

# Thermo Scientific Pro-Line Conveyor Protection Switches

Thermo Scientific™ Ramsey™ conveyor protection switches monitor your conveyors, equipment, and processes. Using our conveyor protection switches to prevent accidents, protect equipment, and reduce unscheduled shutdowns helps to keep your profits and production at their highest levels.

## Features and Benefits

- Rugged, heavy-duty design
- CSA approved for Class II, Div 1 & 2, Group E, F & G applications
- Accessories to suit your application
- Available with addressable modules providing switch ID to PLC
- Improved temperature spec for low temp applications
- Now available with 2 or 4 SPDT microswitches

Thermo Scientific Ramsey conveyor protection switches are used for position information, control signals, and to identify potentially hazardous situations with your process equipment. When hazardous situations occur they activate alarms to stop your equipment. This keeps your personnel safe and limits damage to your equipment.

These conveyor protection switches utilize a rugged heavy duty design. They are built to last, providing many years of dependable service. The modular design of the base unit provides added convenience for installation and maintenance. Numerous options allow you to pick the right switch to fit your applications. Use the conveyor protection switches to protect your business in even the most challenging applications.



Improved ROS & SPS Versions

# Thermo Scientific Pro-Line Conveyor Protection Switches



SPS-2E & SPS-4E



TPS-2D



ROS-2E & ROS-4E

## Thermo Scientific Pro-Line Safety Cable Pull Switch

This safety cable pull switch is used as an emergency shutdown device for conveyors or other equipment. They meet OSHA and MSHA requirements for safety shutdown devices.

Safety pull cables are attached to the actuating arm of the switch.

When force is applied to the pull cable it rotates the actuating arm and actuating shaft. At a 20° rotation the switch enters a tripped and locked position. The actuating shaft has two cams inside the housing. Each cam simultaneously actuates an independent SPDT micro-switch for shutdown and alarm signals.

The safety cable pull switch has one housing layout that may be used interchangeably in mid-run or end-run positions of the safety pull cables.

Standard safety cable pull switches include a manual reset lever. This lever keeps the switch locked in an alarm condition until it is manually reset by an operator.

## Thermo Scientific Pro-Line Tripper Position Switch

This tripper position switch is a heavy duty limit switch. It is often used to indicate the position of a tripper on a conveyor with multiple discharge points. However, it can be used anywhere you need an extremely heavy duty limit switch with physical activation.

The actuating arm of the tripper position switch uses a large Acetal contact roller, 3 in diameter by 1.75 in wide. When the roller makes contact it rotates the actuation shaft which has two cams inside the housing. Each cam actuates an independent SPDT micro-switch for position or alarm signals.

The switch can be ordered with an option where one of the SPDT switches is actuated with clockwise rotation and the other SPDT switch is actuated with counter-clockwise rotation. This allows you to identify which direction the switch is activated from.

## Thermo Scientific Pro-Line Belt Misalignment Switch

This belt misalignment switch is used to monitor the position and tracking of conveyor belts. It is mounted on the conveyor structure and adjusted so the roller arm is the proper distance and angle from the outside edge of the belt. When a belt drifts out of alignment it contacts the roller actuator arm which rotates the actuation shaft, causing the belt misalignment switch to send an alarm signal.

The actuation shaft has two cams inside the housing. Each cam actuates an independent SPDT micro-switch for alarm signals. The first micro-switch actuates with a 10° rotation of the actuation shaft for a warning alarm signal, allowing operators to address the situation before it becomes a problem. The second micro-switch actuates with a 20° rotation of the actuation shaft for a shut down alarm signal in order to prevent or minimize equipment damage. The roller arm has internal stainless steel bearings. This allows the switch to be used on conveyors with belt speeds up to 1250 feet per minute with outstanding service life.

# Nomenclature for ROS, SPS, & TPS

**A** **B** **C** **D** **E** **F**

PRODUCT IDENTIFIER

SWITCH VERSION NUMBER

HAZARDOUS AREA APPROVALS

FINISH / NEMA RATING

CONDUIT OPENINGS

OPTIONS

## Nomenclature Examples

<b>ROS-2E-1-4-NPT</b>	Belt Misalignment Switch, 2 SPDT microswitches, cCSAus, NEMA-4, NPT conduit openings
<b>ROS-4E-1-4X-MET</b>	Belt Misalignment Switch, 4 SPDT microswitches, cCSAus, NEMA 4X, MET conduit openings
<b>SPS-2E-3-4X-NPT</b>	Safety Pull Switch, 2 SPDT microswitches, cCSAus haz area, NEMA 4X, NPT conduit openings
<b>TPS-2D-1-NP</b>	Tripper Position Switch, 2 SPDT microswitches, cCSAus, nickel plated

### F. OPTIONS (add all that apply)

- LT** Alarm Light (only available with 2D version of ROS & SPS)
- RST** Manual reset lever (Standard on SPS)
- FLG** Auxilliary flag alarm
- SA** Short roller arm for tight areas (ROS only)
- MTBR** Mounting bracket
- CCW** Independent signals for CW/CCW (TPS only)
- ADD** Addressable modules (only available with 2D version of ROS & SPS)

