

HOUR METERS & COUNTERS

Hour Meter Series HM 36

Digital Hour Meters

Impulse Counter Series CR 18

Impulse Counter Series CR 26

Impulse Counter Series CR 36

Digital Counters

Digital Hour Meter & Counter

Rate Indicator & Totaliser



Hour Meter Series HM36

- 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
- Totally sealed from Dust and Moisture
- Panel mountable with 7 Bezel options
- 6 Digit Non-Resettable with automatic recycle to zero
- Wide supply voltage range: 4 - 30V 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 - 30 VAC/DC, Rectangular Bezel
LC32F1	4 - 30 VAC/DC, Rectangular 2 holes Bezel
LC33F1	4 - 30 VAC/DC, Round Bezel
LC34F1	4 - 30 VAC/DC, Round 3 holes Bezel
LC35F1	4 - 30 VAC/DC, Cup Mount Bezel
LC36F1	4 - 30 VAC/DC, Stirrup Mount Bezel
LC37F1	4 - 30 VAC/DC, Square Mount Bezel

Hour Meter Series HM36



Cat. No.	LA25F1	LD15F1	LC36F1
Parameters			
Supply Voltage (⊕)	90 - 264 VAC	10 - 80 VDC	4 - 30 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		
Approvals	SAE & NEMA 4X		SAE & NEMA 4X

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 HM36

- 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
- Totally sealed from Dust and Moisture
- 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

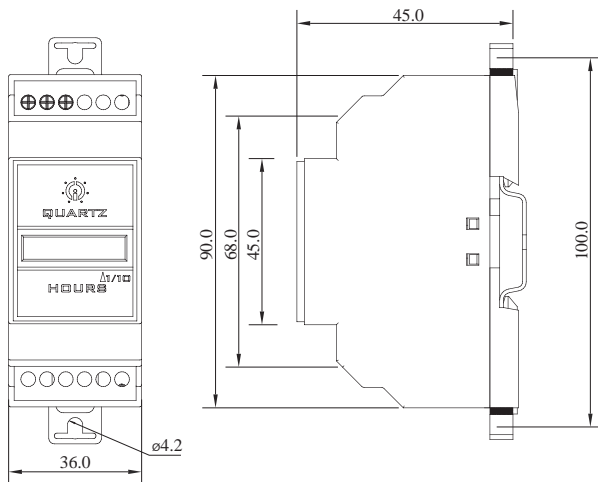
Cat. No.	Description
30A6B1	90 - 264 / 270 - 460 V AC, Hour Meter, Base/DIN
30A7B1	48 V AC, Hour Meter, Base/DIN
30D1B1	10 - 80 V DC, Hour Meter, Base/DIN
30D4B1	110 VDC, Hour Meter, Base/DIN

Hour Meter Series HM36





Cat. No.	30A6B1	30D1B1	30D4B1
Parameters			
Supply Voltage (Φ)	90 - 264 / 270 - 460 VAC	10 - 80 VDC	110 VAC
Frequency	50/60 Hz	N A	N A
Over Voltage	N A	96 VDC, 1 min	96 VDC, 1 min
Reverse Polarity Protection	N A	Yes	Yes
Power Consumption (Max.)	1 VA Max	0.25 VA	0.5 VA
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)	70g		
Operating Temperature	-5° C to +55° C		
Storage Temperature	-20° C to +70° C		
Humidity (Non Condensing)	95% (Rh)		
Mounting	Base/DIN Rail		
Termination	¼" [6.3] Spade Terminal		
Degree of Protection	IP 20 for Terminals, IP 40 for Enclosure		
Approvals			

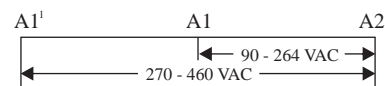
MOUNTING DIMENSIONS (mm)



TERMINAL TORQUE & CAPACITY

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

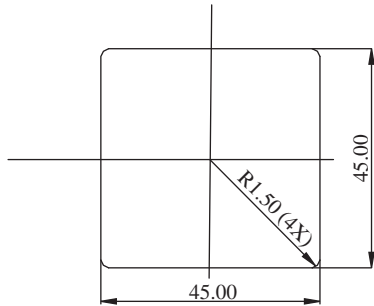
CONNECTION DIAGRAM



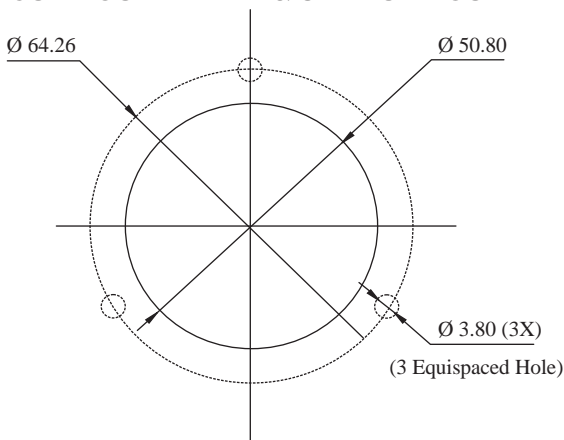
Hour Meter Series HM36

MOUNTING DIMENSION (mm)

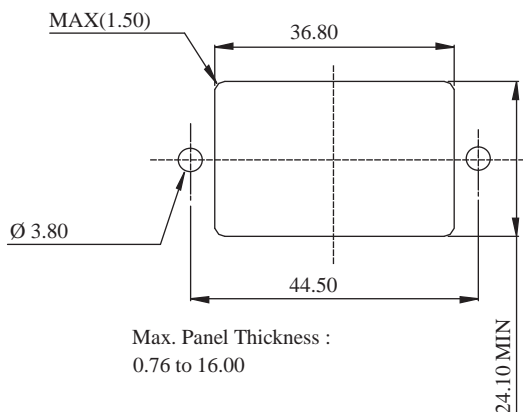
SQUARE MOUNT BEZEL (45 X 45 PANEL CUTOUT)



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

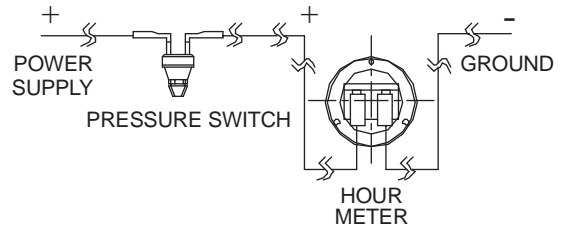
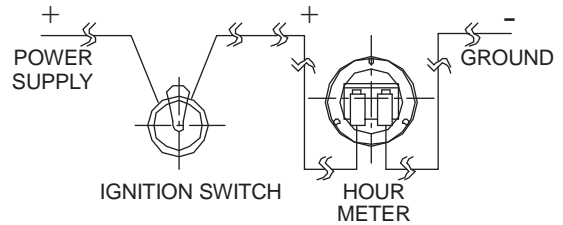


RECTANGULAR BEZEL

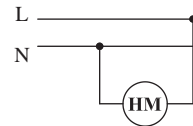


CONNECTION DIAGRAM

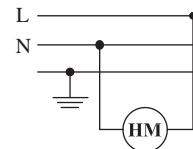
FOR: DC SERIES



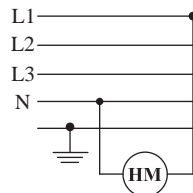
FOR: AC SERIES



Single phase, 2 wire, 120/240 V system:
Connect power wire to one terminal and neutral wire to opposite terminal.



