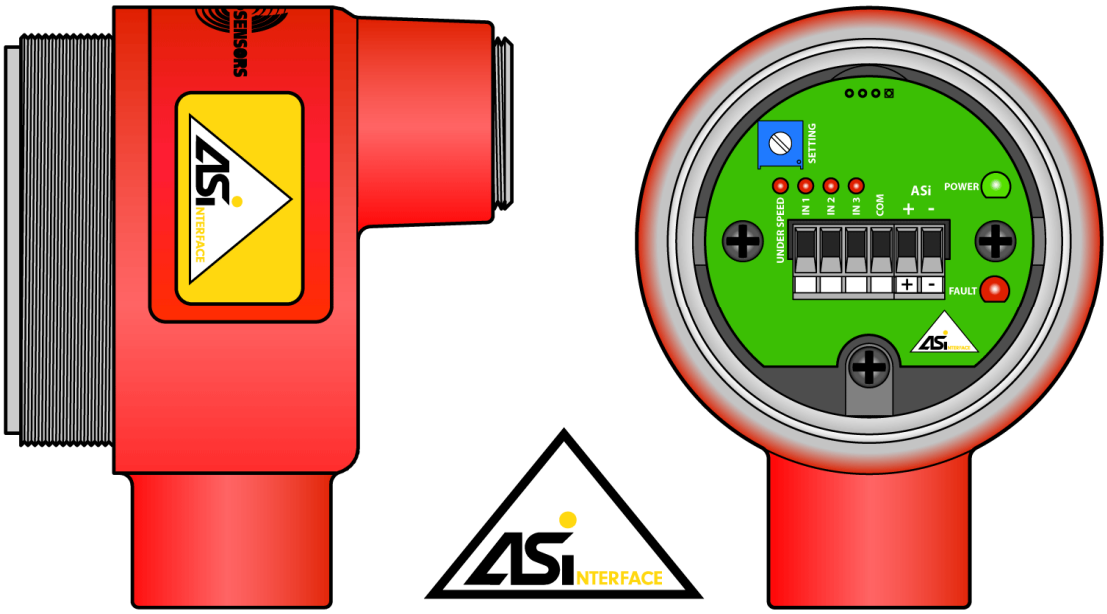
ASiSA-2

AS-Interface Shaft Speed Alarm with Discrete Inputs

USER'S MANUAL



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990-002810 Rev A

Description

ASiSA-2 continuously monitors rotating shaft speed, comparing it to the user-set SETTING and alarming when less than the SETTING. Three discrete inputs are also provided for interfacing with electrically isolated contact closure (relay) output sensors and switches. The UNDERSPEED alarm and discrete input (IN1 – IN3) states are accessed over AS-Interface communications and are visibly indicated by LEDs. ASiSA-2 is an AS-Interface slave.

The rugged unit requires a shaft-mounted magnetic pulser target (disc or wrap) such as the model 255 pulser disc (included). The rotating pulser target produces an alternating magnetic signal at ASiSA-2's stationary sensing head. The signal frequency varies in direct linear proportion to the rotating target's rpm. ASiSA-2 senses this frequency and compares it to the speed SETTING.
When the frequency is lower than the SETTING, the UNDERSPEED is alarmed.
When the frequency is higher the SETTING, the UNDERSPEED is not-alarmed.

Measurable Speed Range

The ASiSA-2 SETTING frequency is adjustable within the range: **0.53 → 27 Hz**.
The frequency (f) to RPM conversion is given by the formula: **RPM = f * 60 / PPR**
Where f is in Hz (pulses per second) and PPR is pulser target pulses-per-revolution.

Since RPM changes *inversely* with PPR, *increasing* PPR scales TRIP-POINT RPM range *down*:

Pulser Target	Corresponding TRIP-POINT RPM range
Model 256 Pulser Disc (4 PPR)	8.0 → 400
Model 255 Pulser Disc (8 PPR)	4.0 → 200
Custom Pulser Wrap (16 PPR)	2.0 → 100

AS-Interface

Profile S-7.A.E (A/B slave free profile, I/O code 7)

AS-Interface Parameter bits	P3	P2	P1	P0
(master Write Parameter info)	unused	unused	unused	unused

AS-Interface I/O Data bits	D3	D2	D1	D0
Output (master Data Exchange req. info)	unused	unused	unused	unused
Input (slave Data Exchange resp. info)	IN3	IN2	IN1	UNDERSPEED

UNDERSPEED (D0) polarity 0 (Alarmed) - speed less than SETTING
1 (Not Alarmed) - speed greater than SETTING

IN3 – IN1 (D3-D1) polarity 0 – Contact CLOSED (input shorted to COM terminal)
1 – Contact OPEN (input not shorted to COM terminal)

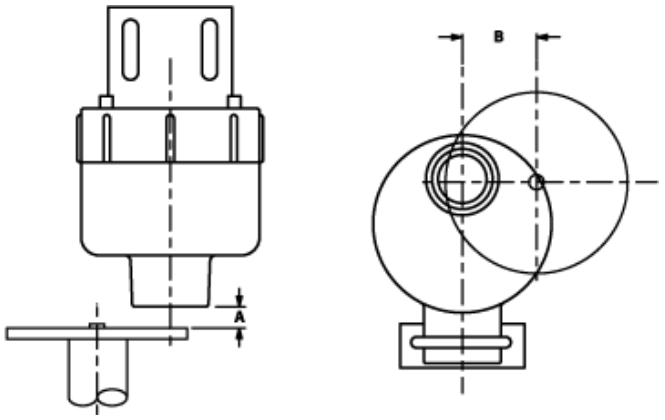
Note: 0 or 1 may be written/output to unused bits (no effect).

