

**thermal  
flow, level, interface  
& temperature  
switches & transmitters**



# **CLASSIC™ Series**

## **Thermal**

**KAYDEN**®  
**Helping the World Switch**™

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Helping the World Switch® - Kayden's Advanced Design

Patented Design

Kayden's patented designs provide the ultimate performance and features package for flow, level, interface and temperature sensing.

Kayden's products combine precision welded, highly accurate sensors, extremely rugged enclosures and advanced digital electronics.

The **CLASSIC 800 Series** combines the failure resistance inherent in Thermal Dispersion technology with the performance and features usually reserved for much more expensive instruments.

Universal Power Input

- Some manufacturers require all options such as relay-energized mode to be specified at time of order but with the Kayden CLASSIC 800 series, by simply pushing a few buttons you can select your choice of operation modes.
- The universal power input capability of the Kayden CLASSIC 800 series provides flexibility for use in all power input situations.



Discrete & Analog Outputs

- Two SPDT sealed relay contacts rated @ 4 amps resistive 230 VAC or 24 VDC maximum
- Modbus registers via RS-485
- 4-20 mA analog Thermal Signal output

Adjustable Time Deadband

- Four Adjustable Independent Relay Switch Point Timers

Advanced Diagnostics

- Kayden's CLASSIC 800 series uses an advanced microprocessor to perform continuous self-test diagnostics on the electronics and the sensor elements.
- Any open or shorted connection will result in a FAULT indication that also deactivates all relays and disables the heater circuitry.

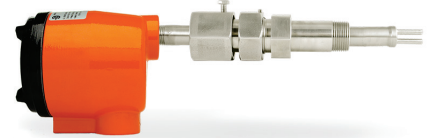


- An internal watchdog circuit ensures that the microprocessor code is performing as expected and a secondary external watchdog circuit ensures that the microprocessor itself is functioning. In the event of a malfunction both circuits force the contacts open, illuminate the Fault LED and force the heater off. This prevents the possibility of a "run-away" heater or a high thermal offset.



Intelligent User Controls

- The **Kayden CLASSIC 800** series Display Panel features very bright LED indicators for easy viewing even in direct sunlight.
- An **adjustable power-on Start-up Bypass Timer** is accessible from the Display Panel for low flow alarm pump protection applications. This makes it possible to disable a pump on low flow and have it automatically restart after a predetermined time in the event of a power interruption.
- Four adjustable delay timers** allow the introduction of repeatable time delay into the (set point) relay trip function. For example, in a pump protection application this function will shut down the pump after the switch sensor has gone "dry" for the pre-set time (delay) limit.
- The Kayden RCM (Remote Communications and Monitoring) Software allows all the settings to be configured remotely and saved as a file, transmitted as an email attachment, and/or printed for future reference.
- The Kayden RCM Software includes the option of locking the CLASSIC 800 Series Display Panel to eliminate field adjustments or tampering.
- Modbus allows multiple Kayden units to be connected to the same communications bus (via RS-485) and monitored simultaneously.



**Principle of Operation - Thermal Dispersion**

**Kayden** thermal switches use proven thermal dispersion technology to create a very accurate, economical and rugged device for sensing flow, point level, liquids interface and temperature.

The sensors incorporate two platinum Resistance Temperature Detectors (RTDs), one RTD measures the actual process temperature while the other RTD is heated to create a temperature differential.

**Flow:**

As the process travels over the tip of the sensor, the increased flow of the process reduces the temperature of the heated RTD. This reduced temperature difference between the two RTDs is monitored by the electronics and the switch changes state once the set point is reached.

**Level:**

In a dry to wet application the rising liquid level covers the sensor and disperses some of the heat from the heated RTD. This reduced temperature difference between the two RTDs is monitored by the electronics and the switch changes state at this set point.

**Typical Applications**

**Flow:**

**Flow / No-Flow Monitoring & Verification**

- Air, gases, water, hydrocarbon-based liquids, viscous fluids, liquids with particulates and/or suspended solids and slurries.
- Pump Protection
- Pipeline / Material storage
- Flare Gas Monitoring
- Relief Valve & Rupture Disk Flow Monitoring
- Purge Air Flow
- Eye Wash Stations
- Tanker Loading & Unloading
- Well Optimization

**Level:**

**Leak Detection**

- Fast, Accurate and Repeatable at Low Flow Rates
- Drain Line Flow
- Lube / Seal Oil Systems

**High / Low Level Detection**

- Water, hydrocarbon-based liquids, viscous fluids, liquids with particulates and/or suspended solids and slurries.
- Tank Overflow Protection
- Process Tank Batching Control

**Interface:**

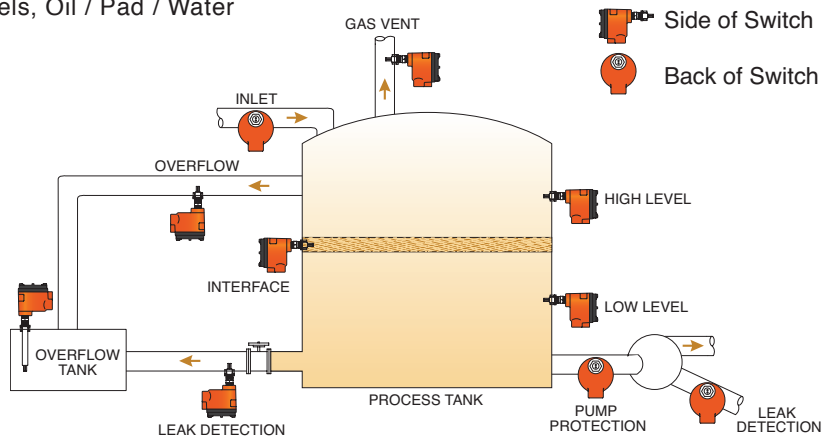
**Interface (Level) Detection**

- Separation Vessels, Oil / Pad / Water Knockout tanks

**Temperature:**

**Process Temperature Monitoring**

- One relay configurable for process temperature



### CLASSIC™ 800 Models - Flameproof/Explosion-proof

#### Applications: Flow, Level, Interface & Temperature

Every **CLASSIC 800** model is user configurable for **Flow, Level, Fluids Interface** and **Temperature** applications and suitable for use in Air, Gases, Water, Liquids and Slurries.

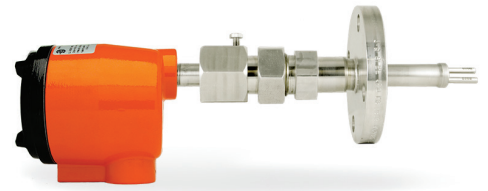
The **CLASSIC 800** has several unique features which make it the world's most advanced Thermal Flow/Level Switch including: temperature mode, 4-20 mA outputs, Modbus, digital temperature compensation, automated self-test diagnostics, and a simple intuitive user interface.



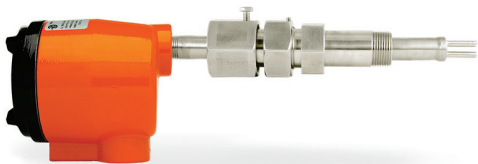
CLASSIC™ 810



CLASSIC™ 812



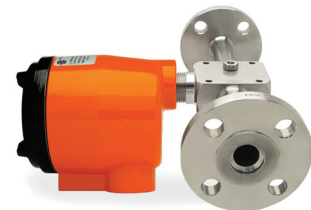
CLASSIC™ 814



CLASSIC™ 816



CLASSIC™ 830



CLASSIC™ 832

**CLASSIC™ 800 Electronics**

The Display Panel of the CLASSIC 800 displays all process conditions and allows adjustment of all settings.

- The **Blue LED** on the Thermal Signal Bar Graph is a constant display of process condition (Flow/Level)
- Power, relay states, fault conditions, set points and delay timers all have dedicated LED indicators
- The push buttons replace internal dip switches, trim pots or slide switches and make set point, range, heater power and delay timer adjustments easier



**CLASSIC 800 Display Panel**

**Display Panel Indicators:**

<b>Relay 1</b>	On steady when Relay 1 is energized
<b>Relay 2</b>	On steady when Relay 2 is energized
<b>Fault</b>	Indicates a self-test error or fault condition
<b>Set Point 1</b>	On steady when viewing Set Point 1
<b>Set Point 2</b>	On steady when viewing Set Point 2
<b>Run Mode</b>	Flashing when switch is operating
<b>Bypass</b>	Flashing when the Start-up Bypass Timer is active
<b>Thermal Signal</b>	Displays Thermal Signal

**The Thermal Signal increases as:**

<b>Flow</b>	The flow rate increases
<b>Level</b>	The sensor is submerged
<b>Interface</b>	The sensor is submerged by the second liquid of greater thermal conductivity

**Standard Features:**

- Microprocessor Based Electronics
- Intelligent User Interface
- Continuous self-test diagnostics of electronics and sensor
- Temperature Compensation
- Variable Heater Power
- Dual Independent Relays
- Relays are factory set to monitor flow
- Adjustable power-on Start-up Bypass Timer
- Adjustable set point Deadbands
- 4 Adjustable Independent Switch Point Timers
- Display Panel Lock-Out (controlled via the Kayden RCM software)
- No mechanical jumpers or trim-pots
- Process temperature via Modbus and/or one or both Alarm Relays



## CLASSIC™ 800 Specifications

### Applications:

- Flow, Level, Interface & Temperature

### Process Connections:

- 1/2", 3/4", 1", 1-1/4", 1-1/2" & 2" MNPT
- 3/4" FNPT & Flanged InLine
- Threaded (1" MNPT) & Flanged Retractable Packing Glands

### Insertion 'U' Lengths:

- **Imperial:**  
1.2", 2", 3", 4", 6", 9", 12" & 18" standard
- **Metric:**  
3, 5, 7.5, 10, 15, 23, 30 & 45 cm standard
- **Custom Lengths:**  
Available in 1/2" or 1 cm increments  
Min. 1.2" - Max. 120" (3.0 - 305 cm) model dependant

### Wetted Materials:

- 316/316L Stainless Steel - standard
- Titanium Gr. 2, Hastelloy® C-276
- 316/316L Stainless Steel c/w Nickel Braze (830 & 832 InLine Models)
- Highly Saturated Nitrile (Pressure Seal - 814 & 816 Packing Gland Models)

### Enclosure Material:

- Copper-free Aluminum (does not exceed 0.4% copper)
- Powder Coated Polyester TGIC (polyester triglycidyl isocyanurate)
- NEMA 4X / IP67
- 1" FNPT Conduit Connection
- Buna O-ring on Cover

### Temperature Range – Continuous Service:

- **Sensors:**  
-45°C to +200°C (-50°F to +392°F)  
(Models 814 & 816: -45°C to +160°C [-50°F to +320°F])
- **Electronics:**  
-55°C to +65°C (-67°F to +149°F)

**Note:** For temperatures above +65°C (+149°F) electronics must be remotely mounted.

### Storage:

Product should be stored in a clean and dry environment between -30° and +60° C (-34.5° and 140° F)

### Operating Pressure - Sensor:

#### Threaded Style:

- Maximum Working Pressure: 24 MPa (3500 psig) dependent on model and material of construction