Single phase, 3 wire, 120/240 V system:
Connect any one power wire to one terminal and neutral wire to opposite terminal.



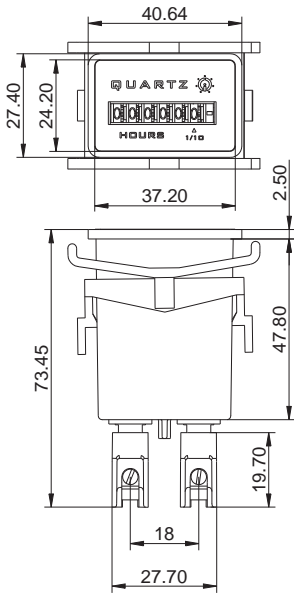
Three phase, 4 wire, 120/240 V system:
Connect any one power wire to one terminal and neutral wire to opposite terminal.

CAUTION

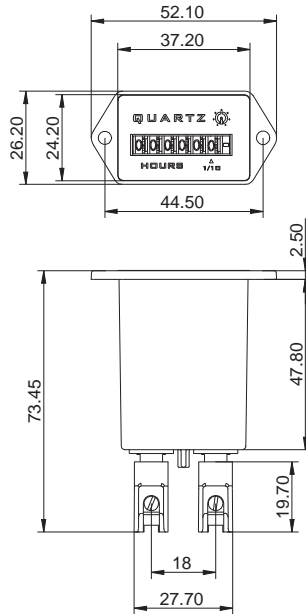
Tighten terminals with flat head screwdriver with tip size 4.3 x 0.6 mm.

Hour Meter Series HM36

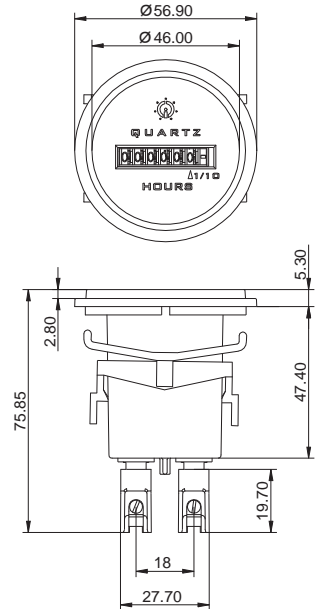
VIEWS OF DIFFERENT BEZELS



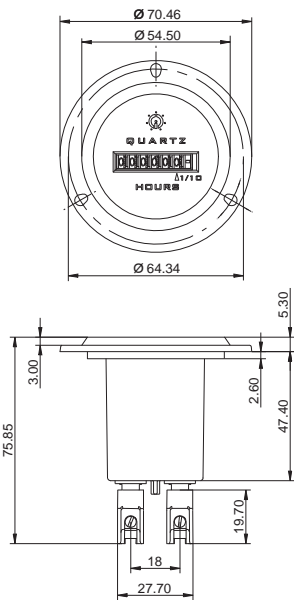
Rectangular Bezel



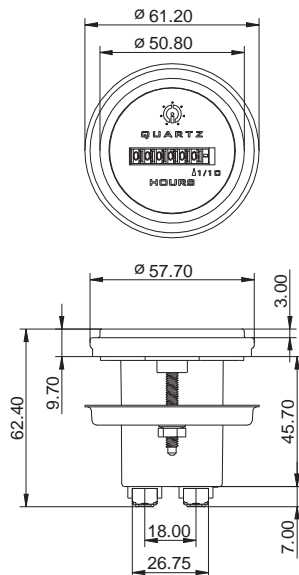
Rectangular 2 holes Bezel



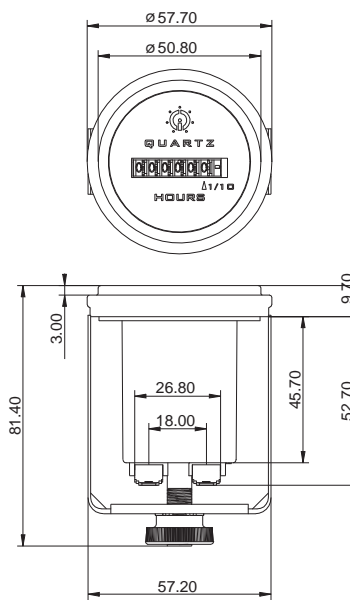
Round Bezel



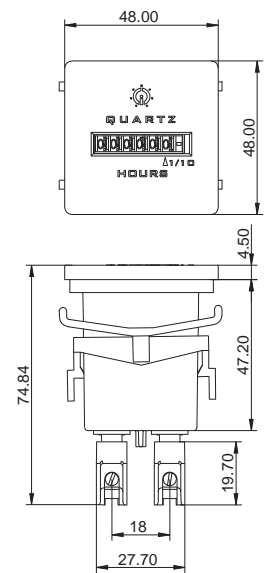
Round 3 holes Bezel



Cup Mount Bezel



Stirrup Mount Bezel



Square Bezel

Dimensions in mm

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
Parameters			
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
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
Voltage Dips & Interruptions (DC)	IEC 61000-4-29
Conducted Emission	CISPR 14-1
Radiated Emission	CISPR 14-1

Environmental

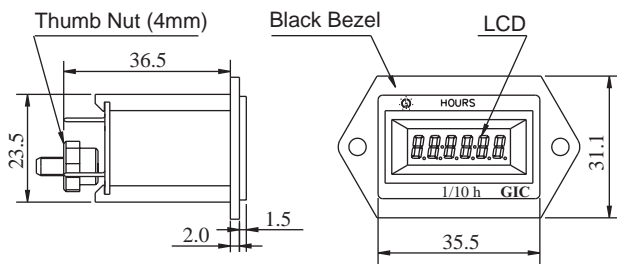
Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

Digital Hour Meter

MOUNTING DIMENSION (mm)

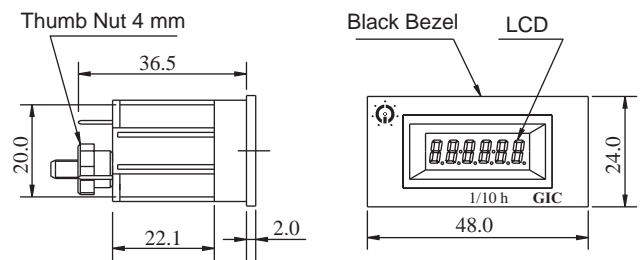
DIGITAL HOUR METER

SCREW MOUNT BEZEL



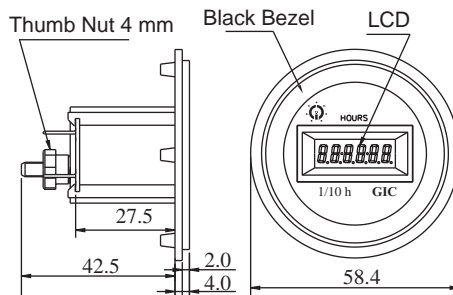
Recommended Panel Cutout :
37.0 (+0.5)mm x 24.6 (+0.5)mm

24X48 BEZEL



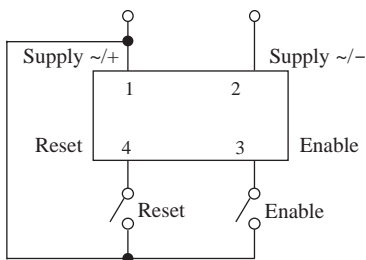
Recommended Panel Cutout :
45.5 (+0.5)mm x 23.0 (+0.5)mm

ROUND BEZEL



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

CONNECTION DIAGRAM



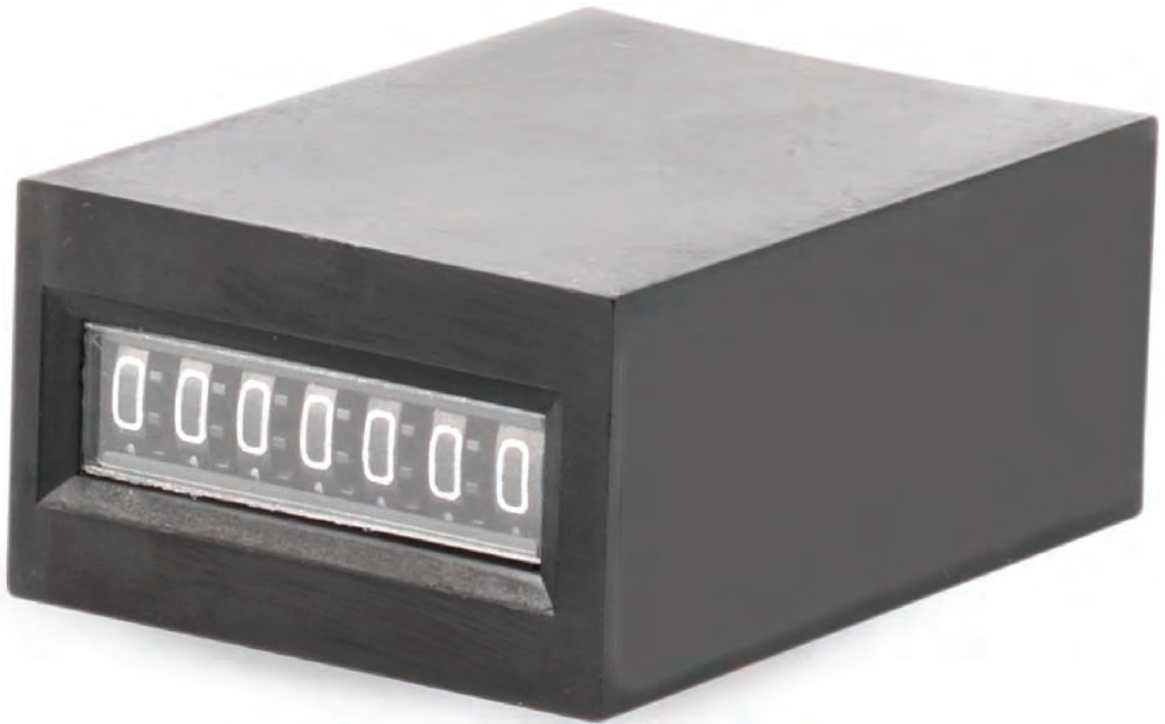
TERMINAL DESCRIPTION

- 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



Ordering Information

Cat. No.	Description
ED11A	12 V DC, Behind the panel (Screw mount)
ED11B	12 V DC, Behind the Panel With out Seal Hole (Screw mount)
ED22D	24 V DC, PCB mount (Straight)
ED23D	24 V DC, PCB mount (Right angle)
ED24C	24 V DC, Panel (Snap-in type)

Impulse Counter Series CR 18

Cat. No.	ED11A	ED11B	ED22D	ED23D	ED24C
Parameters					
Supply Voltage (±)	12 V DC		24 V DC		
Supply Variation	-15% to +10%		±10%		-15% to +10%
Power Consumption (Max.)	1.2 W				
Figure	7 Digit, Black, 4.0 mm Height				
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)		600 (50ms-ON / 50ms-OFF)
Pulse Width (minimum)	50 ms		25 ms		50 ms
Connection	Lead wire with connector		Terminal PIN (Pitch : 10 mm)	Terminal PIN (Pitch : 3.80 mm)	Lead Wire
	#39-01-4031 #39-00-0039	# 03-09-2022 #02-09-2116			
Panel Cutout	N.A				1.20'(30.48) x 0.96'(24.38) Panel thickness - 0.04'(1.0) to 0.08'(2.0)
Protection for Housing	Tamper Proof housing	N.A			
Weight (unpacked)	142 g				
Operating Temperature	-5° C to +40° C (Non-Freezing)				
Humidity (Non Condensing)	45 to 85% (Rh)				
Display	0.12'(3.0) x 0.06' (1.6) - White & black background				
Continuous Energizing	Permissible				
Counting Method	One pulse - One count (energizing - ½ count, unenergized - ½ count)				
Reset	None				
Shock test	Endurance: 300 m/s ² (30g) XYZ 5 times each direction, Total : 3, Mismovement : 50 m/s ² (5g) XYZ 4 times each direction, Total : 24.				
Vibrations test	Endurance: 16.7 Hz, Width : 4mm ; XYZ each direction for 1 hour Mismovement : 10~55 Hz, Width : 0.5mm ; XYZ each direction for 10 mins				
Type of Mounting	Behind the panel (Screw mount)	PCB mount (Straight)	PCB mou(Right angle)	Panel (Snap-in type)	
Degree of Protection	IP 30				
Construction	Cover : Plastic (Noryl UL94V-1), Black				
Approvals					

VIEWS OF DIFFERENT BEZELS



Behind the panel (Screw mount)



Housing Behind Panel with
Out Seal Hole (Screw mount)



PCB mount (Straight)



PCB mount (Right angle)

