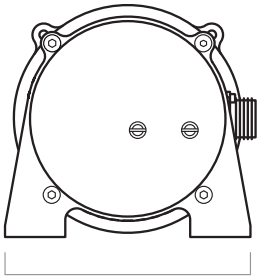
IT9420

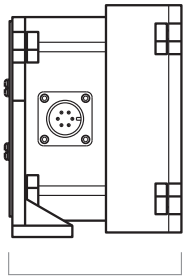
Inclinometer • 4..20 mA

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





5.4" [137 mm]



3.7" [95 mm]

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, ± 0.25%
Accuracy*	± 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 ± 3°*

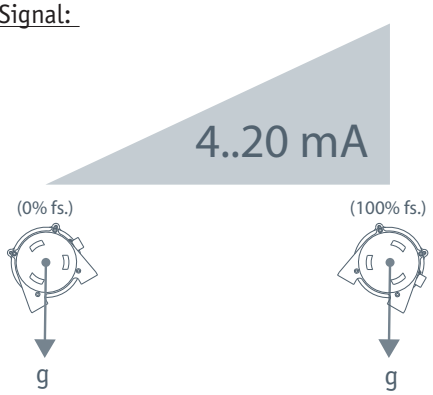
ENVIRONMENTAL

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

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

Ordering Information:

Model Number:

IT9420 - _____ - _____ - _____ _____ _____ _____

order code: CW CCW Ⓐ Ⓑ Ⓒ Ⓓ

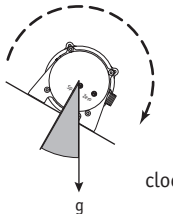
Sample Model Number:

IT9420 - 060 - 120 - 1110

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

Full Clockwise Rotation:

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

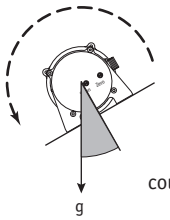


clockwise rotation

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

Full Counter-Clockwise Rotation:

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



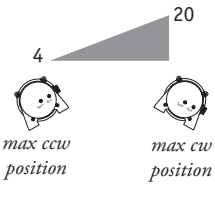
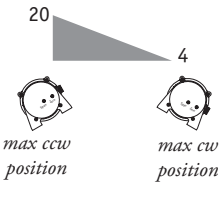
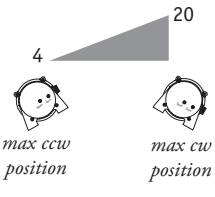
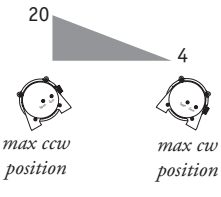
counter-clockwise rotation

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

Enclosure Material:

Ⓐ order code:	1	2
	powder-painted aluminum	303 stainless steel

Output Signal:

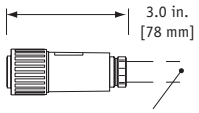
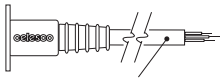
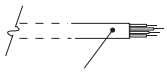
Ⓑ order code:	1	2	5	6
output signal options:	4...20 mA	20...4 mA	4...20 mA	20...4 mA
				
	max ccw position / *max cw position*	*max ccw position* / *max cw position*	*max ccw position* / *max cw position*	*max ccw position* / *max cw position*
input voltage:	8 – 34 vdc		14 – 32 vdc	
hazardous area certification:	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*

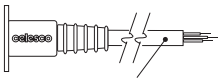
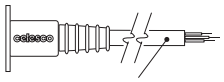
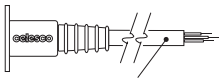
Ordering Information (cont.):

Electrical Connection:

C *order code:*

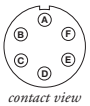
1	2	4
6-pin plastic connector w/mating plug	10-ft. [3 M] waterproof cable	25-ft. [7.5 M] instrumentation cable
IP 67, NEMA 4X,6**	**IP 67, NEMA 4X**, 6**	**IP 67, NEMA 6**
		
1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	10 ft. x 0.4-in. 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

C *order code:*

5	6	7
100-ft. [30 M] waterproof cable	10-ft. [3 M] **pressure tested*** waterproof cable	100-ft. [30 M] **pressure tested*** waterproof cable
IP 67, NEMA 4X,6**	**IP 68, NEMA 4X**, 6P**	**IP 68, NEMA 4X**, 6P**
		
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



contact view

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_2O (40 PSID) Test Medium: Air; Duration: 2 hours. **–applies to stainless steel enclosure only.*

Dampening Option:

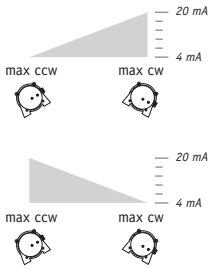
D *order code:*

0	1
with magnetic dampening	without magnetic dampening

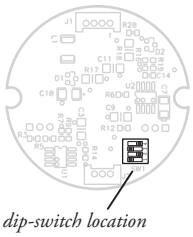
Output Signal Selection:

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.

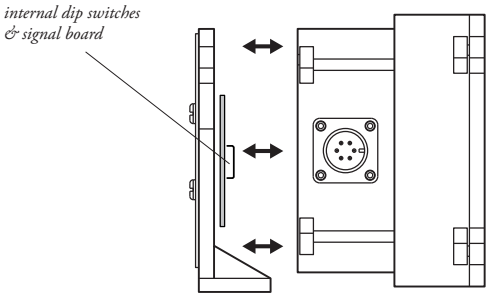
output signal | *switch setting* | *signal board*



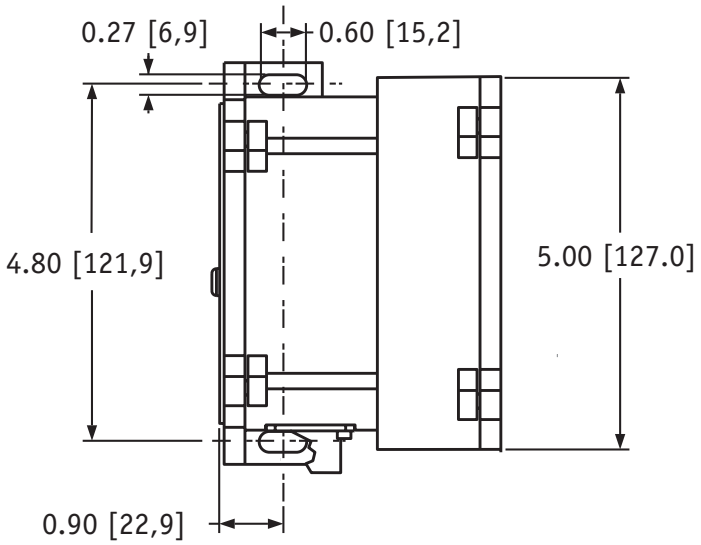


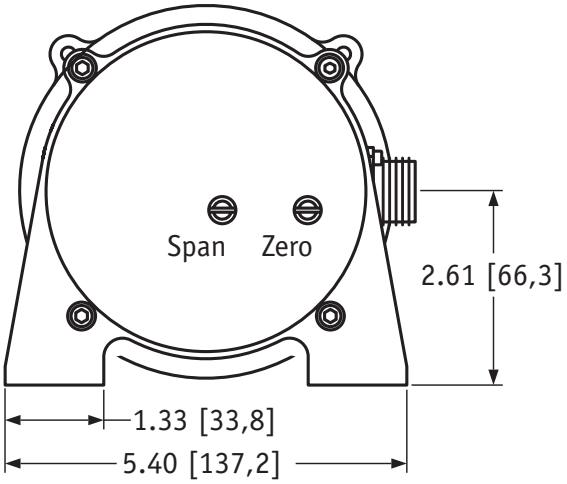

dip-switch location

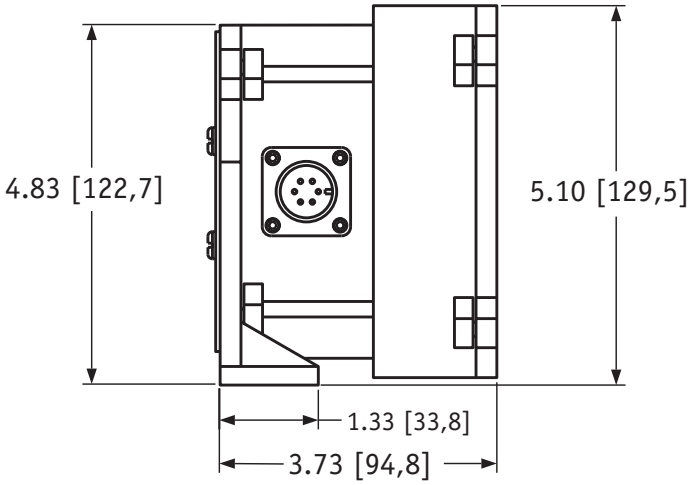
To gain access to the signal board, remove four Allen-Head Screws and remove end cover bracket.



Outline Drawing







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