#### Flanged Style:

- Maximum Working Pressure: per flange rating

### Switch / Transmitter Switch Point Range (Insertion Style - 1/2" to 2" MNPT, Flanged):

- **Water-based Liquids:**  
0.01 to 3.0 ft./sec. (0.003 to 0.9 meters/sec.)
- **Hydrocarbon-based Liquids:**  
0.01 to 5.0 ft./sec. (0.003 to 1.5 meters/sec.)
- **Gases:**  
0.25 to 254 sfps (0.076 to 77 smps)  
Standard conditions: 21°C (70°F) at 14.7 psi (1 atm)

### Switch / Transmitter Switch Point Range (InLine Style):

- **Water-based Liquids:**  
0.015 to 50 cc/sec.
- **Hydrocarbon-based Liquids:**  
0.033 to 110 cc/sec.
- **Gases:**  
0.6 to 20,000 cc/sec.  
Standard conditions: 21°C (70°F) at 14.7 psi (1 atm)

### Accuracy:

- **Flow Service:**  
±1% set point velocity over operating range of ±28°C (±50°F)
- **Level Service:**  
±0.25 inches (±0.64 cm)

**CLASSIC™ 800 Specifications**

**Response Time:**

- Approximately 0.5 to 30 seconds

**Remote Electronics Option:**

- Maximum recommended cable length - 200 feet (60 m)
- Cable type - 24 AWG minimum - twisted pairs

**Heater Power:**

- Field adjustable to optimize performance

**Input Power:**

- Universal Power standard  
12-24 VDC and 115-230 VAC, 50-60 Hz
- Consumption: Maximum: 6.0 watts (fully configured)

**Outputs:**

- 4-20 mA current loop
- Two (2) independent SPDT sealed relay contacts rated @ 4 amps resistive 230 VAC or 30 VDC Max.; individually adjustable

**Start-Up Bypass Timer:**

- Adjustable for 0 to 100 seconds

**Communications:**

- Modbus via RS-485

**RCMS (Remote Control & Monitoring Software) Functions and Features:**

- Display Panel Lock-Out
- Set Points configuration<sup>1</sup>
- Relay Actuation Delay Timer
  - Independently configurable for both On and Off, increasing or decreasing
  - Adjustable from 0 - 5,000 seconds
- Start-up Bypass Timer<sup>1</sup>
  - Adjustable from 0 - 100 seconds
- Relay Mode Configuration<sup>1</sup>
  - Energized above or below set point
- Relay Temperature Mode Configuration
- Heater Power setting<sup>1</sup>
- Zero and Span settings<sup>1</sup>
- Analog (4-20 mA) output configuration<sup>1</sup>
- View and Print Graphing (Trend) function

- Configuring settings; write to device, save to file and print

- Fault Event Log

**Note:**<sup>1</sup> Also configurable from Display Panel

**Diagnostics:**

- Primary watchdog circuit monitors microprocessor parameter anomalies
- Secondary watchdog circuit monitors microprocessor health
- Heater monitored for out-of-range conditions
- Fault Mode de-energizes relay(s) and halts power to the heater

**Agency Approvals:**

- **CSA**  
Class I, Div. 1, Groups B, C and D;  
Ex d IIB + H2; AEx d IIB+H2  
(Class I, Zone 1, Group IIB + H2,) T3



- **Single Seal Approval**  
Per ANSI/ISA 12.27.01-2003

- **CRN**  
Canadian Registration Number



**Note:** CRN approvals available.  
Visit [kayden.com](http://kayden.com) for CRN information per model and jurisdiction.

- **FM Approvals**  
Class I, Div. 1, Groups B, C and D;  
Class I, Zone 1, AEx d IIB+H2  
T2D (Ta=75°C); T3 (Ta=65°C)



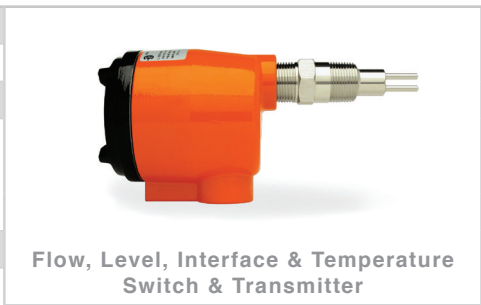
**Weights and Dimensions:**

- 810 Threaded: 2" U length - 7 lbs (3.18 kg)
- Carton Size - 15" x 5" x 6" (38 cm x 13 cm x 15 cm)
- Other models/sizes - consult Kayden

**Warranty:**

- One (1) Year from shipment date from factory (see Terms & Conditions on [kayden.com](http://kayden.com) for details)

<b>810</b>	<b>CODE</b>	<b>Sensor Type</b>								
	<b>R</b>	-45°C to +200°C (-50°F to +392°F) Continuous Service								
	<b>CODE</b>	<b>Sensor Material</b>								
	<b>A</b>	316/316L Stainless Steel								
	<b>X</b>	Titanium Gr. 2								
	<b>T</b>	Hastelloy C-276								
	<b>CODE</b>	<b>Process Connection - MNPT</b>								
	<b>C</b>	1/2"								
	<b>D</b>	3/4"								
	<b>E</b>	1"								
	<b>F</b>	1-1/4"								
	<b>G</b>	1-1/2"								
	<b>H</b>	2"								
	<b>CODE</b>	<b>Insertion 'U' Lengths</b>								
	<b>0012</b>	1.2" (3.0 cm)								
	<b>0020</b>	2" (5.0 cm)								
	<b>0030</b>	3" (7.5 cm)								
	<b>0040</b>	4" (10.1 cm)								
	<b>0060</b>	6" (15.2 cm)								
	<b>0090</b>	9" (23 cm)								
	<b>0120</b>	12" (30 cm)								
	<b>0180</b>	18" (46 cm)								
	<b>IXXXX</b>	Custom 'U' Lengths: Use 4 digits preceded by an 'I' (i.e. 3.5" 'U' = I0035) (Use 'M' for cm)								
	<b>CODE</b>	<b>Input Power</b>								
	<b>C</b>	12-24 VDC and 115-230 VAC, 50 to 60 Hz								
		<b>Electronics</b>								
		Microprocessor Controlled with User Interface.								
		Two SPDT sealed relay contacts. Modbus via RS-485. 4-20 mA current loop.								
	<b>CODE</b>	<b>Local Enclosure</b>								
	<b>1</b>	Flameproof - Aluminum								
	<b>CODE</b>	<b>Cover - For Local Enclosure</b>								
	<b>B</b>	Blind Cover - Flameproof								
	<b>G</b>	Glass Lens Cover - Flameproof								
	<b>CODE</b>	<b>Remote Electronics Enclosure &amp; Cover</b>								
	<b>0A</b>	Not Required								
	<b>1B</b>	Blind Cover - Flameproof								
	<b>1G</b>	Glass Lens Cover - Flameproof								
	<b>CODE</b>	<b>Agency Approvals</b>								
	<b>1</b>	cCSA <sub>us</sub> (UL Standards)								
	<b>3</b>	cCSA <sub>us</sub> (UL Standards) & CRN								
	<b>9</b>	FM								
	<b>CODE</b>	<b>Language</b>								
	<b>E</b>	English								
<b>810</b>	<b>R</b>	<b>A</b>	<b>D</b>	<b>0020</b>	<b>C</b>	<b>1</b>	<b>G</b>	<b>0A</b>	<b>9</b>	<b>E</b>

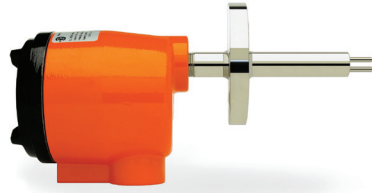


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Model Number Legend  
DOC#: ML-810-004

ML-810-004-[012]

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Flow, Level, Interface & Temperature Switch & Transmitter

<b>812</b>	<b>CODE</b>	<b>Sensor Type</b>																
	<b>R</b>	-45°C to +200°C (-50°F to +392°F) Continuous Service																
	<b>CODE</b>	<b>Sensor Material</b>																
	<b>A</b>	316/316L Stainless Steel																
	<b>X</b>	Titanium Gr. 2																
	<b>T</b>	Hastelloy C-276																
	<b>CODE</b>	<b>Process Connection - Flange Type</b>																
	<b>A</b>	Raised Face																
	<b>B</b>	RTJ - Ring Type Joint																
	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>		
		<b>1"</b>	<b>1-1/2"</b>	<b>2"</b>	<b>3"</b>	<b>4"</b>	<b>5"</b>	<b>6"</b>	<b>8"</b>	<b>10"</b>								
	<b>121</b>	150	<b>131</b>	150	<b>141</b>	150	<b>151</b>	150	<b>161</b>	150	<b>171</b>	150	<b>181</b>	150	<b>191</b>	150	<b>201</b>	150
	<b>122</b>	300	<b>132</b>	300	<b>142</b>	300	<b>152</b>	300	<b>162</b>	300	<b>172</b>	300	<b>182</b>	300	<b>192</b>	300	<b>202</b>	300
	<b>123</b>	600	<b>133</b>	600	<b>143</b>	600	<b>153</b>	600	<b>163</b>	600	<b>173</b>	600	<b>183</b>	600	<b>193</b>	600	<b>203</b>	600
	<b>124</b>	900	<b>134</b>	900	<b>144</b>	900	<b>154</b>	900	<b>164</b>	900	<b>174</b>	900	<b>184</b>	900	<b>194</b>	900	<b>204</b>	900
			<b>CODE</b>	<b>Flange Material</b>														
			<b>A</b>	316/316L SST X Titanium Gr. 2														
			<b>T</b>	Hastelloy C-276														
			<b>CODE</b>	<b>Insertion 'U' Lengths 2.5" - 120" (6.4 cm - 305 cm) in 1/2" (1.0 cm) increments.</b>														
			<b>IXXXX</b>	Custom 'U' Lengths: Use 4 digits preceded by an 'I' (i.e. 3.5" 'U' = I0035) ('M' = cm)														
			<b>CODE</b>	<b>Input Power</b>														
			<b>C</b>	12-24 VDC and 115-230 VAC, 50 to 60 Hz														
				<b>Electronics</b>														
				Microprocessor Controlled with User Interface.														
				Two SPDT sealed relay contacts. Modbus via RS-485. 4-20 mA current loop.														
			<b>CODE</b>	<b>Local Enclosure</b>														
			<b>1</b>	Flameproof - Aluminum														
			<b>CODE</b>	<b>Cover - For Local Enclosure</b>														
			<b>B</b>	Blind Cover - Flameproof														
			<b>G</b>	Glass Lens Cover - Flameproof														
			<b>CODE</b>	<b>Remote Electronics Enclosure &amp; Cover</b>														
			<b>0A</b>	Not Required														
			<b>1B</b>	Blind Cover - Flameproof														
			<b>1G</b>	Glass Lens Cover - Flameproof														
			<b>CODE</b>	<b>Agency Approvals</b>														
			<b>1</b>	cCSA <sub>us</sub> (UL Standards)														
			<b>3</b>	cCSA <sub>us</sub> (UL Standards) & CSA														
			<b>9</b>	FM														
			<b>CODE</b>	<b>Language</b>														
			<b>E</b>	English														
<b>812</b>	<b>R</b>	<b>A</b>	<b>A</b>	<b>131</b>	<b>A</b>	<b>I0035</b>	<b>C</b>		<b>1</b>	<b>G</b>	<b>0A</b>							

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Model Number Legend  
DOC#: ML-812-004

ML-812-004-[012]