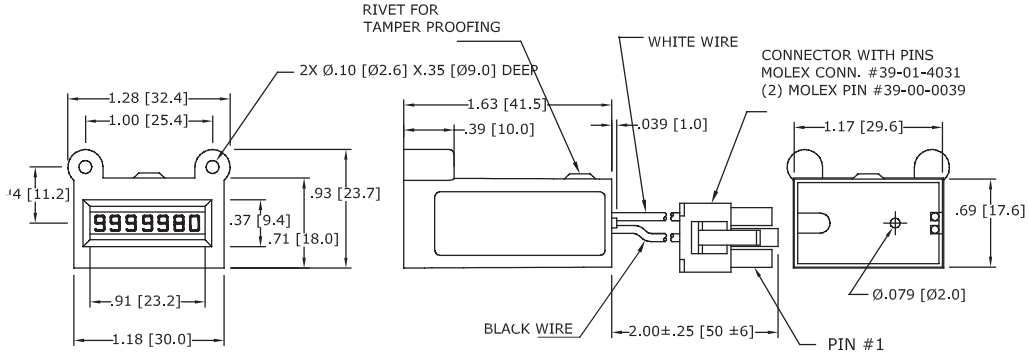


Panel (Snap-in type)

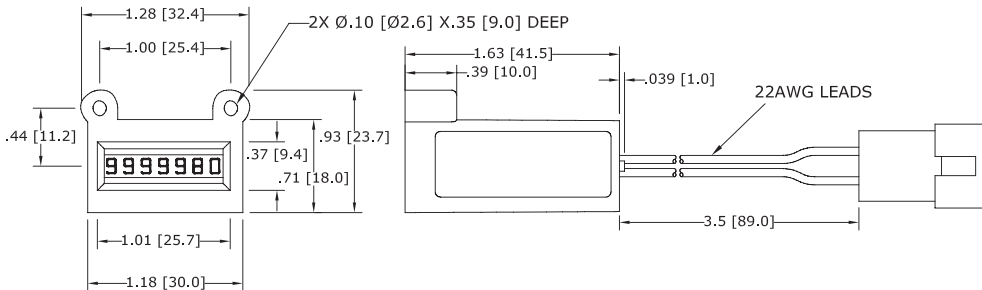
Impulse Counter Series CR 18

MOUNTING DIMENSION (mm)

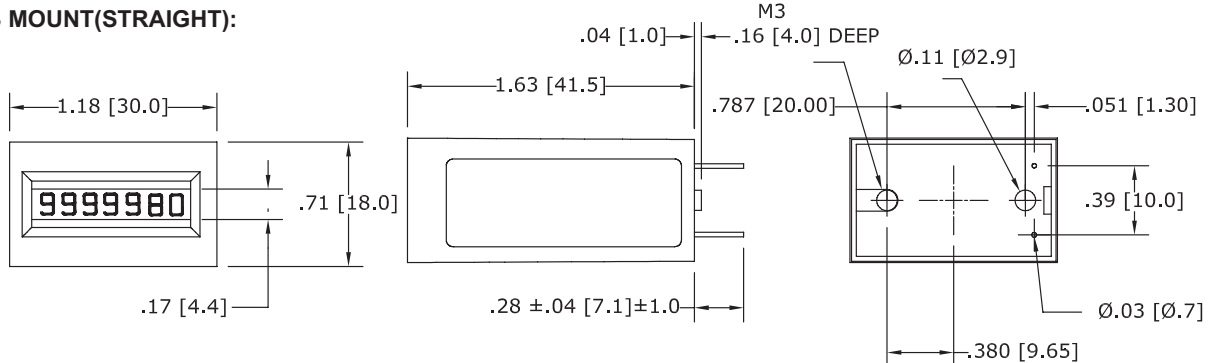
BEHIND THE PANEL (SCREW MOUNT):



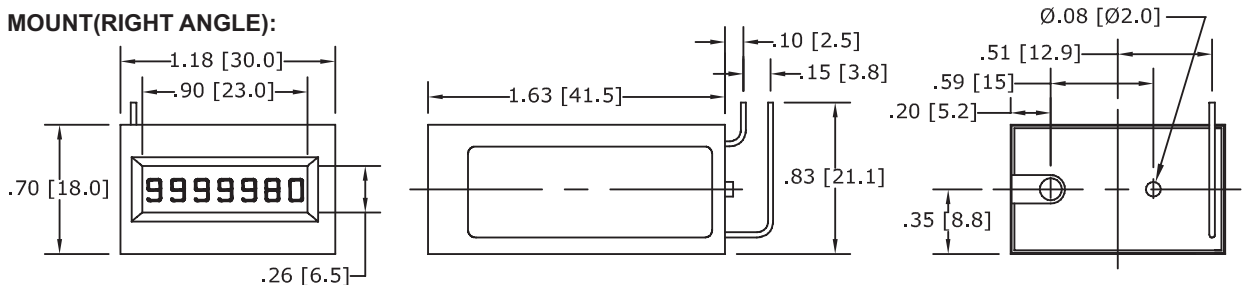
BEHIND THE PANEL (SCREW MOUNT):



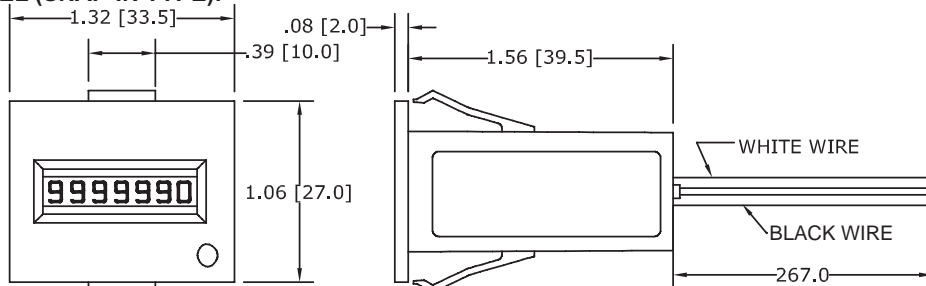
PCB MOUNT(STRAIGHT):



PCB MOUNT(RIGHT ANGLE):

