

# Digital Hour Meter & Counter

- Suitable for Hour meter & Counter (Up / Down) application
- Wide Hour meter range from 1 sec to 9999999 hrs
- Wide counter range from 1 to 9999999 counts
- Prescaling facility for Counter
- Runtime set point change & Alarm facility for both Hour meter & Counter
- Configurable NO/NC Relay & MOSFET Output with Over Load detection
- Retentive & Non-Retentive modes
- 7 Digit LCD with luxurious green backlight & Password Protection
- Compact size
- Suitable for panel mounting



## Ordering Information

| Cat. No.      | Description                         |
|---------------|-------------------------------------|
| Z2301N0G1FT00 | 9-30 V DC (with dual MOSFET output) |
| Z2221N0G2FT00 | 85-265 V AC/DC (with Relay output)  |

# Digital Hour Meter & Counter



| Cat. No.                             |                              | Z2301N0G1FT00                                                                                  | Z2221N0G2FT00                                                                                                  |
|--------------------------------------|------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Parameters</b>                    |                              |                                                                                                |                                                                                                                |
| Supply Voltage (V)                   |                              | 9 - 30 VDC                                                                                     | 85 - 265 VAC/DC                                                                                                |
| Power Consumption (W)                |                              | 2 W max.                                                                                       | 2 VA / 1W                                                                                                      |
| Supply Frequency                     |                              | 50 / 60 Hz                                                                                     |                                                                                                                |
| <b>I/P Signal Characteristics</b>    |                              |                                                                                                |                                                                                                                |
| Signal Voltage Range                 |                              | 9 - 30 VDC                                                                                     | 85 - 265 VAC & 100 - 265 VDC                                                                                   |
| Signal Isolation                     |                              | 2kV                                                                                            |                                                                                                                |
| <b>Output Characteristics</b>        |                              |                                                                                                |                                                                                                                |
| Output type                          |                              | 2 MOSFET: 30 VDC/60 mA (Max.)<br>Note: Use isolated input supply                               | Relay: 1 NO, Contact Rating:<br>5 A(Res.) @ 250 VAC/30 VDC<br>Contact Material: Ag Alloy                       |
| <b>Functional Characteristics</b>    |                              |                                                                                                |                                                                                                                |
| Display                              |                              | 7 digit LCD , 6.5 mm Height, 12 O' Clock, Transmissive                                         |                                                                                                                |
| Number of keys                       |                              | 2 (SET key & RST key)                                                                          |                                                                                                                |
| Reset function                       | Reset type                   | Terminal                                                                                       | Front                                                                                                          |
|                                      | Time (min.)                  | 80 ms                                                                                          | 3 Sec                                                                                                          |
|                                      |                              | Auto Reset                                                                                     |                                                                                                                |
|                                      |                              | -                                                                                              |                                                                                                                |
| Hour Meter Functions                 | Accuracy                     | ± 2sec per Day                                                                                 |                                                                                                                |
|                                      | Ranges                       | Hrs : Min : Sec (999:59:59), Hrs : Min (99999:59), Hrs (9999999), Min (9999999), Sec (9999999) |                                                                                                                |
| Counter Functions                    | Input Signal                 |                                                                                                | For Hour counting detection, Signal has to be present for min. 3msec & signal has to be absent for min 20msec. |
|                                      | Accuracy                     |                                                                                                | 100%                                                                                                           |
|                                      | Range                        |                                                                                                | 1 to 9999999.999                                                                                               |
|                                      | Decimal Point Position(max.) |                                                                                                | 3                                                                                                              |
|                                      | Pre-scaler                   |                                                                                                | 4 Digit                                                                                                        |
|                                      | Input                        |                                                                                                | Switching Freq.(max.) 10 Hz for AC and 40 Hz for DC                                                            |
| Signal                               |                              | Pulse Width min. 50ms ON/50ms OFF for AC, 12.5ms ON/12.5ms OFF for DC                          |                                                                                                                |
| <b>Environmental Characteristics</b> |                              |                                                                                                |                                                                                                                |
| Operating Temperature                |                              | -5° C to +55° C                                                                                |                                                                                                                |
| Storage Temperature                  |                              | -10° C to +60° C                                                                               |                                                                                                                |
| Humidity                             |                              | 5 to 95% Rh (Without condensation)                                                             |                                                                                                                |
| Maximum Operating Altitude           |                              | 2000 m                                                                                         |                                                                                                                |
| Pollution Degree                     |                              | II                                                                                             |                                                                                                                |
| Degree of Protection                 |                              | Front side: IP40; Terminals: IP20, Housing : IP30                                              |                                                                                                                |
| Enclosure material                   |                              | UL 94 V0 Plastic                                                                               |                                                                                                                |
| Casing color                         |                              | Black                                                                                          |                                                                                                                |
| <b>Other Characteristics</b>         |                              |                                                                                                |                                                                                                                |
| Mounting                             |                              | Flush mounting on panel cut-out                                                                |                                                                                                                |
| Panel Cut-out                        |                              | 22mm X 44.8mm                                                                                  |                                                                                                                |
| Weight (Un-packed)                   |                              | 52 gm                                                                                          |                                                                                                                |
| Operating position                   |                              | Horizontal                                                                                     |                                                                                                                |
| Termination wire Sizes               |                              | Wire size : 22-14 AWG, 0.3-2.5 mm                                                              |                                                                                                                |

## EMI / EMC

|                                     |                |
|-------------------------------------|----------------|
| Harmonic Current Emissions          | IEC 61000-3-2  |
| Voltage Flicker & Fluctuation       | IEC 61000-3-3  |
| ESD                                 | IEC 61000-4-2  |
| Radiated Susceptibility             | IEC 61000-4-3  |
| Electrical Fast Transients (Supply) | IEC 61000-4-4  |
| Electrical Fast Transients (Signal) | IEC 61000-4-4  |
| Surge                               | IEC 61000-4-5  |
| Conducted Susceptibility            | IEC 61000-4-6  |
| Power Frequency Magnetic Field      | IEC 61000-4-8  |
| Voltage Dips                        | IEC 61000-4-29 |
| Conducted Emission                  | CISPR 11       |
| Radiated Emission                   | CISPR 11       |

## Safety Compliance:

|                                        |             |
|----------------------------------------|-------------|
| Test Voltage (All terminal to housing) | UL 508      |
| Single fault                           | IEC 61010-1 |
| Leakage Current                        | UL 508      |

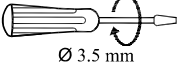
## Environmental

|                      |                |
|----------------------|----------------|
| Cold Heat            | IEC 60068-2-1  |
| Dry Heat             | IEC 60068-2-2  |
| Vibration            | IEC 60068-2-6  |
| Repetitive Shock     | IEC 60068-2-27 |
| Non-Repetitive Shock | IEC 60068-2-27 |

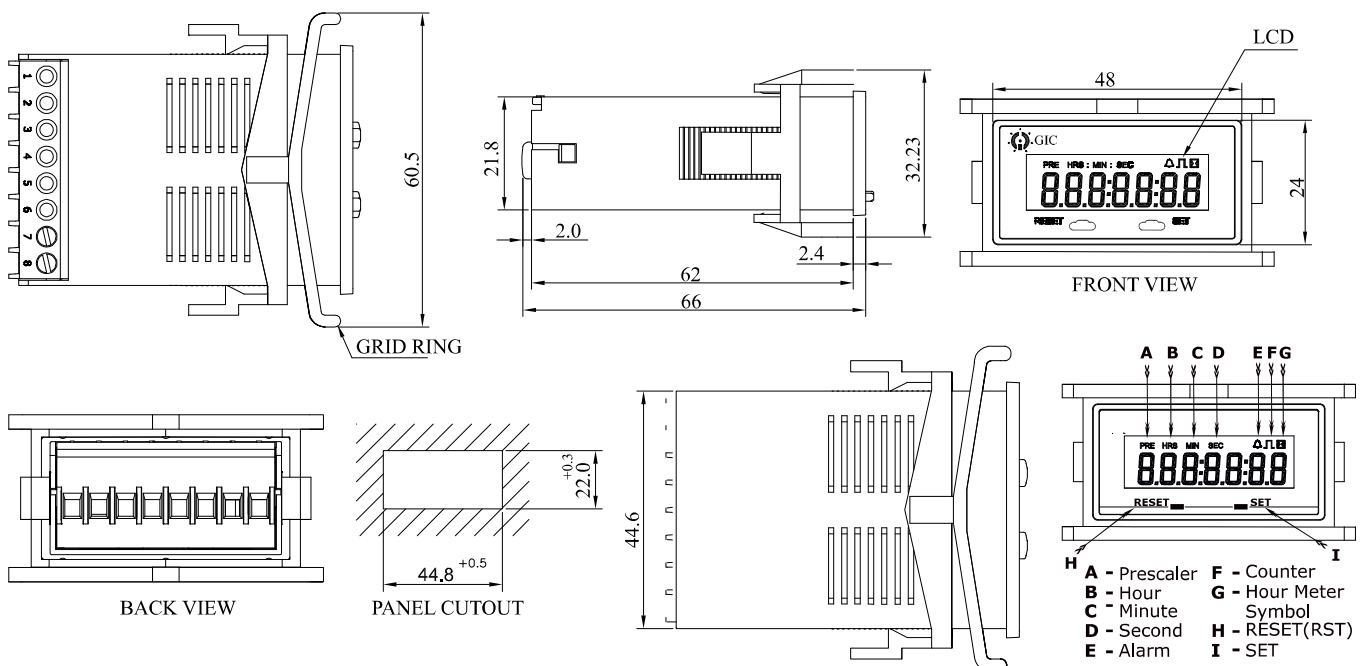
# Digital Hour Meter & Counter



## TERMINAL TORQUE & CAPACITY

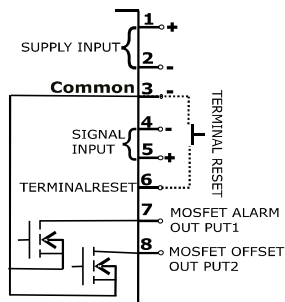
|                                                                                               |                                             |
|-----------------------------------------------------------------------------------------------|---------------------------------------------|
| <br>Ø 3.5 mm | 0.40 N.m (3.5 Lb.in)                        |
|              | 1 x 2.5 mm <sup>2</sup> Solid/Stranded Wire |
| AWG                                                                                           | 22 to 14                                    |

