

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

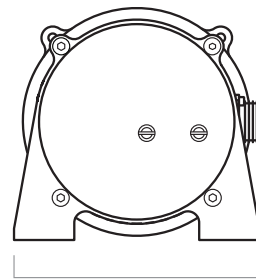
Full Stroke Ranges of 120° - 240°

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

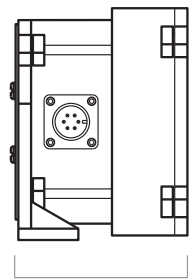
*—when plane of pendulum motion parallel to plane of rotation within $\pm 3^\circ$

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



5.4" [137 mm]

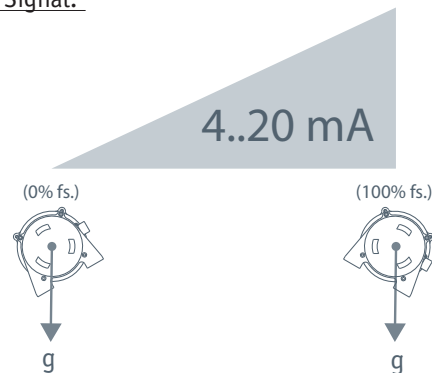


3.7" [95 mm]

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:



20630 Plummer Street • Chatsworth, CA 91311
tel: 800.423.5483 • +1.818.701.2750 • fax: +1.818.701.2799



celesco

celesco.com • info@celesco.com

Ordering Information:

Model Number:

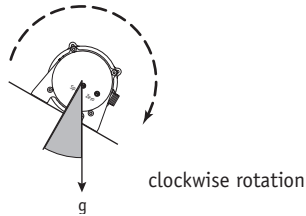
IT9420 - _____ - _____ - _____ - _____
order code: **CW** **CCW** **A** **B** **C** **D**

Sample Model Number:
IT9420 - 060 - 120 - 1110

- | | | | |
|------------|-----------------------------|-----------------------------------|-------------------------|
| CW | clockwise rotation: | 60° | } total rotation = 180° |
| CCW | counter-clockwise rotation: | 120° | |
| 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:

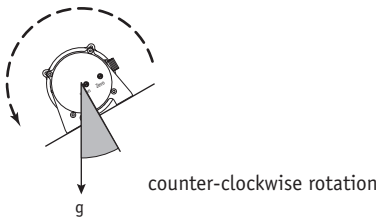
CW	<i>order code:</i>	000	015	030	045	060	075	090	105	120
		0°	15°	30°	45°	60°	75°	90°	105°	120°



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

Full Counter-Clockwise Rotation:

CCW	<i>order code:</i>	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°

Enclosure Material:

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

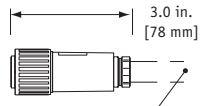
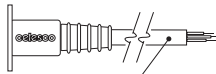
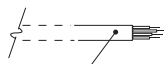
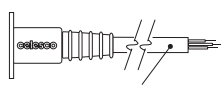
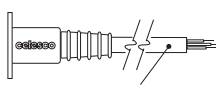
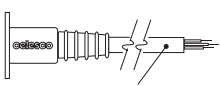

Output Signal:

B	<i>order code:</i>	1	2	5	6
output signal options:		4...20 mA	20...4 mA	4...20 mA	20...4 mA
		max ccw position	max cw position	max ccw position	max cw position
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*

Ordering Information (cont.):

Electrical Connection:

<p>Ⓢ order code:</p> <p>1</p> <p>6-pin plastic connector w/mating plug IP 67, NEMA 4X**, 6</p>  <p>3.0 in. [78 mm] 1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-145-6P mating plug: MS3106E-145-6S</p>	<p>2</p> <p>10-ft. [3 M] waterproof cable IP 67, NEMA 4X**, 6</p>  <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>4</p> <p>25-ft. [7.5 M] instrumentation cable IP 67, NEMA 6</p>  <p>25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded</p>																																
<p>Ⓢ order code:</p> <p>5</p> <p>100-ft. [30 M] waterproof cable IP 67, NEMA 4X**, 6</p>  <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>6</p> <p>10-ft. [3 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P</p>  <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>7</p> <p>100-ft. [30 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P</p>  <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>																																
<p>6-pin Mating Plug</p> <table border="1"> <thead> <tr> <th>pin</th> <th>signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>8...34 vdc</td> </tr> <tr> <td>B</td> <td>4...20 mA out</td> </tr> <tr> <td>C</td> <td>-</td> </tr> <tr> <td>D</td> <td>case ground</td> </tr> </tbody> </table>  <p>contact view</p>			pin	signal	A	8...34 vdc	B	4...20 mA out	C	-	D	case ground	<p>Waterproof Cable</p> <table border="1"> <thead> <tr> <th>color code</th> <th>signal</th> </tr> </thead> <tbody> <tr> <td>WHITE</td> <td>8...34 vdc</td> </tr> <tr> <td>BLACK</td> <td>4...20 mA out</td> </tr> <tr> <td>GREEN</td> <td>case ground</td> </tr> </tbody> </table>		color code	signal	WHITE	8...34 vdc	BLACK	4...20 mA out	GREEN	case ground	<p>Instrumentation Cable</p> <table border="1"> <thead> <tr> <th>color code</th> <th>2-wire</th> </tr> </thead> <tbody> <tr> <td>RED</td> <td>8...34 vdc</td> </tr> <tr> <td>BLACK</td> <td>4...20 mA out</td> </tr> <tr> <td>WHITE</td> <td>n/a</td> </tr> <tr> <td>GREEN</td> <td>case ground</td> </tr> </tbody> </table>		color code	2-wire	RED	8...34 vdc	BLACK	4...20 mA out	WHITE	n/a	GREEN	case ground
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*-Test pressure: 100 feet [30 meters] H₂O (40 PSID) Test Medium: Air; Duration: 2 hours. **-applies to stainless steel enclosure only.

Dampening Option:

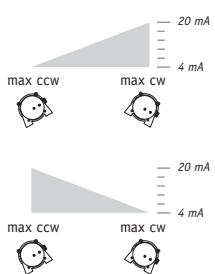
<p>Ⓢ order code:</p> <p>0</p> <p>with magnetic dampening</p>	<p>1</p> <p>without magnetic dampening</p>
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Output Signal Selection:


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.

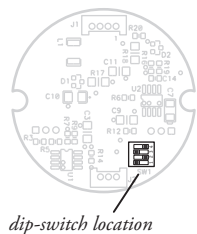
output signal



switch setting

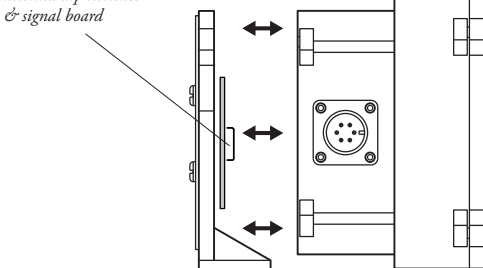


signal board

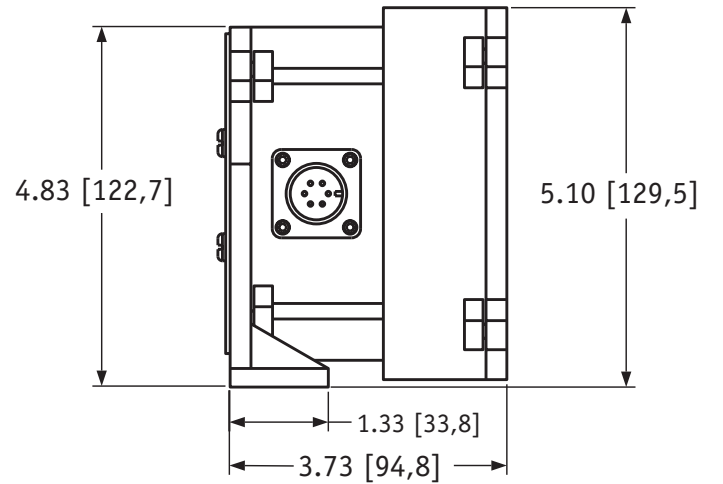
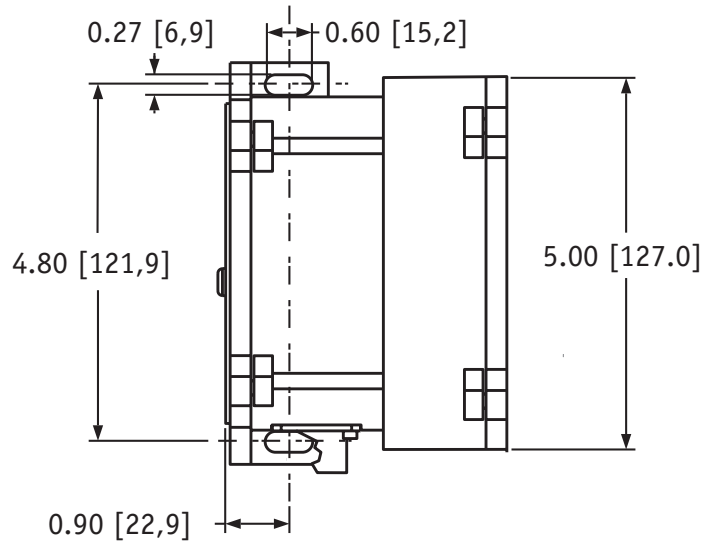
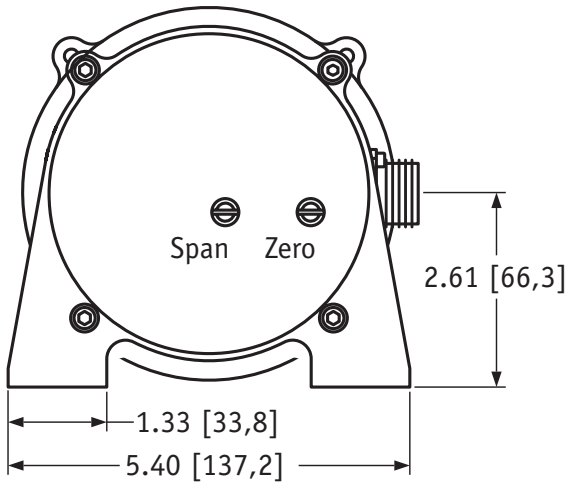


dip-switch location

internal dip switches & signal board



Outline Drawing



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

version: 4.0 last updated: August 13, 2014