CAMERON

815PT Smart Pressure Transmitter

Form 1570CM

The 815PT smart pressure transmitter is a rugged, compact, loop-powered instrument that is ideally suited for hazardous locations and hostile environments where space is limited. The 815PT offers many industry standard outputs to meet applications where low-cost, discrete and continuous monitoring is required or preferred. This versatile instrument may be used to safely monitor and control many process applications, but is specifically designed for upstream, midstream, and downstream oil & gas applications. Its stainless-steel construction and three-year warranty dramatically reduces the total cost of ownership. The 815PT is easily configured using HART 7 Communication Protocol and Modbus RTU Serial Communications; it is also very easy to set the zero and span set points with a magnet, as the zero and span magnetic targets are clearly identified on the casting. The Cameron 815PT is a feature rich, low cost, stick form-factor transmitter that sits at the top of its class.

Features

- HART® 7 Communication Protocol with 4-20 mA Output
- 1-5 VDC (Low-Power) Mode of Operation Output
- Modbus RTU (RS-485) Serial Communications
- Configurable Normally-Open Solid-State Switch Output (SPST)
- ±0.10% (URL) Continuous Output Accuracy
- Zero Balance & URL: ±0.25% URL (Each)
- Compact, 316 Stainless-Steel, Explosion Proof Housing
- Hermetically Sealed Leads
- Pressure Ranges: 0-5 psi to 0-30,000 psi
- Turndown: 5 to 1
- Zero and Span Magnetic Targets Located on Casting
- EMC (EMI/RFI) Protection
- NEMA 4X, IP66 Housing
- FM and ATEX Certified for Hazardous Locations in U.S., Canada and Europe
- Dual Seal Approval
- 3-year Warranty

HART® COMMUNICATION PROTOCOL

815PT Smart Pressure Transmitter

Product Specifications

Continuous Output

Accuracy	±0.10% URL (BFSL)
Zero Balance & URL	±0.25% URL (Each)
Turndown	5:1
Output	4-20mA
	HART 7 Communications Protocol
	Modbus RTU (RS-485) Serial Communications
	1-5VDC (Low Power) Mode of Operation
	(36mW ± 5mW @ 10VDC)
Temperature Effect	±1% URL/100°F
	@ -40 to -176°F

Switch Output

- 1: Off
- 2: Windowed, Normally-Open
- 3: Windowed, Normally-Closed
- 4: Single Point, Normally-Open
- 5: Single Point, Normally-Closed
- 6: PWM (Pulse Width Modulation), Pulsed Low
- 7: PWM (Pulse Width Modulation), Pulsed High
- 8: Dead Band, Normally-Open
- 9: Dead Band, Normally-Closed

Accuracy	±0.25% URL
Type	Normally Open
	Solid State Relay (SPST)
Electrical Rating	30V, 120mA
Temperature Effect	±1% URL/100°F
	@ -40 to 176°F

Temperature Range

Compensated	-40 to 176°F (-40 to 80°C)
Ambient	-40 to 176°F (-40 to 80°C)
Process	-40 to 194°F (-40 to 90°C)
Storage	-40 to 194°F (-40 to 90°C)

Long Term Stability	≤ ±0.5% URL per year
Response Time	≤ 70 ms
Supply Voltage	10-36VDC
Loop Resistance	667 ohms @ 24VDC
Circuit Protection	Reverse polarity and EMC (EMI/RFI) protected
Construction	316SS housing (CF8M)
Process Connection	1/2" NPT(M) with 1/4" NPT(F) and Autoclave F250C (F) for 1/4" OD Tubing

Electrical Connection

Size	1/2" NPT(M)
Termination	18 AWG shielded cable, 72-inch length

Wetted Materials	316-SST (for pressure ranges 0-5 psi thru 0-100 psi)
	17-4SST (for pressure ranges above 0-100 psi)

Over Pressure

0-5 thru 0-100 psi	3 times FSPR
0-250 thru 0-10,000 psi	2 times FSPR
Up to 30,000 psi	1.4 times FSPR

Burst Pressure

0-5 thru 0-100 psi	4 times FSPR
0-250 psi	40 times FSPR
0-500 thru 0-1000 psi	20 times FSPR
0-2500 psi	10 times FSPR
0-5000 psi	8 times FSPR
0-10,000 thru 0-15,000 psi	4 times FSPR
0-30,000 psi	1.8 times FSPR

Weight	1.8 lb (0.8 kg)
Warranty	3 years

Design and specifications are subject to change without notice. For latest revision, see c-a-m.com/measurement.

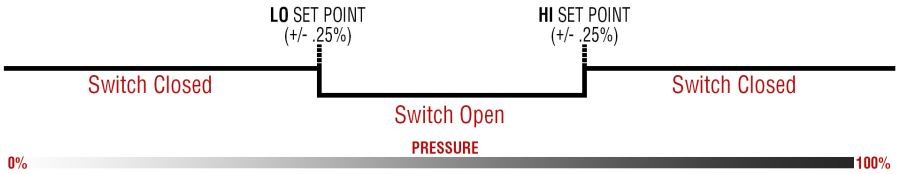
Switch Operation

The switch output of the 815PT is a Normally Open Solid State Relay rated for 30V, 120mA. It can be configured 9 ways; as shown in the following diagrams. Switch set point(s) and continuous output zero and span points are set at the factory as specified by the customer.

In all nine configurations, the fail-safe state for the 815PT switch output will be open (i.e., if power is removed from the 815PT, the switch contacts will open automatically).

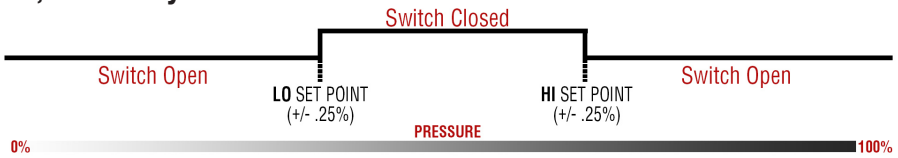
❶ Off
❷ Windowed, Normally-Open
❸ Windowed, Normally-Closed
❹ Single Point, Normally-Open
❺ Single Point, Normally-Closed
❻ PWM (Pulse Width Modulation), Pulsed Low
❼ PWM (Pulse Width Modulation), Pulsed High
❽ Dead Band, Normally-Open
❾ Dead Band, Normally-Closed

❷ Windowed, Normally-Open



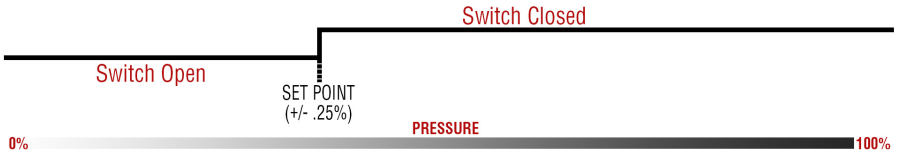
In this configuration, the switch output will be open when the process pressure is within a user selectable range and closed when the pressure is outside of these boundaries. This is designed for applications where there is a known acceptable operating pressure range.

❸ Windowed, Normally-Closed



In this configuration, the switch output will be closed when the process pressure is within a user selectable range and open when the pressure is outside of these boundaries. This is designed for applications where there is a known acceptable operating pressure range.

❹ Single Point, Normally-Open (Close on Rise/Open on Fall)



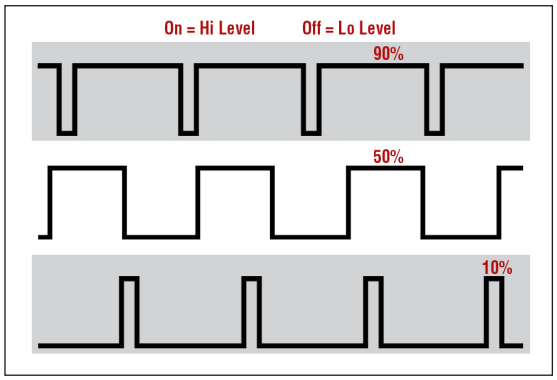
In this configuration, the switch output will be open for pressures less than the selected setpoint. The switch output would then be closed for pressures greater than the setpoint.

Switch Operation

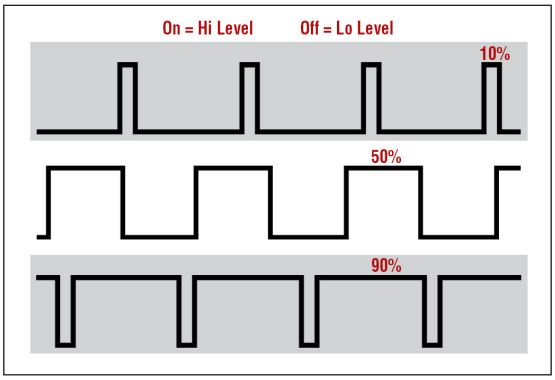
❺ Single Point, Normally-Closed (Open on Rise/Close on Fall)

In this configuration, the switch output will be closed for pressures less than the selected setpoint. The switch output would then be open for pressures greater than the setpoint.

❻ Pulse Width Modulation - Pulsed Lo

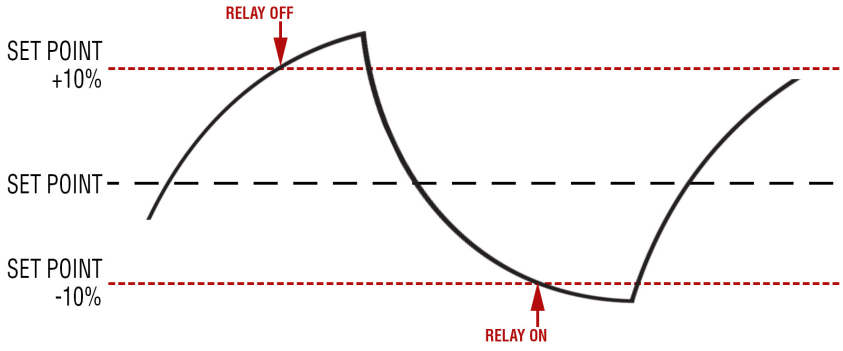


❼ Pulse Width Modulation - Pulsed Hi



❽&❾ Dead Band

This diagram depicts an adjustable dead band. Dead band is the range through which an input can be varied without initiating an observable response. Dead band is usually expressed in percent of span.



EXAMPLE: A 20% total dead band is applied to the setpoint of a monitored parameter. The relay will turn on and off as indicated in the graph above.

815PT Smart Pressure Transmitter

How to Order

Model Number System

815PT - Z07 - A - RR9A

815PT Smart Pressure Transmitter, HART 7 Communication Protocol with 4-20 mA Output, Modbus RTU (RS-485) Serial Communications, 1-5 VDC (Low-Power) Mode of Operation, Configurable Solid-State Switch Output, 0-2500 psi, 17-4SS Port, ½" NPT(M) with ¼" NPT(F) Process Connection, and Optional SS Tag Wired to Housing with Customer Specified Information.

1 Range

0-5 psi	00
0-15 psi	01
0-50 psi	02
0-100 psi	03
0-250 psi	04
0-500 psi	05
0-1000 psi	06
0-2500 psi	07
0-5000 psi	08
0-10000 psi	09
0-15000 psi	10
0-30000 psi	11

2 Process Connection Size

A	Stainless Steel, 1/2"NPT(M) with 1/4"NPT(F), Process Connection (316SS for ranges 0-100 psi and below) (17-4SS for ranges above 0-100 psi)
S	316SS, 1/2"NPT(M) Flush-Mount, Liquid-Filled, Diaphragm Seal, Process Connection*
H	17-4SS, Autoclave F250C Female (For 1/4" OD Tubing), Process Connection**

3 Accessories

BB	Cleaned for industrial oxygen service
DS	Dual Seal approval (FM)***
PK	Pipe mounting kit
RR	SS tag wired to housing with customer specified information

815PT Z 07 A RR 9A ← Model Number

*Only available for Range options 04 thru 08
**For pressure Ranges above 0-10,000 psi (Range options 10 and 11)
***Dual Seal version is not hermetically sealed. Only available for Range options 00 thru 09

Note: The continuous zero and span points and the Switch Configuration Mode and set point(s) must be specified. Refer to switch configuration diagrams on page 3.

