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Технические характеристики на вращающиеся лопастные реле контроля уровня PLS, ультразвуковые реле уровневые 003 компании Delta Mobrey

Paddle Level Switch

Solids Level Measurement

Series: Paddle

Key Features

- Failsafe option
- High temperature option
- 1½" BSP or 1¼" NPT threaded connection
- Side or top mounting
- Shaft or cable extensions
- Robust aluminium housing
- IP66 ingress protection
- AC or DC supply voltages
- Dust explosion protection

Series Overview

The paddle switch may be used as either a high or low level limit switch. It is easily mounted from above, or through a vessel wall. A small electric motor drives a paddle which rotates freely in the absence of material. When the paddle is impeded by the presence of material, a microswitch actuates an alarm signal. As soon as the paddle is completely stopped from rotating, power to the motor is cut, thus extending motor life. After the material level falls, the motor is returned to its normal position and the paddle begins to rotate again.

Failsafe models use a microcontroller for self-validating diagnostics and monitor both motor and shaft rotation to detect and indicate a fault condition on the fault relay.

Series PLS switches can be used with granular, pelletized, and powdered dry products. They may be used in high level applications with materials over 160 kg/m³ and low or intermediate applications with materials over 80 kg/m³.

Other products

Other products we can offer:

- Ultrasonic Level Transmitters



Product applications

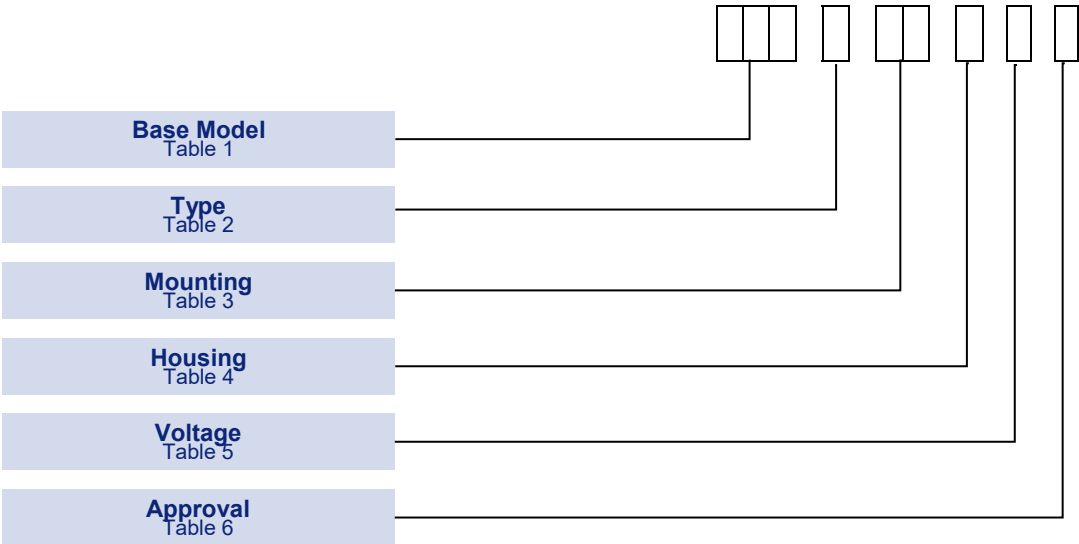
- Powders
- Pellets
- Granulates
- Grains
- Cement and sand
- Coal, slag Aggregate
- Not intended for use with liquids



How to order

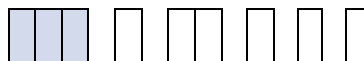
Paddle Level Switches can be configured by selecting codes representing the desired features from the tables that follow.

The table below, describes how the model code is built up. For assistance in configuring a transmitter that best suits your needs, please contact your local sales office.



