trumeter
innovation by design

CONTROL AND MEASUREMENT
PRODUCT CATALOGUE

2016

www.trumeter.com

Welcome to the 2016 update of the Trumeter catalogue. It contains many exciting new products that we have developed and acquired, as well as all the Control and Measurement products that you have used for many years.

At Trumeter, we value your business and want to offer you products and solutions that help you succeed. We continue to invest in improving our products, processes and production capabilities, resulting in a broad range of reliable, high-quality, innovative products. Our products carry warranties of between 3-and-10-years, much longer than our competitors and we think this clearly demonstrates our confidence in both our design and manufacturing.

The acquisition of Redington in 2011, Kessler Ellis Counting and Timing Division in 2015, and Control Dynamic in 2016 allows us to offer an even larger range of professional control and measurement products. These products, along with those developed by our Engineering Team, are manufactured to highly-exacting quality standards at our world-class manufacturing facility, one you are welcome to visit any time.

The Trumeter team and I are committed to achieving 100% customer satisfaction, so in addition to expanding our range of products we continue to invest in our customer support teams. From our bases in Europe, North America, and Asia we have a world-class team of application engineers, sales managers, and customer and technical support specialists who are ready to assist you in selecting the best product or solution for your application.

If you have a requirement for an electronic product that is not in this catalogue, or you would like a special version of one of our products, please let us know – we would be happy to customise our product specifically to your requirement. Customisation is something our engineering team enjoys and excels at, with 80 years of industry experience perfectly integrated with the latest engineering and technology advances.

We particularly specialise in developing innovative products and solutions that reduce *your* product cost, and differentiate *your* products.

Our uniquely special and expertly-designed products are used in multiple industries and applications across the world, including hundreds of thousands of vehicles and consumer products and appliances. More recently, you can see our technologies at work on a wide range of industrial LED lighting products, often including our leading edge sensing and LED technologies, **tru**lite™ and **tru**sense™.

We are constantly developing new products and improving existing ones. To keep up-to-date on all our innovations, please talk with your local Sales Manager. You can also visit www.trumeter.com and subscribe to our newsletter, follow us on Facebook or Twitter for the latest news, or feel free to send me an email directly and I will keep you fully informed.

Lastly, I want to mention our five core values of Innovation, Integrity, Ambition, Teamwork and Customer Driven. These are really important to our company and people, and mean you can know what to expect in terms of the standards that we set for ourselves and the way we will deal with you.

Thank you for your interest in Trumeter and our products, services, and technologies. We look forward to the opportunity to help your business grow and succeed.

Director
john.smith@trumeter.corn

GLOBAL GROUP OPERATIONS

South Windsor, Connecticut
Sales
Technical Support

Manchester, UK
Headquarters
Sales
Engineering
Distribution

Florida, USA
Sales
Distribution
Engineering

Penang, Malaysia
Sales
Manufacturing
Engineering
Distribution

OUR PURPOSE

To create sustainable growth for our customers, by delivering new and innovative products.

By:-
• Understanding our customers and their markets.
• Creating expertly-designed products and services that are innovative and robust.
• Delivering world-class manufacturing at a competitive price.

OUR VALUES

Innovation - Our products and services change the game and the way we do business is creative and flexible.

Integrity - We do what we say we will do and operate to the highest professional standards.

Ambition - We are passionate about improving everything, constantly challenging the status quo.

Teamwork - We value and respect our employees and our partners and fundamentally believe teams outperform individuals every time.

Customer Driven - We cherish our customers, listen to them, and continually meet their expectations.

QUALITY

• **RoHS:** All current Trumeter products are in conformity with the applicable requirements of the following Directive(s) of the European Parliament. 2011/65/EU - The Restriction of Hazardous Substances Directive (RoHS 2).
• **ISO9001:2008:** accreditation since May 2002 Manufacturing, Design and Engineering, Customer Fulfilment.
• **ISO TS 16949:** In progress.
• **QPulse:** Company-wide Distributed Quality Management System.
• Strong supplier/sub-contractor evaluation process
• Multiple successful third part audits

CONTENTS

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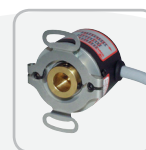
COUNTERS

7000 / 7000AS Series
6-digit LCD Electronic Totalising Counter

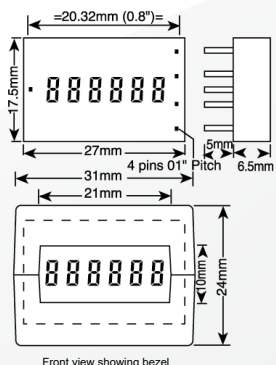Miniature, 6-digit LCD PCB mounted totalising counter designed for minimal power requirement. These miniature 6-digit totalising counters are suitable for either direct PCB mounting, or panel mounting with bezel supplied.

Features
- Uses the latest CMOS circuitry to achieve current consumption of less than 10uA quiescent
- 6mm black character high contrast LCD display
- Bi-directional counting (7000AS model)
- Counts pulses up to 10kHz frequency
- External reset input
- CE, UL and cUL approved

The 7000/7000AS can also be configured to count electro-mechanical contact closure events using an external resistor and capacitor to eliminate contact bounce. Similarly the supply voltage can be increased using an external resistor and 3V zener diode. See instruction leaflet for details.

Specification

|	
Supply Voltage	2.6 - 3.4VDC
Current Consumption	10µA quiescent, 20µA at 10kHz
Display	6-digit black LCD, 6mm characters with leading zero blanking
Count Range	999999 display rollover to 0
Count Input	10kHz maximum, negative edge triggered, 0.7V threshold, 50µS minimum pulse length, TTL/CMOS Compatible
Reset Input	Active low, 0.7V threshold, 15mS minimum pulse length, TTL/CMOS Compatible
Direction Input (AS model only)	Add=logic 1, Subtract=logic 0 (0V)
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-10°C to +60°C [14°F to 140°F]
Material	Clear polycarbonate. Supplied with black ABS panel mount bezel
Environmental Protection	IP40/DIN40050
Weight	7.5g [0.3oz.]

Ordering Information
7000 - 6-Digit LCD Totalising Counter
7000AS - Bi-directional, Add/Subtract version of above

7016
6-digit LCD Electronic Totalising Counter

The 7016 comes ready for fitment and features flying leads for connection to remote contact closure input devices.
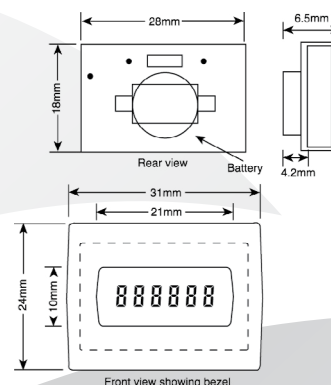
Features
- Self-powered for 3-4 years using a 1.5V button cell
- 6-digit 6mm character high contrast LCD display
- Low power CMOS circuitry to achieve an expected battery life of 3 to 4 years at 20°C
- Simple to install
- Integral de-bounce circuitry
- CE approved

The counter increments when contacts are opened. They may be panel mounted with the supplied bezel.

Specification

|	
Supply Voltage	1.5V button cell SR44 (supplied)
Expected Battery Life	3 - 4 years at 20°C
Display	6-digit LCD, 6mm characters
Count Range	999999 display rollover to 000000
Count Input	High speed - 12Hz. Low speed - 0.2Hz, contact closure. Operates on contact opening. Negative edge triggered - 12Hz max
Reset	Reset to zero on external reset input and insertion of battery
Operating Temp	0°C to +50°C [32°F to 122°F]
Storage Temp	-10°C to +60°C [14°F to 140°F]
Material	Clear polycarbonate, black ABS bezel for panel mounting
Environmental Protection	IP40/DIN40050
Weight	7.5g [0.3oz.]

Ordering Information
7016 - 6-Digit LCD Self-powered Counter

7110DIN
8-digit Totalising Counter

8-digit LCD self-powered totalising counter in a 24 x 48 DIN standard case. Powered by integral lithium batteries these totalising counters have a front panel reset push-button which can be enabled or disabled by a wiring connection or external contact closure.
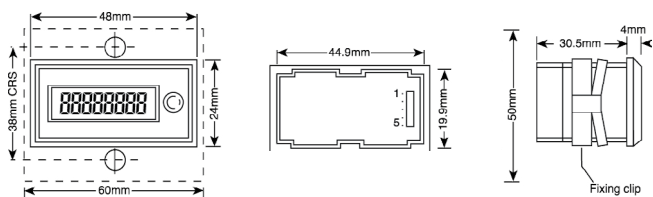
Features
• Use of the latest CMOS circuitry achieves 10-year battery life
• 7mm black character high contrast LCD display
• Counting up to 10kHz
• Contact closure/open collector low speed count input with integral de-bounce circuitry
• Choice of mounting available, front panel with supplied bezel or rear mounting clip
• Front panel can be sealed to IP65/NEMA 4X
• UL, cUL and CE approved.

External connections are made by a standard plug-on connector with colour coded 24cm flying leads (supplied)

Specification

|	
Supply Voltage	Internal lithium long life battery
Display	8-digit black LCD, 7mm characters with leading zero blanking
Count Range	99999999 display rollover to 0
Manual Reset Enable (PIN 2)	Link to COMMON (PIN 1) to enable front panel reset push-button
External Reset (PIN 3)	Contact closure/open collector, active low, 0.7V threshold, 15mS minimum closure time
Low Speed Count Input (PIN 4)	Contact closure/open collector with integral de-bounce circuitry. 30Hz maximum, negative edge triggered, 0.7V threshold, 15mS minimum closure time
High Speed Count Input (PIN 5)	Electronic input 10kHz maximum, negative edge triggered, 0.7V threshold 50μS minimum pulse length, TTL/CMOS Compatible
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-20°C to +60°C [-4°F to 140°F]
Environmental Protection	IP65/NEMA 4X using gasket supplied
Mounting	Either with clip mount supplied or two front screws with bezel supplied

Ordering Information
7110DIN - Totalising Counter

7111 Series
8-digit Self-powered Electronic LCD Counter

8-digit liquid crystal display counter, self-powered with a 10-year battery life. A compact LCD counter designed for many applications, screw terminals ensures fast wiring and features including backlight (external 5VDC supply required), decimal point selection, count direction indication and 9mm high digits. High Voltage (HV) version accepts input voltages of 10-110VDC or 10-240VAC.
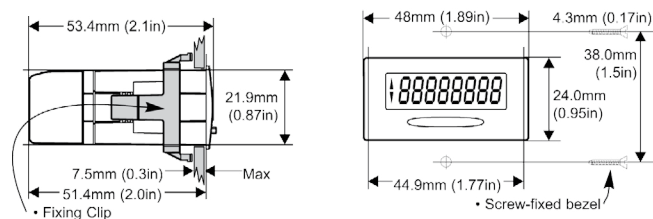
Features
• 9mm high contrast LCD display
• 10-year battery life
• Bi-directional counting
• Counts pulses up to 10kHz frequency
• External reset input.
• CE, UL and cUL approved

Specification

Battery life	10-years typical at 1KHz count speed
Display	8-digit black LCD, 9mm characters with leading zero blanking
Count Range	99999999 display rollover to 0
Count Input	10kHz maximum, negative edge triggered, 0.7V threshold, 50μS minimum pulse length, TTL/CMOS Compatible
(HV Version)	10 – 240VAC ±10%, 5 – 110VDC ±10%, Opto-Isolated, maximum 10 pulses per second, minimum 50mS
Reset Input	Active low, 0.7V threshold, 15mS minimum pulse length, TTL/CMOS Compatible
(HV Version)	10 – 240VAC ±10%, 5 – 110VDC ±10%, Opto-Isolated, minimum 15mS
Direction Input	Add=logic 1, Subtract=logic 0 (0V)
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-20°C to +60°C [-4°F to 140°F]
Material	Clear polycarbonate
Environmental Protection	IP65 NEMA 4X
Weight	62g [2.2oz.]

Ordering Information
7111 - 8-digit Self-powered Totalising Counter
7111HV - 8-digit Self-powered Totalising Counter with High Voltage Input

7400AS / 7401AS Series
8-digit Electronic Totaliser

8-digit LCD bi-directional totalising counter for PCB mounting, with push-button reset.

This PCB mount bi-directional totalising counter operates from an external 3VDC supply. It is supplied with an electrical reset.

7401AS is non-reset version.
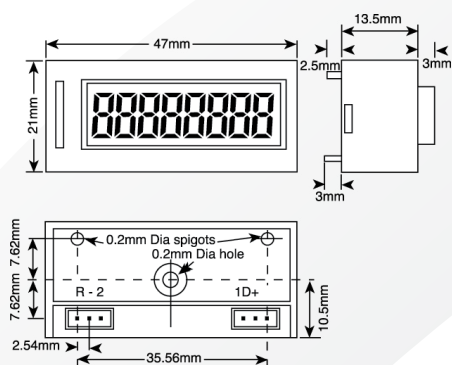
Features

• 8-digit high contrast LCD characters
• Latest CMOS circuitry achieves an expected battery life of 10-years
(1/2 AA 900mAH 3V lithium battery)
• Remote reset facility
• Leading zero blanking
• Add/subtract counting of pulses up to 10kHz
• Low speed contact closure input with integral de-bounce circuitry
• CE, UL and cUL approved

Inputs are provided for count, direction and external reset.

Specification

Supply Voltage	2.6 - 3.4VDC
Current Consumption	Less than 10µA, typically 5µA
Display	99999999 display rollover to 0
Electronic Count Input (1)	10kHz maximum, positive edge triggered, 0.7V threshold, 100µS minimum pulse length, TTL/CMOS Compatible
Low Speed Count Input (2)	Contact closure/open collector input, 30Hz maximum, negative edge triggered, 0.7V threshold, 25mS minimum pulse length
Reset Input (R)	Contact closure/open collector, active low, 0.7V threshold, 15mS minimum pulse length
Direction Input (D)	Electronic input TTL/CMOS Compatible. Add=logic 1, Subtract=logic 0(0V)
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]

Ordering Information
7400AS - With pushbutton reset
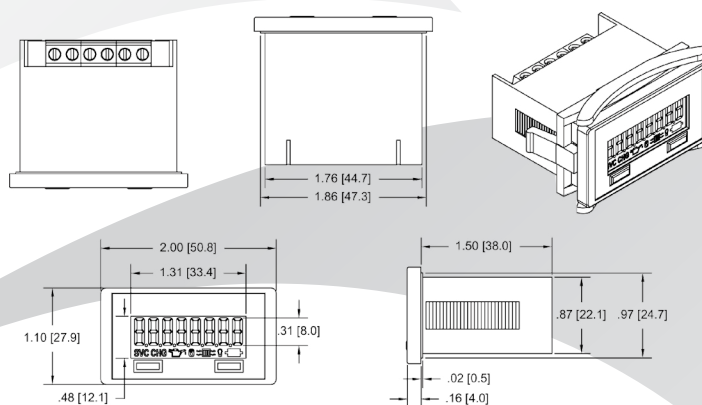7401AS - Non Reset Version

6300 Series
8-digit Self-powered Electronic LCD Counter

The 6300 Series with 8 LCD digits brings more features to the user than ever before. Available in single and/or multi-function units, the array of functions and options make the Model 63 suitable for a variety of applications.

A long list of features includes a programmable output, an external reset, a front panel reset enable, and programmable alert or preset capabilities. The front end of the Model 63 utilizes a high-contrast, reflective, 8-digit LCD with 0.32 inch [8mm] digits and seven icons, while at the back end, Switch (Dry Contact), Low Voltage DC, and High Voltage DC and AC Inputs are available.

Features
• Optional external electronic reset
• Optional front panel programming
    3 Redi-Alerts
    Preset functionality
    Start time (available on hour meter only)
    Part numbers must be in 63XX-X5XX-0000 format to be programmable

Specification
• Reflective LCD Display with 8 large (8mm) digits
• Choice of one or two inputs
    Switch Input (No voltage)
    Low DC Voltage (3-30VDC) <2mA
    High Voltage (20-300VAC or 10-300VDC) <2mA
• Internal lithium battery, 10yr typical life
• NEMA 4/4X, 12, and IP66 rated
• CE compliant, UL and cUL recognised
• Operating Temperature: -10°C to +60°C [14°F to 140°F]
• Storage Temperature: -20°C to +70°C [-4°F to 158°F]

Ordering Information
6300-0000-0000 - Ctr, 40/150HZ, Dry Contact, Remote-Reset
6300-0500-0000 - Ctr, 40/150HZ, Dry Contact, Programming
6300-0600-0000 - Ctr, 40/150HZ, Dry Contact, Front Panel Reset
6300-1000-0000 - Ctr, 40/150HZ, 3-30VDC, Remote-Reset
6300-1500-0000 - Ctr, 40/150HZ, 3-30VDC, Programming
6300-2500-0000 - Ctr, 40/150HZ, 10-300VDC or 20-300VAC, Programming
6301-2000-0000 - Ctr, 40HZ, 10-300VDC or 20-300VAC, Remote-Reset

Other versions upon request.