## MOUNTING DIMENSIONS (mm)

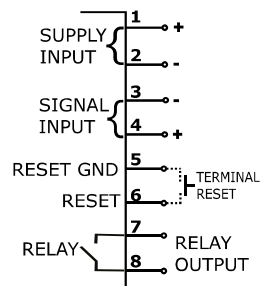


## CONNECTION DIAGRAM

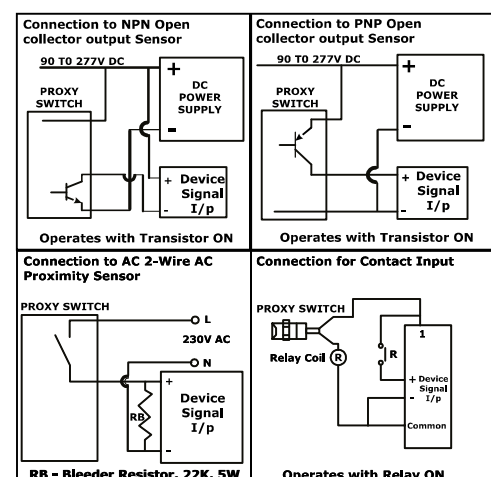
### For Z2301N0G1FT00



### For Z2221N0G2FT00



### Proximity Switch Connection Diagram:



# Hour Meter Series HM 36

- Robust design with high degree of Accuracy and Compact size
- Frequency independent for AC applications
- Indicates operating time in hours and tenths with running indicators
- Panel mountable with 7 Bezel options
- 6 Digit Non-Resettable with automatic recycle to zero
- Wide supply voltage range: 4 - 36V AC/DC, 10 - 80V DC & 90 - 264V AC
- Shock & Vibration Proof



## Ordering Information

| Cat. No. | Description                              |
|----------|------------------------------------------|
| LA21F1   | 90 - 264 VAC, Rectangular Bezel          |
| LA22F1   | 90 - 264 VAC, Rectangular 2 holes Bezel  |
| LA23F1   | 90 - 264 VAC, Round Bezel                |
| LA24F1   | 90 - 264 VAC, Round 3 holes Bezel        |
| LA25F1   | 90 - 264 VAC, Square Mount Bezel         |
| LA26F1   | 90 - 264 VAC, Cup Mount Bezel            |
| LA27F1   | 90 - 264 VAC, Stirrup Mount Bezel        |
| LD11F1   | 10 - 80 VDC, Rectangular Bezel           |
| LD12F1   | 10 - 80 VDC, Rectangular 2 holes Bezel   |
| LD13F1   | 10 - 80 VDC, Round Bezel                 |
| LD14F1   | 10 - 80 VDC, Round 3 holes Bezel         |
| LD15F1   | 10 - 80 VDC, Cup Mount Bezel             |
| LD16F1   | 10 - 80 VDC, Stirrup Mount Bezel         |
| LD17F1   | 10 - 80 VDC, Square Mount Bezel          |
| LC31F1   | 4 - 36 VAC/DC, Rectangular Bezel         |
| LC32F1   | 4 - 36 VAC/DC, Rectangular 2 holes Bezel |
| LC33F1   | 4 - 36 VAC/DC, Round Bezel               |
| LC34F1   | 4 - 36 VAC/DC, Round 3 holes Bezel       |
| LC35F1   | 4 - 36 VAC/DC, Cup Mount Bezel           |
| LC36F1   | 4 - 36 VAC/DC, Stirrup Mount Bezel       |
| LC37F1   | 4 - 36 VAC/DC, Square Mount Bezel        |

# Hour Meter Series HM 36



| Cat. No.                                   | LA25F1                                 | LD15F1                                                          | LC36F1                                          |
|--------------------------------------------|----------------------------------------|-----------------------------------------------------------------|-------------------------------------------------|
| <b>Parameters</b>                          |                                        |                                                                 |                                                 |
| Supply Voltage (⦿)                         | 90 - 264 VAC                           | 10 - 80 VDC                                                     | 4 - 36 VAC/DC                                   |
| Frequency                                  | 50/60 Hz                               | N A                                                             | 50/60 Hz                                        |
| Over Voltage & Reverse Polarity Protection | N A                                    | Protected for 2 times Battery voltage and / or Reverse polarity | Not applicable to AC and 48V for DC Application |
| Power Consumption (Max.)                   | 0.5 VA                                 | 0.25 VA                                                         | 1 VA                                            |
| Bezel                                      | Square Mount                           | Cup Mount                                                       | Stirrup Mount                                   |
| Register                                   | 6 Digit (3.6mm)                        |                                                                 |                                                 |
| Read Out                                   | 99999.9                                |                                                                 |                                                 |
| Least Count                                | 1/10 h                                 |                                                                 |                                                 |
| Accuracy                                   | ± 0.02% over entire range              |                                                                 |                                                 |
| Vibration                                  | 10-80Hz with 20g max (SAE J1378)       |                                                                 |                                                 |
| Shock                                      | 55g @ 9-13ms (SAE J1378)               |                                                                 |                                                 |
| Weight (unpacked)                          | 47g                                    |                                                                 |                                                 |
| Temperature                                | -40° C to +85° C                       |                                                                 |                                                 |
| Humidity (Non Condensing)                  | 95% (Rh)                               |                                                                 |                                                 |
| Mounting                                   | Panel                                  |                                                                 |                                                 |
| Termination                                | ¼" [6.3] Spade Terminal                |                                                                 |                                                 |
| Degree of Protection                       | IP 66 (Front only with gasket)         |                                                                 |                                                 |
| Approvals                                  | SAE & NEMA 4X (Front only with gasket) |                                                                 | SAE & NEMA 4X (Front only with gasket)          |
|                                            |                                        |                                                                 |                                                 |

Note: NEMA 4X IP 66 gaskets available for different Bezels

## VIEWS OF DIFFERENT BEZELS



Rectangular Bezel



Rectangular 2 holes Bezel



Round Bezel



Round 3 holes Bezel



Cup Mount Bezel

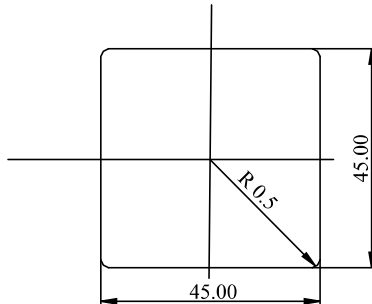


Stirrup Mount Bezel

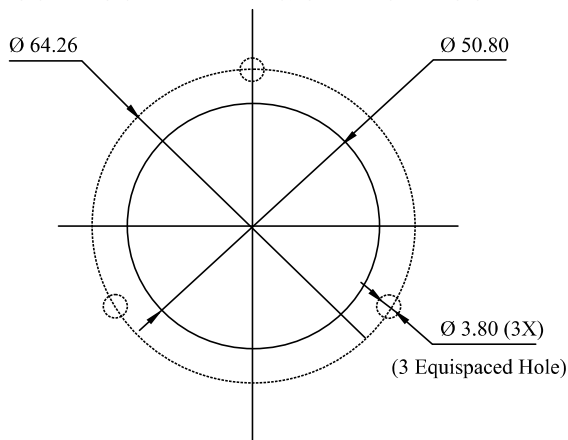
# Hour Meter Series HM 36

## MOUNTING DIMENSION (mm)

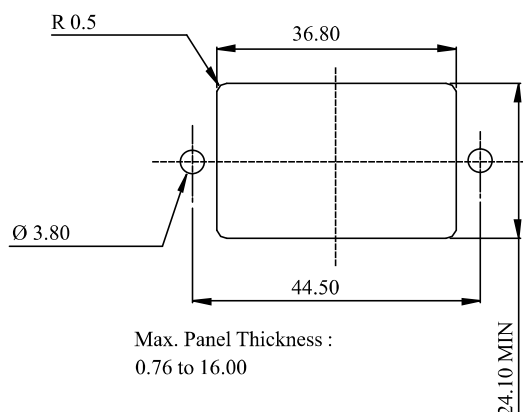
### SQUARE MOUNT BEZEL (45 X 45 PANEL CUTOUT)



