



# Thermo Scientific Ramsey Pro-Line Conveyor Protection Switches

Thermo Scientific™ Ramsey™ conveyor protection switches monitor your conveyors, equipment, and processes. Using Ramsey switches to prevent accidents, protect equipment and people, 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
- Now available with 2 or 4 SPDT
- Suitable temperature specification for low temperature applications
- Now available with 2 or 4 SPDT micro-switches

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 the switches activate alarms to stop your equipment. This keeps your personnel safe and limits damage to your equipment.

These conveyor protection switches utilize a rugged 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. A range of models allows you to pick the right switch to fit your application. Use Ramsey conveyor protection switches to protect your business in even the most challenging applications.



**Improved ROS, SPS, SAS & TPS models of the Ramsey Pro-Line conveyor protection switch**

# Thermo Scientific Pro-Line conveyor protection switches



**Model SAS-2E & SAS-4E, SPS-2E & SPS-4E**

## Thermo Scientific™ Pro-Line Safety Cable Pull Switches

The safety pull switch (SPS) and snap action switch (SAS) switches are 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 SAS is designed with added safety in mind to activate if the pull cable is slack or broken.

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.



**Model TPS-2E & TPS-4E**

## Thermo Scientific™ Pro-Line Tripper Position Switch

This tripper position switch (TPS) 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 measuring 76mm (3 in) diameter by 44 mm (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.



**Model ROS-2E & ROS-4E**

## Thermo Scientific™ Pro-Line Run Off Switch

This belt misalignment switch (ROS or Run Off 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 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 6.4 meters per second (1250 feet per minute) with outstanding service life.

## Nomenclature for ROS, SPS, & TPS

Product Identifier	Switch version number	Hazardous area approvals	Finish / NEMA rating	Conduit openings	Light
<b>ROS</b> - Run Off Switch (Belt Misalignment Switch)	<b>2E</b> - 2 SPDT micro-switches	<b>1</b> - cCSAus rated for non-hazardous area applications	<b>4</b> - NEMA-4 Type enclosure, yellow finish, steel external components	<b>NPT</b> - Standard 3/4-14 NPT threads	<b>LT</b> - Light voltage: 24V, 120V or 240V
<b>SPS</b> - Safety Pull Switch	<b>4E</b> - 4 SPDT micro-switches	<b>3</b> - cCSAus hazardous area rated for Class II, Div 1 & 2, Groups E, F, and G	<b>4X</b> - NEMA-4x Type enclosure, yellow finish, stainless steel external components	<b>MET</b> - Metric M20x1.5 threads	<b>SW</b> - Steady White <b>FR</b> - Flashing Red
<b>TPS</b> - Tripper Position Switch					<b>SR</b> - Steady Red
<b>SAS</b> - Snap Action Switch			<b>NP</b> - Nickel-plated Type NEMA-4x enclosure for extra corrosion protection, stainless steel external components		

### Nomenclature examples

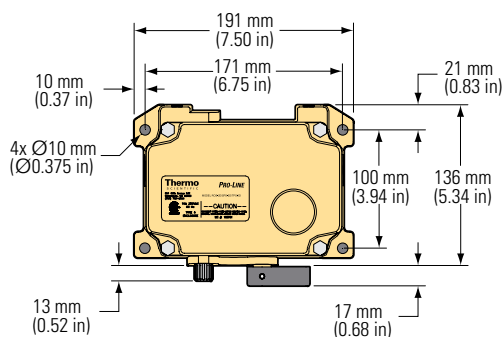
<b>ROS-2E-1-4-NPT</b>	Run Off Switch, 2 SPDT micro-switches, cCSAus, NEMA-4, NPT conduit openings
<b>ROS-4E-1-4X-MET</b>	Run Off Switch, 4 SPDT micro-switches, cCSAus, NEMA 4X, MET (metric) conduit openings
<b>SPS-2E-3-4X-NPT</b>	Safety Pull Switch, 2 SPDT micro-switches, cCSAus haz area, NEMA 4X, NPT conduit openings
<b>TPS-2E-1-NP-NPT</b>	Tripper Position Switch, 2 SPDT micro-switches, cCSAus, nickel plated, NPT conduit openings

