



ISO-9001:2000 certified

Belt Conveyor Safety Monitoring Devices

More than just another level measurement company

A⁺fine
Aplus Finetek Sensor, Inc.

SRT CONVEYOR BELT MISALIGNMENT SWITCH

PRODUCT INTRODUCTION

The SRT is designed to be used for monitoring hazardous conditions of conveyor belt misalignment during conveyor operation. When the SRT detects a misalignment condition two alarm outputs are triggered depending upon the degree of misalignment. The first output is used as an alarm notification that a serious misalignment condition exists, while the second output is triggered for conveyor shutdown due to the detection of a serious hazard misalignment condition. The SRT is used to protect belt conveyors from damage and to assist in ensuring personnel safety

OPERATING PRINCIPLE

SRT conveyor belt misalignment switches are generally mounted on both sides of the conveyor belt at the belt edge. A small clearance between the SRT contact roller and the normal swaying (about 0.8"/20mm) of the belt should be allowed for. When belt swaying exceeds the normal amount the belt edge will begin pushing against the contact roller of the SRT. Continuation of belt swaying or misalignment will continue to push the contact roller, which will drive the switch and operate the output contacts. The first output contact can be used to indicate an alarm due to a deviation of the conveyor belt. The second switch output can be used to protect against an extreme misalignment condition or belt runoff by shutting down operation of the conveyor. The SRT misalignment switch will reset automatically when the belt resumes its normal position and operation. The switch output activation points are adjustable from between 0° to 35° by a change of the actuating cams. Refer to illustration.

DIMENSION

Unit:inch(mm)



FEATURES

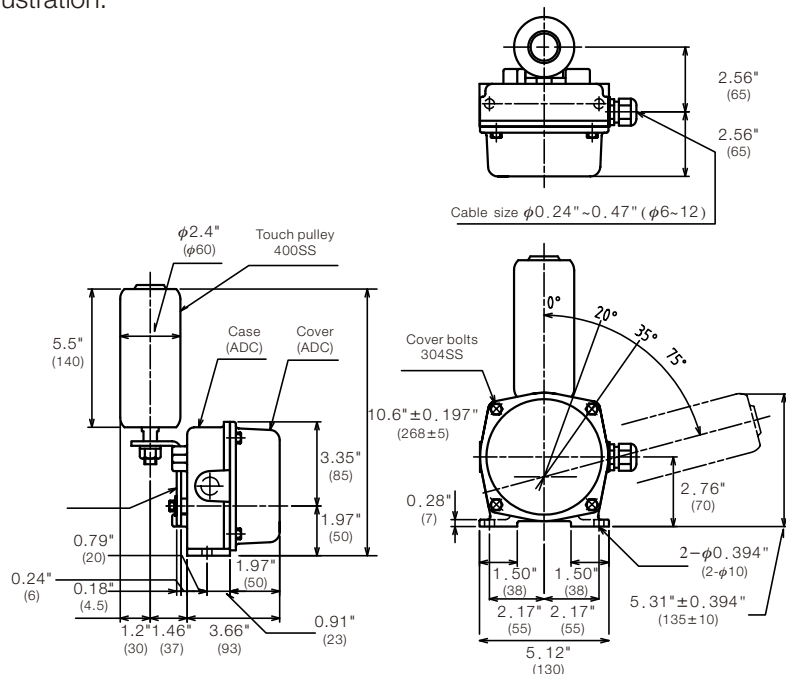
- Easy to install, sensitive operation
- Roller arm can move up to 75° in both directions
- Dust-tight IP67 weatherproof die cast aluminum powder coated enclosure
- Standard actuating angle 20° for alarm and 35° for emergency conveyor shutdown
- Reduces process downtime, product loss, saves replacing conveyor belt and enhances safety

APPLICATIONS

- Conventional belt conveyors
- Underground, cable supported belt conveyors
- Stacker/Reclaimer conveyors
- Ship loading/unloading systems
- Tripper and shuttle conveyors
- Crane/shovel boom position limit detector
- Apron feeders & conveyors

SPECIFICATIONS

Switch output	Two (2) SPDT, 10A @ 125/250VAC, 1/2A @ 125VDC
Reset method	Automatic
Ambient temp.	-4°F~140°F (-20°C~60°C)
Enclosure protection	IP67
Enclosure material	Diecast Aluminum – Powder Coated
Weight	6.4lb (2.9kg)



SRS BELT CONVEYOR SAFETY CABLE STOP SWITCH

PRODUCT INTRODUCTION

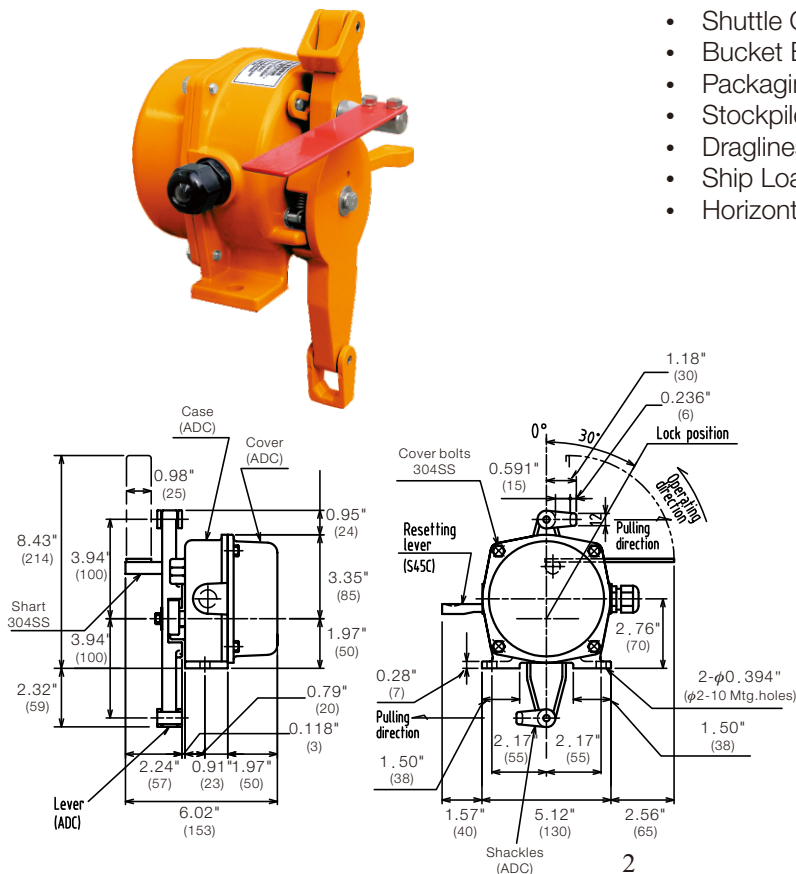
The SRS is a belt conveyor safety cable stop switch designed to provide a switching system to disconnect power to a conveyor system or other process equipment in the case of an emergency condition. A coated steel cable can be used to activate the stop switch from long distances. The SRS cable stop switches can be placed and mounted along large distances of belt conveyors.

OPERATING PRINCIPLE

The SRS safety cable stop switch is actuated by pulling on the steel cable which is mounted along the conveyor and attached to the safety stop switch. When you pull on the cable at any point it will trip the stop switch and automatically lock the switch in the off position de-energizing the conveyor starter contactor. Each SRS is bidirectional in its operation and has two cable attachment points, one from each direction terminated with a spring at the anchor points. Refer to product Manual for more operational information. The spring will operate the SRS stop switch should the cable break. After being tripped, the mechanical latch of the switch can only be reset at the switch itself by the reset lever.

