



CONVEYOR COMPONENTS COMPANY

Division of Material Control, Inc.

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MODEL: CT-105C, 24 V input, with CT-200G / CT-201G SERIES

Tilt Level Controller with Type 4X enclosure for use in Ordinary Locations.



WARNING:

DEATH or SERIOUS INJURY may occur.

Before installing or adjusting, shut down and physically lock-out the conveyor system.

Disconnect power before servicing.

Control Unit Specifications:

Input Supply Voltage:	24 V AC/DC
Power Consumption:	10 Watts
Probe Voltage Output:	12 VDC max.
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.
Enclosure:	CT-105C(Aluminum)/CT-105CE (Epoxy coated): intended for Type 4X applications.
Indicator Lights:	Normal (green): Light on when relay is energized. Alarm (red): Light on when relay is de-energized.
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. Middle: Null; no contact DO NOT USE this position. Position 2: Relay energizes when probe is in the tilted position. Relay de-energizes when probe is in vertical position.

Probe Specifications:

Each probe contains one SP/ST, normally closed, mercury or non-mercury switch. Probe options available are stainless steel construction, paddle for use in applications where the materials are moving, and threaded coupling.

When used with the 24-volt CT-105C controller, all probes, including the 'G' series CT probes, are suitable for ordinary locations only.

Size	CT-200G: Compact probe 6" [15 cm] long.	CT-201G: Standard heavy-duty probe 9" [23 cm] long
Probe signal voltage:	12 VDC	
Probe ratings:	1.5 A @ 120VAC, 0.75 A @ 220VAC, 1.5 A @ 5VDC 1 A @ 12 VDC, 0.5 A @ 24 VDC	
Probe actuation angle:	Nominal 15° (10°- 30°) from vertical	
Size	CT-200GN: Non-Mercury Compact probe 6" [15 cm] long.	CT-201GN: Non-Mercury Standard heavy-duty probe 9" [23 cm] long
Probe signal voltage:	12 VDC	
Probe ratings:	0.25 A max., 60 V max., 3 VA AC/DC max	
Probe actuation angle:	Nominal 25° (10°- 30°) from vertical; Remake approx. 8°	

Installation Instructions:

Mounting (Refer to Figure 8):

The control unit should be mounted in an area free from vibration with a maximum ambient temperature of 40°C/104° F. Consider the visibility of the indicator lights to necessary personnel, and the installation of wiring to the probe and other machinery when selecting a mounting location.

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. The control enclosures are equipped with three ¾ NPT conduit connection openings.

CT-105C: Use threaded close-up plug rated for Type 4X enclosures or better in any unused conduit entry.

The probe connection cable, attached to the probe, is 16-3 type SO. The probe cable connects to the CT controller only through the conduit opening labeled, "PROBE WIRING." Length is supplied as specified per order, up to 5,000 ft. [1524 m] maximum (probe cable may be spliced). If not specified, the probe is supplied with 25 ft. [7.62 m] of cable.

Probe Installation (Refer to Figures 5-8):

The probe should be suspended using a fixed support, such as the CT-400 mounting bracket and CT-500 S-hook, at a position where it will easily intercept the bulk material at the desired indication point. There must be a free flow of material both to and away from the probe. In some installations, it is necessary to install a baffle or shield above the probe assembly to protect it from product surges.

Troubleshooting Suggestions:

1. Verify the input voltage to the controller is appropriate (CT-105C: 24 V AC/DC).
2. Use a continuity meter to check tilt probe operation when disconnected from the electrical circuit. The circuit is normally closed (NC) when probe is vertical, and normally open (NO) when the probe is tilted (toward horizontal).
3. Use a paddle or float ball in conjunction with the tilt probe for fine or small grained material that does not cause a bare probe to tilt.
4. Verify the logic selector switch is in the correct position.
 - Position 1: Relay energizes when the probe is in the vertical position.
Relay de-energizes when the probe is in the tilted position.
 - Middle: Null state with no contact: DO NOT USE.
 - Position 2: Relay energizes when the probe is in the tilted position.
Relay de-energizes when the probe is in vertical position.
5. Verify an input voltage has been applied to the relay common (COM) terminal.
6. The probe connection board fuse (non-replaceable) may be blown. Remove the two base holding screws along with the electronics assembly. Remove the 4 nuts and lock-washers from the corners of the electronics assembly, and carefully remove the probe connection board from the mounting bracket. Check the 50 mA (12 V) fuse with a continuity checker. If the fuse is open (no continuity), replace the entire probe connection board assembly. The fuse is not field replaceable.