3400 Series
"any housing, any function"

The 3400 Series provides a large display, with 0.28" [7mm] high characters, in the industry standard housings. Units are available in 5 different housings. All models are totally sealed from moisture and dirt. A wide operating voltage, 10-300VDC and 20-300VAC make the 3400 series versatile for all indoor and outdoor applications. All models are NEMA 4/4X, 12, and IP66 rated from the front when used with the optional gasket, and have a polarized lens which assures high visibility in an outdoor environment.

Maintenance Meters are offered with multiple "Redi-Alerts" to alert users when service is due. Models are available with front panel field programmable alerts. Not only does the display flash to get attention, but it displays a choice of 7 different .08"[2mm] maintenance icons. Users can program or specify the service interval and flash duration for each Redi-Alert.

Features
- Totally sealed from moisture and dirt
- AC or DC voltage input in the same unit
- Compact depth
- Optional Preset Count value/Hour Meter
- Optional - up to 3 Redi-Alerts/7 icons
- Fits in existing panel openings
- Always on display
- A choice of 5 housings
- A choice of reset modes
- Optional front panel programmable
- Can be programmed with starting time
- 10-year typical battery life
- CE compliant, UL and cUL recognised

Specification

Case Style	• 2-Hole Rectangular • 3-Hole Round • Mini Flush Rectangular • SAE Flush Round • Snap-In
Programmability - Optional	• Front Panel
Input Option	• 10-300VDC or 20 to 300VAC <2mA • Switch/Dry Contact
Reset - Optional	• Remote (Dry Contact/Switch) - Part Numbers end in- X010 • Manual - Part Numbers end in -X070 • Non-Reset - Part Numbers end in -X000
Operating Temperature	-10°C to +60°C [14°F to 140°F]
Storage Temperature	-20°C to +70°C [-4°F to 158°F]

Ordering Information
3400-0000 - AC/DC Ctr, 2-Hole, Non-Reset
3400-0010 - AC/DC Ctr, 2-Hole, Remote-Reset
3400-1000 - AC/DC Ctr, 3-Hole Round, Non-Reset
3400-2010 - AC/DC Ctr, Flush Rectangular, Remote-Reset
3400-3010 - AC/DC Ctr, SAE Round, Non-Reset

Other versions available on request.
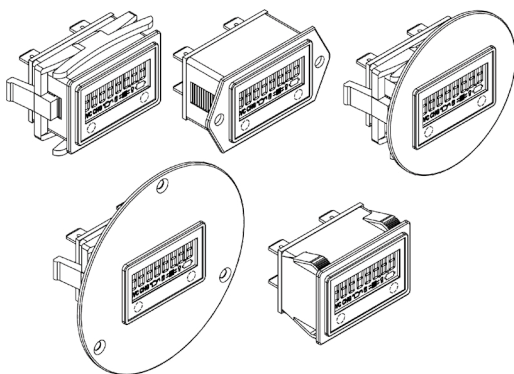
94 Series
Large LCD Totaliser

A 6-figure, battery-powered, push-button or key reset, electronic LCD totaliser, available in base mount or panel mount configuration. No external power supply is required. Large 0.50 inch (12 mm) LCD figures for fast, easy reading.

Operates at 6-240 VAC/VDC. 8-years internal lithium battery. Attractive styling and silent operation makes these models equally well-suited for lab or office equipment applications.

Features
• No external power supply required
• Long life lithium battery
• Large easy reading display
• Operates at 6 to 240 VAC/VDC

Specification
• Figures: 6 LCD figures, 0.50'' [12mm] high
• Reset Options: Push-button, or lock and key front
• Speed: 0-4Hz, (min. 12.5ms - on, 12.5ms - off)
• Input: 6-240VAC or VDC
• Mounting: Base or panel
• Terminations: (2) #22 AWG 221°F [105° C] wire leads, 8'' [203mm] long
• Temp.Range: -10°C to +60°C [14°F - 140°F]
• Power Source: Internal lithium battery
• Weight: 510g [18 oz.]

Ordering Information
9415-001 - 6-240 VAC or VDC, Base Mount Pushbutton Reset
9415-003 - 6-240 VAC or VDC, Panel Mount Pushbutton Reset
9415-005 - 6-240 VAC or VDC, Key Reset

18 Series
Electronic Hand Tally (ADD ONLY) or (ADD/SUBTRACT)

The E2M and E3 offer an electronic version of the popular Hand Tally counter and are available with a choice of Add only or Add/Subtract models.

Counts are input using large positive action buttons. The Add model has a single count button and the Add/Subtract model has two separate count buttons. The "+" button (green) will add a count to the total and the "-" button (red) will subtract a count from the total.

When activated, an audible "beeper" sounds every count to verify that a count has been registered. All electronic components provide a long-life counter with no moving parts to wear out. The counter is manufactured from impact-resistant plastic, combining lightweight with outstanding durability.

Features
• Add or Add/Subtract models
• Beep at every count with the option of switching the sound off for silent operation
• Cannot accidentally reset or turn off; On/Off/Reset button
• Must be held down for 3 seconds to reset
• Long life battery (replaceable) - typically 250 days without sound
• Large LCD display
• No mechanical parts to wear out
• Large rubber buttons for comfort of use
• Ergonomically designed for ease of use
• Carrying cord - 9.0" [229mm]
• Light weight

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

Ordering Information
E2M-1804 - Electronic Hand Tally
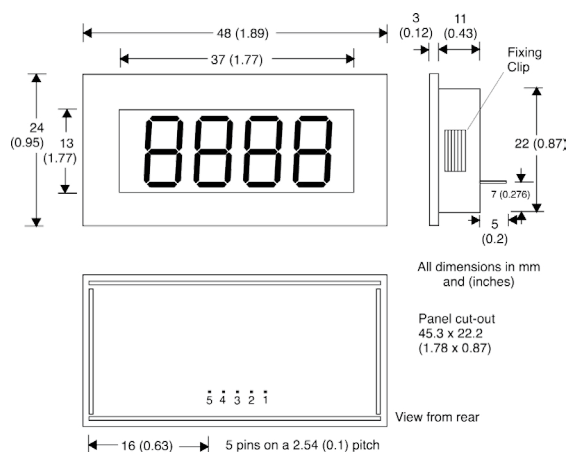E3-1804 - Electronic Hand Tally (Add/Subtract)

HED 251
4-digit Panel Mount Counter (24mm X 48mm)

24 X 48mm 4-digit totalising counter suitable for many OEM applications. Ideal for contact closure and reed switch signal inputs.

These miniature 4-digit totalising counters are suitable for either direct PCB mounting or panel mounting.

Features
- Uses the latest CMOS circuitry to achieve very low quiescent current consumption
- 10mm black character high contrast LCD display
- Integral backlight
- Counts pulses up to 10Hz frequency
- External reset input
- CE and RoHS compliant

Specification

|	
Supply Voltage	2.7 - 3.3 VDC
Display	4-digit black LCD, 10mm characters with leading zero blanking
Count Range	0-9999
Count Input	Contact closure open collector input. 18Hz max, negative edge triggered, 0.7V threshold 1.8V max, 25mS min pulse width
Reset Input	Active low, 0.7V threshold, 15mS minimum pulse length, TTL/CMOS Compatible
Operating Temp	-10°C to +50°C [14°F to 122°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]

Ordering Information
HED251-T

HED 261
8-digit Panel Mount Counter (24mm X 48mm)

24 X 48mm 8-digit totalising counter suitable for many OEM applications. Ideal for contact closure and reed switch signal inputs. Panel mounted or PCB mounted and with high speed input 10kHz or a slow speed debounced input 20Hz.

These miniature 8-digit totalising counters are suitable for either direct PCB mounting or panel mounting.
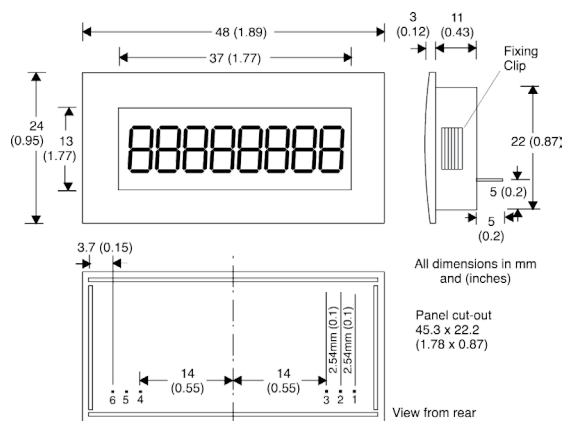
Features
- Uses the latest CMOS circuitry to achieve very low quiescent current consumption
- 8mm black character high contrast LCD display
- Integral backlight
- Counts pulses up to 10kHz frequency
- External reset input
- CE and RoHS compliant

Specification

Supply Voltage	2.7-3.3 VDC
Display	8-digit black LCD, 8mm characters with leading zero blanking
Count Range	0-99999999
Count Input	• High speed input (pin3) 10kHz max negative edge triggered, 0.7V threshold 18V max, 50uS min pulse width • Contact closure open collector input (pin2). 20Hz max, negative edge triggered, 0.7V threshold 18V max, 15mS min pulse width
Reset Input	Active low, 0.7V threshold, 15mS minimum pulse length, TTL/CMOS Compatible
Operating Temp	-10°C to +50°C [14°F to 122°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]

Ordering Information
HED261-T

10 Series
Electromechanical Counter

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

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

Specification

Figures	6 figures, white on black, 0.19'' [5mm] high
Reset	Knob, lock and key, or thumb wheel
Speed	1,000 counts/minute (min. 30ms - on, 30ms - off)
Voltage	115VAC, (+/- 10%)
Power	7.8 watts (nominal)
Mounting	Base or panel
Terminations	(2)#22 AWG 105°C wire leads, 8'' [203mm] long
Operating Life	Beyond 50 million counts
Temp. Range	-5°C to +40°C [+23°F to +104°F]
Approvals	UL Recognised, CE Compliant, RoHS
Weight	510 to 624g [18 to 22 oz.]

Ordering Information
2-1006 - 115 VAC, Base Mount, Knob Reset
P2-1006 - 115 VAC, Panel Mount, Knob Reset
P32-1026 - 115 VAC, Panel Mount, Key Reset
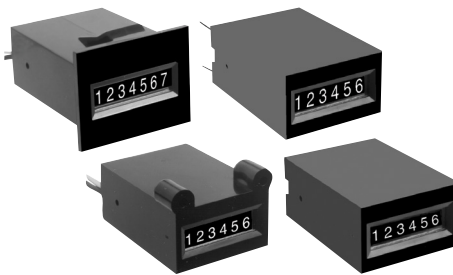
40 Series
Electromechanical Counter

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

Features
- Low cost
- Small size
- DC and AC
- Multiple mounting choices
- Voltages

Specification

Figures	7 figures, white on black, 0.12" (3 mm) high
Reset	Non-reset
Speed	600 counts/minute (min. 50ms - on, 50ms - off)
Voltage	115 VAC, 5, 12 or 24 VDC (+ 10/-15% tolerance)
Power	1.4 watts AC, 1.0 watts DC (nominal)
Mounting	Rear, behind the panel, snap-in, base or PCB mount
Terminations	(2)#22 AWG 221°F [105°C] wire leads,10.5" [266.7mm] long
Operating Life	Beyond 3 million counts
Temp. Range	-5°C to +40°C [+23°F to +104°F]
Approvals	UL Recognised, CE Compliant, RoHS
Weight	510 to 624g [18 to 22 oz.]

Ordering Information
P8-4017 - 24 VDC, 7 Figure, PCB Mount
R8-4017 - 24 VDC, 7 Figure, Behind Panel Mount
SR8-4017 - 24 VDC, 7 Figure, Snap-In Mount

44 Series
Electromechanical Counter

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

Features
- Small size
- Highly visible numerals
- Solid construction
- Voltages
- Lead length
- Special connectors
- Extended temperature range

Specification

Figures	6 figures, white on black, 0.12" (3 mm) high
Reset	None
Speed	600 counts/minute (min. 50ms - on, 50ms - off)
Voltage	115VAC, 24VDC (+/- 10%)
Power	1.5 watts (nominal)
Mounting	Rear, behind the panel, base, or combination
Terminations	(2) #22 AWG 221°F [105°C] wire leads, 10'' [254mm] long
Operating Life	Beyond 3 million counts
Temp. Range	-5°C to +40°C [+23°F to +104°F]
Approvals	UL Recognised, CE Compliant
Weight	71g [2.5 oz.]

Ordering Information
R7-4416 - 115 VDC, Behind The Panel Mount
R8-4416 - 24 VDC, Behind The Panel Mount
R9-4416 - 12 VDC, Behind The Panel Mount
RV14-4416 - 48 VDC, Combo Mount
RV2-4416 - 115 VAC, Combo Mount (Non UL)
RV8-4416 - 24 VDC, Combo Mount
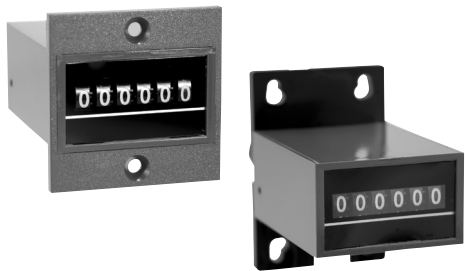
48 Series
Electromechanical Counter

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

Features
• Compact
• Non-reset
• Variety of mounting options
• Voltages

Specification

Figures	6 figures, white on black, 0.17'' [4.3mm] high
Reset	None
Speed	1,000 counts/minute AC, (min. 30ms - on, 30ms - off) 1,200 counts/minute DC, (min. 25ms - on, 25ms - off)
Power	24VAC ~ 4 watts 115VAC ~ 3.5 watts 230VAC ~ 5 watts 12/24VDC ~ 2 watts
Mounting	Panel or base
Terminations	(2) #22 AWG 105°C wire leads, 12'' [305mm] long
Operating Life	Beyond 10 million counts
Temp. Range	-10°C to +60°C [14°F - 140°F]
Approvals	UL Recognised, CE Compliant, RoHS
Weight	99g [3.5 oz.]

Ordering Information
P2-4816 - 115 VAC, Panel Mount, Non-Reset
P8-4816 - 24 VDC, Panel Mount, Non-Reset
P9-4816 - 12 VDC, Panel Mount, Non-Reset
V2-4816 - 115 VAC, V Base Mount, Non-Reset
V3-4816 - 24 VAC, V Base Mount, Non-Reset
V8-4816 - 24 VDC, V Base Mount, Non-Reset

49 Series
Electromechanical Counter

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

Features
• Compact
• No maintenance
• Quick reset
• Voltages
• Extended temperatures
• 4 or 6 figure

Specification

Figures	4 or 6 figures, white on black, 0.16'' [4mm] high
Reset	Push-button
Speed	600 counts/minute (min. 50ms - on, 50ms - off)
Voltages	115VAC, 24VDC, 12VDC (+10% to - 15%)
Power	AC: 115VAC ~ 3 watts DC: 12/24VDC ~ 2 watts
Mounting	Panel, base, or bail
Terminations	(2) #22 AWG 105°C wire leads, 10'' [254mm] long
Operating Life	Beyond 100 million counts
Temp. Range	-10°C to +60°C [14°F - 140°F]
Approvals	UL Recognised, CE Compliant, RoHS
Weight	113g [4 oz.] (4 fig.), 142g [5 oz.] (6 fig.)

Ordering Information
D2-4904 - 115 VAC, D Base Mount, Pushbutton Reset
D2-4906 - 115 VAC, D Base Mount, Pushbutton Reset
D8-4906 - 24 VDC, D Base Mount, Pushbutton Reset
P2-4904 - 115 VAC, Panel Mount, Pushbutton Reset
P2-4906 - 115 VAC, Panel Mount, Pushbutton Reset
P8-4904 - 24 VDC, Panel Mount, Pushbutton Reset
P8-4906 - 24 VDC, Panel Mount, Pushbutton Reset
P9-4904 - 12 VDC, Panel Mount, Pushbutton Reset
P9-4906 - 12 VDC, Panel Mount, Pushbutton Reset

58 Series
Electromechanical Predetermining Counter

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

Features
• Small size
• Highly visible numerals
• Solid construction
• Voltages
• Lead length
• Special connectors
• Extended temperature range

Specification

Figures	4 or 6 figures, white on black, .16''(4mm) high
Reset	Manual, or electric reset (100 - 500ms - on, 1min - off)
Speed	600 counts/minute (min. 50ms - on, 50ms - off)
Voltages	115VAC, 24VDC (+/-10%, but not to exceed 10 volts)
Power	5.5 watts count, 20 watts reset (nominal)
Mounting	Bail
Terminations	Screw type
Operating Life	Beyond 100 million counts
Temp. Range	-10°C to +60°C [14°F - 140°F]
Output Switch	SPDT 5 Amp. @ 250 VAC resistive
Output Duration	Until reset
Approvals	UL Recognised, CE Compliant
Weight	283g [10 oz.]
Options	Voltages

Ordering Information
B2-5804 - 115 VAC, 4 Fig, Pushbutton-Reset
B2-5804/E2 - 115 VAC, 4 Fig, Electronic Reset
B2-5806 - 115 VAC, 6 Fig, Pushbutton Reset

3602 Series
Mechanical Totalising Counter

This unit counts revolutions on many different types of production machinery. Robustly constructed for continuous operation at high speeds with the main shaft running in double oil impregnated bearings to ensure accurate, long term, trouble free service. Supplied double drive with wing bush, customer configurable reset.