DIMENSION

Unit:inch(mm)



FEATURES

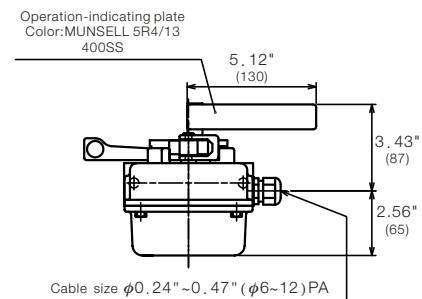
- Universal design for bi-directional operation
- Compact design for tight spaces
- IP67 rugged Diecast aluminum enclosure, powder coated
- Manual reset lever
- Easily located at either end or intermediate point along belt conveyor
- Cable pull down 30 degrees to shutdown system
- Highly visible

SPECIFICATIONS

Switch output	Two (2) SPDT, 10A @ 125/250VAC, 1/2A @ 125VDC
Lever force	0.76lbf~1.21lbf (3.4N~5.4N)
Reset method	Automatic
Ambient temp.	-4°F~140°F (-20°C~60°C)
Enclosure protection	IP67
Enclosure material	Diecast Aluminum – Powder Coated
Weight	6.4lb (2.9kg)

APPLICATIONS

- Conventional belt conveyors
- Shuttle Conveyors
- Bucket Elevators
- Packaging Lines
- Stockpile/Reclaim systems, Cranes, Shovels,
- Draglines
- Ship Loading / Unloading System
- Horizontal Feed Systems



ED4000 SPEED MONITOR

PRODUCT INTRODUCTION

The ED4000 is a totally new instrument used for monitoring the speed of rotating devices such as rotating conveyor shafts, motor shafts, etc. It measures RPM from 1~999 and indicates the speed on its internal 7-segment LED display. A relay contact is provided that can be used for alarm or control purposes. The ED4000 primary output is an analog 4~20mA signal of the measured speed that can be tied into a PLC, control system or local indicator (ask Aplus Finetek Sensor about our own brand of digital and bargraph display indicators).

OPERATING PRINCIPLE

The ED4000 uses the principle of photo detection and microprocessor electronic technologies to accurately calculate rotational speed over a range of 1~999rpm. Alarm and continuous analog outputs are provided for alarm/control and speed output. The alarm setpoint can be directly set by a series of three (3) ten (10) position switches on the top PCB inside the ED4000 enclosure.

SPECIFICATIONS

Measuring range	0~999rpm
Display	7-segment LED, 0~999
Alarm setpoint	1~999, adjusted by use of three (3) rotary switches
Alarm conditions	Underspeed, Stopped, Power Failure
Startup delay	Selectable 0s or 15s
Alarm output	SPDT Relay, 5A @250VAC
Alarm delay	Selectable 0s, 3s, 6s, 9s, 12s, 15s, 18s, 21s, 24s, 27s
Speed analog output	4~20mA (range selectable 100/200/500/1000rpm)
Power supply	Universal 85-265VAC, 50/60Hz
Power consumption	6VA
Operating temp.	-4°F~158°F (-20°C~70°C)
Enclosure material	Diecast aluminum, powder coated
Enclosure protection	IP65
Conduit entrance	Two (2) 1/2" NPT

FEATURES

- Maximum measuring range 1~999rpm
- 7-segment LED display
- Alarm monitoring: low or Underspeed, stop, reverse, overload conditions, power outage
- Startup delay: allows equipment motor to run up to speed gradually
- Alarm delay: avoid faulty alarm indication due to temporary slowdown or a load change
- Selectable for CW or CCW rotation
- Light pulses will not be affected by environmental conditions
- Panel meter or bargraph display indicator available
- 4-20mA output has selectable speed range: 100rpm, 200rpm, 500rpm or 1000rpm

Special Function (built in function)

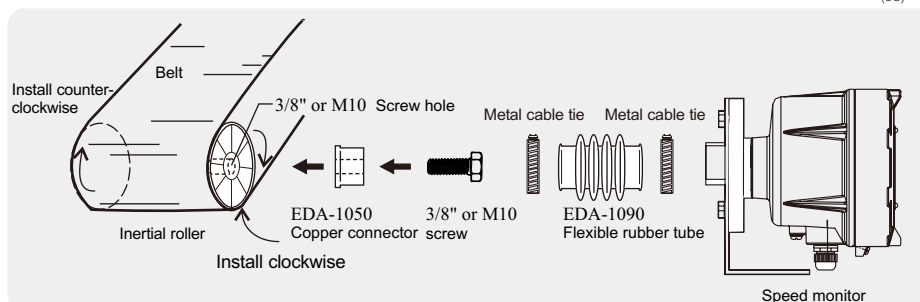
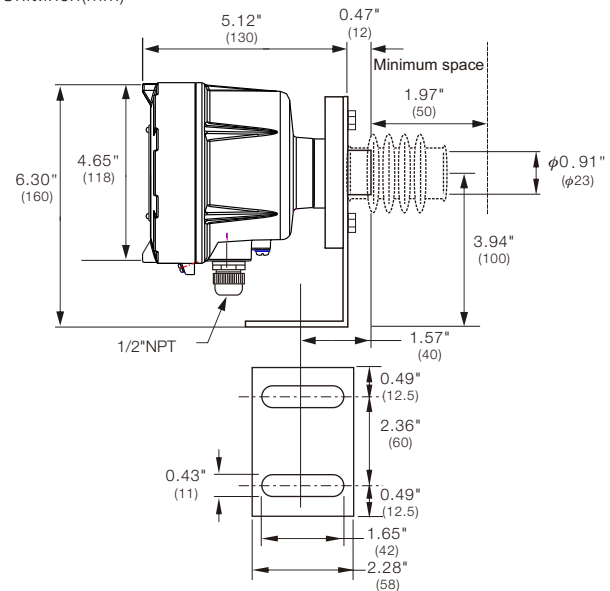
4~20mA output, proportional to selectable speed range like 100rpm, 200rpm, 500rpm and 1,000rpm.

APPLICATIONS

- Low speed detection
- Conveyor overload protection
- Bucket elevators
- Belt conveyors

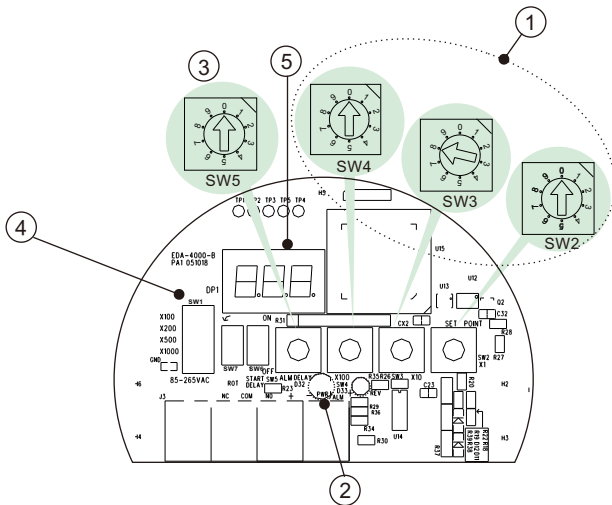
DIMENSIONS

Unit:inch(mm)

