







# **INVENTORY MANAGEMENT** POINT LEVEL & CONTINUOUS MANAGEMENT

### AIRMATIC

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CONTINUOUS LEVEL	Series 400 Series 200 RADAR RIGHT TM	Easy Wireless Bluetooth Set-Up Sillo PATROL® SE	App Gateway SILO TRACK ™
	NON-CONTACT RADAR	CABLE-BASED SMART SENSOR	INVENTORY MANAGEMENT
FEATURES	<ul> <li>Non-contact, Continuous Level MeasurementNothing to "Touch" the Process</li> <li>Proven Pulse Radar Technology</li> <li>Small Beam Angle to Concentrate Energy for High Accuracy and Reliability</li> <li>Small "Dead Band" ("Blanking Zone") for Optimum Measurement In Vessel</li> <li>Advanced Micro-processor and Unique Echo Processing Technology</li> <li>No Moving Parts to Wear; Low Maintenance</li> <li>Easy Set-up / Configuration with LCD Push Button Display Module (Included)</li> </ul>	<ul> <li>Sensor Performance Unaffected by Material CompositionWorks in Tough and Dusty Conditions</li> <li>Intuitive, Wireless Set-up / Configuration Using a Free App on an Android<sup>™</sup>-based Device with Bluetooth<sup>®</sup></li> <li>Modbus<sup>™</sup> Connectivity</li> <li>Continuous or On-Demand Measurements with Lock Out Override</li> <li>Easy to Install &amp; Virtually Maintenance Free</li> <li>Smart Sensing Reliability Combining Optic and Hall-Effect Technologies</li> <li>Measuring Range Up to 150 ft (46m)</li> </ul>	<ul> <li>Web-based Application to Access Real-time Material Inventory Data from Any Device that has an Internet Connection</li> <li>Intuitive, Flexible and Powerful Graphical User Interface for Monitor's RS-485 (Modbus Comp.) Continuous Level Sensors</li> <li>Securely View Distance, Level, Volume, Weight, Percentage and Ullages (Empty Space) for Silos</li> <li>Set Level Alarms and Monitor Sensor Status Configure E-mail and Text Notifications</li> <li>Create, Save &amp; Generate Configurable Reports</li> </ul>
OPTIONS	<ul> <li>Models Available for Various Applications         <ul> <li>Series 400 - For Powders &amp; Bulk Solids                 in Vessels Up To 100 ft (30m) High</li> <li>Series 200 - For Liquids Up To 100 ft (30m)</li> </ul> </li> <li>Variety of Antenna (Horn) Sizes</li> <li>Selection of Flanges</li> <li>Dust Protection Options (Air Purge or Dust Shield) for Series 400</li> <li>SiloTrack ™ CLOUD Web-based Remote Inventory Management App or HMI<sup>2</sup> Control Panel for RS-485 Version</li> <li>4-20mA Analog or Smart RS-485 (Modbus Comp.)</li> </ul>	<ul> <li>Hazardous Location Approvals for Dust</li> <li>0°, 5° or 10° Freeze-Resistant Mounting Flange</li> <li>Outputs: Smart RS-485 with Modbus Connectivity or 4-20mA Analog</li> <li>Local Indication (HMI<sup>2</sup>)</li> <li>Wireless EZ Communication Interface</li> <li>SiloTrack ™ CLOUD or SiloTrack ™ PC Inventory Management Systems</li> <li>Auxiliary Output Enclosure (AOE) with Relay and/or Analog Outputs</li> </ul>	<ul> <li>Universal 85-265VAC or 24VDC Operating Voltage (Gateway)</li> <li>Cellular or Ethernet Connectivity from Gateway(s) to the Cloud-based Server</li> <li>Standard or High Gain Antenna (Gateway)</li> </ul>