### ROUND BEZEL, ROUND 3 HOLES BEZEL, CUP MOUNT BEZEL & STIRRUP MOUNT BEZEL

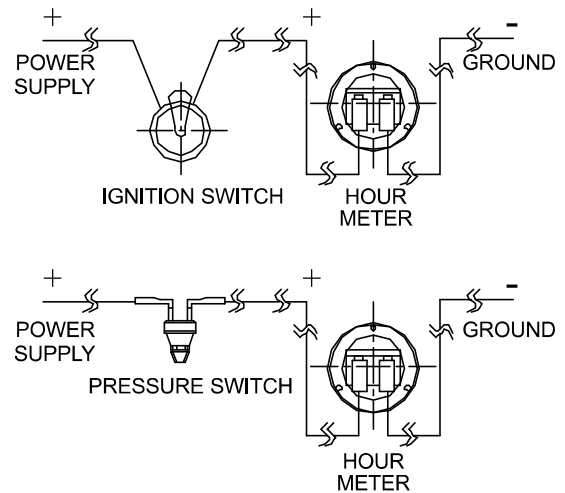


### RECTANGULAR BEZEL

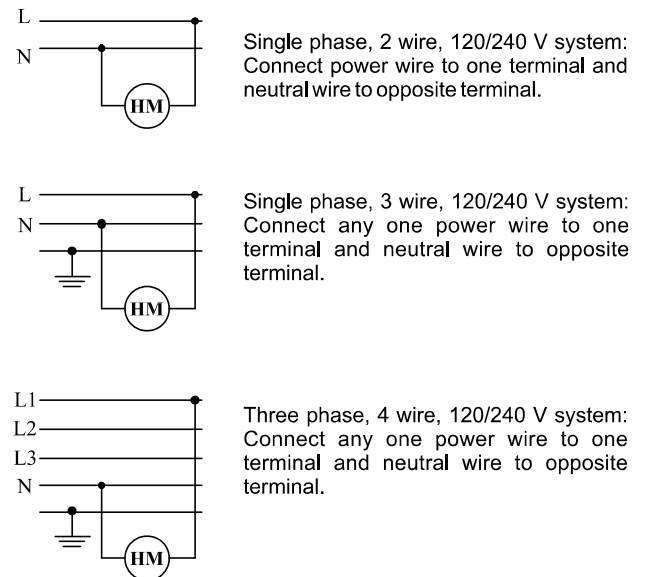


## CONNECTION DIAGRAM

### FOR: DC SERIES



### FOR: AC SERIES

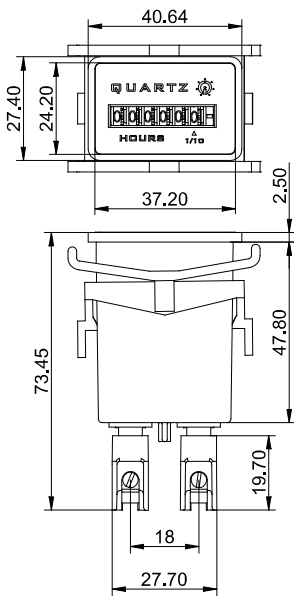


### CAUTION

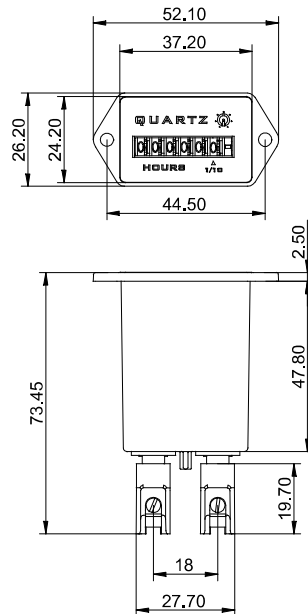
Tighten terminals with flat head screwdriver with tip size 4.3 x 0.6 mm.

# Hour Meter Series HM 36

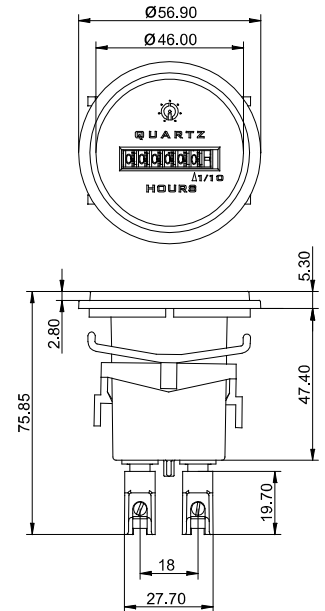
## VIEWS OF DIFFERENT BEZELS



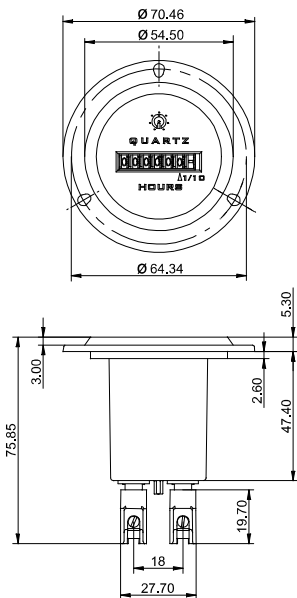
Rectangular Bezel



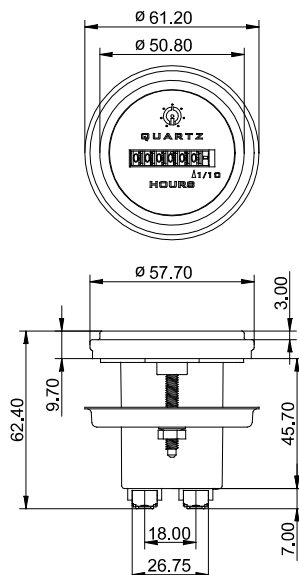
Rectangular 2 holes Bezel



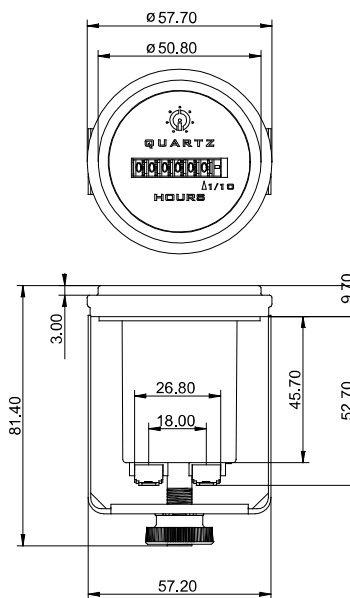
Round Bezel



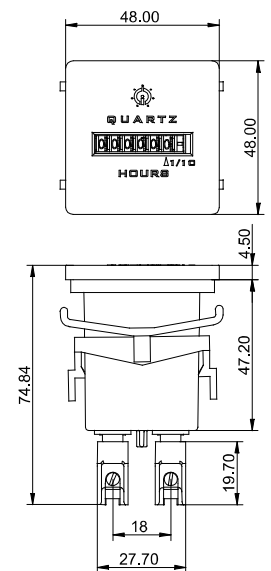
Round 3 holes Bezel



Cup Mount Bezel



Stirrup Mount Bezel



Square Bezel

Dimensions in mm

# Hour Meter Series HM 36

- Robust design with high degree of Accuracy and Compact size
- Frequency independent for AC applications
- Indicates operating time in hours and tenths with running indicators
- 6 Digit Non-Resettable with automatic recycle to zero
- Wide supply voltage range: 90 - 460V AC, 10 - 80V DC & 110 V DC
- Suitable for Control Panel applications



## Ordering Information

| Cat. No. | Description                                     |
|----------|-------------------------------------------------|
| 30A6B1   | 90 - 264 / 270 - 460 V AC, Hour Meter, Base/DIN |
| 30A7B1   | 48 V AC, Hour Meter, Base/DIN                   |
| 30D1B1   | 10 - 80 V DC, Hour Meter, Base/DIN              |
| 30D4B1   | 110 VDC, Hour Meter, Base/DIN                   |
| 30C3B1   | 4 -36 VAC/DC, Hour Meter, Base/DIN              |

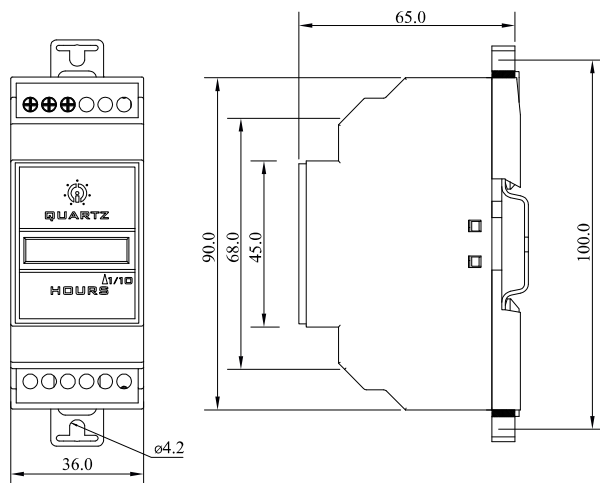


# Hour Meter Series HM 36



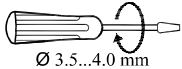
| Cat. No.                    | 30A6B1                                                                                                                                                              | 30D1B1        | 30D4B1        | 30C3B1        |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|
| <b>Parameters</b>           |                                                                                                                                                                     |               |               |               |
| Supply Voltage (Φ)          | 90 - 264 / 270 - 460 VAC                                                                                                                                            | 10 - 80 VDC   | 110 VDC       | 4-36 VAC/DC   |
| Frequency                   | 50/60 Hz                                                                                                                                                            | N A           | N A           | 50/60 Hz      |
| Over Voltage                | N A                                                                                                                                                                 | 96 VDC, 1 min | 96 VDC, 1 min | 48 VDC, 1 min |
| Reverse Polarity Protection | N A                                                                                                                                                                 | Yes           | Yes           | Yes           |
| Power Consumption (Max.)    | 1 VA Max                                                                                                                                                            | 0.25 VA       | 0.5 VA        | 1 Watt (Max)  |
| Register                    | 6 Digit (3.6mm)                                                                                                                                                     |               |               |               |
| Read Out                    | 99999.9                                                                                                                                                             |               |               |               |
| Least Count                 | 1/10 h                                                                                                                                                              |               |               |               |
| Accuracy                    | ± 0.02% over entire range                                                                                                                                           |               |               |               |
| Weight (unpacked)           | 70g                                                                                                                                                                 |               |               |               |
| Operating Temperature       | -5° C to +55° C                                                                                                                                                     |               |               |               |
| Storage Temperature         | -20° C to +70° C                                                                                                                                                    |               |               |               |
| Humidity (Non Condensing)   | 95% (Rh)                                                                                                                                                            |               |               |               |
| Mounting                    | Base/DIN Rail                                                                                                                                                       |               |               |               |
| Degree of Protection        | IP 20 for Terminals, IP 40 for Enclosure                                                                                                                            |               |               |               |
| Approvals                   |   |               |               |               |

## MOUNTING DIMENSIONS (mm)

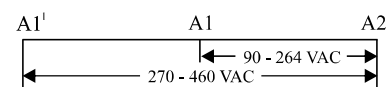


30A6B1, 30A7B1, 30D1B1, 30D4B1

## TERMINAL TORQUE & CAPACITY

|                                                                                                        |                                                      |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| <br>Ø 3.5...4.0 mm | Torque - 0.54 N.m (5 Lb.in)<br>Terminal screw - M2.6 |
|                   | Solid Wire - 1 X 0.2...3.3 mm <sup>2</sup>           |
| AWG                                                                                                    | 1 X 24 to 12                                         |

