-3}. Maximum count speed is up to 40KHz for single count modes and 20KHz for the dual count mode. Maximum input speed can be limited by enabling an analog filter on each input, thereby protecting count integrity from unwanted noise. The input format can also be selected. In addition, a serial data interface option is available to report counts from remote locations or to program the Totalizer. 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.

Features

- Dual up counting
- Directional counting
- 1,2,4x quadrature
- Add/add counting
- Add/subtract counting
- Prescaling of counts
- NEMA 4X/IP56 sealed panel
- UL, cUL Recognized, CE Compliant UL file # E19514

Options

- Serial Comm. (RS232, RS422, RS485)
- 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)

Annunciators: A, B, LOCK, 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.

Available Functions:
Totalizer
Directional Counting
Three different quadrature resolutions
Add-Add
Add-Subtract
Dual Count

Programmable Decimal Point:
Counter A: 4 decimal point locations may be selected.
Counter B: 4 decimal point locations may be selected.

Power Requirements:
Base unit: +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 Inputs (Input A & Input B):
Software selectable: switch contact or voltage input
Software Selectable: filter: no filter or 160 Hz 1st order L.P.
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 Operational Format:
Input A is used for all count functions
Input B is used for all dual Input counter functions (i.e. ADD/ADD, ADD-SUB, DIRECTIONAL COUNT, QUADRATURE, and DUAL COUNT).

Input Scaling: A & B Counters (-9.9999 to 99.9999, or -9.9999 x 10^{-3} to 99.9999 x 10^{-3})

Quadrature Counting:
Software selectable X1, 2, 4

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

Reset Functions: Manual and remote.

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)

Ordering Information

MODEL NUMBER	DESCRIPTION	DISPLAY RED TRANSMISSIVE	DISPLAY REFLECTIVE	ANALOG INPUT	ANALOG OUTPUT	RS-485 RS-232 RS 422
8803-0000	Base unit, Red Trans., 10-30VDC, Prescale	X				
8813-0000	Base unit, Reflective, 10-30VDC, Prescale		X			
8803-0100	Red Trans., 10-30VDC, Prescale, Serial Communications	X				X
8813-0100	Reflective, 10-30VDC, Prescale, Serial Communications		X			X

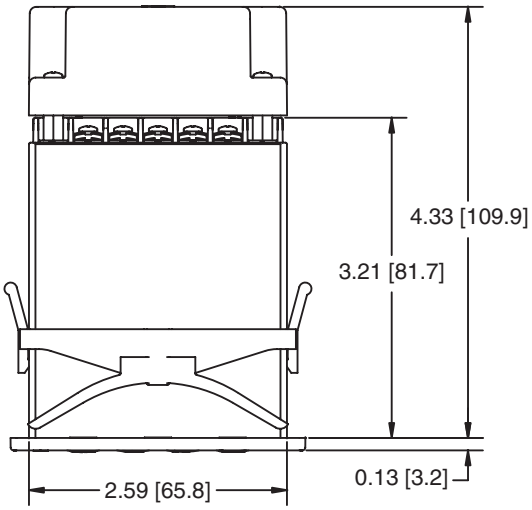
ACCESSORIES
200557-002S AC Voltage module, +90VAC to +250VAC also outputs +12VDC for base unit & sensor

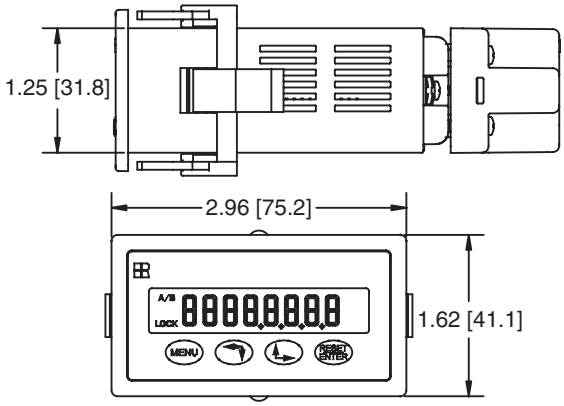
Note: Reflective display is recommended for applications that will be exposed to direct sunlight

* All parts are normally in factory stock.

