

MS50

Buoyancy level switch

Multi-point liquid level sensor
top of tank mounting
K-TEK Level products



Introduction

This operation and instruction manual provides the following information:

- Operation - see page 3
- Mounting and installation - see pages 3-4
- Maintenance - see page 4
- Troubleshooting - see page 4
- LR35 Latching Relay - see page 5

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1.0 INTRODUCTION

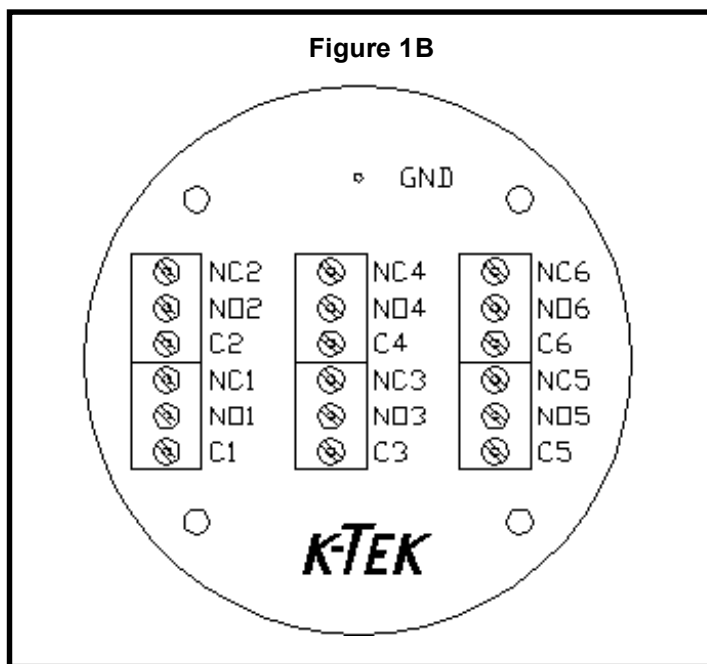
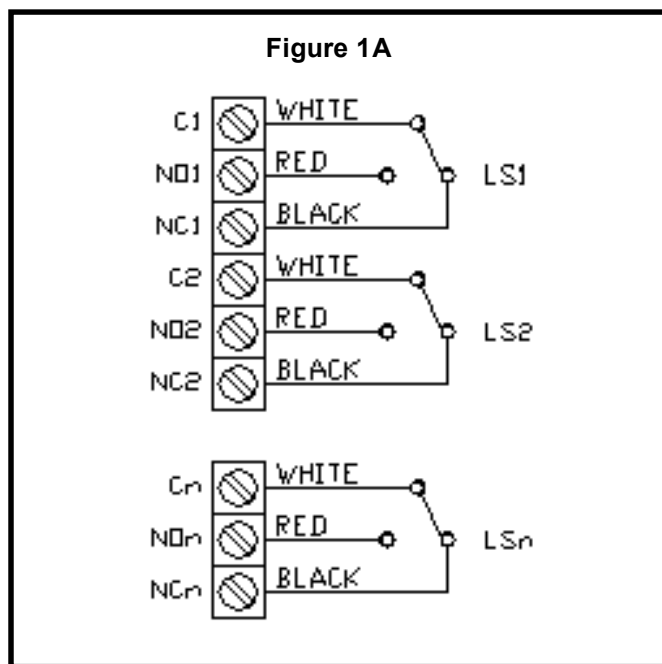
The K-TEK MS50 consists of latching reed switches totally enclosed in a stainless steel chamber (other materials available) and a float containing a magnet in which the switches will detect. The sensing element (chamber) and the float are normally inserted into the tank through a top process connection and can be mounted to the tank via flange, if desired. However, the unit can usually be mounted via a single 2" MNPT process connection. In addition, the float can generally be installed through the same 2" process connection. A stilling well may be required if the process liquid is in a turbulent state. The MS50 will provide for the detection of start/stop trip points of either total or interface level in virtually any vessel. These trip points can be used for alarms or to activate a pump motor starter relay.

Typical Applications:

- Butane
- Propane
- Oil
- Chlorine
- Acids
- Water
- Interfaces

FUNCTION

The MS50 consists of latching form C (SPDT) reed switches operated by a movable external float containing magnets. As the float travels past the latching reed switches, in either the upward or downward direction, the switches change state. After the float has passed, the switch will remain (latch) in its respective state until the float passes the switch going in the opposite direction. The action of the switch is break before make. The MS50 will accommodate up to six discrete point level contacts and each of the level setpoints are field adjustable. The separation between switches must be at least 3 inches and 3.5" from the tip of the probe. Figure 1A illustrates the contact arrangement and connection. If the terminal block option was selected, the contact arrangement is shown in Figure 1B.



RANGE OF APPLICATION

The K-TEK MS50 electric switch is a level sensing device designed for top of tank (vessel) mounting and provides electrical contact outputs for point type level sensing. The MS50 is unique in the fact that only one float is required to operate the switches. This is due to the latching nature of the internal switches (interface units require two floats). The design accommodates tanks of practically any shape, size or type. Tank depth, type of fluid, changes in specific gravity and the many other variables commonly encountered are in most cases, of little consequence.

2.0 MOUNTING

The MS50 can be mounted to the process vessel via flange or pipe fitting; consult factory for special mounting configurations. After installation, virtually no maintenance is required because the switching elements are totally isolated from the process liquid. Maintenance and/or trip point adjustment can be performed without removing the vessel from service.

The following procedure outlines the steps necessary to install the switch.



WARNING! MAKE SURE CIRCUIT IS DEENERGIZED BEFORE INSTALLING THE SWITCH!

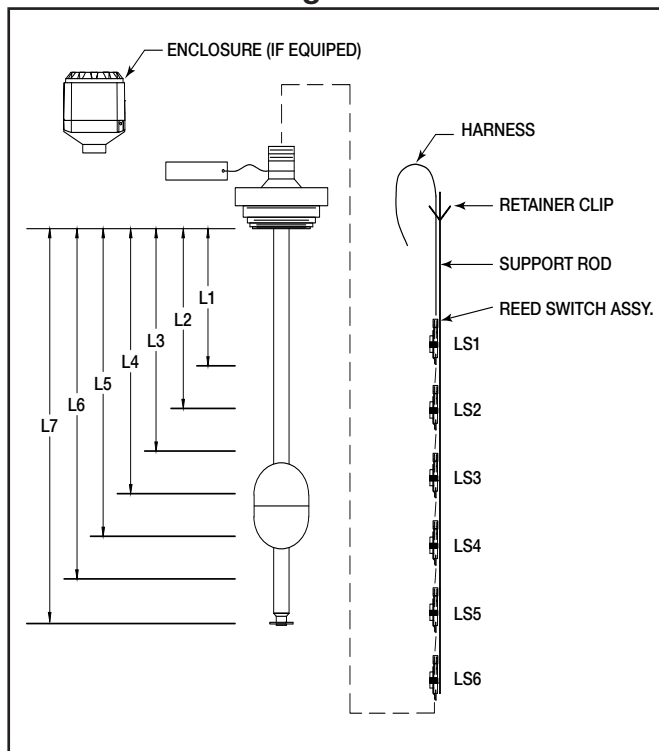
1. Attach the switch to the vessel you intend to monitor. The MS50 will generally have either a 2" NPT threaded connection or a standard ANSI flange (depending on how the unit was ordered). The switch will be shipped from the factory with the switches preset to the desired setpoints. If the setpoints need to be changed, follow the instructions in step 2 (below).



NOTE! BE SURE TO CYCLE THE FLOAT FROM TOP TO BOTTOM AT LEAST ONE TIME. THIS WILL INSURE THAT THE LATCHING REED SWITCHES ARE SET TO THE PROPER POSITION.

2. This step outlines the method in which the user can reset the switch trip points of the MS50. Also refer to Figure 2.

Figure 2



1. Remove any enclosure from the top of the MS50.
2. Carefully remove this support rod and reed switches from the switch chamber. There is a retaining clip at the top of the support rod, which secures the reed switch assembly into the chamber.
3. Carefully move the reed switches to the desired setpoint. The reed switches slide up and down the support rod.
4. Make sure the reed switches do not move too easily (i.e. will vibration cause the position to change?). Insure that the wiring harness is neatly gathered to the support rod by the o-rings. Excess wiring harness length can usually be gathered above the reed switches to allow for future readjustment. If the wiring harness is ever cut such that proper adjustment is not possible, a replacement reed switch of the proper length can be ordered from the factory.
5. Carefully reinsert the reed switch assembly into the chamber. Make sure that the reed switches are aligned such that they slip into the chamber without moving. Also reinstall the upper retaining clip such that the reed switch assembly is held securely in place.
6. Reinstall any housing previously removed and reconnect the field wiring.

3. Install conduit and field wiring per NEC requirements.

4. Use the contact wiring diagram on the following page to insure proper electrical connection. See the specification section for MS50 electrical ratings.

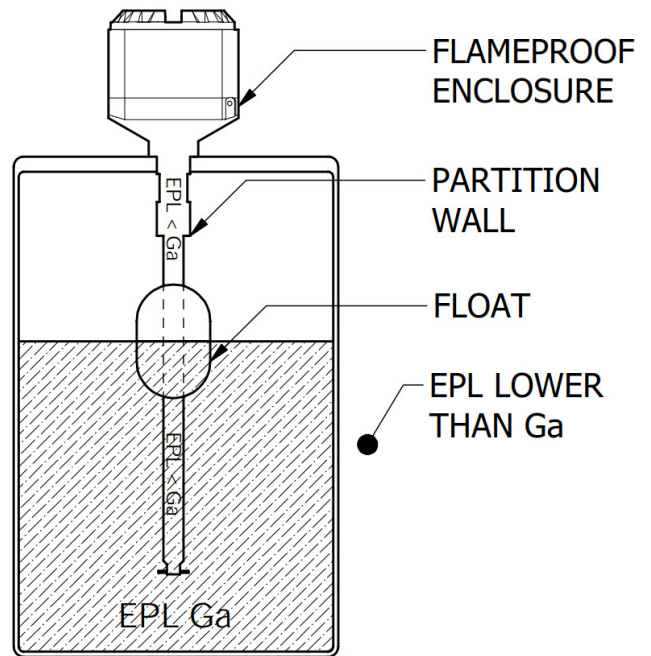
2.1 Specific conditions for use:



- A) All field wiring connected to the MS50 switch must comply with applicable National Electric Code guidelines.
- B) Do not use the switch on vessels with operating temperatures above 200°F without having the high temperature option (all TEFLON® (registered trademark of DuPont) insulation).
- C) Flameproof joints are not intended to be repaired.
- D) Partition wall is constructed from 316 stainless steel.

Specific conditions for use: (Continued):

- E) The MS50 may be installed applications where the outer surface of the probe and wetted portions of the process connection are exposed to an area requiring an equipment protection level (EPL) of Ga. The probe wall and the process connection of the instrument form a partition wall between the area requiring an EPL of Ga and any other area requiring an EPL lower than Ga. With the exceptions of floats, all other portions of the instrument shall only be exposed to areas requiring an EPL lower than Ga.
- F) Any conduit or fittings in close proximity to a magnetically activated switch should be aluminum or some other non-magnetic material. This is necessary to avoid interference with the operation of the magnetically activated reed switches.
- G) There must be at least 3 inches between the actuation point of each reed switch assembly and 3.5 inches from the tip of the probe to allow for proper operation. (Note: The minimum length can be longer due to the length of the float.)
- H) Conduit seal fittings (customer supplied) may be required at the conduit entrance of the MS50 switch in order to comply with NEC guidelines. K-TEK recommends that seal fittings be used to minimize the possibility of flame propagation (in the event of an explosion) and also to eliminate water intrusion into the enclosure.
- I) If the MS50 is used to sense "dirty" liquids (thick lumpy or containing particulate solids), a special float with more buoyancy may be required. Contact factory for more information.
- J) For units used in cold service (where the temperature of the process liquid will cause moisture to condense inside of the MS50), the wiring harness emerging from the top of the unit must be sealed with RTV Silicone or a similar sealer. The installer should place some type of packaging material (e.g. fiber packing for electrical seal fittings) into the top of the MS50 tube before applying the sealer so that only a small amount of sealer is used. Doing this will prevent an excessive amount of sealer to penetrate into the chamber, allowing for easy removal and future readjustment of the switch. Sealing the sensing element chamber is intended to keep the MS50 from filling with water and/or ice over a period of time.
- K) See Appendix for details on switch contact protection.
- L) Unit is designed for installation in an Installation Category 11, Pollution Degree 2, as outlined by Section 6 of the IEC 1010 standard.
- M) The maximum altitude of operation is 6560 feet (2000 meters).
- N) Protective Grounding: The level switch is equipped with grounding screw locations, both internal and external of the housing.



3.0 MAINTENANCE

The MS50 requires minimal routine maintenance in a normal day to day operation. It is recommended that an annual visual inspection be performed on the switch.



Before inspection, the device must be de-energized and locked out of service. Failure to do so could lead to personal injury or death, as a result of shock.

Once the device has been de-energized, remove the cover. Visually inspect the wiring connections for looseness and re-tighten where required. Inspect all internal wiring for wear and replace where required.

In the event of device or component (individual switch) failure, replacement of affected components should only be carried out by K-TEK service personnel or sent back to the factory for replacement or repair. Contact the Service Department to initiate all claims requests.



WARNING! IF THERE IS A NEED TO TAKE THE SWITCH OUT OF SERVICE OR DISCONNECT IT FOR ANY REASON, THEN MAKE SURE THE CIRCUIT IS DE-ENERGIZED OR THAT THE AREA IS KNOWN TO BE NON-HAZARDOUS.

4.0 Approval Markings

ABB K-TEK PRODUCTS

MODEL NO: _____

SERIAL NO: _____

TAG NO: _____

MAX PROCESS TEMP: _____

MAX CONTACT RATING: 250VAC or 1 A (RESISTIVE) or 100VA

CAUTION: OPEN CIRCUIT BEFORE REMOVING COVER
ATTENTION: OUVRIER LE CIRCUIT AVANT D'ENLEVER LE COUVERCLE
 XP CL I, DIV 1&2, GP ABCD, DIP CL II, DIV 1&2, GP EFG CL III
 CL I, Zn 1 Ex d IIC, CL I, Zn 1 AEx d IIC, T6 @ Ta=80°C, T3 @ Ta=150°C
I.S. CL I,III, DIV 1&2, GP ABCDEFG & SUITABLE
 (NON-INCENDIVE FMRC ONLY)
 CL I, DIV 2, GP ABCD, CL II, DIV 1&2, GP EFG CL III, CL I, Zn 0 Ex ia IIC, T6 @ Ta=80°C, CL I, Zn 0 AEx ia IIC
 APPROVED WHEN INSTALLED PER DWG M550-0923-1
WARNING: COMPONENT SUBSTITUTION MAY IMPAIR I.S. SAFETY.
 (CONDUIT SEAL NOT REQUIRED)

MADE IN USA
WARMINSTER PA 18974
TAG0068

ABB K-TEK PRODUCTS

MODEL NO: _____

SERIAL NO: _____

TAG NO: _____

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CAUTION: OPEN CIRCUIT BEFORE REMOVING COVER
ATTENTION: OUVRIER LE CIRCUIT AVANT D'ENLEVER LE COUVERCLE
 XP CL I, DIV 1&2, GP ABCD, DIP CL II, DIV 1&2, GP EFG CL III
 CL I, Zn 1 Ex d IIC, CL I, Zn 1 AEx d IIC, T6 @ Ta=80°C, T3 @ Ta=150°C
I.S. CL I,III, DIV 1&2, GP ABCDEFG & SUITABLE
 (NON-INCENDIVE FMRC ONLY)
 CL I, DIV 2, GP ABCD, CL II, DIV 1&2, GP EFG CL III, CL I, Zn 0 Ex ia IIC, T6 @ Ta=80°C, CL I, Zn 0 AEx ia IIC
 APPROVED WHEN INSTALLED PER DWG M550-0923-1
WARNING: COMPONENT SUBSTITUTION MAY IMPAIR I.S. SAFETY.
 (CONDUIT SEAL NOT REQUIRED)

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TAG0068

ARTWORK
(SCALE 1:1)

REFERENCE MARKS
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ARTWORK
(SCALE 2:1)

REFERENCE MARKS
DO NOT PRINT

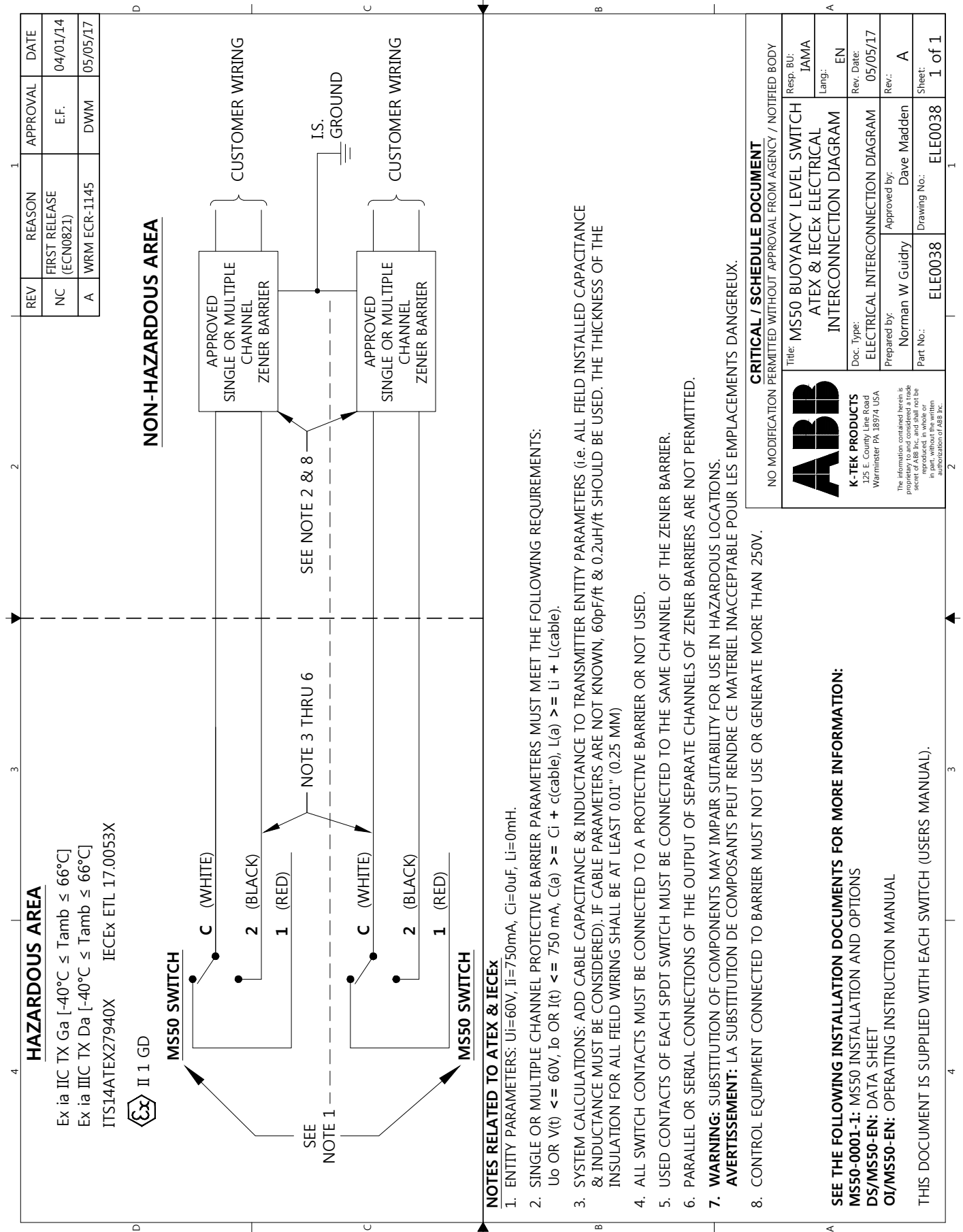
ARTWORK
(SCALE 1:1)

REFERENCE MARKS
DO NOT PRINT

ARTWORK
(SCALE 1:1)

REFERENCE MARKS
DO NOT PRINT

4.0 Approval Markings



NOTES RELATED TO ATEX & IECEx

1. ENTITY PARAMETERS: $U_i=60V$, $I_i=750mA$, $C_i=0\mu F$, $L_i=0mH$.
2. SINGLE OR MULTIPLE CHANNEL PROTECTIVE BARRIER PARAMETERS MUST MEET THE FOLLOWING REQUIREMENTS:
 U_o OR $V(t) \leq 60V$, I_o OR $i(t) \leq 750$ mA, $C(a) > C_i + c(\text{cable})$, $L(a) > L_i + L(\text{cable})$.
3. SYSTEM CALCULATIONS: ADD CABLE CAPACITANCE & INDUCTANCE TO TRANSMITTER ENTITY PARAMETERS (i.e. ALL FIELD INSTALLED CAPACITANCE & INDUCTANCE MUST BE CONSIDERED). IF CABLE PARAMETERS ARE NOT KNOWN, 60pF/ft & 0.2uH/ft SHOULD BE USED. THE THICKNESS OF THE INSULATION FOR ALL FIELD WIRING SHALL BE AT LEAST 0.01" (0.25 MM)
4. ALL SWITCH CONTACTS MUST BE CONNECTED TO A PROTECTIVE BARRIER OR NOT USED.
5. USED CONTACTS OF EACH SPDT SWITCH MUST BE CONNECTED TO THE SAME CHANNEL OF THE ZENER BARRIER.
6. PARALLEL OR SERIAL CONNECTIONS OF THE OUTPUT OF SEPARATE CHANNELS OF ZENER BARRIERS ARE NOT PERMITTED.
7. **WARNING:** SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR USE IN HAZARDOUS LOCATIONS.
AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DANGEREUX.
8. CONTROL EQUIPMENT CONNECTED TO BARRIER MUST NOT USE OR GENERATE MORE THAN 250V.

SEE THE FOLLOWING INSTALLATION DOCUMENTS FOR MORE INFORMATION:
MS50-0001-1: MS50 INSTALLATION AND OPTIONS
DS/MS50-EN: DATA SHEET
OI/MS50-EN: OPERATING INSTRUCTION MANUAL

THIS DOCUMENT IS SUPPLIED WITH EACH SWITCH (USERS MANUAL).

CRITICAL / SCHEDULE DOCUMENT

NO MODIFICATION PERMITTED WITHOUT APPROVAL FROM AGENCY / NOTIFIED BODY	
ABB	Title: MS50 BUOYANCY LEVEL SWITCH ATEX & IECEx ELECTRICAL INTERCONNECTION DIAGRAM
K-TEK PRODUCTS 125 E. County Line Road Warminster PA, 18974 USA	Res. BU: IAMA Lang.: EN
The information contained herein is the property of ABB Inc. and shall be reproduced in whole or in part, without the written authorization of ABB Inc.	
Doc. Type: ELECTRICAL INTERCONNECTION DIAGRAM	Rev. Date: 05/05/17
Prepared by: Norman W Guidry	Approved by: Dave Madden
Part No.: ELE0038	Drawing No.: ELE0038
Sheet: 1 of 1	

4.0 Approval Markings

ABB K-TEK PRODUCTS

MODEL NO.: _____

SERIAL NO.: _____

TAG NO.: _____

MAX. PROCESS TEMP.: _____

MAX. CONTACT RATING: 250VAC or 1 A (RESISTIVE) or 100VA

CAUTION: OPEN CIRCUIT BEFORE REMOVING COVER

ATTENTION: OUVRIR LE CIRCUIT AVANT D'ENLEVER LE COUVERCLE

CE Ex db IIC Tx Ga/Gb (-40°C ≤ Tamb ≤ 66°C)
Ex ta IIIC Tx Da (-40°C ≤ Tamb ≤ 66°C)
2460

Ex II 1/2 G, II 1 D IP66/67

ITS13ATEX17809X △ SEE MANUAL **IECEx ETL 17.0048X**
MADE IN USA WARMINSTER PA 18974 TAG0255

ABB K-TEK PRODUCTS

MODEL NO.: _____

SERIAL NO.: _____

TAG NO.: _____

MAX. PROCESS TEMP.: _____

MAX. CONTACT RATING: 250VAC or 1 A (RESISTIVE) or 100VA

CAUTION: OPEN CIRCUIT BEFORE REMOVING COVER

ATTENTION: OUVRIR LE CIRCUIT AVANT D'ENLEVER LE COUVERCLE

CE Ex db IIC Tx Ga/Gb (-40°C ≤ Tamb ≤ 66°C)
Ex ta IIIC Tx Da (-40°C ≤ Tamb ≤ 66°C)
2460

Ex II 1/2 G, II 1 D IP66/67

ITS13ATEX17809X △ SEE MANUAL **IECEx ETL 17.0048X**
MADE IN USA WARMINSTER PA 18974 TAG0255

ARTWORK 2:1

REFERENCE MARKS
DO NOT PRINT

ARTWORK 1:1

NOTES:

- MATERIAL IS .030" THICK 316 STAINLESS STEEL NO. 2B FINISH. MUST BE ADHESIVE BACKED WITH HIGH PERFORMANCE ACRYLIC, 3M 9672LE OR EQUIVALENT.
- TEMP RANGE: -40°C TO 150°C (OUTDOOR).
- RESISTANT TO OCCASIONAL EXPOSURE TO PETROLEUM SOLVENTS, AND COMPATIBLE WITH POLYURETHANE PAINT.
- ETCH BLACK TEXT OVER STAINLESS.

ARTWORK 1:1

CRITICAL / SCHEDULE DOCUMENT

NO MODIFICATION PERMITTED WITHOUT APPROVAL FROM AGENCY / NOTIFIED BODY

ABB	Title: MS50 BUOYANCY LEVEL SWITCH ATEX & IECEx NAME TAG FLAMEPROOF OPTION		Resp. BU: JAMA
			Lang.: EN
Doc. Type: NAMEPLATE		Rev. Date: 08/24/17	Rev.: B
Prepared by: Norman W Guidry		Approved by: Dave Madden	
Part No.: TAG0255	Drawing No.: TAG0255	Sheet: 1 of 1	

4.0 Approval Markings

ABB K-TEK PRODUCTS

MODEL NO.: _____

SERIAL NO.: _____

TAG NO.: _____

MAX. PROCESS TEMP.: _____

MAX. CONTACT RATING: 250VAC or 1 A (RESISTIVE) or 100VA

CE Ex ia IIC TX Ga [-40°C ≤ Tamb ≤ 66°C]
 Ex ia IIIC T80°C Da [-40°C ≤ Tamb ≤ 66°C]
 2460 Uj= 60 V Ci= 0 nF Ii= 750 mA Li= 0 uH
 WHEN INSTALLED PER ELE0038

Ex II 1 GD IP66/67

ITS14ATEX27940X **IECEx ETL 17.0053X**
 MADE IN USA WARMINSTER PA 18974 TAG0254

ARTWORK 2:1

ABB K-TEK PRODUCTS

MODEL NO.: _____

SERIAL NO.: _____

TAG NO.: _____

MAX. PROCESS TEMP.: _____

MAX. CONTACT RATING: 250VAC or 1 A (RESISTIVE) or 100VA

CE Ex ia IIC TX Ga [-40°C ≤ Tamb ≤ 66°C]
 Ex ia IIIC T80°C Da [-40°C ≤ Tamb ≤ 66°C]
 2460 Uj= 60 V Ci= 0 nF Ii= 750 mA Li= 0 uH
 WHEN INSTALLED PER ELE0038

Ex II 1 GD IP66/67

ITS14ATEX27940X **IECEx ETL 17.0053X**
 MADE IN USA WARMINSTER PA 18974 TAG0254

ARTWORK 1:1

DIMENSIONS
(SCALE 1:1)

TOLERANCE TABLE VALUES

METRIC	+/-	INCHES	+/-
LINEAR X	1 MM	LINEAR .X	0.04"
LINEAR X	0.25 MM	LINEAR .XX	0.010"
LINEAR .XX	0.13 MM	LINEAR .XXX	0.005"
RADIAL .XX	0.05 MM	RADIAL .XXX	0.002"
ANGLE	1 DEG	ANGLE	1 DEG
CONCENTRIC	0.1 MM	CONCENTRIC	0.004"
CAST/MOLD	0.1MM/25MM	CAST/MOLD	0.004IN/IN

CRITICAL / SCHEDULE DOCUMENT
NO MODIFICATION PERMITTED WITHOUT APPROVAL FROM AGENCY / NOTIFIED BODY

ABB	Title: MS50 BUOYANCY LEVEL SWITCH ATEX & IECEx NAMETAG INTRINSIC SAFETY OPTION	Resp. BU: IAMA
	Doc. Type: NAMEPLATE	Lang: EN
Prepared by: Norman W Guidry		Rev. Date: 08/24/17
Approved by: Dave Madden		Rev.: B
Part No.: TAG0254	Drawing No.: TAG0254	Sheet: 1 of 1

- NOTES:**
- MATERIAL IS .030" THICK 316 STAINLESS STEEL NO. 2B FINISH.
 - MUST BE ADHESIVE BACKED WITH HIGH PERFORMANCE ACRYLIC, 3M 9672LE OR EQUIVALENT.
 - TEMP RANGE: -40°C TO 150°C (OUTDOOR).
 - RESISTANT TO OCCASIONAL EXPOSURE TO PETROLEUM SOLVENTS.
 - COMPATIBLE WITH POLYURETHANE PAINT.
 - ETCH BLACK TEXT OVER STAINLESS STEEL.

REFERENCE MARKS
DO NOT PRINT

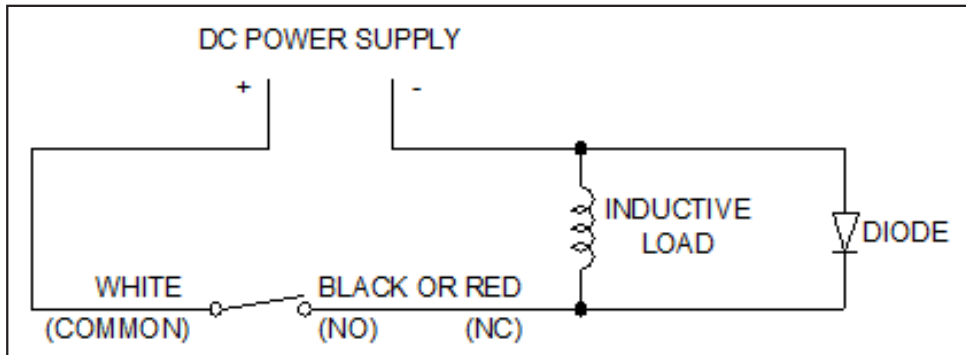
4.0 APPENDIX - Reed Switch Protection

Many of K-TEK's switch products (MS30, MS30/EX, MS50) are based on magnetically operated reed switches. Since reed switches have the inherent characteristic of very closely spaced switch contacts, it is extremely important to protect these contacts from high voltage transients caused by inductive loads. When an inductive load is deenergized, the collapsing magnetic field induces a high voltage of opposite polarity into itself and thus the switch. Two basic methods exist to clamp this voltage and thus protect the switch contacts.

D.C. Applications

For D.C. applications, a diode is placed in parallel with the inductive load (note the polarity of the diode and power supply). A 1N4001 general purpose diode is normally sufficient to clamp the induced voltage of the inductive load to a safe level.

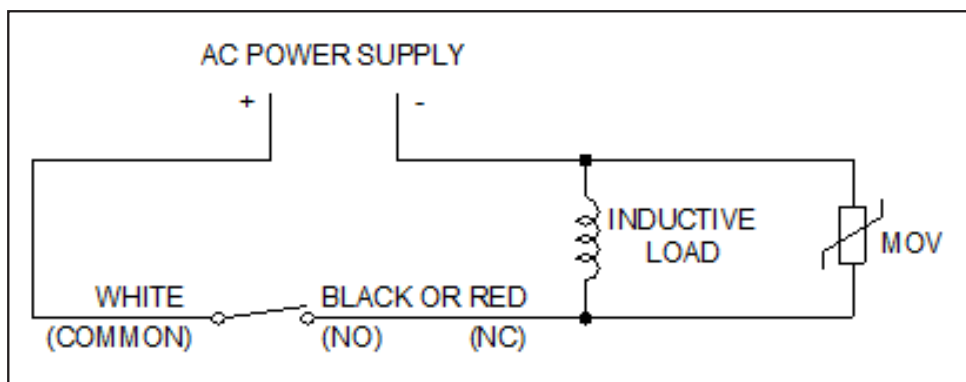
D.C. Contact Protection



A.C. Applications

For A.C. applications, a Metal Oxide Varistor (MOV transient surge suppressor) is placed either in parallel with the switch or the inductive load. The MOV changes from a high impedance when the voltage across the MOV exceeds its rated voltage (the MOV rating must correspond with the power supply voltage). For 120 VAC control systems a typical MOV would be the GE (General Electric Co.) part number V130LA10A. In either case shown, the result is the limiting of the voltage across the switch contacts to a safe level.

A.C. Contact Protection



5.0 Warranty Statement

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.

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:

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

ABB will repair or replace, at ABB's election, defective items which are returned to ABB by the original purchaser within the period specified above from the shipment date of the item and which is found, upon examination by ABB, 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. ABB'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 ABB and request a Returned Material Authorization before returning the material to ABB, with transportation prepaid by the purchaser. (To expedite all returns/repairs from outside of the United States, consult ABB's customer service team (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 ABB for best-way transportation only. ABB is not responsible for expedited shipping charges. If the product is shipped to ABB freight collect, then it will be returned to the customer freight collect.

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

The materials of construction for all ABB 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 ABB'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 ABB ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ABB'S PRODUCTS. THE REMEDIES SET FORTH IN THIS WARRANTY ARE EXCLUSIVE OF ALL OTHER REMEDIES AGAINST ABB. ABB SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR SPECIAL DAMAGES OF ANY KIND. ABB'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 ABB.

6.0 ABB RMA FORM



ABB, Inc
 17100 Manchac Park Lane - Suite B
 Baton Rouge, LA 70817 USA
 Phone: +1 225 408 0800
 Service: +1 225 408 0898
 Fax: +1 225 408 0897
 Service e-mail: service@us.abb.com

***** IMPORTANT CUSTOMER NOTICE: PLEASE READ PRIOR TO RETURNING PRODUCTS TO ABB*****

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. ABB 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
If yes, please provide a purchase order or your shipper's account number (ex. FedEx or UPS). ABB pays return transport via standard ground shipments only.
If purchase order is issued, a copy of purchase order must be included with return documentation.
Is ABB authorized to repair items determined to be non-warranty? <input type="checkbox"/> Yes
If yes, a copy of purchase order must be included with return documentation.
Customer PO: <input type="text"/>
Date: <input type="text"/>
Account #: <input type="text"/>
Has product been in contact with any potentially hazardous chemical? <input type="checkbox"/> Yes
If yes, documentation product and forward MSDS to ABB, "ATTN: Customer Service"

Return Repaired Product to Address	
Shipping Address:	Billing Address:
<input type="text"/>	<input type="text"/>
	Ship Via: <input type="text"/>

Notes

Notes

Notes

Contact us

ABB Inc.

Industrial Automation
125 E. County Line Road
Warminster, PA 18974 USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

ABB Inc.

17100 Manchac Park Lane - Suite B
Baton Rouge, LA 70817 USA
Phone: +1 225 408 0800
Service: +1 225 408 0898
Fax: +1 225 408 0897
Service e-mail: service@us.abb.com

www.abb.com/level

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Sales



Service