Features
- 6-digit 6.4mm (0.25in) readout
- Up to 3000 counts per minute with 1:1 gear ratio
- 1:1, 1:10, 2:1, 3:1, 4:1 gearings as standard
- Front viewing
- Reset to zero
- Reset by lever
- Customer Configurable Reset

Specification

Display	White on black, decimals black on white 0.25in (6.4mm) figures
Base Material	Stainless Steel
Cover Material	Grey ABS plastic
Drive Shaft Diameter	0.275 inch (7mm) diameter
Gearing	1:1, 1:10, 2:1, 3:1, 4:1 as standard. Others on application
Bearings	Bronze, oil impregnated for life
Operating Torque	180g.cm (2.5oz.in) at 1:1 gearing
Maximum Shaft Speed	3000 RPM
Maximum Count Speed	3000 CPM
Operating Temp	-10°C to +50°C [14°F to 122°F]
Storage Temp	-20°C to +50°C [-4°F to 122°F]
Environmental Protection	IP40
Nett Weight	280g
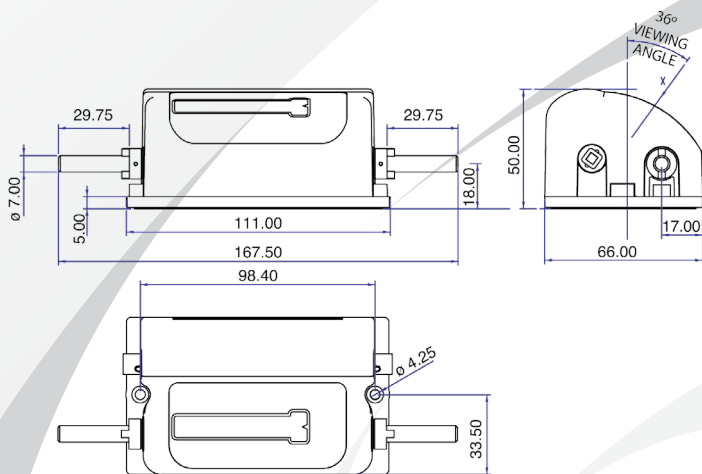
3600 MECHANICAL COUNTER RANGE (ORDER CHART)

COUNTER TYPE	NUMBER OF DECIMAL PLACES	FIG WHEEL READING		GEAR RATIO		DRIVE DIRECTION
3602- FRONT VIEWING	0 NO DECIMAL PLACES	0	FULL FIGURES (PLAIN)	0	1:10	TC — TOP COMING Material Direction (Top Coming)
	1 ONE DECIMAL PLACE	1	0 - 11" FIG WHEEL (FEET & INCHES)	1	1:1	
		2	0 - 9" FIG WHEEL (FEET & TENTHS)	2	2:1	
		3	0 - 9" FIG WHEEL (YARDS & TENTHS)	3	3:1	
ALL COUNTERS ARE 6 DIGIT		4	FULL FIGURES (FEET)	4	4:1	
RESET POSITION IS CUSTOMER SELECTIVE		5	FULL FIGURES (YARDS)	5	1:25	TG — TOP GOING
DOUBLE DRIVE SHAFT WITH WING BUSHES FITTED AS STANDARD		6	FULL FIGURES (METRES)	6	10:1	
EXAMPLE OF CODING: 3602 - 117TG 3602 = FRONT VIEWING 1 = ONE DECIMAL PLACE 1 = 0-11" FIG WHEEL (FEET & INCHES) 7 = 2:3 TG = TOP GOING		7	0 - 7/8" FIG WHEEL (YARDS & EIGTHS)	7	2:3	Material Direction (Top Going)
				8	128:105	
3602-117TG = 99999 - 11 / 2:3 / TOP GOING		9	0 - 9cm FIG WHEEL WITH 100 LINES(M/cm)	9	64:105	

20 Series
Medium Duty Stroke Counter

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

Features
• Durable
• Large figures
• Reliable
• Large reset knob

Specification

Figures	5 figures, white on black, 0.19'' [5mm] high
Reset	Knob
Speed	500 counts/minute
Rotation	Top-coming or top-going
Count Stroke	49° Min. - 60° Max.
Shaft Extension	Right-hand
Shaft Diameter	0.125'' [3.2mm]
Operating Life	Beyond 10 million counts
Temp. Range	-10°C to +60°C [14°F - 140°F]:
Weight	43g [1.5 oz.]

Ordering Information
1-2035 - Right Hand, Top Coming

22 Series
Rotary Counter

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

Features
• Compact size
• 5 figures
• Long life
• Large reset knob

Specification

Figures	5 figures, white on black, 0.19'' [5mm] high
Reset	Knob
Speed	500 revolutions/minute
Rotation	Top-coming or top-going
Shaft Extension	Right-hand or left-hand
Shaft Diameter	0.125'' [3.2mm]
Ratio	10 counts/revolution
Operating Life	Beyond 10 million counts
Temp. Range	-10°C to +60°C [14°F - 140°F]
Weight	37g [1.3 oz.]

Ordering Information
7-2215 - Left Hand, Top Coming, Add/Subtracts
7-2235 - Right Hand, Top Coming, Add/Subtracts
7-2245 - Right Hand, Top Going, Add/Subtracts

29 Series
Mechanical Stroke Counter

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

Features
• Heavy duty
• High count rates
• Corrosion resistant
• Special mounting bases
• Weatherised versions
• Spring and Lever Kit (200700-010S)

Specification

Figures	6 figures, white on black, 0.30'' [7.6mm] high
Reset	Knob
Speed	1,000 counts/minute
Rotation	Top-coming
Count Stroke	40° Min. - 70° Max.
Shaft Extension	Right-hand
Shaft Diameter	0.25'' [6.4mm]
Operating Life	Beyond 100 million counts
Temp. Range	-10°C to +60°C [14°F - 140°F]
Weight	510g [18 oz.]

Ordering Information
1-2936 - Right Hand, Top Coming Stroke
V1-2936 - Right Hand, Top Coming Stroke, Large Base

46 Series
Mechanical Stroke Counter

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

Features
- Compact size
- Reliability
- Low cost
- Special levers
- Replacement lever and spring (10007-009S)
- Special metal lever (10007-001)

Specification

Figures	5 figures, white on black, 0.19'' [5mm] high
Reset	Standard knob
Speed	500 counts/minute
Rotation	Top-coming or top-going
Count Stroke	40° Min. - 45° Max.
Shaft Extension	Right-hand or left-hand
Shaft Diameter	0.156'' [4.0mm]
Operating Life	Beyond 5 million counts
Temp. Range	-10C to +60C [14F - 140F]
Weight	57g [2 oz.]

Ordering Information
1-4615 - Left Hand, Top Coming, Base Mount, Reset
1-4625 - Left Hand, Top Going, Base Mount, Reset
1-4635 - Right Hand, Top Coming, Base Mount, Reset
1-4645 - Right Hand, Top Going, Base Mount, Reset
1-4635T - Right Hand, Top Coming, Thumb Lever, Reset

## 750 Series
Revolution Counter

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

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

Ordering Information
750-0156 - 798 Revs Per Acre
750-0267 - 27 In Dia *Miles
750-0002 - Reading X10-Tot Revs
750-0114 - Reading X100=Rev
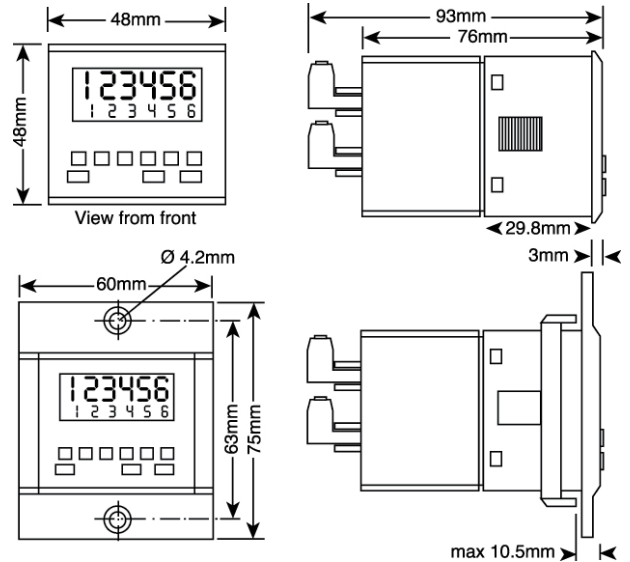
7922
Electronic Predetermining Counter

6 digit supertwist LCD programmable preset counter with prescaler, quadrature input and EEPROM data storage in an IP65 (NEMA4X) DIN case.

This versatile counter with prescaling can be configured for quadrature or uni-directional inputs, dual preset or single preset with batch preset. Reset can be automatic, manual or electronic with a sink (NPN) or source (PNP) input.
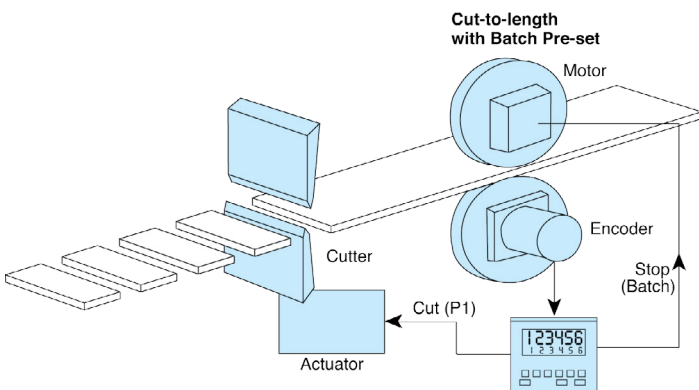
The display is a supertwist high visibility backlit LCD which can be viewed from any angle. The count is on the main display and the preset value (or batch preset) is on the lower display.

Features
- Simple programming via menu driven display
- Quadrature input
- High visibility supertwist LCD display can be viewed from any angle
- Backlight programmable ON, OFF or AUTO
- 40 years data retention with no power
- Programmable decimal point up to 3 places
- Operates from 85-265VAC or 10-26VDC
- 12VDC output to drive a sensor (when AC powered)
- Opto-isolated inputs
- Wide range of prescaling
- Output relay contacts rated at 5A
- Output can be set to latch or pulse with programmable pulse duration
- Environmental protection to IP65
- Standard DIN housing
- CE, UL and cUL approved

All programming, reset and presetting can be carried out from the front panel. When powered from an AC supply, there is a 12VDC output to drive a sensor. The key below each digit sets the P1 or P2 (or batch) preset value on the lower display. The red reset key resets the display count to zero or P1 (according to programming). In normal operation the colon illuminates whenever relay 1 is active. In P2 Set mode the colon illuminates whenever relay 2 is active.
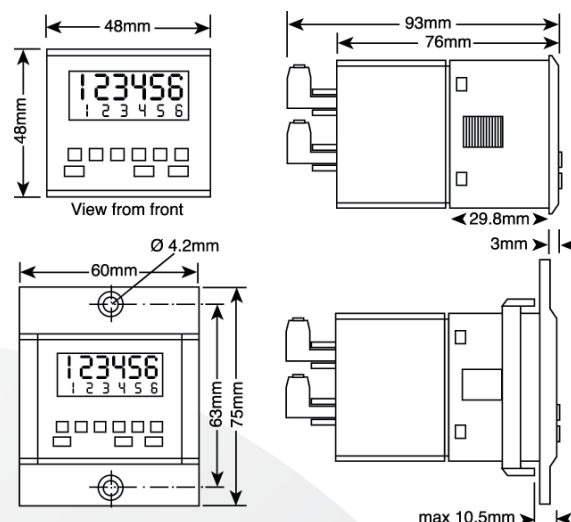
Specification

Supply Voltage	85 - 265VAC or 10 - 26VDC at 100mA
Auxiliary Output Supply	12VDC ± 10% @ 100mA (when operating from AC supply)
Display	• 2 rows of 6 digits, supertwist LCD with yellow/green LED backlight. Upper row • 7mm (0.28in) high indicates count, lower row 4mm (0.16in) high indicates P1/P2 preset point. Also Relay 1 Active annunciator
Backlight Control	Programmable to Always ON, Always OFF or AUTO (ON for 30s following last keypress)
Preset Points	Two user selectable preset points 1 - 999999
Count Inputs	• Voltage Opto-isolated 10 - 30VDC • Quadrature and uni-directional • Input A (quadrature and uni-dir. count) NPN or PNP • Input B (quadrature and UP/DOWN in uni-dir. mode) • Maximum input frequency 10kHz • Duty cycle Maximum 60:40 or 40:60 mark/space ratio • Prescaler Multiply 0.00001 - 9.99999, default 1.00000 • Divide 1 - 99999, default 00001
Manual Reset	Can be disabled on installation or remotely reset
Remote Reset	Contact closure or pulse (15 ms response time)
Automatic Reset	Programmable for automatic or Manual/Remote reset
Data retention	40 years minimum
Output Relays	• One SPDT relay programmable as NO or NC • One SPST relay programmable as NO or NC • Contact Rating 5A 260VAC/30VDC 1300VA/150W
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]
Environmental Protection	IP65 (NEMA4X) when properly installed using the sealing gasket supplied (without bezel)

Ordering Information
7922 - 6 digit electronic predetermining counter

7932
Electronic Predetermining Counter/Timer

6 digit supertwist LCD programmable preset counter/timer with prescaler and EEPROM data storage in an IP65 (NEMA4X) DIN case.

This versatile count up or count down predetermining counter/timer with prescaler has a wide range of innovative and attractive features. Designed with imagination and built to the highest standards it offers both counting and timing functions in one unit.

Features
- Simple programming via menu driven display
- High visibility supertwist LCD display can be viewed from any angle
- Backlight programmable ON, OFF or AUTO
- 40 years data retention with no power
- Programmable decimal point up to 3 places
- Operates from 85-265VAC or 10-26VDC
- 12VDC output to drive a sensor (when AC powered)
- Opto-isolated inputs
- Wide range of prescaling
- Output relay contacts rated at 5A
- Output can be set to latch or pulse with programmable pulse duration
- Environmental protection to IP65
- Standard DIN housing
- CE, UL and cUL approved

CE c**RU**us

The count inputs are opto-isolated and can be sink (NPN) or source (PNP).
The count is on the main display and the preset value is on the lower display.
Reset can be remote, manual or automatic with a manual over-ride option.
All programming, reset and presetting can be carried out from the front panel although the keys can be remotely disabled from the rear of the unit.

Please note the electrical connections are different to the previous version (7931).

Specification

Supply Voltage	85 - 265VAC or 10 - 26VDC at 100mA
Auxiliary Output Supply	12VDC ± 10% @ 100mA (when operating from AC supply)
Display	• 2 rows of 6 digits, supertwist LCD with yellow/green LED backlight. Upper row 7mm (0.28in) high indicates count, lower row 4mm (0.16in) high indicates P1 preset point • Also Relay Active annunciator
Backlight Control	Programmable to Always ON, Always OFF or AUTO (ON for 30s following last keypress)
Preset Points	User selectable preset point 1 - 999999
Count Inputs	• High Speed NPN/PNP • Opto-isolated 10 - 30VDC. Maximum input frequency 10kHz • Low Speed • Opto-isolated 12 - 260VAC/DC. Maximum input frequency 30Hz
Prescaler	• Multiply 0.00001 - 9.99999, default 1.00000 • Divide 1 - 99999, default 00001
Manual Reset	Can be disabled on installation or remotely
Remote Reset	Contact closure or pulse (15 ms response time)
Automatic Reset	Programmable for automatic or Manual/Remote reset
Data Retention	40 years minimum
Output Relay	• Contact Connection SPDT • Contact Rating 5A 260 VAC 30 VDC 1300 VA/150 W
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]
Environmental Protection	IP65 (NEMA4X) when properly installed using the sealing gasket supplied (without bezel)

Ordering Information
7932 - 6 digit Predetermining counter/timer

Liberty 878X Series
Predetermining Counter

6-digit predetermining counter with a 5-digit ratemeter.

The 878X is capable of displaying and controlling almost any count application.
It has a dual relay output, which can be used to signal or control external devices or processes.