Dimensions

Model 88 Totalizer

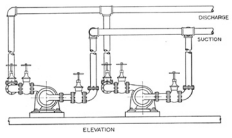




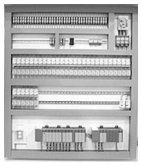
Panel Cutout 2.63" to 2.605" x 1.28" to 1.26" [66.8 to 66.2 x 32.5 to 32.0]
Max. thickness of panel 0.5" [12.7]

Applications

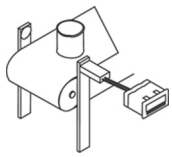
Flow meter



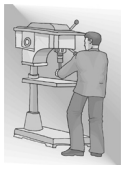
Panel builders



Piece count



Secondary equipment



Test 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.

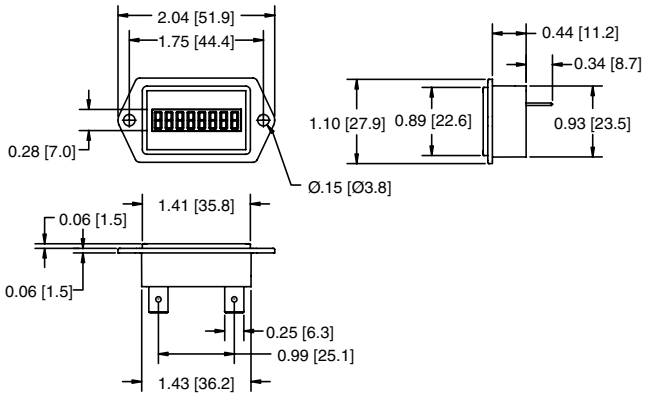
Models	Description
3301-0000	2-Hole Rect., 10-277 VDC AND 20-277VAC
3301-1000	3-Hole Round, 10-277 VDC AND 20-277VAC
3301-2000	Flush-Rect., 10-277 VDC AND 20-277VAC
3301-3000	Flush-Round, 10-277 VDC AND 20-277VAC

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

* All Items are normally in factory stock.

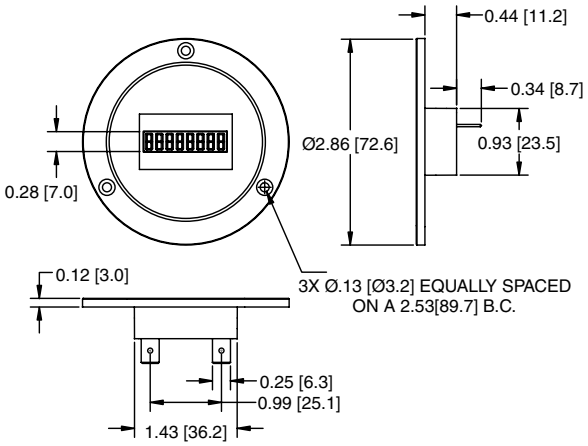
Dimensions

2-Hole



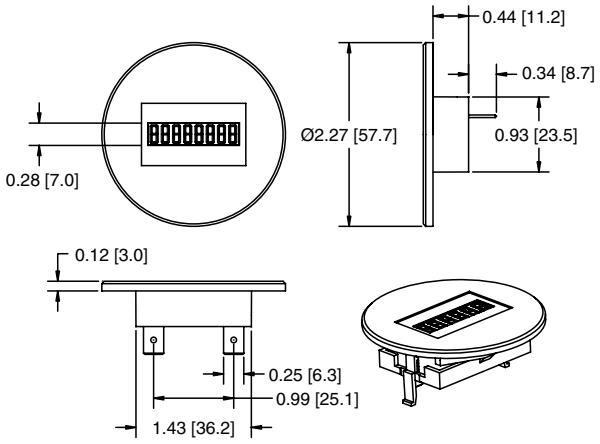
In-front panel cutout: 1.45 X 0.95 [24.0 x 37.0]
Behind panel cutout: 1.42 X 0.90 [22.9 x 36.1]