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<b>830</b>	<b>CODE</b>	<b>Sensor Type</b>													
	<b>R</b>	-45°C to +200°C (-50°F to +392°F) Continuous Service													
	<b>CODE</b>	<b>Sensor Material</b>													
	<b>A3</b>	316/316L Stainless Steel c/w Nickel Braze													
	<b>CODE</b>	<b>Process Connection - FNPT</b>													
	<b>D</b>	3/4"													
	<b>CODE</b>	<b>Sensor Assembly Body Length</b>													
	<b>0035</b>	3.5" (8.8 cm)													
	<b>CODE</b>	<b>Bleed Port</b>													
	<b>A</b>	Standard													
	<b>CODE</b>	<b>Sensor Mounting Orientation</b>													
	<b>H</b>	Horizontal Pipe													
	<b>V</b>	Vertical Pipe													
	<b>CODE</b>	<b>Injection Tubes (3/4" MNPT x 1/4" FNPT)</b>													
	<b>0</b>	Not Required													
	<b>1</b>	Type 1; .180" Bore; 316/316L Stainless Steel													
	<b>2</b>	Type 2; .086" Bore; 316/316L Stainless Steel													
	<b>CODE</b>	<b>Mounting Bracket Kit</b>													
	<b>A</b>	Not Required													
	<b>B</b>	90° Angle Bracket with hardware for wall/stand mounting													
	<b>CODE</b>	<b>Power</b>													
	<b>C</b>	12-24 VDC and 115-230 VAC, 50 to 60 Hz													
	<b>Electronics</b>														
	Microprocessor Controlled with User Interface. Two SPDT sealed relay contacts. Modbus via RS-485. 4-20 mA current loop.														
	<b>CODE</b>	<b>Local Enclosure</b>													
	<b>1</b>	Flameproof - Aluminum													
	<b>CODE</b>	<b>Cover - For Local Enclosure / Sensor Enclosure</b>													
	<b>B</b>	Blind Cover - Flameproof													
	<b>G</b>	Glass Lens Cover - Flameproof													
	<b>CODE</b>	<b>Remote Electronics Enclosure &amp; Cover</b>													
	<b>0A</b>	Not Required													
	<b>1B</b>	Blind Cover - Flameproof													
	<b>1G</b>	Glass Lens Cover - Flameproof													
	<b>CODE</b>	<b>Agency Approvals</b>													
	<b>1</b>	cCSA <sub>us</sub> (UL Standards)													
	<b>9</b>	FM													
	<b>CODE</b>	<b>Language</b>													
	<b>E</b>	English													
<b>830</b>	<b>R</b>	<b>A3</b>	<b>D</b>	<b>0035</b>	<b>A</b>	<b>H</b>	<b>1</b>	<b>A</b>	<b>C</b>	<b>1</b>	<b>B</b>	<b>0A</b>	<b>1</b>	<b>E</b>	



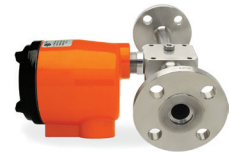
Flow, Level & Temperature Switch & Transmitter

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Model Number Legend  
DOC#: ML-830-004

ML-830-004-[012]

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Flow, Level & Temperature  
Switch & Transmitter

<b>832</b>	<b>CODE</b>	<b>Sensor Type</b>																		
	<b>R</b>	-45°C to +200°C (-50°F to +392°F) Continuous Service																		
	<b>CODE</b>	<b>Sensor Material</b>																		
	<b>A3</b>	316/316L Stainless Steel c/w Nickel Braze																		
	<b>CODE</b>	<b>Process Connection - Flange Type</b>																		
	<b>A</b>	Raised Face																		
	<b>B</b>	RTJ - Ring Type Joint																		
<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	
	<b>3/4"</b>		<b>1"</b>		<b>1-1/2"</b>		<b>2"</b>		<b>3"</b>		<b>4"</b>		<b>5"</b>		<b>6"</b>		<b>8"</b>		<b>10"</b>	
<b>111</b>	150	<b>121</b>	150	<b>131</b>	150	<b>141</b>	150	<b>151</b>	150	<b>161</b>	150	<b>171</b>	150	<b>181</b>	150	<b>191</b>	150	<b>201</b>	150	
<b>112</b>	300	<b>122</b>	300	<b>132</b>	300	<b>142</b>	300	<b>152</b>	300	<b>162</b>	300	<b>172</b>	300	<b>182</b>	300	<b>192</b>	300	<b>202</b>	300	
<b>113</b>	600	<b>123</b>	600	<b>133</b>	600	<b>143</b>	600	<b>153</b>	600	<b>163</b>	600	<b>173</b>	600	<b>183</b>	600	<b>193</b>	600	<b>203</b>	600	
<b>114</b>	900	<b>124</b>	900	<b>134</b>	900	<b>144</b>	900	<b>154</b>	900	<b>164</b>	900	<b>174</b>	900	<b>184</b>	900	<b>194</b>	900	<b>204</b>	900	
		<b>CODE</b>	<b>Flange Material</b>																	
		<b>A</b>	316/316L Stainless Steel																	
		<b>CODE</b>	<b>Sensor Assembly Body Length (Flange Face to Flange Face)</b>																	
		<b>IXXX</b>	Custom Body Lengths: Available in 1/2" (1.0 cm) increments. eg. 16.0" = 0160 ('M' = cm) 7" - 72" (relative to flange size/rating)																	
		<b>CODE</b>	<b>Bleed Port</b>																	
		<b>A</b>	1/4" Threaded - Standard																	
		<b>CODE</b>	<b>Sensor Orientation</b>																	
		<b>H</b>	Horizontal																	
		<b>V</b>	Vertical																	
		<b>CODE</b>	<b>Pipe Schedule</b>																	
		<b>0</b>	Schedule 40																	
		<b>1</b>	Schedule 80 (Standard)																	
		<b>CODE</b>	<b>Input Power</b>																	
		<b>C</b>	12-24 VDC and 115-230 VAC, 50 to 60 Hz																	
				<b>Electronics</b>																
				Microprocessor Controlled with User Interface. Two SPDT sealed relay contacts. Modbus via RS-485. 4-20 mA current loop.																
		<b>CODE</b>	<b>Local Enclosure</b>																	
		<b>1</b>	Flameproof - Aluminum																	
		<b>CODE</b>	<b>Cover - For Local Enclosure / Sensor Enclosure</b>																	
		<b>B</b>	Blind Cover - Flameproof																	
		<b>G</b>	Glass Lens Cover - Flameproof																	
		<b>CODE</b>	<b>Remote Electronics Enclosure &amp; Cover</b>																	
		<b>0A</b>	Not Required																	
		<b>1B</b>	Blind Cover - Flameproof																	
		<b>1G</b>	Glass Lens Cover - Flameproof																	
		<b>CODE</b>	<b>Agency Approvals</b>																	
		<b>1</b>	cCSA <sub>US</sub> (UL Standards)																	
		<b>9</b>	FM																	
		<b>CODE</b>	<b>Language</b>																	
		<b>E</b>	English																	
<b>832</b>	<b>R</b>	<b>A3</b>	<b>A</b>	<b>131</b>	<b>A</b>	<b>I0060</b>	<b>A</b>	<b>H</b>	<b>0</b>	<b>C</b>		<b>1</b>	<b>G</b>	<b>0A</b>	<b>9</b>	<b>E</b>				

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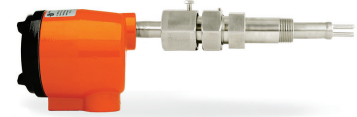
Model Number Legend  
DOC#: ML-832-004

ML-832-004-[012]

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# KAYDEN | CLASSIC™ 816 Threaded Retractable Packing Gland

<b>816</b>	<b>CODE</b>	<b>Sensor Type</b>											
	<b>R</b>	-45°C to +160°C (-50°F to +320°F) Continuous Service											
		<b>CODE</b>	<b>Sensor Material</b>										
		<b>A</b>	316/316L Stainless Steel										
		<b>X</b>	Titanium Gr. 2										
		<b>T</b>	Hastelloy C-276										
		<b>CODE</b>	<b>Process Connection - MNPT</b>										
		<b>E</b>	1"										
		<b>CODE</b>	<b>Insertion 'U' Lengths</b>										
		<b>T</b>	Low Pressure; 316/316L Stainless Steel (MWP 50 psi)										
		<b>J</b>	Low Pressure c/w Retaining Chain; 316/316L Stainless Steel (MWP 125 psi)										
		<b>X</b>	Medium Pressure; 316/316L Stainless Steel (MWP 500 psi)										
		<b>CODE</b>	<b>Insertion 'U' Lengths</b>										
		<b>0060</b>	6"	(15.2 cm)									
		<b>0120</b>	12"	(30 cm)									
		<b>0180</b>	18"	(46 cm)							Custom 'U' Lengths:		
		<b>0240</b>	24"	(60 cm)							2.5" - 120" (6.0 cm - 305 cm)		
		<b>0360</b>	36"	(91 cm)							Available in 1/2" (1.0 cm) increments.		
		<b>0480</b>	48"	(121 cm)									
		<b>0600</b>	60"	(152 cm)									
		<b>IXXXX</b>	Custom 'U' Lengths: Use 4 digits preceded by an 'I' (i.e. 3.5" 'U' = I0035) (Use 'M' for cm)										
		<b>CODE</b>	<b>Input Power</b>										
		<b>C</b>	12-24 VDC and 115-230 VAC, 50 to 60 Hz										
		<b>Electronics</b>											
		Microprocessor Controlled with User Interface.											
		Two SPDT sealed relay contacts. Modbus via RS-485. 4-20 mA current loop.											
		<b>CODE</b>	<b>Local Enclosure</b>										
		<b>1</b>	Flameproof - Aluminum										
		<b>CODE</b>	<b>Cover - For Local Enclosure</b>										
		<b>B</b>	Blind Cover - Flameproof										
		<b>G</b>	Glass Lens Cover - Flameproof										
		<b>CODE</b>	<b>Remote Electronics Enclosure &amp; Cover</b>										
		<b>0A</b>	Not Required										
		<b>1B</b>	Blind Cover - Flameproof										
		<b>1G</b>	Glass Lens Cover - Flameproof										
		<b>CODE</b>	<b>Agency Approvals</b>										
		<b>1</b>	cCSA <sub>us</sub> (UL Standards)										
		<b>9</b>	FM										
		<b>CODE</b>	<b>Language</b>										
		<b>E</b>	English										
<b>816</b>	<b>R</b>	<b>A</b>	<b>E</b>	<b>T</b>	<b>0020</b>	<b>C</b>	<b>1</b>	<b>G</b>	<b>0A</b>	<b>9</b>	<b>E</b>		



Flow, Level, Interface & Temperature Switch & Transmitter

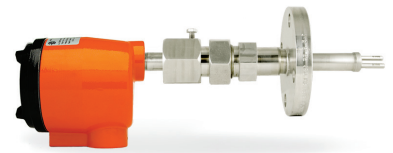
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Model Number Legend  
DOC#: ML-816-004

ML-816-004-[012]  
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**\*Sensor only.** The Packing Gland Assembly is available as standard in 316/316L Stainless Steel. For exotic alloys contact Kayden.

# KAYDEN | CLASSIC™ 814 Flanged Retractable Packing Gland



Flow, Level, Interface & Temperature Switch & Transmitter

<b>814</b>	<b>CODE</b>	<b>Sensor Type</b>															
	<b>R</b>	-45°C to +160°C (-50°F to +320°F) Continuous Service															
	<b>CODE</b>	<b>Sensor Material</b>															
	<b>A</b>	316/316L Stainless Steel															
	<b>X</b>	Titanium Gr. 2															
	<b>T</b>	Hastelloy C-276															
	<b>CODE</b>	<b>Process Connection - Flange Type</b>															
	<b>A</b>	Raised Face															
	<b>B</b>	RTJ - Ring Type Joint															
	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	<b>CODE</b>	<b>ANSI</b>	
		<b>1-1/2"</b>		<b>2"</b>		<b>3"</b>		<b>4"</b>		<b>5"</b>		<b>6"</b>		<b>8"</b>		<b>10"</b>	
		<b>131</b>	<b>150</b>	<b>141</b>	<b>150</b>	<b>151</b>	<b>150</b>	<b>161</b>	<b>150</b>	<b>171</b>	<b>150</b>	<b>181</b>	<b>150</b>	<b>191</b>	<b>150</b>	<b>201</b>	<b>150</b>
	<b>CODE</b>	<b>Flange Material</b>															
	<b>A</b>	316/316L SST	<b>X</b>	Titanium Gr. 2													
	<b>T</b>	Hastelloy C-276															
	<b>CODE</b>	<b>Retraction Assembly</b>															
	<b>T</b>	Low Pressure; 316/316L Stainless Steel (MWP 50 psi)															
	<b>J</b>	Low Pressure c/w Retaining Chain; 316/316L Stainless Steel (MWP 125 psi)															
	<b>X</b>	Medium Pressure; 316/316L Stainless Steel (MWP 275 psi)															
	<b>CODE</b>	<b>Insertion 'U' Lengths</b> 2.5" - 120" (6.4 cm - 305 cm) in 1/2" (1.0 cm) increments.															
	<b>IXXXX</b>	Custom 'U' Lengths: Use 4 digits preceded by an 'I' (i.e. 3.5" 'U' = I0035) ('M' = cm)															
	<b>CODE</b>	<b>Input Power</b>															
	<b>C</b>	12-24 VDC and 115-230 VAC, 50 to 60 Hz															
		<b>Electronics</b>															
		Microprocessor Controlled with User Interface. Two SPDT sealed relay contacts. Modbus via RS-485. 4-20 mA current loop.															
	<b>CODE</b>	<b>Local Enclosure</b>															
	<b>1</b>	Flameproof - Aluminum															
	<b>CODE</b>	<b>Cover - For Local Enclosure / Sensor Enclosure</b>															
	<b>B</b>	Blind Cover - Flameproof															
	<b>G</b>	Glass Lens Cover - Flameproof															
	<b>CODE</b>	<b>Remote Electronics Enclosure &amp; Cover</b>															
	<b>0A</b>	Not Required															
	<b>1B</b>	Blind Cover - Flameproof															
	<b>1G</b>	Glass Lens Cover - Flameproof															
	<b>CODE</b>	<b>Agency Approvals</b>															
	<b>1</b>	CSA <sub>us</sub> (UL Standards)															
	<b>9</b>	FM															
	<b>CODE</b>	<b>Language</b>															
	<b>E</b>	English															
<b>814</b>	<b>R</b>	<b>A</b>	<b>A</b>	<b>131</b>	<b>A</b>	<b>T</b>	<b>I0035</b>	<b>C</b>		<b>1</b>	<b>G</b>	<b>0A</b>	<b>9</b>	<b>E</b>			

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Model Number Legend  
DOC#: ML-814-004

ML-814-004-[012]

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**\*Sensor only.** The Packing Gland Assembly is available as standard in 316/316L Stainless Steel. For exotic alloys contact Kayden.



Application Considerations - Flow

Flow

Ideal Process Conditions

Liquids:

- Consistent process composition & temperature
- Sufficient straight run flow profile (minimizes turbulence)
- Recommended minimum of 5 pipe diameters from any disturbance

Air & Gas:

- Consistent process composition & temperature
- Sufficient straight run flow profile (minimizes turbulence)
- Clean and dry

Slurries:

- Consistent process composition & temperature
- Sufficient straight run flow profile (minimizes turbulence)

Emulsion:

- Consistent process composition & temperature
- Sufficient straight run flow profile (minimizes turbulence)

Undesirable Process Conditions

Liquids:

- Inconsistent process composition or temperature
- Insufficient straight run
- Turbulence
- Aerated fluids

Air & Gas:

- Inconsistent process composition or temperature
- Wet or saturated air/gas

Slurries:

- Inconsistent process composition or temperature
- Insufficient straight run
- Turbulence
- Aerated fluids

Emulsion:

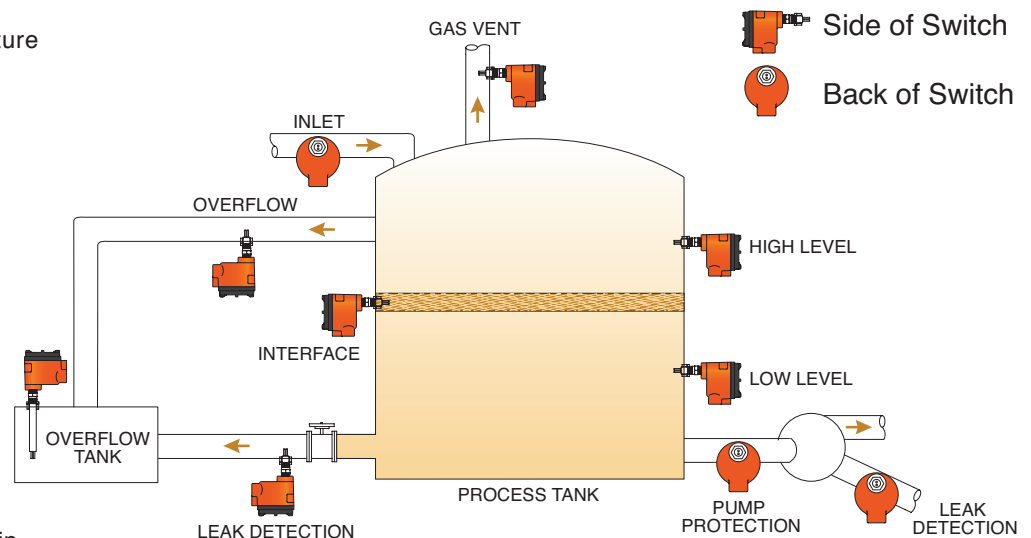
- Inconsistent process composition & temperature
- Insufficient straight run
- Turbulence
- Aerated fluids

Solids:

- Dry granulated processes are NOT good candidates for thermal switches

Application Principles - Flow, Level, Interface & Temperature

- ✓ Consistent process composition
- ✓ Consistent process temperature
- ✓ Clean or dirty process
- ✓ Liquids
- ✓ Dry air & gas
- ✓ Slurries
- ✓ Emulsion
- ✗ Aerated fluids
- ✗ Large temperature swings
- ✗ Wet or saturated air/gas
- ✗ Solids
- ✗ Sediment covering sensing tip

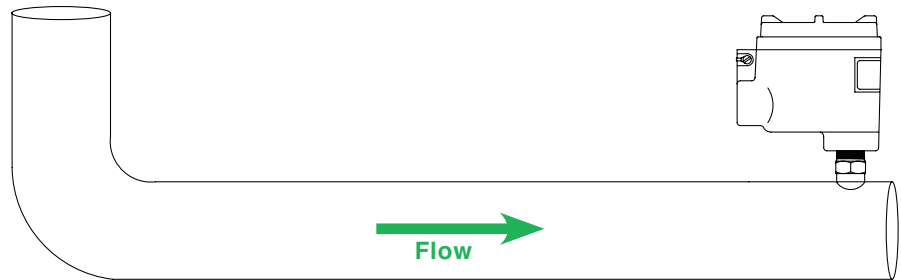


**Mounting & Installation Diagrams for Flow**

**Flow**

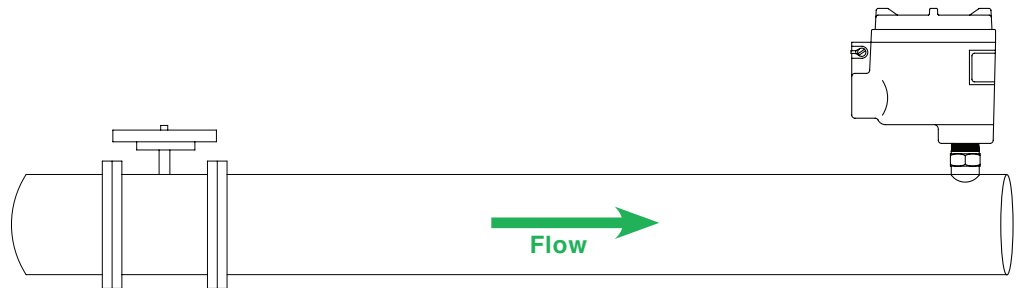
**Bends, Elbows, etc.:**

Good installation practice requires sufficient downstream placement of bends, expansions or reductions.



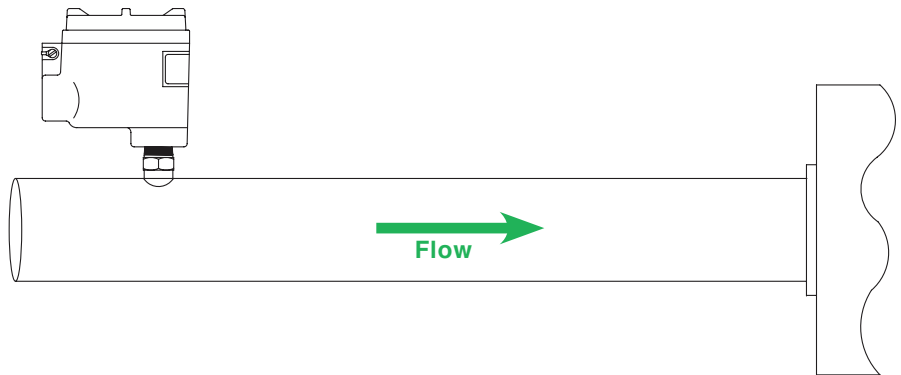
**Valves, etc.:**

Good installation practice requires sufficient downstream placement from isolation and control valves - especially if valves are only partially opened.



**Pumps, Fans & Compressors:**

Good installation practice requires sufficient downstream placement from pumps, fans and compressors. The preferred installation point for pump flow / no-flow detection is on the inlet side of the pump.



**Note:** Flow profiles will tend to be smoother as the downstream distance between the bend, elbow, valve, pump, fan or compressor and the switch increases.

## Guidelines for Flow Applications (Liquids, Slurries, Air, Gas)

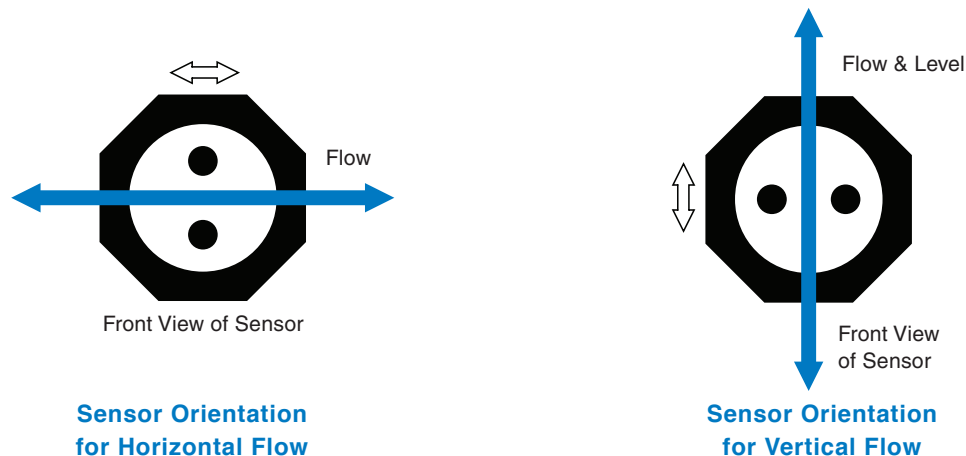
### Flow

#### Mounting the Sensing Element:

- Ensure the arrows engraved on the sensor are oriented parallel to the process flow
- Liquids & Slurries: When mounted in a tee or section of pipe larger than the normal process pipe, position sensor in a vertical run of pipe with flow upward. This will prevent air or gas bubbles from becoming trapped around the sensing tip
- Avoid locations where sediment may accumulate and eventually isolate the sensing tip from the process. Situating the sensing tip in the sediment may prevent the switch from being able to sense any changes in the process as the sediment will insulate the sensing tip

#### Sensor Orientation

To optimize the sensor's performance and interpretation of the processes actions, ensure the sensor is positioned as outlined below:



#### Mounting Considerations:

- Where possible mount the sensor in the point of least turbulent flow.
- Pumps, fans, valves, or pipe bends of 90° or more may cause turbulence or significant variance in the flow which may affect the repeatability of the switch. When possible, care should be taken to minimize this possibility. Consult your local Representative or Kayden for questions or recommendations.
- Ensure the arrows engraved on the sensor are oriented parallel to the process flow.
- Liquids & Slurries: When mounted in a tee or section of pipe larger than the normal process pipe, position sensor in a vertical run of pipe with flow upward, this will prevent entrained air or gas from collecting around the sensing tip.
- Avoid locations where sediment may accumulate and eventually isolate the sensing tip from the process.
- **For pump flow/no-flow detecton the recommended installation point is on the inlet side of the pump.** The discharge side may have turbulence, reverse flow and an undeveloped flow profile. These factors may greatly reduce repeatability and accuracy.

**Guidelines for Flow Applications (Liquids, Slurries, Air, Gas)**

**Flow**

**Horizontal Pipe - Side Mount (Ideal)**

Ensure sensing tip is fully inside the pipe wall as a minimum and to the center of the pipe as a maximum. Avoid locations where sediment may accumulate and isolate the sensing tip from the process.

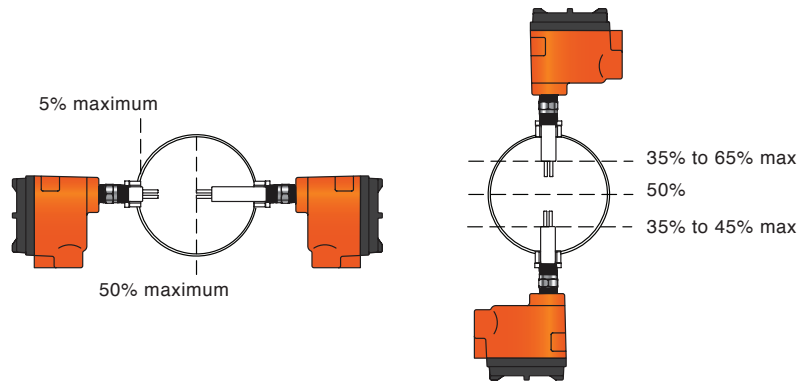
**Horizontal Pipe - Top Mount**

Ensure sensing tip is fully inside the pipe wall to a position where it will be constantly and fully exposed to the desired process in order for the flow or lack of flow to be recognized at any given time.

**Horizontal Pipe - Bottom Mount**

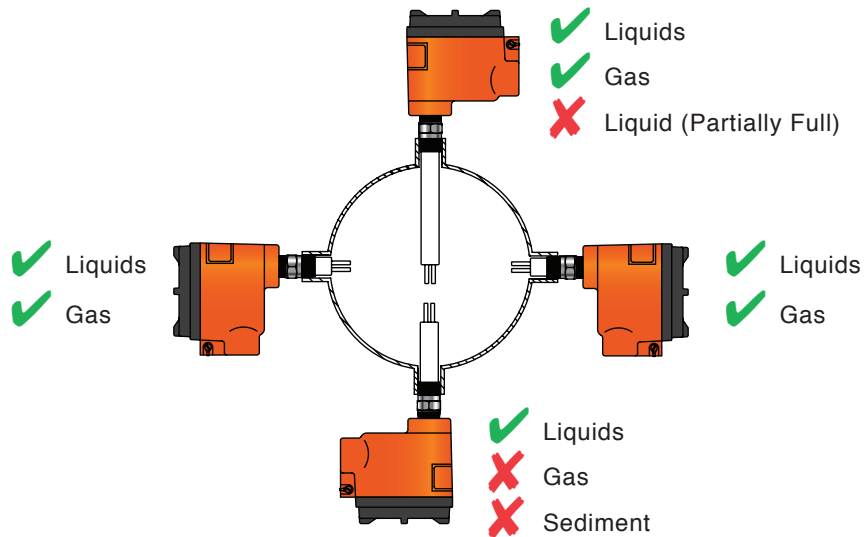
Ensure sensing tip is fully inside the pipe wall to a position where it will be constantly covered by the process in order for the flow or lack of flow to be recognized at any given time. Ensure the desired process covers the sensing tip – if the sensing tip is situated near the top of the pipe, the process must be filling the pipe to a level where the sensing tip is covered at all times. A wide selection of insertion ‘U’ lengths are available starting at 1.2”.

**Avoid locations where sediment may accumulate and eventually isolate the sensing tip from the process.**



**Horizontal Pipe: Side Mount**

**Top/Bottom Mount**



**Sensor Positioning, Horizontal Pipe**

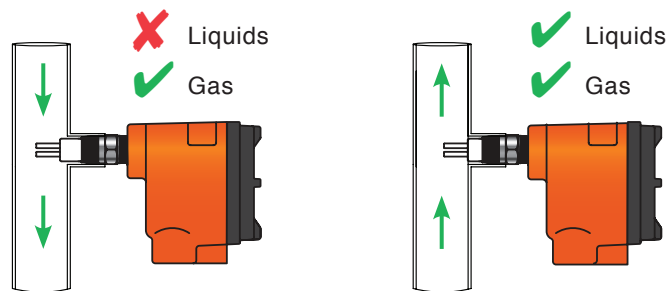
**Guidelines for Flow Applications (Liquids, Slurries, Air, Gas)****Flow****Vertical Pipe - Side Mount (Acceptable)**

Ensure sensing tip is fully inside the pipe wall as a minimum and to the center of the pipe as a maximum.

**Note:** When installing the switch in vertical piping, Kayden strongly recommends installing thermal switches at a point of UPWARD process flow to ensure continued total immersion of the sensing tip.

**Vertical Pipe - Side Mount - Downward Flow:**

- Is only recommended for higher flow rates where the LINE IS KEPT FULL OF LIQUID/SLURRY
- For installation in a vertical gravity flow, the switch must be distant enough from an open outlet that air cavitation does not affect the sensing tip and cause a false flow signal. A constriction at the outlet avoids this problem.
- A waterfall effect will occur in vertical pipe with low flow rates. Also, the process is likely to become substantially aerated. The switch will interpret the aeration as a substantially lower flow rate and possibly cause a false low flow alarm.



**Sensor Positioning, Horizontal Pipe**

**Vertical Pipe - Side Mount - Top & Bottom Mount (Less Desirable)**

Positioning the sensor on a corner or elbow is not recommended as the process will be turbulent. The switch may interpret the turbulence as a constantly changing flow rate and fail to alarm as required.

**Application Considerations - Level**

**Level**

**Ideal Process Conditions**

**Liquids:**

- Consistent process composition
- Non-turbulent

**Slurries:**

- Consistent process composition

**Emulsion:**

- Consistent process composition

**Undesirable Process Conditions**

**Liquids:**

- Inconsistent process composition
- Turbulence
- Large temperature swings

**Slurries:**

- Inconsistent process composition
- Turbulence
- Large temperature swings

**Emulsion:**

- Inconsistent process composition
- Turbulence
- Large temperature swings

**Solids:**

- Dry granulated processes are NOT good candidates for thermal switches

**Application Considerations - Interface**

**Interface**

**Ideal Process Conditions**

**Liquids:**

- Liquid to Liquid:
- Consistent process composition & temperature
- Non-turbulent applications
- Large differential in thermal conductivities

**Air or Gas to Liquid:**

- Consistent process composition & temperature
- Non-turbulent applications
- Dry gas

**Emulsion:**

- Consistent process composition & temperature
- Large differential in thermal conductivities

**Undesirable Process Conditions**

**Liquid to Liquid:**

- Inconsistent process composition or temperature
- High aeration
- High turbulence
- Small differential in thermal conductivities

**Air or Gas to Liquid:**

- Inconsistent process composition or temperature
- High turbulence

**Emulsion:**

- Inconsistent process composition or temperature
- High aeration
- High turbulence
- Small differential in thermal conductivities

**Solids:**

- Dry granulated processes are NOT good candidates for thermal switches

## Point Level & Fluids Interface

### Liquid Level

#### Mounting Considerations:

- Where possible mount the sensor in the point of least turbulence
- Agitators, bubblers, valves, or screens may affect the repeatability of the switch.

**Note:** When possible, care should be taken to minimize this possibility. Consult your local Representative or Kayden for questions or recommendations

- Ensure the arrows on the sensor are oriented parallel to the process surface
- Keep sensing tip clear of any mixing devices that may cause damage

#### Tanks and Vessels - Side Mount (Ideal)

Ensure sensing tip is fully inside the tank wall as a minimum.

#### Tanks and Vessels - Top Mount

Ensure sensing tip is fully inserted to the desired sensing point.

**Kayden RCM Software**



- Use the RCMS program to **change Set Points 1 & 2**, adjust Relay modes, **adjust the Start-up Bypass Timer** and **Set Point Delays**, set the heater to optimize response, **lock or unlock the Display Panel** when **security** and/or settings are critical, visualize the actions of the process via the graphical display and many other features
- Requires an RS-485 adapter such as the Kayden SCA and a communication cable
- Provides an additional interface for all CLASSIC 800 models

**Part Number: A11-SFT**

**Converters / Adapters - USB to RS-485**

**USB to RS-485 Adapter**

Combines functions of USB to DB-9 and DB-9 to RS-485. Driverless functionality with newer operating systems.



**Part Number A15-323**

**Communication Cable**

**Communication Cable** is used to connect the SCA (Serial Communication Adapter) to the switch.

Standard Lengths: 4, 8 & 10 feet.

- Part Number:**   **A05-CC-0004**   4 feet  
                           **A05-CC-0008**   8 feet  
                           **A05-CC-0010** 10 feet



These items can be purchased separately but are required to use the Kayden RCM software.

**Equipment Tags**



**Stainless Steel Tags**

Stainless Steel tags are attached with stainless steel wire to the switch. Please provide the exact information to be engraved.

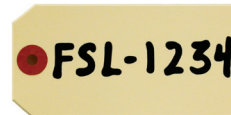
**Part Number: A20-0001**



**Lamacoid Tags**

Lamacoid equipment tags are applied with double sided tape to any product. Please provide the exact information to be engraved.

**Part Number: A20-0002**



**Paper Tags**

Select paper tags when temporary labeling is required. Please provide the exact information.

**Part Number: A20-0003**



**Interconnecting Cable for Remote Electronics**

Kayden’s cables are used to connect sensors to remote electronics. Kayden offers cables for both hazardous and general purpose locations. Cables and cable fittings are pre-assembled and fitted at Kayden’s factory to ensure integrity of all connections.

**Non-Armored Cable**



Assembly includes heat shrink with crimp ferrules.  
 (Strain relief fittings are not included, however are available as an option).  
**Construction:** 8 color coded conductors 20 AWG, shielded cable, PVC jacket.  
**Voltage Rating:** 30 volts RMS  
**Temperature Rating:** -4°F to +176°F (-20°C to +80°C)  
**Part Number:** A05-GP-xxxx (xxxx = length in feet)

**Armored Cable**



**General Purpose (Non-hazardous) Cable & Connector Assembly**

Assembly includes 2 general purpose cable fittings.  
**Construction:** 8-strand concentric, Class B tinned copper, .020” PVC insulation, individual and overall foil shield, color & number coded, drain and Mylar separator, PVC inner jacket, aluminum interlock armor, PVC outer jacket.  
**Voltage Rating:** 300 volts  
**Temperature Rating:**  
 -40°F to +194°F (-40°C to +90°C);  
 insulation rated @ 221°F (105°C)  
**Part Number:** A06-GP-xxxx  
 (xxxx = length in feet)

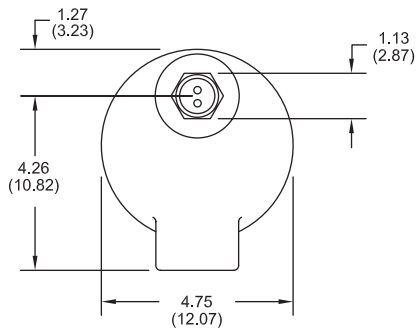


**Flameproof Cable & Connector Assembly**

Assembly includes 2 sealed XP cable fittings and sealing compound.  
**Construction:** 8-strand concentric, Class B tinned copper, .020” PVC insulation, individual and overall foil shield, color & number coded, drain and Mylar separator, PVC inner jacket, aluminum interlock armor, PVC outer jacket.  
**Voltage Rating:** 300 volts  
**Temperature Rating:**  
 -40°F to +194°F (-40°C to +90°C);  
 insulation rated @ 221°F (105°C)  
**Part Number:** A06-XP-xxxx  
 (xxxx = length in feet)

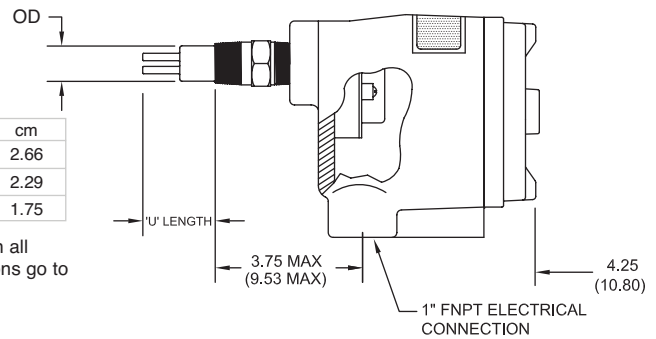
**CLASSIC™ 810 Threaded**

Inches (cm)

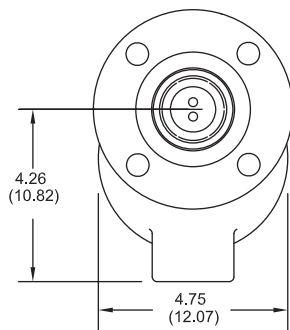


	Inches	cm
RAE	1.05	2.66
RAD	0.90	2.29
RAC	0.69	1.75

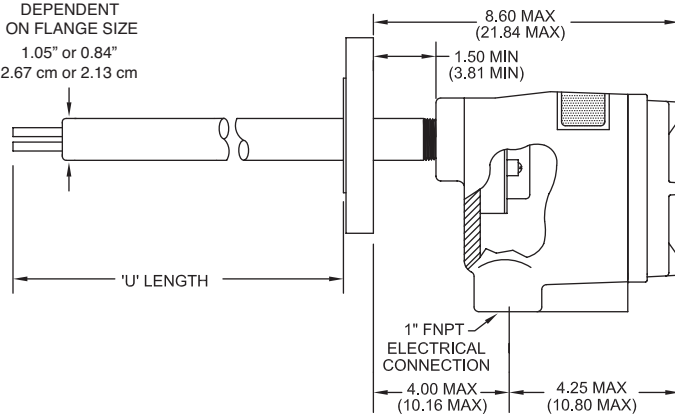
For dimensions on all process connections go to [kayden.com](http://kayden.com)



**CLASSIC™ 812 Flanged**

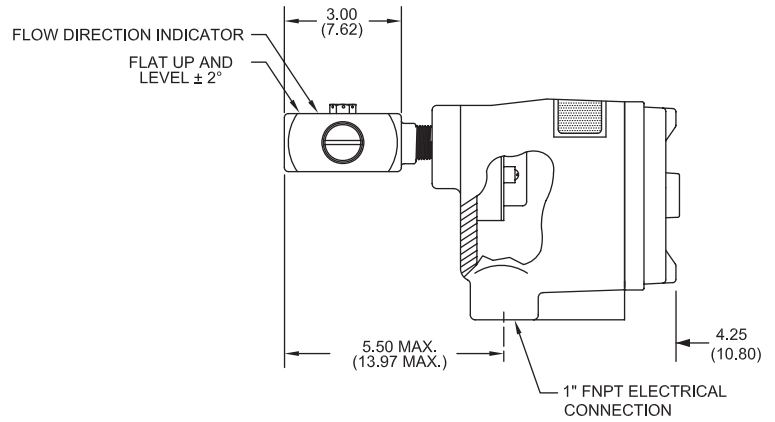
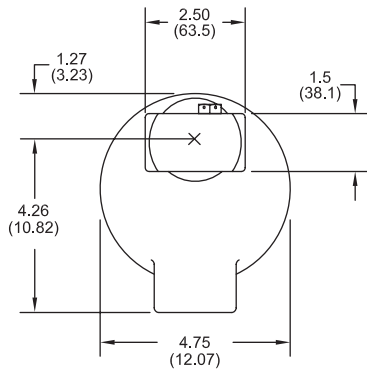


DEPENDENT ON FLANGE SIZE  
1.05" or 0.84"  
2.67 cm or 2.13 cm

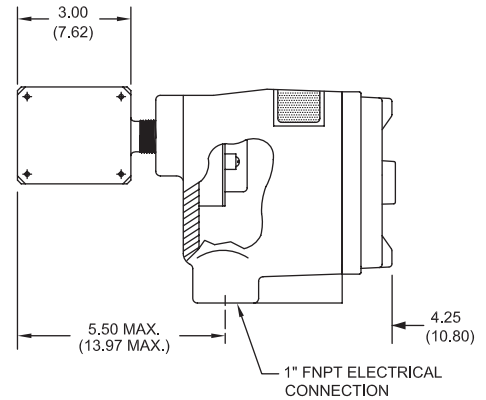
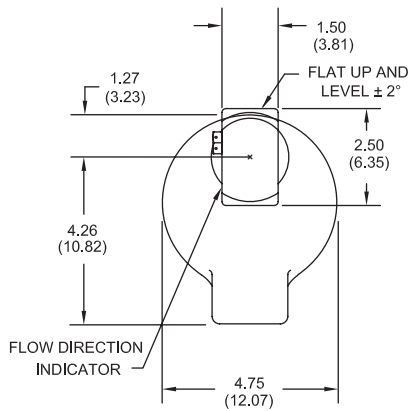


**CLASSIC™ 830 InLine Threaded (Horizontal)**

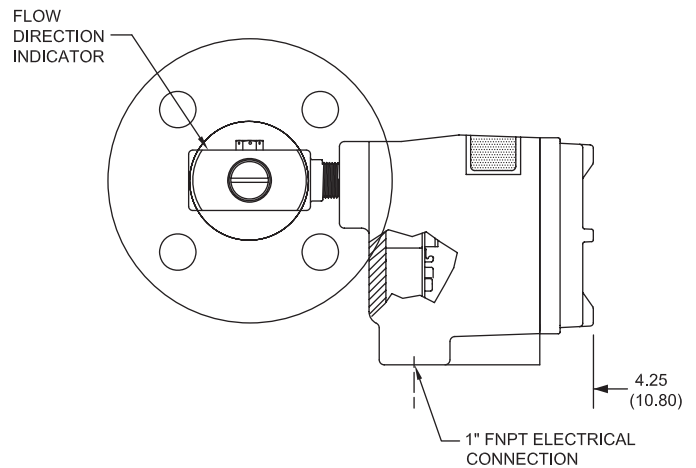
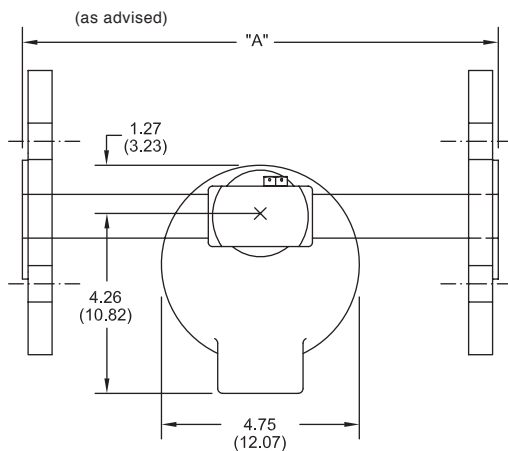
Inches (cm)



**CLASSIC™ 830 InLine Threaded (Vertical)**

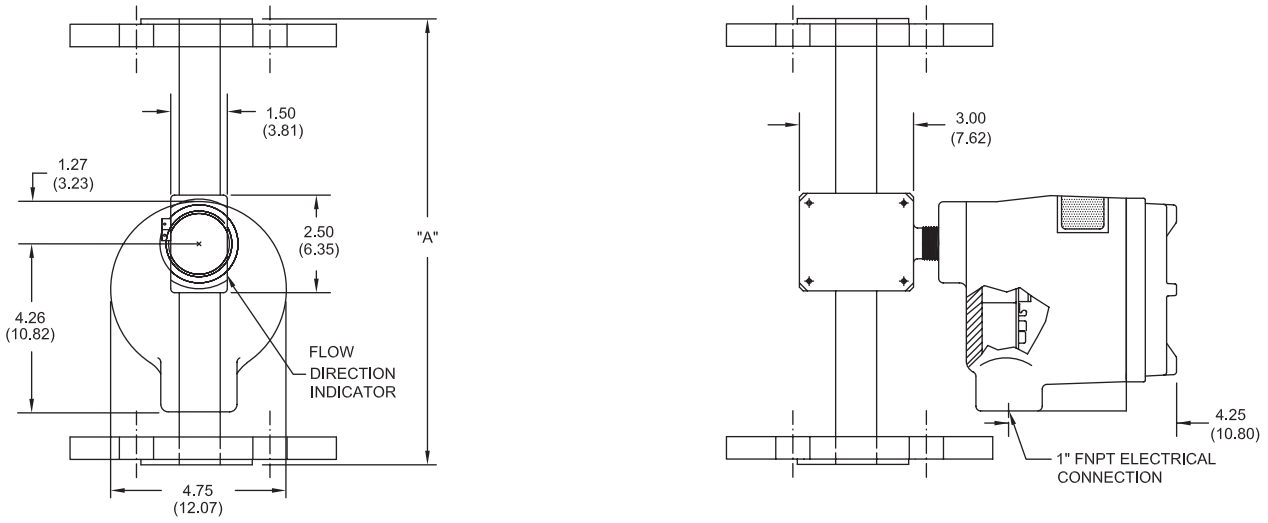


**CLASSIC™ 832 InLine Flanged (Horizontal)**



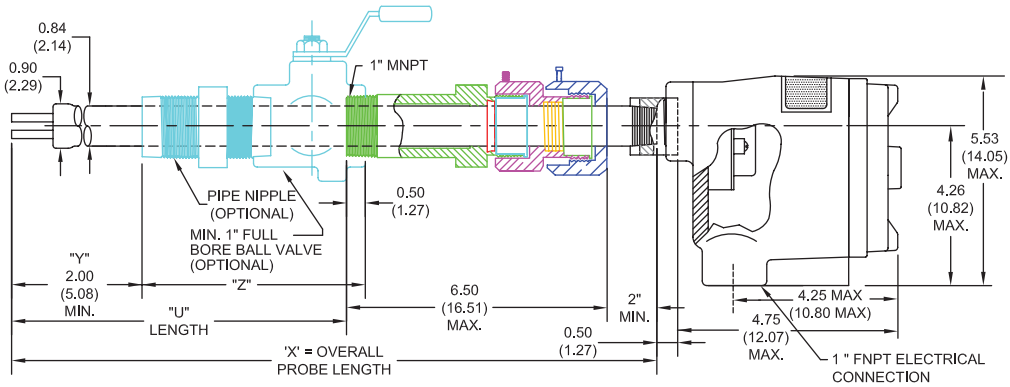
**CLASSIC™ 832 InLine Flanged (Vertical)**

Inches (cm)



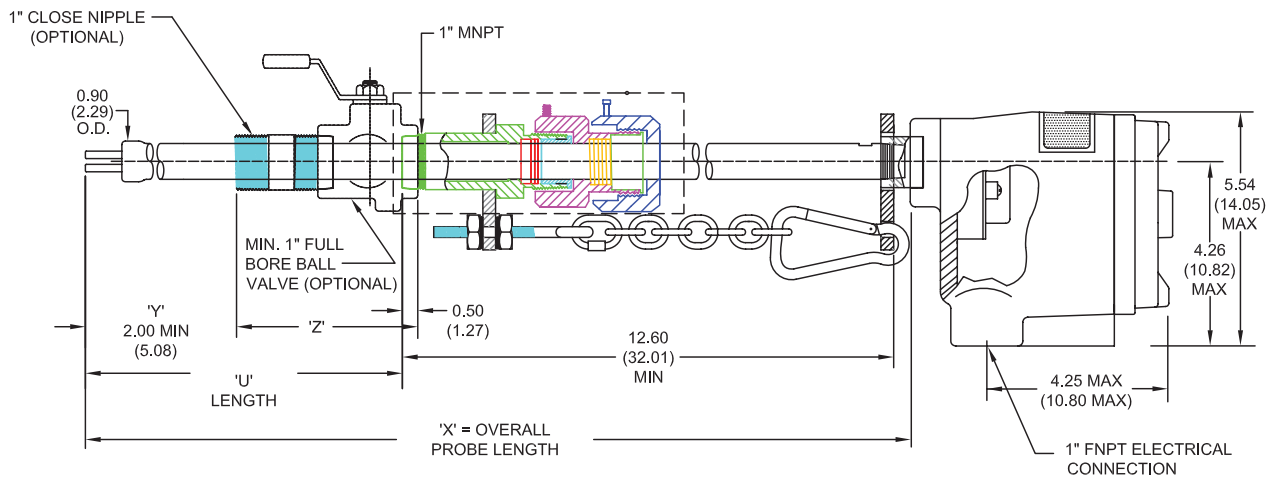
**CLASSIC™ 816 Retractable Packing Gland Threaded**

1" MNPT - 50 psi



**CLASSIC™ 816 Retractable Packing Gland Threaded**

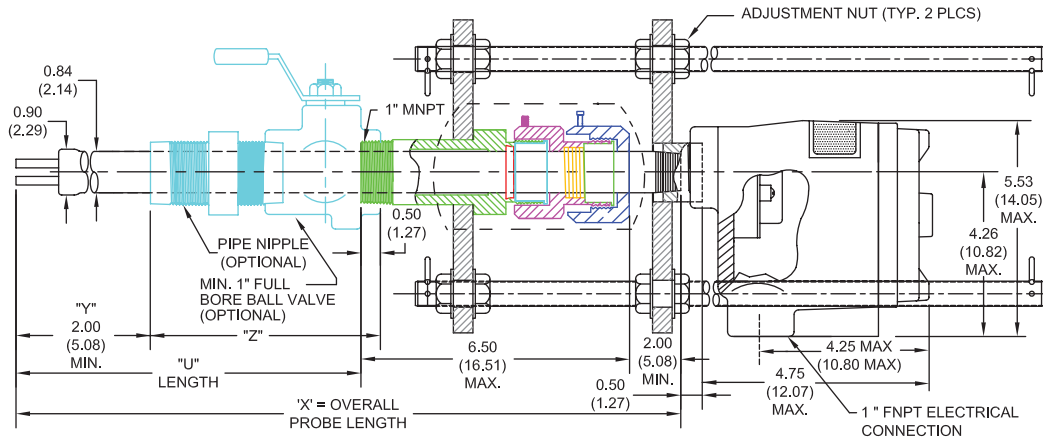
1" MNPT - c/w Retaining Chain - to 125 psi



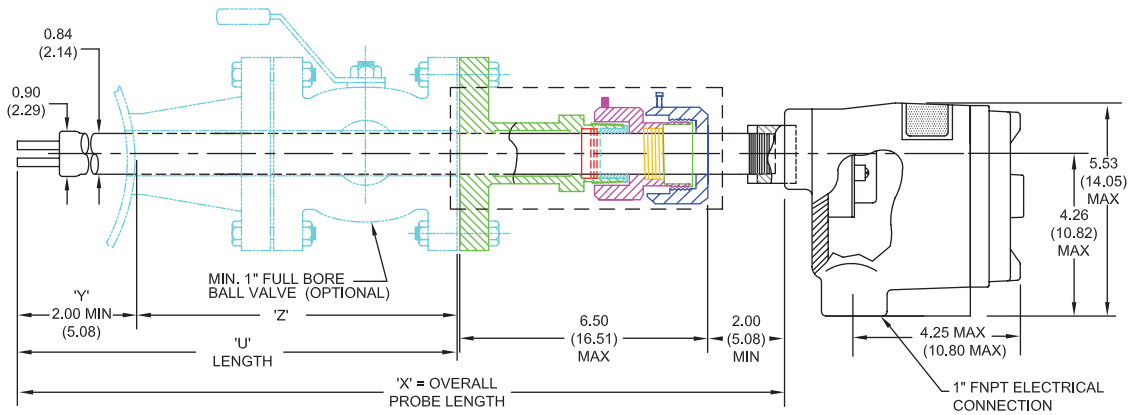
**CLASSIC™ 816 Retractable Packing Gland Threaded**

1" MNPT - 275 psi

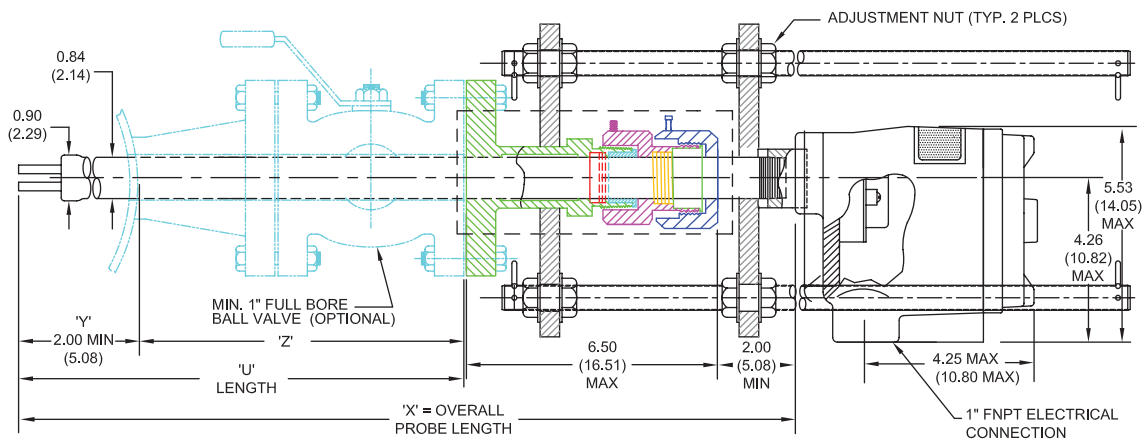
Inches (cm)



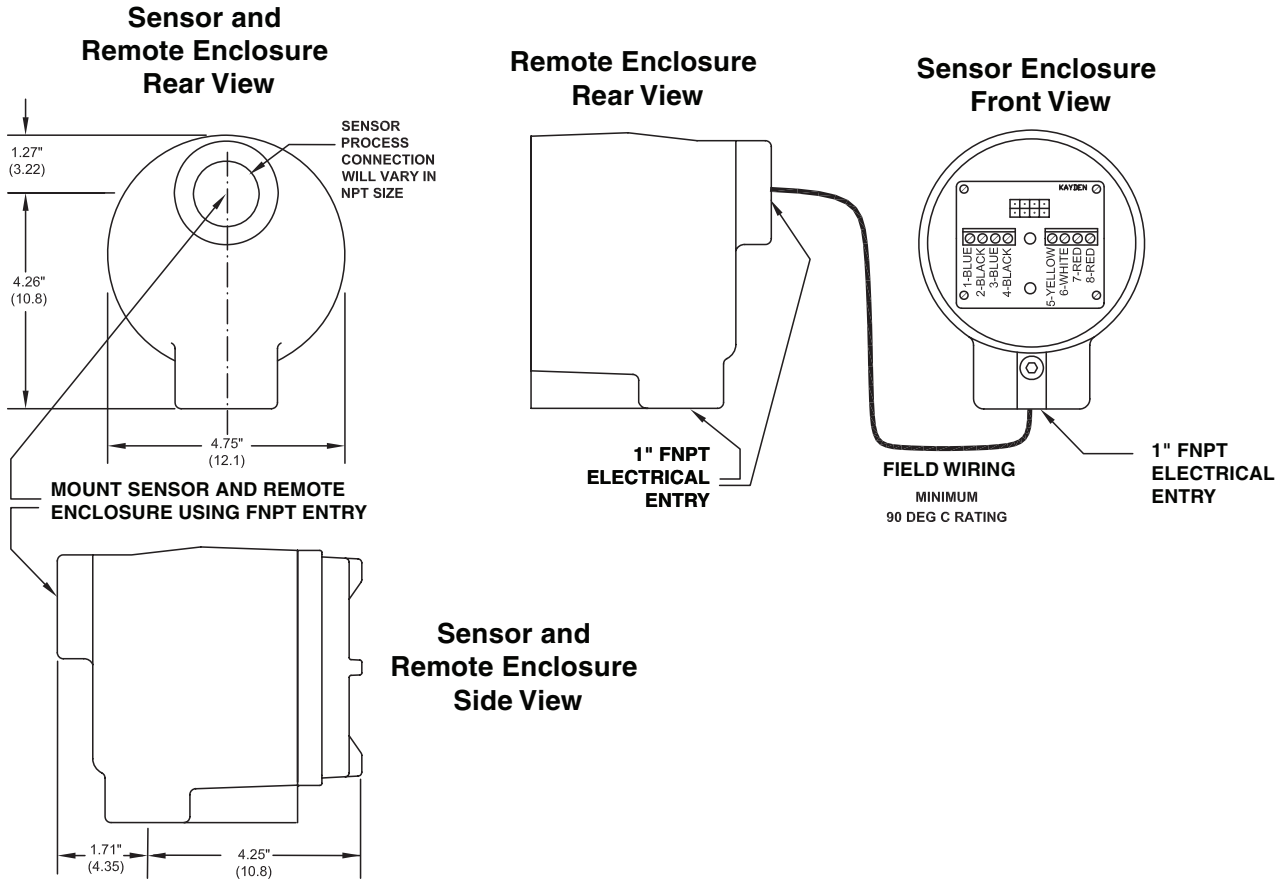
**CLASSIC™ 814 Retractable Packing Gland Flanged - to 50 psi**