Features
- 14.2mm character high visibility LED display
- 1/8 DIN (96mmX48mm) bezel
- Simple user programming
- Display scaleable to show engineering units
- Programme lock out facility
- AC and DC powered models available
- Analogue re transmission option
- RS485 communications option
- CE approved. (UL and cUL pending)

Specification

Power Supply	• AC Powered 85-265VAC 47-63Hz 20VA • DC Powered 9-30VDC 12VA
Sensor supply	12VDC ±12% 75mA max
Display	14.2 mm character high visibility LED Display
Signal Input	Sink(NPN) or Source(PNP) DIP switch selectable
Threshold	• High 3.5 to 28VDC • Low 0-1.9VDC for single ended signals
Magnetic pick up range	200mV pk-pk to 65VRMS into 34.9 kO load
Slow response	200Hz max
Fast response	8.25kHz A or B, 3Khz A and B, QuadX1 and QuadX2 3.25kHz, QuadX4 2Khz
Control Inputs	Sink(NPN) only (4.75kO to +5VDC) internal load
Threshold	• High 3.5 to 28VDC • Low 0-1.9VDC
Response time	25msecs max (5V signal)

Optional Outputs

|	
Relay output	2 SPCO (Form C) relays. Contact rating 5A 250VAC or 30VDC @ unity power factor
Analogue retransmission	4-20mA (<750O load) and 0-10VDC (> 2500O load)
RS485 Serial Communication	Baud rate 1200, 2400, 4800, 9600 or 19,200 programmable Parity Even, odd or no parity
Address	00-99
Data Retention	EEPROM 100years duration
Operating Temperature	0°C to +50°C [32°F to 122°F]
Storage Temperature	-20°C to +70°C [-4°F to 158°F]
Humidity	0 to 85%RH non condensing
Vibration	2.5g's 30-200Hz
Shock	30g's
Front Panel Protection	IP65 (NEMA4X) when properly mounted using gasket supplied
Approvals	CE approved

Ordering Information
8780 DC Powered Predetermining Counter
8781 AC Powered Predetermining Counter

Options – (Select and add to code 8780-?)
- 0 for No Options
- 1 for Dual Relay
- 3 for Dual Relay and Analogue Output
- 5 for Dual Relay and RS485 Comms
- 7 for Dual Relay, Analogue Output and RS485 Comms

e.g. 8780-1 = DC Powered Predetermining Counter with Dual Relay Option Board Fitted
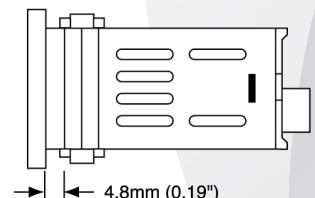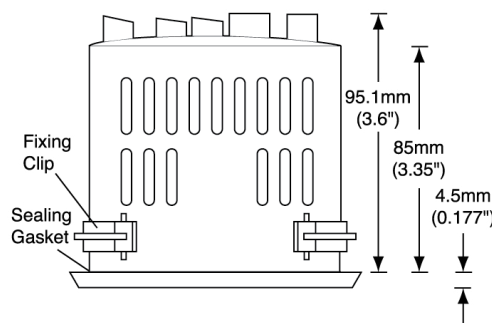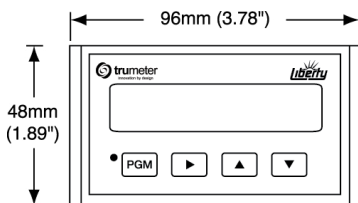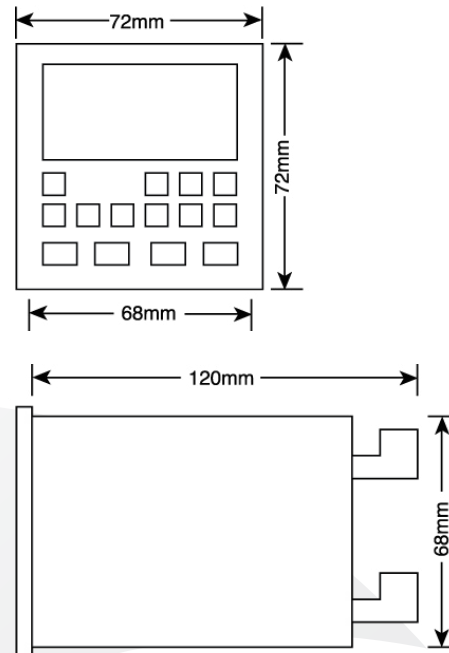
9100
Predetermining Counter / Ratemeter

The versatile 9100 multi-function instrument is a multi-preset, totalising counter / ratemeter with backlit display.

Simultaneous operation in different modes is now possible with this recent development of the highly successful 9100 multi-function counter. Additional enhancements include 3-line display, more keys, enhanced programming, EEPROM memory avoiding the need for a battery, and on-screen programming prompts in four languages.

Features
- Simultaneously maintains any three of the following: Count preset, count pre-warn, batch preset, overspeed, underspeed condition and displays count, total and speed
- Counts in any of 7 modes: A-B, A+B, A/B, count and direction and quadrature x1, x2 and x4
- EEPROM retains program and data for 40 years with no power
- 3 line Supertwist LCD display viewable from any angle
- Easily programmed in English, German, French or Spanish using simple menu structure and 10-key keypad
- Counting continues while rate measurement is in progress
- Accurate enough for position sensing and robotic control
- Displayed values, choice of engineering units and 12 characters of user programmable text can be printed directly from the IBM/Epson compatible serial printer port
- Can be powered from 85-265VAC for world wide use
- Multiplying and dividing prescalers enable display directly in the required (engineering) units
- Manual, remote and automatic resets available
- Remote inhibit and remote keyboard disable
- Fast electronic or slow contact closure inputs, all with optical isolation. Contact closure inputs are debounced
- Auxiliary 12VDC 100mA power output to power sensor
- Environmental protection to IP65
- CE approved

$\mathsf{C} \mathsf{E}$

The 9100 carries out rate measurement, batch counting and totalising simultaneously. Rate mode is signified by an R appearing at the top left hand corner of the display and counting carries on in the background. The first line of the display shows pulses per minute (PPM) unless a prescaler is in use.

Specification

Power Supply	85 - 265VAC
Auxiliary Output	12VDC ±10% 100mA for powering sensors
Display	3 line high contrast supertwist backlit LINE 1: 8 numeric LCD LINE 2: 12 alphanumeric LINE 3: 12 alphanumeric
Keyboard	Sealed elastometric keyboard with 10 keys
Connections	1 x 9 way and 1 x 10 way plug in terminal strips with wire clamps. Each way capable of accepting up to 2 OFF 2.5mm2 (0.1in2) conductors
Prescaler	0.0025 - 9.99999 . Multiplying 0.00250 - 9.99999. Dividing 1- 9999
Rate Input	Input A only. 8 - 30VDC. Maximum 600k PPM (10kHz), minimum 4.7 PPM (0.078Hz i.e. one pulse every 12.8s)
Control Inputs	External reset, count inhibit, keyboard disable. Maximum 30Hz contact closure or solid state input. 8 - 30VDC opto-isolated
Manual Reset	Can be disabled on installation or remotely reset
Remote Reset	Contact closure or pulse (minimum pulse duration 34msec) Automatic Reset Program to reset to zero on reaching preset 3 or vice versa
Control Outputs	3 SPST relays. Contacts 5A 260VAC, 220VDC 1300VA/150W. Programmable for pulsed, latched or disabled
Front Panel Sealing	IP65 when properly mounted using gasket supplied
Operating Temp.	-10°C to +60°C [14°F to 140°F]
Storage Temp.	-20°C to +70°C [-4°F to 158°F]
Relative Humidity	85% at 25°C non-condensing

Ordering Information
9100 - Predetermining Counter / Ratemeter

TIMERS AND HOUR METERS

7511 Series
8-digit Self-powered LCD Electronic Timer

8-digit liquid crystal display timer, self-powered with a 10-year battery life. A compact LCD timer designed for many applications, screw terminals ensure fast wiring. Features include backlighting (external 5VDC supply required), 4 timing modes, timing direction indication and 9mm high digits. High Voltage (HV) version accepts input voltages of 5-110VDC or 10-240VAC.
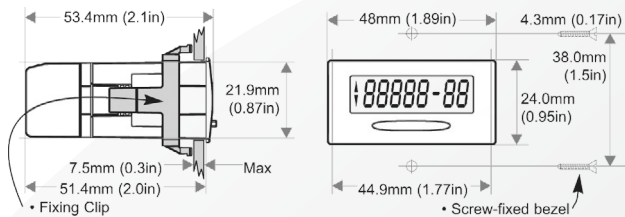
Features
- 9mm high contrast LCD display
- 10-year battery life
- Minimum contact closure time 1 second
- 4 timing modes
- Times up or down
- External reset input
- CE,UL and cUL approved

Specification

Battery life	10-years typical
Display	8-digit black LCD, 9mm characters with leading zero blanking
Timing Ranges	Seconds, minutes and seconds; hours and 1/100ths and hours and minutes
Timing Input	Sink signal (NPN) 18VDC maximum threshold 1VDC negative edge trigger
(HV Version)	10 – 240VAC ±10%, 5 – 110VDC ±10%, Opto-Isolated
Direction Input	Up not connected, down connected to common
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]
Material	Clear polycarbonate
Environmental Protection	IP65 / NEMA 4X
Weight	62g [2.2oz.]

Ordering Information
7511 - 8-digit Self-powered Totalising Timer
7511HV - 8-digit Self-powered Totalising Timer with High Voltage Input

3410 Series
"any housing, any function"

The Trumeter 3400 Series provides a large display, with 0.28" [7mm] high characters, in the industry standard housings. Units are available in 5 different housings All models are totally sealed from moisture and dirt. A wide operating voltage, 10-300VDC and 20-300VAC. All models are NEMA 4/4X, 12, and 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 multiple "Redi-Alerts" to alert users when service is due. Models are available with front panel field 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 Counter/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.

Features
- Totally sealed from moisture and dirt
- AC or DC voltage input in the same unit
- Compact depth
- Optional programmable output thresholds (MOSFET)
- Optional preset count value/Hour Meter
- Optional - up to 3 Redi-Alerts/7 icons
- Fits in existing panel openings
- Always on display
- A choice of 5 housings
- A choice of reset modes
- Optional front panel programmable
- Optional preset functions
- Can be programmed with starting time
- 10-years typical
- CE, UL and cUL approved

Specification

Case Style	• 2-Hole Rectangular • 3-Hole Round • Mini Flush Rectangular • SAE Flush Round • Snap-In
Programmability - Optional	Front Panel
Input	• 10-300VDC or 20 to 300VAC <2mA • Switch/Dry Contact
Reset - Optional	• Remote (Dry Contact/Switch) - Part Numbers end in -X010 • Manual - Part Numbers end in -X070 • Non-Reset - Part Numbers end in -X000
Operating Temp.	-10°C to +60°C [14°F - 140°F]
Storage Temp.	-20°C to +70°C [-4°F to 158°F]

Ordering Information
3410-0000 - AC/DC HR, 2-Hole, Non-Reset
3410-0010 - AC/DC HR, 2-Hole, Remote-Reset
3410-1000 - AC/DC HR, 3-Hole Round, Non-Reset
3410-2000 - AC/DC HR, Flush Rectangular, Non-Reset
3410-2010 - AC/DC HR, Flush Rectangular, Remote-Reset
3410-3000 - AC/DC HR, SAE Round, Non-Reset
3410-5000 - AC/DC HR, Snap-In, Non-Reset
3410-5010 - AC/DC HR, Snap-In, Remote-Reset

Other versions upon request.

6320 Series
8-digit Self-powered Electronic LCD Hour Meter

The Model 6320 Series with 8 LCD digits brings more features to the user than ever before. Available in single and/or multi-function units, the array of functions and options make the 6320 series suitable for a variety of applications.

A long list of features includes a programmable output, an external reset, a front panel reset enable, and programmable alert or preset capabilities. The front end of the Model 63 utilizes a high-contrast, reflective, 8-digit LCD with 0.32 inch [8mm] digits and seven icons, while at the back end, Switch (Dry Contact), Low Voltage DC, and High Voltage DC and AC Inputs are available.

Features
• Optional external electronic reset
• Optional front panel programming
  ◦ 3 Redi-Alerts
• Preset functionality
• Start time (available on hour meter only)
• Part numbers must be in 63XX-X5XX-0000 format to be programmable

Specification
• Reflective LCD Display with 8 large (8mm) digits
• Choice of one or two inputs
  ◦ Switch Input (No voltage)
  ◦ Low DC Voltage (3-30VDC) <2mA
  ◦ High Voltage (20-300VAC or 10-300VDC) <2mA
• 10-years typical battery
• NEMA 4/4X, 12, and IP66 rated
• EMC Compliant to EN61326:2001 for industrial environments
• European WEEE and RoHS Compliant
• Operating Temperature: -10°C to +60°C [14°F to 140°F]
• Storage Temperature: -20°C to +70°C [-4°F to 158°F]
• CE compliant, UL and cUL recognised

Ordering Information
6320-0000-0000 - HR, Dry Contact Input Remote-Reset
6320-0500-0000 - HR, Dry Contact Input, Programming
6320-0600-0000 - HR, Dry Contact Input, Front Panel Reset
6320-1000-0000 - HR, 3-30VDC, Remote-Reset
6320-1500-0000 - HR, 3-30VDC, Programming
6320-1600-0000 - HR, 3-30VDC, Front Panel Reset
6320-2000-0000 - HR, 10-300VDC or 20-300VAC, Remote-Reset
6320-2500-0000 - HR, 10-300VDC or 20-300VAC, Programming
6321-1000-0000 - Minute, 3-30VDC, Remote-Reset

Other versions upon request.
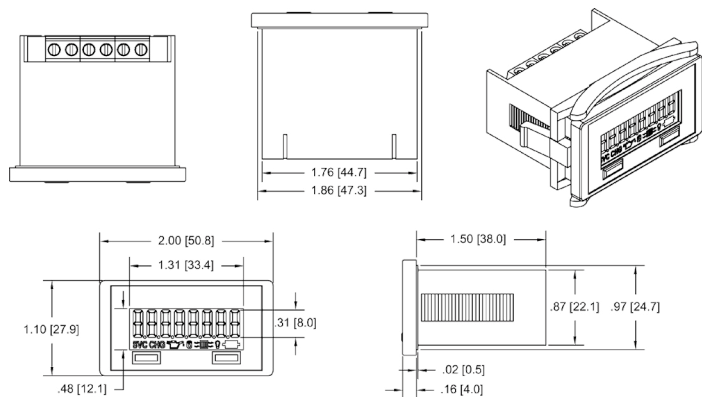
720-6300
High Voltage AC LCD Hour Meter

The Trumeter Model 720-6300 Electronic Hour Meter offers a large 8-digit LCD display, (9999999.9) 0.32" (8mm) high, with an input operating voltage of 85-500VAC. The front of the unit is totally sealed, and the Hour Meter is housed in a rugged steel enclosure that is interchangeable with the Redington Model 720 Electro-Mechanical Hour Meters. The wide operating voltage makes this product ideal for almost any application.

Features
• Operating voltage 85-500VAC
• Rugged steel housing
• Lithium battery
• Quartz accuracy (better than 0.01%)
• Popular 3-hole mounting
• Gasket (721-0004)

Specification

Display	Large 8-digit LCD (999999.9), 0.32" [8mm] high
Reset	Non-reset
Voltage	85-500VAC 50/60Hz
Hour Meter Memory	Self-powered (internal lithium battery)
Termination	Wire leads 6" [152mm]
Mounting	Panel (3-Hole)
Temp. Range - Operating	-10C to +60°C [14F - 140°F]
Temp. Range - Storage	-20°C to +60°C [-4°F to 140°F]
Humidity	0 to 95% RH, non-condensing, front totally sealed
Vibration	10 to 80 Hz, 0.06 double amplitude
Shock	50G
Dielectric	1000VAC 50/60Hz for 1 minute
Accuracy	Quartz accuracy (better than 0.01%)
Weight	142g [5.0 oz.]

Ordering Information
720-6300 - 85-500 VAC, 3-Hole Round, LCD Hour Meter, Non-Reset

710 Series
Electromechanical Hour Meter

The 710 Series AC hour meters and minute meters are widely used in panel applications where number size and visibility are critical. Its tough, Lexan bezel and distinctive styling enhance appearance and durability. UL, CE and RoHS compliant.

Features
- Large figures
- Tough, Lexan case
- Non-reset
- Bracket mount
- Mounting bracket (721-0003)
- Heavy duty splash proof kit (721-0018)
- Gasket (721-0004)

Specification

Figures	6 figure, 99999.9 (non-reset), 0.19'' [5mm] high
Reset	Non-reset
Voltages	24, 115 or 230VAC, (+/-10%), 60 Hz.
Power	3 watts (nominal)
Mounting	Panel (3-hole)
Terminations	8'' [203.2mm] wire leads or terminal block
Operating Life	Beyond 50 million counts
Temp. Range	-10°C to +60°C [14°F - 140°F]
Approvals	UL Recognised, CE Compliant, RoHS
Weight	170g [6 oz.]