Base Model

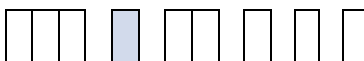
TABLE 1



	Code
Paddle Level Switch	PLS

Type

TABLE 2



	Code
Standard model, 2 x SPDT alarm relays	K
High temperature standard model, 2 x SPDT alarm relays	H
Failsafe Safepoint model with fault relay and 1 x SPDT alarm relay	P
High temperature failsafe Safepoint model with fault relay and 1 x SPDT alarm relay	T

Mounting

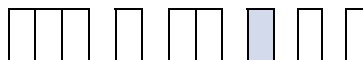
TABLE 3



	Code
R 1½" BSPT mounting (except high temperature)	B1
1¼" NPT mounting (all models)	N1

Housing

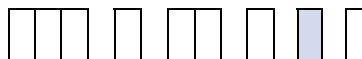
TABLE 4



	Code
Aluminium alloy housing	3

Voltage

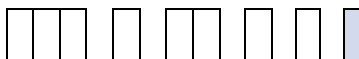
TABLE 5



	Code
115 Vac motor voltage	0
240 Vac motor voltage	1
24 Vdc motor voltage	2

Approval

TABLE 6

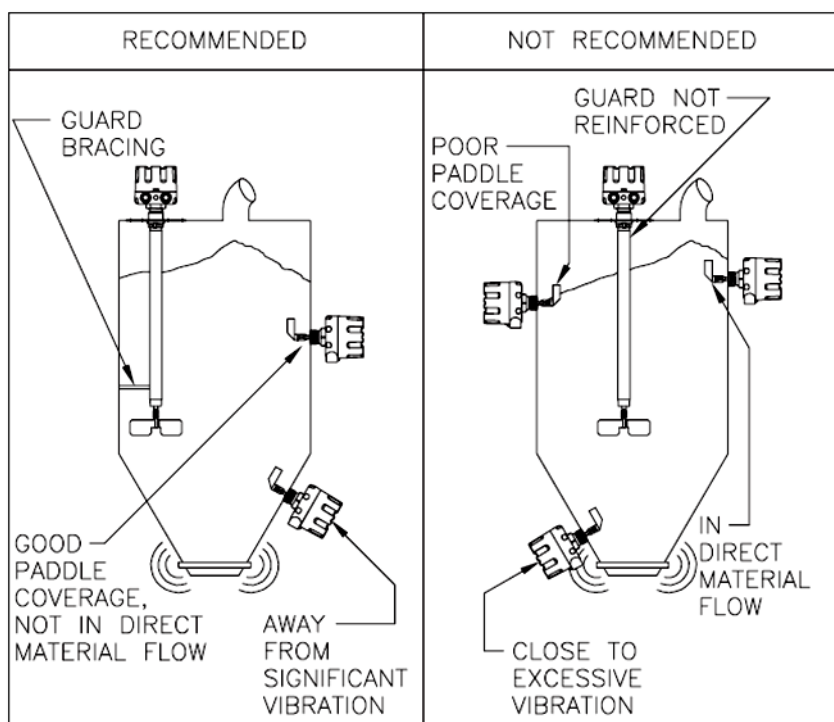


	Code
ATEX Dust Certification II 1/2 D	A
No hazardous area approval	Z

Paddles and Accessories

Paddle selection		Scimitar	Single vane	3 vane std	3 vane large	2 vane	4 vane	Triangular	Belt vane
									
Order part no.		P4193	P4145	P4146	P4141	P4135	P4156	P4144	P4137
Application									
Heavy material >2000 kg/m ³ >40 mm Ø	high								■ *1
	low								■ *1
Heavy material >2000 kg/m ³ <40 mm Ø	high		■ *1			■ *1	■ *1		
	low		■ *1			■ *1	■ *1		
Medium material 250 kg/m ³ to 1000 kg/m ³	high	■		■			■	■	
	low	■	■	■			■	■	
Light material up to 250 kg/m ³	high	■			■			■	
	low	■			■			■	
Mounting		Insertable	Insertable	Plate or flange	Plate or flange	Plate or flange	Plate or flange	Plate or flange	Plate or flange
Notes	*1 Flexible coupling required						■ = Recommended		