## CONNECTION DIAGRAM



# Digital Hour Meter

- 6-digit LCD
- In-built nonvolatile memory (EEPROM) offering exceptional reliability
- Wide range of supply voltage
- Remote reset
- Available in 3 different Bezels
- Low Power Consumption



## Ordering Information

| Cat. No. | Description                                             |
|----------|---------------------------------------------------------|
| Z71FBX   | 85-265 VAC model                                        |
| ZJ1FBX   | 12-48 VAC/DC model                                      |
| ZH1FBX   | 10-80 VDC model                                         |
| X        | A = Round Bezel, B = 24x48 Bezel, C = Screw Mount Bezel |

# Digital Hour Meter



| Cat. No.                 | Z71FBX                                                                                                                                                              | ZJ1FBX         | ZH1FBX      |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|
| <b>Parameters</b>        |                                                                                                                                                                     |                |             |
| Supply Voltage (中)       | 85 - 265 VAC                                                                                                                                                        | 12 - 48 VAC/DC | 10 - 80 VDC |
| Frequency                | 50/60 Hz                                                                                                                                                            | 50/60 Hz       | N A         |
| Power Consumption (Max.) | 0.8 VA                                                                                                                                                              | 0.4 W          | 0.6 W       |
| Range                    | 99999.9 h                                                                                                                                                           |                |             |
| Display                  | 6-digit LCD 5mm Height                                                                                                                                              |                |             |
| Resolution               | 1/10 h                                                                                                                                                              |                |             |
| Accuracy                 | ± 0.02%                                                                                                                                                             |                |             |
| Memory Retention         | 100 Years                                                                                                                                                           |                |             |
| Operating Temperature    | -10° C to +50° C                                                                                                                                                    |                |             |
| Storage Temperature      | -20° C to +65° C                                                                                                                                                    |                |             |
| Humidity                 | 95% (Rh)                                                                                                                                                            |                |             |
| Degree of Protection     | IP54 (for front side only)                                                                                                                                          |                |             |
| Enclosure                | UL94-V0                                                                                                                                                             |                |             |
| Terminals                | 1, 2: Input Supply, 3: Enable 4: Reset                                                                                                                              |                |             |
| Panel cut outs           | Round Bezel, 24 x 48 Bezel, Screw Mount Bezel                                                                                                                       |                |             |
| Mounting                 | Flush / Panel Mounting                                                                                                                                              |                |             |
| Certification            |   |                |             |
| Weight (unpacked)        | With Round Bezel- 35g, with 24 x 48 Bezel- 29 g, with Screw Mount Bezel- 31 g                                                                                       |                |             |

## EMI / EMC

|                                   |                             |
|-----------------------------------|-----------------------------|
| Harmonic Current Emissions        | IEC 61000-3-2 : Class A     |
| ESD                               | IEC 61000-4-2 : Level III   |
| Radiated Susceptibility           | IEC 61000-4-3 : Level III   |
| Electrical Fast Transients        | IEC 61000-4-4 : Level IV    |
| Surges                            | IEC 61000-4-5 : Level III   |
| Conducted Susceptibility          | IEC 61000-4-6 : Level III   |
| Voltage Dips & Interruptions (AC) | IEC 61000-4-11 : Criteria A |
| Voltage Dips & Interruptions (DC) | IEC 61000-4-29 : Criteria A |
| Conducted Emission                | CISPR 14-1 : Class B        |
| Radiated Emission                 | CISPR 14-1 : Class B        |

## Environmental

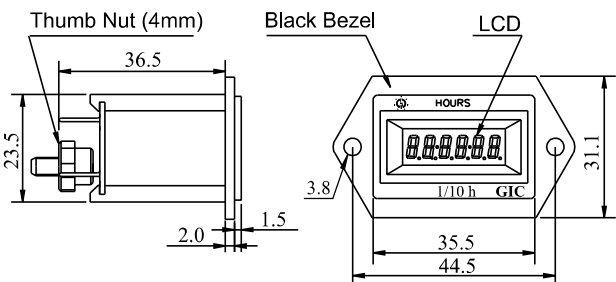
|                      |                |
|----------------------|----------------|
| Cold Heat            | IEC 60068-2-1  |
| Dry Heat             | IEC 60068-2-2  |
| Vibration            | IEC 60068-2-6  |
| Repetitive Shock     | IEC 60068-2-27 |
| Non-Repetitive Shock | IEC 60068-2-27 |

# Digital Hour Meter

## MOUNTING DIMENSION (mm)

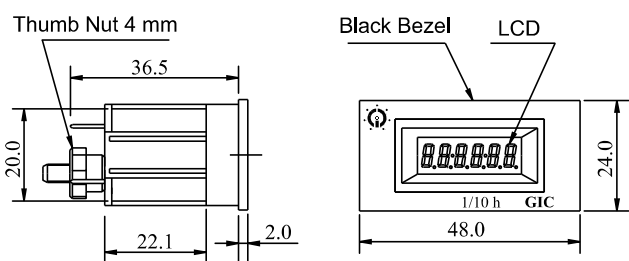
### DIGITAL HOUR METER

#### SCREW MOUNT BEZEL



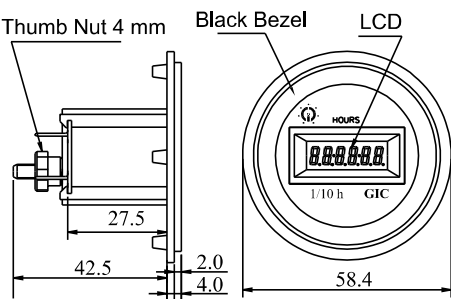
Recommended Panel Cutout :  
37.0 (+0.5)mm x 24.6 (+0.5)mm

#### 24X48 BEZEL



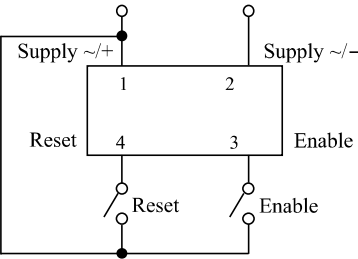
Recommended Panel Cutout :  
45.5 (+0.5)mm x 23.0 (+0.5)mm

### ROUND BEZEL



Recommended Panel Cutout :  
37.0 (+0.5)mm x 24.6 (+0.5)mm

## CONNECTION DIAGRAM



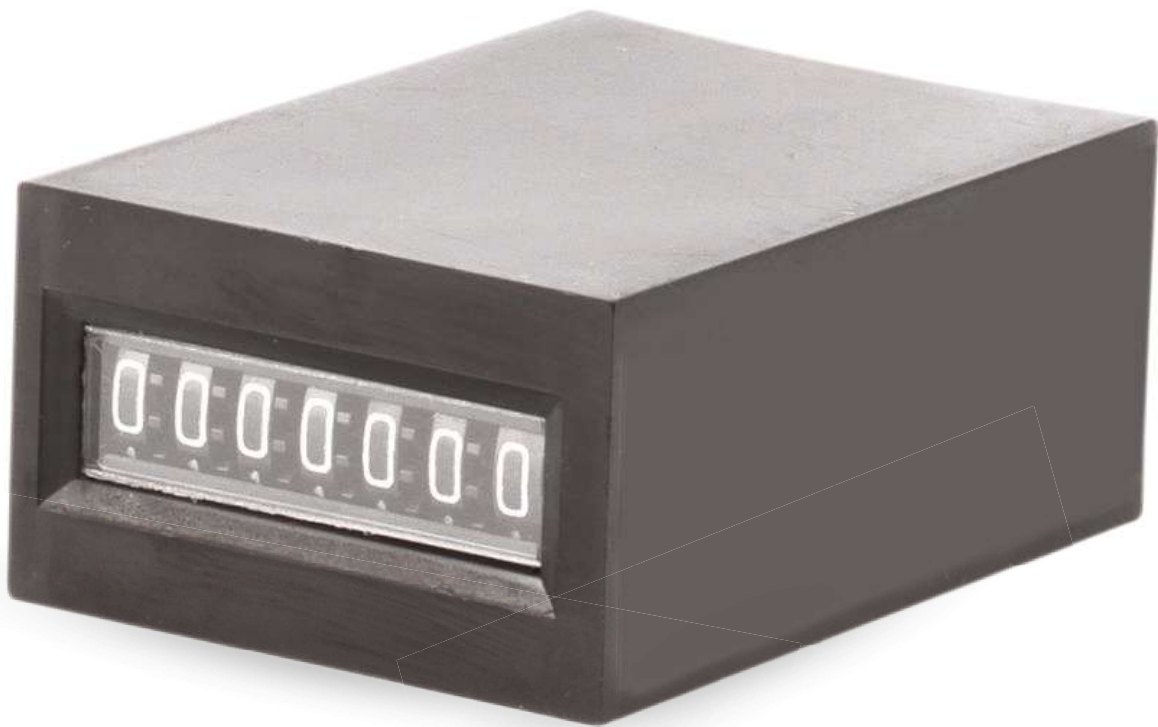
### TERMINAL DESCRIPTION

- Pin 1: Supply (~ / +)
- Pin 2: Supply (~ / -)
- Pin 3: Enable
- Pin 4: Reset

### DIGITAL HOUR METER

# Impulse Counter Series CR 18

- 7-digit Compact Size
- High Accuracy and Reliability
- Requires no lubrication or maintenance
- Ideal where space is limitation
- Mounting options: Panel, PCB, REAR



X X X X X X - X X

### Product

E Non- Resettable Counter Series CR-18

### Model

D FOR DC WITHOUT DIODE

### Example for ED12DAC

E CR-18  
D DC  
1 12 V  
2 PCB Mount Straight  
D Terminal Pin (PCB Mount)  
A Set at "0000000"  
C Supression Diode

