Functions, principle, setting-up

Example: Coupling breakage monitoring

Non metallic material

Inductive proximity sensors

OsiSense XS Application Sensors for rotation monitoring, slip detection, shaft overload detection Cylindrical form

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	Diamete	Diameter of sensor		
LED		а	b	С
Metal target	M30	46 mm	30 mm	60 mm

Potentiometer adjustment curves (for XSA V1•801, 2-wire \sim or = sensors)

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





References, characteristics. dimensions, schemes

Inductive proximity sensors

OsiSense XS Application Sensors for rotation monitoring, slip detection, shaft overload detection Cylindrical form

Flush mountable in metal



b = Threaded section

	DC	DC	AC/DC	AC/DC
Nominal sensing distance (Sn)	10 mm	10 mm	10 mm	10 mm
Adjustable frequency range	6150 impulses/min	1203000 impulses/min	6150 impulses/min	1203000 impulses/min
References				

3-wire 🗔	PNP/NC	XSA V11373	XSA V12373	-	-
2-wire	= or \sim / NC	-	-	XSA V11801	XSA V12801
Weight (kg)		0.300			

Characteristics

Connection	Pre-cabled, 3 x 0.34 mm ² , length 2 m (1)	Pre-cabled, 2 x 0.34 mm ² , length 2 m (1)		
Degree of protection conforming to IEC 60529	IP 67			
Operating zone	08 mm			
Repeat accuracy	3% of Sr			
Differential travel	315% of Fr			
Operating temperature	- 25+ 70 °C			
Output state indication	Red LED			
Rated supply voltage	== 1248 V with protection against reverse polarity	\sim 24240 V (50/60 Hz) or \pm 24210 V		
Voltage limits (including ripple)	1058 V	~ or == 20264 V		
Switching capacity	≤ 200 mA with overload and short-circuit protection	\sim 5350 mA or $$ 5200 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 V11eee); 48,000 impulses/min (for XSA V12eee)			
"Run-up" delay following power-up	9 seconds ± 20% + 1/Fr (3)			

Wiring schemes

3-wire -

XSA V1•373



2-wire \sim 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 "quickblow" 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.

XSAV







Characteristics

	XSAV11373 XSAV12373	XSAV01801 XSAV11801 XSAV02801 XSAV12801	XSAV1562514 XSAV1562515
Detector type	DC PNP 3 wires	AC/DC (1) 2 wires	AC/DC (1) 2 wires
Nominal voltage	1248 V	24240 V	110240 V
Voltage limits	1058 V	20264 V	94264 V
Switching capacity	0200 mA	5200 mA DC 5350 mA AC	5200 mA DC 5350 mA AC
Overload and short circuit protection	Yes	No	No
Drop voltage	≤ 1.8 V	≤ 5.7 V	≤ 5.7 V
Residual current	-	≤ 1.5 mA	≤ 1.5 mA
Current consumption, no load	≤ 15 mA	-	-
Temperature range	-25+70°C	-40+70°C	

(1) AC/DC sensors: These sensors are not protected against overload or short-circuit and therefore, Connect a 0.4 A "quick-blow" fuse in series with the load.