Installation Recommendations

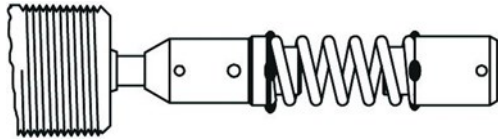


Paddle Level Switch	
Media density	> 80 kg/m ³
Process connection	1 ½" BSPT or 1 ¼" NPT
Conduit connection	2 x M20 (BSPT model) or 2 x 3/4" (NPT model)
Output	Standard model: 2 x SPDT relays, 15A at 250 Vac Safepoint model: 1 x SPDT signal relay, 5A at 250 Vac 1 x SPDT fault relay, 8A at 250VAC
Process temperature	Standard model: -40°C to 149°C (-40 to 300°F) Safepoint model: -40°C to 121°C (-40 to 250°F) High temperature model: -40°C to 399°C (-40 to 750°F)
Ambient temperature	Standard model: -40°C to 93°C (-40 to 199°F) Safepoint model: -40°C to 65°C (-40 to 149°F)
Operating pressure	2 bar maximum
Power supply	Order code 0: 115 Vac +/- 15% (50/60 Hz) Order code 1: 230 Vac +/- 15% (50/60 Hz) Order code 2: 24 Vdc +/- 15%
Housing material	Aluminium alloy, powder paint coated
Wetted materials	304 stainless steel
Housing rating	IP66
Weight	Approx. 4kg (standard model)
Approvals	ATEX II 1/2 D

Dimensions

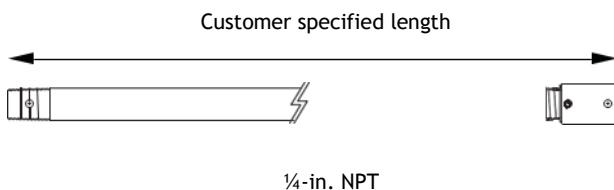
Flexible coupling (P3335)

The flexible coupling works to absorb heavy loads, side loads and loads caused by product surges. A flexible coupling should always be used in top mount installations where a solid shaft extension is used. Length is approximately 64mm,



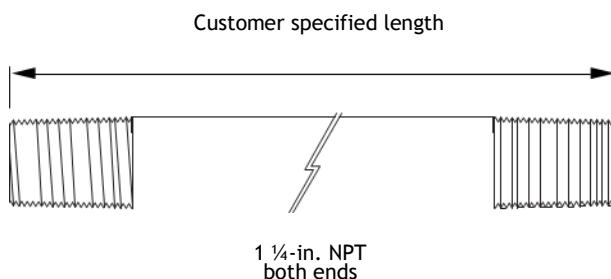
Solid (rigid) shaft extensions (P1175-2/****mm)

Many top mount installations require that the paddle extends into the vessel to a pre-determined level. Solid shaft extensions in stainless steel are available to customer order from 76mm up to 1800 mm in length. Multiple sections can be supplied to achieve lengths of up to 3600 mm. Always specify a flexible coupling and a shaft guard with a solid shaft extension.



Shaft guard (P1174-2/****mm)

A stainless steel shaft guard should be specified when a solid shaft extension is required. The shaft guard should be ordered as the same length as the shaft extension. Maximum length is 1800 mm for lengths of up to 3600 mm, and multiple sections can be supplied complete with assembly coupling. Contact sales office for details.

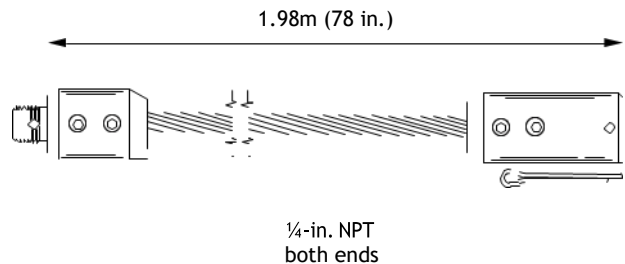


Shaft-guard coupling (P0038)

If it is necessary to use more than one shaft-guard in a single installation, they can be screwed together using shaft-guard couplings.

Flexible shaft extension (P1176-2)

Alternatively, a 2000 mm stainless steel flexible cable extension is available which may be cut to length on site and eliminates the need for the flexible coupling and shaft guard.