### Operating Voltage

DC  
1 12 V  
2 24 V  
3 48 V  
4 5 V

### Connection

- A Lead wire with Molex connector {#39-01-4031, #39-00-0039}  
B Lead wire with Molex connector {#03-09-2022, #02-09-2116}  
C Lead wire, Black, 24AWG, 12" (305 mm) long.  
D Terminal Pin (PCB Mount)

### Mounting Type

- 1 Behind panel (Screw mount) Ø 2.6 Holes  
2 PCB Mount Straight  
3 PCB Mount Right angle  
4 Panel (Snap in)  
5 Base Mount with base plate  
6 Behind panel (4-40 UNC Tapping)  
7 Rear Mount (M3 Tapping)

Nil Set at "9999980"

A Set at "0000000"

B Set at "9999800"

C Supression Diode

D First wheel black, 6 Digit

Nil 10 Hz (12V),  
20 Hz (24V) STD  
25 25 Hz  
30 30 Hz

# Impulse Counter Series CR 18

| Cat. No.                  | ED11C                                                                                                                                     |            | ED17C                | ED22D                           | ED23D                             | ED24C                                                                        |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------|---------------------------------|-----------------------------------|------------------------------------------------------------------------------|
| Parameters                |                                                                                                                                           |            |                      |                                 |                                   |                                                                              |
| Supply Voltage ( $\Phi$ ) | 12 V DC                                                                                                                                   |            |                      | 24 V DC                         |                                   |                                                                              |
| Supply Variation          | $\pm 10\%$                                                                                                                                |            |                      |                                 |                                   |                                                                              |
| Power Consumption (Max.)  | 1.2 W                                                                                                                                     |            |                      |                                 |                                   |                                                                              |
| Figure                    | 7 Digit, Black, 4.0 mm Height (With magnifying glass)                                                                                     |            |                      |                                 |                                   |                                                                              |
| Maximum Range             | 99,99,999                                                                                                                                 |            |                      |                                 |                                   |                                                                              |
| Operating Life            | 10,000,000 counts minimum                                                                                                                 |            |                      |                                 |                                   |                                                                              |
| Speed (Counts / Minute)   | 600 (50ms-ON / 50ms-OFF)                                                                                                                  |            |                      | 1200 (25ms-ON / 25ms-OFF)       |                                   |                                                                              |
| Pulse Width (minimum)     | 50 ms                                                                                                                                     |            |                      | 25 ms                           |                                   |                                                                              |
| Type of Mounting          | Behind the panel                                                                                                                          | Rear Mount | PCB mount (Straight) |                                 | PCB mount (Right angle)           | Panel (Snap-in type)                                                         |
| Connection                | Lead wire 24 AWG                                                                                                                          |            |                      | Terminal PIN<br>(Pitch : 10 mm) | Terminal PIN<br>(Pitch : 3.80 mm) | Lead Wire 24 AWG                                                             |
| Panel Cutout              | N.A                                                                                                                                       |            |                      |                                 |                                   | 1.20'(30.48) x 0.96'(24.38)<br>Panel thickness - 0.04'(1.0)<br>to 0.08'(2.0) |
| Weight (unpacked)         | 142 g                                                                                                                                     |            |                      |                                 |                                   |                                                                              |
| Operating Temperature     | -5° C to +55° C (Non-Freezing)                                                                                                            |            |                      |                                 |                                   |                                                                              |
| Humidity (Non Condensing) | 45 to 85% (Rh)                                                                                                                            |            |                      |                                 |                                   |                                                                              |
| Display                   | 0.12'(3.0) x 0.06' (1.6) - White & black background                                                                                       |            |                      |                                 |                                   |                                                                              |
| Counting Method           | One pulse - One count (energizing - ½ count, unenergized - ½ count)                                                                       |            |                      |                                 |                                   |                                                                              |
| Reset                     | None                                                                                                                                      |            |                      |                                 |                                   |                                                                              |
| Shock test                | Endurance: 300 m/s (30g) XYZ 5 times each direction, Total : 3,<br>Mismovement : 50 m/s (5g) XYZ 4 times each direction, Total : 24.      |            |                      |                                 |                                   |                                                                              |
| Vibrations test           | Endurance: 16.7 Hz, Width : 4mm ; XYZ each direction for 1 hour<br>Mismovement : 10~55 Hz, Width : 0.5mm ; XYZ each direction for 10 mins |            |                      |                                 |                                   |                                                                              |
| Degree of Protection      | IP 30                                                                                                                                     |            |                      |                                 |                                   |                                                                              |
| Construction              | Cover : Plastic (Noryl UL94V-1), Black                                                                                                    |            |                      |                                 |                                   |                                                                              |
| Approvals                 | <div><div>CE</div><div>RoHS Compliant</div></div>      |            |                      |                                 |                                   |                                                                              |

## VIEWS OF DIFFERENT BEZELS



Screw mount



Panel (Snap-in type)



PCB mount (Straight)



Horizontal Base Mount

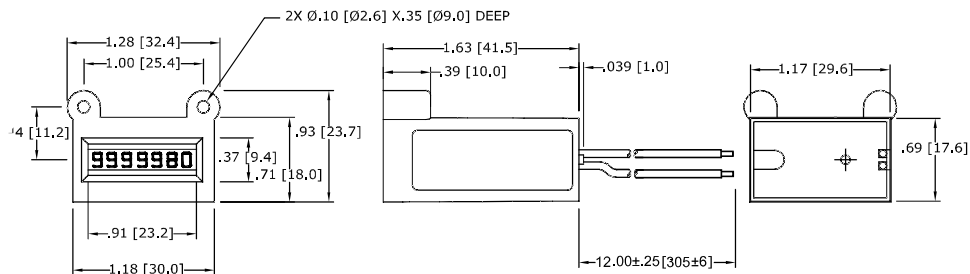


Screw Mount Behind the panel

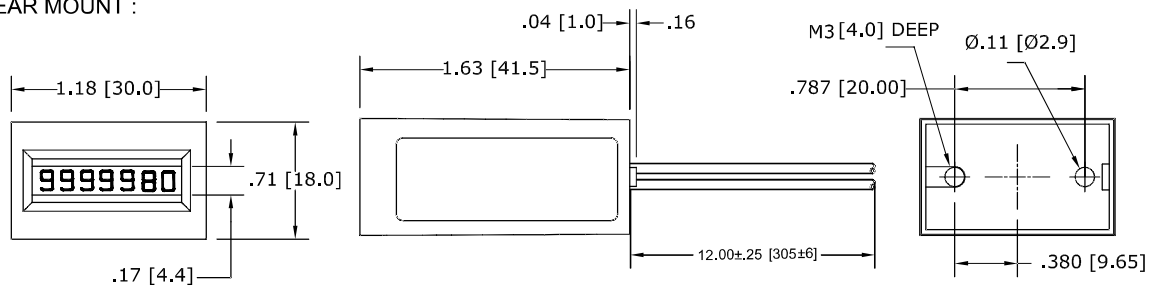
# Impulse Counter Series CR 18

## MOUNTING DIMENSION - INCH (mm)

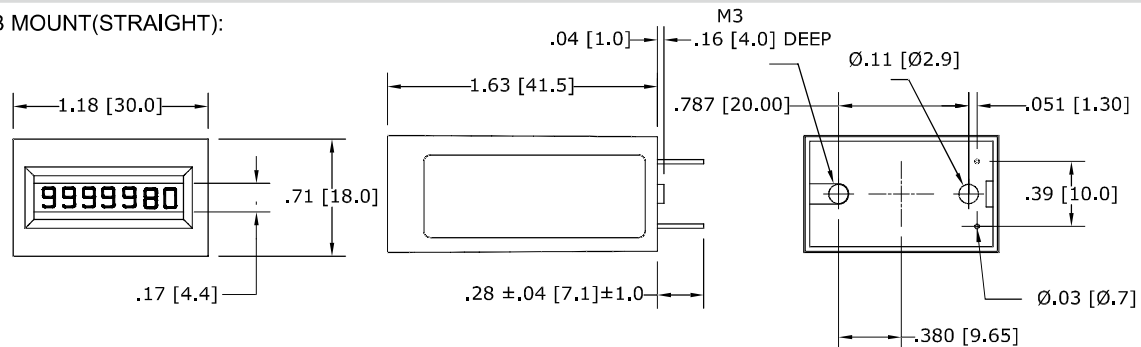
BEHIND THE PANEL (SCREW MOUNT):



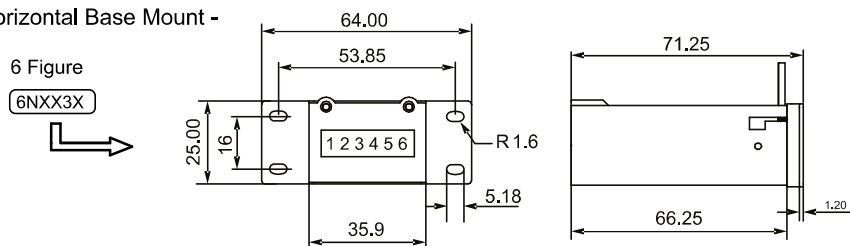
REAR MOUNT :



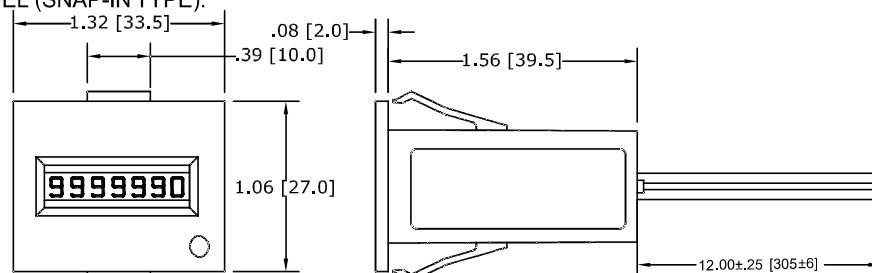
PCB MOUNT (STRAIGHT):



Horizontal Base Mount -



PANEL (SNAP-IN TYPE):



# Impulse Counter Series CR 26

- 6-digit Compact Non Reset and Robust Design
- High Accuracy and Reliability
- Requires no lubrication or maintenance
- Ideal where space is limitation
- Three mounting options: Bail, Panel, Base, Behind Panel



6

N

X

X

X

X

X

-

X

Model

A

For AC

D

For DC

Voltage

AC

1

2

3

24 V 50/60 Hz

4

115 V 50/60 Hz

5

230 V 50/60 Hz

DC

1

9 V

2

12 V

3

24 V

4

110 V

5

220 V

6

6 V

7

250 V

A

125 V

Blank Counter Set at 999800 (Standard)

A

Counter Set at 000000

B

Counter Set at 999980

C

24" Lead Wires

D

Diode Suppression

E

16" Lead Wires

Termination

A

With 2 - way terminal strip

B

With 22 AWG 254 mm long wire

Note: Terminal strip is not applicable for base mounting

Mounting

1

Panel Mount

2

Bail Mounting

3

Horizontal Base Mount

4

Vertical Base Mount

5

Behind Panel



# Impulse Counter Series CR 26

| Cat. No.                  | 6ND21A                                                                                                                | 6ND31A | 6NA41A  | 6NA51A  |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------|--------|---------|---------|
| Parameters                |                                                                                                                       |        |         |         |
| Supply Voltage (Φ)        | 12 VDC                                                                                                                | 24 VDC | 115 VAC | 230 VAC |
| Supply Variation          | +10% to -10% (of Φ)                                                                                                   |        |         |         |
| Power Consumption (Max.)  | 2 W                                                                                                                   |        | 3 W     |         |
| Figure                    | 6 Digit, White on Black, (2.0 X 4.0 mm) Height                                                                        |        |         |         |
| Maximum Range             | 999999                                                                                                                |        |         |         |
| Speed                     | 10 Hz Maximum (600 Counts / Minute)                                                                                   |        |         |         |
| Pulse Width               | 50 ms minimum                                                                                                         |        |         |         |
| Counting Method           | One Pulse - One count (energizing - 1/2 count, de-energized - 1/2 count)                                              |        |         |         |
| Weight (unpacked)         | 113 g                                                                                                                 |        |         |         |
| Operating Temperature     | -5° C to +50° C (Non-Freezing, Non Condensing)                                                                        |        |         |         |
| Humidity (Non Condensing) | 45 to 85% (Rh) (Non-Freezing, Non Condensing)                                                                         |        |         |         |
| Termination               | 22 AWG, 105° C wire leads, 280 mm long / 2 way Terminal Strip                                                         |        |         |         |
| Type of Mounting          | Panel, Bail, Base & Behind Panel                                                                                      |        |         |         |
| Degree of Protection      | IP 40 Front Panel                                                                                                     |        |         |         |
| Certification             |                                      |        |         |         |
| Applications              | Ideal for use in -<br>Machine tools, Business Machines, Test Instruments, Amusement Instruments and Measuring devices |        |         |         |

Note: Other voltages will be made available upon request.

## VIEWS OF DIFFERENT BEZELS



Panel (Snap-in-type)



Screw Mount (Behind the Panel)



Horizontal Base Mount

# Impulse Counter Series CR 26

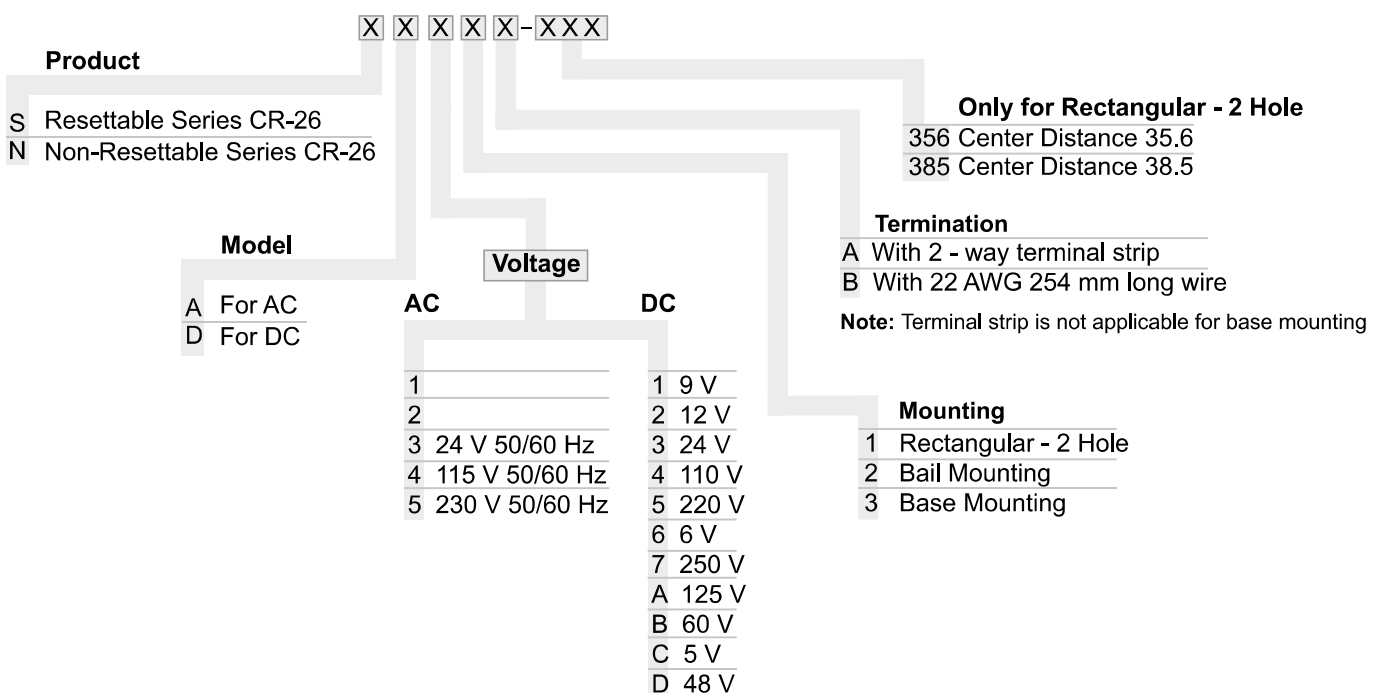
## MOUNTING DIMENSION (mm)

### IMPULSE COUNTER CR 26 NON RESET (6 FIG)

| Non Resettable Counter<br>6NXXXX                    |  |                                     |                        |
|-----------------------------------------------------|--|-------------------------------------|------------------------|
| A = With terminal strip                             |  | B = With 22 AWG<br>254 mm long wire | Panel cutout dimension |
| 1.<br>Panel Mount<br>- 6 Figure<br>6NXX1X           |  |                                     |                        |
| 2.<br>Bail Mount -<br>6 Figure<br>6NXX2X            |  |                                     |                        |
| 3.<br>Horizontal Base Mount -<br>6 Figure<br>6NXX3X |  |                                     |                        |
| 4.<br>Vertical Base Mount<br>6 Figure<br>6NXX4X     |  |                                     |                        |
| 5.<br>Behind Panel Mount -<br>6 Figure<br>6NXX5X    |  |                                     |                        |

# Impulse Counter Series CR 26

- 6-digit Compact and Robust Design
- Push-button quick reset
- High Accuracy and Reliability
- Requires no lubrication or maintenance
- Optional locking for reset button
- Ideal where space is limitation
- Three mounting options: Bail, Panel, Base



Note: Other voltages will be made available upon request.

# Impulse Counter Series CR 26

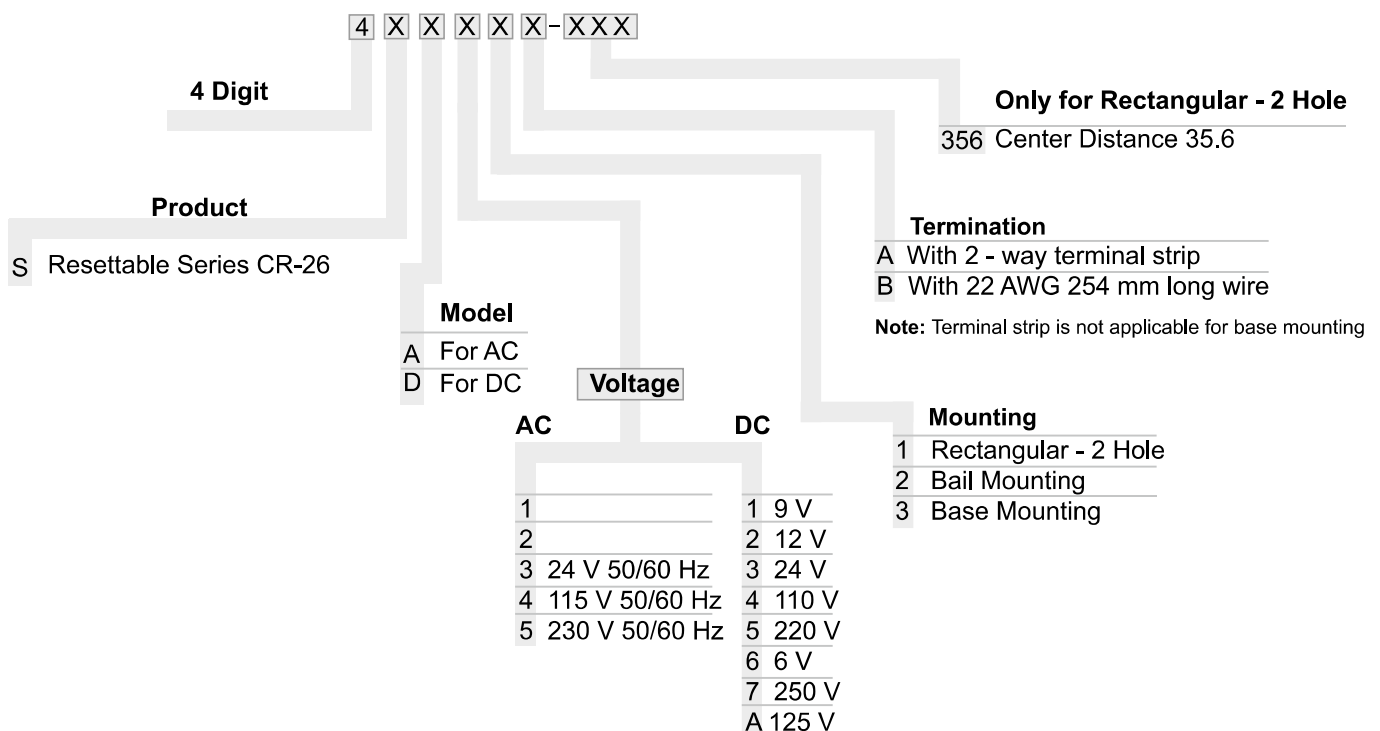


| Cat. No.                  | SD21A-385                                                                                                                                                                          |  | SD31A-385 | SA41A-356 | SA51A-356 |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------|-----------|-----------|
| Parameters                |                                                                                                                                                                                    |  |           |           |           |
| Supply Voltage (⊕)        | 12 VDC                                                                                                                                                                             |  | 24 VDC    | 115 VAC   | 230 VAC   |
| Supply Variation          | +10% to -15% (of ⊕ )                                                                                                                                                               |  |           |           |           |
| Power Consumption (Max.)  | 2 W                                                                                                                                                                                |  |           | 3 W       |           |
| Figure                    | 6 Digit, White on Black, (4.0 mm) Height                                                                                                                                           |  |           |           |           |
| Maximum Range             | 9,99,999                                                                                                                                                                           |  |           |           |           |
| Operating Life            | Beyond 100 million counts                                                                                                                                                          |  |           |           |           |
| Speed                     | 10 Hz Maximum (600 Counts / Minute)                                                                                                                                                |  |           |           |           |
| Pulse Width               | 50 ms minimum                                                                                                                                                                      |  |           |           |           |
| Counting Method           | One Pulse - One count (energizing - 1/2 count, de-energized - 1/2 count)                                                                                                           |  |           |           |           |
| Continuous Energizing     | Permissible                                                                                                                                                                        |  |           |           |           |
| Reset                     | Manual push button Reset (Reset button can be locked or sealed to avoid accidental reset)                                                                                          |  |           |           |           |
| Weight (unpacked)         | 142 g                                                                                                                                                                              |  |           |           |           |
| Operating Temperature     | -5° C to +50° C (Non-Freezing)                                                                                                                                                     |  |           |           |           |
| Humidity (Non Condensing) | 45 to 85% (Rh)                                                                                                                                                                     |  |           |           |           |
| Termination               | 22 AWG, 105° C wire leads, 254 mm long / 2 way Terminal Strip                                                                                                                      |  |           |           |           |
| Type of Mounting          | Panel, Bail & Base                                                                                                                                                                 |  |           |           |           |
| Degree of Protection      | IP 30                                                                                                                                                                              |  |           |           |           |
| Certification             |   RoHS Compliant |  |           |           |           |
| Applications              | Ideal for use in -<br>Machine tools, Business Machines, Test Instruments, Amusement Instruments and Measuring devices                                                              |  |           |           |           |

Note: Do not push reset button during change over.

# Impulse Counter Series CR 26 (4-Digit)

- 4-digit Compact and Robust Design
- Push-button quick reset
- High Accuracy and Reliability
- Requires no lubrication or maintenance
- Optional locking for reset button
- Ideal where space is limitation
- Three mounting options: Bail, Panel, Base



Note: Other voltages will be made available upon request.

# Impulse Counter Series CR 26 (4-Digit)



| Cat. No.                  | 4SD21A-356                                                                                                                                                                           | 4SD31A-356 | 4SA41A-356 | 4SA51A-356 |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|
| Parameters                |                                                                                                                                                                                      |            |            |            |
| Supply Voltage (⎓)        | 12 VDC                                                                                                                                                                               | 24 VDC     | 115 VAC    | 230 VAC    |
| Supply Variation          | +10% to -15% (of ⎓)                                                                                                                                                                  |            |            |            |
| Power Consumption (Max.)  | 2 W                                                                                                                                                                                  |            | 3 W        |            |
| Figure                    | 4 Digit, White on Black, (4.0 mm) Height                                                                                                                                             |            |            |            |
| Maximum Range             | 9999                                                                                                                                                                                 |            |            |            |
| Operating Life            | Beyond 100 million counts                                                                                                                                                            |            |            |            |
| Speed                     | 10 Hz Maximum (600 Counts / Minute)                                                                                                                                                  |            |            |            |
| Pulse Width               | 50 ms minimum                                                                                                                                                                        |            |            |            |
| Counting Method           | One Pulse - One count (energizing - 1/2 count, de-energized - 1/2 count)                                                                                                             |            |            |            |
| Continuous Energizing     | Permissible                                                                                                                                                                          |            |            |            |
| Reset                     | Manual push button Reset (Reset button can be locked or sealed to avoid accidental reset)                                                                                            |            |            |            |
| Weight (unpacked)         | 113 g                                                                                                                                                                                |            |            |            |
| Operating Temperature     | -5° C to +50° C (Non-Freezing)                                                                                                                                                       |            |            |            |
| Humidity (Non Condensing) | 45 to 85% (Rh)                                                                                                                                                                       |            |            |            |
| Termination               | 22 AWG, 105° C wire leads, 254 mm long / 2 way Terminal Strip                                                                                                                        |            |            |            |
| Type of Mounting          | Panel, Bail & Base                                                                                                                                                                   |            |            |            |
| Degree of Protection      | IP 30                                                                                                                                                                                |            |            |            |
| Certification             |   RoHS Compliant |            |            |            |
| Applications              | Ideal for use in -<br>Machine tools, Business Machines, Test Instruments, Amusement Instruments and Measuring devices                                                                |            |            |            |

Note: Do not push reset button during change over.

# Impulse Counter Series CR 26

## MOUNTING DIMENSION (mm)

### IMPULSE COUNTER CR 26

Resettable Counter  
SXXXXA

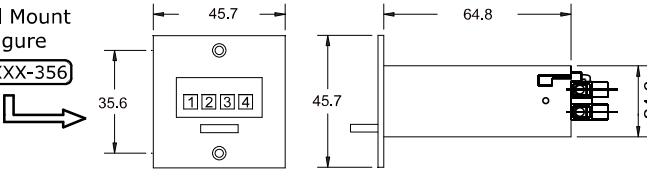
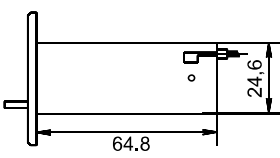
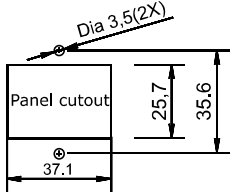
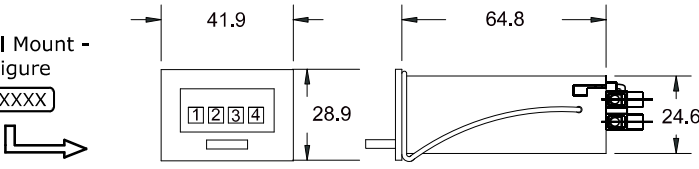
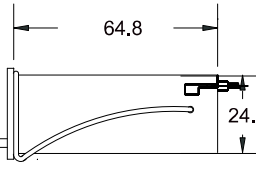
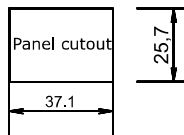
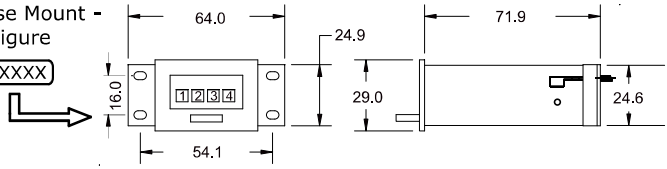
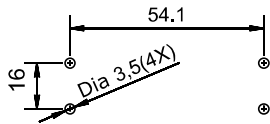
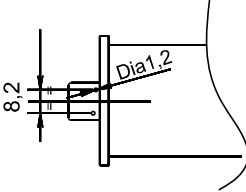
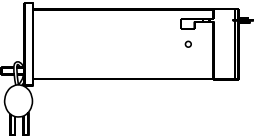
| A=With terminal strip                                                                                                                       |  | B=With 22 AWG<br>254 mm long wire | Panel cutout dimension                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------|----------------------------------------------------------------------------------------------------|
| 1.<br>Panel Mount<br>- 6 Figure<br>SXXXX-385                                                                                                |  |                                   |                                                                                                    |
| 2.<br>Panel Mount<br>- 6 Figure<br>SXXXX-356                                                                                                |  |                                   |                                                                                                    |
| 3.<br>Bail Mount -<br>6 Figure                                                                                                              |  |                                   |                                                                                                    |
| 4.<br>Base Mount -<br>6 Figure                                                                                                              |  |                                   |                                                                                                    |
| 5.<br>Optional locking for<br>reset button                                                                                                  |  |                                   | To avoid the tampering with the reset button you can seal the counter as shown in the above figure |
| NON RESETTABLE COUNTER- NXXXXA                                                                                                              |  |                                   |                                                                                                    |
| A = Counter with Terminal Strip(not applicable for Base Mounting)<br>B = Counter with Wire (22 AWG 254 mm Long)                             |  |                                   |                                                                                                    |
|                                                                                                                                             |  |                                   |                                                                                                    |
| <b>Note:</b> For Non Resettable Counters, reset arm lever will not be present and all other details will be common with resettable counter. |  |                                   |                                                                                                    |

# Impulse Counter Series CR 26 (4-Digit)

## MOUNTING DIMENSION (mm)

### IMPULSE COUNTER CR 26 (4 FIG)

Resettable Counter  
4XXXXA

| A=With terminal strip                                                                                                                                                                                                                                                                                                                   |  | B=With 22 AWG<br>254 mm long wire                                                   | Panel cutout dimension                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>1.</b><br>Panel Mount -<br>4 Figure<br>4XXXXX-356<br>                                                                                                                                                                                               |  |   |    |
| <b>2.</b><br>Bail Mount -<br>4 Figure<br>4XXXXX<br>                                                                                                                                                                                                   |  |  |   |
| <b>3.</b><br>Base Mount -<br>4 Figure<br>4XXXXX<br>                                                                                                                                                                                                  |  |                                                                                     |  |
| <b>4.</b><br>Optional locking for<br>reset button<br>  <p>To avoid the tampering with the reset button you can seal the counter as shown in the above figure</p> |  |                                                                                     |                                                                                       |



# Digital Counters

- 6-digit LCD
- In-built nonvolatile memory (EEPROM) offering exceptional reliability
- Wide range of supply voltage
- Remote reset
- Available in 3 different shaped Bezels
- Low Power Consumption



## Ordering Information

| Cat. No. | Description                                       |
|----------|---------------------------------------------------|
| Z72FBX   | 85-265 VAC model                                  |
| ZJ2FBX   | 12-48V AC/DC model                                |
| ZH2FBX   | 10-80V DC model                                   |
| X        | A=Round Bezel, B=24x48 Bezel, C=Screw Mount Bezel |

# Digital Counters



| Cat. No.                  | Z72FBX                                                                                                                                                                | ZJ2FBX         | ZH2FBX      |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|
| <b>Parameters</b>         |                                                                                                                                                                       |                |             |
| Supply Voltage (Φ)        | 85 - 265 VAC                                                                                                                                                          | 12 - 48 VAC/DC | 10 - 80 VDC |
| Frequency                 | 50/60 Hz                                                                                                                                                              | 50/60 Hz       | N A         |
| Power Consumption (Max.)  | 0.8 VA                                                                                                                                                                | 0.4 W          | 0.6 W       |
| Counting frequency        | 10Hz                                                                                                                                                                  | 10Hz           | 30Hz        |
| Maximum Range             | 999999                                                                                                                                                                |                |             |
| Display                   | Large 6-Digit display, easy to read                                                                                                                                   |                |             |
| Resolution                | 1 Count                                                                                                                                                               |                |             |
| Reset                     | Electrical                                                                                                                                                            |                |             |
| Memory Retention          | 100 Years                                                                                                                                                             |                |             |
| Operating Temperature     | - 10° C to +50° C                                                                                                                                                     |                |             |
| Storage Temperature       | - 20° C to +65° C                                                                                                                                                     |                |             |
| Accuracy                  | ± 1 Count                                                                                                                                                             |                |             |
| Humidity (Non Condensing) | 95% (Rh)                                                                                                                                                              |                |             |
| Degree of Protection      | IP54                                                                                                                                                                  |                |             |
| Enclosure                 | UL94-V0                                                                                                                                                               |                |             |
| Terminals                 | 1 & 2: Input Supply, 3: Count 4: Reset                                                                                                                                |                |             |
| Panel cut outs            | Round Bezel, 24 x 48 Bezel, Screw Mount Bezel                                                                                                                         |                |             |
| Mounting                  | Flush/ Panel Mounting                                                                                                                                                 |                |             |
| Certification             |   |                |             |
| Weight (unpacked)         | With Round Bezel - 35g, with 24 x 48 Bezel - 29 g, with Screw Mount Bezel - 31 g                                                                                      |                |             |

## EMI / EMC

|                                   |                |
|-----------------------------------|----------------|
| Harmonic Current Emissions        | IEC 61000-3-2  |
| ESD                               | IEC 61000-4-2  |
| Radiated Susceptibility           | IEC 61000-4-3  |
| Electrical Fast Transients        | IEC 61000-4-4  |
| Surges                            | IEC 61000-4-5  |
| Conducted Susceptibility          | IEC 61000-4-6  |
| Voltage Dips & Interruptions (AC) | IEC 61000-4-11 |
| Conducted Emission                | CISPR 14-1     |
| Radiated Emission                 | CISPR 14-1     |

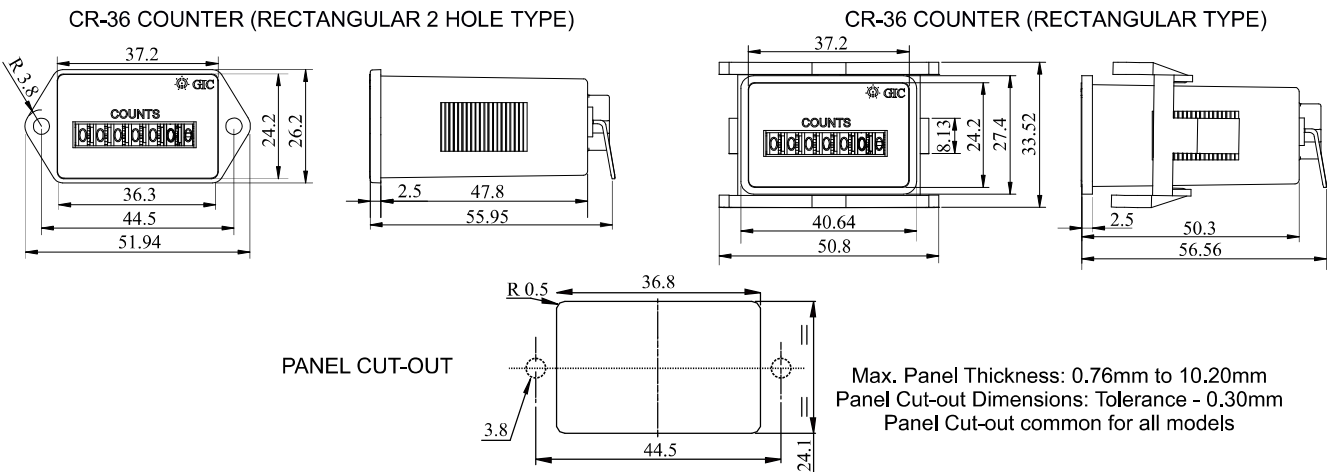
## Environmental

|                      |                |
|----------------------|----------------|
| Cold Heat            | IEC 60068-2-1  |
| Dry Heat             | IEC 60068-2-2  |
| Vibration            | IEC 60068-2-6  |
| Repetitive Shock     | IEC 60068-2-27 |
| Non-Repetitive Shock | IEC 60068-2-27 |

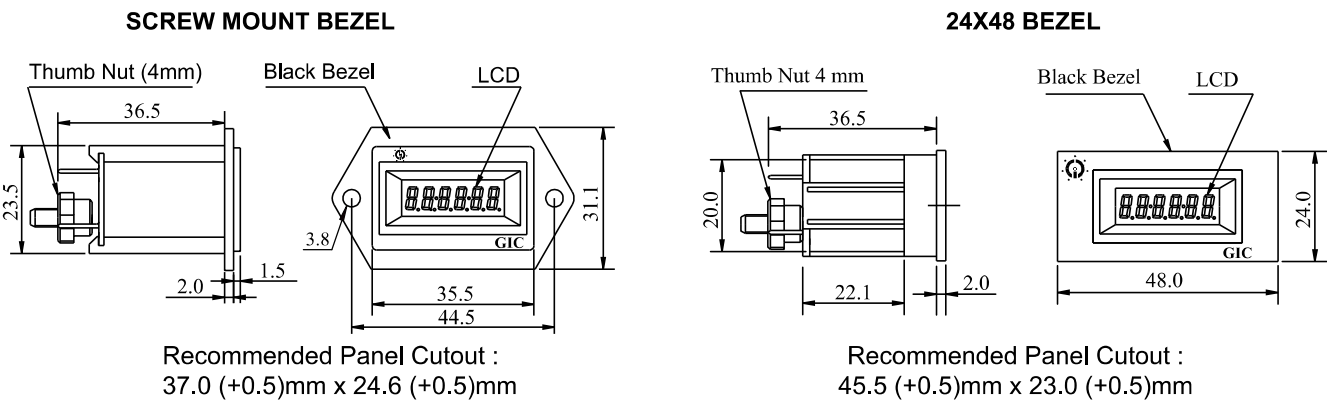
# Impulse Counter Series CR 36 & Digital Counter

## MOUNTING DIMENSIONS (mm)

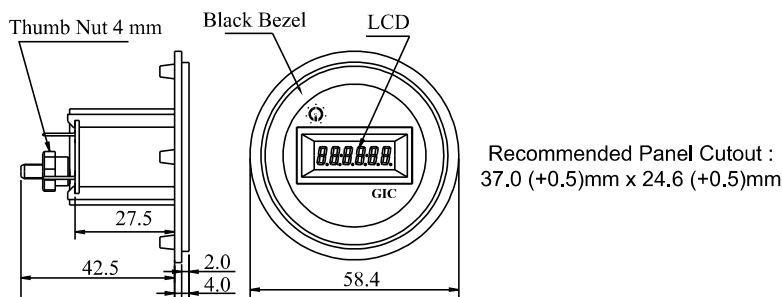
### IMPULSE COUNTER CR 36



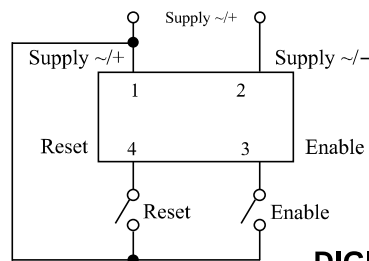
### DIGITAL COUNTER



### ROUND BEZEL



## CONNECTION DIAGRAM



### TERMINAL DESCRIPTION

- Pin 1: Supply (~ / +)
- Pin 2: Supply (~ / -)
- Pin 3: Enable
- Pin 4: Reset

### DIGITAL COUNTER