

# HUAZHEN PRODUCT CATALOG



**紹興華臻電子有限公司**  
SHAOXING HUA ZHEN ELECTRONIC CO., LTD

**In pursuit of precision**



**For value-added customized services**

## **Solid State Battery Indicator**

Indicate the real battery state of charge and battery capacity.....



# HUAZHEN PRODUCT CATALOG



## COMPANY OVERVIEW

SHAOXING HUAZHEN ELECTRONIC CO., LTD is a dynamic trading company, mainly dealing with import and export business on automotive gauges, sensors, instrument clusters, auto body parts and solid-state lighting fixtures.

Our team is composed of 2 advanced marketing managers who have experience in overseas market 7-13 year, and 2 assistant engineers with relevant professional experience over 15 years.

Ms. B., Chen

Ms. Y. N., Qian

Mr. X. B., Wang

Mr. Y. P., Zhang

Our team also include external senior engineers, who have experience in relative business over 20 year.

Mr. Y. Q., Yang

Mr. K. X., Lee

Mr. X. M., Gao

We set up close and long term relationship with our suppliers and promote their products in the world market. Our team has full skills in technical communications, import and export business. We recommend customized products to meet customers' demands for salable features, such as flexibility, cost, capacity, and economy of operation.

We take great pride and care in every aspect of our company. This is reflected in our rigorous quality control measures, every effort to meet customers' needs and ever increasing markets. We make specified engineered products from a selected group of associated Chinese manufacturers, and ship the finished goods to our customers, contributing impeccable value with high quality components and assemblies under our efficient process control system.

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Tushan Eastern Rd., Shaoxing, Zhejiang, P.R. China 312000



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### ABOUT SHAOXING HUAZHEN CATALOG

SHAOXING HUAZHEN has made every effort to insure that information in this catalog is accurate and complete, however we are not responsible for errors, insufficiency or omissions. Because of our dedication to excellence and improvement, SHAOXING HUAZHEN reserved the right to change specifications at any time, without notice or obligation. Consult [sales@sxhzelect.com](mailto:sales@sxhzelect.com) if certified dimensions are needed.

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## 1.1 Programmable Speedometer



SHAOXING HUAZHEN's speedometers are well known for their reliability and extensive applications. These speedometers are driven by signals generated from a pulse sensor. They function over a broad range of applications by using programming switches for programmability.

- Programmable speedometers can be programmed in 255 different ways.
- Scratch-resistant glass lenses are filled on galvanized white iron case with rubber bush to resist corrosion and vibration. The cases are of standard 3-3/8" (85mm) in diameter with single U-shaped bracket mounting, which fits SAE 3-3/8" standard mounting hole.
- Speedometer meets SAE J1226 at ambient,  $\pm 3\%$  full scale @  $-7^{\circ}\text{C} \sim 54^{\circ}\text{C}$
- Green LED odometer records the real total trip, meeting SAE J1226,  $\pm 3\%$  full scale @  $-7^{\circ}\text{C} \sim 54^{\circ}\text{C}$
- Standard bezel, easy-to-read graphics, LED backlit illumination, light-transmitting pointer with standard hub complies to SAE J1399 regulations
- All models include plug, wire lead, and mounting hardware
- Nominal voltage:
  - 12V (DC9V~16V)
  - 24V (21V~27V)
- Made in China
- 12V/24V optional



<b>HZ21131WR</b> 	<b>HZ21132WR</b> 	<b>HZ21131BR</b> 	<b>HZ21132BR</b> 
<b>HZ21831WR</b> 	<b>HZ21832WR</b> 	<b>HZ21731BW</b> 	<b>HZ21932BW</b> 

# Automobile Meter



**紹興華臻電子有限公司**  
SHAOXING HUA ZHEN ELECTRONIC CO., LTD

## Model Encodement

Code No.	Indication		VDC	Bezel	Face	Pointer
<b>HZ21:</b>	<b>1:</b> 0-120mph/195kmh	<b>1S:</b> 0-120mph				
Electrical	<b>2:</b> 0-140mph/225kmh	<b>2S:</b> 0-140mph	<b>1:</b> 12V	<b>1:</b> Chrome	<b>W:</b> white	<b>R:</b> red
	<b>3:</b> 0-85mph/140kmh	<b>3S:</b> 0-85mph	<b>2:</b> 24V		<b>2:</b> Black	<b>B:</b> black
Programmable	<b>5:</b> 0-220kmh	<b>6:</b> 0-180kmh	<b>3:</b> 12V/24V			
Speedometer	<b>7:</b> 0-140kmh	<b>8:</b> 0-120kmh				
	<b>9:</b> 0-80mph	<b>0:</b> 0-300kmh				

As the only representative of China's largest private owned speedometer manufacturer to heavy duty, marine, and automotive markets, SHAOXING HUAZHEN offers a wide variety of speedometers specifically for your needs. SHAOXING HUAZHEN also customizes your speedometer applications. Indicating range, face color, operating voltage, bezel and needle type can be customized made by contacting: [sales@sxhzelect.com](mailto:sales@sxhzelect.com). For matched pulse sensors, please refer to Page: [25-26](#)

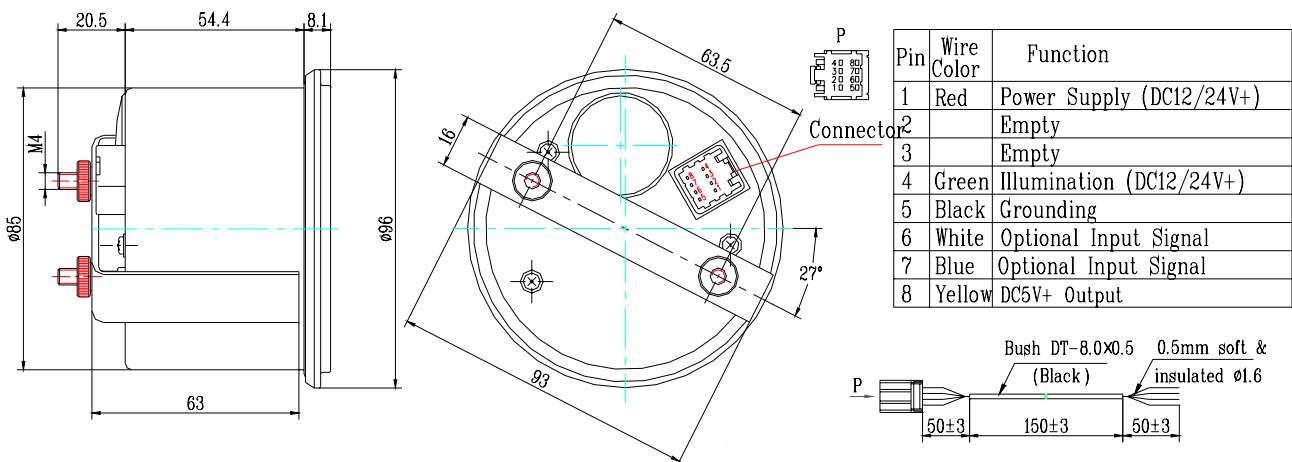
## How to order

Product	Indicating range	Face	Voltage	Bezel
Speedo 85mm	0~ ____ mph	White <input type="checkbox"/>	12V <input type="checkbox"/>	Black <input type="checkbox"/>
	0~ ____ km/h	Black <input type="checkbox"/>	24V <input type="checkbox"/>	Chrome <input type="checkbox"/>
		Other..... <input type="checkbox"/>	12V/24V <input type="checkbox"/>	

## Packaging & Outside Dimensions

Each is packed in a white paper box with transparent PVC window to show the face.

36 units in a carton, measuring 52cm\*52cm\*48cm. Gross weight: 18 kgs Net wet: 17 kgs



# Automobile Meter

## 1.2 Programmable Tachometer



As with our speedometer, SHAOXING HUAZHEN's tachometer is designed to withstand adverse environments and is the most comprehensive of any OEM and aftermarket supplier. Programmable, ignition and alternator tachometers are available.

- Programmable speedometers can be programmed in 255 different ways.
- Scratch-resistant glass lenses are filled on galvanized white iron case with rubber bush to resist corrosion and vibration. The cases are of standard 3-3/8"(85mm) in diameter with single U-shaped bracket mounting, which fits SAE 3-3/8" standard mounting hole.
- Tachometer meets SAE J1399 at ambient,  $\pm 3\%$  full scale @  $-7^{\circ}\text{C} \sim 54^{\circ}\text{C}$
- Green LED hour meter records the real engine working time, meeting SAE J1399,  $\pm 1\%$  full scale @  $-7^{\circ}\text{C} \sim 54^{\circ}\text{C}$
- Standard bezel, easy-to-read graphics, LED backlit illumination, light-transmitting pointer with standard hub complies to SAE J1399 regulations
- All models include plug, wire lead, and mounting hardware
- Nominal voltage:
  - 12V (DC9V~16V)
  - 24V (21V~27V)
- Made in China
- 12V/24V optional



<b>HZ22331WY</b>	<b>HZ22332WY</b>	<b>HZ22331BY</b>	<b>HZ22332BY</b>
<b>HZ22431BY</b>	<b>HZ22331BN</b>	<b>HZ22531BY</b>	<b>HZ22631BYW</b>
<b>HZ22822BN</b>	<b>HZ22422BY</b>	<b>HZ22022BY</b>	<b>HZ22632BN</b>

# Automobile Meter

## Model Encodement



Code No.	Indication		VDC	Bezel	Face	LCD
<b>HZ22:</b>	<b>1:</b> 0-8000rpm	<b>2:</b> 0-7000rpm	<b>1:</b> 12V <b>2:</b> 24V <b>3:</b> 12V/24V	<b>1:</b> Chrome <b>2:</b> Black	<b>W:</b> white <b>B:</b> black	<b>Y:</b> with hour meter <b>N:</b> without hour meter
Electrical	<b>3:</b> 0-4000rpm	<b>4:</b> 0-3000rpm				
Programmable	<b>5:</b> 0-5000rpm	<b>6:</b> 0-6000rpm				
Tachometer	<b>7:</b> 0-10000rpm	<b>8:</b> 0-2000rpm				
	<b>9:</b> 0-12500rpm	<b>0:</b> 0-2500kmh				

Our tachometers are designed to accept signals from ignition system, magnetic pickup or alternator rotor taps. Hour meter only count when the signal is present. Optional styling features such as bezels, ranges, custom dials and pointer colors are available by contacting: [sales@sxhzelect.com](mailto:sales@sxhzelect.com). For matched magnetic senders please see Page: [26](#)

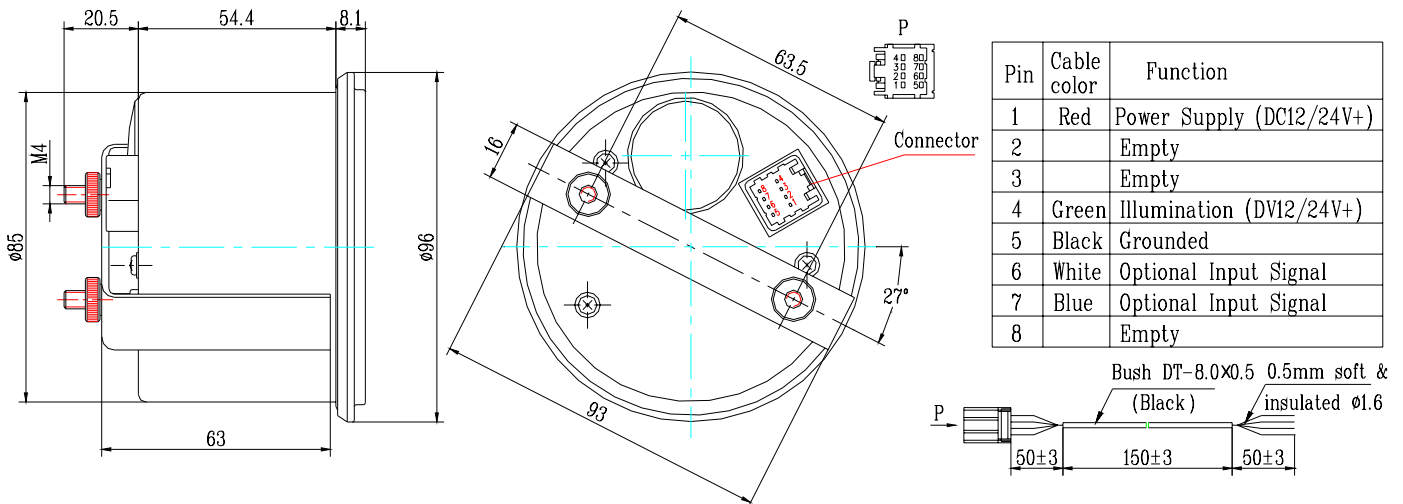
## How to order

Product	Indicating range	Face	Voltage	Bezel	LED counter
Tacho 85mm	0~ _____rpm	White <input type="checkbox"/>	12V <input type="checkbox"/>	Black <input type="checkbox"/>	With <input type="checkbox"/>
		Black <input type="checkbox"/>	24V <input type="checkbox"/>	Chrome <input type="checkbox"/>	Without <input type="checkbox"/>
		Other..... <input type="checkbox"/>	12V/24V <input type="checkbox"/>		

## Packaging & Outside Dimensions

Each is packed in a white paper box with transparent PVC window to show the face.

