

# **NEW** GENERATION OF TILT LEVEL CONTROLS **MODEL CT**



The new generation of tilt level controls is designed for dry bulk material level indication and control applications. These new cULus listed control units are enclosed in a rugged cast aluminum housing with LED indicator lights to alert the operator of either the presence or absence of material. Equipped with a new surface mount PC board the unit now allows for a maximum of 5,000 feet of cable between the control unit and probe permitting the placement of the control unit in an easily accessible area.

All models are equipped with intrinsically safe electronics, permitting the probe to be used in environments requiring explosion proof equipment. The control units are available in three different models for use in different environments. The Model CT-105 control unit is NEMA Type 4, 4X for use in general purpose outdoor applications and is dust proof and weather tight. The Model CT-106 control unit is NEMA Type 4, 4X and NEMA Type 9 dust ignition proof construction for use in hazardous locations. The Model CT-107 control unit is NEMA Type 7 explosion proof and NEMA Type 9 dust ignition proof construction for use in hazardous locations.

## **NEW FEATURES:**

- Durable cast Aluminum NEMA Type housing with optional epoxy coating for corrosive environments
- Explosion proof control units for use in hazardous locations: Model CT-106 and Model CT-107
- Bright, energy efficient LED indicator lights
- Up to 5,000 feet of cable length allows for control unit installation in easily accessible areas
- Surface mount PC board resistant to shock and vibration



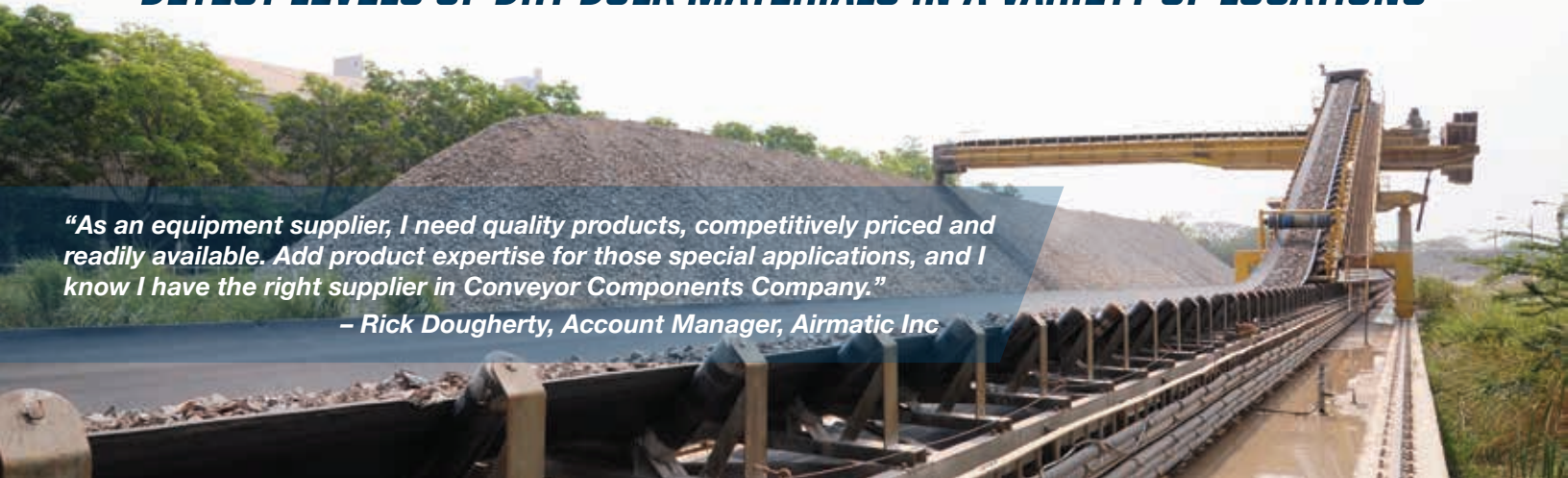
## **ADVANTAGES**

- Optional stainless steel probes to safeguard against corrosion
- Hanger fittings and mounting brackets available to permit easy suspension of probes from fixed supports
- Our tilt probes are intrinsically safe and cULus listed when used in conjunction with the new CT Control Units: Models CT-105, CT-106 and CT-107
- Heavy duty steel probes for abrasion resistance
- Fail-Safe logic design defaults to safe condition when there is a loss of power
- Adjustable time delay to prevent false signals
- Low 12V DC probe for safety
- Easy installation and low maintenance
- Compact probes for use where space is limited
- Probes can be purchased separately. When not connected to our control unit they are not cULus listed.