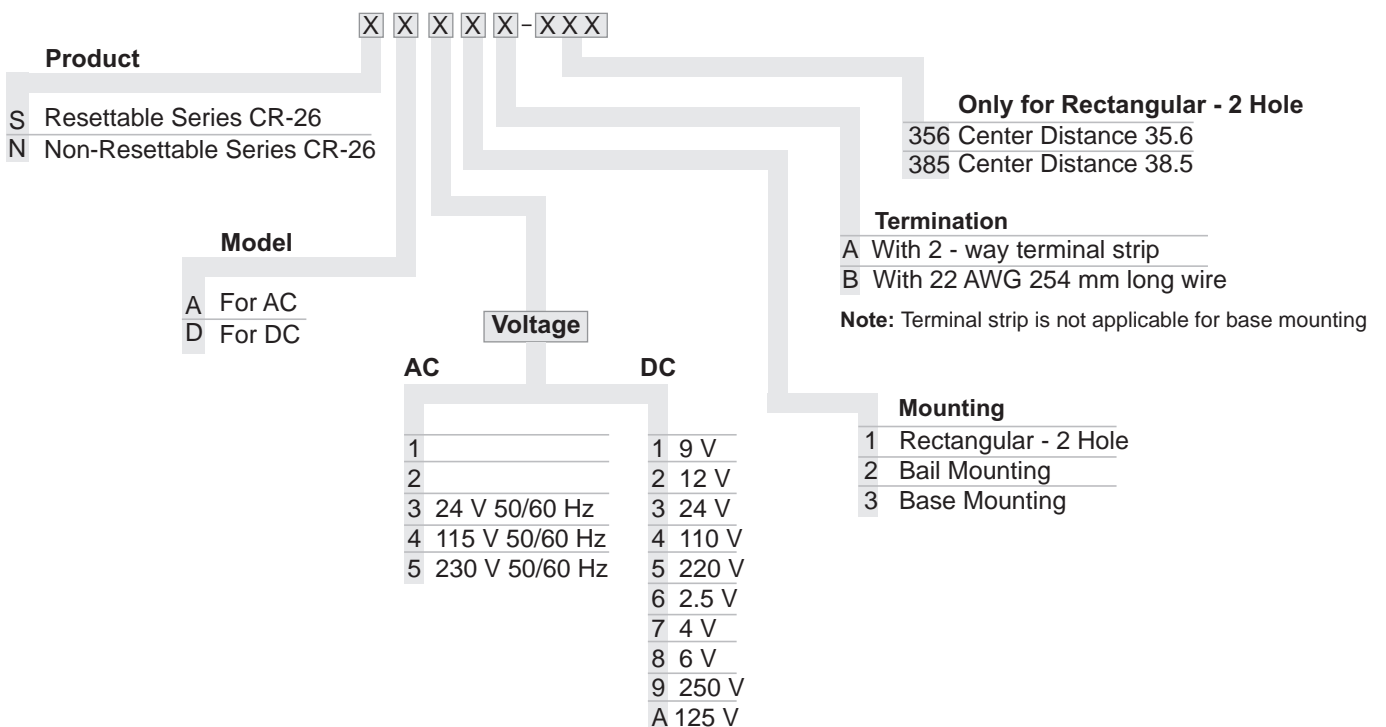


PANEL (SNAP-IN TYPE):



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

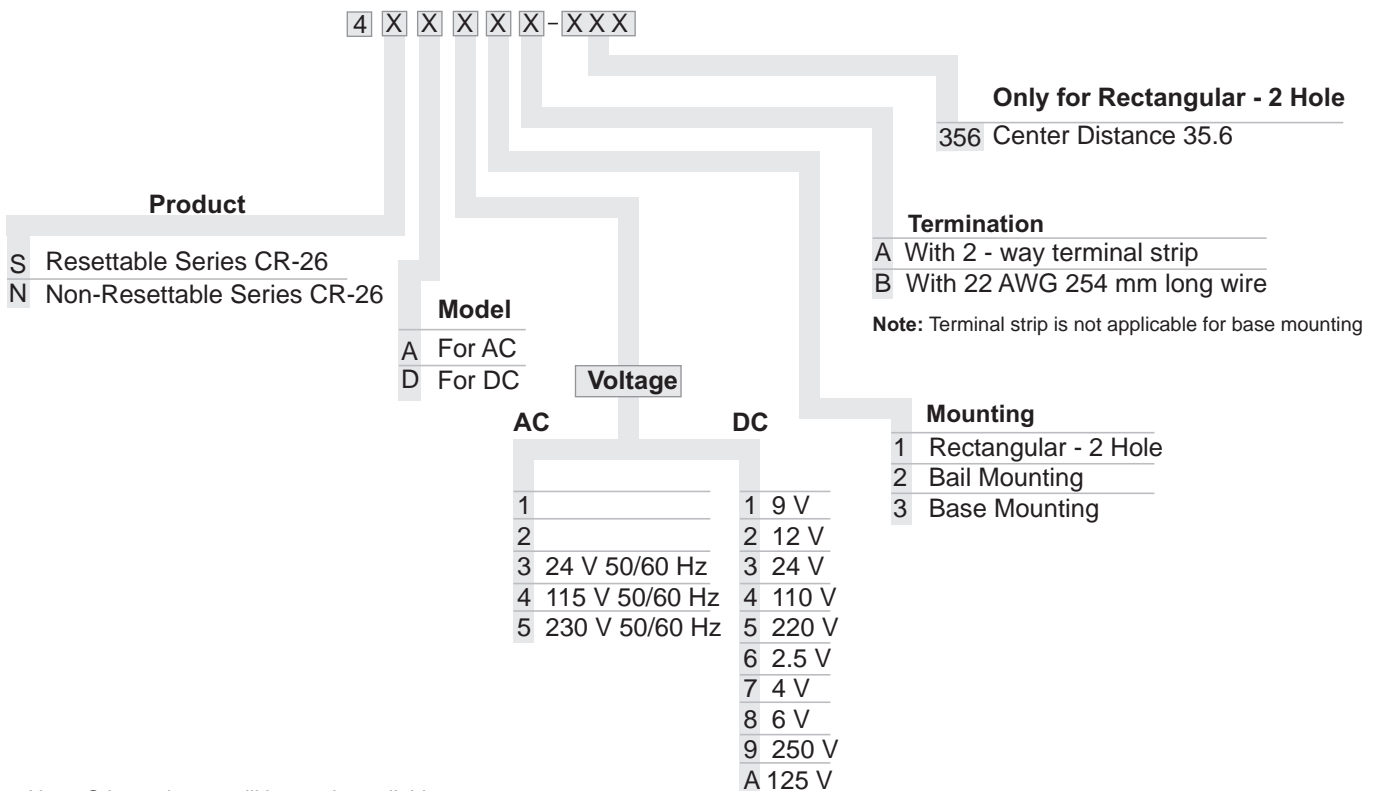


Cat. No.	SD21A-385	SD31A-385	SA41A-356	SA51A-356
Parameters				
Supply Voltage (ϕ)	12 VDC	24 VDC	115 VAC	230 VAC
Supply Variation	+10% to -15% (of ϕ)			
Power Consumption (Max.)	2 W		3 W	
Figure	6 Digit, White on Black, (4.0 mm) Height			
Maximum Range	9,99,999			
Operating Life	Beyond 100 million counts			
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				
Applications	Ideal for use in - 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



Impulse Counter Series CR 26 (4-Digit)



Cat. No.	4SD21A-356	4SD31A-356	4SA41A-356	4SA51A-356
Parameters				
Supply Voltage (ϕ)	12 VDC	24 VDC	115 VAC	230 VAC
Supply Variation	+10% to -15% (of ϕ)			
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				
Applications	Ideal for use in - Machine tools, Business Machines, Test Instruments, Amusement Instruments and Measuring devices			

Note: Do not push reset button during change over.

Impulse Counter Series CR 36

- Compact Size & Robust Design
- 7 Digit, Non-Resettable
- High Degree of Accuracy & Reliability
- Wide Temperature range
- Shock & Vibration Proof





Ordering Information

Cat. No.	Description
QD11A	12 VDC, Rectangular Bezel
QD21A	24 VDC, Rectangular Bezel
QD12A	12 VDC, Rectangular 2 Hole Bezel
QD22A	24 VDC, Rectangular 2 Hole Bezel
QD23A	24 VDC, Round Bezel

Impulse Counter Series CR 36



Cat. No.	QD11A	QD22A
Parameters		
Supply Voltage (ϕ)	12 VDC	24 VDC
Supply Variation	-15% to +10%	
Power Consumption (Max.)	0.25 VA	
Figure	7 Digit, White on Black, (3.6mm) High	
Maximum Range	9999999	
Speed	10 Hz Maximum (600 counts/minute)	
Pulse Width	50 ms. minimum	
Counting Method	One Pulse - One Count (energizing - ½ count, de-energizing - ½ count)	
Weight	45 gm	
Operating Temperature	-5°C to +50°C	
Humidity (Non Condensing)	45% to 85% (Rh)	
Mounting	Panel	
Degree of Protection	NEMA 4X (IP 65)	
Certification	 	

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
Parameters			
Supply Voltage (⊕)	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 26

MOUNTING DIMENSION (mm)

IMPULSE COUNTER CR 26

Resettable Counter
SXXXXA

	A=With terminal strip	B=With 22 AWG 254 mm long wire	Panel cutout dimension
1. Panel Mount - 6 Figure SXXXX-385			
2. Panel Mount - 6 Figure SXXXX-356			
3. Bail Mount - 6 Figure			
4. Base Mount - 6 Figure			
5. Optional locking for 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) B = Counter with Wire (22 AWG 254 mm Long)			
Note: 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)

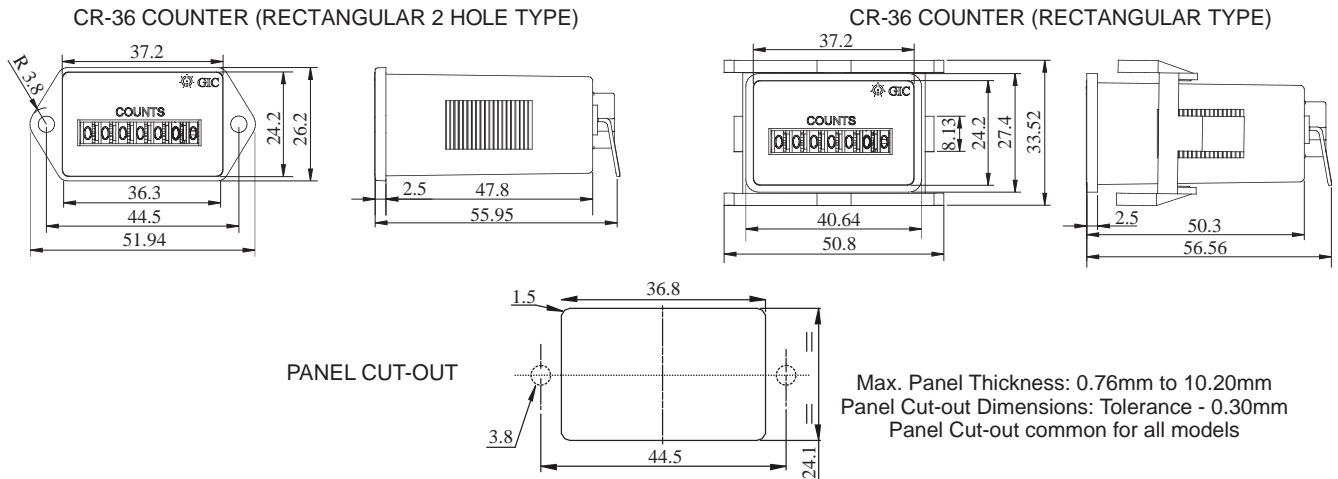
Resettable Counter
4XXXXA

	A=With terminal strip	B=With 22 AWG 254 mm long wire	Panel cutout dimension
1. Panel Mount - 4 Figure 4XXXXX-356	<p>Dimensions: 45.7 (width), 35.6 (height), 64.8 (depth), 45.7 (depth to terminal), 24.6 (terminal height).</p>	<p>Dimensions: 64.8 (depth), 24.6 (terminal height).</p>	<p>Panel cutout dimensions: Dia 3.5(2X), 37.1 (width), 25.7 (height), 35.6 (total height).</p>
2. Bail Mount - 4 Figure 4XXXXX	<p>Dimensions: 41.9 (width), 28.9 (height), 64.8 (depth), 24.6 (terminal height).</p>	<p>Dimensions: 64.8 (depth), 24.6 (terminal height).</p>	<p>Panel cutout dimensions: 37.1 (width), 25.7 (height).</p>
3. Base Mount - 4 Figure 4XXXXX	<p>Dimensions: 64.0 (width), 16.0 (height), 54.1 (width to terminal), 24.9 (depth to terminal), 29.0 (depth to terminal), 71.9 (total depth), 24.6 (terminal height).</p>		<p>Panel cutout dimensions: 54.1 (width), 16 (height), Dia 3.5(4X).</p>
4. Optional locking for reset button	<p>Dimensions: 8.2 (locking pin diameter), Dia 1.2 (locking pin diameter).</p>		<p>To avoid the tampering with the reset button you can seal the counter as shown in the above figure</p>
NON RESETTABLE COUNTER- NXXXXA			
A = Counter with Terminal Strip(not applicable for Base Mounting) B = Counter with Wire (22 AWG 254 mm Long)			
<p>Note: For Non Resettable Counters, reset arm lever will not be present and all other details will be common with resettable counter.</p>			

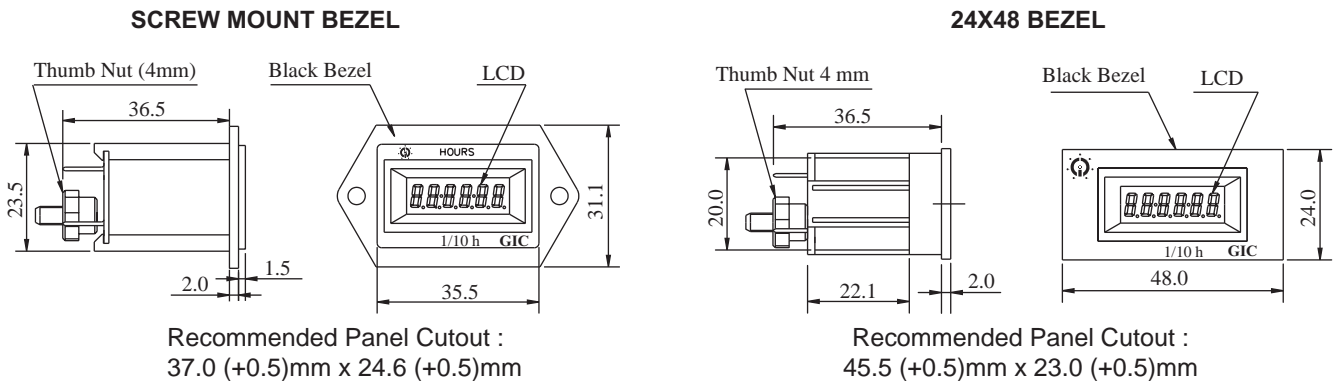
Impulse Counter Series CR 36 & Digital Counter

MOUNTING DIMENSIONS (mm)

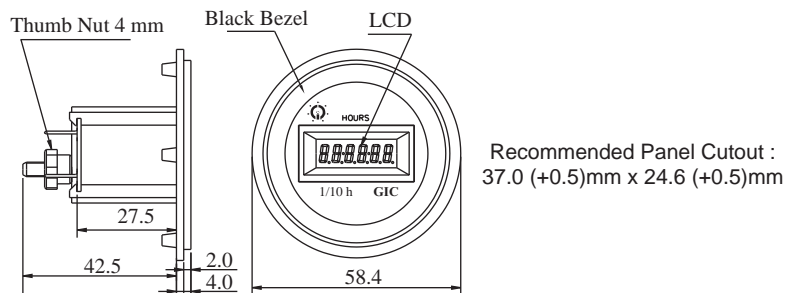
IMPULSE COUNTER CR 36



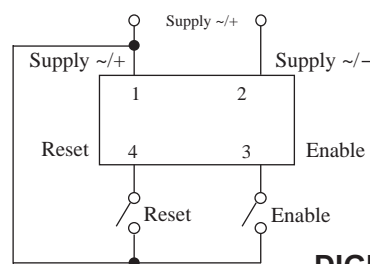
DIGITAL COUNTER



ROUND BEZEL



CONNECTION DIAGRAM



TERMINAL DESCRIPTION

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

DIGITAL COUNTER

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
- Alarm facility for both Hour meter & Counter
- Relay & MOSFET Output with Over Load detection
- Retentive & Non-Retentive modes
- 7 Digit LCD with luxurious green backlight
- 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
Parameters			
Supply Voltage (φ)		9 - 30 VDC	85 - 265 VAC/DC
Power Consumption (W)		2 W max.	2 VA / 1W
Supply Frequency		50 / 60 Hz	
I/P Signal Characteristics			
Signal Voltage Range		9 - 30 VDC	85 - 265 VAC & 100 - 265 VDC
Signal Isolation		2kV	
Output Characteristics			
Output type		2 MOSFET: 30 VDC/60 mA (Max.) Note: Use isolated input supply	Relay: 1 C/O, Contact Rating: 5 A(Res.) @ 250 VAC/30 VDC Contact Material: Ag Alloy
Functional Characteristics			
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
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	
Environmental Characteristics			
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	
Other Characteristics			
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)	IEC 60947-5-1
Single fault	IEC 61010-1
Leakage Current	UL 508

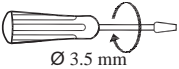

Environmental

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

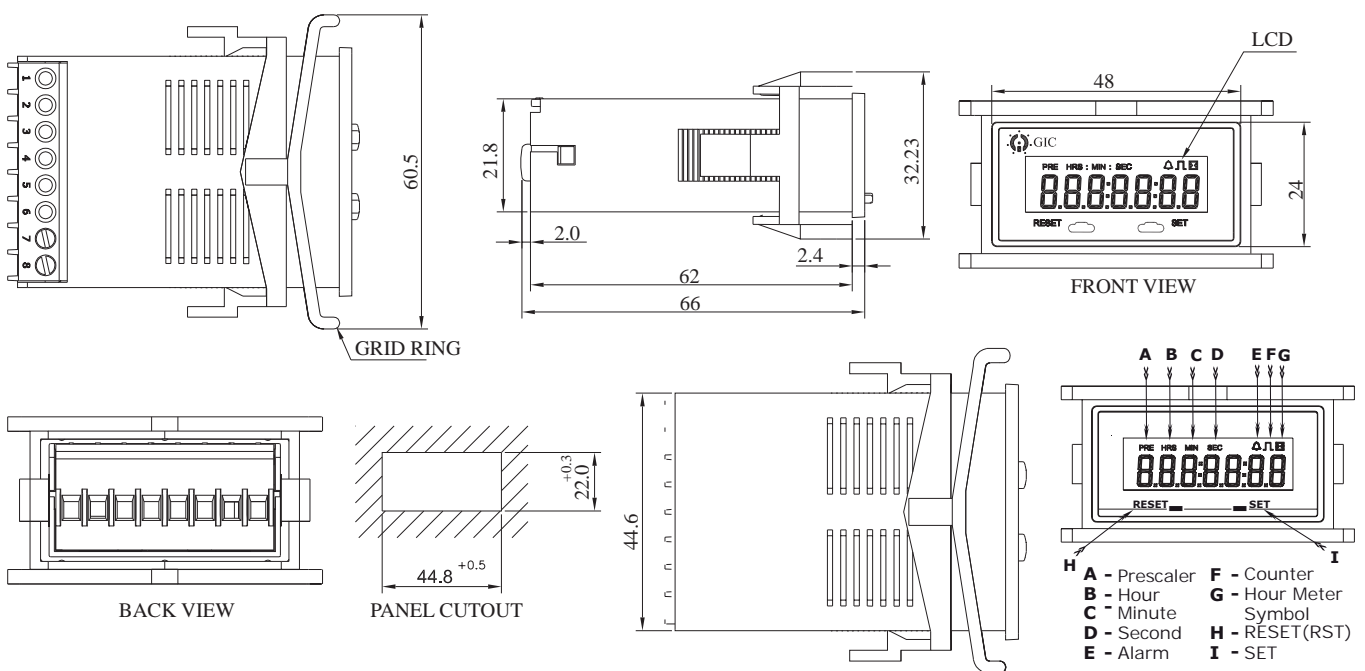
Digital Hour Meter & Counter



TERMINAL TORQUE & CAPACITY

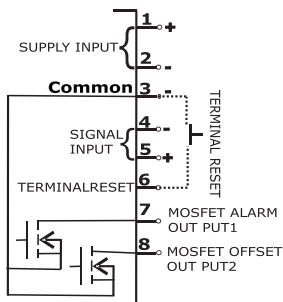
 Ø 3.5 mm	Torque - 0.40 N.m (3.5 Lb.in) Terminal screw - M2.5
	Solid Wire - 1 X 0.3...2.5 mm ²
AWG	22 to 14

MOUNTING DIMENSIONS (mm)

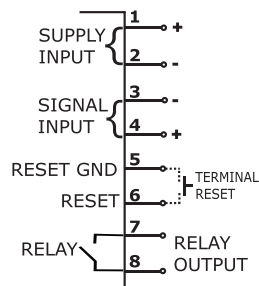


CONNECTION DIAGRAM

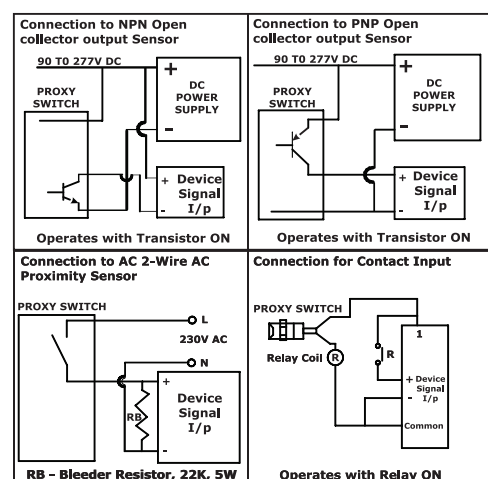
For Z2301N0G1FT00



For Z2221N0G2FT00



Proximity Switch Connection Diagram:



Rate Indicator & Totaliser

- Wide input signal sensing range 0.01Hz to 20KHz.
- Wide Totalizer range from 1 to 9999999.
- Wide Rate range from 1 to 999999.
- Prescaling facility for Rate Indicator.
- Alarm facility for both Rate Indicator & Totalizer.
- Password enabled.
- Signal Over-range displayed.