LEDs

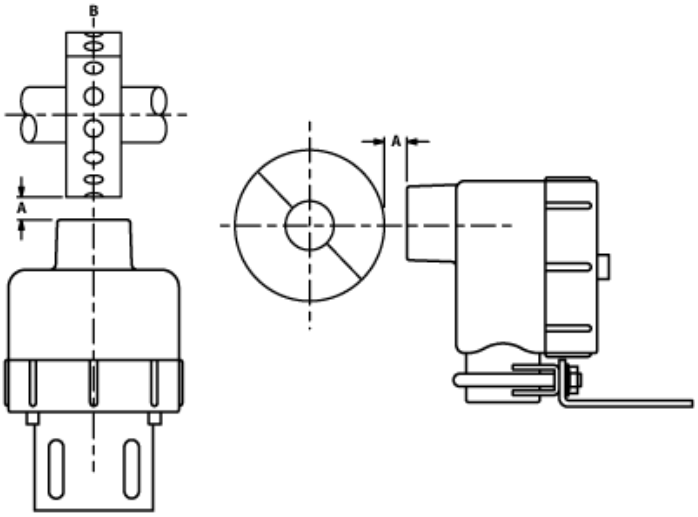
LED	ON	OFF
UNDERSPEED	Alarmed	Not Alarmed
IN3 – IN1	CLOSED (shorted to COM)	OPEN (not shorted to COM)
POWER	Receiving Power	Not Receiving Power
FAULT	Data Exchange OFF	Data Exchange ON

Mechanical Installation

ASiSA-2 may be mounted on rigid conduit or with the mounting bracket assembly (provided).
The gap (A) between the sensing head and the Pulser Disc/Wrap must be 1/16 to 1/4 inch.
The center line of the magnets (B) must align with the center of the sensing head as the Pulser Disc/Wrap rotates.
Remove the round cover from the housing and pull AS-Interface and any sensor cables through the conduit port into the enclosure. Connect the cable wires to the terminal plug (see Specifications).



With Pulser Disc Target



With Pulser Wrap Target

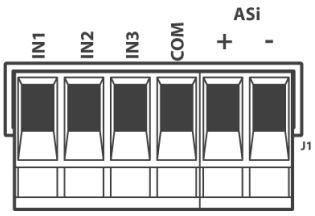
Shaft Speed Alarm SETTING

With network power applied and the shaft turning at normal operating speed, slowly turn the SETTING potentiometer clockwise until the UNDERSPEED led turns on. Then slowly turn the SETTING potentiometer counter-clockwise until the UNDERSPEED led turns off. How far below this point you adjust the SETTING determines how far below the current shaft speed the ASiSA-2 will alarm.

Discrete input (IN1 – IN3) connections

Connect isolated 2-terminal contacts between the desired input (INx) and the common (COM) terminals of the ASiSA-2 terminal block. See AS-Interface table for input / data bit assignment and polarity.
Input states are visibly indicated by LEDs. See the LEDs table.
Note: Contacts MUST be electrically isolated.
DO NOT connect the ASiSA-2 inputs (IN1 – IN3) or COM to non-isolated potentials.

Specifications

Power (network supplied)	20 → 31.6 Vdc, 55 mA maximum
Shaft speed SETTING range	Potentiometer (single-turn, 280°, linear) 0.53 → 27 Hz (4.0 → 200 rpm with 8 PPR disc/wrap)
Discrete Inputs (IN1 – IN3)	Shorting type (to COM) with internal pull-up. Each input sources 4.5 mA when shorted to COM.
Note:	IN1-IN3 and COM should be connected to electrically isolated contacts only. DO NOT connect the input (IN1 – IN3) or COM terminals to non-isolated potentials.
LED indicators	UNDERSPEED, IN1, IN2, IN3, POWER, FAULT (ASi)
Terminals	
AS-Interface specification	V2.11, Extended (A/B) addressing, S-7.A.E profile
Airgap (sensing head to Disc/Wrap)	1/16 → 1/4 inch (2 → 6 mm)
Operating temperature	-25 → +85 °C (-13 → +185 °F)
Enclosure hazardous locations ratings	Class 1, Grp. C, D; Class 2, Grp. E, F, G
Weight (with bracket)	2.45 Lb (1.11 kg)
Dimensions (with bracket)	(in inches)