

# CHUTE MASTER

Microwave Blocked or Plugged Chute Detection / Point Level



Transmitter



Receiver

For the latest version of this manual, visit [kteksolidslevel.com](http://kteksolidslevel.com).

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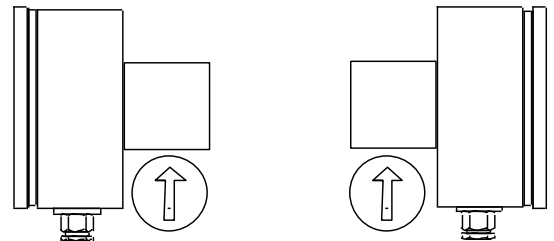
## 1.0 INTRODUCTION

The Chute Master works on the non-contact principle of microwave energy. This microwave emits an average power density of less than  $0.05\text{mW}/\text{cm}^2$ . Therefore, there is no need for any warning signs, shielding or protection and it is regarded as totally safe.

The microwave energy can pass through any non-conductive material such as plastics, ceramics, rock, rubber or glass, etc. A pulse of microwave energy emits from the transmitter at the speed of light and is detected by the receiver. The receiver can distinguish the difference between the microwave signal and noise. A potentiometer adjusts the sensitivity on the receiver so that the relay can switch at an approximate amount of obstruction. By adjusting this potentiometer you can compensate for a certain amount of material build-up on the side of the vessel. Time delays are incorporated to allow delay of relay action, both energize and de-energize.

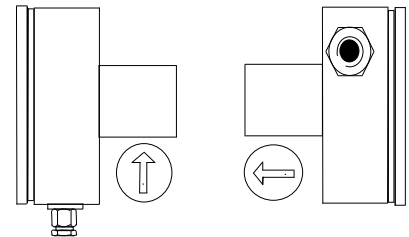
## 2.0 SETUP PROCEDURE

1. Align Transmitter and Receiver in parallel, about one meter apart. Align arrows on the face of the transducer housing (see figure to the right).
2. Connect power to both units.
3. Adjust the gain trigger pot half way and the on / off timers fully counter-clockwise.
4. Break the microwave beam with your hand and check that the green LED goes off. The Relay should change state.
5. Remove your hand and the green LED should illuminate again. The Relay should change state. If it changes state, then go to step 9.
6. Adjust the trigger pot until the Relay chatters, then turn the pot clockwise by a  $1/4$  turn. If o.k. proceed to step 9.
7. If the green LED does not illuminate while adjusting the pot, either the Chute Master is faulty or it is not aimed correctly.
8. Check again with your hand.
9. Now adjust the Relay's on/off timers to suit application. The recommended delay should be about 2 seconds.
10. After setting up the timers, check again with your hand.

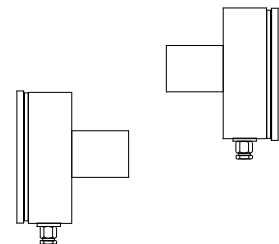


## 3.0 ALIGNMENT PROCEDURE

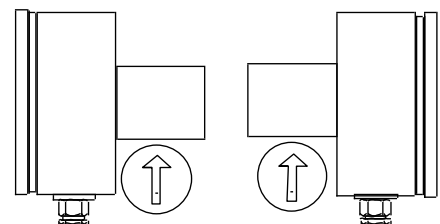
**INCORRECT:** The Receiver is out of phase with the Transmitter, i.e. the glands on the Receiver are not lined up with the glands on the Transmitter, or the arrows are not pointing straight up.



**INCORRECT:** The Receiver is not parallel with the Transmitter, i.e. the whole Receiver unit is not lined up with the Transmitter.

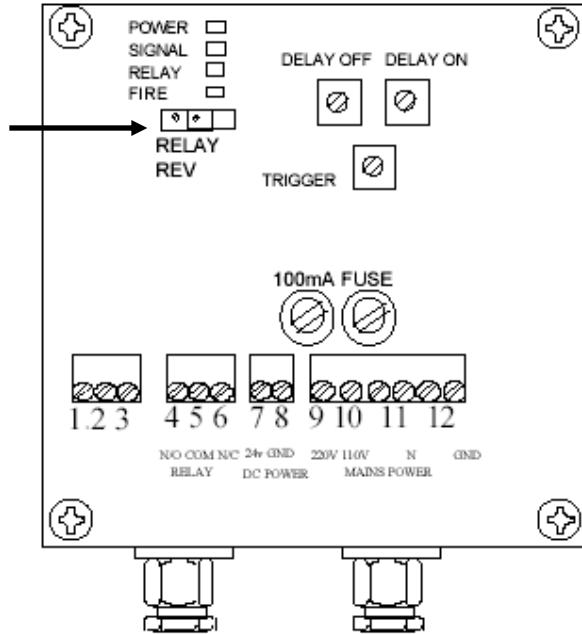


**CORRECT:** The Receiver is parallel and in phase with the Transmitter, i.e. the two units have the glands on the same side, and both units are properly lined up with one another. The arrows are pointing in the same direction.



## 4.0 CONNECTIONS

The jumper re-  
verses the relay  
failsafe action.



**RECEIVER**

### RELAY OUTPUT

- 4. Normally Open Contact
- 5. Common
- 6. Normally Closed Contact

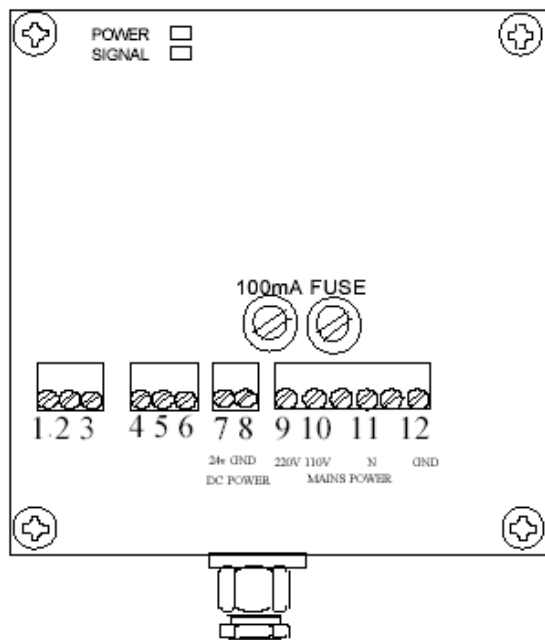
### DC Power Supply

- 7. 24 VDC
- 8. 0 VDC

### AC Power Supply

- 9. Live 220VAC
- 10. Live 110VAC
- 11. Neutral
- 12. Ground

**Note:** Please choose 9 or 10.



**TRANSMITTER**

### DC Power Supply

- 7. 24VDC
- 8. 0VDC

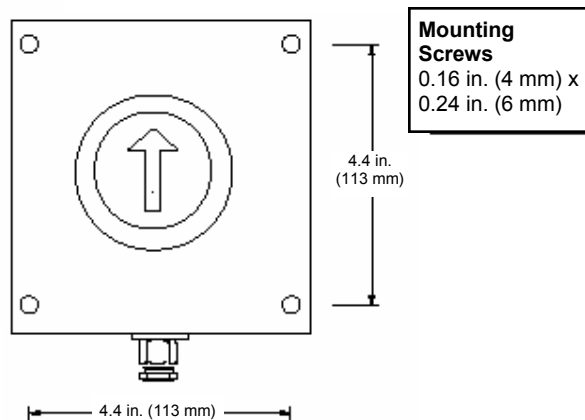
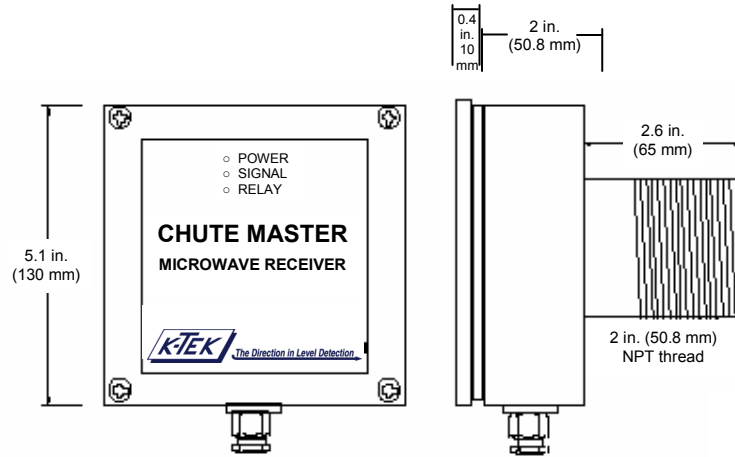
### AC Power Supply