36 units in a carton, measuring 52cm\*52cm\*48cm. Gross weight: 18 kgs Net wet: 17 kgs



# Automobile Meter

## 1.3 Electrical Fuel Level Meter



All our electrical gauges are designed with a silicone dampened air core movement, and have the same case, mounting dimensions and 90° sweep. These gauges all require a sender except for amperage meter and volt meter and the senders must match the gauge type.

- Standard 2" (52mm) or 2-3/8" (60mm) galvanized white iron case with single U-shaped bracket mounting
- Scratch resistant glass lens and rubber bush are filled onto iron case to resist corrosion and vibration
- Optional LED or bulb backlit illumination, red yellow or white pointer with black hub, bright chrome or black bezel are available
- Wiring leads are totally sealed by rubber stopple
- Easy to read graphics can be customized
- Precision:  $\pm 3\%$  full scale @  $-7^{\circ}\text{C} \sim 54^{\circ}\text{C}$
- Operating voltage: 12VDC with 12VDC gauges; 24VDC with 24V gauges
- Made in China





# Automobile Meter

## Model Encodement



Code No.	Indication	VDC	Bezel	Face	Pointer
<b>HZ23:</b> Electrical Fuel Level Meter	1: E~1/2~F 2: 0~1/2~1 3: 0~1/2~1 0-alarm 4: 0~1/4~1/2~3/4~1	1: 12V 2: 24V	1: Chrome 2: Black	W: white B: black G: green	R: red W: white

Optional styling features such as bezels, ranges, custom dials and pointer colors are available by contacting: [sales@sxhzelect.com](mailto:sales@sxhzelect.com). For matched fuel level sensors please see Page: [27-28](#)

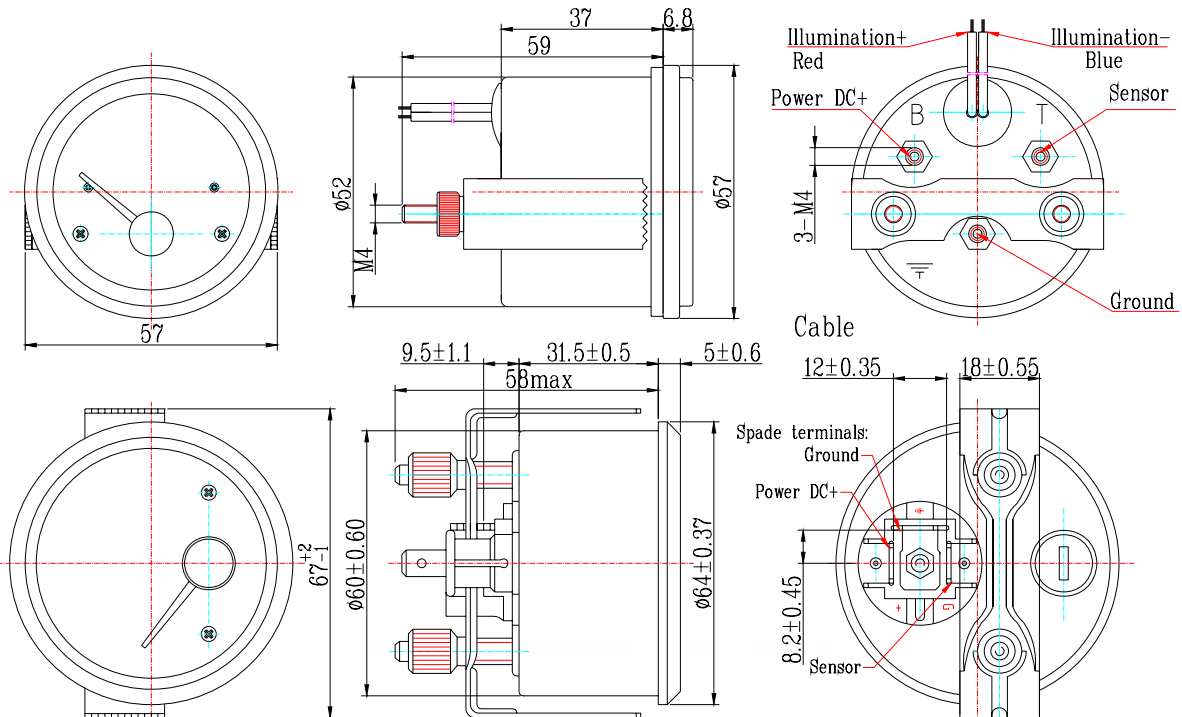
## How to order

Product	Face	Voltage	Bezel
Fuel Meter 52mm <input type="checkbox"/> 60mm <input type="checkbox"/>	White <input type="checkbox"/> Black <input type="checkbox"/> Green <input type="checkbox"/> Other <input type="checkbox"/>	12V <input type="checkbox"/> 24V <input type="checkbox"/>	Black <input type="checkbox"/> Chrome <input type="checkbox"/>
Indication	E	1/2	F
E~1/2~F <input type="checkbox"/> 0~1/2~1 <input type="checkbox"/>	$\_\_\_\_\_\_ \Omega$	$\_\_\_\_\_\_ \Omega$	$\_\_\_\_\_\_ \Omega$

## Packaging & Outside Dimensions

Each is packed in a white paper box with transparent PVC window to show the face.

50 units in a carton, measuring 52cm\*52cm\*44cm. Gross weight: 14 kgs Net wet: 13 kgs



## 1.4 Pressure Meter



As with electric fuel level meters, SHAOXING HUAZHEN's pressure meter is designed to withstand adverse environments. SHAOXING HUAZHEN's pressure gauges are of three types:

- Mechanical meter -- sweeping 270° degree, with bourdon tube movement
- Electrical meter -- sweeping 90° degree with a silicone dampened air core movement,
- Dual needle meter -- with bourdon tubes movement

**All gauges offered in this section have the following standard features unless specified.**

- Standard 2" (52mm) or 2-3/8" (60mm) galvanized white iron case with single U-shaped bracket mounting
- Scratch resistant glass lens and rubber bush are filled onto iron case to resist corrosion and vibration
- Optional LED or bulb backlit illumination, red yellow or white pointer with black hub, bright chrome or black bezel are available
- Easy to read graphics can be customized
- Wiring leads are totally sealed by rubber stopple
- Precision:  $\pm 3\%$  full scale @  $-7^{\circ}\text{C} \sim 54^{\circ}\text{C}$
- Operating voltage: 12VDC with 12VDC gauges; 24VDC with 24V gauges
- Made in China



### 1.4.1 Electrical Pressure Meter

#### Electrical Air Pressure Meter



#### Electrical Manifold Meter



# Automobile Meter

## Electrical Oil Pressure Meter



HZ26111WR



HZ26112WR



HZ26111BR



HZ26112BR



HZ26222WR



HZ26112BW



## Model Encodement

Code No.	Indication	VDC	Bezel	Face	Pointer
<b>HZ24:</b> Electrical Air Pressure / Manifold Meter	1: 0~150PSI 4: 0~80PSI	1: 12V 2: 24V	1: Chrome 2: Black	W: white B: black	R: red W: white
<b>HZ26:</b> Electrical Oil Pressure Meter	1: 0~100PSI 2: 0~1.0MPa				

Optional styling features such as bezels, ranges, custom dials and pointer colors are available by contacting: [sales@sxhzelect.com](mailto:sales@sxhzelect.com). For matched pressure sensors please see Page: [31-32](#)

## How to order

Product	Indicating range	Face	Voltage	Bezel
Electrical Pressure 52mm	0~____PSI	White <input type="checkbox"/>	12V <input type="checkbox"/>	Black <input type="checkbox"/>
		Black <input type="checkbox"/>	24V <input type="checkbox"/>	Chrome <input type="checkbox"/>
		Other <input type="checkbox"/>		
<b>Electrical Pressure Gauge</b>		<b>0</b>	<b>xxx/2</b>	<b>xxx</b>
0~xxx PSI / Bar / MPa	____Ω	+____ -____	____Ω	+____ -____

## Packaging & Outside Dimensions

Each is packed in a white paper box with transparent PVC window to show the face.

50 units in a carton, measuring 52cm\*52cm\*44cm. Gross weight: 14 kgs Net wet: 13 kgs

Outside dimensions are the same as electrical fuel level meter. Please refer to Page: [6](#)

## 1.5 Electrical Temperature Meter



As with electric fuel level meters, SHAOXING HUAZHEN's temperature meter is designed with a silicone dampened air core movement, 90° sweep, and have the same case withstanding adverse environments.

- Standard 2" (52mm) or 2-3/8" (60mm) galvanized white iron case with single U-shaped bracket mounting
- Scratch resistant glass lens and rubber bush are filled onto iron case to resist corrosion and vibration
- Optional LED or bulb backlit illumination, red yellow or white pointer with black hub, bright chrome or black bezel are available
- Easy to read graphics can be customized
- Wiring leads are totally sealed by rubber stopple
- Precision:  $\pm 3\%$  full scale @  $-7^{\circ}\text{C} \sim 54^{\circ}\text{C}$
- Operating voltage: 12VDC with 12VDC gauges; 24VDC with 24V gauges
- Made in China



# Automobile Meter

## Model Encodement



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Code No.	Indication	VDC	Bezel	Face	Pointer
<b>HZ25:</b> Electrical Temperature Meter	<b>1:</b> 100~280°F <b>2:</b> 100~240°F <b>3:</b> 140~320°F <b>4:</b> 40~120°C <b>5:</b> 60~120°C <b>6:</b> 50~160°C <b>7:</b> 70~160°C	<b>1:</b> 12V <b>2:</b> 24V	<b>1:</b> Chrome <b>2:</b> Black	<b>W:</b> white <b>B:</b> black	<b>R:</b> red <b>W:</b> white

Optional styling features such as bezels, ranges, custom dials and pointer colors are available by contacting: [sales@sxhzelect.com](mailto:sales@sxhzelect.com) . For matched temperature sensors please see Page: [37](#)

## How to order

Product	Indicating Range	Face	Voltage	Bezel
<b>Electrical Temperature 52mm</b>	°F <input type="checkbox"/>	White <input type="checkbox"/>	12V <input type="checkbox"/>	Black <input type="checkbox"/>
	°C <input type="checkbox"/>	Black <input type="checkbox"/>	24V <input type="checkbox"/>	Chrome <input type="checkbox"/>
<b>aaa~xxx Temperature</b>		<b>aaa</b>	<b>(aaa +xxx)/2</b>	<b>xxx</b>
_____ Ohms (Tolerance)		_____ Ω <input type="checkbox"/> + _____ _____ Ω <input type="checkbox"/> - _____	_____ Ω <input type="checkbox"/> + _____ _____ Ω <input type="checkbox"/> - _____	_____ Ω <input type="checkbox"/> + _____ _____ Ω <input type="checkbox"/> - _____

## Packaging & Outside Dimensions

Each is packed in a white paper box with transparent PVC window to show the face.

50 units in a carton, measuring 52cm\*52cm\*44cm. Gross weight: 14 kgs Net wet: 13 kgs

Outside dimensions are the same as electrical fuel level meter. Please refer to Page: [6](#)

## 1.6 Electrical Voltage Meter & Amperage Meter



All the voltage meters listed here are with LED backlit illumination.

All the amperage meters listed here are internal shunted.



Optional styling features such as bezels, ranges, custom dials and pointer colors are available by contacting: [sales@sxhzelect.com](mailto:sales@sxhzelect.com) . For the outside dimensions please refer to Page: [6](#)

## 2.1 Battery State-of-discharge Indicator



Model HT-DLB is ideally suited for lead acid battery-powered vehicles that require a display function only.

- The HT0623 is recommended for industrial and electric vehicles that can be disconnected from or remain connected to their batteries during the charge cycle.
- The HT0624 is recommended for electric fork lift trucks/stackers or recreational vehicles that remain connected to their batteries during the charge cycles. Units so configured have an undefeatable memory that holds the state of charge of the battery when disconnected.



## Technical Specifications

### Electrical

P.C.	Operating Voltage Range ( $\pm 25\%$ )	Operating Current		Power Consumption		Indicating Range	Tolerance
		Nominal	Maximum	Nominal	Maximum		
1	DC 9V~15V	25 mA	30 mA	0.30 W	0.36 W	10.38V~12.32V	$\pm 0.13$ V
2	DC18V~30V	25 mA	30 mA	0.60 W	0.72 W	20.76V~24.65V	$\pm 0.25$ V
3	DC27V~45V	25 mA	30 mA	0.90 W	1.08 W	31.14V~36.98V	$\pm 0.40$ V
4	DC36V~60V	25 mA	30 mA	1.20 W	1.44 W	41.52V~49.31V	$\pm 0.50$ V
7	DC54V~90V	18 mA	22 mA	1.30 W	1.58 W	62.28V~73.95V	$\pm 0.75$ V
8	DC60V~100V	18 mA	22 mA	1.44 W	1.76 W	69.19V~82.17V	$\pm 0.80$ V

### Mechanical

- Display:** 10-digit LED
- Case Specifications:**

<b>HT0623/HT0624</b>	Bezel shape: Round	Bezel Material: Alum. Anodzd. (Blk)
	Lens Material: Glass	Case Material: ABS (Black)
	Terminals: 3/16" Faston	Mounting: U-bracket
	Max Pins: 4	Panel Cutout (mm/in): $\Phi 52\text{mm}/\Phi 2-1/16"$
- HT0624F / HT0624H**

Bezel Shape: Rectagular/Hexagon	Case Material: ABS (Black)
Termianals: 3/16" Faston	Max Pins: 4
Pannel Cutout: 36*24mm	Mounting: with mounting holes on the face
- Other subassembly:**

Mounting nut: HEX SS 2 pcs	Flat washer: SS 2 pcs
Spring washer: SS Anodzd. (Blk) 2 pcs	Insulated slip-on connector: 4 sets

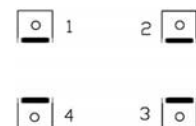


### Environmental

- Temperature**  
Operating:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$   
Storage:  $-50^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$
- Humidity**  
95% RH (Non Condensing) at  $38^{\circ}\text{C}$

### Installation

Pin 1	Pin 2
Battery +	Battery -
Pin 3	Pin 4
LED enable: Connect to Battery+ via switch	Relay+ cut-off output @ battery empty state. (HT0624: OP=Battery volts) (HT0624H/F: OP=+4.5V)



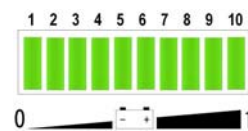
## Operation



### Display

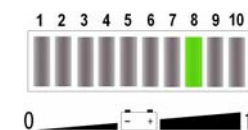
#### HT0623

- As the battery's state of charge rise or decreases, lighted LEDs rise or decrease instantly, LED switched off from right to left.
- LEDs No. 3~10 are shut off, and No1 is lighted No.2 flashes, indicating "energy reserve".
- Both No. 1 & 2 flash by turns, indicating "empty", and new battery is needed to replace old one



#### HT0624 & HT0624F/H

- Only when the battery is properly charged is the No. 10 LED (First LED from right) lighted.
- As the battery's state of charge decreases, successive LEDs light up, only one at a time. Each LED reflects after 160 seconds to filter error data caused by instantaneous voltage fluctuation.
- LED No. 2 flashes, indicating "energy reserve"
- When No. 1 & 2 flash alternately, they indicate "empty", new battery is needed to replace old one.



### Notes

- HT0623** shows battery state of discharged instantaneously.
- HT0624 & HT0624F/H**
  - When battery is swapped: **Open Circuit Reset**  
"Memory" will save the previous state-of-charge if connected to a battery that is not fully charged. If the swapped battery is fully charged, memorized state shows for 0.5 seconds and switched to fully charged state.
  - When instrument remains attached to battery during charging: **High Voltage Reset**  
Reset happens only when battery voltage remain high above proper voltage level for a continuous 6 minutes. If instrument detects the state-of-charge is lower than memorized state, it works in the way as shown in affixed table-1.
- Manufacturing default:** Fully charged

## Model Encodement

HT-DLB	Mold	Voltage	Volts per cell	LED Color
<b>HT062</b>	<b>3:</b> Indicates instantaneous battery voltage			
	<b>4:</b> Round, One LED shows battery state-of-discharge	<b>1:</b> 12V <b>2:</b> 24V	<b>C:</b> 2.04V at full 1.73V at empty (Customized setting is available.)	<b>R:</b> all in red <b>G:</b> all in green <b>T:</b> 1 red 2 yellow 7 green
	<b>4F:</b> Rectangular, one LED shows battery state-of-discharge	<b>3:</b> 36V <b>4:</b> 48V		
	<b>4H:</b> Hexagon one LED shows battery state-of-discharge	<b>7:</b> 72V <b>8:</b> 80V		
	<b>5:</b> 12V/24V			

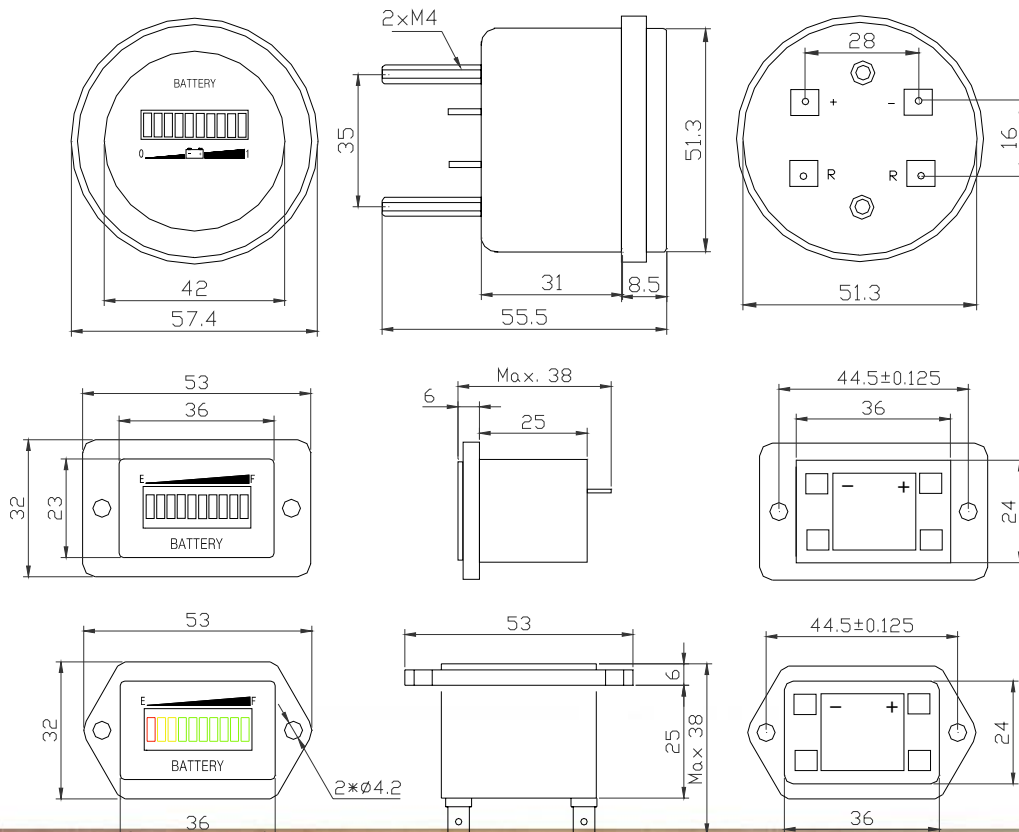
Optional styling features such as bezels, detecting voltage ranges are available by contacting: [sales@sxhzelect.com](mailto:sales@sxhzelect.com) .



**Table 1**

P.N.	Volts	1#~2#	2#	3#	4#	5#	6#	7#	8#	9#	10#	HVR
HT0624-1	12V	≤10.38	10.38~10.60	10.60~10.82	10.82~11.03	11.03~11.25	11.25~11.46	11.46~11.68	11.68~11.89	11.89~12.32	≥12.32	13.76
HT0624-2	24V	≤20.76	20.76~21.19	21.19~21.63	21.63~22.06	22.06~22.49	22.49~22.92	22.92~23.36	23.36~23.79	23.79~24.65	≥24.65	27.2
HT0624-3	36V	≤31.14	31.14~31.79	31.79~32.45	32.45~33.09	33.09~33.74	33.74~34.38	34.38~35.04	35.04~35.69	35.69~36.98	≥36.98	40.8
HT0624-4	48V	≤41.52	41.52~42.39	42.39~43.25	43.25~44.12	44.12~44.98	44.98~45.85	45.85~46.71	46.71~47.58	47.58~49.31	≥49.31	54.4
HT0624-7	72V	≤62.28	62.28~63.57	63.57~64.87	64.87~66.11	66.11~67.40	67.40~68.70	68.70~69.99	69.99~71.29	71.29~73.95	≥73.95	81.6
HT0624-8	80V	≤69.20	69.20~70.63	70.63~72.08	72.08~73.45	73.45~74.89	74.89~76.33	76.33~77.77	77.77~79.21	79.21~82.17	≥82.17	90.58
Relay		off	On	On	On	On	On	On	On	On	On	
LED State		Flash by turns at 1Hz (0.7s on, 0.3s off)	Flashes at 1Hz (0.7s on, 0.3s off)	Lighted	Lighted	Lighted	Lighted	Lighted	Lighted	Lighted	Lighted	High voltage reset
LED switch-over time	Decrease	160 s	160 s	160s	160 s	160 s	160s	160 s	160 s	160 s	160 s	
	Increase	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1s	

### Outside Dimensions



## 2.2 Hour Meter



SHAOXING HUAZHEN's hour meter is designed for a wide variety of industrial and commercial applications, including scheduled maintenance, warranty and leasing for medical equipment, transport and industrial vehicles and other industrial equipment. They are designed with solid state memory that retains reading when power is off.

### 2.2.1 LCD Hour Meter

#### Features

- Standard operating voltage of SHAOXING HUAZHEN's round LCD hour meter is 9V-80V DC/AC and rectangular hour meter is 9V-32V DC/AC. Both models have reversed connection protection.
- LCD functions self-test when powered on, each digit displaying Eight for one second.
- Flashing hourglass icon indicates when the hour meter is accumulating time.
- Exceptional reliability due to nonvolatile memory (EEPROM), which remains data for 25 years.
- Low power consumption
- CE certificated.

#### Technical Specifications

##### Electrical

Current consumption: < 10mA      Accuracy:  $\pm 0.1\%$

##### Mechanical

Display: 6-digit LCD, 5mm high

Range & Resolution: 99999.9 Hours

##### Case Specifications:

Bezel shape: Round, step type

Lens Material: Glass

Panel Cutout (mm/in):  $\Phi 52\text{mm}/\Phi 2-1/16''$

Terminals: 3/16" Faston      Max Pins: 4

Bezel Material: Alum. Anodzd. (Blk) or stainless steel

Case Material: ABS (Black)

Mounting: stainless steel U-bracket

Airproof: completely sealed

##### Environment

Temperature:

Operating:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

Storage:  $-50^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$

Humidity: 95% RH (Non Condensing) at  $38^{\circ}\text{C}$

Shock & Vibration: Meets SAEJ 1378, work well under vibration of 1~8g's, 10~75Hz

##### Installation

Pin 1	Pin 2	Pin 3*	Pin 4*
+	-	C	R
Power +	Power -	Control pin / Input signal	Reset (Empty)

##### Operation

**Note:** All digits display 8 for 1 second at power-up.

##### To Display:

**2-Wire** hour meter displays and accumulates hours only when powered

Typical application: Pin 1 to ignition in a vehicle or switch in equipment and Pin 2 to grounding.

**3-Wire** hour meter with control pin displays recorded time, and begins to count hours when control pin is powered.

Apply DC+ or AC hot to pin + and DC- or AC neutral to pin -, the display is activated at this point but the elapsed time will not be accumulated until a signal is applied to pin 3.

# Specialty Products



Apply DC+ or AC hot to pin + and DC- or AC neutral to pin -, the display is activated at this point but the elapsed time will not be accumulated until a signal is applied to pin 3.

**Note for proper operation:** Power must be applied to pins + and - before or coincident with pin 3.

To operate: Apply DC+ or AC hot to pin 3 for 1/2 second minimum, the accumulation of elapsed time is indicated by the flashing hourglass icon. If power (pin+&-) has been applied for 6 seconds minimum, the accumulated time will be stored in non-volatile memory (EEPROM) when power is removed.

**4-Wire** hour meter follows the same instructions as to 3-Wire hour meter, and has one reset pin available.

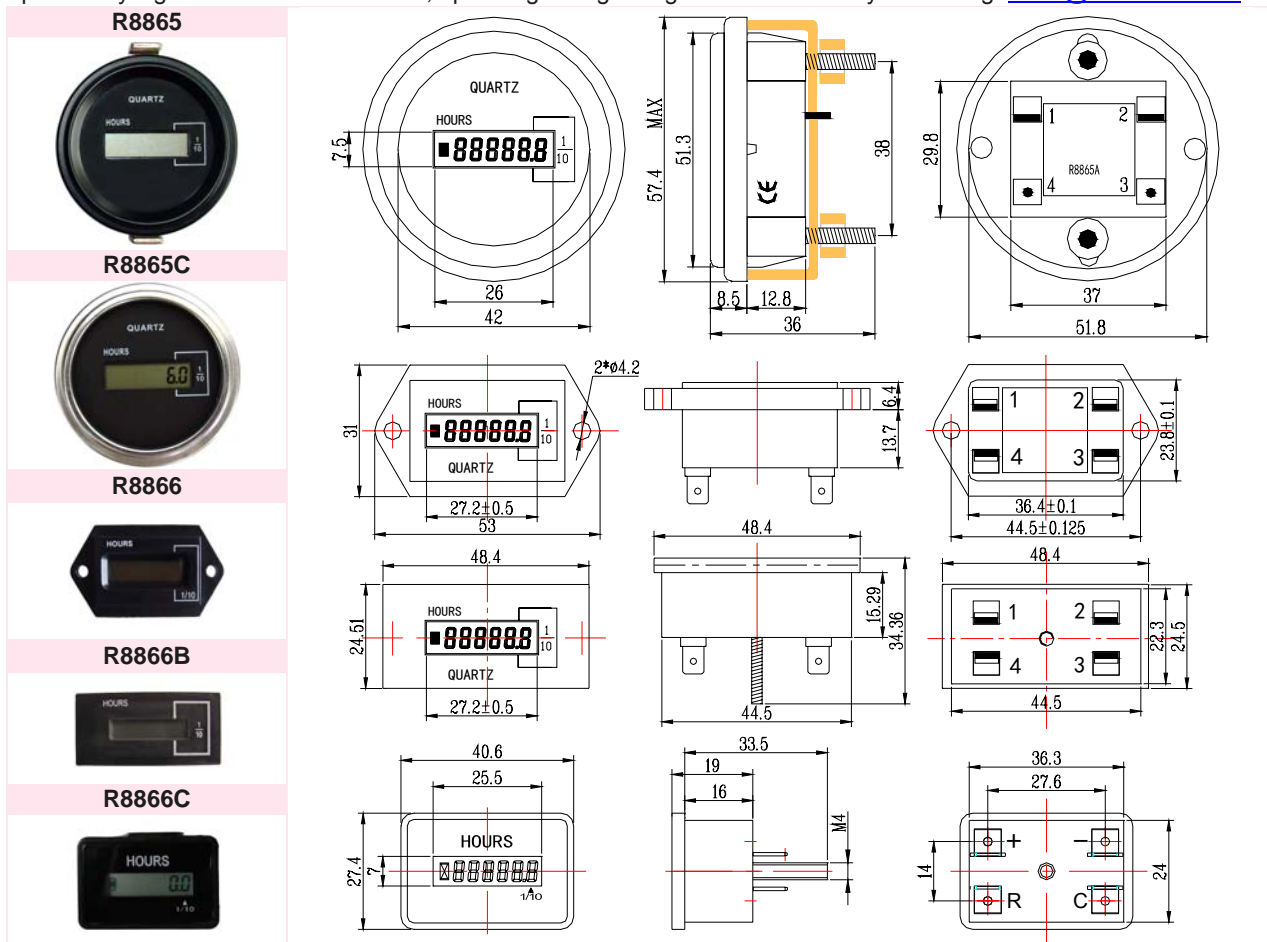
Typical application: Pin 4 is connected to a reset switch, by which the operator can clear old memory in the hour meter.

## Model Encodement

(For packed R886 series)

Hour meter	Appearance	Bezel
<b>R886:</b> LCD hour meter	<b>5:</b> Round <b>6:</b> Rectangular/Hexagon <b>7:</b> Combining battery indicator	<b>1:</b> Bright stainless steel ring <b>2:</b> Black Alum. Anodzd ring <b>0:</b> No ring

Optional styling features such as bezels, operating voltage ranges are available by contacting: [sales@sxhzelect.com](mailto:sales@sxhzelect.com).



## 2.2.2 Battery Indicator and Hour Meter Combination



SHAOXING HUAZHEN's R8867 is a combination of battery indicator and solid state hour meter, housed in a single 52mm diameter case and void of moving parts. The two-in-one unit provides exceptional reliability even in severe operating conditions. This type is suited for OEM's panel makers and contract manufacturers to measure equipment usage for preventive maintenance, scheduling, warranty validation and renting/leasing. Compact size ideal for assemblies; no moving parts or motor driven digits to wear out; non-volatile memory can be powered down and not lose hours counted; and counting starts with enable connection and counts display when power is applied to the meter.



- R8867LYB is recommended for industrial and commercial applications.
- R8867A is multi-volts & adjustable, recommended for all electrically powered vehicles.

### Battery Meter Features

- Tri-color 10-bar LED displays state of discharge (7 green, 2 yellow, 1 red LEDs)
- Only when battery is properly charged and keeps at the high voltage (HVR) over 6 minutes, is the right most LED lighted.
- As battery's state-of-charge decreases, successive LED lights up, one at a time, 160s after detecting state low voltage.
- The Led (#3, yellow) is lighted, indicating "Energy reserve" (70% discharged).
- Flashing yellow signals "energy reserve" alarm at 80% discharged.
- Double flashing red and yellow LEDs signal "empty" alarm at 90% discharged, and relay lockout at the same time.
- When battery sets are swapped and new battery voltage equals to OCR, the right most LED #10 is lighted.

### Hour meter features

- Records and displays up to 99.999.9 hours on LED
- Hour meter LCD remains on as long as battery is connected.
- Stores latest total in EEPROM nonvolatile memory, without need of external power or internal battery.
- Accuracy of 0.01% throughout its operating temperature range.
- Control pin connected, hour-glass icon flashes and hour meter accumulates time.

### Electrical

Nominal voltage	Operating Current		Power Consumption		Battery Indicator	
	Nominal	Maximum	Nominal	Maximum	R8867-LYB Range	Tolerance
12	25 mA	30 mA	0.30 W	0.36 W	10.38V~12.32V	±0.13V
24	25 mA	30 mA	0.60 W	0.72 W	20.76V~24.65V	±0.25V
36	25 mA	30 mA	0.90 W	1.08 W	31.14V~36.98V	±0.40V
48	25 mA	30 mA	1.20 W	1.44 W	41.52V~49.31V	±0.50V
72	18 mA	22 mA	1.30 W	1.58 W	62.28V~73.95V	±0.75V
80	18 mA	22 mA	1.44 W	1.76W	69.19V~82.17V	±0.80V

### Mechanical

**Display**—Battery state-of-charge: 10-bar, tri-color LED  
Hour meter: 6-digit LCD, 5mm high

**Resolution**—Hour meter: 99,999.9 hours

**Case specifications**—Round, step type bezel, maximum 4 pins, 3/16" terminals, stainless steel U-shape mounting bracket, with washers(2), springs(2) and nuts(2), slip-on connectors(4), isolated sleeves(4).

### Environmental

**Temperature**—Operating: -40°C to 85°C  
Storage: -50°C to 90°C

**Humidity**—max.95% RH (Non condensing) @ 38°C

**Mechanical Shock**—SAE J 1378, 55g

**Mechanical Vibration**—SAE J 1378, 20g

**Panel Cutout**— $\varnothing$ 52mm, 2-1/16"

# Specialty Products

## Installation



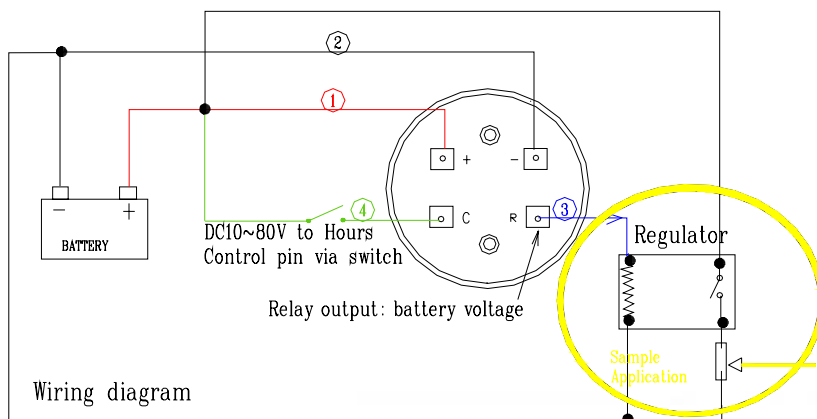
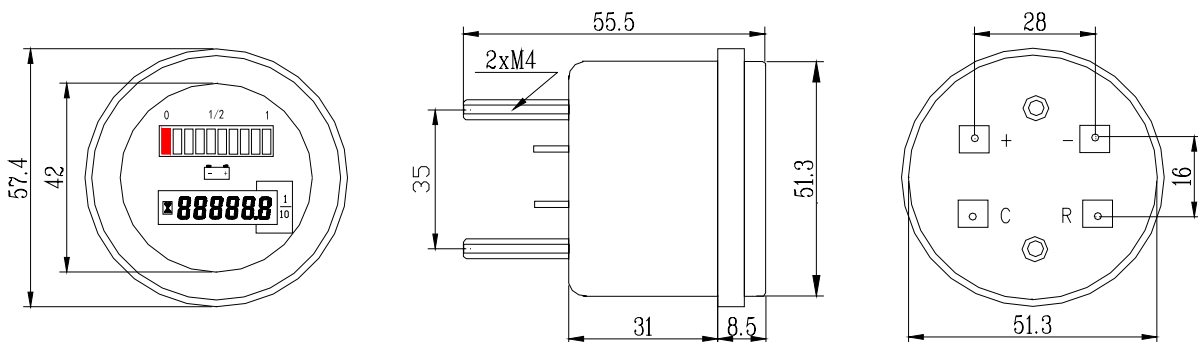
### R8867-LYB

Pin #	1 Battery +	2 Battery -	Reset	3 Empty	Relay	4 Control
<b>Wiring</b>	Connect to battery, LED shows battery state-of-charge, hour meter tests each digit and shows 0.0 to get ready for counting.		Connect to low voltage. Switched on, hour meter clears its memory.	Hour meter can't be reset	Relay output =battery voltage	Connect to high voltage. Switched on, hour meter begins to count time. Switched off, hour meter shows memorized hours.

### Model Encodement

R8867-LYB Series: <b>R8867-LYB-PGXX-X</b>				Terminals	Voltage	Volt per cell
1	2	3	4	Functions		
P	G	S	C	Hour meter with reset & control pins (4 pins)	1: 12V	Standard factory setting: 2.04 at full, 1.73 at empty Customized setting is available.
P	G	E	C	Hour meter with control pin (3 pins)	2: 24V	
P	G	R	C	With hour meter control pin, and relay pin to avoid battery over discharge (4 pins)	3: 36V	
P: Battery +		G: Battery -			4: 48V	
S: Hour meter reset		C: Hour meter control			7: 72V	
R: Relay pin (Output battery voltage)					8: 80V	

### Outside Dimensions



+	Battery +
-	Battery -
R	Inbedded Relay Output --Output equals to battery volts --Some application is as demonstrated in the below wiring diagram
C	Hour meter control pin --Only when Pin K is connected to AC high, does hour meter begin to count time. --Relay Maximum power supply: 90W

# Specialty Products

## Installation:

R8867 A



**紹興華臻電子有限公司**  
SHAOXING HUAZHEN ELECTRONIC CO., LTD

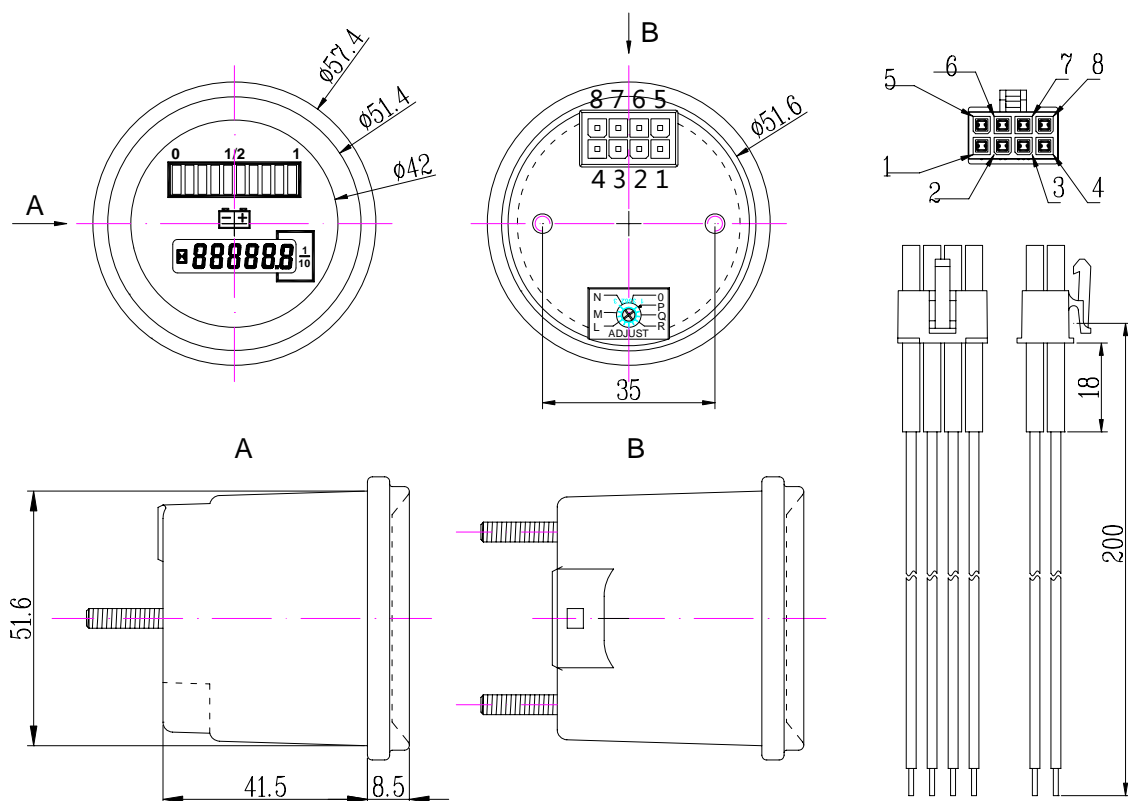
Pin #	1	2	3&4	5	6	7	8
Wire Color	White	Yellow	Green	Black	Blue	Red	Brown
Function	Hour meter counting enable	LED display & LCD work enable	Relay contacts rated 1mA	Instrument negative	Hour meter counting enable	Instrument positive (low volts)	Instrument positive (high volts)
Connect to	Low level	Power+	Lockout device	Battery-	High level	Battery+ (Low rating volts)	Battery+ (High rating volts)

## Model Encodement

### R8867 A Series:

P/N	Voltage	Adjusting range
R8867A-12/24	DC12/24V	Empty state can be calibrated from 1.60-1.86VPC Factory default settings@1.73VPC
R8867A-24/48	DC24/48V	
R8867A-36/48	DC36/48V	
R8867A-48/72	DC48/72V	
R8867A-72/80	DC72/80V	

## Outside Dimensions



## 2.2.3 Hour Meter LCD Module



SHAOXING HUAZHEN's hour meter display module is ideally suited for OEM's panel makers and contract manufacturers to measure equipment usage for preventive maintenance, scheduling, warranty validation and renting/leasing. Compact size ideal for electronic subassemblies; no moving parts or motor driven digits to wear out; non-volatile memory can be powered down and not lose hours counted; and counting starts with enable connection and counts display when power is applied to the meter.

### Mechanical

**Display:** 6 digit LCD, height of digit: 5mm or LCD outside height: 7mm high.

**Range & Resolution:** 99999.9 hours

**Accuracy Counters:**  $\pm 0.1\%$

**Operating Voltage:** 9-58VDC

### Environmental

Operating Temperature:  $-35^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

Storage Temperature:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

Humidity: 95%, non-condensing at  $38^{\circ}\text{C}$

Mechanical Shock: SAE J 1378

Mechanical Vibration: SAE J 1378

### Operation

- Operating mode: Accumulative
- Memory: Exceptional reliability due to non-volatile (EEPROM) memory which can retain data for 25+ years
- Mounting type: Panel/PCB mount
- Display: non-backlit, operating test before starting work, and remind function during counter
- Resettable option: Reset Pin connected to positive power for a minimum of 250ms, it can be reset
- Power interruptions test: 10 times interruption within 10 seconds, power off duration time is 100 ms

### Installation

When close a circuit between pin "P" & pin "N", LCD shows numbers and hourglass figure as in the front view picture for a second, and then shows Zero (0.0) to be ready for count.

When connect pin "I" to the positive pole of power (DC 12V), it begins to count, and the hourglass twinkles. When shutoff, it stops counting.

Pin "R" is usually empty, because when it connects to the positive pole of power for 0.5 second, all counts will be cleared.

R8865D	R8865E	R8867D	Outside dimensions of R8867D
			<p><b>Non-Backlight</b></p> <p>COMPONENT SIDE</p> <p>MAX COMP HEIGHT</p> <p>Dimensions: 2.0 (.01), 28.0 (1.10), 32.0 (1.26), 2.0 (08), 14.0 (.55), 18.0 (.71), 15.0 (0.59), 1.1 (.04), 4.8 (.19), 4.7 (.19), .80 (.03) TYP 4X</p>

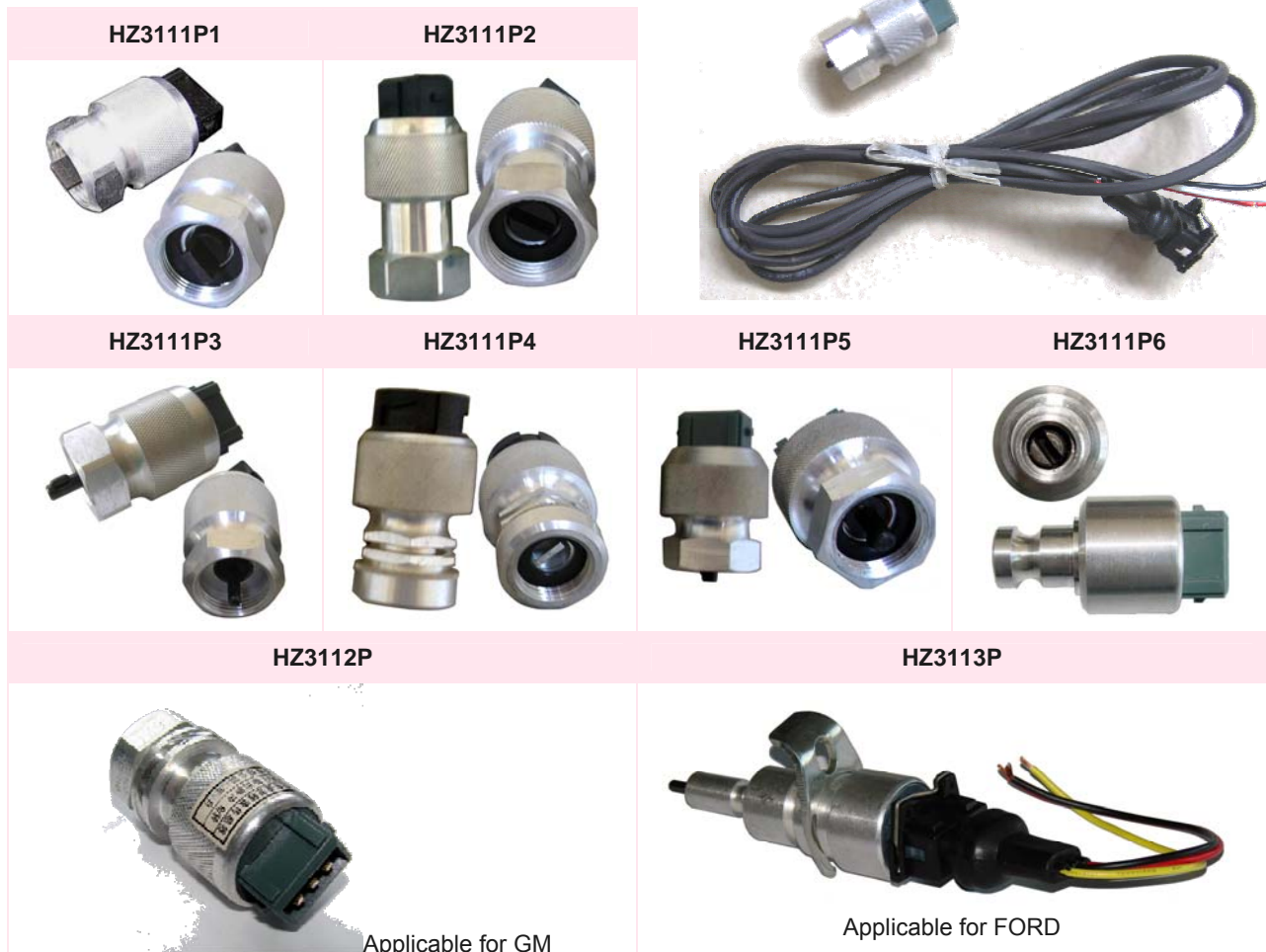


SHAOXING HUAZHEN's sensors are designed to work best with our electrical gauges and instrument cluster gauges. They also work with many gauges made by competitors. Contact [sales@Sxhzelect.com](mailto:sales@Sxhzelect.com) for interchange information. When installing gauge and sensor, we recommend both components be made by SHAOXING HUAZHEN to insure the most accurate readings.

## 3.1 Speed sensor

Hall-effect 8 pulse speed sensor.

For programmable speedometers and other electric speedometers in our instrument clusters





## 3.2 Rotational Speed Sensor



Inductive/Magnetic pickup rotational speed sensor

For programmable tachometer and other electrical tachometers in our instrument clusters

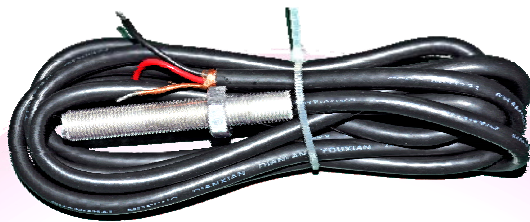
HZ3211M



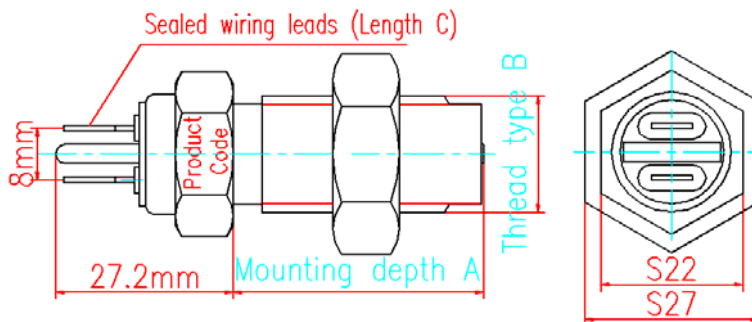
HZ3211M2



HZ3211M3



### Outside dimensions



For customized features A/B/C as shown in the dwg please contact: [sales@sxhzelect.com](mailto:sales@sxhzelect.com).

## 3.3 Fuel Level Sensor



Match with our electrical fuel level gauge, and other fuel gauges in our instrument clusters

### 3.3.1 Floater type fuel level sensor 37-RG118A4

37-RG118A4 sensors put out resistance signals and matches with our electrical gauge and other gauges in our instrument clusters.

#### Installation Instructions

Sender to be fitted to negative earth vehicles only

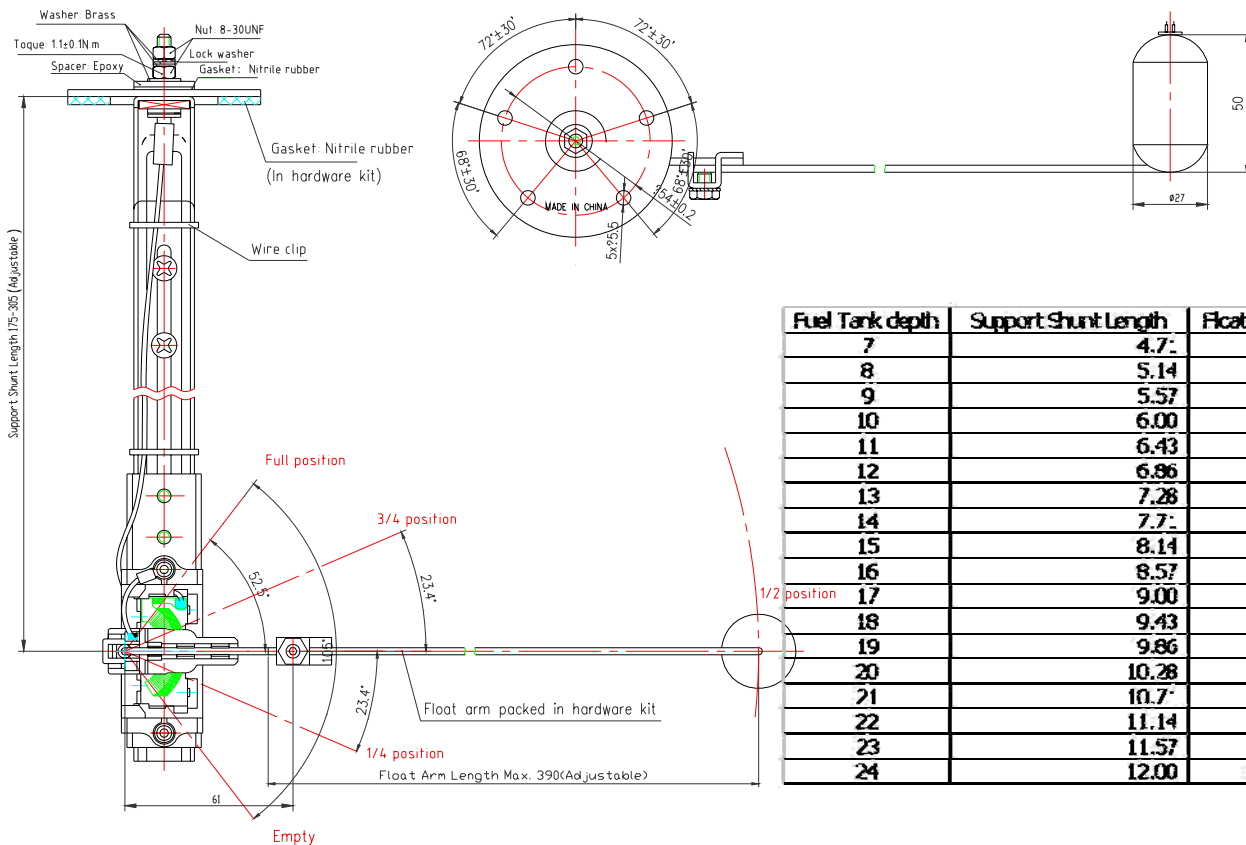
Disconnect the battery cable prior to installation

#### Before mounting

When mounting sender in fuel tank, first remove the tank, the tank should be emptied, cleaned and dried before preceding.

#### Adjusting sender depth

Measure tank depth.



Refer to chart on reverse to determine proper length of both sender shaft and float arm length.



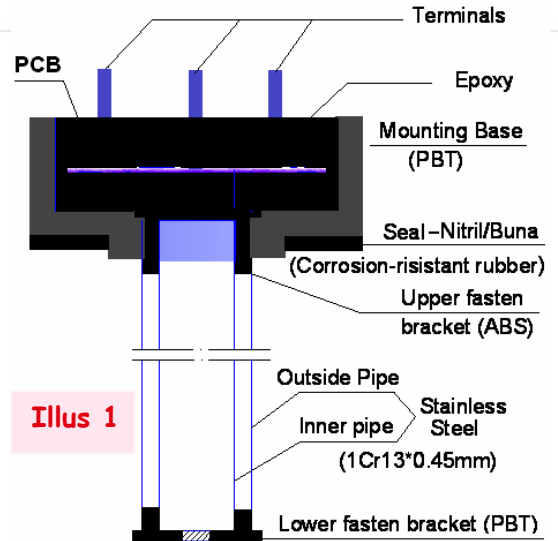
## 3.3.2 Capacitive fuel level sensor 37-RG



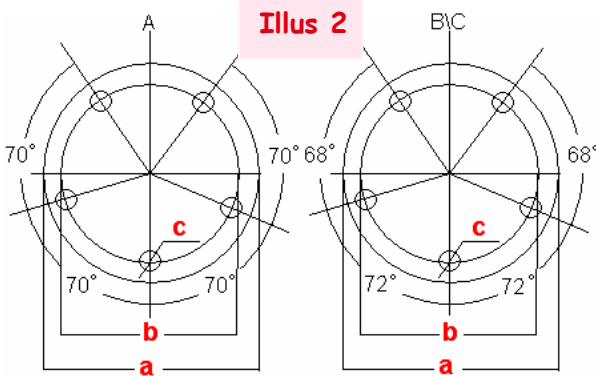
### Applications

37-RG123YT capacitive fuel level sensor is an electrical fuel sender, specially designed for adverse environment. It takes advantage of integrated structure, without moving parts (See illus 1), which makes it more enduring and reliable. All electronic components comply to regulations on automobile electronic components. It's superior to other fuel sensors especially when applied to large fuel tank and mobile machinery shop.

37-RG123YT series fuel sender has steel pipe acting as a probe, collecting data on fuel level state. The data is processed by the electronic module from counting, linearization to amplification. The output signals can drive cross coil gauge, step motor gauge, digital fuel gauge or central MCU in automobile or marine vehicles.



Illus 1



	a	b	c-ID of 5 holes
A	φ 75max	φ 56	φ 5.5
B	φ 77max	φ 58	φ 5.5
C	φ 75max	φ 54	φ 5.5
66A	φ 78max	φ 66	φ 5.5

### Features

- Output: voltage signal or analogue resistance signal
- Available to detect depth of petrol or diesel without conducting medium (e.g. ethanol petrol X)
- Directly connect to fuel gauge, or with plug:  
3 connection bolts (R~Signal; -~Grounded; +~Power)  
The connection can be customized made in the form of plug.
- Easy to mount with standard four kinds of mounting flange as listed here (See illus 2).
- Low power consumption, operation amperage lower than 20mA.
- Transient high tension: resist ±300V/1mS Pulse
- Electromagnetic compatibility (EMC): not affected by other electronic components, likewise, no interference pulse to other electronic components.

### 37-RG Capacitive Fuel Level Sensor

#### Analog Resistance at empty and full

Standard	Settings
1	(E)0.1V~(F)3V
2	(E)1V~(F)5V

#### Voltage

2	12VDC (10-15V)
4	24VDC (22-30V)

#### Mounting flange type

1	Type A
2	Type B
3	Type C
4	Type 66A

#### Terminals type

Y	Stud
P	Plug

#### Tank depth

A-U From 7"-27"

37-RG 1 2 3 Y T

# Automobile Sensor



## Data Sheet

Items	Property	Remarks
Operation voltage	12V-series: DC10-15V 24V-series: DC22-30V	
Operation amperage	≤20mA	
Output	Linear Voltage output	
Tolerance	±3%	
Voltage alter	DC10V-15V/DC22V-30V output alter ≤3%	
Electrical property under transient voltage	Resist: ±300V/1mS Pulse	
EMC	Not affected by other electrical appliance in vehicle, without interference pulse to others.	
Operating Temp.	-40°C -85°C	
Detecting	Pure gasoline or diesel oil	Not for ethanol petrol
Mounting flange	Comply to national standard	
Sensing depth	According to customer's fuel tank.	
Comply to	QC/T727-2004	

### Notes:

The sensor is highly recommended to connect with MCU directly. Any capacitor or resistors in between the sensor and processor may lead to misreading of the sensor output.

### How to order

No.	Item	Complete below information to order customized capacitive fuel sensor			
		DC12V		DC24V	
1	Operating Voltage	<input type="checkbox"/>		<input type="checkbox"/>	
2	Length	Probe total length _____ inch/mm		Sensing length _____ Inch/mm	
3	Mounting flange dimensions	Type A <input type="checkbox"/>	Type B <input type="checkbox"/>	Type C <input type="checkbox"/>	Type 66A <input type="checkbox"/>
4	Sensor output signal (Voltage)	Empty -- Full 0.1 – 3.0 Volts		Empty -- Full 0.1 – 3.0 Volts or 0.1-5.0 Volts	

### Remarks:

- Please choose with “√” under Item No. 1 & 3 according to the real working condition of the fuel sensor.
- Please write down length with measuring unit under item No. 2. Pay attention that 3cm~5cm should be reduced from both of the real length.





## 3.4 Pressure Sensor

### 3.4.1 Pressure Sensor for Electrical Gauge

Three kinds of pressure sensors are available:

3311-P	3311-PB	3312-P
		
3311-P series are grounded pressure sensors, with one terminal to the gauge, and the ground connection is made through the body of the sensor.	3311-PB series are grounded pressure sensor with two terminals /dual station, one is for a pressure gauge and the other is for pressure alarm.	3312-P series are isolated pressure senders, with two terminals. One is to connect to the gauge and the other is for a ground connection.

#### Features

- No leak under 450 PSI (3 MPa) for 1 minute, destruct pressure higher than 580 PSI (4 MPa).
- Maximum operating current: 120mA.
- Operating temperature: -40°C to 150°C.
- Life cycle: 1 million times or 30,000 miles.
- Other specifications complies to QC/T8-1992