### Pro-Line Conveyor Protection Switches

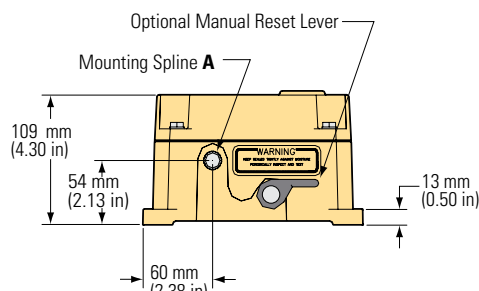
<b>Outputs</b>	Two or four SPDT micro-switches rated for 6A/250VAC, 10A/30VDC
<b>Temperature</b>	ROS, SPS, SAS & TPS: -40° to +185° F (-40° to +85° C)
<b>Enclosure Rating</b>	Type NEMA-4, NEMA-4X or nickel plated
<b>Conduit Openings</b>	Two threaded 3/4-14 NPT or M20x1.5 metric threads
<b>Actuating Arm 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>Pull Force Rating</b>	SPS 3.63 kg (8 lb) to 8.16 kg (18 lb), SAS 10 kg (22 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

Dimensional diagrams for ROS, SPS, & TPS

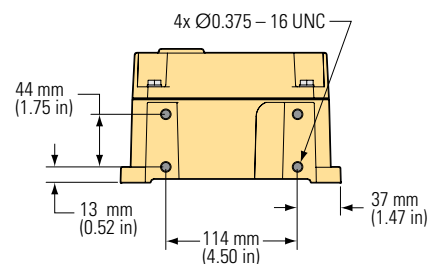
Top view



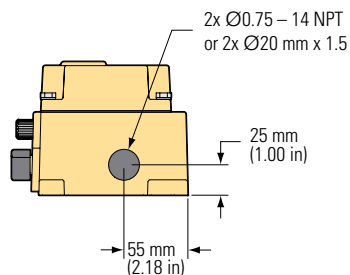
Front view



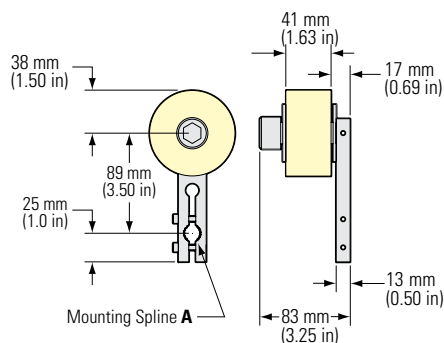
Back view



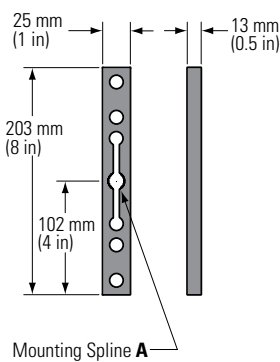
Side view



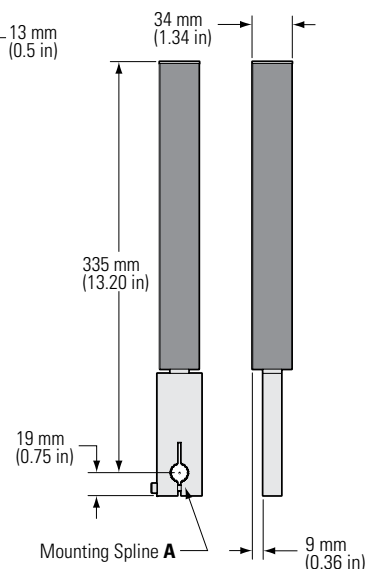
TPS arm dimensions



SPS/SAS arm dimensions



ROS arm dimensions



Learn more at [thermofisher.com/bulkweighing](https://thermofisher.com/bulkweighing)

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