3-Hole Round



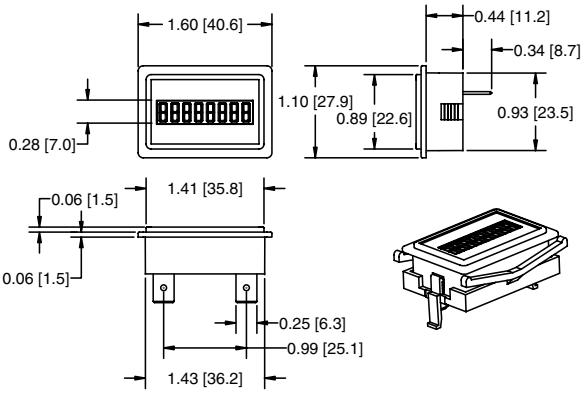
Panel cutout: 1.45 X 0.95 [24.0 x 37.0]

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

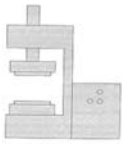
Medical Devices

Control Panels

Secondary Equipment

Test Equipment

Production Equipment



Office Equipment

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. The Model 3311-1020 is not NEMA 4 & 4X rated. 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
- Manual reset - Model 3311-1020 has a front panel push button
- 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:	Front panel push button - Model 3311-1020 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.

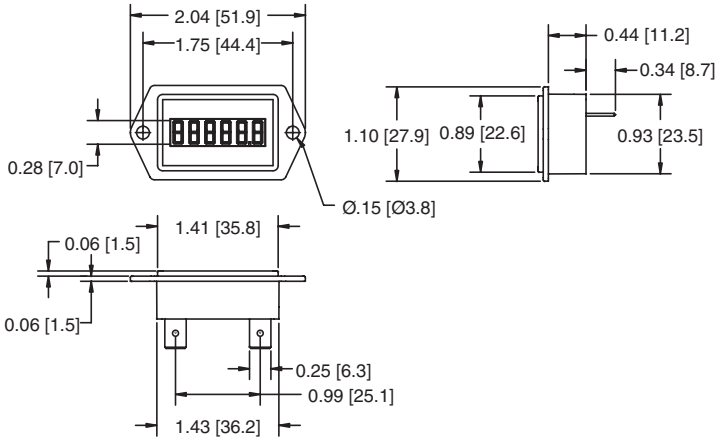
Models	Description
3311-0000	2-Hole Rect., 10-277 VDC AND 20-277VAC
3311-1000	3-Hole Round, 10-277 VDC AND 20-277VAC
3311-2000	Flush Rect., 10-277 VDC AND 20-277VAC
3311-3000	Flush-Round, 10-277 VDC AND 20-277VAC

Models	Description
3311-0010	2-Hole Rect., 10-277 VDC AND 20-277VAC, remote reset
3311-1010	3-Hole Round, 10-277 VDC AND 20-277VAC, remote reset
3311-2010	Flush Rect., 10-277 VDC AND 20-277VAC, remote reset
3311-3010	Flush-Round, 10-277 VDC AND 20-277VAC, remote reset
3311-1020	3-Hole Round, 10-277 VDC AND 20-277VAC, manual reset

All parts are normally in factory stock.