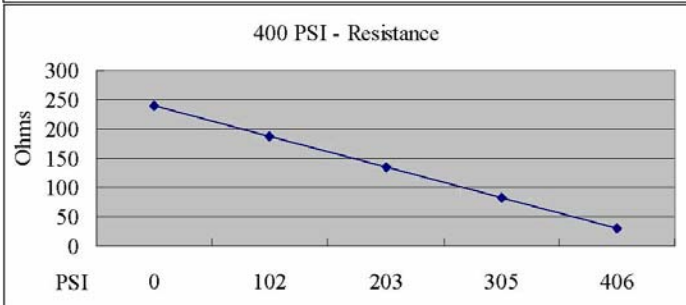
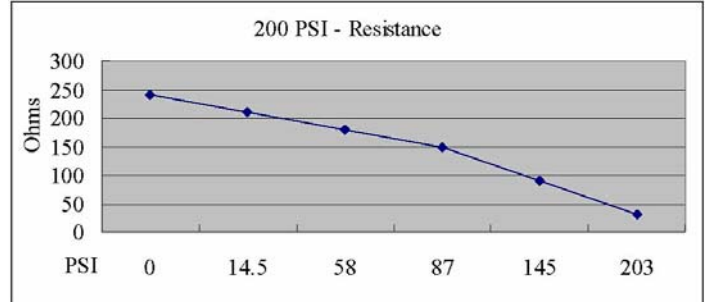
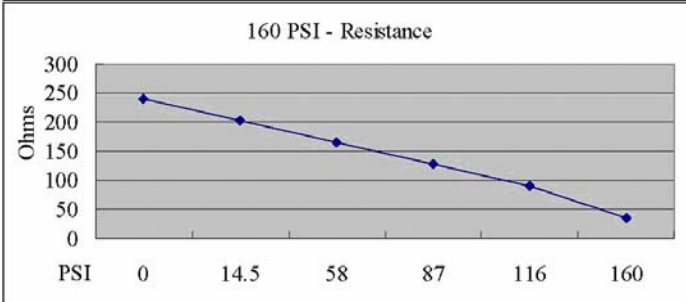
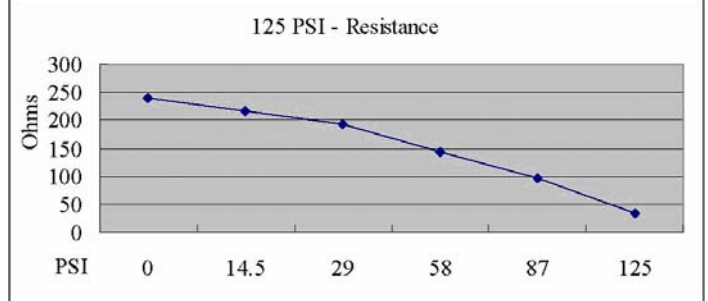
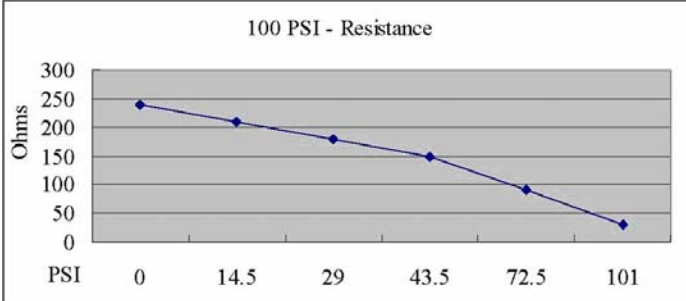
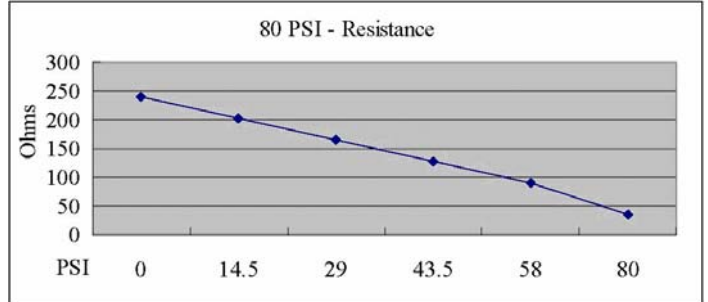
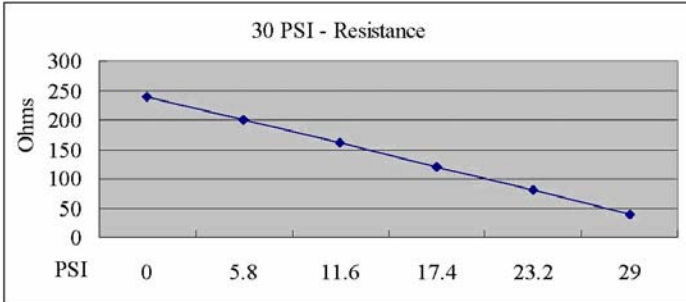
#### Data Sheet

Type	Range	Parameter						
Ground	0~30Psi	Pressure (PSI)	0	5.8	11.6	17.5	23	30
Isolated		ohms	240±2	200±3	160±3	120±5	180±10	40 <sup>+20</sup> <sub>-5</sub>
Ground	0~80Psi	Pressure (PSI)	0	14.5	29	43.5	58	80
Isolated		ohms	240±2	202±3	165±3	127±5	90±10	33.6 <sup>+20</sup> <sub>-5</sub>
Ground	0~100Psi	Pressure (PSI)	0	14.5	29	43.5	72.5	100
Isolated		ohms	240±2	210±3	180±3	150±5	90±10	29.8 <sup>+20</sup> <sub>-5</sub>
Ground	0~125Psi	Pressure (PSI)	0	14.5	29	58	87	125
Isolated		ohms	240±2	216±3	192±3	144±5	96±10	33.4 <sup>+20</sup> <sub>-5</sub>
Ground	0~160Psi	Pressure (PSI)	0	29	58	87	116	160
Isolated		ohms	240±2	202±3	165±3	127±5	90±10	33.6 <sup>+20</sup> <sub>-5</sub>
Ground	0~200Psi	Pressure (PSI)	0	29	58	87	145	200
Isolated		ohms	240±2	210±3	180±3	150±5	90±10	29.8 <sup>+20</sup> <sub>-5</sub>
Ground	0~400Psi	Pressure (PSI)	0	58	102	203	305	406
Isolated		ohms	240±2	210±3	187±3	135±3	82±10	29.8 <sup>+20</sup> <sub>-5</sub>

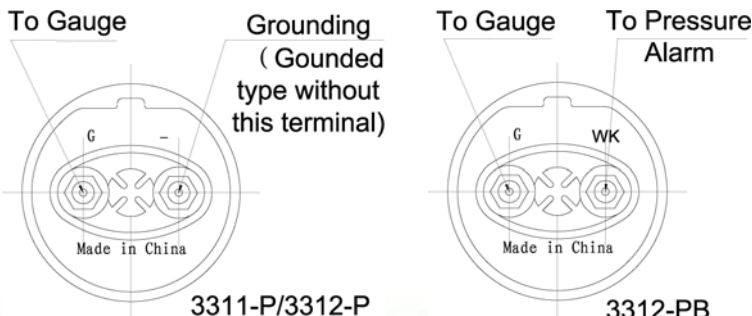
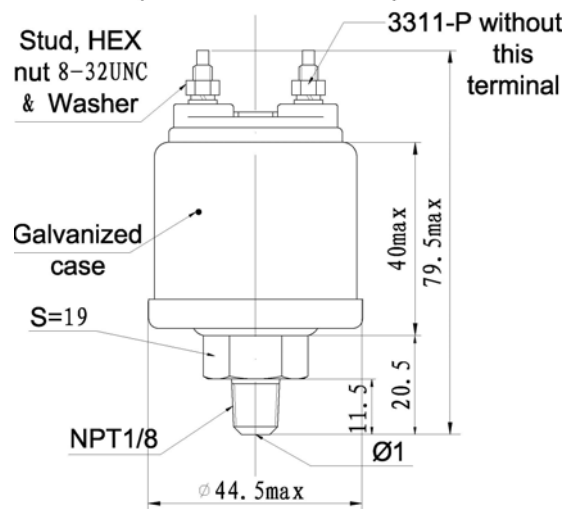
# Automobile Sensor



Characteristic curves: Test the resistance under 20°C when the pressure falling down, and knock the shell of the body.



## Outside Dimensions (All dimensions in mm)



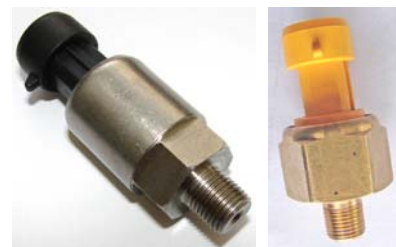
## 3.4.2 Electrical Pressure Transducer



### Applications

3313-EP & 3313EPT electrical pressure transducer is specifically designed for pressure measurements lower than 150PSI. 3313-EP uses stainless steel housing and ceramic diaphragm withstanding exposure to compatible liquid and gaseous media. 3313E-EPT uses brass housing and stainless steel diaphragm withstanding exposure to compatible liquid & gaseous media. Excited by DC 5V, the transducer provides a DC 0.5 to 4.5 V linear signal output proportional to pressure.

Typical applications include spraying equipment, test apparatus, automotive, marine, refrigeration and hydraulic systems, gas tank pressure monitoring, level measurement etc.



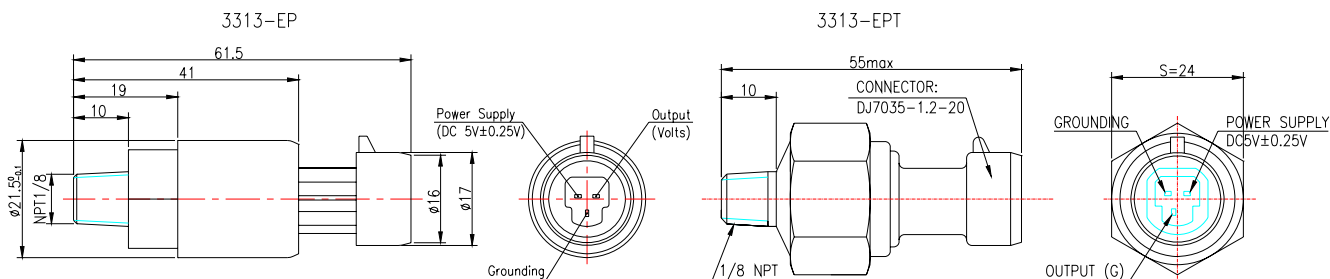
### Features

- Superior long term stability
- EMI resistant
- Low power consumption
- Linear amplified output
- Temperature compensated
- Over-voltage, reverse polarity & short circuit protection
- Lifetime in millions of cycles
- Outstanding shock & vibration tolerance

### Standard Specifications

- Nominal voltage: 5VDC (4.75-5.25VDC)
- Nominal current: 4mA Max. at 5VDC
- Detecting range :  
Gauge pressure: 0-1MPa; 0-150PSI; 0-100PSI;  
Absolute pressure: 0-30PSIA; 0-50PSIA; 0-75PSIA
- Operating temperature: -20°C ~125°C;
- Storage temperature: -40°C~150°C
- Linearity: 0.3%FS
- Zero Stability: <=3%FS
- Proof Pressure: 1.5xFS
- Burst pressure: 2xFS
- Mounting torque: 20Nm
- Output voltage (Ratio metric)  
0.5±0.05VDC at 0 PSI(A)  
4.5±0.05VDC at Full scale
- Temp Error Band(-20~125°C), ±1% FS
- Temp Error Band (Min. to Max.°C), ±3% FS
- Vibration: 10G's peak to peak sinusoida
- Shock: 75G's, 1/2 sine wave
- With matched connector and wiring leads

### Outside dimensions



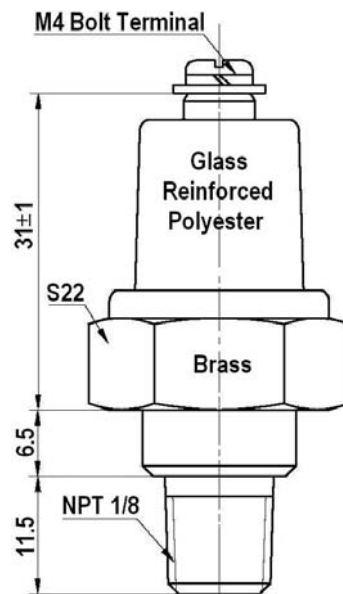


## 3.5 Pressure Switch

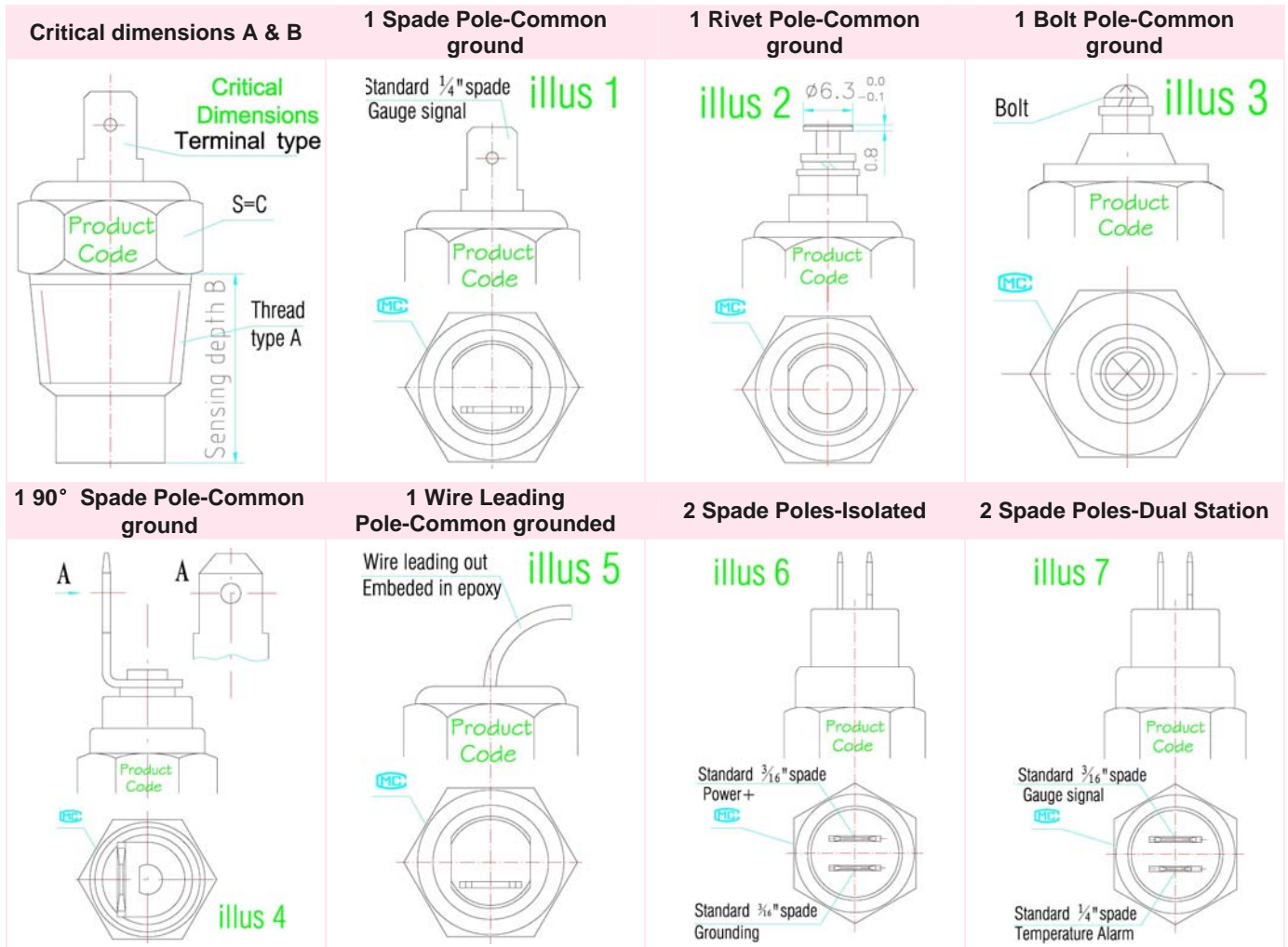


Grounded type pressure switch provide an economical and reliable choice for a multitude of pressure switch applications, especially ideal for most engine, brake, hydraulic and air system applications. Specified set points may be customized to meet customer requirements. Standard switch has only one terminal and uses its body for grounding.

Vacuum pressure switch	7PSI	normally closed	3322-PV
Normally Open switch	10PSI	normally open	3321-P



## 3.6 Temperature Sensor



To order our sensor, please tell us the specifications listed in illus. Critical dimensions: A B & C

### 3901 Temperature Sensor 240-33 Ohms

#### A Thread type

Standard	1	1/2" NPT
	2	1/4" NPT
Settings	3	1/8" NPT
	4	3/8" NPT
	5	M14x1.5

#### Terminal types

- 1 Common ground, one spade
- 2 Common ground, one rivet pole
- 3 Common ground, one bolt pole
- 4 Common ground, one 90 degree pole
- 5 Common ground, one wire
- 6 Isolated(floating ground), two spades
- 7 Common ground, two spades, one for gauge and the other for alarm

#### B Sensing depth

- 1 20mm
- 2 22.5mm
- 3 23mm
- 4 26mm
- 5 38.5mm
- 6 42.5mm

#### S HEX Nut side

- 1 19mm
  - 2 22mm
- (not so important as above.)

3901-

1

2

9

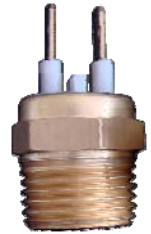
2

## 3.7 Temperature Switch



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Temperature switch is a normally open circuit that closed at a certain alarm temperature. It has similar dimensions as temperature sensor, and can be commonly grounded or isolated grounded. To order our sensor, please tell us the specifications listed in illus. Critical dimensions: A B & C



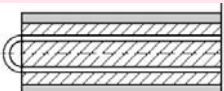
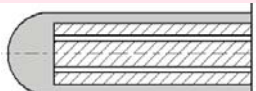
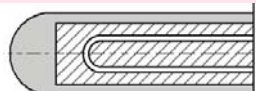
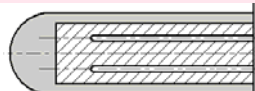
### 3902 Temperature Switch

		A Thread type							
Standard Settings	1	1/2" NPT	Terminal types	1	Common ground, one spade	B Sensing depth	1	20mm	S HEX Nut side (not so important as above.)
	2	1/4" NPT		2	Common ground, one rivet pole		2	22.5mm	
	3	1/8" NPT		3	Common ground, one bolt pole		3	23mm	
	4	3/8" NPT		4	Common ground, one 90 degree pole		4	26mm	
	5	M14x1.5		6	Isolated(floating ground), two spades		5	38.5mm	
3901-	1	2		9	2				



## 3.8 Thermocouple

Thermocouple probes are of four types:

Exposed	Separate & Connected	Isolated	Separated & Isolated
			
<p><b>Advantage</b> Quick response to temperature Suitable for exhaust system which require high response speed <b>Disadvantage</b> Poor mechanical strength</p>	<p><b>Advantage</b> Quick response to temperature Stand pressure under 3.4*10MPa <b>Disadvantage</b> Cannot resist electromagnetic interference</p>	<p><b>Advantage</b> Long durability Resist outside electro-magnetic interference <b>Disadvantage</b> Slower response speed than the above two types</p>	<p><b>Advantage</b> Long durability Resist electro-magnetic interference from outside or between <b>Disadvantage</b> Slower response speed than the above two types</p>

Thermocouple type and recommended working temperature

Components	Type	Product Code	Case material	Diameter	Recommended operating temperature °C	
					long hi-temp	Temporary hi-temp
NiCr-NiSi	K	WRKK	GH3030	0.25;	300	600
				0.5;1.0	500	
				1.5;2.0;3.0	800	
				4.0;4.5;5.0	900	
			1Cr18Ni9Ti	6.0;8.0	1000	1100
				0.25;	300	600
				0.5;1.0	400	
				1.5;2.0	600	
3.0;4.0;4.5;5.0;6.0;8.0	800					
NiCrSi-NiSi	N	WRNK	GH3030	0.25;	300	600
				0.5;1.0	500	
				1.5;2.0;3.0	800	
				4.0;4.5;5.0	900	
			1Cr18Ni9Ti	6.0;8.0	1000	1200
				0.25;	300	600
				0.5;1.0	500	
				1.5;2.0	600	
3.0;4.0;4.5;5.0;6.0;8.0	800					
NiCr-CuNi	E	WREK	1Cr18Ni9Ti	0.5;1.0	400	500
				1.5;2.0;	500	600
				3.0;4.0;4.5;5.0	600	700
				6.0;8.0	700	800
Fe-CuNi	J	WRJK	1Cr18Ni9Ti	0.5;1.0	300	400
				1.5;2.0;	400	500
				3.0;4.0;4.5;5.0	500	600
				6.0;8.0	600	700
Cu-CuNi	T	WRTK	1Cr18Ni9Ti	0.5;1.0	200	250
				1.5;2.0;3.0;4.0	250	300
				4.5;5.0		
				6.0;8.0	300	1050
PtRh10-Pt	S	WRSK	GH3030	2.0;	1000	1050
				3.0;4.0;4.5;5.0;6.0;8.0	1100	1200
PtRh13-Pt	R	WRRK	GH3030	2.0;	1000	1100
				3.0;4.0;4.5;5.0;6.0;8.0	1100	1200
PtRh30-PtRh6	B	WRBK	GH3030	2.0;	1000	1050
				3.0;4.0;4.5;5.0;6.0;8.0	1100	1200

# Automobile Sensor



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## Model Encodement

Thermocouple Product code: W R  K     /

<b>W:</b> Pyrometer	<b>R:</b> Thermocouple	<input type="checkbox"/> : Thermocouple type		K: Sheathed thermocouple	<input type="checkbox"/> : couples (One couple not specified)
		<b>K:</b> NiCr-NiSi	<b>T:</b> Cu-CuNi		
		<b>N:</b> NiCrSi-NiSi	<b>S:</b> PtRh10-Pt		
		<b>E:</b> NiCr-CuNi	<b>R:</b> PtRh13-Pt		
		<b>J:</b> Fe-CuNi	<b>B:</b> PtRh30-PtRh6		

: Mounting method

1: Without fitting	2: With fixed thread collar	3: With adjustable thread collar
4: With fixed flange collar	5: With adjustable flange collar	6: With strengthened bushing

: Junction box

0: Without junction box	1A: Simplified (with compressed spring)	1B: Simplified(with spring shield)
2: Splash-proof junction box	3: Waterproof junction box	4: Explosion-proof junction box
5: Water & pressure proof box	6: Plug	7: Explosion & pressure proof box

: Probe type:

1: Exposed	2: Separated & connected	3: Isolated	4: Separated & isolated
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: Compensating lead wire type and length (for those without junction box or simplified)

: Precision level

I: Grade I	II: Grade II	III: Grade III
------------	--------------	----------------

: Outside dimensions (mounting hole diameter)φ(mm)×L(mm)(total needed length)

: Bushing material : (not specified means 1Cr18Ni9Ti)

### 3601 Thermocouple WR

: Thermocouple type

- K NiCr-NiSi
- N NiCrSi-NiSi
- E NiCr-CuNi
- J Fe-CuNi
- T Cu-CuNi
- S PtRh10-Pt
- R PtRh13-Pt
- B PtRh30-PtRh6

**K: Sheathed thermocouple**

couples (One couple not specified)

: Mounting method

- 1 Without fitting
- 2 With fixed thread collar
- 3 With adjustable thread collar
- 4 With fixed flange collar
- 5 With adjustable flange collar
- 6 With strengthened bushing

: Junction box

- 0 Without junction
- 1A Simplified (with compressed spring)
- 1B Simplified (with spring shield)
- 2 Splash-proof
- 3 Waterproof
- 4 Explosion-proof
- 5 Water & pressure proof
- 6 Plug
- 7 Explosion & pressure proof

: Probe type

- 1 Exposed
- 2 Separated & connected
- 3 Isolated
- 4 Separated & isolated

: Compensating lead wires type and length (for those without junction box or simplified)

: Precision level

- I Grade I
- II Grade II
- III Grade III

: Outside Dimensions

φ(mm)×L(mm)  
Mounting hole diameter x total needed length

: Bushing material

Not specified means 1Cr18Ni9Ti

Standard  
Settings

3901- WRK

K-2

0

3

/2m I

3x7



## Dedicate

SHAOXING HUAZHEN's Catalog on automobile gauges and sensors is dedicated to all who have helped or have been helping us with self-giving support. They are:

Mr. Jiuwang Zhang  
Mr. Kexiong Lee  
Mr. Minjie Ma  
Mr. Yongping Zhang

Mr. Wanping Zhang  
Mr. Xiaoming Gao  
Mr. Yuhua Ma  
Ms. Younv Qian

Their advices and technical support motivate the birth of the catalog. In the near future, we will offer catalog on instrument clusters, marine gauges, and other products. Welcome the user provide your suggestions to help us improve it.

Contact: [sales@sxhzelect.com](mailto:sales@sxhzelect.com)

## SHAOXING HUAZHEN Limited Warranty

SHAOXING HUAZHEN Electronic Co., Ltd will warranty all products against defect in workmanship for a period of 12 months from the date of original delivery. The SHAOXING HUAZHEN warranty applies only to the products that are installed and operating according to the purposes for which they were intended and designed, in accordance with SHAOXING HUAZHEN written instructions. This warranty will not cover those items that are misused, abused or misapplied by the customer. If any product is found to be defective upon examination by SHAOXING HUAZHEN, SHAOXING HUAZHEN will repair, replace, or issue credit, at its own discretion, through the original selling dealer or directly to the purchasing customer. SHAOXING HUAZHEN will not assume responsibility for labor costs (or any other additional costs) associated with the removal of defective product, cost of equipment downtime, or any other costs associated with the failure of the product (s).