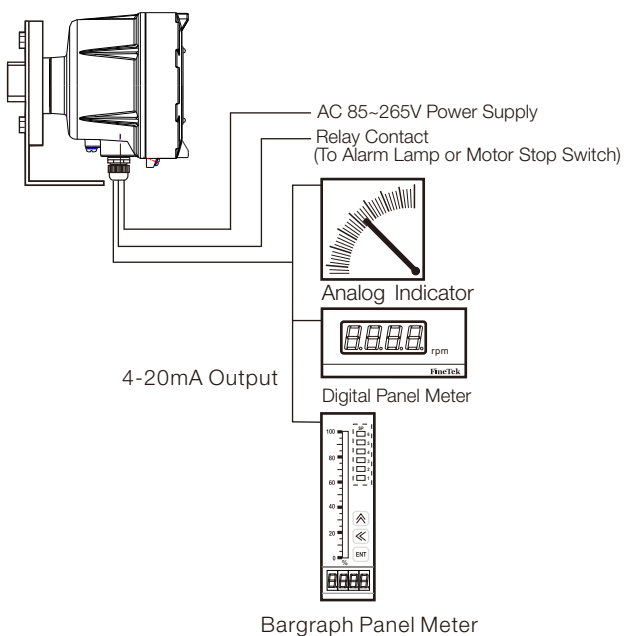


OPERATOR INTERFACE

- ① Setpoint rotary switches
- ② Bi-color LED
(Green – Power/Normal; Red – Power/Alarm)
- ③ Startup Delay rotary selector switch
- ④ 4-20mA output range selector switch
- ⑤ 7-segment LED



APPLICATION EXAMPLE



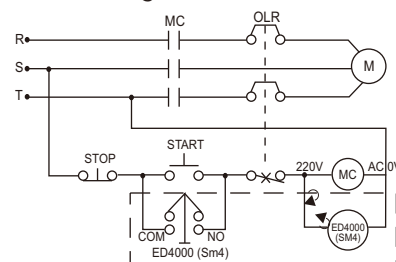
DESCRIPTION OF OPERATION

1. **Setpoint rotary switches (SW2, SW3 and SW4)**
The function of these three rotary switches is for setting the alarm setpoint. There are three (3) rotary switches; SW4 = x100, SW3 = x10, SW2 = x1. If the desired setpoint is 321rpm, then rotary SW4 to position 3, SW3 to position 2 and SW2 to position 1. The alarm will occur when the detected speed is below this setpoint.
2. **Alarm/Power Indicator (Red/Green)**
 - a. This is a bi-color LED, only one color is illuminated at a time. Upon power up of the ED4000 and subsequent to the startup delay time, the Green will illuminate in a flashing manner for 15 seconds and then solid green if the detected speed condition is Normal.
 - b. Under Normal operating conditions with power applied, when no alarm is detected, the Green is illuminated. When an alarm condition is detected and the alarm delay has expired, with power applied, the Green color will extinguish and the Red will be illuminated to visually indicate that an Alarm condition exists.
3. **Startup delay rotary switch (SW5)**
The startup delay allows the equipment motor speed to come up to normal rpm slowly without an immediate alarm condition being detected by the ED4000. The 0~9 positions on the SW4 rotary selector switch are startup delay setting as follows:

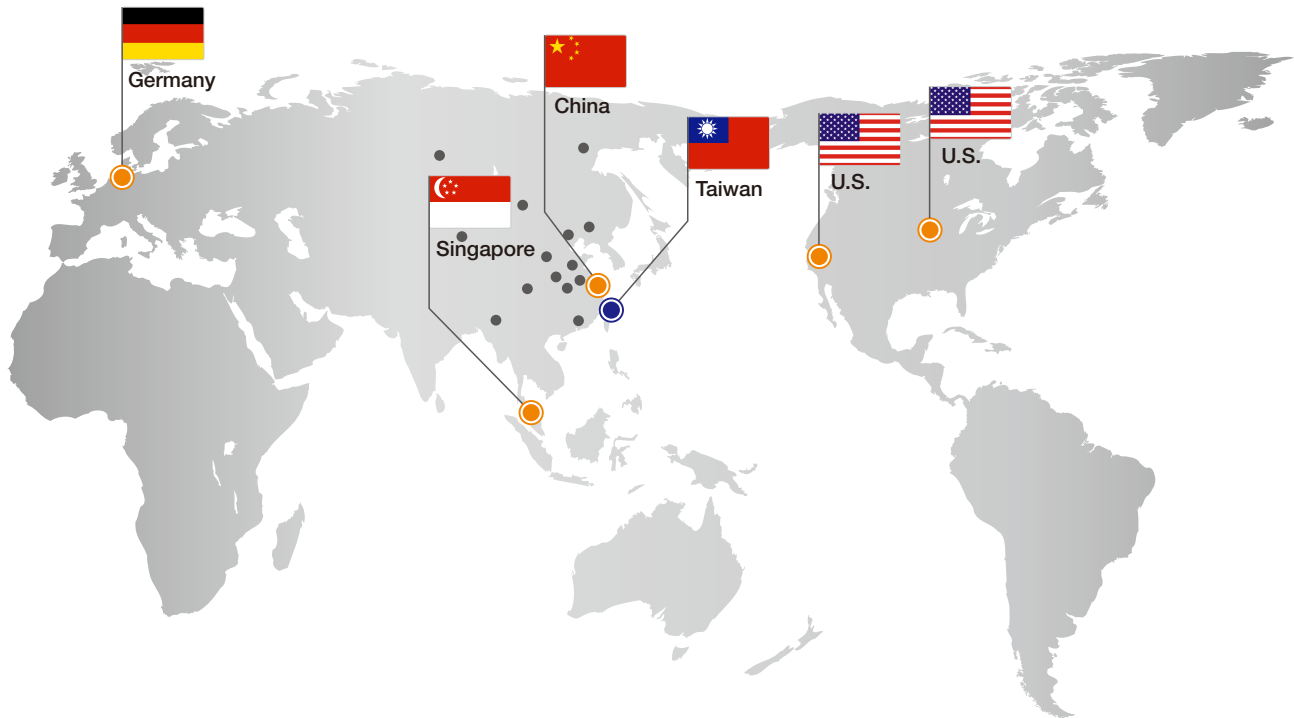
Switch setting	0	1	2	3	4	5	6	7	8	9
Delay time	3 S	6 S	9 S	12 S	15 S	18 S	21 S	24 S	27 S	30 S

4. **4-20mA output range selector switch**
This switch converts the detected and measured speed into a proportional current output with four possible range settings for the 4-20mA output. The four possible ranges are 100rpm, 200rpm, 500rpm and 1000rpm. For example, if the range setting switch is set for 500rpm then input speed of 0-500rpm will be converted to 4-20mA output. If the detected speed is 250rpm, then the output current signal will be 12mA.

Below is the diagram of control circuit. Motor speed is monitored by ED4000 (SM4). Motor starts to speed up after activation. ED4000(SM4) starts to monitor after delay time being activated. It monitors if motor is under low speed. When speed is too low, alarm will be issued to stop motor running.



Global Network



■ Asia

Taiwan

FINETEK CO., LTD.
TEL: 886-2-2269-6789
FAX: 886-2-2268-6682
EMAIL: info@fine-tek.com

China

FINE AUTOMATION CO., LTD.
TEL: 86-21-6490-7260
FAX: 86-21-6490-7276
EMAIL: info.sh@fine-tek.com

Singapore

FINETEK PTE LTD.
TEL: 65-6452-6340
FAX: 65-6734-1878
EMAIL: info.sg@fine-tek.com

■ North America

California, U.S.

APLUS FINETEK SENSOR INC.
TEL: 1 909 598 2488
FAX: 1 909 598 3188
EMAIL: info@aplusfine.com

Illinois, U.S.

APLUS FINETEK SENSOR INC.
TEL: 1 815 632-3132
FAX: 1 815 716 8464
EMAIL: info@aplusfine.com

■ Europe

Germany

TEL: +49-(0)6142-17608-0
FAX: +49-(0)6142-17608-20
EMAIL: info@fine-tek.de



Represented by: