



# Thermo Scientific Ramsey Mercury-Free Tilt Sensors

Now available in a non-mercury version, these sensors provide you with the stability, sensitivity and performance you have come to expect from the traditional mercury-based Thermo Scientific™ Ramsey™ Tilt Switches.

## Features and Benefits

- Rugged, abrasion-resistant tilt probes
- Simple installation
- All probes include mounting hardware
- Solid-state control unit with printed circuit boards
- Control unit is available in the following options
  - Field mount NEMA 4
  - Field mount NEMA 4X
  - DIN mount NEMA 1
- User adjustable time delay to prevent false alarms
- LED status lights — no bulbs to change
- cCSAus and ATEX approved versions suitable for hazardous area applications.

The Thermo Scientific™ Ramsey™ Mercury-Free Tilt Sensor uses advanced technology inside the tilt probe to replicate the same performance found in traditional mercury-based Thermo Scientific Ramsey Tilt Switches. A combination of opto-electronics and solid state circuitry inside the probe prevents jitter and provides stability not found in the typical non-mercury options.

The precision manufacturing of the tilt probe provides sensing of a 15 degree inclination in a full 360 degrees of direction. Multiple models of the tilt probe are available for applications with a wide variety of materials and environmental conditions (see inside for a description of the available options). All probes have fully encapsulated electronics and come with the necessary mounting hardware.

The field-mount control unit includes the traditional green “Normal” and red “Alarm” indicators with LED

illuminators (a DIN mount control is also available). The DPDT relay contacts give you two normally open and two normally closed connections for your external alarms and/or controls. An internal jumper allows you to select whether “Normal” is a horizontal or a tilted position. An adjustable time delay inside the control prevents a momentary tilting of the probe from causing a false or premature contact transfer. Interruption of line power will cause a contact transfer.



## Ramsey Mercury-Free Tilt Sensor Controls

The sensor consists of a control unit and a tilt probe. Due to the nature of the stabilizing electronics, tilt probes cannot be used without a controller.



Field Mount Control (IP65/NEMA 4)  
20-35-NM-F  
21-35-NM-F-CSA  
21-35-NM-F-ATEX



