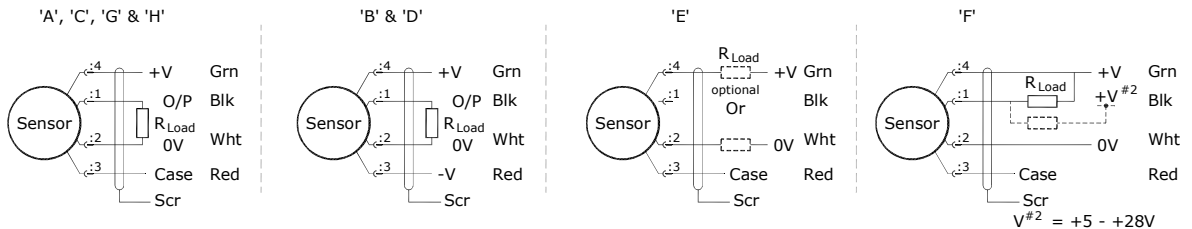


# Installation Information

## TIPS<sup>®</sup> S623 LARGE ANGLE SUBMERSIBLE TILT SENSOR

Output Option	Output Description:	Supply Voltage: $V_s$ (tolerance)	Load resistance: (include leads for 4 to 20mA O/Ps)
A	0.5 - 4.5V (ratiometric with supply)	+5V (4.5 - 5.5V)	$\geq 5k\Omega$
B	$\pm 5V$	$\pm 15V$ nom. ( $\pm 9 - 28V$ )	$\geq 5k\Omega$
C	0.5 - 9.5V	+24V nom. (13 - 28V)	$\geq 5k\Omega$
D	$\pm 10V$	$\pm 15V$ nom. ( $\pm 13.5 - 28V$ )	$\geq 5k\Omega$
E	4 - 20mA 2 wire Current Loop	+24V nom. (18 - 28V)	$\approx 0 - 300\Omega$ max. @24V $\sim 1.2$ to 6V across 300 $\Omega$ $\{R_L \text{ max.} = (V_s - 18) / 20^{-3}\}$
F	4 - 20mA 3 wire Sink	+24V nom. (13 - 28V)	$\approx 0 - 950\Omega$ max. @24V $\sim 3.8$ to 19V across 950 $\Omega$ $\{R_L \text{ max.} = (V_s - 5) / 20^{-3}\}$
G	0.5 - 4.5V	+24V nom. (9 - 28V)	$\geq 5k\Omega$
H	4 - 20mA 3 wire Source	+24V nom. (13 - 28V)	$\approx 0 - 300\Omega$ max. $\sim 1.2$ to 6V across 300 $\Omega$

Connector Pin Layout:  
 MC BH 4 M (face view)

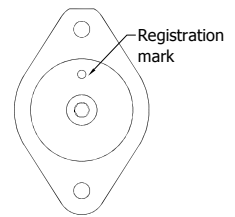


**Mechanical Mounting:** Flange mounted, flange holes are 5.5mm diameter on a 54mm pitch. As shipped, the sensor calibrated mid-point will be obtained with the flange in the vertical plane, as shown. Mechanical adjustment of the mid point can be achieved by loosening two M4 grub screws in the edge of the flange and rotating the sensor body. **Note:** the sensor should be mounted on a vertical face.

N.b. cable free end must be appropriately terminated to prevent water ingress into the cable.

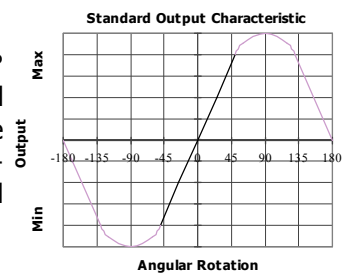
**See page 2 for connector handling instructions.**

The sensor is sealed to IP68 350 Bar.



Direction of increasing output in calibrated sector

**Output Characteristic:** The sensor has full rotational freedom and two sectors, 180° apart, over which linear response can be achieved. At the mid point of the calibrated range the output signal will be half full scale deflection, and the mounting flanges will be vertical. In the calibrated range the output increases as the sensor is rotated in an anti-clockwise direction viewed from the flange face - see drawing above. The calibrated output is factory set to be between 15 and 160°.



**Incorrect Connection Protection levels:-**

- A **Not protected** – the sensor is **not** protected against either reverse polarity or over-voltage. The risk of damage should be minimal where the supply current is limited to less than 50mA.
- B & D Supply leads diode protected. Output must not be taken outside  $\pm 12V$ .
- C & G Supply leads diode protected. Output must not be taken outside 0 to 12V.
- E, F & H Protected against any misconnection within the rated voltage.

# Installation Information

## TIPS<sup>®</sup> S623 LARGE ANGLE SUBMERSIBLE TILT SENSOR

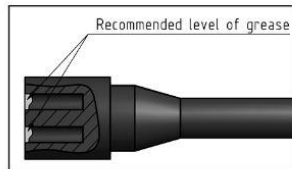
### Handling

- Always apply grease before mating
- Disconnect by pulling straight, not at an angle
- Do not pull on the cable and avoid sharp bends at cable entry
- When using a bulkhead connector, ensure that there are no angular loads
- Do not over-tighten the bulkhead nuts
- SubConn<sup>®</sup> connectors should not be exposed to extended periods of heat or direct sunlight. If a connector becomes very dry, it should be soaked in fresh water before use

### Cleaning

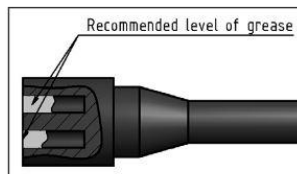
- General cleaning and removal of any accumulated sand or mud on a connector should be performed using spray based contact cleaner (isopropyl alcohol)
- New grease must be applied again prior to mating

### Greasing and mating above water (dry mate)



- Connectors must be greased with Molykote 44 Medium before every mating
- A layer of grease corresponding to minimum 1/10 of socket depth should be applied to the female connector
- The inner edge of all sockets should be completely covered, and a thin transparent layer of grease left visible on the face of the connector
- After greasing, fully mate the male and female connector in order to secure optimal distribution of grease on pins and in sockets
- To confirm that grease has been sufficiently applied, de-mate and check for grease on every male pin. Then re-mate the connector

### Greasing and mating under water (wet mate)



- Connectors must be greased with Molykote 44 Medium before every mating
- A layer of grease corresponding to approximately 1/3 of socket depth should be applied to the female connector
- All sockets should be completely sealed, and transparent layer of grease left visible on the face of the connector
- After greasing, fully mate the male and female connector and remove any excess grease from the connector joint