APPLICATIONS	<ul> <li>Use when it is important that the level instrument does not contact your process.</li> <li>Reliable choice for most powders &amp; bulk solids.</li> <li>For real-time level measurements.</li> <li>Gimbal (swivel) mounting on <i>Series 400</i> to aim sensor for optimal measurements and to avoid vessel obstructions.</li> <li><i>Series 200</i> is designed for liquid applications.</li> </ul>	<ul> <li>Use when target material characteristics may change thereby eliminating need for re-calibration.</li> <li>Reliable inventory management system.</li> <li>Great economical choice when accurate yet occasional measurements are required.</li> </ul>	<ul> <li>Optimize frequency of deliveries &amp; transportation costs.</li> <li>Receive timely material inventory levels from anywhere.</li> <li>Access data history and create customizable reports to share information across functional departments.</li> </ul>
SPECIFICATION	Power: 24VDC (16-26 VDC) Ambient Temp: -40 to +150°F (-40 to +65°C) Frequency Range: 26 GHz Measurement Accuracy: Series 400: ±0.39in (±10mm); Series 200: ±0.12in (±3mm) 3dB Beam Angle: 3" (78mm) Dia. Antenna: 12°, 4" (98mm) Dia. Antenna: 8°, 5" (123mm) Dia. Antenna: 6°, Dead Band: 12" to 30" (305mm to 762mm) - Antenna and/or Application Dependent Signal Output: Smart RS-485 / Modbus RTU (2-wire); 4-20mA Analog (2-wire, loop powered) Mounting: Gimbal/Swivel (400) or 1-1/2" NPT (200); K-Flanges and ANSI Flanges Approvals: CE Mark; TUV Rheinland US/C, Ordinary Loc. Housing Enclosure: Die cast aluminum, ENCLOSURE TYPE 4X, IP66	Power: 115 VAC; 230 VAC $\pm$ 15% Ambient Temp: SMU: -40° to +150°F (-40° to 65°C); HMI²/AOE: -4° to +131°F (-20° to 55°C) Int. Bin Temp: Up to 300°F (149°C) SMU Output: Smart: RS-485 half-duplex, isolated Analog: 4-20mA, isolated Mounting: Flange with 7.0" (177.8mm) bolt circle Approvals: CSA <sub>US/C</sub> : Ordinary Locations; CSA <sub>US/C</sub> : Class II & III ; ATEX: II 1/2 D c Ex to IIIC 775°C Db IP66 (Ta -40°C to +65°C); IECEx: Ex to IIIC 775°C Db IP66 (Ta -40°C to +65°C); CE Mark Enclosure Protection: NEMA 4X; IP66	SiloTrack <sup>™</sup> CLOUD Gateway - Power Requirements: <u>AC</u> : 115-230VAC ± 15%, 50/60 Hz; <u>DC</u> : 24VDC ± 15% Power Requirements: <u>AC</u> : 70W (1.5A max @ 115VAC); <u>DC</u> : 18W max <b>AUX 24VDC Output:</b> 1.7A max (AC Version Only) <b>Cellular Wireless Interface</b> [LTE - North America (M5]) : LTE CAT 4: 700(B12, 13)/850(B5)/AWS(B4)/1900(B2); 3G HSPA+: 850/1900 MHz; Transfer rate (max): 150 Mbps down, 50 Mbps up <b>Sensor Comm:</b> RS-485 half-duplex, non-isolated, Modbus RTU protocol, 9600/8/N/1 <b>Sensor Channels:</b> One (1):32-channel network (32 channels total) <b>Ambient Temp:</b> -30° F to 149° F (-34° C to 65° C) <b>Enclosure Material:</b> PBT / PC <b>Environ. Protection:</b> ENCLOSURE TYPE 4X, IP65 <b>Approvals:</b> UL Listed (Power Supply & Router)







POINT LEVEL	SAFE POINT®	KA, KAX	TRUE CAP       RF CAPITANCE         MK-2 or MK2e       (w/ Shaft Ext. & Gaurd)         (w/ Cable Config.)       TC-3, TC-1         TRUE CAP       RF CAPITANCE         RF CAPITANCE       MK-2 or MK2e         WK-2 or MK2e       TRUECAP         RF CAPITANCE       MK-2 or MK2e         WK-2 or MK2e       TRUE CAP         RF CAPITANCE       MK-2 or MK2e
	ROTARY PADDLE, FAIL-SAFE	ROTARY PADDLE	DURAVIBE
FEATURES	<ul> <li>Self-Validating "TRUE" Fail-Safe Design with Microcontroller-Based Reliability</li> <li>Patented Magnetic Sensing Technology</li> <li>Maximized Sensor Life via Motor Shut-Off Feature</li> <li>Externally Viewable LED Sensor Status Indicator (Except Hazardous Location Units)</li> <li>Independent Sense and Fault Outputs</li> <li>Enclosure Provides Ample Wiring Access and a Twist ON/OFF Cover</li> </ul>	<ul> <li>Basic Electro-Mechanical Operation</li> <li>Maximized Sensor Life via Motor Shut-Off Feature</li> <li>DC Powered Models Use Longer Life AC Motor</li> <li>Economical and Versatile</li> <li>Enclosure Provides Ample Wiring Access and a Twist ON/OFF Cover</li> </ul>	BINATROL G, GX, GX-SS Pressure Sensitive Diaphragm KA / KAX or SAFEPOINT Rotary Paddle
OPTIONS	<ul> <li>Hazardous Location Approvals for Gases and Dust</li> <li>Variety of Paddle Designs for Material Detection and Sensor Longevity</li> <li>High Temperature Unit (Top Mount)</li> <li>Pipe Extension Models <ul> <li>144" (365cm) Maximum Length</li> </ul> </li> <li>Field Adjustable Cable Extension <ul> <li>78" (2m) Maximum Length</li> </ul> </li> </ul>	<ul> <li>Hazardous Location Approvals for Gases and Dust (Model KAX)</li> <li>Variety of Paddle Designs for Material Detection and Sensor Longevity</li> <li>High Temperature Unit (Top Mount)</li> <li>Pipe Extension Models <ul> <li>144" (365cm) Maximum Length</li> </ul> </li> <li>Field Adjustable Cable Extension <ul> <li>78" (2m) Maximum Length</li> </ul> </li> </ul>	SILO PATROL <sup>®</sup> SE
APPLICATIONS	<ul> <li>Use "true" fail-safe product if undetected sensor failure could result in catastrophic process problem.</li> <li>LED provides means for personnel to view sensor status without visiting control room.</li> <li>Capable of sensing materials as light as 5 lbs/ft<sup>3</sup> (80kg/m<sup>3</sup>).</li> </ul>	<ul> <li>Excellent when facility personnel are expected to perform in-field troubleshooting and maintenance with virtually no prior training.</li> <li>Low-cost and long-life can be achieved by specifying a DC powered model. A voltage converting circuit permits use of a reliable AC motor.</li> <li>Capable of sensing materials as light as 5 lbs/ft<sup>3</sup> (80kg/m<sup>3</sup>).</li> </ul>	SILO TRACK ™ Software to view silo level measurements anytime, from any location using a device
SPECIFICATION	Power: 115 VAC; 230 VAC; 24 VAC/DC Ambient Temp: -40° to +150°F (-40° to +65°C) Int. Bin Temp: to 250°F (121°C) With Hi-Temp Unit: 250-500°F (121-260°C) without air-cooling 500-750°F (260-400°C) with air-cooling [0.5 psig/2.14 CFM] Sense Output: SPDT, 5A @ 250 VAC/30 VDC Fault Output: SPDT, 5A @ 250 VAC/30 VDC Mounting: 1-1/4" NPT or R 1-1/2" (BSPT) Pressure: 30 PSI (2 bar) max Approvals: CSA <sub>us/c</sub> : Ordinary Locations; CSA <sub>us/c</sub> : Class I & II ; ATEX: $\bigcirc$ II 1/2 D c T 85°C, ExtD A20/A21 T 85°C, (Ta -40°C to +65°C), IP6x; IECE:: DIP A21 IP6X T <sub>A</sub> 100°C, -40°C to +65°C; CE Mark Enclosure Protection: NEMA 4; IP66	Power: 115 VAC; 230 VAC; 24 VAC; 48 VAC; 12/24 VDC Ambient Temp: -40° to +200°F (-40° to +93°C) Int. Bin Temp: to 300°F (150-260°C) without air-cooling, 500-750°F(260-400°C) with air-cooling[0.5 psig / 2.14 CFM] Output: <u>2-Circuit Config</u> - Two SPDT 15A @ 250 VAC ea. max; <u>3-Circuit Config</u> - One SPDT 15A @ 250 VAC max, One DPDT 10A @ 250 VAC max Mounting: 1-1/4" NPT or R 1-1/2" (BSPT) Pressure: 30 PSI (2 bar) max Approvals: <u>KA</u> - UL & CSA: Ordinary Loc.; CE Mark <u>KAX</u> - UL & CSA: Class I & II; CE Mark; ATEX: WI II /2 D c T 100°C, ExtD A20/A21 T 100°C, (Ta -40°C to +93°C; Enclosure Prot: NEMA 4; IP66	Image: Sile of the any location using a device with internet connection.         Image: Sile of the angle of the ang







POINT LEVEL	TRUE CAP° MK-2	TRUE CAP° MK-2e	PROXIMITY SWITCH
		RF CAPACITANCE	
FEATURES	<ul> <li>Maximized Reliability via Smart Sensing Algorithms Including "Self- Validating" Fail-Safe Protection</li> <li>Simple, Convenient Push-Button Calibration and Test</li> <li>Driven Shield Technology Overcomes Material Build-up</li> <li>Externally Viewable LED Sensor Status Indicator (Ordinary Loc. Unit)</li> <li>Universal Power Supply</li> <li>Superior 0.5pF Sensitivity</li> <li>Enhanced Temp. Compensation</li> </ul>	<ul> <li>Economical Design</li> <li>Potentiometer-Adjusted Calibration / Sensitivity and Delay</li> <li>Driven Shield Technology Overcomes Material Build-up</li> <li>Externally Viewable LED Sensor Status Indicator (Ordinary Loc. Unit)</li> <li>Superior 0.5pF Sensitivity</li> <li>Temperature Compensation</li> </ul>	<ul> <li>Compact Potted Packaging</li> <li>Versatile Application Sensing</li> <li>Electronic Solid State Outputs</li> <li>AC Model (PAC-30U) in 2-Wire Series Configuration</li> <li>DC Models (PDC-30) in 3-Wire Sinking / Sourcing Configurations</li> <li>Field Selectable Normally Open or Normally Closed</li> <li>Economical</li> <li>LED Status Indicator</li> <li>Adjustable Calibration</li> </ul>
OPTIONS	<ul> <li>Hazardous Location Approvals for Gases and Dust</li> <li>Split Architecture Model for High Temperatures or High Vibration</li> <li>Quick-Connect Tri-Clamp Process Connection</li> <li>Variety of Probe Variations for Chemical Compatibility, Food Grade, Abrasion Resistance</li> </ul>	<ul> <li>Hazardous Location Approvals for Gases and Dust</li> <li>Split Architecture Model for High Temperatures or High Vibration</li> <li>Quick-Connect Tri-Clamp Process Connection</li> <li>Variety of Probe Variations for Chemical Compatibility, Food Grade, Abrasion Resistance</li> </ul>	<ul> <li>Mounting Well Converts 30mm to 1 1/4" NPT, Delrin<sup>®</sup></li> <li>PDC-30 DC Models: 10-40 VDC - NPN (Current Sinking) Output</li> <li>PNP (Current Sourcing) Output</li> <li>PAC-30U AC Model: 20-265 VAC</li> </ul>
APPLICATIONS	<ul> <li>Smart sensing maximizes reliability with material having low dielectrics and applications with wide temperature swings.</li> <li>LED provides means for personnel to view sensor status without visiting control room.</li> <li>Excellent performance in solids over 15 lbs/ft<sup>3</sup> (240kg/m<sup>3</sup>).</li> </ul>	<ul> <li>Perfect for tight budgets where excellent performance is still required but without the advanced features that increase the cost.</li> <li>LED provides means for personnel to view sensor status without visiting control room.</li> <li>Excellent performance in solids over 15 lbs/ft<sup>3</sup> (240kg/m<sup>3</sup>).</li> </ul>	<ul> <li>Use for sensing materials that are solid, liquid, conductive, non-conductive, in direct contact or non-contact, slow moving or in part counting mode.</li> <li>A good choice when the output is required to be electronic, bounceless, long-life, and easily interfaced to other electronic equipment.</li> </ul>
SPECIFICATION	Power: Universal 48-240 VAC, 24-48 VDC Ambient Temp: -40° to +150°F (-40° to +65°C) Int. Bin Temp: Alum mount: to +176°F (80°C); SS mount: to 400°F (204°C); Split architecture probe: to 450°F (232°C) Output Relay: DPDT, 5A @ 250 VAC or 30 VDC Mounting: 1-1/4" NPT or 1-1/2" BSPT alum, Optional 3/4" NPT 316SS Pressure: 50-150 PSI (3.5 - 10 bar) Approvals: CSA <sub>USC</sub> : Ordinary Locations; CSA <sub>USC</sub> : Class I & II; CE Mark Enclosure Protection: NEMA 4; IP66	Power: 115 VAC; 230 VAC; 24 VDC Ambient Temp: -40° to +150°F (-40° to +65°C) Int. Bin Temp: Alum mount: to +176°F (80°C); SS mount: to 400°F (204°C); Split architecture probe: to 450°F (232°C) Output Relay: SPDT, 5A @ 250 VAC or 30 VDC Mounting: 1-1/4" NPT or 1-1/2" BSPT alum, Optional 3/4" NPT 316SS Pressure: 50-150 PSI (3.5 - 10 bar) Approvals: CSA <sub>USIC</sub> : Ordinary Locations; CSA <sub>USIC</sub> : Class I & II ; CE Mark Enclosure Protection: NEMA 4; IP66	Power: PAC-30U: 20-265 VAC; PDC-30: 10-40 VDC Operating Temp: -13° to +176°F (-25° to 80°C) Output: PAC-30U: N.O./N.C. field selectable; PDC-30: NPN or PNP Mounting: 30mm thread Load Current: PAC-30U: 10-500mA; PDC-30: 0-200mA Approvals: UL & CSA: Ordinary Loca- tions (PAC-30U Only); CE Mark Enclosure Protection: NEMA 4; IP67







POINT LEVEL	DURA VIBE MODEL PZP	DURA VIBE™ VIBRAROD	G, GX, GX-SS	С-1, TC-3
	VIBRATORY	VIBRATORY	DIAPHRAGM TYPE	TILT SWITCHES
FEATURES	<ul> <li>Unaffected by Changes in Environment and Materials</li> <li>Exceptional Sensitivity with No Calibration Required</li> <li>Industry-Leading Probe Strength: Diamond Shape Single-Probe with Gusset Reinforced Design</li> <li>Universal Power Supply</li> <li>Fail-Safe on Power Failure</li> <li>Adjustable Sensitivity</li> <li>Bi-color LED Status Indication</li> </ul>	<ul> <li>Economical, Yet Versatile Design</li> <li>Unaffected by Changes in Environment and Materials</li> <li>Good Sensitivity with No Calibration Required</li> <li>Stainless Steel Single-Probe Design</li> <li>Universal Power Supply</li> <li>Fail-Safe on Power Failure</li> <li>Adjustable Sensitivity for Optimum Performance</li> <li>Bi-color LED Status Indication</li> </ul>	<ul> <li>Basic Pressure-Sensing Operation</li> <li>Electrically-Passive Sensing Method</li> <li>Reliable, Durable, and Low Maintenance Operation</li> <li>Low-Profile, Non-Intrusive Mounting</li> <li>Adjustable Sensitivity</li> <li>Over-Pressure Protection</li> </ul>	<ul> <li>Basic Angular-Sensing Operation</li> <li>Electrically-Passive, Mercury-Free Sensing Method</li> <li>Durable, Low Maintenance and Low-Cost Performance</li> <li>No Calibration RequiredOutput Switch Closes When Tilted Approximately 17°</li> <li>Easily Adjustable Sensing Point by Repositioning Hanging Height</li> </ul>
OPTIONS	<ul> <li>Probe Extensions Available:         <ul> <li>Cable Extension</li> <li>Pipe Extension</li> </ul> </li> <li>Remote Electronics Design for High Vibration or High Temperatures (Probe up to 302° F (150° C) Process Temp.)</li> </ul>	Pipe Extension Probes Available	<ul> <li>Hazardous Location Approvals for Dust</li> <li>Ultra-Sensitive Switch Option</li> <li>Choice of Neoprene<sup>®</sup>, Teflon<sup>®</sup>, or Stainless Steel Diaphragm</li> <li>Hycar<sup>®</sup> Diaphragm Cover For Abrasive Materials</li> </ul>	<ul> <li>Ball Type Actuators available to limit material contact with tilt switch enclosure and provide increased "tilt" sensitivity (TC-3 only)</li> </ul>
APPLICATIONS	<ul> <li>Ideal choice when material properties or environmental conditions are variable</li> <li>Excellent sensitivity for materials down to 1.5 lbs/ft<sup>3</sup> (24 kg/m<sup>3</sup>)</li> <li>Tip sensitive probe eliminates false signals caused by product bridging between probe and vessel wall.</li> <li>Ordinary and Hazardous location approvals; Intrinsically safe probe</li> </ul>	<ul> <li>Economical vibratory solution</li> <li>Ideal choice when material properties or environmental conditions are variable</li> <li>Good sensitivity for materials down to 10 lbs/ft<sup>3</sup> (160 kg/m<sup>3</sup>)</li> <li>Tip sensitive probe eliminates false signals caused by product bridging between probe and vessel wall.</li> <li>Ordinary and Hazardous location approvals; Intrinsically safe probe</li> </ul>	<ul> <li>Excellent when facility personnel are expected to perform in-field troubleshooting and maintenance with virtually no prior training.</li> <li>Provides "green" operation with no power consumption</li> <li>Low-profile eliminates need for internal baffles.</li> <li>Good performance in solids from 10 - 60 lbs/ft<sup>3</sup> (160 - 960 kg/m<sup>3</sup>)</li> <li>Plugged chute applications</li> </ul>	<ul> <li>Basic operation and minimal parts create a low-cost and easily maintained solution.</li> <li>Provides environmentally-safe, "green" operation with no power consumption</li> <li>TC-3: 15 - 60 lb/ft<sup>3</sup> (240-960 kg/m<sup>3</sup>)</li> <li>TC-1: 45+ lb/ft<sup>3</sup> (&gt;720 kg/m<sup>3</sup>)</li> <li>Ideal for high level detection</li> <li>Works for open stock piles</li> </ul>
SPECIFICATION	Power: 22-27VDC (±10%); 22-232VAC (±10%); 50/60 Hz Ambient Temp: -22° to 149° F (-30° to 65° C) Process Temp: -22° to 176° F (-30° to 68° C); High Temp. Probe: -22° to 302° F (-30° to 150° C) Output Relay: VAC: SPDT isolated; 3A @ 250VAC max VDC: SPDT isolated; 3A @ 30VDC max Process Connect: 1-1/2" NPT Pressure: 145 PSI (10 bar) Approvals (Integral Unit): CSA <sub>USC</sub> : Ordinary Loc; Class II, Div. 1 & 2, Groups E, F, G; Class III Hazardous Locations with Intrinsically Safe Probe ATEX: I 2D Ex tb [ia Da] IIIC T75°C Db IECEx: Ex tb [ia Da] IIIC T75°C Db	Power: 22-27VDC ( $\pm$ 10%); 22-232VAC ( $\pm$ 10%), 50/60 Hz Ambient Temp: -22° to 149° F (-30° to 65° C) Process Temp: -4° to 176° F (-20° to 80° C) Output Relay: VAC: SPDT isolated; 3A @ 250VAC max VDC: SPDT isolated; 3A @ 30VDC max Process Connect: 1-1/4" NPT Pressure: 145 PSI (10 bar) Approvals: CSA <sub>USC</sub> : Ordinary Locations; Class II, Div. 1 & 2, Groups E, F, G; Class III Hazardous Locations with Intrinsically Safe Probe ATEX: II 2D Ex tb [ia Da] IIIC T75°C Db IECEx: Ex tb [ia Da] IIIC T75°C Db	Int. Bin Temp: Neoprene: -40° to +180°F (-40° to 82°C) Teflon®: -40° to +250°F (-40° to 121°C) 321SS: -40° to +250°F (-40° to 121°C) Output: SPDT, 15A @ 250 VAC Mounting: Flange with 7.5" (190.5mm) bolt circle Pressure: Atmospheric only Approvals: CSA <sub>USIC</sub> : Ordinary Loc. (G); UL & CSA: Class II (GX, GX-SS); CE Mark Enclosure Protection: NEMA 4/ENCLO- SURE TYPE 4, IP66 (Model G only); IP65 (Model GX and GX-SS)	<b>Operating Temp:</b> TC-3: -40° to +175°F (-40° to 80°C) TC-1: -40° to +250°F (-40° to 121°C) <b>Output:</b> TC-3: SPDT, 10A @ 250 VAC TC-1: SPDT, 15A @ 250 VAC <b>Mounting:</b> TC-3: suspend by chain, 3/4" (19mm) ID eyebolt TC-1: suspend by chain, 1-3/32" (27.7mm) ID eyebolt <b>Approvals:</b> Ordinary Locations; CE Mark <b>Enclosure Protection:</b> NEMA 4; IP56







DUST CONTROL	DUST ALARM <sup>®</sup> ES DUST TREND™ ES	AIR PAD / EVASSER
	ADVANCED TRIBOELECTRIC	BIN AERATION
FEATURES	<ul> <li>Easy Auto Set-up Button to Automatically Configure Parameters / Alarms</li> <li>Exceptional and Reliable Sensitivity via Proven AC Triboelectric Technology with Advanced Algorithms to Filter Out Noise</li> <li>Excellent Repeatability Not Affected by Variations in Relative Humidity, Process Temperature or Pressure DustTrend<sup>™</sup> ES Adds</li> <li>Continuous Trend Measurements</li> <li>4-20mA Analog Output and/or Enhanced Modbus(RS-485) output</li> </ul>	<ul> <li>Aeration Alternative to Vibration</li> <li>Quiet, Inexpensive, Non-Electrical Aeration Solution</li> <li>Simple Designs Facilitate Trouble-Free Operation</li> <li>Evasser Provides An Air Flow That Tends to Sweep the Vessel Wall</li> <li>Air Pad Comes in the Industry- Standard Low-Profile Footprint</li> </ul>
OPTIONS	<ul> <li>Connect with the Free Dust Config ™ Software to Set Custom Alarm Points, View Live Activity Within the Duct, or Review Data History for up to a 24-hour Period</li> <li>Customer Specified Stainless Steel Probe Lengths from 4.75" (120mm) to 20" (508mm)</li> <li>Available Probe Extensions to Provide up to an Additional 2" (51mm) to 24" (610mm) of Probe Length</li> <li>Quick-Connect Mounting Kits</li> </ul>	<ul> <li>Multiple Configurations Available</li> <li>Boot Options for Evasser: <ul> <li>White, Food Grade</li> <li>Black, General Purpose</li> </ul> </li> <li>Rectangular Air Pads: <ul> <li>Cotton or Fiberglass Diffuser</li> </ul> </li> </ul>
<b>APPLICATIONS</b>	<ul> <li>Provides monitoring of dust levels where it is critical to safety, maintenance, equipment operation, plant efficiency, environment, etc.</li> <li>Ideal for exhaust ducts on dust collectors, baghouses and cyclones.</li> <li>Use triboelectric technology as a cost- effective alternative to opacity monitoring.</li> <li>Exceptional sensitivity is capable of detecting minute amounts of material (less than what is visible by the human eye).</li> </ul>	<ul> <li>Air-based solutions eliminate potential damage to surrounding equipment (such as level controls) that could be inflicted by pneumatic or electric vibrators.</li> <li>Aerators can reduce installation and maintenance expense associated with mechanical vibration systems.</li> <li>Solve problems such as arching, bridging, and rat-holing which reduce discharge flow.</li> </ul>
SPECIFICATION	Power: 95-240VAC (±10%), 50/60 Hz; 18-28VDC (±10%) Starting Ambient Temp: 4° to 140°F (-20° to 60°C) Running Ambient Temp: -40° to 140°F (-40° to 60°C) Process Temp: Max: 300°F (150°C) at probe loc. Output (DustAlarm ES): Relay(2 Isolated SPDT) and/or RS-485(Modbus) Output (DustTrend ES): 4-20mA, Relay(2 Iso- lated SPDT) and/or RS-485(Modbus) Mounting: 1" Tri-Clamp Quick-Disconnect, 316 SS Pressure: 40 psi maximum Approvals: CE Mark Enclosure Protection: NEMA 4X, ENCLOSURE TYPE 4X, IP66	Int. Bin Temp: <u>Air Pads</u> : to +180°F (82°C) w/external mounting kit; to +650°F (343°C) w/internal mounting kit with fiberglass diffuser <u>Evasser</u> : Neoprene Boot: to +175°F (80°C); Bronze Insert: to +900°F (480°C) <b>Pressure Range:</b> Typically 3-5 PSI (0.2-0.35 bar) <b>Air Consumption:</b> dependent on application (Consult Factory)