Field Mount Control (SST IP65/NEMA 4X)  
20-35-NM-F-4X  
21-35-NM-F-CSA-4X



DIN Mount Control (IP20/NEMA 1)  
20-35-NM-DIN

## Ramsey Mercury-Free Tilt Sensor Probes



Standard 1 in. Nickel Plated  
Cast Ductile Iron Probe  
20-59-NM  
21-59-NM



1 in. Light Weight  
Plastic Probe  
20-55-NM-P



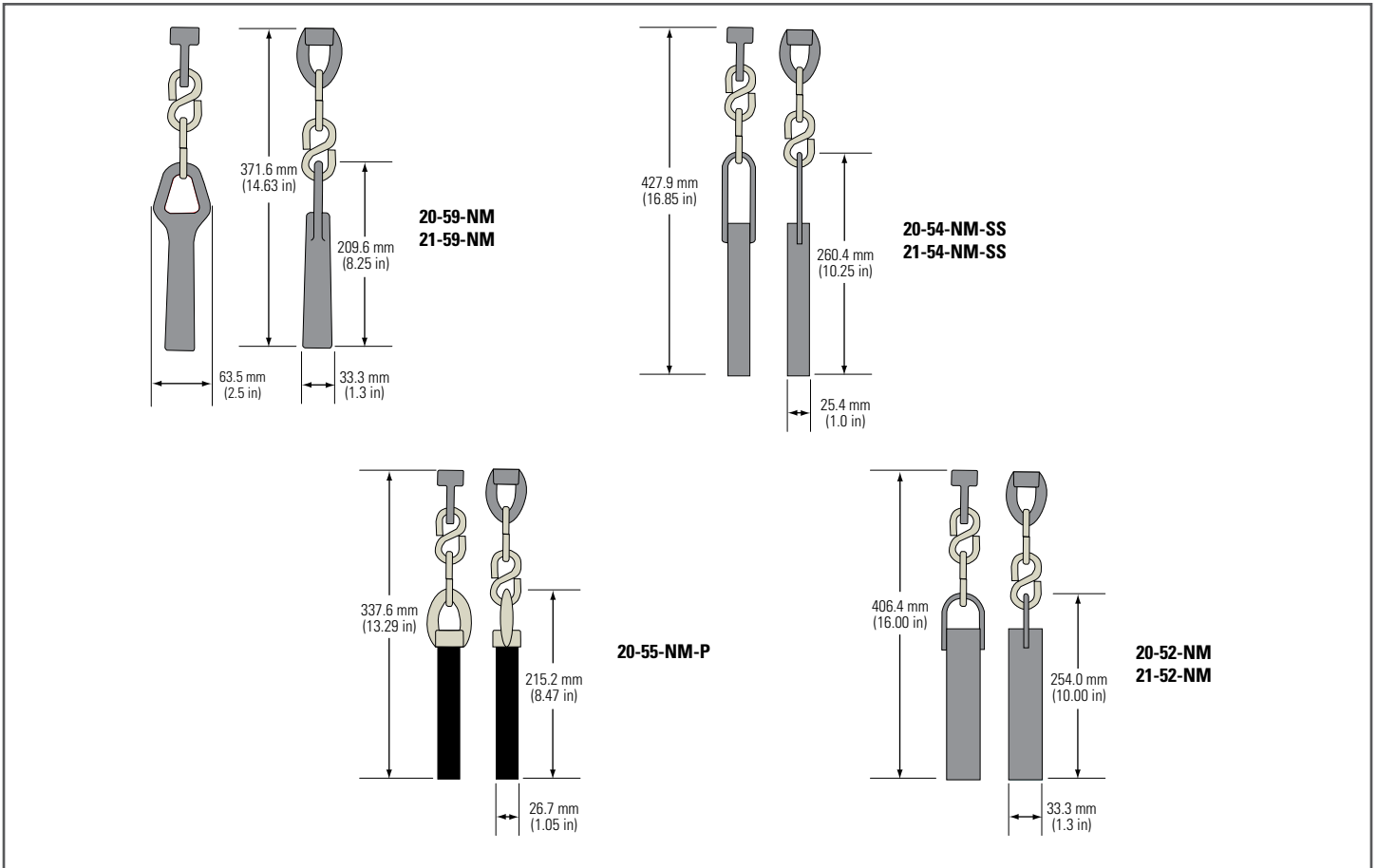
1 in. Stainless Steel Probe  
20-54-NM-SS  
21-54-NM-SS



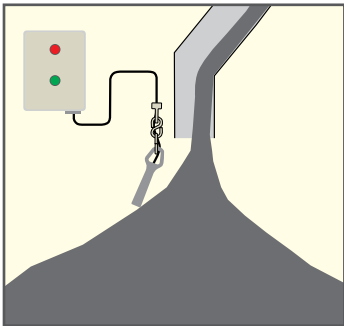
2 in. Heavy Weight Probe  
20-52-NM  
21-52-NM



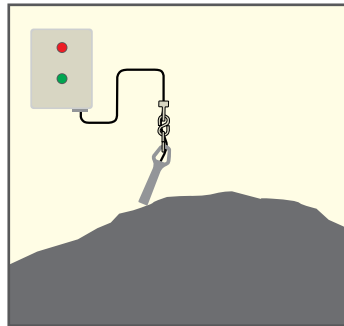
## Tilt Sensor Probe Models



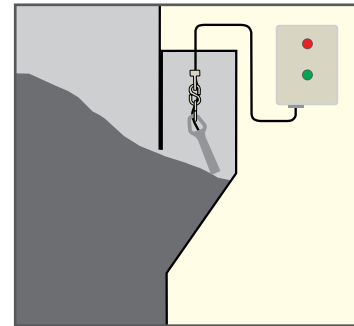
## Typical Industry Applications



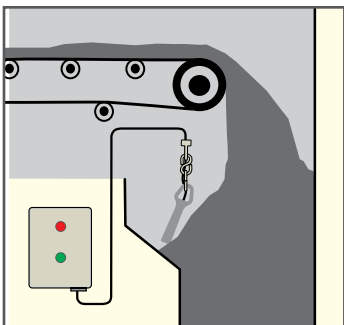
High Level



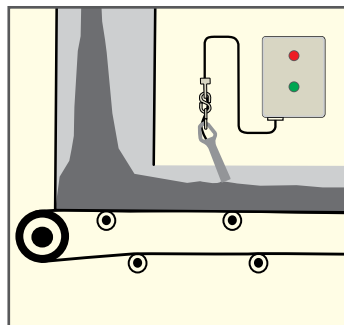
High Pile



Low Level



Plugged Chute



Material Flow



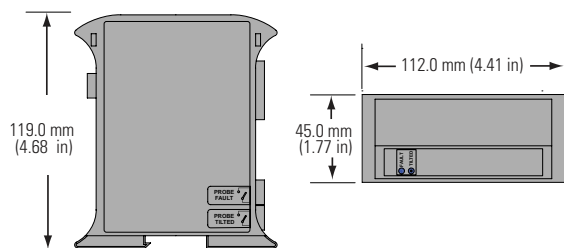
## Tilt Sensor Probe General Specifications

<b>Temperature Rating</b>	All models	-40°C (-40°F) to +50°C (+122°F)
<b>Protection</b>	All models	IP67 (NEMA 4X)
<b>Mounting Hardware</b>	All models	Hanger and two S-hooks included
<b>Certifications</b>	All models	cCSAus, CE
<b>Hazardous Area Certifications</b>	21-59-N M / 21-54-NM / 21-52-NM	ATEX Zone 20/21 and cCSAus Class I, Div 1 & 2, Groups A, B, C & D and Class II, Div 1 & 2, Group E, F & G, CE

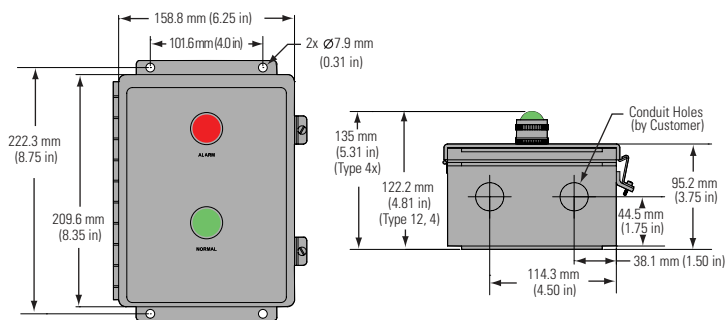
## Tilt Sensor Control General Specifications

<b>Input Power</b>	All models	115/230 VAC, 50/60 HZ
<b>Alarm Contact Rating</b>	20-35-NM-DIN All other models	(1) NO—2 Amp @ 115/230 VAC or 3 Amp @ 24 VDC (2) SPDT—6 Amp @ 115/230 VAC or 6 Amp @ 30 VDC non-inductive
<b>Fault Contact Rating</b>	All models	(1) NO—rated for 2 Amp @ 115/230 VAC @ 24 VDC
<b>Time Delay</b>	All models	1, 2, 4, or 6 seconds selectable by jumpers
<b>Temperature Rating</b>	All models	-40°C (-40°F) to +50°C (+122°F)
<b>Protection</b>	20-35-NM-DIN All other models	IP20 (NEMA 1) IP65 (NEMA 4 or NEMA 4X)
<b>Certifications</b>	All 20-35 models	cCSAus, CE
<b>Hazardous Area Certifications</b>	21-35-NM-F-CSA / 21-35-NM-F-CSA-4X 21-35-NM-F-ATEX	cCSAus Class I, Div 2, Groups A, B, C & D and Class II, Div 1 & 2 Group E, F & G, CE ATEX Zone 22, CE

### DIN Mount Control Dimensions



### Field Mount Control Dimensions



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