

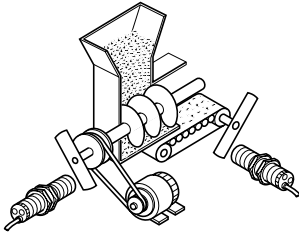
Inductive proximity sensors

Application Osiprox®

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 make up an integrated rotation monitoring device.

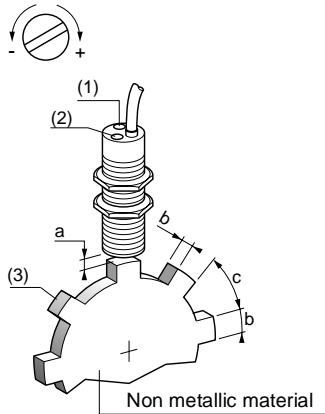
The unit provides an economical solution to the problems of detecting slip, belt breakage, drive shaft shear and overloading, etc., in the following applications : conveyor belts, bucket elevators, Archimedian screws, grinders, crushers, pumps, centrifugal driers, mixers, etc.

Operating principle

The output signal of this type of proximity 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 proximity sensors output switching circuit is in the closed state for $F_c > F_r$ and open state for $F_c < F_r$.

XSA-V proximity sensors are particularly suitable for the detection of underspeed, i.e. when the speed of the moving part F_c falls below a preset threshold F_r . This causes the sensors output circuit to switch off.

Note : The normal operation of the sensor is automatically subjected to a delay of 9 seconds from energisation. This is to allow for the run-up period of the machine or installation being monitored.



Adjustment of the frequency threshold

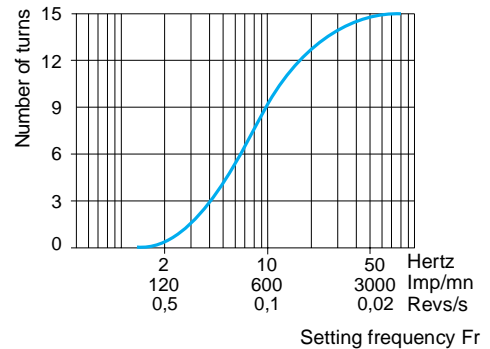
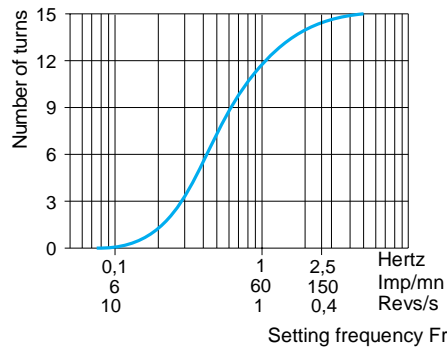
- Adjustment of sensors frequency threshold : using potentiometer, 15 turns approximately.
- Increasing the sensors frequency threshold : turn the adjustment screw clockwise (+).
- Decreasing the sensors frequency threshold : turn the adjustment screw anti-clockwise (-).

(1) Potentiometer	Diameter of sensor		
(2) LED	a	b	c
(3) Metal target	M30 x 1.5	4...6	30 60

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

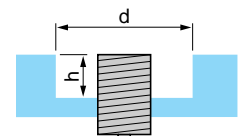
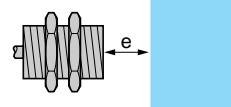
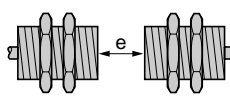
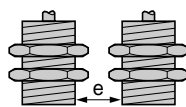
Minimum mounting distances (mm)

Side by side

Face to face

Facing a metal object

Mounted in a metal support



$e \geq 20$

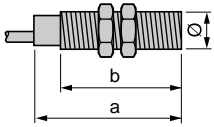
$e \geq 120$

$e \geq 30$

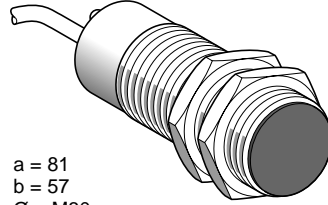
$d \geq 30, h \geq 0$

Fixing nut tightening torque : $< 50 \text{ N.m}$

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 --- PNP	XSA V11373	XSA V12373	–	–
2-wire ~ or ---	–	–	XSA V11801	XSA V12801
Weight (kg)	0.300	0.300	0.300	0.300

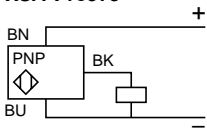
Characteristics

Connection	Pre-cabled, 3 x 0.34 mm ² , 2 m length	Pre-cabled, 2 x 0.5 mm ² , 2 m length
Degree of protection conforming to IEC 60529	IP 67	
Operating zone	0...8 mm	
Repeat accuracy	3 % of Sr	
Hysteresis related to frequency	3...15 % of Fr	
Operating temperature	- 25...+ 70 °C	
Output state indication	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 on d.c.)	--- 10...58 V	~ or --- 20...264 V, 50/60 Hz
Switching capacity	≤ 200 mA with overload and short-circuit protection	~ 5...350 mA or --- 5...200 mA (1)
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/minute for XSA V11●●●, 48,000 impulses/minute for XSA V12●●●	
Power on “run-up” delay	9 seconds ± 20 % + 1/Fr	

Wiring schemes

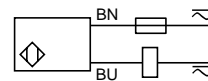
3-wire ---

XSA V1●373



2-wire ~ or ---

XSA V1●801



(1) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential that a “quick-blow” fuse of 0.4 A be connected in series with the load. See page 37317/2.

Other versions

Sensors without initial “run-up” delay, or with reduced “run-up” delay on energisation of 3 seconds.

Sensors pre-cabled with other cable lengths.

SX2 DV units for monitoring overspeed or underspeed conditions, in the range 0 to 6000 impulses/min.

Please consult your Regional Sales Office.