#### QUANTI MASS™

#### **In-Line Mass Flow Measurement**

Sensor location should be in an area where the sensor's measurement energy will be exposed only to target materials that are fully suspended in the conveying air stream (pneumatic [dilute phase] or gravity conveying). Solid particulates should be evenly distributed in the air stream.



#### HUMI CORE™

#### **In-Line Moisture Measurement**

The sensor is designed to be installed in the production flow stream at a location that ensures the bulk material to be measured is fed over the sensor at a constant layer height.



Example - Sensor Location on Conveyor Belt







MONITOR SYSTEMS	SFD SFI SFI SFD & SFI	Sensor DIN-Rail Transmitter DIN-Rail DUN-Rail DIN-Rail Desktop Controller Desktop Controller	Sensor DIN-Rail Transmitter NUMI CORE ™	
	MICROWAVE	MICROWAVE DOPPLER	HIGH FREQUENCY FIELD	
FEATURES	<ul> <li>Non-Contact Flow Detection</li> <li>Non-Intrusive Flush Mounting</li> <li>Excellent Sensitivity</li> <li>Externally Viewable LED Sensor Status Indicator (SFD-2)</li> <li>Maintenance Free - No Moving Parts</li> <li>Relay Output (SFD-2) or Analog Output (SFI)</li> <li>Hazardous Location Approvals for Dust (Sensors Only)</li> </ul>	<ul> <li>Continuous In-Line Mass Flow Measuring Without the Use of Weight Scales</li> <li>Measure Flow of Quantities in Pneumatic Conveying &amp; Free-Falling Processes</li> <li>Microwave Doppler Effect Technology</li> <li>Sturdy, Non-Intrusive Design Minimizes Maintenance</li> <li>Compact Size for Easy Installation Into Existing Processes</li> <li>Fast Measuring &amp; Adjustable Sensitivity</li> <li>Polyamide 6.6 Sensor Process Face</li> </ul>	<ul> <li>Continuous In-Line Moisture Measurement System Provides Real-Time Data</li> <li>Ensure Product Quality Through Moisture ControlProvide Optimal Moisture Content for Finished Product</li> <li>High Frequency Field Technology</li> <li>Measures Moisture Inside the Material CoreNot Just the Surface</li> <li>Compact Size; Easy Installation and Calibration</li> <li>Integrated Temperature Compensation</li> </ul>	
OPTIONS	<ul> <li>Electrical Enclosure for SFD-2 PS/Conditioning Board</li> <li>Saddle Clamp and Gasket</li> <li>1 1/2" Mounting Adapters</li> <li>Tri-Clamp Adapters</li> <li>1 1/4" NPT Lock Nut</li> </ul>	<ul> <li>Choose from Ultra Version with a Controller for Local Interface &amp; Data Logging or PRO Version with DIN-Rail Transmitter</li> <li>Standard or High Temperature Styles</li> <li>304 SS or 316 SS Sensor Housing Construction</li> </ul>	<ul> <li>Choose from Ultra Version with a Controller for Local Interface &amp; Data Logging or PRO Version with DIN-Rail Transmitter</li> <li>115 VAC / 24 VAC/DC -or- 230 VAC / 24 VAC/DC</li> <li>Polyacetal or Ceramic Process Surface</li> <li>Variety of Sled Plates</li> </ul>	
APPLICATIONS	<ul> <li>Use in flow applications where the non-contact attributes of microwave technology can eliminate challenges associated with temperature, light, acoustics and pressure.</li> <li>Non-intrusive mounting will allow natural flow of material, and will eliminate any risk of material being damaged by striking a sensing probe.</li> <li>Senses Flow / No Flow conditions in gravity chutes and pneumatic lines.</li> </ul>	<ul> <li>Monitor for variable flow quantities due to disturbances like different densities.</li> <li>Measure for proper mixing of additives.</li> <li>Non-contact, in-line mass flow measurement system for most bulk solids and many dusts (Ex. coal dust, saw dust).</li> <li>Suitable for powders, dust, pellets, and granular up to 0.75 inch (2cm).</li> </ul>	<ul> <li>Installation locations include: conveyor belts, screw conveyors, silos, funnels, etc.</li> <li>Suitable for grain, feed, seed, cereal, flour, sugar, coal, sand, wood shavings, dried food, fertilizer, tobacco, powder, pigments, plastic granules, sand, cement &amp; more.</li> <li>Limit dusty areas by monitoring &amp; controlling material moisture levels to reduce cleaning and/or filtering costs.</li> </ul>	