Mounting plate (see below for detail)

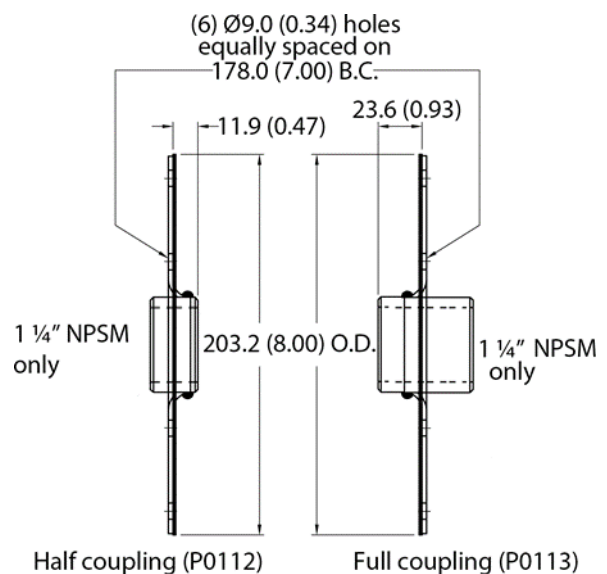
Half coupling: P0112; Full coupling: P0113

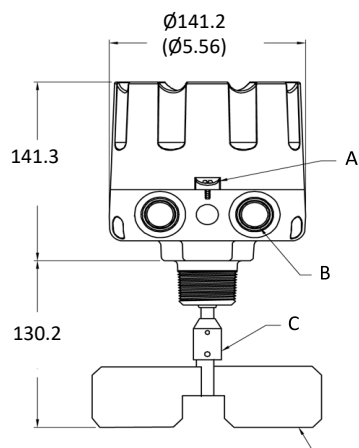
A mounting plate allows mounting to a curved or flat surface and is particularly advantageous if the paddle to be used is not an insertion type.

Two types are available: (Note: use only with NPT thread mounting paddle switches)

Full coupling (P0113) in stainless steel is necessary for use in top-mount applications where a shaft extension and shaft guard is specified. (Included as standard on high temperature option.)

Half coupling (P0112) in stainless steel for use in side-mount applications.





A. Cover lock

C. Threaded entry to accept flex coupling, extension, or paddle

B. 3/4-in. NPT threaded conduit entry

D. Standard 3-vane paddle

Dimensions are in inches (mm).

Approvals

EUROPEAN DIRECTIVES

Electromagnetic Compatibility Directive (EMC) 2014/30/EU

Compliant to EMC directive

Low Voltage Directive (LVD) 2014/35/EU

Compliant to LVD directive

Pressure Equipment Directive (PED) 2014/68/EU:

This product is outside the scope of the PED directive

ATEX DIRECTIVE 2014/34/EU

Certificate No. Sira 19ATEX9225

EN 60079-0, EN 60079-11

For Zone 20/21 models (Code PLS*****A see Table 2)



II 1/2 D Ex tD A20/A21 T100°C
(Ta -40°C to 93°C)

ISO9001



FM00720

Page 7 of 7

Level Switch Series

Ultrasonic Level Switch

Model: 003

Key Features

- Relay or solid-state output
- Corrosion resistant PPS construction
- 1-in. or ¾-in. threaded mounting
- Small in-tank dimensions
- 24 Vac or dc powered
- Lightweight
- No moving parts

Series Overview

The 003 sensor is a highly reliable level switch with no moving parts.

Comprising a one piece moulded body with an integral PCB, the 003 Level Switch is factory sealed and supplied with a flying lead for customer connection.

The sensor is designed for high or low level alarm duties to give a voltage free contact or solid state transistor output for alarm signalling or as part of a pump control system.

Other products

Other products we can offer :

- Ultrasonic GAP sensors
- Mechanical level switches



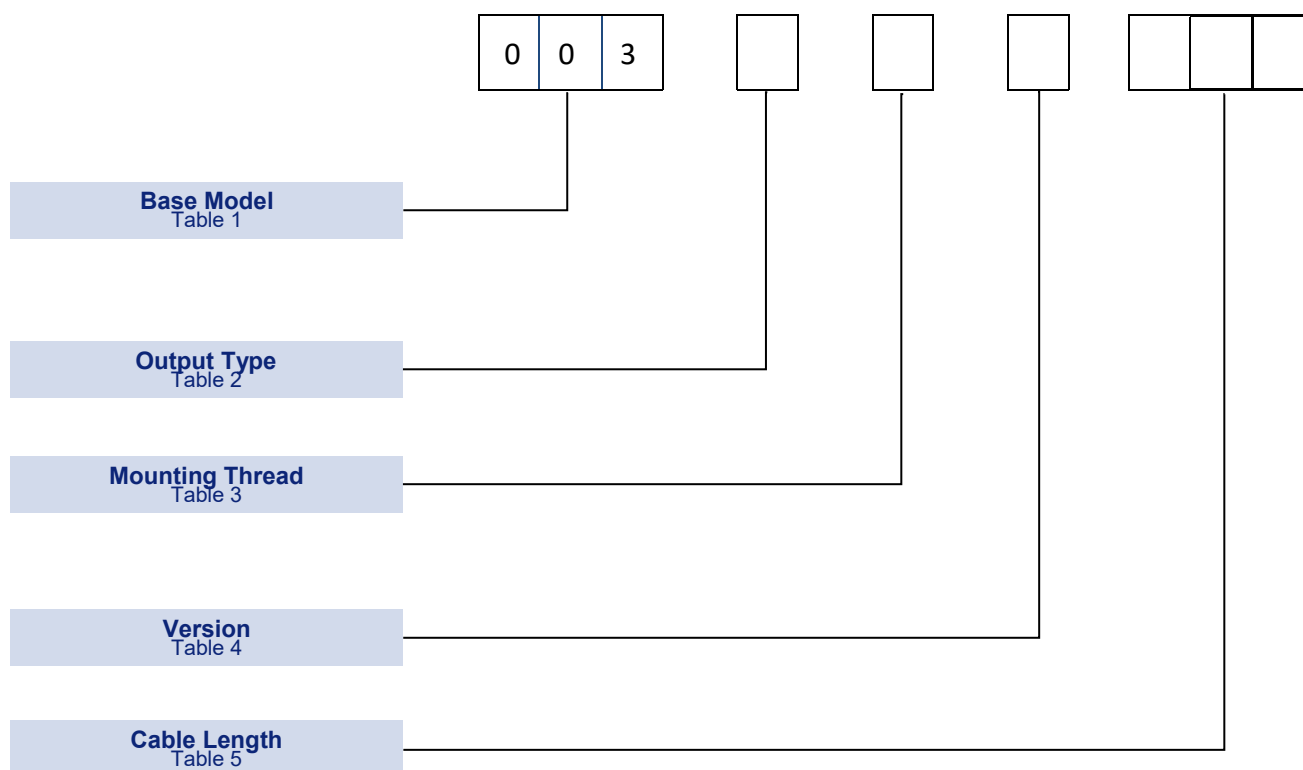
Product applications

- Low level alarms in header tanks
- Pump control duty in feeder tanks
- High or low alarms in storage tanks
- Level or pump control in storage tanks
- Small or thin wall tanks
- Bund level detection
- Steering gear oil
- Chemical and water treatment applications



How to order

Switches can be configured by selecting codes representing the desired features from the tables that follow. The chart below, describes how the model code is built up. For assistance in configuring a switch that best suits your needs, please contact your local sales office.



Body of the instrument shows as minimum the marking below listed

- Series (according to codes in table 1)
- Type of output (according codes in table 2)
- Process connection size (according to codes in table 3)

Version, Cable Length and Description of Special Engineering, are shown on the commercial documentation supplied with the instrument.

Models

For standard applications up to 5 bar (72psi)

TABLE 1	0	0	3						
---------	---	---	---	--	--	--	--	--	--

Description	Code
General Purpose The body is Polyphenylene Sulphide (PPS), with weather protection not less than NEMA type 6P, IP66/IP68.	003

Output Type

TABLE 2	0	0	3						
---------	---	---	---	--	--	--	--	--	--

Description	Code
Integral SPCO relay (energised when sensor is wet)	S
Two open-drain FET transistors (one conducting when sensor is wet; and the other conducting when the sensor is dry)	H

Mounting Thread

TABLE 3	0	0	3						
---------	---	---	---	--	--	--	--	--	--

Description	Code
3/4" BSPT (dual)	0
1" BSPT (dual)	2
1"-11 NPTM (dual)	5

Version

TABLE 4	0	0	3						
---------	---	---	---	--	--	--	--	--	--

Description	Code
General purpose ¹	W
Marine ²	M

¹ Cable, 5 core 7/0.2mm, PVC sheathed

² Cable, 5 core 19/0.2mm, Screened and Jacketed

Cable Length

TABLE 5	0	0	3						
---------	---	---	---	--	--	--	--	--	--

Description	Code
3 metres	/M03
TBA	/M--

3 metres minimum, 50 metres maximum

Special Engineering

For these instruments, we have many other options already designed and configured, for example:

- Carbon Fibre body
- Alternative cables, including low smoke or halogen free
- Sensor with the relay output energized dry

Other options can also be designed to meet specific requirements of an application. Please contact us for further information.

Technical Specification

003 ULTRASONIC TYPE SWITCHES	003S		003H	
	Operating Pressure	5 Bar (72.5psi)	Operating Pressure	5 Bar (72.5psi)
	Ambient and Operating Temperature	-20 to 70°C (-4 to 158°F)	Ambient and Operating Temperature	-40 to 105°C (-40 to 221°F)
	Minimum Specific Gravity	0.50	Minimum Specific Gravity	0.50
	Maximum Viscosity	5000Cst at 20°C (68°F)	Maximum Viscosity	5000Cst at 20°C (68°F)
	Switching response	50ms dry/wet, 0.5s wet/dry	Switching response	50ms dry/wet, 0.5s wet/dry
	Hysteresis	<4mm (0.12 in.)	Hysteresis	<4mm (0.12 in.)
	Repeatability	+/- 2mm (0.08 in.)	Repeatability	+/- 2mm (0.08 in.)
	Switching function	SPCO relay (energized Wet)	Switching function	2 x FET open drain (short circuit protected).
	Maximum switching current	1A resistive, 0.2A inductive	Maximum switching current	100mA max
	Maximum switching voltage	30V	Maximum switching voltage	30V
	Power Supply	18 to 30 Vdc/ac	Power Supply	18 to 30 Vdc/ac
	Current drawn when dry	10mA nominal	Current drawn when dry	8mA nominal (4mA minimum)
	Current drawn when wet	25mA maximum	Current drawn when wet	16mA nominal (20mA maximum)
	IP rating	IP66/68 (3m) – NEMA 6P (10ft)	IP rating	IP66/68 (3m) – NEMA 6P (10ft)
	Overall Length	110 mm (4.33 in.)	Overall Length	110 mm (4.33 in.)
	Length into Tank	79 mm (3.11 in.)	Length into Tank	79 mm (3.11 in.)
	Body Diameter	22 mm (0.87 in.)	Body Diameter	22 mm (0.87 in.)
	Weight (with 3m of Cable)	0.2 kgs	Weight (with 3m of Cable)	0.2 kgs

Approvals

EUROPEAN DIRECTIVES



Electromagnetic Compatibility Directive (EMC) 2014/30/EU.

This product is compliant with the directive. EN 61326-1:2013

Restriction of Hazardous Substances Directive (RoHS) 2011/65/EU.

This product is compliant with the directive

Low voltage Directive (LVD) 2014/35/EU.

This product is outside the scope of the directive as it designed for a voltage less than 50Vac and 75Vdc.