- 9. Live 220VAC
- 10. Live 110VAC
- 11. NEUTRAL
- 12. GROUND

**Note:** Please choose 9 or 10

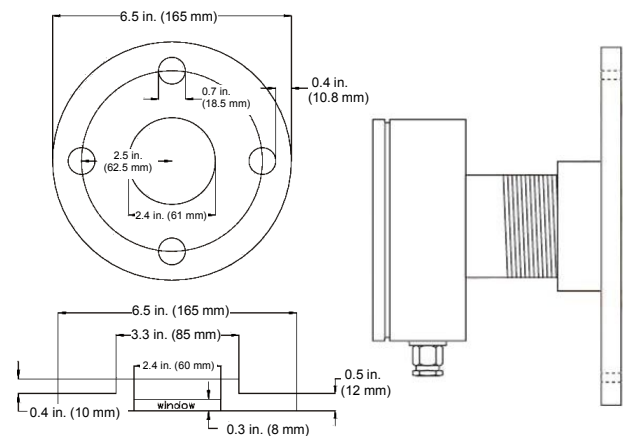
## 5.0 DIMENSIONS

The Transmitter and the Receiver have the same dimensions. They can be mounted by using the 4 x 6 mm holes in each corner of the instrument or by the 2 inch NPT thread.



## 5.1 Optional Mounting Bracket

When utilizing the mounting bracket option, one (1) mounting bracket is required for the transmitter and one (1) mounting bracket is required for the receiver. (See figure to the right)

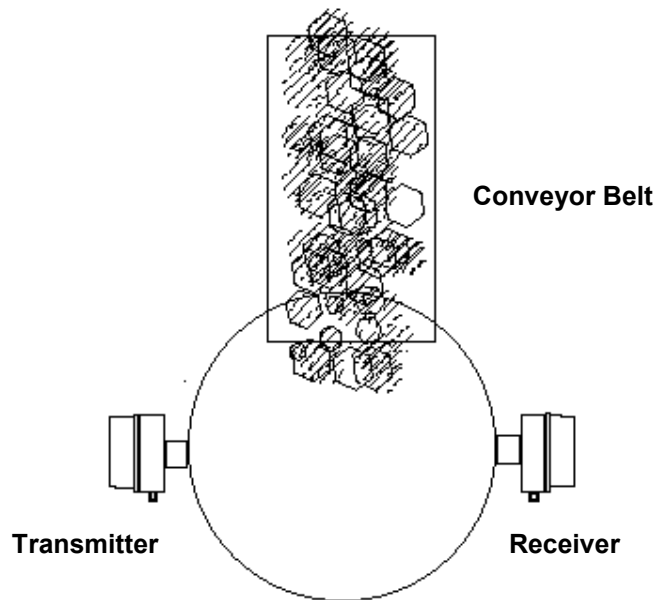


**Optional Mounting Bracket**

## 6.0 APPLICATION

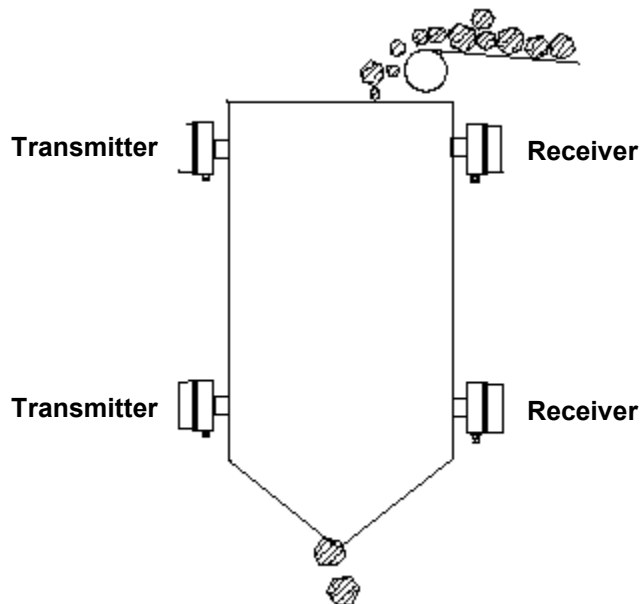
### TOP VIEW

Blocked chute detection or High or low level alarm. For blocked chute / high alarm, keep microwave beam out of the path of falling material.



### SIDE VIEW

Blocked chute detection or High or low level alarm. For blocked chute / high alarm, keep microwave beam out of the path of falling material.



## 7.0 FCC CERTIFICATE OF CONFORMITY



### Declaration of Conformity

of

Model: 10-Meter Microwave Blocked Chute Detector

to

Federal Communications Commission

Rule Part 18

Industrial, Scientific, and Medical Equipment

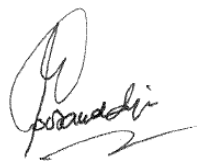
Date of Report: February 11, 2008

On the Behalf of the Applicant: K-TEK

At the Request of: K-TEK  
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Prairieville, LA 70769

Attention of: Bret DeLaune  
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MFA p0810015, d0820012

## 8.0 CUSTOMER SUPPORT

### K-TEK Solids Level (USA, Canada, International)

6100 West by Northwest #140

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Website: [kteksolidslevel.com](http://kteksolidslevel.com)



**Transmitter**



**Receiver**



## 8.1 K-TEK SOLIDS LEVEL RMA FORM



K-TEK Solids Level  
6100 West by Northwest #140  
Houston, TX 77040 USA  
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**\*\*\* IMPORTANT CUSTOMER NOTICE: PLEASE READ PRIOR TO RETURNING PRODUCTS TO K-TEK\*\*\***

Be sure to include the Return Authorization (RA) number on the shipping label or package to the attention: Customer Service. A copy of this document should also be included with the packing list. K-TEK Solids Level wants to maintain a safe work environment for its employees. In the event, the returned product or material has been in contact with a potentially hazardous chemical, per federal regulations, the customer must provide evidence of decontamination and the related chemical composition and characteristics. In order to expedite your return, please include the applicable Material Safety Data Sheets (MSDS) and decontamination tags by affixing these documents in close proximity to the shipment label for identification purposes. (January 18, 2006)

Return Authorization Form	
Customer:	Date:
Contact Name:	Product:
Contact Email:	Serial No:
Contact Phone:	Job No:
Contact Fax:	Service Rep:
Completed by Customer	
Reason	
Problem Found: None	
Action: None	
Requested:	
Is expedited return shipping requested? <input type="checkbox"/> Yes	
<i>If yes, please provide a purchase order or your shipper's account number (ex. FedEx or UPS). K-TEK Solids Level pays return transport via standard ground shipments only.</i>	
Account #:	
<b><i>If purchase order is issued, a copy of purchase order must be included with return documentation.</i></b>	
Is K-TEK Solids Level authorized to repair items determined to be non-warranty? <input type="checkbox"/> Yes	
<i>If yes, a copy of purchase order must be included with return documentation.</i>	
Customer PO:	Date:
Has product been in contact with any potentially hazardous chemical? <input type="checkbox"/> Yes	
<i>If yes, documentation product and forward MSDS to K-TEK Solids Level, "ATTN: Customer Service"</i>	
Return Repaired Product to Address	
Shipping Address:	Billing Address:
	Ship Via:

## 9.0 WARRANTY

### 5 YEAR WARRANTY FOR:

KM26 Magnetic Liquid Level Gauges; MagWave Dual Chamber System; LS Series Mechanical Level Switches (LS500, LS550, LS600, LS700, LS800 & LS900); EC External Chambers, STW Stilling Wells and ST95 Seal Pots.

### 3 YEAR WARRANTY FOR:

KCAP300 & KCAP400 capacitance switches. BETA Pressure and Temperature Switches have a limited factory guarantee, excluding wetted parts & consumables.

### 2 YEAR WARRANTY FOR:

AT100, AT100S and AT200 series transmitters; RS80 and RS85 liquid vibrating fork switches; RLT100 and RLT200 reed switch level transmitters; TX, TS, TQ, IX and IM thermal dispersion switches; IR10 and PP10 External Relays; MT2000, MT5000, MT5100 and MT5200 radar level transmitters; RI100 Repeat Indicators; KP paddle switches; A02, A75 & A77 RF capacitance level switches and A38 RF capacitance level transmitters; Buoyancy Level Switches (MS50, MS10, MS8D & MS8F); Magnetic Level Switches (MS30, MS40, MS41, PS35 & PS45).

### 1 YEAR WARRANTY FOR:

KM50 gauging device; AT500 and AT600 series transmitters; LaserMeter and SureShot series laser transmitters; LPM200 digital indicator; DPM100 digital indicators; APM100 analog indicators; KVIEW series digital indicators and controllers; SF50 and SF60 vibrating fork switches, KB Electro-Mechanical Continuous Measuring Devices, KSONIK ultrasonic level switches, transmitters & transducers, ChuteMaster Microwave Transmitter / Receiver and TiltMaster Switches.

### SPECIAL WARRANTY CONSIDERATIONS:

K-TEK does not honor OEM warranties for items not manufactured by K-TEK (i.e. Palm Pilots). These claims should be handled directly with the OEM.

K-TEK will repair or replace, at K-TEK's election, defective items which are returned to K-TEK by the original purchaser within the period specified above from the shipment date of the item and which is found, upon examination by K-TEK, to its satisfaction, to contain defects in materials or workmanship which arose only under normal use and service and which were not the result of either alterations, misuse, abuse, improper or inadequate adjustments, applications or servicing of the product. K-TEK's warranty does not include onsite repair or services. Field service rates can be supplied on request.

If a product is believed to be defective, the original purchaser shall notify K-TEK and request a Returned Material Authorization before returning the material to K-TEK, with transportation prepaid by the purchaser. (To expedite all returns/repairs from outside of the United States, consult K-TEK's customer service team ([service@ktekcorp.com](mailto:service@ktekcorp.com)) to determine an optimal solution for shipping method and turnaround time.) The product, with repaired or replaced parts, shall be returned to the purchaser at any point in the world with transportation prepaid by K-TEK for best-way transportation only. K-TEK is not responsible for expedited shipping charges. If the product is shipped to K-TEK freight collect, then it will be returned to the customer freight collect.

If inspection by K-TEK does not disclose any defects in material or workmanship, K-TEK's normal charges for repair and shipment shall apply (minimum 250.00 USD).

The materials of construction for all K-TEK products are clearly specified and it is the responsibility of the purchaser to determine the compatibility of the materials for the application.

THE FOREGOING WARRANTY IS K-TEK'S SOLE WARRANTY AND ALL OTHER WARRANTIES EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED AND NEGATED TO THE MAXIMUM EXTENT PERMITTED BY LAW. NO PERSON OR REPRESENTATIVE IS AUTHORIZED TO EXTEND ANY OTHER WARRANTY OR CREATE FOR K-TEK ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF K-TEK'S PRODUCTS. THE REMEDIES SET FORTH IN THIS WARRANTY ARE EXCLUSIVE OF ALL OTHER REMEDIES AGAINST K-TEK. K-TEK SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR SPECIAL DAMAGES OF ANY KIND. K-TEK'S SOLE OBLIGATION SHALL BE TO REPAIR OR REPLACE PARTS (FOUND TO BE DEFECTIVE IN MATERIALS OR WORKMANSHIP) WHICH ARE RETURNED BY THE PURCHASER TO K-TEK.





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