CE UL

Ordering Information
710-0001 - 115 VAC, 60 HZ, 99999.9 HRS, Non-Reset
710-0002 - 115 VAC, 60 HZ, 99999.9 HRS, Non-Reset
710-0003 - 230 VAC, 60 HZ, 99999.9 HRS, Non-Reset
710-0006 - 24 VAC, 60 HZ, 99999.9 HRS, Non-Reset

711 Series
AC Electromechanical Hour Meter

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

Features
- 7 figure, 99999.99
- Various voltage inputs
- Quartz accuracy (DC)
- Large figures, 0.14" [3.6mm]

Specification

Figures	7 figures, 0.14" [3.6mm] 99999.99
Reset	Non-reset
Voltages	24, 115 or 230VAC (± 10%)
Power	2 watts AC
Mounting	Clip or mounting holes
Terminations	1/4" [6.3mm] spade terminals with screws (AC)
Case Material	Black polymer
Weight	35g [1.2oz.]
Front Panel	IP65
Operating Temperature	-10°C to +60°C [14°F - 140°F]
Storage Temperature	-20°C to +60°C [-4°F to 140°F]
Shock	30g [18ms] IEC 68-T2-27 25g [16ms] IEC 68-T2-19
Agency Approvals	CE Compliant, UL Recognised

CE UL

Ordering Information
711-0109 - 115/60, Flush 1.45x87, Spade Terminal
711-0113 - 115/60, Flush 1.45x87, Screw Terminal
711-0114 - 24/60, Flush 1.45x87, Screw Terminal
711-0130 - 115/60, 2-Hole 1.45x87, Screw Terminal
711-0160 - 115/60, Round Bezel 3-Hole Round, Screw Terminal
711-0162 - 230/60, Round Bezel 3-Hole Round, Screw Terminal
711-0163 - 230/50, Round Bezel 3-Hole Round, Screw Terminal
711-0180 - 115/60, Square Bezel Flush, Screw Terminal
711-0190 - 115/60, Square Bezel Flush, Screw Terminal
711-0217 - 24/60, 2-Hole 1.45x.95

Other versions upon request.

720 Series
AC Hour Meter

A 6 figure (non-reset), AC hour meter encased in a rugged steel housing. These models are completely sealed. UL, CE and RoHS compliant.

Features
- Rugged steel housing
- Chrome bezel
- Readouts to 99,999.9 hrs.
- Voltages
- Gasket (721-0004)

Specification

Figures	6 figure, 0.19'' [5mm] high, 99,999.9
Reset	Non-reset
Voltages	115VAC (+/- 10%), 60Hz.
Power	3 watts max.
Mounting	Panel (3-hole or metal clamp)
Terminations	6'' [152mm] wire leads
Temp. Range	-40°C to +70°C [-40°F to +160°F]
Approvals	UL Recognised, CE Compliant, RoHS
Weight	-5°C to +40°C [+23°F to +104°F]
Approvals	UL Recognised, CE Compliant
Weight	284g [10 oz.]

CE UL

Ordering Information
720-0007 - 115 VAC, 99999.9 HR, wires, 3-Hole Round
720-0011 - 115 VAC, 99999.9 HR, wires, Stirrup Mount

722 Series
Totally Sealed AC Hour Meter

The Redington 722 Series provides an AC Hour Meter with an operating range of 90-264VAC 50/60 Hz. You no longer require two separate meters, one for 115VAC and one for 230VAC. Models are available in the standard industry housings. Its quartz time base insures accurate long-term time keeping. The Totally Sealed case protects against the environment and provides years of reliable service. All applicable models are NEMA 4X,12 rated when mounted with optional gasket.

Features
• Operating voltage 90-264VAC 50/60Hz
• Totally Sealed
• 6 Figure, 99999.9
• Quartz accuracy
• Minimum 36 second on-time for event capture
• UL/cUL Recognised, CE and RoHS Compliant

Specification

Frequency	50/60 Hz
Power	1 watt max.
Mounting	Clip or Mounting Holes
Termination	1/4" [6.3mm] spade terminals
Weight	57g [~2 oz.]
Accuracy	±.02% over entire range
Case Material:	Black Polymer
Lens Material	Polymer
Agency Approvals	Ul/cUL Recognised, CE and RoHS Compliant, SAE and NEMA 4X, 12 Compliant
Environmental	Totally Sealed
Front Panel	NEMA 4A, 12 rated with optional gasket
Temperature	-10°C to +60°C [14°F - 140°F]
Humidity	95% (SAE J1378)
Shock	55g @ 9-13ms (SAE J1378)
Vibration	10-80 Hz. 20g max. (SAE J1378)

Ordering Information
722-0001 - 90-264 VAC, 50-60, 2-Hole
722-0002 - 90-264 VAC, 50/60, Flush Rectangular
722-0003 - 90-264 VAC, 50/60, Flush Round
722-0004 - 90-264 VAC, 50/60, 3-Hole Round
722-0030 - 90-264 VAC, 50/60, Square

731 Series
DC Quartz Hour Meter

The Redington 731 Series provides a family of compact 7 figure, DC Hour Meters. Models are available in the standard industry housings, 2-Hole rectangular, flush-round and flush rectangular. DC Models are quartz controlled for high reliability and accuracy.

Features
• 7 figure, 99999.99
• Quartz accuracy
• Large figures, 0.14" [3.6mm]
• CE Compliant, RoHS
• UL/cUL Recognised

Specification

Reset	Non-reset
Voltages	50 or 60 Hz, 10-28VDC
Power	0.4 watts
Mounting	Clip or mounting holes
Terminations	1/4" [6.3mm] spade terminals
Accuracy	0.01%
Case Material	Black polymer
Weight	35g [1.2oz.]

Ordering Information
731-0040 - 12-24 VDC, 2-Hole
731-0046 - 10-80 VDC, Bezel, 3-Hole Round, Screw Terminal

732 Series
Totally Sealed DC Hour Meter

The Redington 732 Series provides an DC Hour Meter with an operating range of 10-80VDC. Models are protected for two times battery voltage and/or reverse polarity. Models are available in the standard industry housings. Its quartz time base insures accurate long-term time keeping. The Totally Sealed case protects against the environment and provides years of reliable service. All applicable models are NEMA 4X,12 rated when mounted with optional gasket.

Features
• Operating voltage 10-80VDC
• Totally Sealed
• 6 Figure, 99999.9 Quartz accuracy
• Wire Leads Gasket kit (for NEMA 4X, 12 rating)
• Terminals up, down, straight
• Adapter bezels for various panels
• UL/cUL Recognised, CE and RoHS Compliant, NEMA and SAE

Specification

Power	1 watt max.
Mounting	Clip or Mounting Holes
Termination	1/4" [6.3mm] spade terminals
Weight	57g [~2 oz.]
Accuracy	±.02% over entire range
Case Material:	Black Polymer
Lens Material	Polymer
Agency Approvals	Ul/cUL Recognised, CE and RoHS Compliant, SAE and NEMA 4X, 12 Compliant
Environmental	Totally Sealed
Front Panel	NEMA 4A, 12 rated with optional gasket
Temperature	-10°C to +60°C [14°F - 140°F]
Humidity	95% (SAE J1378)
Shock	55g @ 9-13ms (SAE J1378)
Vibration	10-80 Hz. 20g max. (SAE J1378)
Voltage	10-80 VDC

Ordering Information
732-0001 - 10-80 VDC, 3-Hole Round
732-0002 - 10-80 VDC, Flush Rectangular
732-0003 - 10-80 VDC, Flush Round
732-0004 - 10-80 VDC, 2-Hole
732-0030 - 10-80 VDC, Square
732-0013 - 10-80 VDC, Round Cup
732-0014 - 10-80 VDC, Cup Bracket
732-0023 - 10-80 VDC, Stirrup Mount
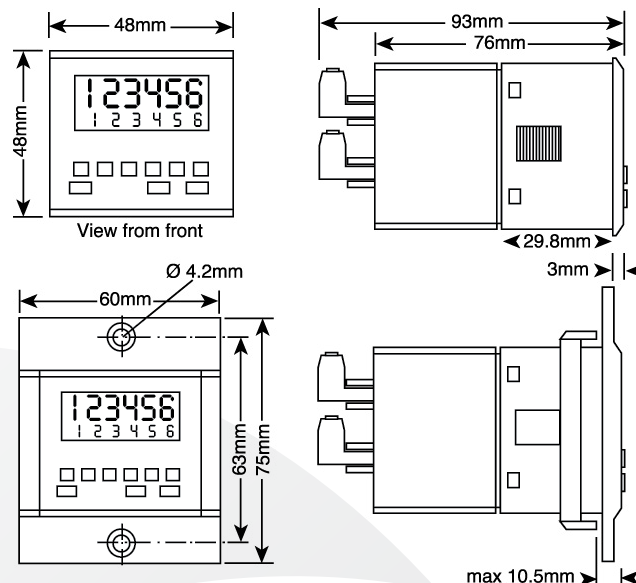
View from front

Ø 4.2mm

48mm

93mm
76mm

29.8mm

3mm

60mm

63mm
75mm

max 10.5mm

7932
Electronic Predetermining Counter/Timer

6 digit supertwist LCD programmable preset counter/timer with prescaler and EEPROM data storage in an IP65 DIN case.

This versatile count up or count down predetermining counter/timer with prescaler has a wide range of innovative and attractive features. Designed with imagination and built to the highest standards it offers both counting and timing functions in one unit.

Features
• Simple programming via menu driven display
• High visibility supertwist LCD display can be viewed from any angle
• Backlight programmable ON, OFF or AUTO
• 40 years data retention with no power
• Programmable decimal point up to 3 places
• Operates from 85-265VAC or 10-26VDC
• 12VDC output to drive a sensor (when AC powered)
• Opto-isolated inputs
• Wide range of prescaling
• Output relay contacts rated at 5A
• Output can be set to latch or pulse with programmable pulse duration
• Environmental protection to IP65
• Standard DIN housing
• CE, UL and cUL approved

The count inputs are opto-isolated and can be sink (NPN) or source (PNP).
The count is on the main display and the preset value is on the lower display.
Reset can be remote, manual or automatic with a manual over-ride option.
All programming, reset and presetting can be carried out from the front panel although the keys can be remotely disabled from the rear of the unit.

Please note the electrical connections are different to the previous version (7931).

Specification

Supply Voltage	85 - 265VAC or 10 - 26VDC at 100mA
Auxiliary Output Supply	12VDC ± 10% @ 100mA (when operating from AC supply)
Display	• 2 rows of 6 digits, supertwist LCD with yellow/green LED backlight. Upper row 7mm (0.28in) high indicates count, lower row 4mm (0.16in) high indicates P1 preset point • Also Relay Active annunciator
Backlight Control	Programmable to Always ON, Always OFF or AUTO (ON for 30s following last keypress)
Preset Points	User selectable preset point 1 - 999999
Count Inputs	• High Speed NPN/PNP • Opto-isolated 10 - 30VDC. Maximum input frequency 10kHz • Low Speed • Opto-isolated 12 - 260VAC/DC. Maximum input frequency 30Hz
Prescaler	• Multiply 0.00001 - 9.99999, default 1.00000 • Divide 1 - 99999, default 00001
Manual Reset	Can be disabled on installation or remotely
Remote Reset	Contact closure or pulse (15 ms response time)
Automatic Reset	Programmable for automatic or Manual/Remote reset
Data Retention	40 years minimum
Output Relay	• Contact Connection SPDT • Contact Rating 5A 260 VAC 30 VDC 1300 VA/150 W
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]
Environmental Protection	IP65 when properly installed using the sealing gasket supplied (without bezel)

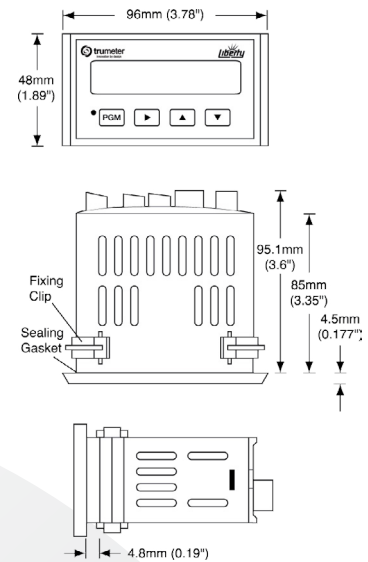## Ordering Information
7932 - 6 digit Predetermining counter/timer

PROCESS INDICATORS

RATE INDICATORS 29

Liberty 877X Series
Ratemeter and Process Time Indicator

5-digit ratemeter and process time indicator.

Suitable for a wide range of pulse inputs such as magnetic pick-ups, proximity sensors, photoelectric sensors and flowmeters. The 877X is a versatile unit suitable for many speed or process time indication and control applications.

Features
- 14.2mm character high visibility LED display.
- 1/8 DIN (96mmx48mm) bezel.
- Fully programmable.
- Programmable display update time 0.1 to 99.9 seconds.
- Display scaleable to show engineering units.
- (TAU) process time indication.
- Programme lock out facility.
- AC and DC powered models available.
- Analogue re transmission option.
- Dual relay output option.
- RS485 communications option.

Specification

Power Supply	• AC Powered 85-265VAC 47-63Hz 20VA • DC Powered 9-30VDC 12VA
Sensor supply	• 12VDC ± 12% 75mA max
Display	• 14.2 mm character high visibility LED Display
Signal Input	• Sink or Source DIP switch selectable
Thresholds	• High 3.5 to 28VDC • Low 0-1.9VDC for single ended signals
Magnetic Pick Up Range	200mV pk-pk to 65VRMS into 34.9 kΩ load
Frequency Response Contact Closure	200Hz max, electronic signals 10kHz max (5V signals) dip switch selectable
Programme Enable Input	Sink only (4.75kΩ to +5VDC) Internal load

|	
Thresholds	• High 3.5 to 28VDC • Low 0-1.9VDC
Response Time	25msecs max (5V signal)
Outputs	• Relay output • 2 SPCO (Form C) relays • Contact ratings 5A 250VAC or 30VDC @ unity power factor
Data Retention	EEPROM 100-years duration
Operating Temperature	0°C to +50°C [32°F to 122°F]
Storage Temperature	-20°C to +70°C [-4°F to 158°F]
Humidity	0 to 85%RH non condensing
Vibration	2.5g's 30-200Hz
Shock	30g's
Front Panel Protection	IP65 when properly mounted using gasket supplied
Approvals	CE approved

Ordering Information
8770 DC Powered Ratemeter / Process Time Indicator
8771 AC Powered Ratemeter / Process Time Indicator

Options – (select and add to code 8770-?)
- 0 for No Options
- 1 for Dual Relay
- 2 for Analogue Output
- 3 for Dual Relay and Analogue Output
- 5 for Dual Relay and RS485 Comms
- 7 for Dual Relay, Analogue Output and RS485 Comms

e.g. 8770-1 = DC Ratemeter / Process Timer with Dual Relay Option Board Fitted.
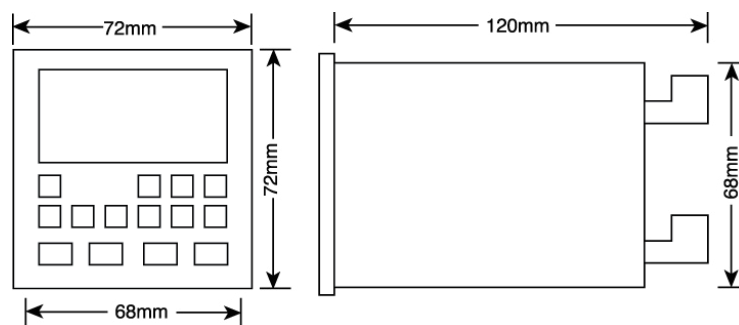
9100
Predetermining Counter / Ratemeter

The versatile 9100 multi-function instrument is a multi-preset, totalising counter / ratemeter with backlit display.

Simultaneous operation in different modes is now possible with this recent development of the highly successful 9100 multi-function counter. Additional enhancements include 3-line display, more keys, enhanced programming, EEPROM memory avoiding the need for a battery, and on-screen programming prompts in four languages.