Figure 2: Control Board Wiring Terminals

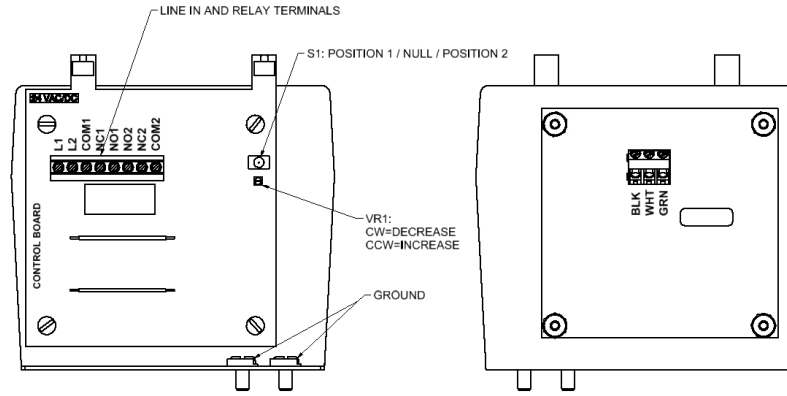


Figure 3: Control Board Probe Wiring Terminals

Figure 3: Control Dimensions

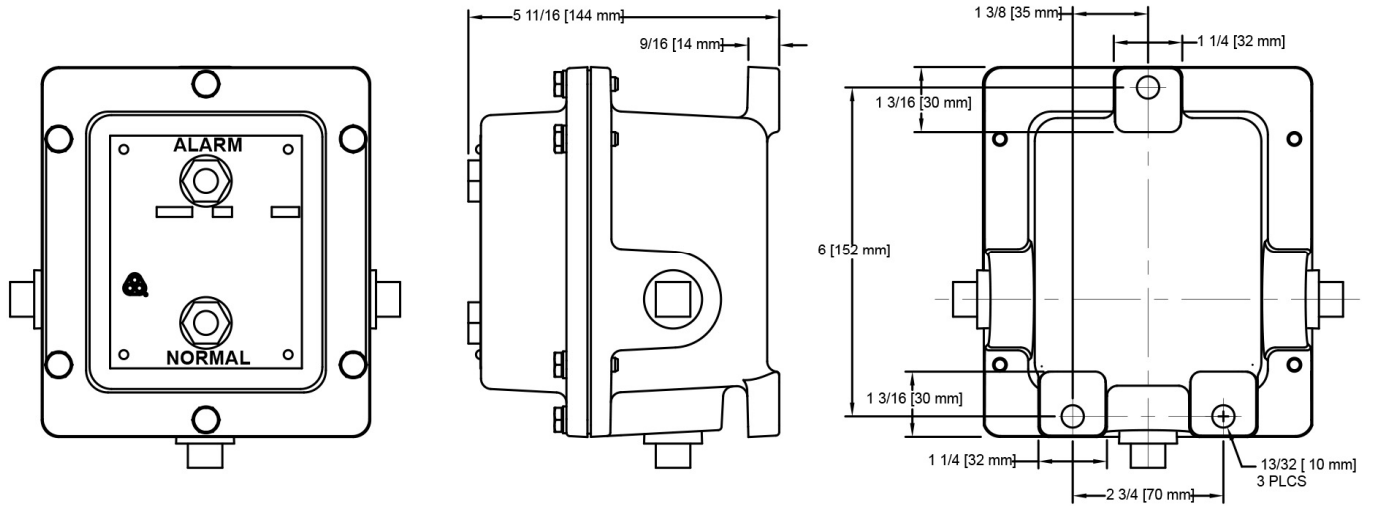


Figure 4: Probe Dimensions

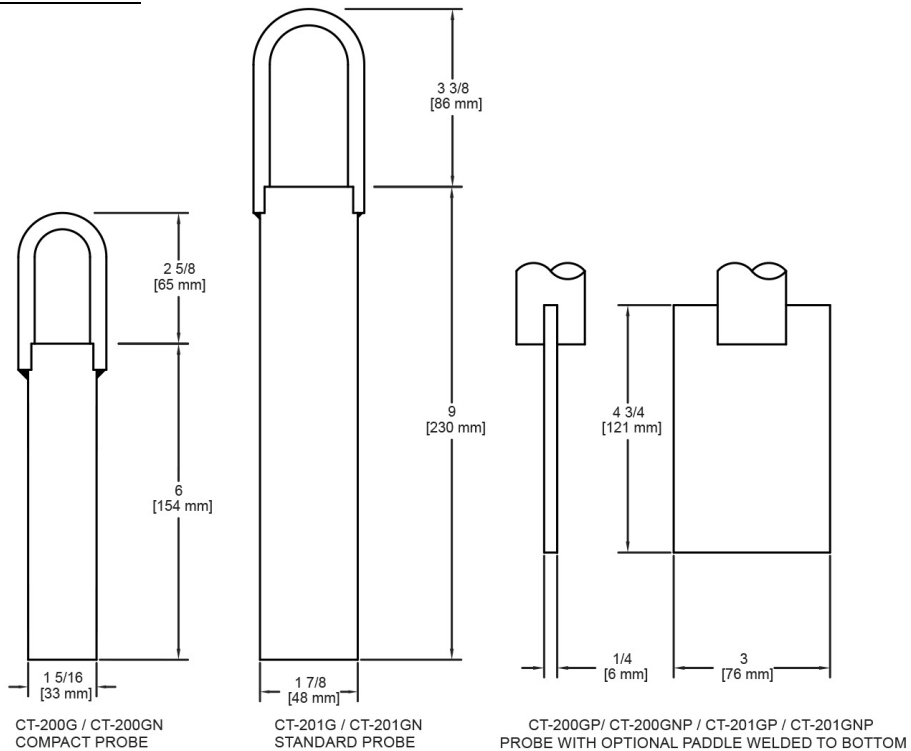