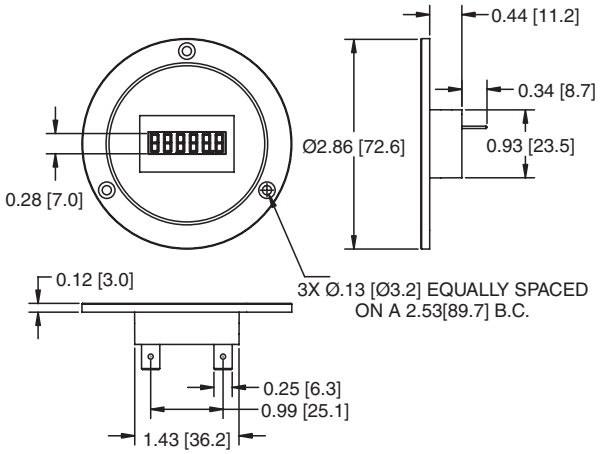
Dimensions

2-Hole



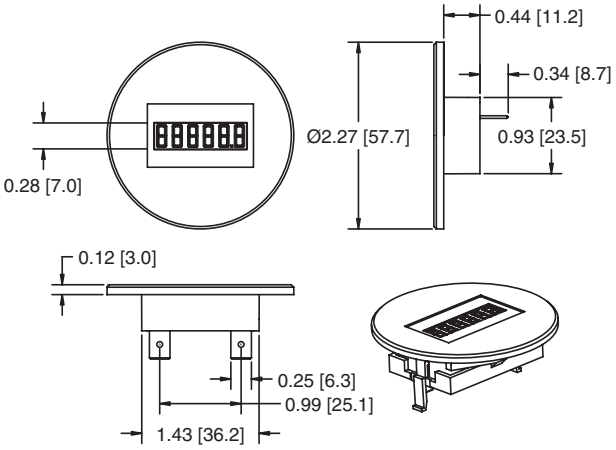
In-front panel cutout: 1.45 X 0.95 [24.0 x 37.0]
Behind panel cutout: 1.42 X 0.90 [22.9 x 36.1]

3-Hole Round



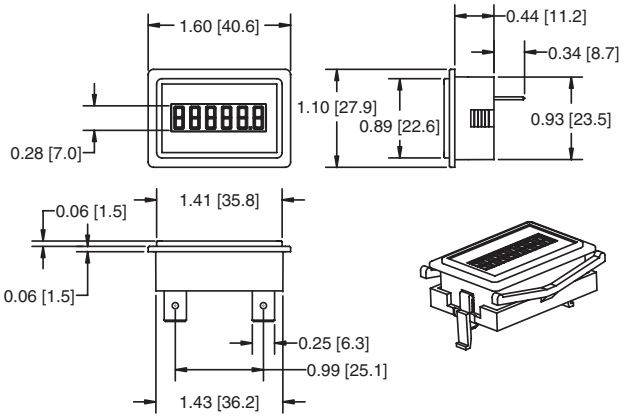
Panel cutout: 1.45 X 0.95 [24.0 x 37.0]
For 3311-1020 (manual reset), panel cutout is 2.0 [50.6]

Flush-Round



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

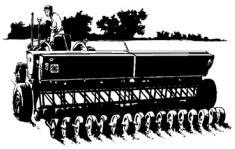
Flush-Rectangular



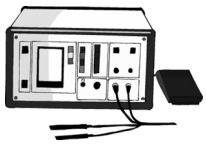
Panel cutout: 1.45 X 0.95 [24.0 x 37.0]
Maximum panel thickness: 0.15 [3.8]

Applications

Agricultural Equipment



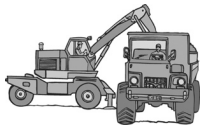
Medical Devices



Pressure Washers

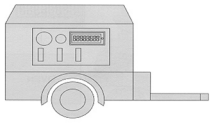
Sweepers

Construction Equipment



Marine Applications

Generators

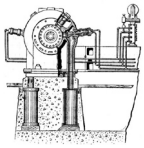


Office Equipment

Test Equipment

Boom Lifts

Compressors



Utility Vehicles

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
Reset: Remote, manual, and non-reset
Speed:
7 Digit: 0-40 counts/second [min. 12.5ms - on, 12.5ms - off]
0-150 counts/second [min. 3.3ms - on, 3.3ms - off]
8 Digit: 0-35 count/second [min14.3ms - on, 14.3ms - off]
Inputs: Switch (no-voltage), 3-30VDC, 20-250VAC/VDC
Vih 20VAC/3VDC minimum
Vil 3VAC/1VDC maximum
Power: Self-powered (internal lithium battery)
Mounting: Panel with clip
Terminations: Terminal block, or connector with 8" [200mm] wire leads
Battery Life: ~20years

Weight 2 oz. [57g]
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: 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

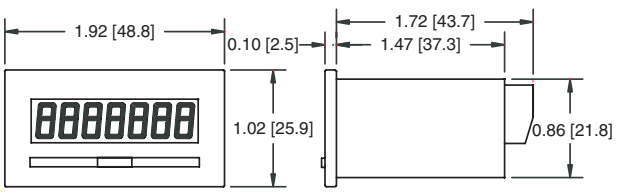
Models	Reset			Input			Speed/cps		Terminations		Color	
	remote	none	manual	switch	3-30VDC	20-250VAC/VDC	40/150	40	term. block	8" wire leads	Tan	Black
5300-0000	X			X			X		X		X	
5300-0001	X			X			X		X			X
5300-0100	X		X	X			X		X		X	
5300-0101	X		X	X			X		X			X
5300-1000	X				X		X		X		X	
5300-1001	X		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

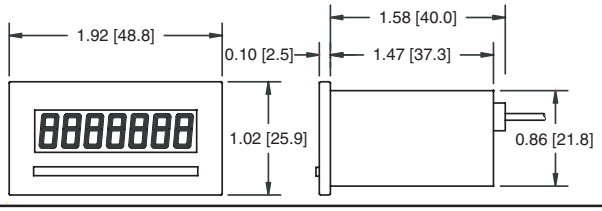
All part numbers shown are for 7 digit models. Please contact the factory for information on 8 digit models.

Dimensions

TERMINAL BLOCK

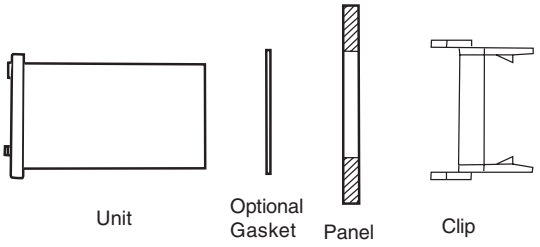


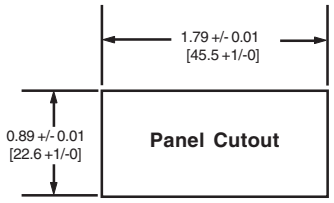
WIRE LEADS



Operating Instructions

MOUNTING:



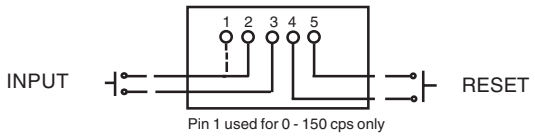


The mounting clip accommodates panel thicknesses up to 1/4" [6.4mm].

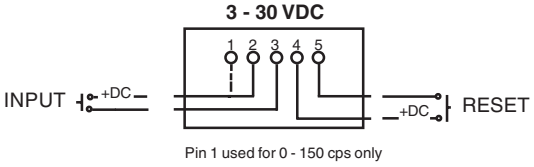
Panel adapter plates are available in flush and 2 hole mount to fit various panel cutouts. Consult the factory for availability.

WIRING:

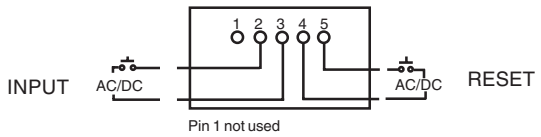
SWITCH (non-voltage)



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:

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

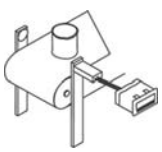
There is an internal connection between pin 3 and pin 5, a single wire can be used by connecting it to either pin 3 or pin 5. This option **does not** apply for units with input of 20 - 250VAC/VDC or manual reset enable.

OPTIONAL INPUTS:

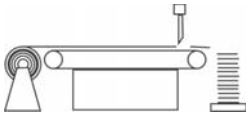
Optional control circuity (such as transistors) may be used as inputs provided that such circuitry provides the required parameters of the model used.

Applications

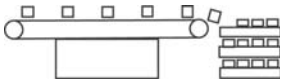
Number of Parts



Shear



Packaging Line



Description

The Model 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.

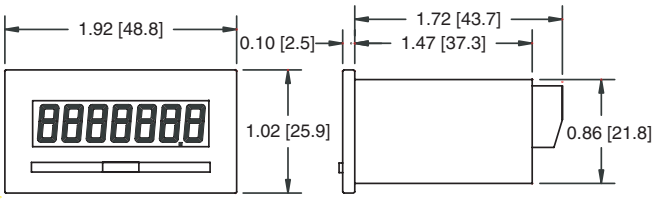
Models

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	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	

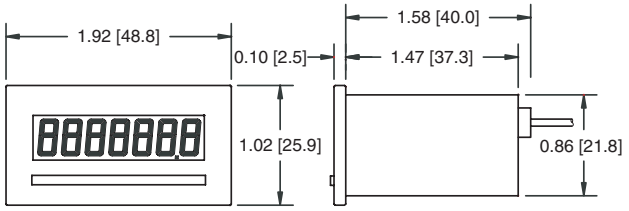
* Items in bold are normally in factory stock.

Dimensions

TERMINAL BLOCK

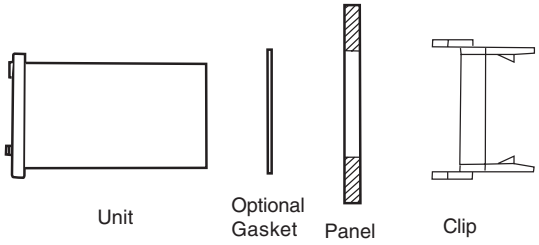


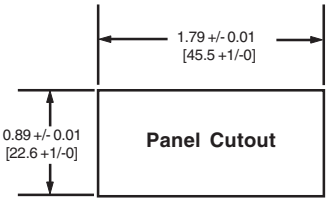
WIRE LEADS



Operating Instructions

MOUNTING:



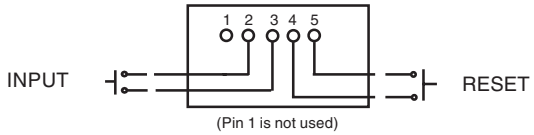


The mounting clip accommodates panel thicknesses up to 1/4" [6.4mm].

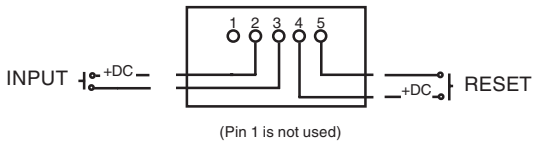
Panel adapter plates are available in flush and 2 hole mount to fit various panel cutouts. Consult the factory for availability.

WIRING:

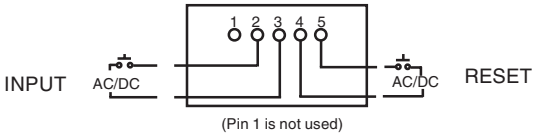
SWITCH (non-voltage)



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 circuity (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 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

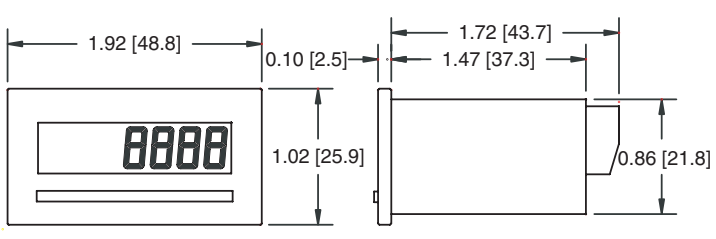
Figures: 4 LCD figures, 0.32” [8mm] high
Reset: Remote, manual, or non-reset
Speed: 10,000 counts/minute
Inputs: Switch (no-voltage), 3-30VDC, 20-250VAC/VDC
Power: Self-powered (internal lithium battery)
Mounting: Panel
Terminations: Terminal block, or connector -w/ 8” [200mm] wire leads
Battery Life: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

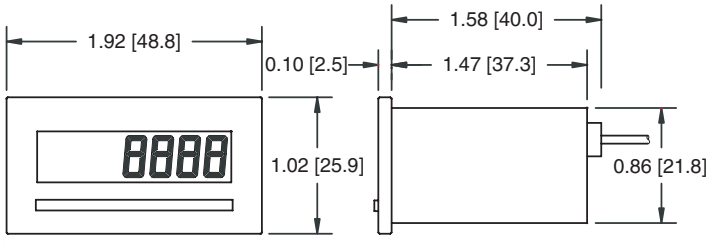
Models	Reset			Input		Speed/RPM	Terminations		Color			
	remote	none	manual	switch	3-30VDC	20-250VAC/VDC	10,000	2500	term. block	8” wire leads	Tan	Black
5330-0000	X			X			X		X		X	
5330-0001	X			X			X		X			X
5330-1000	X				X		X		X		X	
5330-1001	X				X		X		X			X
5330-2000	X					X		X	X		X	
5330-2001	X		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

Dimensions

TERMINAL BLOCK

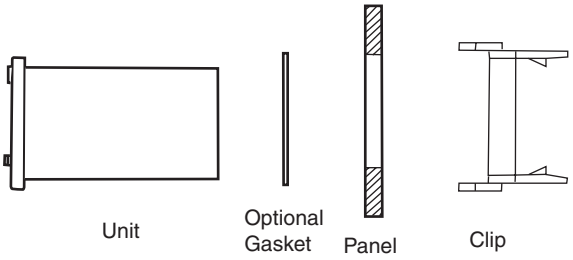


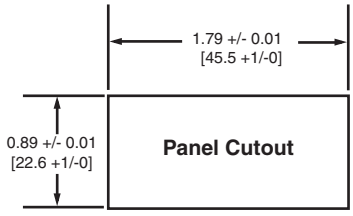
WIRE LEADS



Operating Instructions

MOUNTING:



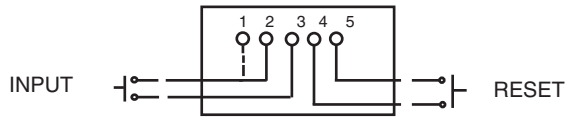


The mounting clip accommodates panel thicknesses up to 1/4" [6.4mm].

Panel adapter plates are available in flush and 2 hole mount to fit various panel cutouts. Consult the factory for availability.

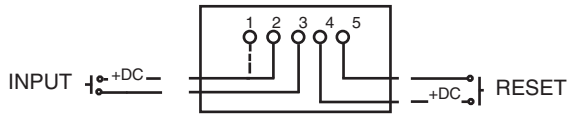
WIRING:

SWITCH (non-voltage)



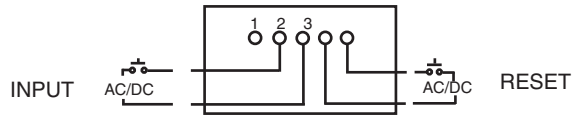
Pin 1 used for 0 - 10,000 RPM)
Pin 2 used for 0 - 2, 500 RPM)

3 - 30 VDC



Pin 1 used for 0 - 10,000 RPM)
Pin 2 used for 0 - 2, 500 RPM)

20 - 250VAC/VDC



Pin 1 not used

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

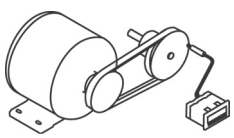
There is an internal connection between pin 3 and pin 5, a single wire can be used by connecting it to either pin 3 or pin 5. This option **does not** apply for units with input of 20 - 250VAC/VDC or manual reset enable.

OPTIONAL INPUTS:

Optional control circuity (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

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]

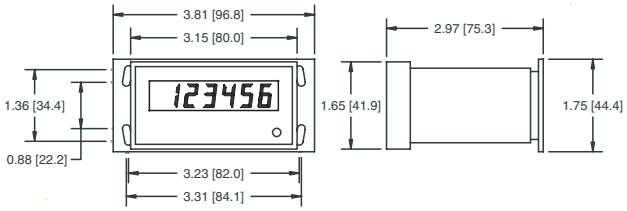
Note: When interfacing the Model 94 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

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.

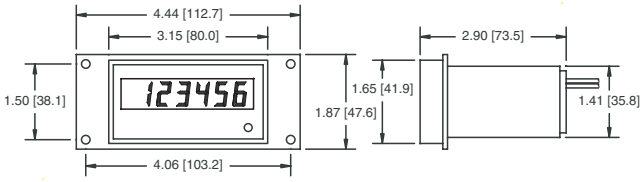
Dimensions

Base Mount



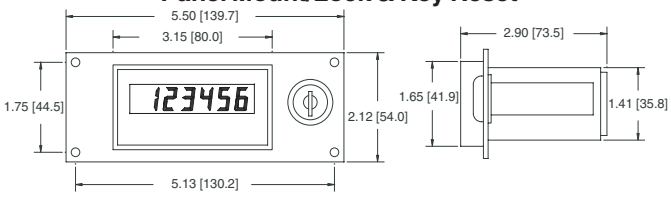
Mounting holes: 0.14" x 0.24" [3.6mm x 6.1mm] slots

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

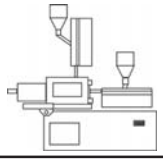


Panel cutout: 4.75 " x 1.50" [76.2mm x 44.5mm]
Mounting holes: 0.17" [4.3mm] Dia.

Applications

Office equipment

Production



Test labs

Control panels



Description

A 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]

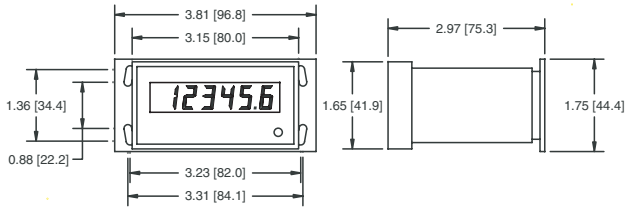
Note: When interfacing the Model 94 with a Solid State Relay or AC Sensor, the leakage current needs to be considered. Contact the factory or see the application note at www.redingtoncounters.com for further information.

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.

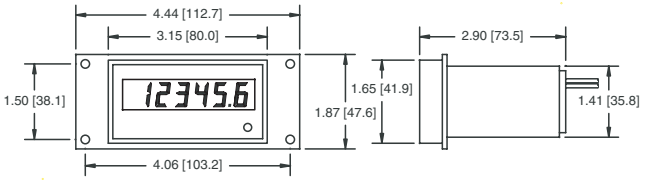
Dimensions

Base Mount



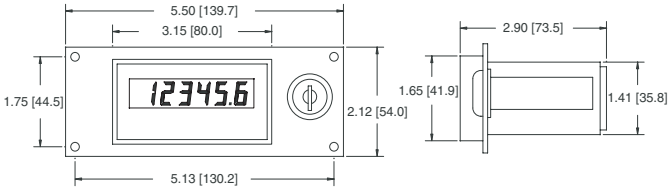
Mounting holes: 0.14" x 0.24" [3.6mm x 6.1mm] slots

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

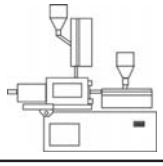


Panel cutout: 4.75 " x 1.50" [76.2mm x 44.5mm]
Mounting holes: 0.17" [4.3mm] Dia.

Applications

Office equipment

Production



Test labs

Control panels