

# INCL-022

Submersible Inclinometer



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IBAN NL42RABO0119606992  
BIC RABO NL2U  
VAT NL8505.52.308.B.01

## Product highlights

- Compact submersible inclinometer for harsh and abrasive environments.
- Designed for inclination measurement of suction tubes, booms and other (dredging) construction parts.
- Depth rate 1000msw.
- Corrosion resistant AISI 316 L stainless steel housing.
- Provided with a mounting hole pattern.
- Adjustable inclinometer.
- Available as  $\pm 10$ ,  $\pm 30$  and  $\pm 80$  ° transmitter with 0...5 V or 4...20 mA output (special range on request).
- Also available in 360 ° digital version with RS485 serial output.
- Fitted with a BH4MSS stainless steel standard bulkhead connector.
- Optionally available with all stainless steel cable gland with integrated hose socket, standard metal shell, standard bulkhead or micro bulkhead connector.



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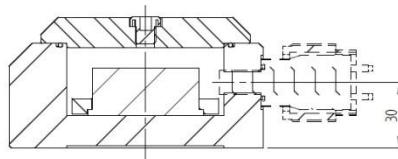
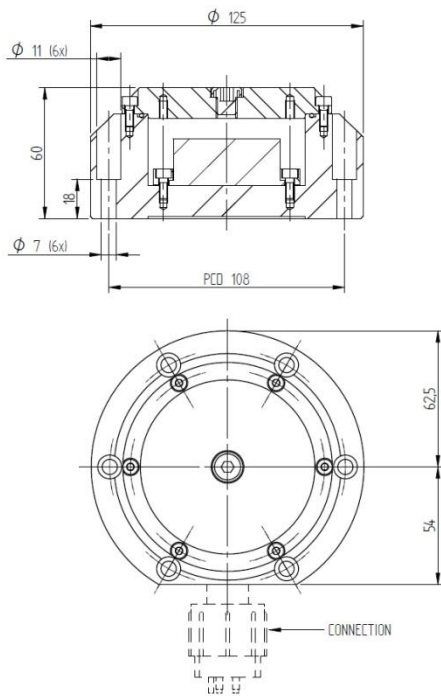
# PRODUCT INFORMATION SHEET

## Specifications

The specifications are type specific. Type, angular range and address are specified on the *configuration certificate*.

### Housing

- |              |              |                             |             |
|--------------|--------------|-----------------------------|-------------|
| - Material   | AISI 316 L   | - Operating temperature     | -20..+85 °C |
| - Dry weight | Approx. 3 kg | - Depth rate bulkhead types | 1000 msw    |
| - Dimensions | See below    | - Depth rate socket type    | 100 msw     |



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## Sensor

### Current output types:

	<u>I10</u>	<u>I30</u>	<u>I80</u>
- Max. angle range	-10..+10 °	-30..+30 °	-80..+80 °
- Supply voltage	10-30 VDC	10-30 VDC	10-30 VDC
- Current consumption	<25 mA	<25 mA	<25 mA
- Output	4-20 mA	4-20 mA	4-20 mA
- Linearity error	<0.02 °	<0.06 °	<0.16 °
- Resolution	0.005 °	0.005 °	0.01 °
- Cross-axis sensitivity	<1 % (max. 45 °)	<1 % (max. 45 °)	<1 % (max. 45 °)
- Thermal zero shift	<+/-0.001 °/K	<+/-0.001 °/K	<+/-0.001 °/K
- Thermal sensitivity shift	<+/-0.01 %FS/K	<+/-0.01 %FS/K	<+/-0.01 %FS/K
- Time constant	0.3 s	0.3 s	0.3 s
- Operating temperature	-40..+85 °C	-40..+85 °C	-40..+85 °C
- Connections	2	2	2

### Voltage output types:

	<u>U10</u>	<u>U30</u>	<u>U80</u>
- Max. angle range	-10..+10 °	-30..+30 °	-80..+80 °
- Supply voltage	9-30 VDC	9-30 VDC	9-30 VDC
- Current consumption	10 mA	10 mA	10 mA
- Sensitivity	200 mV/°	66,67 mV/°	25 mV/°
- Bias	2.5 V	2.5 V	2.5 V
- Linearity error	<0.02 °	<0.06 °	<0.16 °
- Resolution	0.005 °	0.005 °	0.01 °
- Cross-axis sensitivity	<1 % (max. 45 °)	<1 % (max. 45 °)	<1 % (max. 45 °)
- Thermal zero shift	<+/-0.001 °/K	<+/-0.001 °/K	<+/-0.001 °/K
- Thermal sensitivity shift	<+/-0.01 %FS/K	<+/-0.01 %FS/K	<+/-0.01 %FS/K
- Time constant	0.3 s	0.3 s	0.3 s
- Operating temperature	-40..+85 °C	-40..+85 °C	-40..+85 °C
- Connections	4	4	4

### Serial output type:

	<u>S360</u>
- Angle range	360 °
- Supply voltage	9-15 VDC
- Current consumption	+/-40 mA
- Output	RS485
- Error	Typ. +/-0.25 °
- Resolution	0.01 °
- Time constant	0.3 s (programmable)
- Operating temperature	-40..+85 °C
- Connections	4



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## Connection

- Waterblock
- Cable outer diameter
- Hose inner diameter
- Dimensions

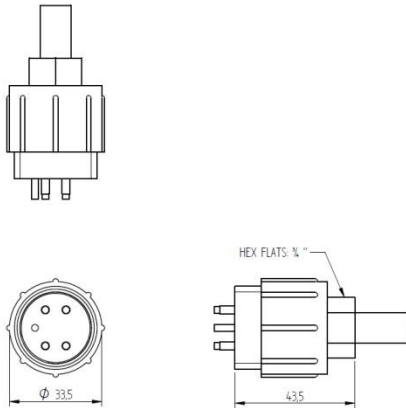
## SOCK

- No
- < 12 mm
- 25 mm
- See below

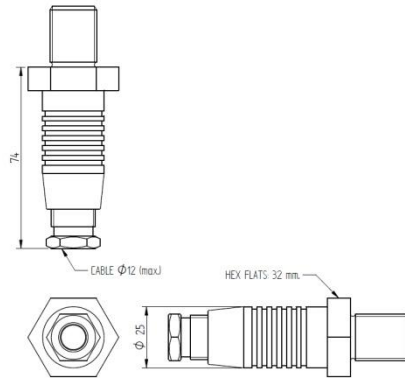
## Bulkheads

- Yes
- N.A.
- N.A.

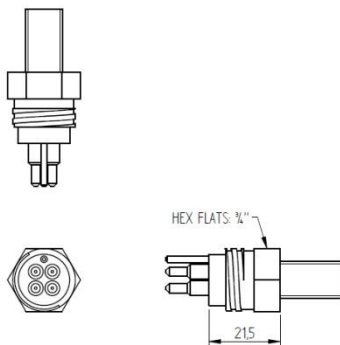
### INCL-022-BHxMSS (x ≤ 5)



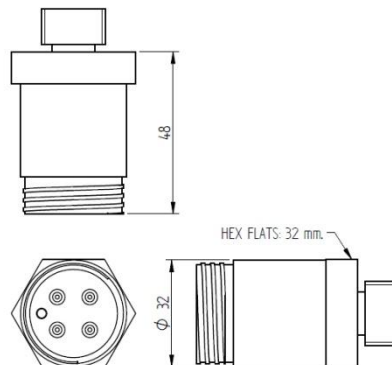
### INCL-022-SOCK



### INCL-022-MCBHxMSS (x ≤ 8)



### INCL-022-BCRxM (x ≤ 4)



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## Type code definition

Type code	Specification	-	Sensor	-	Range	-	Interface	-	Connection
<b>INCL-022</b>	Submersible inclinometer, compact, IP68 < 120 m								
<b>Sensor</b>	Analog, current output Max. range: $\pm 10^\circ$ , res. < 0.001 ° Max. range: $\pm 30^\circ$ , res. < 0.003 ° Max. range: $\pm 80^\circ$ , res. < 0.01 ° Set range Connections: 2	-	<b>I10</b> <b>I30</b> <b>I80</b>	-	<b>xx...yy °</b>	-	<b>4...20 mA</b>		
	Analog, voltage output Max. range: $\pm 10^\circ$ , res. < 0.001 ° Max. range: $\pm 30^\circ$ , res. < 0.003 ° Max. range: $\pm 80^\circ$ , res. < 0.01 ° Set range Connections: 4	-	<b>U10</b> <b>U30</b> <b>U80</b>	-	<b>xx...yy °</b>	-	<b>0...5 V</b>		
	Digital, serial output Range: 360 °, res. < 0.01 ° Interface: RS485 Connections: 4	-	<b>S360</b>	-	<b>0...360°</b>	-	<b>RS485</b>		
<b>Conn.</b>	Standard bulkhead, x ( $\leq 10$ ) pin (male), stainless steel							-	<b>BHxMSS</b>
	Micro bulkhead, x pin (male), stainless steel							-	<b>MCBHxMSS</b>
	Standard metal shell bulkhead, x ( $\leq 4$ ) pin (male), stainless steel							-	<b>BCR200xM</b>
	Cable gland + hose socket, stainless steel							-	<b>SOCK</b>
<b>Example</b>	<b>INCL-022</b>	-	<b>I80</b>	-	<b>-30...+90°</b>	-	<b>4...20 mA</b>	-	<b>BH4M</b>



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