Pressure Equipment Directive (PED) 2014/68/EU:

This product is outside the scope of the directive as it does not enclose a volume (Pressure Equipment Directive Guideline, A-40)

MARINE

DNV

Certificate no. TAA0000140 (003**M/*)

DNV rules for classification –Ships, offshore units, and high speed and light craft

Location classes: Temperature B

Humidity B

Vibration A

EMC A

Enclosure C / IP66

D /IP68 (3m)

Dimensions

Figure 1. 003S* Schematic

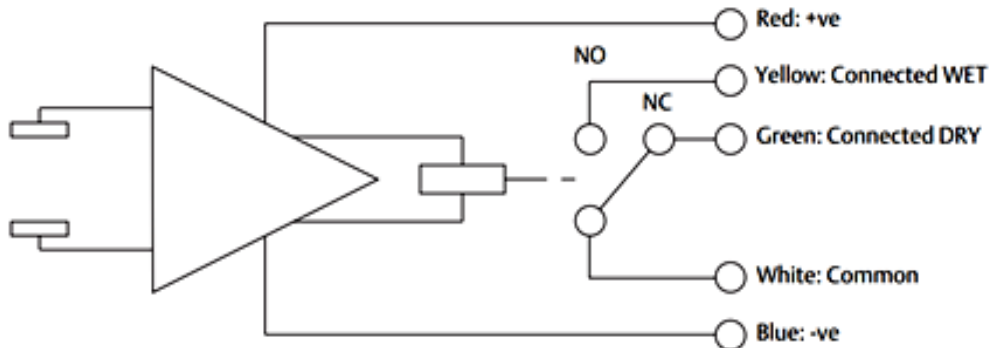
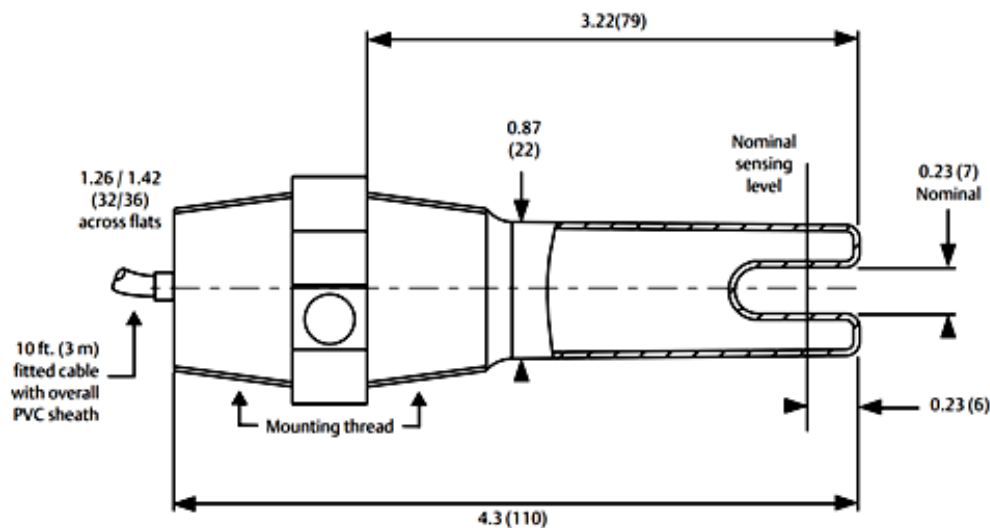
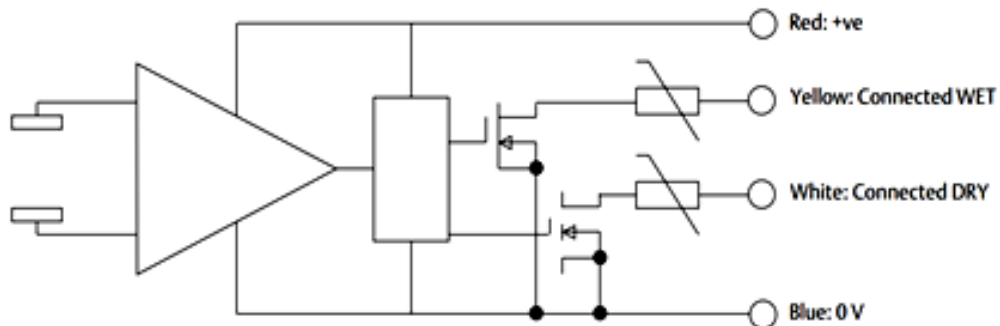


Figure 2. 003H* Schematic



Dimensions are in inches (mm) unless otherwise stated.

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