Features
- Simultaneously maintains any 3 of the following: Count preset, count pre-warn, batch preset, overspeed, underspeed condition and displays count, total and speed
- Counts in any of 7 modes: A-B, A+B, A/B, count and direction and quadrature x1, x2 and x4
- EEPROM retains program and data for 40-years with no power
- 3-line Supertwist LCD display viewable from any angle
- Easily programmed in English, German, French or Spanish using simple menu structure and 10-key keypad
- Counting continues while rate measurement is in progress
- Accurate enough for position sensing and robotic control
- Displayed values, choice of engineering units and 12 characters of user programmable text can be printed directly from the IBM/Epson compatible serial printer port
- Can be powered from 85-265VAC for world-wide use
- Multiplying and dividing prescalers enable display directly in the required (engineering) units
- Manual, remote and automatic resets available
- Remote inhibit and remote keyboard disable
- Fast electronic or slow contact closure inputs, all with optical isolation. Contact closure inputs are debounced
- Auxiliary 12VDC 100mA power output to power sensor
- Environmental protection to IP65/NEMA4X
- CE approved

The 9100 carries out rate measurement, batch counting and totalising simultaneously. Rate mode is signified by an R appearing at the top left hand corner of the display and counting carries on in the background. The first line of the display shows pulses per minute (PPM) unless a prescaler is in use.

Specification

Supply Voltage	85 - 265VAC or 10 - 26VDC at 100mA
Auxiliary Output Supply	12VDC ± 10% @ 100mA (when operating from AC supply)
Display	• 2 rows of 6 digits, supertwist LCD with yellow/green LED backlight. Upper row 7mm (0.28in) high indicates count, lower row 4mm (0.16in) high indicates P1 preset point • Also Relay Active annunciator
Backlight Control	Programmable to Always ON, Always OFF or AUTO (ON for 30s following last keypress)
Preset Points	User selectable preset point 1 - 999999
Count Inputs	• High Speed NPN/PNP • Opto-isolated 10 - 30VDC. Maximum input frequency 10kHz • Low Speed • Opto-isolated 12 - 260VAC/DC. Maximum input frequency 30Hz
Prescaler	• Multiply 0.00001 - 9.99999, default 1.00000 • Divide 1 - 99999, default 00001
Manual Reset	Can be disabled on installation or remotely
Remote Reset	Contact closure or pulse (minimum pulse duration 34msec)
Automatic Reset	Programmable for automatic or Manual/Remote reset
Data Retention	40-years minimum
Output Relay	• Contact Connection SPDT • Contact Rating 5A 260 VAC 30 VDC 1300 VA/150 W
Operating Temp	-10°C to +60°C [14°F to 140°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]
Environmental Protection	IP65 (NEMA4X) when properly installed using the sealing gasket supplied (without bezel)

Ordering Information
9100 - Predetermining Counter / Ratemeter

$C\epsilon$

PANEL METERS

Volt Meter

For industrial and mains applications such as control panels, power supplies and energy management and DC applications such as battery charging, marine and electric vehicles.

Specific Features
• Flexible measuring input
• Auto-detects AC or DC
• Capable of measuring up to 600V
• Outputs can be used for integration with other systems
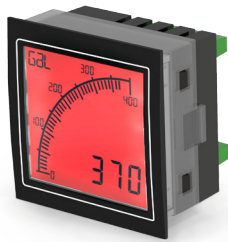
Specifications
For general specifications see page 34.

Input

Input range (DC)	0 - 600V
Input range (AC)	0 - 528V
Accuracy	1%

Ordering Information
APM-VOLT-APN - APM Volt Meter, Positive LCD
APM-VOLT-APO - APM Volt Meter, Positive LCD w/Outputs
APM-VOLT-ANN - APM Volt Meter, Negative LCD
APM-VOLT-ANO - APM Volt Meter, Negative LCD w/Outputs
022128-01 - USB Cable

Process Meter

The Process Meter is designed to be used with industrial sensors and equipment with an analogue output. It can also be used with variable speed drives (VSDs) to provide current or speed indication, or non-linear sensors such as flow or pressure transducers.

Specific Features
• Display motor current with variable speed drives (VSDs)
• Display rate of flow and tank levels from 0-10V/4-20mA sensors
• 20-point non-linear conversion
• Outputs included for easy integration with other systems

Specifications
For general specifications see page 34.

Input
Voltage

Range (DC)	0 to +/-10VDC
Impedance	100KΩ
Accuracy	0.1%

Current

Range (DC)	0 - 50mA
Impedance	15Ω
Accuracy	0.01%

Ordering Information
APM-PROC-APO - APM Process Meter, Positive LCD w/ Outputs
APM-PROC-ANO - APM Process Meter, Negative LCD w/ Outputs
022128-01 - USB Cable
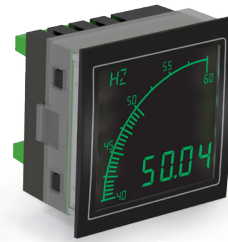
Frequency Meter

The APM Frequency Meter is ideal for control panels where accurate frequency and speed measurement is required and is suitable for many applications including mains, industrial and aviation.

Specific Features
• Frequency range 0-400Hz
• Accurately measure DC pulses from a sensor
• Able to indicate speed and rate
• Optional outputs to control or re-transmit values to other systems

Specifications
For general specifications see page 34.

Input

Input range (AC)	0 - 400Hz
Accuracy	0.1%

Ordering Information
APM-FREQ-APN - APM Frequency Meter, Positive LCD
APM-FREQ-APO - APM Frequency Meter, Positive LCD w/ Outputs
APM-FREQ-ANN - APM Frequency Meter, Negative LCD
APM-FREQ-ANO - APM Frequency Meter, Negative LCD w/ Outputs
022128-01-USB Cable

Shunt Meter

Ideal for low-side DC current measurement applications in marine, leisure and material handling as well as industrial applications such as power supplies, load banks and battery charging systems.

Specific Features
• Accurate DC current measurement for low side applications
• 1VDC high-resolution input and two outputs
• Suitable with a wide range of shunts up to 1000mV
• Digital and analogue outputs as standard for easy integration

Specifications
For general specifications see page 34.

Input

Range	0 - 1 VDC
Impedance	1 Meg
Accuracy	0.1% of signal or 0.5mV, whichever is greater

Ordering Information
APM-SHUNT-APO - APM Shunt Meter, Positive LCD w/ Outputs
APM-SHUNT-ANO - APM Shunt Meter, Negative LCD w/ Outputs
022128-01 - USB Cable

CT Meter

The APM CT Meter can be used in a wide range of applications such as motor control, heating control, industrial power supplies and energy management.

Specific Features
• For use with an external current transformer
• Accurately measure up to 10,000 amps
• Ideal for remote monitoring and energy management applications
• Digital and analogue outputs for easy integration

Specifications
For general specifications see page 34.

Input

Range (CT Output Current)	0 - 5A
Range (via External CT)	0 - 10,000A
Accuracy	0.5%

Ordering Information
APM-CT-APN - APM CT Meter, Positive LCD
APM-CT-APO - APM CT Meter, Positive LCD w/Outputs
APM-CT-ANN - APM CT Meter, Negative LCD
APM-CT-ANO - APM CT Meter, Negative LCD w/Outputs
022128-01 - USB Cable
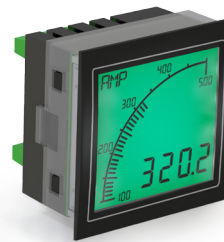
AMP Meter

The Amp Meter provides accurate and clear current measurement in control panels for a wide range of applications.

Specific Features
• Flexible 5A current measuring input
• Suitable for use with current transformers up to 1000A or direct AC and DC
• Optional outputs to integrate with other systems for monitoring and control

Specifications
For general specifications see page 34.

Input

Input range (AC)	0 - 5A
Max Using CT	1000A
Max Using Shunt	1000A
Accuracy	1%
Display modes	Peak or RMS

Ordering Information
APM-AMP-APN - APM Ammeter, Positive LCD
APM-AMP-APO - APM Ammeter, Positive LCD w/Outputs
APM-AMP-ANN - APM Ammeter, Negative LCD
APM-AMP-ANO - APM Ammeter, Negative LCD w/Outputs
022128-01   - USB Cable

The only range of panel meters to combine the instant visual representation of an analog meter with the accuracy of a digital meter. The APM incorporates a large four digit display plus a separate 40 segment bar graph display as well as a custom message area and fully programmable display scales. The backlight can be configured to automatically change colour or flash when the input reaches a certain value or goes outside a specific range.

Each APM includes a fully programmable input scaler, user selectable measurement range (min, max and span), two independent alarm outputs and a fully scaled analogue monitor output. All configurable via an easy to use PC application.

Common Specifications

Large multi-format display
• 40 segment bar graph display
• Large 4-digit display
• Separate Starburst display area for annunciators, custom messages and alarm information

Visibility
• Dynamic backlight colour
• User adjustable backlight brightness and colour
• Wide viewing angle (both horizontal and vertical)

Programmable
• Scale (offset and gain) and Range (min and max)
• Custom annunciators
• User selectable backlight colour and intensity
• Two independent alarm set-points
• Two independent outputs (output models only)
• 4-20mA analogue monitor output (output models only)

Environmental
Operating Temperature	-10 to +60°C
Storage Temperature	-40 to +70°C
IP rating (from the front)	IP65

Power Supply
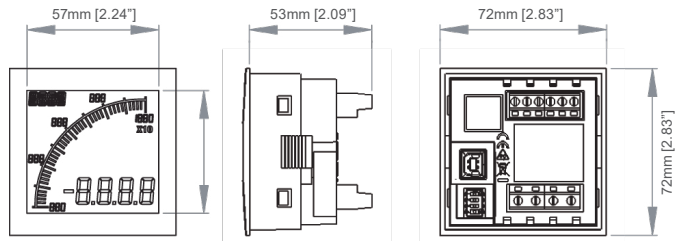|	
Nominal Input (AC or DC)	12-24 VAC/ VDC

Display
Number of digits	4
Digit height	12mm [0.47"]
Digit height of annunciator	6mm [0.23"]
Number of message characters	4
Backlight colours	Red, Green, White
LCD display	Positive or Negative

Output Models
Max voltage	24V
Max current	50mA
Analogue output	4-20mA

Mechanical

Dimensions: 72mm x 72mm x 53mm [2.83" x 2.83" x 2.09"]
Cutout: 68mm x 68mm [2.68" x 2.68"] as per DIN43700/IEC61554

PRODUCT SELECTOR

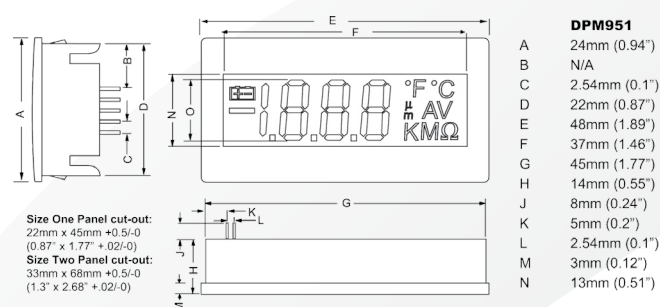|	Voltage			Current			Frequency			PSU	Typical Applications
	Range	Accuracy	Galvanic Isolation	Range	Accuracy	Galvanic Isolation	Range	Accuracy	Galvanic Isolation		
VOLT	0-600VDC 0-528VAC	1% of full scale	No	-	-	-	-	-	-	12-24 DC and 30-400Hz	Measuring mains voltage e.g. control panels, power supplies, energy management etc.
PROCESS	0-10VDC	0.1% of signal or 5mV, whichever is greater	No	0-50mA	0.01%of signal or 5uA, whichever is higher	None	-	-	-	12-24 DC and 30-400Hz	Process control e.g. industrial equipment (linear and non-linear sensors)
FREQUENCY	-	-	-	-	-	-	0-400Hz	0.1% of full scale	None	12-24 DC and 30-400Hz	Measuring frequency and speed e.g. mains measurement, industrial and aviation applications etc.
SHUNT	0-1VDC	0.1% of signal or 0.5mV, whichever is greater	No	-	-	-	-	-	-	12-24 DC	Measuring DC currents with a SHUNT placed on the low side only
CT	-	-	-	0-10,000A via CT	0.5% of full scale	None	-	-	-	12-24 DC and 30-400Hz	Measuring AC currents to 10,000A using an external CT
AMP	-	-	-	0-5A direct. 0-1000A via CT	1% of full scale	2.4Kv for 1 min	-	-	-	12-24 DC and 30-400Hz	Measuring AC and DC currents directly up to 5A Measuring AC current to 1,000A using an external CT

For more information visit www.truAPM.com

DPM 951
3½-digit LCD Digital Panel Meter (24x48mm)

Panel mount digital meter with a 200mv full scale input. Annunciators for common engineering units and suitable for operation with either 5VDC or 9VDC power.

LCD modules with a full scale reading at 200mV. Operated from either 5VDC or 9VDC with a range of annunciators for common engineering units.

Size One Panel cut-out:
22mm x 45mm +0.5/-0
(0.87" x 1.77" +.02/-0)
Size Two Panel cut-out:
33mm x 68mm +0.5/-0
(1.3" x 2.68" +.02/-0)

DPM951

A	24mm (0.94")
B	N/A
C	2.54mm (0.1")
D	22mm (0.87")
E	48mm (1.89")
F	37mm (1.46")
G	45mm (1.77")
H	14mm (0.55")
J	8mm (0.24")
K	5mm (0.2")
L	2.54mm (0.1")
M	3mm (0.12")
N	13mm (0.51")

Features
- Low power consumption
- 10mm black character high contrast LCD display
- Integrated backlight
- 24mm X 48mm bezel
- 5 or 9VDC operation
- 200mV full scale
- Scaleable
- CE Approved

Specification

Supply Voltage	5V mode: 3 - 7VDC
	9V mode: 7 - 12VDC
Display	3½-digit black LCD, 10mm characters
Supply Current	2mA typical
Sample rate	3 per second
Backlight Current	80mA MAX
Accuracy	0.1% ± 1 count
Operating Temp	-10°C to +50°C [14°F to 122°F]
Storage Temp	-20°C to +70°C [-4°F to 158°F]

### Ordering Information
DPM951-T - Digital panel meter

DPM 952
3½-digit LCD Digital Panel Meter (36x72mm)

3½-digit panel meter with a 200mv full scale input.

LCD modules with a full scale reading at 200mV. Operated from either 5VDC or 9VDC with a range of annunciators for common engineering units.

Size One Panel cut-out:
22mm x 45mm +0.5/-0
(0.87" x 1.77" +.02/-0)
Size Two Panel cut-out:
33mm x 68mm +0.5/-0
(1.3" x 2.68" +.02/-0)

DPM952

A	36mm (1.42")
B	N/A
C	2.54mm (0.1")
D	33mm (1.3")
E	72mm (2.83")
F	61mm (2.4")
G	68mm (2.68")
H	14mm (0.55")
J	8mm (0.24")
K	6mm (0.24")
L	2.54mm (0.1")
M	3mm (0.12")
N	18mm (0.7")
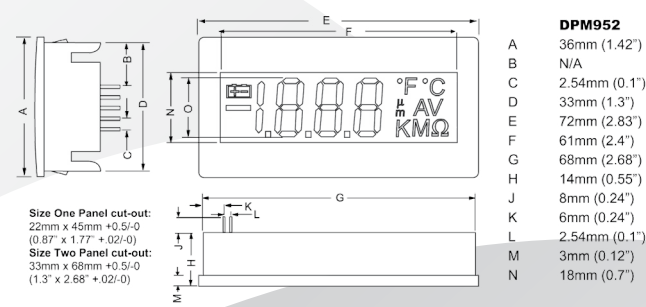
Features
- Low power consumption
- 14mm black character high contrast LCD display
- Integrated backlight
- 36mm X 72mm bezel
- 5 or 9VDC operation
- 200mV full scale
- Scaleable
- CE Approved

Specification

Supply Voltage	5V mode: 3 - 7VDC
	9V mode: 7 - 12VDC
Display	3½-digit black LCD, 14mm characters
Supply Current	2mA typical
Sample Rate	3 per second
Backlight Current	160mA MAX
Accuracy	0.1% ± 1 count
Operating Temp.	-10°C to +50°C [14°F to 122°F]
Storage Temp.	-20°C to +70°C [-4°F to 158°F]

Ordering Information
DPM952-T - Digital panel meter

ENCODERS
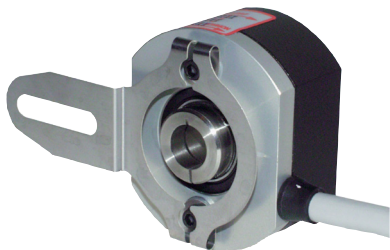
4T260
Electronic Incremental Encoder

Compact 30mm encoder with Quadrature output, 10mm hollow shaft and a 100°C operating temperature. This encoder is ideal when space is limited.

The series 4T260 low profile 30 mm package design makes it a perfect solution for many machine and motor applications. The unit has a complete 10mm through-shaft design. The series 260 and its integral bearing set provide for stable and consistent operation, without concerns for axial or radial shaft runout. The standard 100°C temperature capability allows servo motors to operate at higher power outputs and duty cycles. The output has a push/pull output as standard, signals A, B output.
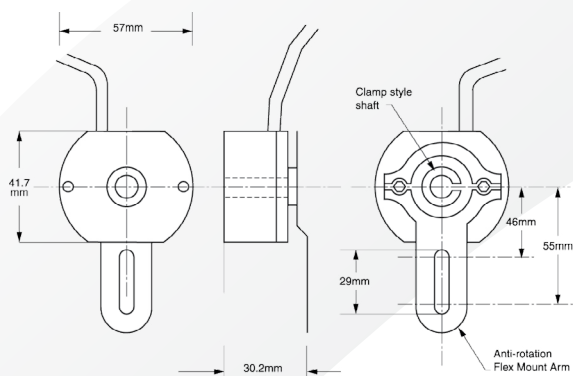
Features
- Quadrature output.
- Anti-rotation flex mount arm.
- 10 mm hollow through shaft.
- Ideal replacement for mechanical counters when used in conjunction with a suitable electronic counter.
- Operates in temperatures up to 100°C.
- Operates at output frequency of up to 300 KHz.
- CE and RoHS compliant.

Specification

Input Voltage Range	5 to 24V (+10%)
Regulation, for 5V Operation	5% with 2% maximum ripple
Current Consumption	80mA typical
Output Circuits	A, B, @ 20mA each
Frequency Response	300 KHz std
Accuracy	0.017° or 1 Arc/Min
Max Shaft Speed	7,500 rpm continuous
Shaft Sizes and Types	10mm Hollow shaft (through shaft)
Housing	Aluminium with protective finish
Operating Temp.	0°C to +100°C [32°F to 212°F]
Humidity	95% RH
Protection	IP54

Ordering Information
4T260 - 30mm encoder, Quadrature output, 10mm hollow shaft, 100°C operating temperature
4T26015TPP0250A 250PPR - Push pull output
4T26015TPP0500A 500PPR - Push pull output
4T26015TPP1000A 1000PPR - Push pull output
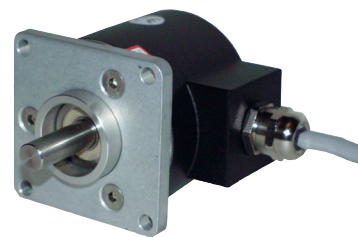
4T725
Electronic Incremental Encoder

Low-cost, rugged encoder with Quadrature output, 10mm shaft diameter and square mount flange.

This size 25 encoder has been designed to suit a wide variety of industrial applications. The unit has a 10mm diameter shaft. A square mounting flange is fitted as standard. A 2M cable is fitted, this enters the unit via a gland situated on the side of the unit. The Output circuit has a push/pull output as standard, signals A, B, output.
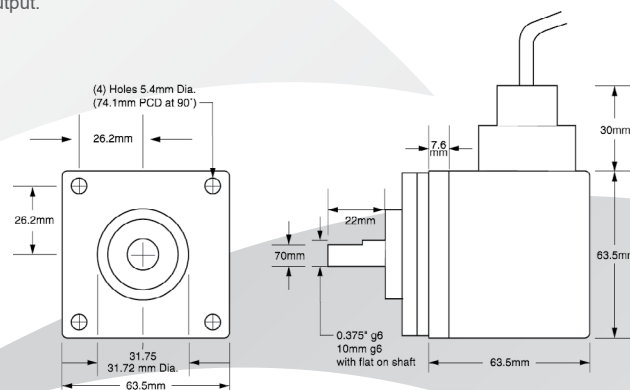
Features
- Quadrature output.
- Square mounting flange enables easy mounting.
- Robust heavy duty 10 mm shaft.
- Ideal replacement for mechanical counters when used in conjunction with a suitable electronic counter.
- CE and RoHS compliant.

Specification

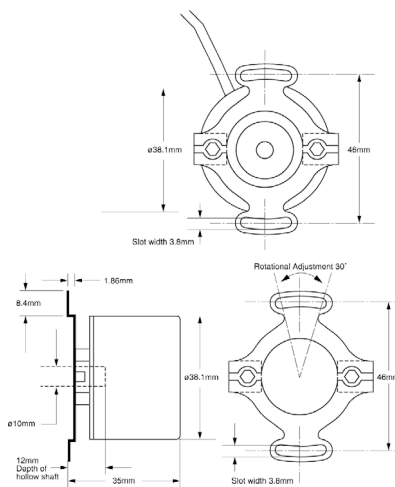|	
Input Voltage Range	5 to 24V (+10%)
Regulation, for 5V Operation	5% with 2% maximum ripple
Current Consumption	50 to 100 mA typical
Output Circuits	A, B, @ 20mA each
Frequency Response	20 KHz
Accuracy	0.017° or 1 Arc/Min
Max Shaft Speed	6,000 rpm continuous
Shaft Sizes and Types	10mm diameter
Housing	Aluminium with protective finish
Mounting	Square flange
Operating Temp.	-10°C to +70°C [14°F to 158°F]
Humidity	95% RH
Protection	IP54

Ordering Information
4T734 - Encoder, 10mm shaft diameter, square mount flange, Quadrature output
4T734PPF10SG20333 333PPR - Push pull output
4T734PPF10SG20500 500PRP - Push pull output
4T734PPF10SG21000 1000PRP - Push pull output

4T755
Electronic Incremental Encoder

Miniature high precision encoder with a 10mm blind hollow shaft it has a 125Khz frequency response and can mount directly onto motor shafts. Quadrature output and Flexible mounting bracket.

Series 4T755 encoders are ideal for applications requiring a miniature, high precision low cost encoder. The encoder has a flexible mounting and a blind hollow shaft (10mm diameter) for mounting directly onto motor shafts etc. the Output circuit has a push/pull output as standard, signals A, B, output.

Features
• Quadrature output
• Fixable by flexible mountings
• 10 mm blind hollow shaft
• Ideal replacement for mechanical counters when used in conjunction with a suitable electronic counter
• Operates at output frequency of up to 300 KHz
• CE and RoHS compliant

CE

Specification

Input Voltage Range	5 to 24V (+10%)
Regulation, for 5V Operation	5%, with 2% maximum ripple
Current Consumption	80 mA typical
Output Circuits	A, B, @ 20mA each
Frequency Response	125 KHz
Accuracy	±0.017° or 1 Arc / Min
Max Shaft Speed	7,500 rpm continuous
Shaft Sizes and Types	Blind hollow shaft (10mm diameter)
Housing	Aluminium with protective finish
Operating Temp.	0°C to +70°C [32°F to 158°F]
Humidity	95% RH
Protection	IP54

Ordering Information
4T755 - High precision encoder, 10mm blind hollow shaft, 125Khz frequency response, Quadrature output
4T755150PP0333328 333PPR - Push pull output
4T755150PP0500328 500PPR - Push pull output
4T755150PP1000328 1000PPR - Push pull output

4T764
Electronic Incremental Encoder

10mm hollow through shaft, Fixing from either side, Flexible mounting, 50Khz frequency response, Quadrature output Push pull output circuit.

4T764 Series encoders have a full through hollow shaft (which may be fixed at either end). The bore size is 10mm. The encoder body is fixed by means of two flexible mountings which compensate for minor shaft misalignment. The Output circuit has a push/pull output as standard, signals A, B, output
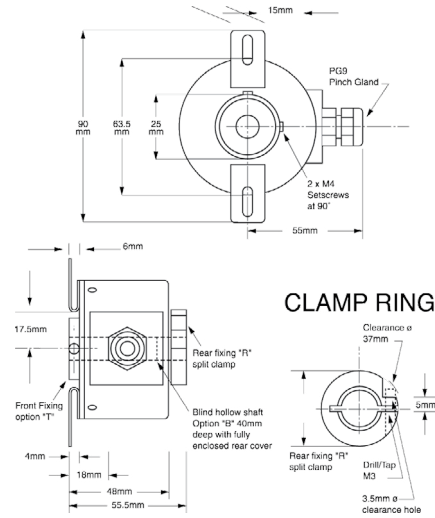
Features
• Quadrature output
• Fixable by flexible mountings
• 10 mm hollow through shaft, can be fixed at either end with optional clamp ring
• Ideal replacement for mechanical counters when used in conjunction with a suitable electronic counter
• CE and RoHS compliant

CE

Specification

Input Voltage Range	4.75 to 24V (+10%)
Regulation, for 5V Operation	5%, with 2% maximum ripple
Current Consumption	75 to 125 mA
Output Circuits	A, B, @ 20mA each
Frequency Response	50 KHz
Accuracy	0.0117° or 1 Arc / Min
Max Shaft Speed	6,000 rpm continuous
Shaft Sizes and Types	10mm through shaft
Housing	Aluminium with protective finish
Mounting	Shaft set screws or split clamp and flexible mounting springs
Operating Temp.	-10°C to +70°C [14°F to 158°F]
Humidity	95% RH.
Protection	IP54

Ordering Information
4T764 - Encoder, 10mm hollow through shaft, Quadrature output, Push pull output circuit
4T764PPT0G20333 333PPR - Push pull output
4T764PPT0G20500 500PPR - Push pull output
4T764PPT0G21000 1000PPR - Push pull output
019044-01 - Encoder shaft assembly for use with dual wheel measuring system
019141-01 - Encoder mounting bracket for mounting encoder onto 1 or 2 wheel measuring systems
4TCLP - Optional Encoder Clamp Ring
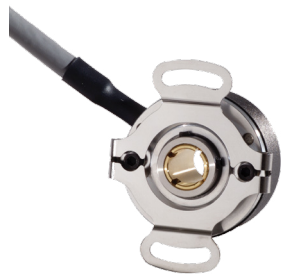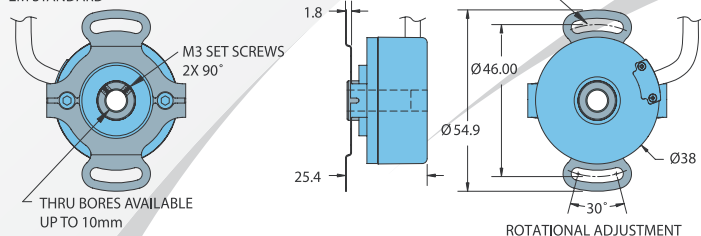
15T
Electronic Encoder

The Model 15T or 15H offers a high performance feedback solution in a low profile package. Unlike modular or kit encoders, the Model 15 utilizes an integral bearing set, and an innovative flexible mounting system which is much more tolerant to axial misalignment or radial shaft run-out. The slotted flex mounts provide 20 or 30 degrees of rotational adjustment for commutation or index pulse timing.

Installation is quick and easy! For brushless servo motor applications, three 120° electrical phase tracks can provide up to 12 pole commutation feedback. The optional 100° C and 120°C temperature options allow servo motors to operate at higher power outputs and duty cycles. The Model 15 provides stable and reliable operation and is an excellent replacement for other manufacturers modular encoders where a high performance solution is desired.

Features
- High-performance economical encoder
- Low profile 1.0" (25.4 mm) height and 1.5" (38 mm) diameter
- Thru-bore (sizes up to 0.375" or 10 mm)
- Simple, innovative flex mounting system (global mounting standards)
- Up to 12 pole commutation optional (for brushless motor control)
- CE and RoHS compliant

Specification

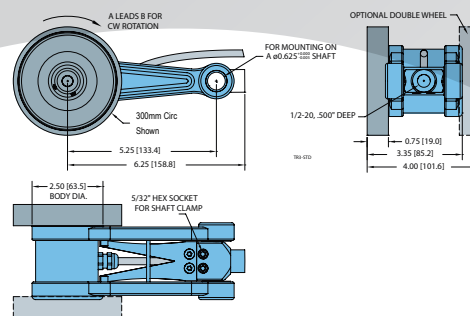|	
Input Voltage Range	5 to 24V (+10%)
Regulation, for 5V Operation	5%, with 2% maximum ripple
Current Consumption	100 mA typical
Output Circuits	A, B, @ 20mA each
Frequency Response	200 KHz
Accuracy	±0.017° or 1 Arc / Min
Max Shaft Speed	8000 rpm continuous
Shaft Sizes and Types	5mm through 10mm thru bore or blind hollow bore
Housing	Aluminium with protective finish
Operating Temp.	0°C to +70°C [32°F to 158°F]
Humidity	98% RH
Protection	IP50 standard, IP64 available as option

TR3
Heavy Duty Tru-Trac

An integrated heavy duty encoder and spring loaded measuring wheel assembly unit that is compact and easy-to-use. Available in a single or optional dual-wheel format, the TR3 Heavy Duty Tru-Trac™ is a versatile solution for tracking velocity, position or distance over a wide variety of surfaces in almost any industrial application.

Its spring loaded torsion arm provides a simple to adjust torsion load, allowing the TR3 Heavy Duty Tru-Trac™ to be mounted in any orientation, even upside-down.
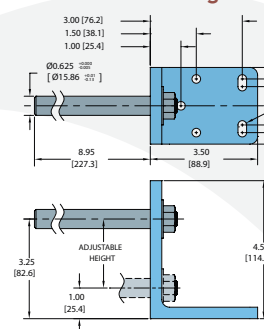
Features
- Heavy duty encoder and measuring wheel solution integrated into one industrial-strength unit
- Spring loaded torsion arm for simple wheel pressure adjustments
- Easily installed in a vertical, horizontal, or upside-down orientation
- Operates over a variety of surfaces at speeds up to 3000 feet per minute
- Integrated module simplifies your system design, reducing cost
- CE and RoHS compliant

Model TR3 Mounting Bracket (Order #176389-01)

Specification

|	
Input Voltage Range	5 to 24V (+10%)
Regulation, for 5V Operation	5%, with 2% maximum ripple
Current Consumption	100 mA typical
Output Circuits	A, B, @ 20mA each
Frequency Response	200 KHz
Accuracy	±0.017° or 1 Arc / Min
Max Shaft Speed	6000 rpm continuous
Housing	Powder coated aluminium
Operating Temp.	0°C to +70°C [32°F to 158°F]
Humidity	98% RH
Protection	IP50 standard, IP65 available as option

LENGTH MEASUREMENT

2300
Mechanical Length Measuring Unit

Heavy duty measuring unit, dual measuring wheels for better stability and contact, frame/bulkhead mounted.

This rugged instrument has a wide range of applications where an accurate record of length is required. It is a strong, heavy duty unit for use on calenders, tenters, rolling, ribbon winding textile machinery and almost all other continuous manufacturing processes.
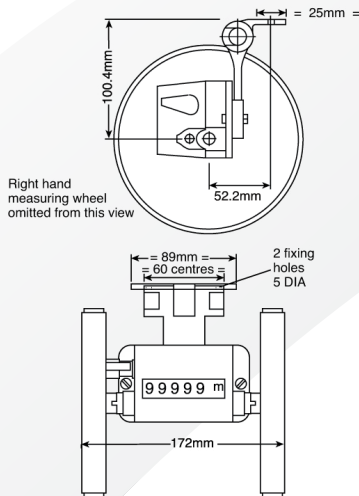
Features
• Sturdy die-cast construction
• Uses standard measuring wheels
• Can be tilted out of the way when not in use
• The 2300 bolts directly onto a bulkhead or frame member
• The integral hinge arrangement allows the unit to be positioned at any angle
• The measuring wheels supplied can be 0.5m or 0.3m (18in or 12in) circumference (specify when ordering)
• The weight of the assembly holds it in contact with the material being measured

Specification

Shaft Diameter 7mm (0.275in).

Units of Measurement Metres/centimetres, yards/eighths or feet/inches (other measurements may be available to special order; please ask).

Packed Dimensions 180mm (7.09in) x 200mm (7.87in) x 270mm (10.63in)

Gross Weights 1.3kg (2.86lb)

Ordering Information
2300 - Heavy duty measuring counter with hinged bracket and two wheels
• 2300-11MCG
  3602 - Top Going Counter. (M/Cm.) with 2 x ½ Metre Wheels and Hinged Bracket
• 2300-11MCC
  3602 - Top Coming Counter. (M/Cm.) with 2 x ½ Metre Wheels and Hinged Bracket
• 2300-14MFG
  3602 - Top Going Counter. (Ft/Ins.) with 2 1ft. Wheels and Hinged Bracket
• 2300-14MFC
  3602 - Top Coming Counter. (Ft/Ins.)with 2 1ft. Wheels and Hinged Bracket
• 2300-13MYG
  3602 - Top Going Counter. (Yd/1/8's) with 2½ Yard Wheels and Hinged Bracket
• 2300-13MYC
  3602 - Top Coming Counter. (Yd/1/8's) with 2½ Yard Wheels and Hinged Bracket

other versions upon request.

2401
Mechanical Length Measuring Unit

Heavy duty measuring unit, single wheel unit which has frame or bulkhead mounting.

