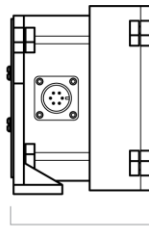


5.4" [137 mm]

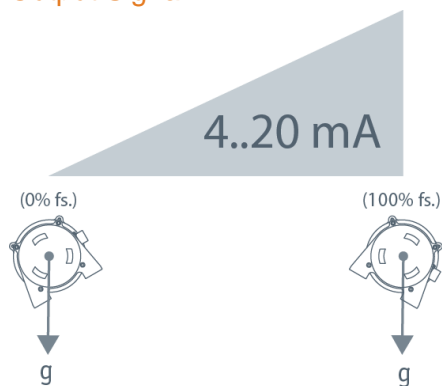


3.7" [95 mm]

The model IT9420 is a rugged yet simple device which provides a 4 to 20 mA current feedback signal for incline position. The heart of the IT9420 is a magnetically-damped pendulum coupled to a conductive plastic precision potentiometer. A highly linear relationship between inclination and a 4 to 20 mA output is maintained over the full range of the IT9420.

The IT9420 is easy to use: simply attach it to the object of measurement and install two wires for the current loop.

### Output Signal



## IT9420

### Inclinometer • 4..20 mA

Measuring Range Options from 0-45° to 0-240°

Aluminum or Stainless Steel Enclosure Options

Perfect for Water Management/ Tainter Gate Position

IP68 • NEMA 6 Protection • Hazardous Area Certification

#### General

Available Full Stroke Ranges	0-45 to 0-240 degrees
Weight (aluminum enclosure)	5 lb. typical (aluminum enclosure)
Enclosure Material	aluminum (stainless steel available)
Sensor	precision potentiometer
Electrical Connector	MS3102E-14S-6P
Mating Plug (included)	MS3106E-14S-6S

#### Electrical

Output Signal	4..20 mA
Input Voltage	see ordering information
Input Current	20 mA max.
Circuit Protection	38 mA maximum

#### Performance

Sensitivity	16 mA/full stroke, $\pm 0.25\%$
Accuracy*	$\pm 1\%$ full stroke
Accuracy Option	0.5% full stroke (please contact factory)
Resolution	essentially infinite

#### Full Stroke Ranges of 45° - 105°

Zero Adjustment	from factory set zero to 20% of full stroke range
Span Adjustment	to 20% of factory set span

#### Full Stroke Ranges of 120° - 240°

Zero Adjustment	from factory set zero to 40% of full stroke range
Span Adjustment	to 40% of factory set span

\*—when plane of pendulum motion parallel to plane of rotation within  $\pm 3^\circ$

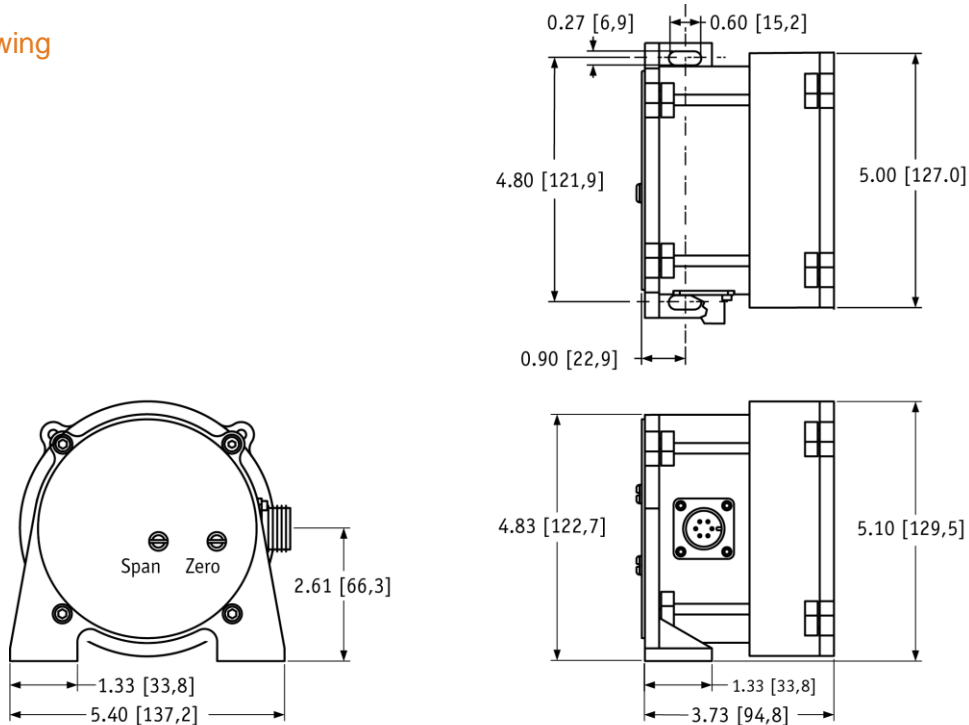
#### Environmental

Enclosure	NEMA 4/4X/6, IP 67/68
Hazardous Area Certification	see ordering information
Operating Temperature	-30° to 200°F (-34° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

# IT9420

Inclinometer • 4..20 mA

## Outline Drawing



DIMENSIONS ARE IN INCHES [MM]  
tolerances are ±0.02 in. [±0,5 mm] unless otherwise noted

## Ordering Information

Model Number:

**IT9420** -      -      -      -      -      -      -      -       
order code:      **CW**      **CCW**      **A**      **B**      **C**      **D**

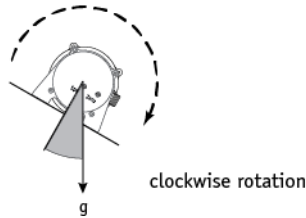
Sample Model Number:

**IT9420 - 060 - 120 - 1110**

- |  |                                   |                         |
|--|-----------------------------------|-------------------------|
| <b>CW</b> clockwise rotation:          | 60°                               | } total rotation = 180° |
| <b>CCW</b> counter-clockwise rotation: | 120°                              |                         |
| <b>A</b> enclosure:                    | aluminum                          |                         |
| <b>B</b> output signal:                | 4 mA @ 120° CCW<br>20 mA @ 60° CW |                         |
| <b>C</b> electrical connection:        | 6-pin plastic connector           |                         |
| <b>D</b> magnetic dampening:           | yes                               |                         |

### Full Clockwise Rotation:

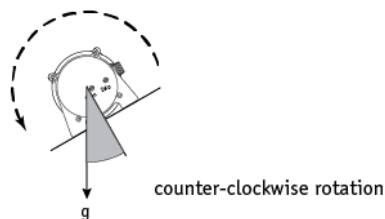
<b>CW</b> order code:	<b>000</b>	<b>015</b>	<b>030</b>	<b>045</b>	<b>060</b>	<b>075</b>	<b>090</b>	<b>105</b>	<b>120</b>
	0°	15°	30°	45°	60°	75°	90°	105°	120°



**Important--**  
the sum of the Clockwise and Counter-Clockwise Rotations must be in the range of 45° to 240°

### Full Counter-Clockwise Rotation:

<b>CCW</b> order code:	<b>000</b>	<b>015</b>	<b>030</b>	<b>045</b>	<b>060</b>	<b>075</b>	<b>090</b>	<b>105</b>	<b>120</b>
	0°	15°	30°	45°	60°	75°	90°	105°	120°



**Important--**  
the sum of the Clockwise and Counter-Clockwise Rotations must be in the range of 45° to 240°

# IT9420

Inclinometer • 4...20 mA

## Enclosure Material:

<b>A</b> order code:	<b>1</b>	<b>2</b>
	powder-painted aluminum	303 stainless steel

## Output Signal:

<b>B</b> order code:	<b>1</b>	<b>2</b>	<b>5</b>	<b>6</b>
output signal options:	4...20 mA	20...4 mA	4...20 mA	20...4 mA

input voltage:	8 – 34 vdc	14 – 32 vdc
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hazardous area certification:	not certified	CSA Standard 22.2 Class 1 Groups A, B, C and D	Cenelec LCIE EEx ia IIc T4
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**\*IMPORTANT:** intrinsically safe when powered from a CSA certified zener barrier rated 28 VDC max, 110 mA max per installation drawing#677984

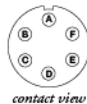
## Electrical Connection:

<b>C</b> order code:	<b>1</b>	<b>2</b>	<b>4</b>
	6-pin plastic connector w/mating plug <b>IP 67, NEMA 4X**,6</b>	10-ft. [3 M] waterproof cable <b>IP 67, NEMA 4X**, 6</b>	25-ft. [7.5 M] instrumentation cable <b>IP 67, NEMA 6</b>
	 1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	 10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW	 25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded

<b>C</b> order code:	<b>5</b>	<b>6</b>	<b>7</b>
	100-ft. [30 M] waterproof cable <b>IP 67, NEMA 4X**,6</b>	10-ft. [3 M] <b>pressure tested*</b> waterproof cable <b>IP 68, NEMA 4X**, 6P</b>	100-ft. [30 M] <b>pressure tested*</b> waterproof cable <b>IP 68, NEMA 4X**, 6P</b>
	 100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW	 10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW	 100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW

### 6-pin Mating Plug

pin	signal
A	8...34 vdc
B	4...20 mA out
C	-
D	case ground



### Waterproof Cable

color code	signal
WHITE	8...34 vdc
BLACK	4...20 mA out
GREEN	case ground

### Instrumentation Cable

color code	2-wire
RED	8...34 vdc
BLACK	4...20 mA out
WHITE	n/a
GREEN	case ground

\*--Test pressure: 100 feet [30 meters] H<sub>2</sub>O (40 PSID) Test Medium: Air; Duration: 2 hours. \*\*--applies to stainless steel enclosure only.