**CLASSIC™ 814 Retractable Packing Gland Flanged - to 275 psi**

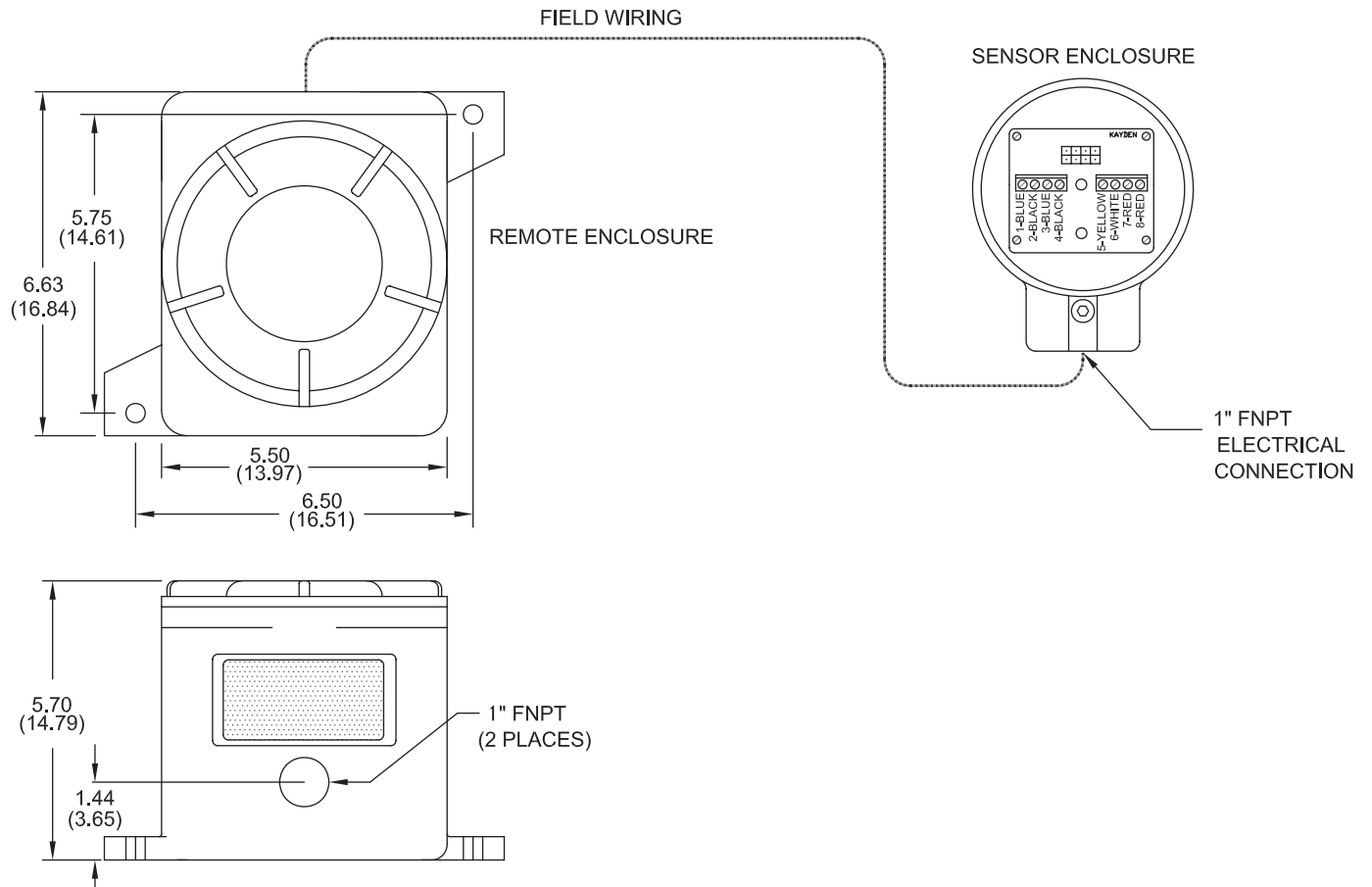


**Remote Electronics Enclosure - Flameproof (FM)**



**Note:** Suitable for one (1) Classic Electronics Module.

Remote Electronics Enclosure - Flameproof (CSA)



**Note:** Suitable for one (1) Classic Electronics Module.

**Note:** For detailed drawings of all products visit [kayden.com](http://kayden.com)









FEATURES	CLASSIC™ 800 Series
Flow	✓
Level <sup>1</sup>	✓
Interface - Liquid / Slurry	✓
Temperature <sup>2</sup>	✓
<b>Process Media</b>	
Liquids	✓
Air & Gases	✓
Slurries	✓
Interface	✓
<b>Features</b>	
4-20 mA Analog Output	✓
Temperature Mode <sup>2</sup>	✓
Relay Contacts	Dual SPDT
Start-up Bypass Timer <sup>3</sup>	✓
Adjustable Set Point Deadbands	✓
Display Panel Lock-Out <sup>4</sup>	✓
Remote Communications <sup>5</sup>	✓
<b>Input Power</b>	
12-24 VDC; 115-230 VAC, 50-60 Hz	✓
<b>Remote Mount Electronics</b>	
CSA Approved (Class I, Div. 1) Enclosures	✓
FM Approved (Class I, Div. 1) Enclosures	✓
<b>Agency Approvals</b>	
CSA Class I, Div. 1	✓ Groups B, C & D
FM Class I, Div. 1	✓ Groups B, C & D
Canadian Registration Number (CRN) <sup>6</sup>	✓

**Notes:**

DOC#: PC-004 Effective: March 2019  
PC-004-[007]

1. Point Level: physical location of the probe determines sensing point.
2. Requires Kayden RCMS and the Modbus communications (see note 5 below). Relay 2 may be configured to actuate on process temperature while the switch functions in a traditional Flow or Level application.
3. Adjustable from 0 - 100 seconds, the Start-up Bypass Timer is useful when restarting a pump.
4. The programming buttons on the Display Panel of the switch may be disabled using the Kayden RCMS and the Modbus communications.
5. Modbus RS-485; requires Kayden RCMS (included at no charge upon request), a Serial Communication Adapter (SCA) or USB Adapter and communications cable are available.
6. Visit kayden.com for CRN information per model and jurisdiction.

**CLASSIC™ 800 Features Overview**

Series	CLASSIC™ 800
Models & Applications	<b>810, 812, 814, 816, 830 &amp; 832</b> Flow, Level, Interface & Temperature
Process Connections	<b>810:</b> 1/2" to 2" MNPT Threaded <b>812:</b> Flanged <b>814:</b> Flanged Retractable Packing Gland <b>816:</b> 1" MNPT Threaded Retractable Packing Gland <b>830:</b> 3/4" FNPT (InLine) <b>832:</b> Flanged (InLine)
Insertion 'U' Lengths	1.2", 2", 3", 4", 6", 9", 12" & 18" Standard (most models) Custom lengths available to 240"
Sensor Material	316/316L Stainless Steel, Titanium Gr. 2, Hastelloy C-276 & Monel 400 <b>830 &amp; 832:</b> 316/316L Stainless Steel c/w Nickel Braz
Remote Electronics Option	Explosion-proof - Standard
Input Power	Universal AC & DC
Power Consumption	Maximum: 6.0 watts (fully configured)
Communications	RS-485
Outputs	Two SPDT sealed relay contacts 4 amps resistive 230 VAC / 24 VDC Modbus via RS-485. 4-20 mA current loop
Temperature Compensation	Yes
Operating Temperature - Sensor	Continuous Use: -45°C to +200°C (-50°F to +392°F) <b>814 &amp; 816:</b> -45°C to +160°C (-50°F to +320°F)
Operating Temperature - Electronics	Continuous Use: -55°C to +65°C (-67°F to +167°F)
Operating Pressure - Sensor	Maximum Design Pressure: 24 MPa (3500 psig) Temperature derated. Visit <a href="http://kayden.com">kayden.com</a> for pressure ratings per model.
Self-Test	Automated diagnostics performed on electronics & sensing elements
Agency Approvals	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p><b>CRN</b> Canadian Registration Number</p> </div> <div style="text-align: center;">  </div> </div>

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### Order Online

kayden.com Utilize our eCommerce website to order your Kayden products from your Authorized Kayden Distributor, or directly from Kayden. Please know that your local Authorized Distributor is supported whether you place orders online, via telephone, or email.

## Contact Us

### Telephone

1 (403) 253-1423  
001 403 253-1423

### Fax

1 (403) 255-0042 North America  
001 403 255-0042 International

### E-Mail

info@kayden.com

### Web

kayden.com

**Hours** Monday – Friday 8:00 a.m. – 5:00 p.m. MST

**Mailing Address** 3364–114th Avenue S.E., Calgary, Alberta, Canada T2Z 3V6

## Contact a Local Distributor

### Distributors

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## 60-Day 100% Satisfaction Guarantee

### Standard Products

Standard Products are eligible for the 60-Day 100% Satisfaction Guarantee. If you purchased new Standard Products, you may return them to the place of purchase up to 60 days from the date of invoice for a refund or credit of the product purchase price provided the quantity of Products does not exceed twenty-five units (nominal restocking fee apply to only those quantities exceeding twenty-five units).

### Custom Products

Custom Products are not eligible for this guarantee as they are manufactured specifically to the customers' individual and unique requirements. Ship returns prepaid. Please note the refund or credit will not include any charges for special documentation, special equipment, special service, special approvals, drawings, certificates, equipment tags, set points, flow curves, x-rays, dye penetration tests, opened software, shipping or insurance shown on your invoice. View the Return Policy in detail at kayden.com.

Kayden offers the following:

- 60 calendar days from the date of invoice.
- Up to twenty-five (25) Standard Products of any type or combination per order. Should the customer, for any reason, be unsatisfied with any or all of the Products, he/she may return any or all of them for a full refund.

Visit kayden.com to view the 60-Day 100% Satisfaction Guarantee in detail.

## Warranty

One (1) Year from shipment date from factory (see Terms & Conditions of Sale).

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