Example: ***815PT-Z07-A-RR9A,*** *which has a range of* ***0-2500 psi*** *could be ordered with zero and span of 200 psi and 2300 psi. The window mode switch configuration could have a LO set point of 210 psi and a HI set point of 2290 psi.*

Test Certificates

	Certificates*	C1	C2	C3	C4	C8	D2
815PT	Calibration	◆					
	Hydrostatic Pressure Test		◆				
	Inspection Report			◆			
	Compliance / Conformance				◆		
	Typical Material of Wetted Parts					◆	
	Manufacturer's Certification						◆

*Add certificate code to the end accessory portion of model number. (*Example:* ***815PT-Z07-A-RRC19A)***

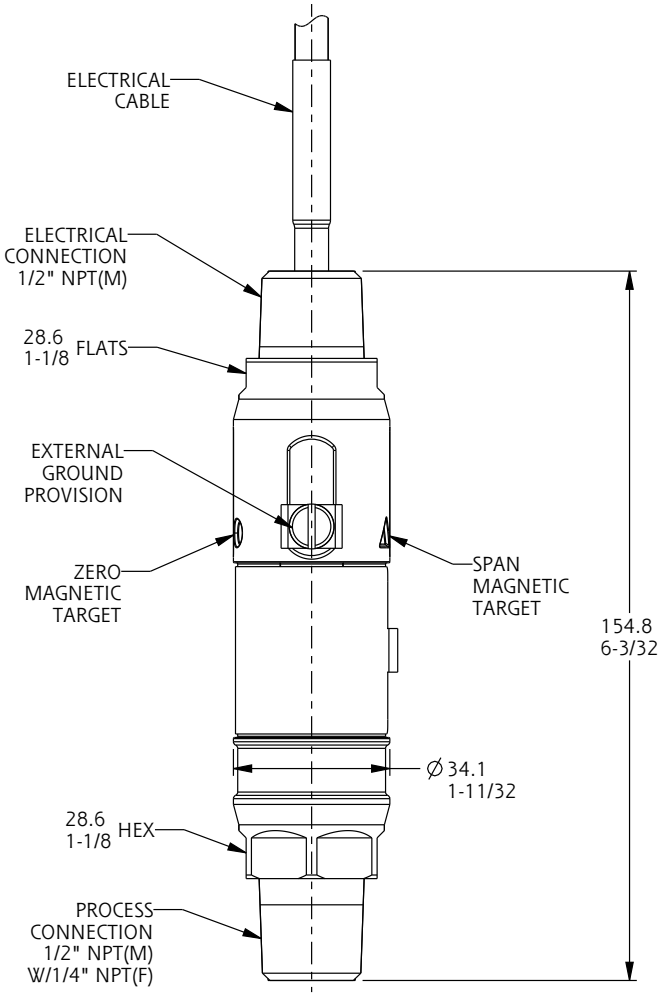
Agency Approvals

Approved	Safety Method	Approval
FM (U.S. and Canada)	Explosion Proof Hazardous Locations	Class I, II, III; Division 1 Groups A-G; T5; Type 4X
	Non-incendive	Class I, II, III; Division 2 Groups A-G; T5; Type 4X
ATEX	Flameproof	II 2 G Ex d IIC T5 IP 66

Dimensions

Dimensions shown are for reference only. Contact the factory for certified dimension drawings.
Linear = mm/in.

Drawing 0091534



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Learn more about Cameron's
measurement solutions at:
www.c-a-m.com/measurement

HSE Policy Statement
At Cameron, we are committed ethically, financially and personally
to a working environment where no one gets hurt and nothing gets harmed.