## **DETECT LEVELS OF DRY BULK MATERIALS IN A VARIETY OF LOCATIONS**

*“As an equipment supplier, I need quality products, competitively priced and readily available. Add product expertise for those special applications, and I know I have the right supplier in Conveyor Components Company.”*

*– Rick Dougherty, Account Manager, Airmatic Inc*



## OPERATION

Consisting of a Control Unit and a Tilt Probe, the new Model CT senses the presence or absence of material. When suspended from a fixed support, the Probe indicates material is present when it is tilted 15° for the mercury version or 25° for the non-mercury version. The circuit within the Probe is normally closed when vertical.



## CONSTRUCTION DETAILS

The Model CT Control Unit is enclosed in rugged cast aluminum housing with LED indicator lights labeled "Normal" and "Alarm" to indicate detection status. Within the housing a surface mount PC board has a logic selector switch and adjustable time delay to prevent false signals. There are three terminal contacts for connection to the Probe; three for the input power; and two sets of output contacts, each with one normally open, one normally closed, and one common. Signal lights, relay, and transformer are all accessible with the housing open.

The Model CT Control Unit has a user configurable output relay (using normally closed contacts, normally open contacts or both) which is actuated by either the presence or absence of material. The relay provides a change in contacts as the Probe moves from vertical to tilt and vice versa.

The time delay is adjustable from 0.1 to 35 seconds. This adjustment will delay output relay action. The relay switches to the de-energized position upon reaching the end of the delay period, as well as upon failure of power to the Control Unit.



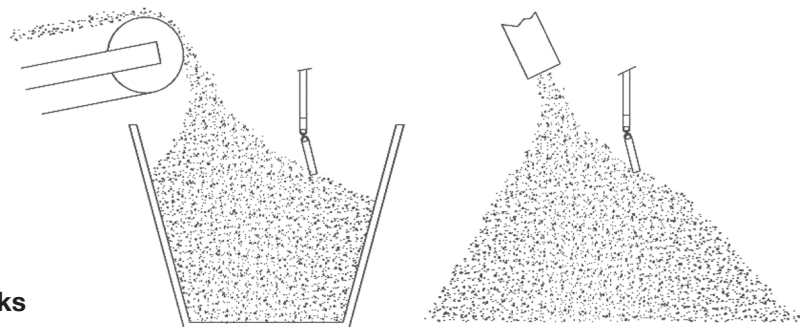
When used in conjunction with the new Control Units: Models CT-105, CT-106 and CT-107, the Probes are cULus Listed and intrinsically safe. Two Probe sizes are available.

The CT-200G is a compact 6 inch Probe for use on small bins and hoppers where space is limited. The CT-201G is our standard 9 inch, heavy duty Probe for applications where an abrasion resistant Probe is necessary. Both Probes are available in stainless steel for corrosive environments and optional fittings are available to permit easy suspension from fixed supports. Paddle options are available for use on moving materials as a flow indicator. Probes are air

tight, dust tight, waterproof and come standard with 25 feet of three conductor 16-3 SO cable. Factory installed cable can be ordered up to 5,000 feet.

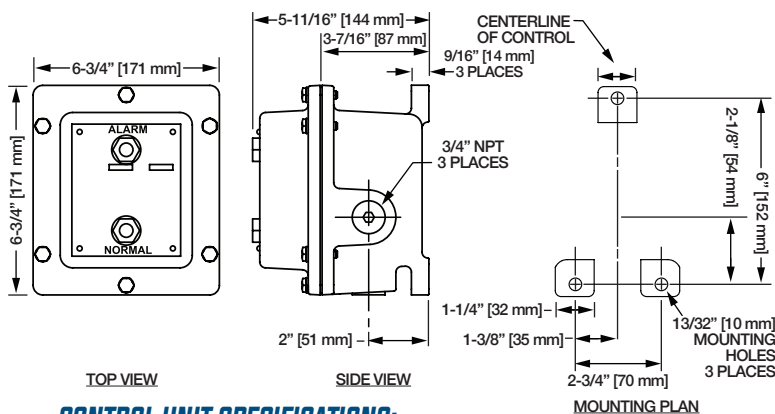
## TYPICAL APPLICATIONS:

- High level control on hoppers and silos
- Level detection under conveyor stackers
- Indicate back-up at conveyor transfer points
- High level detection in crusher outlets
- Detect high level in trippers
- Indicate plugged conditions in chutes
- Detect flow of material on conveyors
- High level indicator for loading rail cars or trucks





# CONTROL DIMENSIONS



## CONTROL UNIT SPECIFICATIONS:

**CT-105/CT-105B:** NEMA Type 4, 4X

**CT-106/CT-106B:** NEMA Type 4, 4X

NEMA Type 9 Class II, Groups E, F and G

**CT-107/CT-107B:** NEMA Type 7 Class I, Groups C and D

NEMA Type 9 Class II, Groups E, F and G

- Input Supply Voltage: Standard 120 VAC @ 50/60 Hz; or available 240 VAC @ 50/60 Hz (add suffix B to Model number)
- Power Consumption: 10 Watts
- Probe Voltage Output: 12 VDC
- Output Relay: DP/DT; 5 Amps, 120 VAC Resistive; 5 Amps, 240 VAC Resistive.
- Time Delay VR1: 0.1 to 35 Seconds. This adjustment will delay output relay action.
- Indicator Light: Normal (green): Illuminated when relay is energized.
- Indicator Light: Alarm (red): Illuminated when relay is de-energized.
- Power failure is indicated if neither light is illuminated.
- Logic Selector S1: This switch determines when the output relay actuates and de-actuates.  
 Position 1: Relay energizes when the Probe is in the vertical position. Relay de-energizes when Probe is in the tilted position.  
 Null: Middle position with no contact  
 Position 2: Relay energizes when Probe is in the tilted position. Relay de-energizes when Probe is in vertical position.

Probe Models CT-200G and CT-201G are cULus Listed and intrinsically safe when connected with CT-300G Cable to Conveyor Components Company's Control Units: Models CT-105, CT-106 and CT-107, and when used as intended and installed according to the manufacturer's instructions. Any other use or installation is not cULus Listed or intrinsically safe.

# PROBE DIMENSIONS

## PROBE SPECIFICATIONS:

**CT-201G:** Standard heavy-duty probe; 9" [23 cm] long

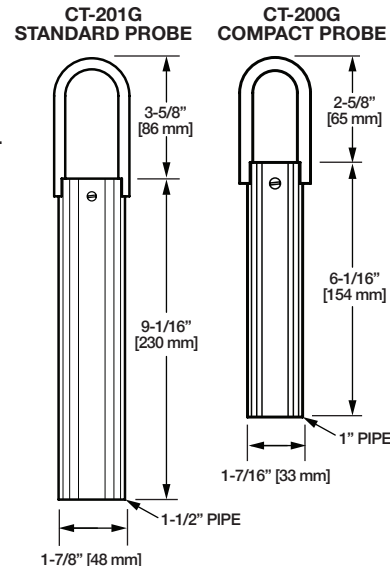
**CT-200G:** Compact probe; 6" [15 cm] long.

- Probe signal voltage: 12 VDC
- Probe ratings: 1.5 A @ 120VAC, 1.5mA at 5 Vdc
- Probe actuation angle: 15° from vertical

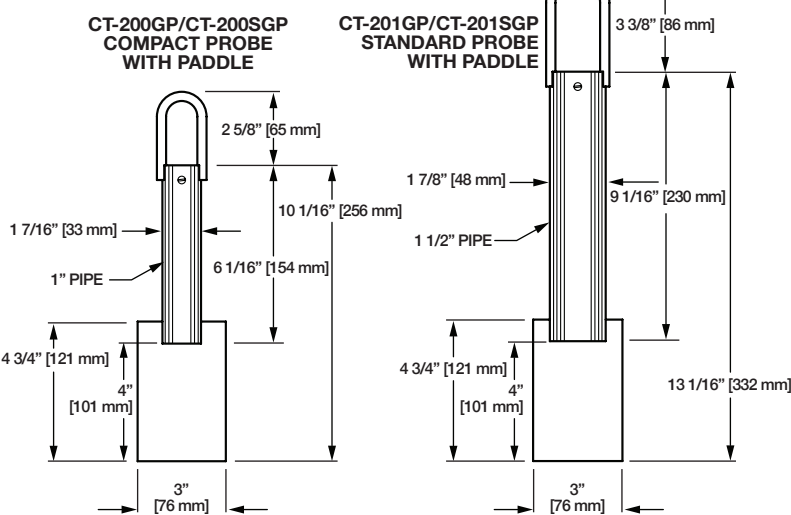
**CT-201GN:** Non-Mercury heavy-duty probe; 9" [23 cm] long

**CT-200GN:** Non-Mercury compact probe; 6" [15 cm] long

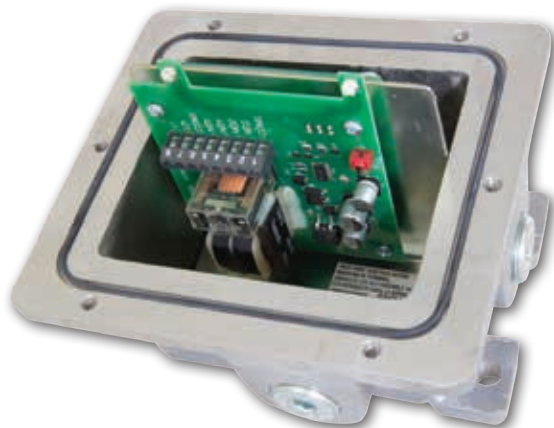
- Probe signal voltage: 12 VDC when used with CCC controller
- Probe ratings: 0.25 A max., 60 V max
- Probe actuation angle: 25° from vertical
- Each steel Probe contains one SP/ST, normally closed contact. Stainless steel, paddles, epoxy coating and threaded coupling options are available



## PROBE DIMENSIONS: WITH WELDED ON PADDLE

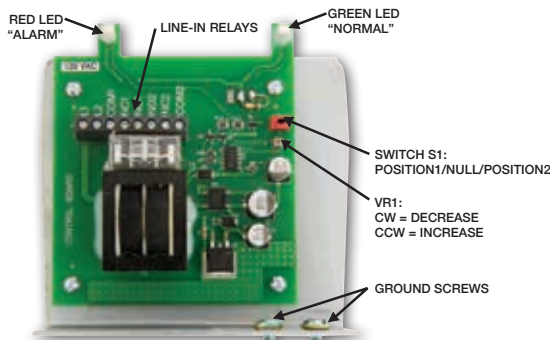


# INSTALLATION INSTRUCTIONS:



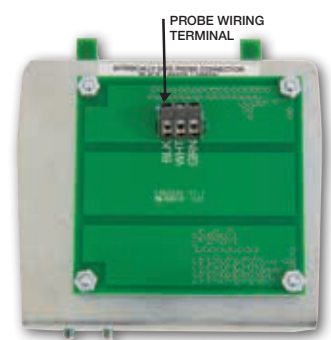
## CT ELECTRONICS ASSEMBLY

FRONT VIEW: POWER AND RELAY TERMINALS  
 (NON-INTRINSICALLY SAFE SIDE)



## CT ELECTRONICS ASSEMBLY

REAR VIEW: PROBE CONNECTION TERMINALS  
 (INTRINSICALLY SAFE SIDE)



**Mounting:** Mount the Control Unit in an area free from vibration, in which ambient temperature does not exceed 104°F (40°C) and where indicator lights will be visible to personnel.

**Wiring:** Field wiring must meet or exceed the requirements of the National Electrical Code and any other agency or authority having jurisdiction over the installation. Conduit fittings must meet applicable UL standards for the application environment. Standard enclosures are equipped with three 3/4 NPT conduit connection openings. Connect

the Probe to the Control Unit using only CT-300G Cable supplied by Conveyor Components Company. A standard 25 feet of cable is supplied with each Probe and additional lengths up to 5,000 feet are available.