Ordering Information

Cat. No.	Description
Z3301N0G2FT00	9 VDC - 30 VDC (with Relay output)

Rate Indicator & Totaliser



Cat. No.		Z3301N0G2FT00		
Parameters				
Supply Voltage (±)		9 VDC to 30 VDC		
Max. Power Consumption (W)		0.73 W		
Input Signal		Range 1 : 0.1 Hz to 40 Hz		
Frequency Range		Range 2 : 0.1 Hz to 20 KHz		
Output Type		Relay: 1 C/O, Contact Rating:5 A(Res.) @250 VAC / 30VDC Contact Material: Ag Alloy		
Display		7 digit LCD, 6.5mm Height, 12 O' Clock, Transmissive		
Rate Display		6 digit Display		
Number of keys		2 (SET & RST)		
Reset	Reset type	Terminal	Front	Auto Reset
Function	Time (min.)	80 ms	3 Sec	-
Rate Accuracy		± 0.01%		
Totalizer Accuracy		100 %		
Decimal Point Position (max.)		4		
Pre-scaler		4 digits before decimal point & 3 digits after decimal point.		
Operating Temperature		- 10° 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		
Weight (Unpacked)		52g		
Operating Position		Horizontal		
Termination wire Sizes		Wire size : 22-14 AWG, 0.3-2.5 mm		
Panel Cut-out		22mm X 44.8mm		
Mounting		Flush / Panel Mounting		
Certification				

EMI / EMC

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 & Housing)	IEC 60947-5-1
Signal Fault	IEC 61010-1
Leakage Current	UL 508

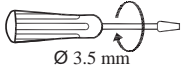

Environmental

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

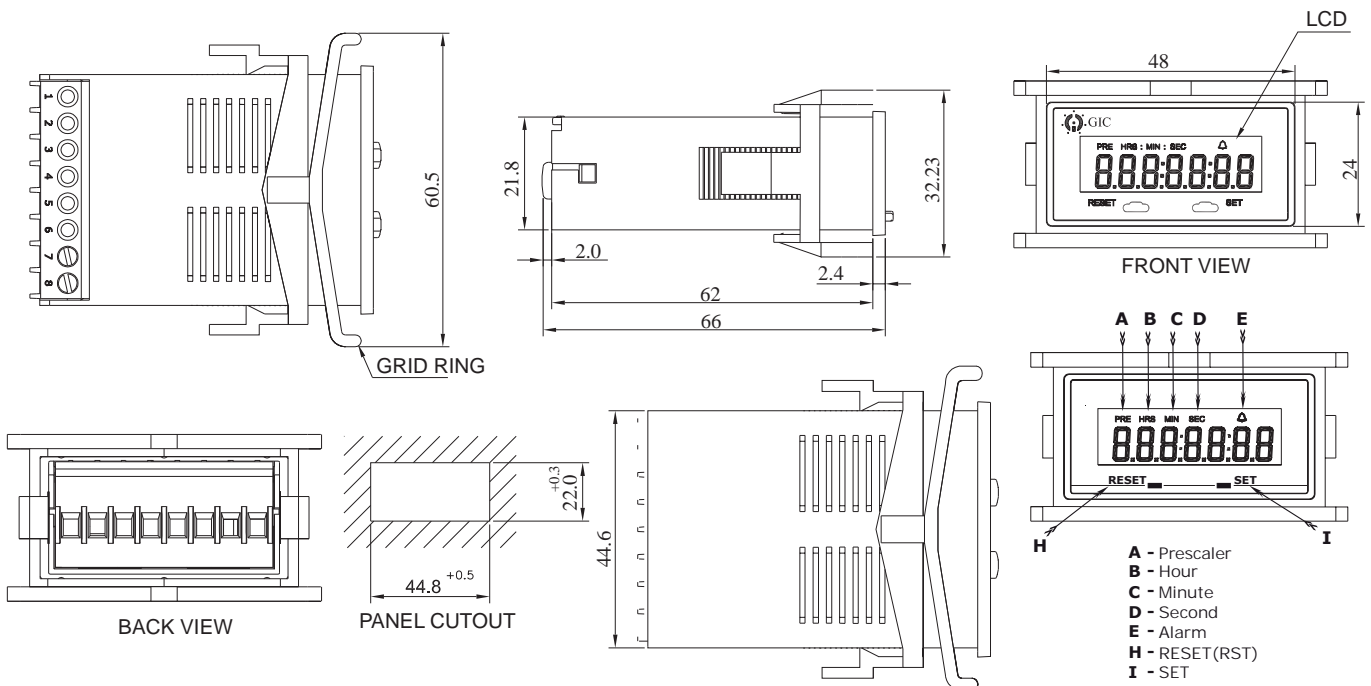
Rate Indicator & Totaliser



TERMINAL TORQUE & CAPACITY

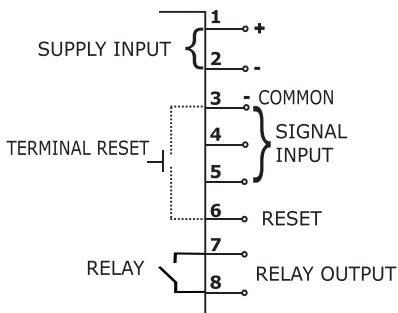
 Ø 3.5 mm	Torque - 0.40 N.m (3.5 Lb.in) Terminal screw - M2.5
	Solid Wire - 1 X 0.3...2.5 mm ²
AWG	22 to 14

MOUNTING DIMENSIONS (mm)

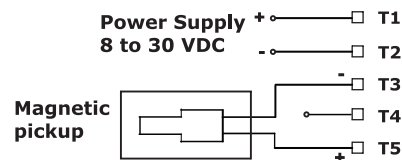


CONNECTION DIAGRAM

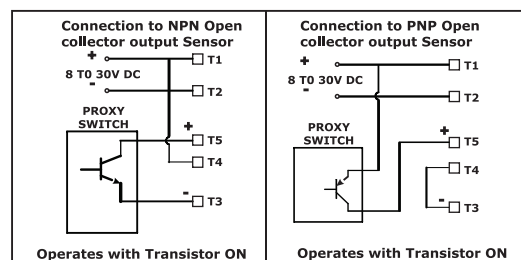
Z3301N0G2FT00



Magnetic pickup:



Proximity Switch Connection Diagram:



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