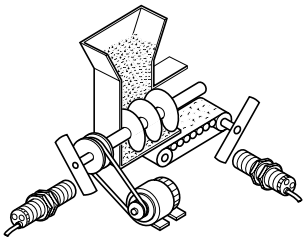
Inductive proximity sensors

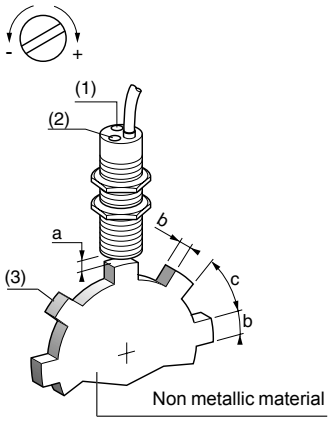
OsiSense XS Application

Sensors for rotation monitoring, slip detection, shaft overload detection

Cylindrical form

Example:
Coupling breakage monitoring





Functions

These self-contained rotation speed monitoring sensors have the special feature of incorporating, in the same case, the pulse sensing and processing electronics as well as the output switching amplifier that are required to establish an integrated rotation monitoring device.

The unit provides an economical solution for detecting slip, belt breakage, drive shaft shear and overloading, etc., in the following applications: conveyor belts, bucket elevators, Archemedian screws, grinders, crushers, pumps, centrifugal driers, mixers, etc.

Operating principle

The output signal of this type of sensor is processed by an impulse comparator incorporated in the sensor. The impulse frequency Fc generated by the moving part to be monitored is compared to the frequency Fr preset on the sensor. The output switching circuit of the sensor is in the closed state for Fc > Fr and the open state for Fc < Fr.

Sensors XSA-V are particularly suitable for the detection of underspeed: when the speed of the moving part Fc falls below a preset threshold Fr, this causes the output circuit of the sensor to switch off.

Note: *Following power-up, the operational status of the sensor is subject to a delay of 9 seconds in order for the moving part being monitored to run-up to its nominal speed. During this time, the output of the sensor remains in the closed state.*

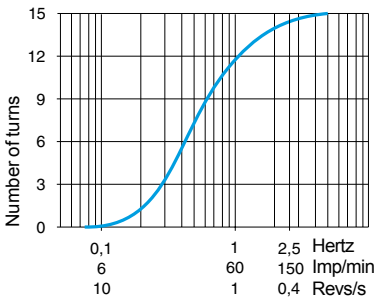
Adjustment of frequency threshold

- Adjustment of sensor's frequency threshold: using potentiometer, 15 turns approximately.
- To increase the frequency threshold: turn the adjustment screw clockwise (+).
- To decrease the frequency threshold: turn the adjustment screw anti-clockwise (–).

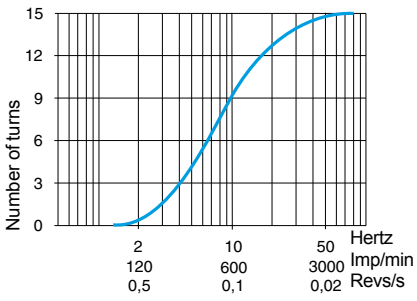
Potentiometer	Diameter of sensor		
LED	a	b	c
Metal target	M30	4…6 mm	30 mm	60 mm

Potentiometer adjustment curves (for **XSA V1●801**, 2-wire ∿ or ⎓ sensors)

Low speed version (6…150 impulses/minute)



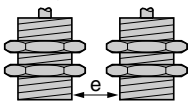
High speed version (120…3000 impulses/minute)



Setting-up

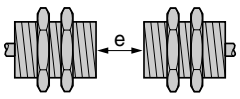
Minimum distances (mm)

Side by side



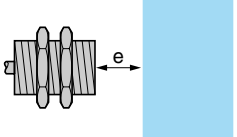
e ≥ 20

Face to face



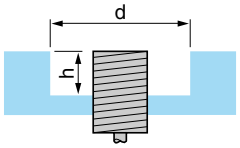
e ≥ 120

Facing a metal object



e ≥ 30

Mounted in a metal support



d ≥ 30, h ≥ 0

Fixing nut tightening torque: < 50 N.m

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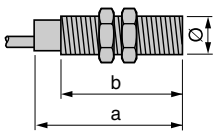
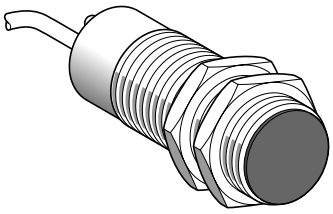
Cylindrical form

Flush mountable in metal





Lengths (mm):
a = Overall
b = Threaded section

	DC	DC	AC/DC	AC/DC
Nominal sensing distance (Sn)	10 mm	10 mm	10 mm	10 mm
Adjustable frequency range	6…150 impulses/min	120…3000 impulses/min	6…150 impulses/min	120…3000 impulses/min

References

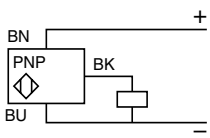
3-wire ⎓	**PNP / NC**	**XSA V11373**	**XSA V12373**	–	–
2-wire	**⎓ or ∿ / NC**	–	–	**XSA V11801**	**XSA V12801**
Weight (kg)		0.300			

Characteristics

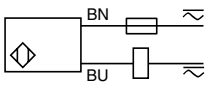
Connection	**Pre-cabled, 3 x 0.34 mm², length 2 m** *(1)*	**Pre-cabled, 2 x 0.34 mm², length 2 m** *(1)*
Degree of protection conforming to IEC 60529	IP 67	
Operating zone	0…8 mm	
Repeat accuracy	3% of Sr	
Differential travel	3…15% of Fr	
Operating temperature	- 25…+ 70 °C	
Output state indication	Red LED	
Rated supply voltage	**⎓ 12…48 V with protection against reverse polarity**	**∿ 24…240 V (50/60 Hz) or ⎓ 24…210 V**
Voltage limits (including ripple)	⎓ 10…58 V	∿ or ⎓ 20…264 V
Switching capacity	**≤ 200 mA with overload and short-circuit protection**	**∿ 5…350 mA or ⎓ 5…200 mA** *(2)*
Voltage drop, closed state	≤ 1.8 V	≤ 5.7 V
Residual current, open state		≤ 1.5 mA
Current consumption, no-load	≤ 15 mA	
Maximum switching frequency	6000 impulses/min (for **XSA V11●●●**); 48,000 impulses/min (for **XSA V12●●●**)	
"Run-up" delay following power-up	9 seconds ± 20% + 1/Fr (3)	

Wiring schemes

3-wire ⎓
XSA V1●**373**



2-wire ∿ or ⎓
XSA V1●801



(1) For a 5 m long cable add L05 to the reference, for a 10 m long cable add L10 to the reference.
*Example: XSA V11373 becomes **XSA V11373L05** with a 5 m long cable.*
(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a 0.4 A "quick-blow" fuse in series with the load, see page 3/112.
*(3) For a sensor without a "run-up" delay following power-up, replace XSA V1 in the reference by XSA V0. Example: XSA V11801 becomes **XSA V01801** without a "run-up" delay. For a reduced "run-up" delay of 3 s, replace XSA V1 in the reference by XSA V3.*

Accessories:
page 3/112

Mouser Electronics

Authorized Distributor

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Schneider Electric:

XSAV12801 XSAV11373 XSAV11801 XSAV12373 XSAV12801TT XSAV32373L10 XSAN01122 XSAV12801TF XSAV11801TT XSAZ108 XSAV11801TF XSAV12373L20 XSAV02801 XSAV12373L10 XSAV11373L05 XSAV11373TT XSAZ118 XSAV1401420 XSAVEQ5062 XSAV02373 XSAV01801 XSAV32373 XSAV02801L10 XSAV11801L10 XSAV01801TF XSAV12373TF XSAV1401418 XSAV12801L05 XSAVEQ5063 XSAV11801TQ XSAV01801L10 XSAVEQ5065 XSAV31373 XSAV12373L05 XSAV11801L05 XSAV31373L10 XSAV11801L05TF XSAV12801L10 XSAV12373TT XSAV31373L05