Figure 5: Typical Installations

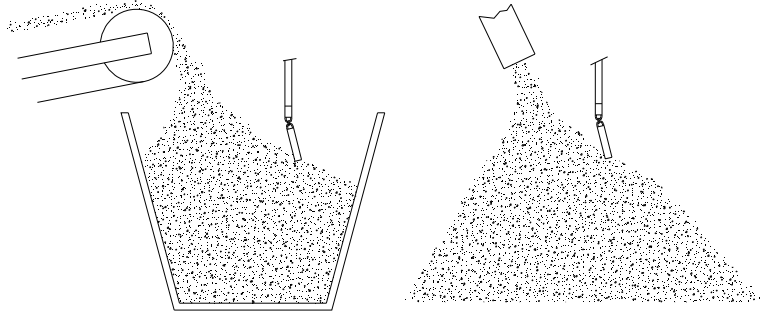


Figure 6: CT-200GP Probe with Paddle

Figure 7: CT-200GC with CT-600 Float Ball

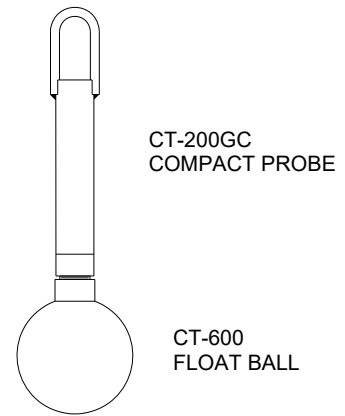
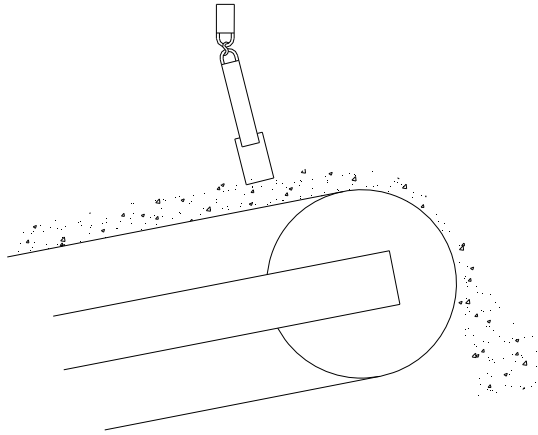


Figure 8: Typical CT-105C and CT-201G Probe Application