SPECIFICATION	$\label{eq:constraint} \begin{array}{l} \hline \textbf{Either Sensor:} \\ \hline \textbf{Ambient Temp: -40° to +185°F (-40° to 85°C)} \\ \hline \textbf{Process Temp: to +250°F (121°C)} \\ \hline \textbf{Pressure: Teffon®: 75 PSI (5bar) intermittent} \\ \hline \textbf{Ryton® (or equiv.): 300 PSI (20 bar)} \\ \hline \textbf{Mounting: 1-1/4" NPT} \\ \hline \textbf{Approvals: CSA_{USC}: Class II, Div. 1, E,F,G; CE Mark \\ \hline \textbf{Enclosure Protection: NEMA 4; IP66} \\ \hline \textbf{SFD-2 Power Supply:} \\ \hline \textbf{Power: 100-240 VAC} \\ \hline \textbf{Operating Temp: -40° to +158°F (-40° to 70°C)} \\ \hline \textbf{Output Relay: DPDT, 5A @ 250 VAC, 30 VDC} \\ \hline \textbf{Approvals: CSA_{USC}: Ordinary Loc.; CE Mark } \\ \hline \textbf{SFI Only:} \\ \hline \textbf{Output: Analog 4-20mA, Detection range based on application} \end{array}$	Process Data: Pipe Diameter: 1" to 12" (25mm to 300mm) Particle Size: .001 micron to 0.75" (1nm to 20mm) Moisture: Depending on the product Pressure: Up to 6 bar (Optional up to 30 bar) Temperature: -4 to +194°F (-20 to +90°C) (Higher temperatures on request) <u>Sensor Data:</u> Material-touched Parts: Polyamide 6.6 & 304SS or 316SS Housing Material: 304 SS or 316 SS Protection Class: IP 65 <u>Sensor Dimensions:</u> 11.42"L x 2.36"W x 2.36"H (290 x 60 x 60mm) Accuracy: 1 to 3% typical <u>Power</u> : Controller - 115 VAC / 24 VAC/DC; 230 VAC / 24 VAC/DC. Transmitter - 24 VAC/DC	Process Data: Process Temperature: +14 to +194°F (-10 to +90°C); up to +284°F (140°C) with cooling Sensor Data: Measuring Surface: Polyacetal or Ceramic Housing Material: 304 SS Protection Class: IP67 Sensor Dimensions: 4.57" dia. x 2.02" H (116mm dia. x 51.5mm) Accuracy: 0.1 to 0.3% typical Interconnection: 4 wires, RS-485, 3,280 ft (1,000m) max Power: Controller - 115 VAC / 24 VAC/DC; 230 VAC / 24 VAC/DC. Transmitter - 24 VAC/DC	



## AIRMATIC

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The **MATERIALS MANAGEMENT GROUP** provides products and services to industries that convey, store, transport, and process powders and bulk solids from aggregates, cement, and chemicals to foods, grains, metals, power generation, and waste water treatment applications;

'E'LL HANDLE IT.

The **SERVICE GROUP** provides fabrication, installation, and maintenance services to improve bulk materials handling efficiency; mechanical clean-out services for silos and hoppers to eliminate material flow problems; and shop repair/rebuilding and modifications services of products sold by the Company.

The **TOOL GROUP** provides power tools, personal protective equipment, materials-handling equipment, shop equipment and MRO supplies used for production, fabrication, assembly, metal removal, maintenance, and storage in manufacturing, construction, utility, and commercial applications.

Our Customers tell us that by choosing **AIRMATIC** to solve their problems, they gain increased productivity, decreased costs, and a safer, cleaner work environment.



#### TECHNOLOGIES LLC

**MONITOR TECHNOLOGIES LLC** focus remains that of instrumentation for powder and bulk solids applications. They offer superior solutions in level monitoring, solids flow detection, moisture measurement, particle emission monitoring and bin aeration.

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