This rugged instrument has a wide range of applications where an accurate record of length is required. It is a strong, heavy duty unit for use on calenders, tenters, rolling, ribbon winding textile machinery and almost all other continuous manufacturing processes.
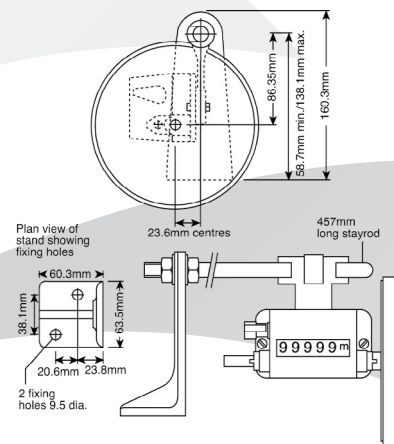
Features
• Sturdy die-cast construction
• Uses standard measuring wheels
• Can be tilted out of the way when not in use
• The 2400 unit is slung from a stay rod. A hinge arrangement on the stay rod allows the unit to be positioned at any angle
• The 2401 is supplied with a 475mm (17.99in) stay rod and stand
• The measuring wheel supplied can be 0.5m or 0.3m (18in or 12in) circumference (specify when ordering)
• The weight of the assembly holds it in contact with the material being measured.

Specification

Shaft Diameter 7mm (0.275in).

Units of Measurement Metres/centimetres, yards/eighths or feet/inches (other measurements may be available to special order; please ask).

Packed Dimensions 520mm (20.47in) x 170mm (6.69in) x 130mm (5.12in)

Gross Weights 2.0kg (4.4lb)

Ordering Information
2401 Heavy duty measuring counter with stand, stay rod, counter mounting bracket and measuring wheel.
• 2401-11MCG - Top Going Counter. (M/Cms.) 1/2m Rubber Covered Wheel
• 2401-11MCC - Top Coming Counter. (M/Cms.) 1/2m Rubber Covered Wheel
• 2401-14MFFG - Top Going Counter. (Ft.) 12" Rubber Covered Wheel
• 2401-14MFFC - Top Coming Counter. (Ft.) 12" Rubber Covered Wheel
• 2401-14MFG - Top Going Counter. (Ft/Ins.) 12" Rubber Covered Wheel
• 2401-14MFC - Top Coming Counter. (Ft/Ins.) 12" Rubber Covered Wheel
• 2401-54MFFG - Top Going Counter. (Ft.) 12" Knurled Aluminum Wheel
• 2401-54MFFC - Top Coming Counter. (Ft.) 12" Knurled Aluminum Wheel
• 2401-34MFFG - Top Going Counter. (Ft.) 12" Poly Covered Wheel
• 2401-14MFYG - Top Going Counter. (Yds.) 12" Rubber Covered Wheel
• 2401-14MFYC - Top Coming Counter. (Yds.) 12" Rubber Covered Wheel

other versions upon request.

2701
Mechanical Length Measuring Unit

Heavy duty measuring unit, twin wheel, stay rod mounted. This rugged instrument has a wide range of applications where an accurate record of length is required. It is a strong, heavy duty unit for use on calenders, tenters, rolling, ribbon winding textile machinery and almost all other continuous manufacturing processes.
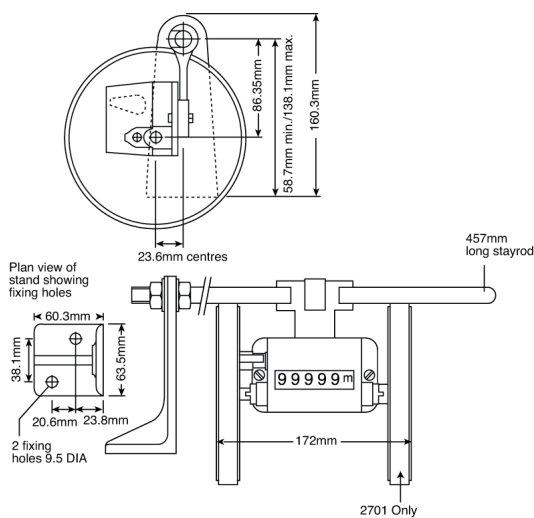
Features
- Sturdy die-cast construction
- Uses standard measuring wheels
- Can be tilted out of the way when not in use
- Supplied with stand
- The 2700 unit is slung from a stay rod. A hinge arrangement on the stay rod allows the unit to be positioned at any angle
- The 2401 is supplied with a 475mm (17.99in) stay rod and stand
- The measuring wheel supplied can be 0.5m or 0.3m (18in or 12in) circumference (specify when ordering)
- The weight of the assembly holds it in contact with the material being measured.

Specification

|	
Shaft Diameter	7mm (0.275in).
Units of Measurement	Metres/centimetres, yards/eighths or feet/inches (other measurements may be available to special order; please ask).
Packed Dimensions	520mm (20.47in) x 170mm (6.69in) x 130mm (5.12in)
Gross Weights	2.0kg (4.4lb)

Ordering Information
2700 Heavy duty measuring counter with stand, stay rod, counter mounting bracket and two wheels.
- 2701-11MCG - Top Going Counter. (M/Cms.) 1/2m Rubber Covered Wheels
- 2701-11MCC - Top Coming Counter. (M/Cms.) 1/2m Rubber Covered Wheels
- 2701-13MFFG - Top Going Counter. (Ft.) 18" Rubber Covered Wheels
- 2701-13MFFC - Top Coming Counter. (Ft.) 18" Rubber Covered Wheels
- 2701-33MFFG - Top Going Counter. (Ft.) 18" Poly Covered Wheels
- 2701-53MFFG - Top Going Counter. (Ft.) 18" Knurled Aluminum Wheels
- 2701-13MFYG - Top Going Counter. (Yds.) 18" Rubber Covered Wheels
- 2701-14MYG - Top Going Counter. (Yds./1/8s.) 12" Rubber Covered Wheels
- 2701-13MYG - Top Going Counter. (Yds./1/8s.) 18" Rubber Covered Wheels
- 2701-12MCG - Top Going Counter. (M/Cms.) 1/3m Rubber Covered Wheel

other versions upon request.
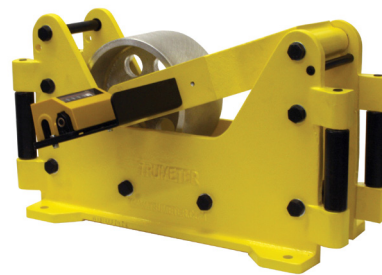
2600
Cable, Wire and Rope Measuring Machine

Heavy duty, multi-purpose measuring machine which measures the length of cable, wire, rope, hose, extrusions or continuous strip from 6mm (0.24in) to 76mm (3.0in) diameter.
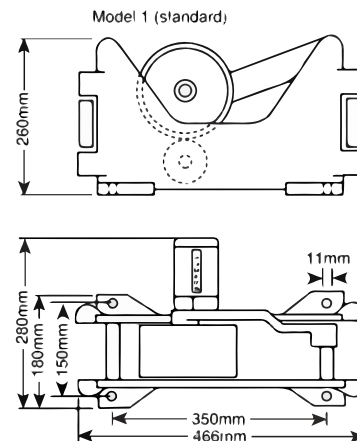
Features
- Measures up to 76mm (3.0in) diameter
- Heavy duty cast structure with integral mounting flanges
- Totalising counter fitted

The pivot arm, also available separately (2620), carries the 500mm circumference precision ground measuring wheel. The shaft that supports the measuring wheel revolves in a double ball race which is mounted in the pivot arm. A choice of polyurethane covered or knurled aluminium measuring wheels is available. The length is indicated on a 3602 counter mounted at the side of the unit.

Specification

Cable Diameter Range	6mm (0.24in) to 76mm (2.99in)
Measuring Wheel Circumference	500mm
Maximum Speed of Travel	1500 metres/min or 3000 counts/min whichever is lower
Units of Measurement Available	Metres and centimetres, yards and eighths, or feet and inches
Counters Type	3602
Packed Dimensions	53mm (2.09in) x 33mm (1.30in) x 33mm (1.30in).
Gross Weight	15.0kg (33.0lb)

Ordering Information
2600 - Multi-purpose Measuring Machine
Wheel type - (Select and add code to 2600-???)
132 for polyurethane covered wheel and mechanical display
332 for knurled aluminium wheel and mechanical display
Unit of measurement -(Select and add code to 2600-132?)
C Metres/Centimetres
F Feet and Inches

Material travel and counter position - (Select and add code to 2600-132CA)
A for material travelling towards the operator; counter on his left
B for material travelling away from the operator; counter on his left
C for material travelling away from the operator; counter on his right
D for material travelling towards the operator; counter on his right
e.g. 2600-132CA = Poly wheel displaying in metres/centimetres, material travelling towards the operator with the counter on his left
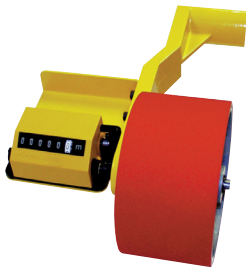
2620
Multi Purpose Surface Length Measuring Machine

This is a pivot arm assembly only that rests on the "guided" material to be measured. As well as cable it is suitable many materials such as steel, plastic and board.

Features
- Heavy duty cast aluminium structure with integral mounting collar
- Totalising counter
- Optional encoder and electronic counter available

The pivot arm carries a 500mm circumference precision ground measuring wheel. The shaft that supports the measuring wheel revolves in a double ball race which is mounted in the pivot arm. A choice of polyurethane covered, knurled or plain aluminium measuring wheels is available.

Specification

|	
Measuring Wheel Circumference	500mm
Maximum Speed of Travel	1500 metres/min or 3000 counts/min whichever is lower
Units of Measurement Available	Metres and centimetres or feet and inches

Ordering Information
2620 - Multi-purpose Measuring Machine for Guided Materials
Wheel type - (Select and add code to 2620-**???**)
132 for polyurethane covered wheel and mechanical display
332 for knurled aluminium wheel and mechanical display
Unit of measurement - (Select and add code to 2620-XXX**?**)
C Metres/Centimetres
F Feet and Inches
Material travel and counter position - (Select and add code to 2620-XXXX**?**)
A for material travelling towards the operator; counter on his left
B for material travelling away from the operator; counter on his left
C for material travelling away from the operator; counter on his right
D for material travelling towards the operator; counter on his right

e.g. 2620-132CA = Poly wheel displaying in metres/centimetres, material travelling towards the operator with the counter on his left

2630
Mechanical Length Measuring Unit

Robust wire measuring machine designed for continuous high speed operation, suitable for cable and wire up to 15mm in diameter. The 250mm circumference, precision ground measuring wheel runs in self lubricating bearings.
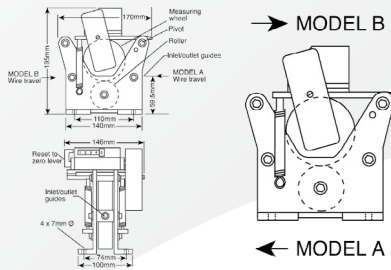
Features
- Continuous operation at up to 300 metres per minute or 50 counts per second
- Self lubricating bearings on both rollers
- Heavy duty cast structure
- Hardened steel inlet and outlet guides
- Polyurethane covered measuring wheel fitted as standard

The machine is equipped with two adjustable tension springs, mounted externally, which can be unhooked from their anchor. This allows the measuring head to be pivoted up to a backstop to facilitate threading the cable through the machine. When in position, these springs grip the cable between the measuring roller and the bottom roller. They should be adjusted for the minimum tension required to prevent slippage.

Specification

Maximum Wire Diameter	15mm (0.59in)
Measuring Wheel Circumference	250mm
Maximum Speed of Travel	300.0 metres/min, 300.11 feet/inches 300: 7/8 yards (4921 ft/min) or 3000 counts/minute whichever is lower
Units of Measurement	Metres/centimetres or Feet/inches
Counters Type	3602
Packed Dimensions	180mm (7.09in) x 200mm (7.87in) x 270mm (10.63in)
Gross Weight	3.0kg (6.6lb)
Operating Life	Beyond 3 million counts

Ordering Information
2630 - Cable and Wire Measuring Machine
Unit of measurement - (Select and add code to 2630-132?)
C Metres/Centimetres
F Feet and Inches
Material travel and counter position - (Select and add code to 2630-132C?)
A for material travelling towards the operator
B for material travelling away from the operator

e.g. 2630-132CA = Cable and wire measurer displaying in metres/centimetres, material travelling towards the operator.
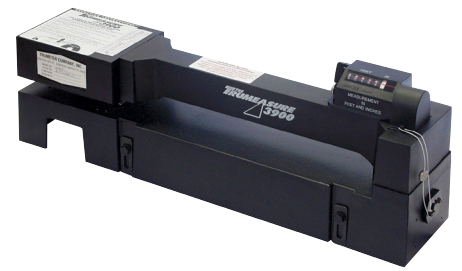
3900B
Trumeasure 3900

Fabric and Carpet Measurement

Robust, durable and accurate length measurement

The Trumeasure 3900B incorporate the very best features from over 60-years experience in the specialised length measurement sector. These machines incorporate exclusive new components to ensure reliability and continuing accuracy even when operating under the most demanding conditions.
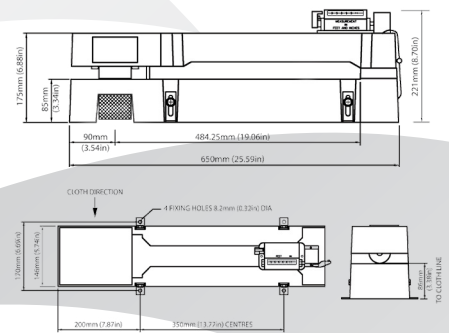
Features
- US Weights and Measures Approval
- Measures material up to 24mm (0.94in) thick
- Accommodates easily marked and/or abrasive materials (with special wheels)
- Accuracy 0.25%
- Accommodates pile up or no pile materials
- Optional encoder output
- Can be built into manufacturing and finishing processes

Operates as the material passes between the measuring roller and the spring loaded pressure roller. The machine is activated by the movement of the material. All Trumeasure machines incorporate an integral brake to prevent overspin at the end of the piece. The brake is automatically released when a further piece of material is passed between the rollers.

Ordering Information
Trumeasure 3900B Fabric and Carpet Measurer:
Material travel and counter position
3900B TYPE A for material travelling towards the operator; counter on his left
3900B TYPE B for material travelling away from the operator; counter on his left
3900B TYPE C for material travelling away from the operator; counter on his right
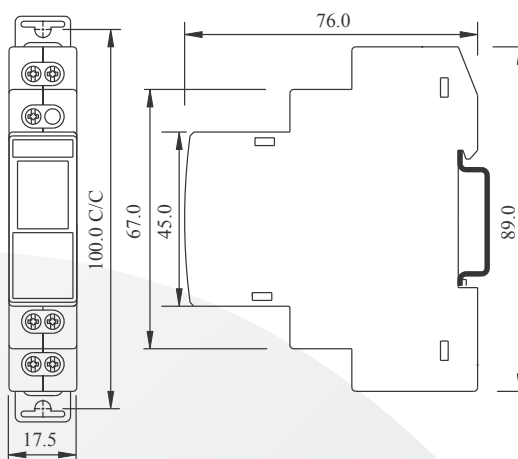3900B TYPE D for material travelling towards the operator; counter on his right

3905-1B - Trumeasure Machine, 99999'11" Feet and Inches
3905-2B - Trumeasure Machine, 99999.7/8 Yards and Eighths
3905-DD250 - 3905 Machine with 250PPR Encoder Output

RELAYS

TIME RELAYS 41

7954 / 7957 42

7954 and 7957
Multi-Function Time Relays

Trumeter's range of digital time relays offer 8 or 18 operating modes, easily configured on the 3-digit LCD display; a wide timing-range of 0.1s - 999Hr to suit all applications; a clear indication of the changeover relay status via the front panel LED; can accept a wide range of operating voltages for most installations.

The keylock feature means settings cannot be tampered with, for 100% reliable operation.

Features
• Compact 17.5mm DIN rail mountable
• 3-digit LCD for easy programming
• Tamper proof with key lock feature
• Wide timing range: 0.1s - 999Hr
• Multi-function: (8 or 18) non-signal and signal based functions
• Multi-voltage: 24 - 240VAC/VDC
• Option to select up/down counting
• CE, UL and cUL approved

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Ordering Information
7954   24 - 240VAC/DC, Multi-Function Digital Timer, 8 Functions, 1 C/O
7957   24 - 240VAC/DC, Multi-Function Digital Timer, 18 Functions, 1 C/O

7954 Specification

• ON Delay
• Cyclic OFF/ON
• Cyclic ON/OFF
• Signal ON/OFF
• Signal OFF Delay
• Interval
• Signal OFF/ON
• One Shot Output

7957 Specification

• ON Delay
• Cyclic OFF/ON
• Cyclic ON/OFF
• Impulse on Energising
• Accumulative Delay on Signal
• Accumulative Delay on Inverted Signal
• Accumulative Impulse on Signal
• Signal ON Delay
• Inverted Signal ON Delay
• Signal OFF Delay
• Impulse ON/OFF
• Signal OFF/ON
• Leading Edge Impulse 1
• Leading Edge Impulse 2
• Trailing Edge Impulse 1
• Trailing Edge Impulse 2
• Delayed Impulse
• Inverted Signal ON Delay (Type 2)

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