**Probe Installation:** Suspend the Probe using the CT-400 Mounting Bracket and CT-500 S-hook at a position where it will contact the bulk material and sense the level at the desired indication point. For accurate indication, ensure free flow of material both to and away from the Probe.

# MODEL CT TILT LEVEL CONTROL



## CONTROL UNIT

MODEL NUMBER	DESCRIPTION	SHIPPING WT.
CT-105	120 VAC, NEMA Type 4, 4X Enclosure	8 lbs.
CT-105B	240 VAC, NEMA Type 4, 4X Enclosure	8 lbs.
CT-106	120 VAC, NEMA Type 4, 4X; NEMA Type 9 Class II, Groups E, F and G Enclosure Hazardous Locations	8 lbs.
CT-106B	240 VAC, NEMA Type 4, 4X; NEMA Type 9 Class II, Groups E, F and G Enclosure Hazardous Locations	8 lbs.
CT-107	120 VAC, NEMA Type 7, Class I, Groups C and D; NEMA Type 9, Class II Groups E, F and G Enclosure Hazardous	8 lbs.
CT-107B	240 VAC, NEMA Type 7, Class I, Groups C and D; NEMA Type 9, Class II Groups E, F and G Enclosure Hazardous	8 lbs.

For Epoxy coated unit add option "E" to model number



## PROBES

MODEL NUMBER	DESCRIPTION	SHIPPING WT.
*CT-200G	Compact 6" Probe with 25' of Cable included	5 lbs.
*CT-201G	Standard 9" Probe with 25' of Cable included	8 lbs.

\*For Non-Mercury Probe add option "N" to Model number.

\*For 3/4 NPT or 1/4 NPT threaded coupling add option "C" to Model number.

\*For Stainless Steel Probe add option "S" to Model number.

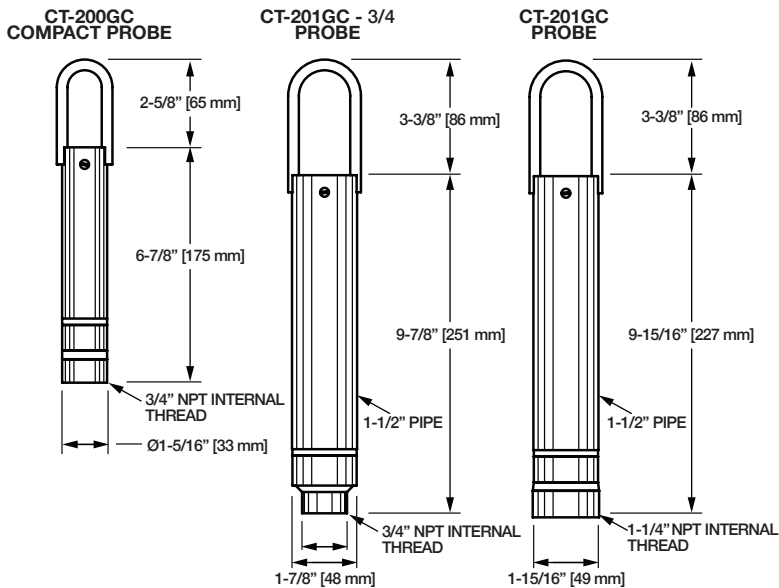
\*For welded Paddle add option "P" to Model number.

Tilt Probes are cULus Listed and Intrinsically Safe for Class I, Groups A, B, C and D; Class II, Groups E, F and G Hazardous Locations when connected to Conveyor Components Company's Control Units: Models CT-105, CT-106 or CT-107 with CT-300G Cable and when used as intended and installed according to manufacturer's instructions.

## ACCESSORIES

MODEL NUMBER	DESCRIPTION	SHIPPING WT.
CT-300G	16-3 SO Probe Cable	0.09 lbs/ft
CT-400	Probe Mounting Bracket	0.75 lbs.
CT-500	S-Hook	0.50 lbs.
CT-600	4" diameter Float Ball	0.50 lbs.
CT-700	Paddle Attachment Adapter	0.15 lbs.
CR-61	4 Vane Stainless Steel Paddle	0.40 lbs.
CR-64	Rubber Flexible Paddle	0.40 lbs.
CR-65	Stainless Steel Flexible Paddle	0.50 lbs.

## COUPLING OPTIONS



## ACCESSORIES

