



WDA3V34CAI MOTION ALIGNMENT SENSOR

DESCRIPTION

The WDA3 sensor detects moving ferrous material and is designed for use with bucket elevators and conveyors to detect the buckets, for measurement of speed and alignment. It can also detect ferrous bolts, which are used to attach non-ferrous buckets. The sensor is used in conjunction with a PLC or with a Watchdog or A400 Elite control unit. Two output signals are provided: one signal is a pulse output, representing each bucket detected: the second signal is a continuous output when moving buckets are detected.

SPECIFICATION

Model No	WDA3V34CAI	
Voltage	12-24vdc $\pm 10\%$	
Supply current	25-65ma	
Outputs (max)	100ma Sink (Pull) 50ma Source (Push)	
Detection range (1" bolt head)	25mm-75mm	1" – 3"
Detection rate	20-2000/min	
Protection	IP66	
Hazardous area classification	See protection below	
Dimensions	50mm DIA x 150mm	2" DIA. x 5 3/4"
Fixing centres, M6		
Cable	6 core 3m long	6 core 9ft long
Conduit entry	1/2" NPT	
Weight (shipping weight)	500g	1.1lb

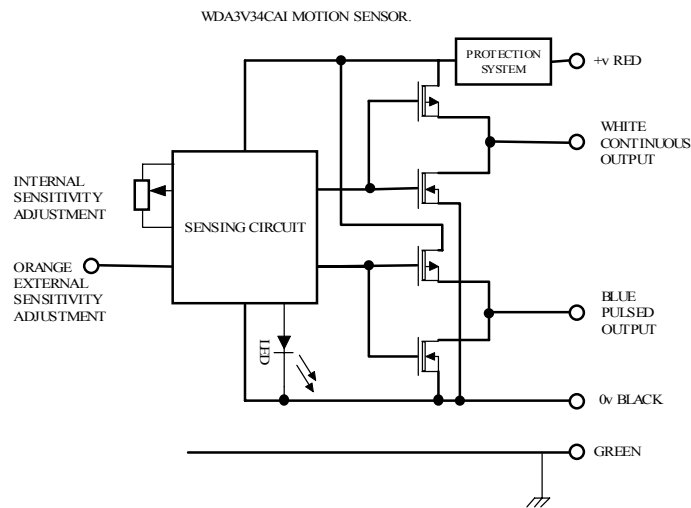
CABLE CONNECTIONS

RED	+ve supply 12-24v dc $\pm 10\%$
BLACK	-ve supply Ov
GREEN	Earth (Ground) Connected to case
YELLOW/ORANGE	Control 0 - +ve supply
BLUE	Pulsed output, normally low, high when detecting
WHITE	Continuous output, normally high, low when detecting

PROTECTION.

Ex II 1D T120°C – CE1180 Baseefa 05ATEX 0088X : IECEx DIP DIP A20 TA120°C – IECEx BAS 05.0031X
Ex II 2D T120°C – CE1180 Baseefa 05ATEX 0089X : IECEx DIP DIP A21 TA120°C – IECEx BAS 05.0032X
Tamb -20°C to +50°C IP66
CSA Class II Division 1 Groups E, F & G

When installed as category 1D or 2D equipment adequate cleaning must ensure dust layers are kept below 5mm or 1/5"



CONTROL

Sensitivity adjustment is achieved with the internal potentiometer and the voltage on the YELLOW/ORANGE wire.

To use the internal potentiometer only (as with the Watchdog) connect the YELLOW/ORANGE wire to the RED wire (+ve, 12-24v). Turn the potentiometer clockwise to increase sensitivity.

To use the external control voltages (as with the A400) connect the YELLOW/ORANGE wire to the control voltage from the A400 and turn the potentiometer on the WDA3 fully anti-clockwise. Reduce the control voltage to increase sensitivity.

In both arrangements, reduce the sensitivity if the pulsed output (LED) becomes unstable.

LED INDICATOR

The green LED shows the state of the pulsed output and flashes once for each bucket (bolt) detected. The LED should be off when no buckets (bolts) are detected, if not, reduce the sensitivity.

Installation:

- a. The IP66 rating of the enclosure must be maintained when used in Zone 20 and 21 dust environment.
- b. You may optionally use an apparatus certified gland for cable strain relief but the gland and sealing arrangement must be in accordance with the installation codes detailed in BS EN 60079 and EN 50281 or the NATIONAL ELECTRICAL CODES.
- c. Where other certified components are used as part of the assembly or installation procedure, the user must take in to account any limitations which might be listed on the relevant certificates.
- d. The enclosure must not be modified in any way without reference to the manufacturer, as this will invalidate the certification.
- e. All wiring must be carried out in accordance with relevant national codes of practice and / or instructions (BS EN 60079-14, EN50281).
- f. The voltage and current and maximum power dissipation shown on the label must not be exceeded.

MOUNTING

When mounting on a steel elevator leg cut a hole 55mm or 2 1/8" diameter and fix with the mounting block provided. The depth of the sensor penetration can be adjusted by slackening the clamp cross bolt and sliding the sensor in or out to the required depth. Final sensitivity adjustment should be made using the integrated adjustment or via the orange wire.

Electrical connections:

RED	+Ve Supply, 12-24 vdc ±10%
BLACK	- Ve Supply 0v
GREEN	Earth (ground) Connected to case
YELLOW/ORANGE	Control signal 0V to +Ve
BLUE	Pulsed output, normally low, high when detecting
WHITE	Continuous output, normally high, low when detecting

Cable colour comparison.

WDA3 (Steel body)	WDA1 (Plastic body)
RED	BROWN +Ve
BLACK	BLUE -Ve
GREEN	GREEN Earth
BLUE	BLACK Pulsed output
WHITE	--- Continuous output
YELLOW/ORANGE	--- Control

Note: The WDA3V34CAI contains a non repairable 160mA fuse and two thermal fuses set at 73°C (164°F). Should the body of the sensor reach 73°C (164°F) or higher then one or both of the thermal fuses may fail. The expected maximum ambient for this sensor is +50°C (122°F).

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Installation Notes: