

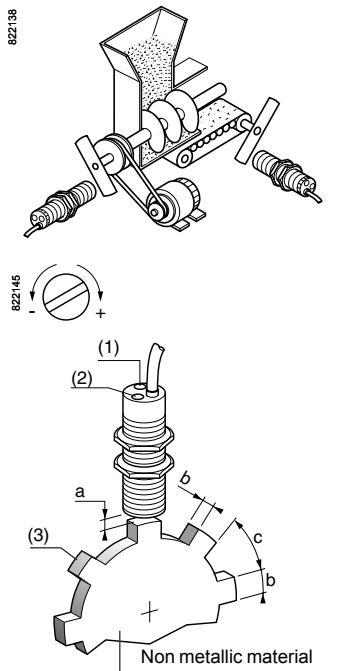
Inductive proximity sensors

Osiprox® Application

Sensors for rotation monitoring, slip detection, shaft overload detection

Cylindrical type

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, Archimedian 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 F_c generated by the moving part to be monitored is compared to the frequency F_r preset on the sensor. The output switching circuit of the sensor is in the closed state for $F_c > F_r$ and the open state for $F_c < F_r$.

Sensors XSA-V are particularly suitable for the detection of underspeed: when the speed of the moving part F_c falls below a preset threshold F_r , 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.

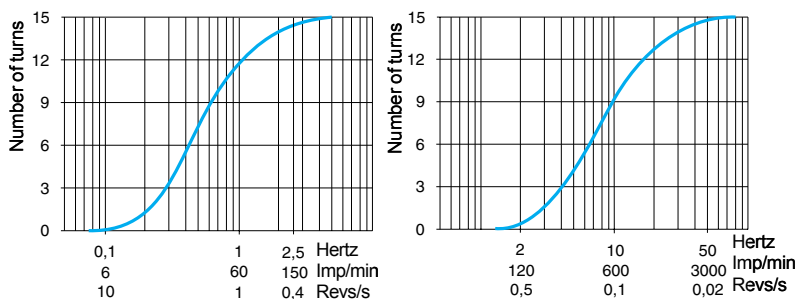
Adjustment of frequency threshold

- 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)

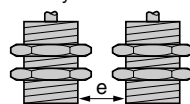
Low speed version (6...150 impulses/minute) High speed version (120...3000 impulses/minute)



Setting-up

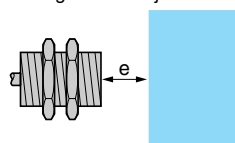
Minimum mounting distances (mm)

Side by side



$e \geq 20$

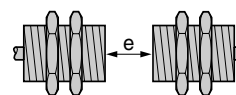
Facing a metal object



$e \geq 30$

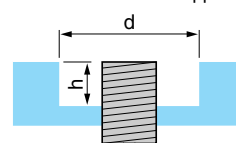
Fixing nut tightening torque: < 50 N.m

Face to face



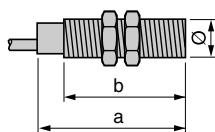
$e \geq 120$

Mounted in a metal support



$d \geq 30, h \geq 0$

Flush mountable in metal



Lengths (mm):

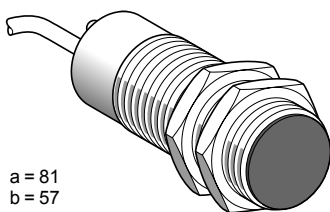
a = Overall

b = Threaded section

a = 81

b = 57

Ø = M30



	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

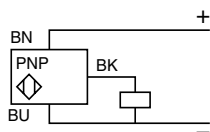
3-wire $\overline{\text{---}}$	PNP / NC	XSA V11373	XSA V12373	—	—
2-wire	$\overline{\text{---}}$ or \sim / NC	—	—	XSA V11801	XSA V12801
Weight (kg)	0.300				

Characteristics

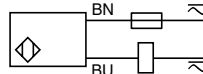
Connection	Pre-cabled, 3 x 0.34 mm², length 2 m (1)		Pre-cabled, 2 x 0.34 mm², length 2 m (1)	
Degree of protection conforming to IEC 60529	IP 67			
Operating zone	0...8 mm			
Repeat accuracy	3% of Sr			
Differential travel	3...15% of Fr			
Operating temperature	- 25...+ 70 °C			
Output state indication	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	6 000 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 $\overline{\text{---}}$
XSA V1●373



2-wire \sim or $\overline{\text{---}}$
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 37317/2.

(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.