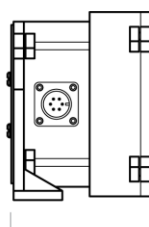


5.4" [137 mm]

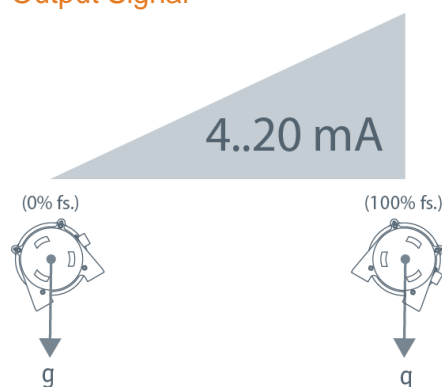


3.7" [95 mm]

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  $\pm 3^\circ$

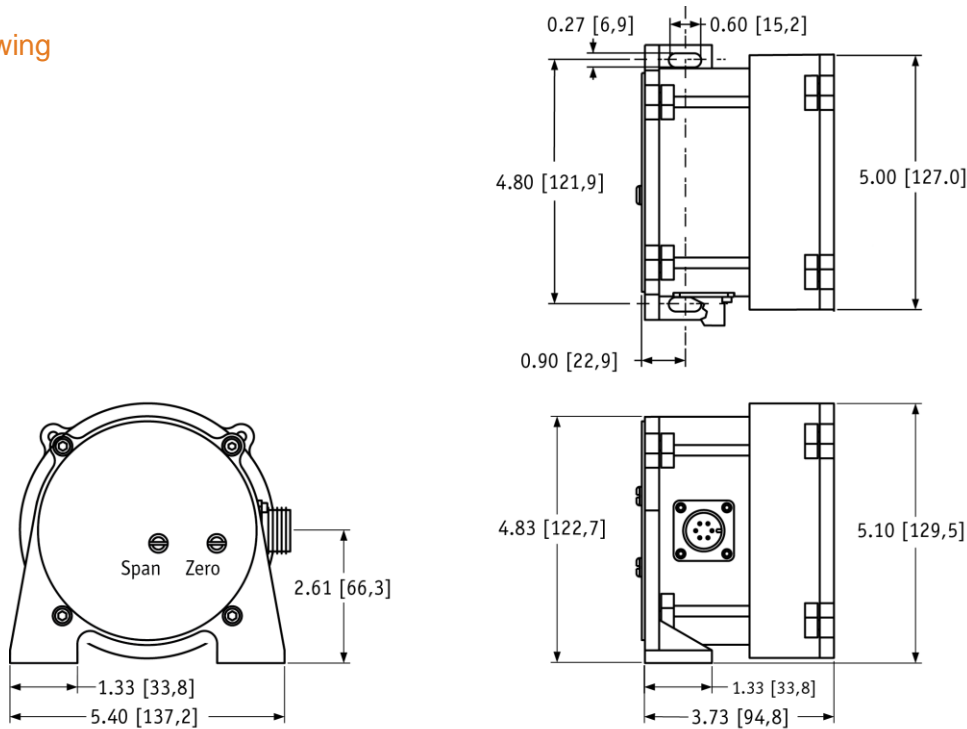
## Environmental

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  $\pm 0.02$  in. [ $\pm 0.5$  mm] unless otherwise noted

### Ordering Information

#### Model Number:

**IT9420** -           -           -                                        

order code: CW CCW A B C D

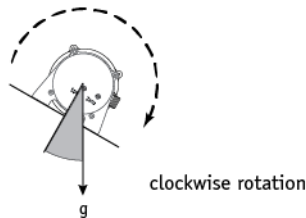
Sample Model Number:

**IT9420 - 060 - 120 - 1110**

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

#### Full Clockwise Rotation:

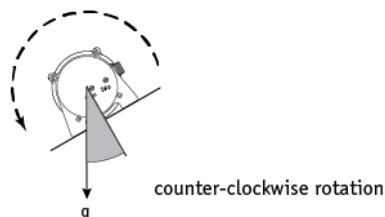
CW order code:	000	015	030	045	060	075	090	105	120
	0°	15°	30°	45°	60°	75°	90°	105°	120°



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

#### Full Counter-Clockwise Rotation:

CCW order code:	000	015	030	045	060	075	090	105	120
	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:

**A** order code:

**1**  
powder-painted aluminum

**2**  
303 stainless steel

## Output Signal:

**B** order code:

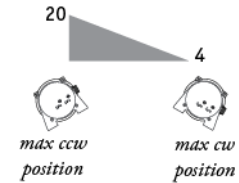
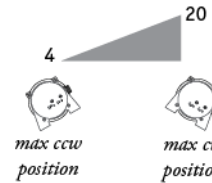
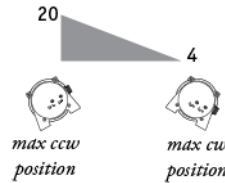
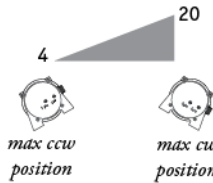
output signal options:

**1**  
4...20 mA

**2**  
20...4 mA

**5**  
4...20 mA

**6**  
20...4 mA



input voltage: 8 – 34 vdc

14 – 32 vdc

hazardous area certification:

not certified

CSA Standard 22.2  
Class 1  
Groups A, B, C and D

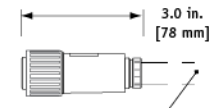
Cenelec  
LCIE EEx  
ia IIC T4

**\*IMPORTANT:** intrinsically safe when powered from a CSA certified zener barrier rated 28 VDC max, 110 mA max per installation drawing#677984

## Electrical Connection:

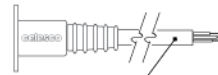
**C** order code:

**1**  
6-pin plastic connector  
w/mating plug  
IP 67, NEMA 4X\*\*, 6



1/2 - 5/16" [14 - 8 mm] cable dia.  
16 AWG max conductor size  
connector: MS3102E-14S-6P  
mating plug: MS3106E-14S-6S

**2**  
10-ft. [3 M]  
waterproof cable  
IP 67, NEMA 4X\*\*, 6



10 ft. x 0.4-in. dia.  
[3 M x 10 mm dia.]  
18 AWG, type SJTW

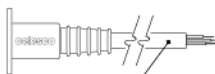
**4**  
25-ft. [7.5 M]  
instrumentation cable  
IP 67, NEMA 6



25 ft. x 0.2-in. dia.  
[7.5 M x 5 mm dia.]  
24 AWG, shielded

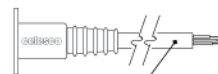
**C** order code:

**5**  
100-ft. [30 M]  
waterproof cable  
IP 67, NEMA 4X\*\*, 6



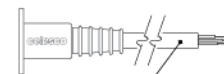
100 ft. x 0.4-in. dia.  
[30 M x 10 mm dia.]  
18 AWG, type SJTW

**6**  
10-ft. [3 M]  
**pressure tested\***  
waterproof cable  
IP 68, NEMA 4X\*\*, 6P



10 ft. x 0.4-in. dia.  
[3 M x 10 mm dia.]  
18 AWG, type SJTW

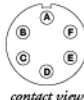
**7**  
100-ft. [30 M]  
**pressure tested\***  
waterproof cable  
IP 68, NEMA 4X\*\*, 6P



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.

## IT9420

Inclinometer • 4..20 mA

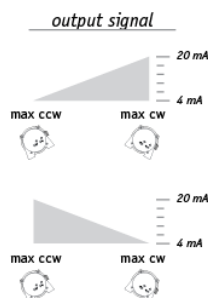
### Dampening Option:

① <i>order code:</i>	0	1
	with magnetic dampening	without magnetic dampening

### Output Signal Selection:

The output signal direction can be reversed at any time by simply changing the dip-switch settings found on the internal signal board. After the settings have been changed, adjustment of the Zero and Span trimpots will be required to precisely match the 4 mA and 20mA signal values to the beginning and end points of the stroke.

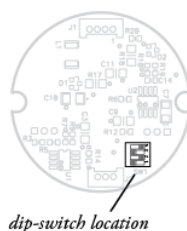
To gain access to the signal board, remove four Allen-Head Screws and remove end cover bracket.



*switch setting*

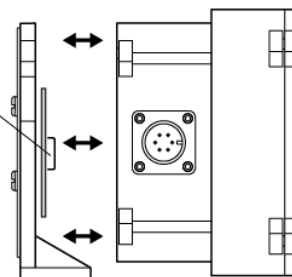


*signal board*



*dip-switch location*

*internal dip switches  
& signal board*



### NORTH AMERICA

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