### E. Conduit Openings

- NPT** Standard 3/4-14 NPT threads
- MET** Metric M20x1.5 threads

### D. FINISH / NEMA RATING

- 4** NEMA-4 Type enclosure, yellow finish, steel external components
- 4X** NEMA-4X Type enclosure, yellow finish, stainless steel external components
- NP** Nickel Plated Type NEMA-4X enclosure for extra corrosion protection, stainless steel external components

### C. HAZARDOUS AREA APPROVALS

- 1** cCSAus rated for non-hazardous area applications
- 3** cCSAus hazardous area rated for Class II, Div 1 & 2, Groups E,F, and G

### B. SWITCH VERSION NUMBER

- 2E** 2 SPDT microswitches ROS & SPS
- 4E** 4 SPDT microswitches ROS & SPS
- 2D** 2 SPDT microswitches TPS

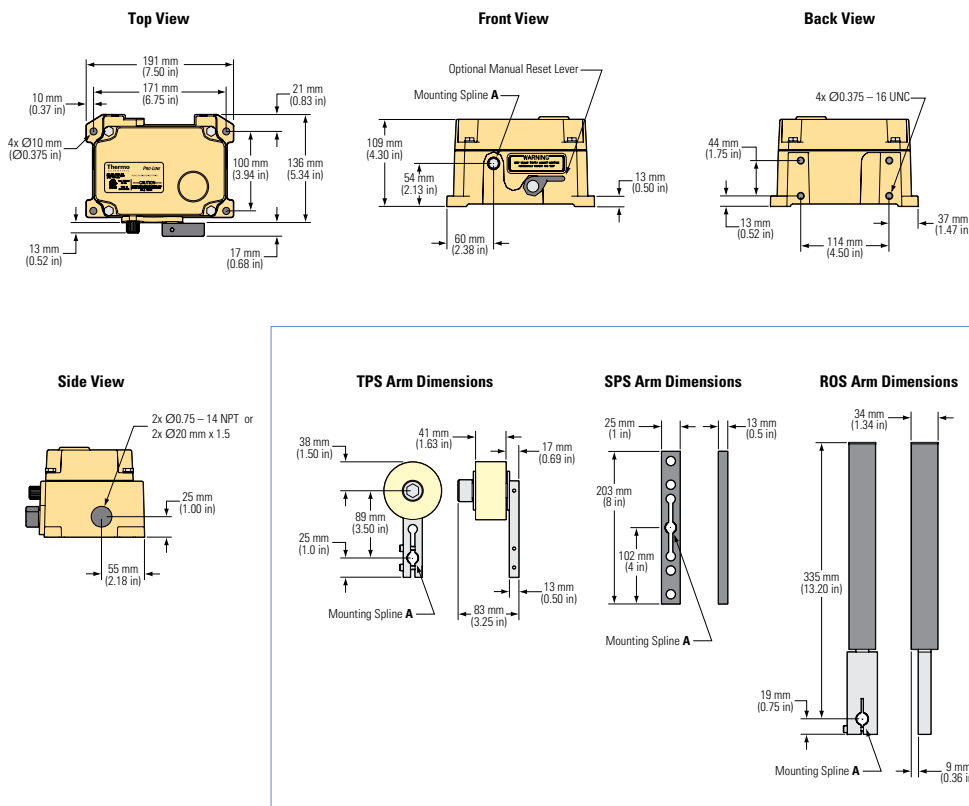
### A. PRODUCT IDENTIFIER

- ROS** Belt Misalignment Switch (Run off Switch)
- SPS** Safety Pull Switch
- TPS** Tripper Position Switch

**Pro-Line Conveyor Protection Switches**

<b>Outputs</b>	Two or four SPDT microswitches rated for 10A 250 VAC , TPS only available with 2 SPDT microswitches
<b>Temperature</b>	ROS-2E/4E: -40° to +185° F (-40° to +85° C); SPS-2E/4E: -40° to +185° F (-40° to +85° C); TPS-2D: -25°C to +80°C (-13°F to +176°F)
<b>Enclosure Rating</b>	Type NEMA-4, NEMA-4X or Nickel Plated
<b>Conduit Openings</b>	Two threaded 3/4-14 NPT or M20x1.5 metric threads
<b>Actuating Arm Adjustments</b>	22.5° increments from vertical
<b>Agency Approvals</b>	cCSAus for ordinary locations or available with cCSAus approval for Class II, Division 1 & 2, Groups E, F, & G
<b>Actuating Force (ROS)</b>	2.27 kg (5 lb)
<b>Spacing (SPS)</b>	Recommended 30 m (100 ft) switch spacing and cable supports every 3 m (10 ft); maximum spacing of 60 m (200 ft) on horizontal conveyors and 45 m (150 ft) on inclined conveyors
<b>Pull Force Rating (SPS)</b>	3.63 kg (8 lb) to 8.16 kg (18 lb)

**Dimensional diagrams for ROS, SPS, & TPS**



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