

Installation Information

Sensor Connections & Fault Finding

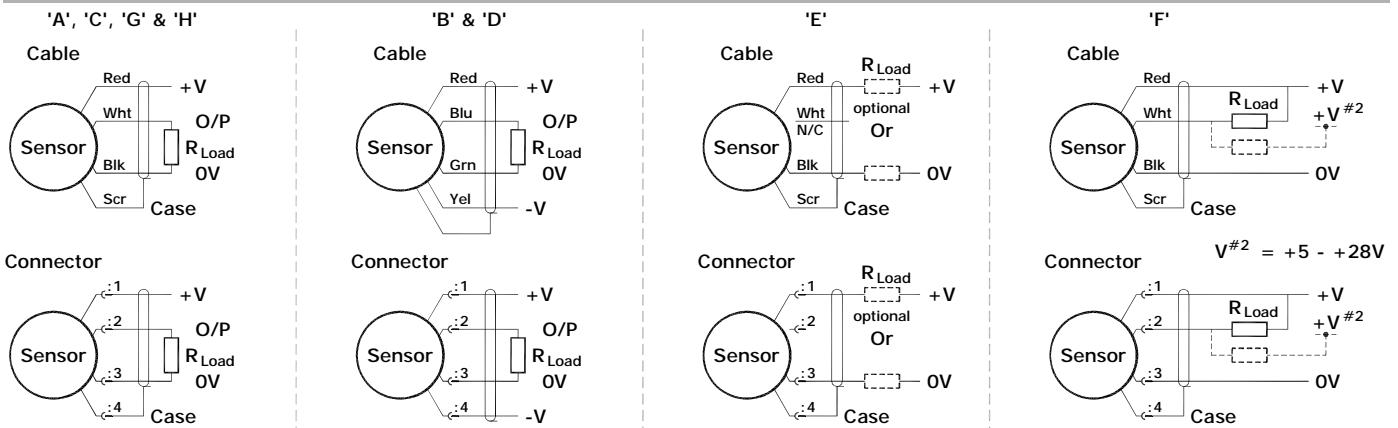
Check all terminations are made correctly; screws are tight, no stray whiskers of wire shorting adjacent terminals or trapped insulation.

Check the sensor is wired up correctly - see table 1 below.

Connection details can also be found on the body of the sensor and on the installation sheet shipped with the sensor. Installation sheets can also be found on the Positek website, following links for the appropriate sensor.

Table 1

Connector -option J or K	Cable - option I, L or M		Electronics Option									
	3-Core	4-Core*	A	B		C	D		E	F	G	H
Pin N°			All	J or K	I, L or M	All	J or K	I, L or M	All	All	All	All
1	Red	Red	+5V	+15V	+15V	+24V	+15V	+15V	+24V	+24V	+24V	+24V
2	White	Blue	O/P	O/P	O/P	O/P	O/P	O/P	N/C	O/P	O/P	O/P
3	Black	Green	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
		Yellow	-	-	-15V	-	-	-15V	-	-	-	-
4	Screen	Screen	Body	-15V	Body	Body	-15V	Body	Body	Body	Body	Body



N.b. Sensors with options Ixx, Lxx or Mxx supplied with; 3-core cable: output options A, C, E, F-H, 4-core cable: output options B or D.

Output option F; the load may be returned to any positive voltage, up to 28 volts maximum, provided the voltage at the sensor output is greater than 5 volts at all times.

Check the power supply voltage is within the specified range - see table 2 below.

A power supplies with a current limit of 50mA are recommended.

Table 2

Electronics Option	Output Description:	Supply Voltage: (Vs)	Output:	Load resistance: (include leads for 4 to 20mA O/Ps)	Load connected to:
A	Voltage (ratiometric with supply)	5±0.5V	0.5 to 4.5V	5kΩ min	0V
B	Voltage	± 9 to ±28V	± 5V	5kΩ min	0V
C	Voltage	13 to 28V	0.5 to 9.5V	5kΩ min	0V
D	Voltage	± 13 to ±28V	± 10V	5kΩ min	0V
E	2 wire Current Loop	18 to 28V (across the sensor)	4 to 20mA	$R_L = V_s - 18/20mA$ 300Ω @ 24V	In supply lead
F	3 wire Current Loop - Sink	13 to 28V	4 to 20mA	$R_L = V_s - 5/20mA$ 950Ω @ 24V	Vs
G	Voltage	9 to 28V	0.5 to 4.5V	5kΩ min	0V
H	3 wire Current Loop - Source	13 to 28V	4 to 20mA	300Ω max	0V

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Sensors are protected against incorrect connections to the following 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 specified supply voltage.

Check the sensor is drawing current; sensors with voltage outputs, option codes A, B, C, D & G, should draw a nominal 10mA, 12mA max.

Sensors with 3-wire current outputs, option codes F & H, will draw an additional 4 to 20mA depending on the position of the push-rod (linear) or input shaft (rotary).

Sensors with 2-wire current output, option code E, should draw 4-20mA.

Unexpected Output:

It should be noted that the output signal span will extend outside the figures quoted in table 2 on the previous page.

Linear Sensors; Position the target tube / push-rod / plunger as specified in the installation sheet or as shown on the sensor drawing for start of calibrated displacement.

The output should be the specified value for the start of calibrated output (e.g. 0.5 V, 4 mA, -10 V etc.).

Move the target tube / push-rod / plunger by the calibrated displacement and observe the output increase to the specified value for the end calibrated output (e.g. 4.5 V, 9.5 V, 20 mA, 10 V etc.).

Sensors with reverse output polarity will have output values that change from the maximum to the minimum value as the target tube / push-rod / plunger is extended.

Note:- the total mechanical displacement is intentionally greater than the calibrated electrical output, i.e. starts before and ends after the calibrated displacement.

Rotary sensors; Position the flat on the input shaft so it is aligned with the reference mark in the base, observe the output should be mid full scale (e.g. 0 V, 2.5 V, 5 V, 12 mA etc.)....The output will increase for anticlockwise rotation when looking at the shaft end of the sensor, as specified in the installation sheet or as shown on the sensor drawing. The output will range from maximum to minimum specified values as the shaft is rotated +/- half the calibrated range from this centre point. i.e. a 100 degree sensor will give the specified outputs for -50 degrees (e.g. 0.5 V, 4 mA, -10 V etc.) and +50 degrees (e.g. 4.5 V, 9.5 V, 20 mA, 10 V etc.) rotation from the centre point. Both flange and servo mounting options allow for fine tuning of the sensor position.

Sensors with reverse output polarity will have output values that change from the maximum to the minimum value as the input shaft is rotated in a clockwise direction looking at the end of the shaft.

Note:-The input shaft is free to rotate a full 360 degrees and the sensor will generate an output signal for either two or six sectors.