

**SPECIAL MAGNETIC LEVEL INDICATOR MODELS CP, TM, HJ, CTL, AND LG
TOP OF TANK MOUNTED, EXTERNALLY MOUNTED LIQUID GAS TYPE,
HEATING JACKET TYPE, AND ENGINEERING PLASTICS TYPE**

DESCRIPTION

KSR Kuebler magnetic sight glass units provide a safe, economical, and reliable visual display of liquid level in process vessels while eliminating the risks associated with glass sight gauges. Combined with a continuous 4-20mA output type transmitter and independent level switches, the KSR Kuebler Magnetic Sight Glass unit provides unmatched versatility and high performance in critical process level applications. KSR Kuebler Specialty Magnetic Sight Glass units in this catalog are designed for use in Petroleum, Petrochemical, Power, Water Treating, and General Process applications. Top of tank mounted or externally mounted via ANSI flanges or NPT connections, these units easily fit up to existing tank connections. KSR Kuebler Magnetic Sight Glass units offer a tremendous selection of standard options to meet your most demanding process specifications.

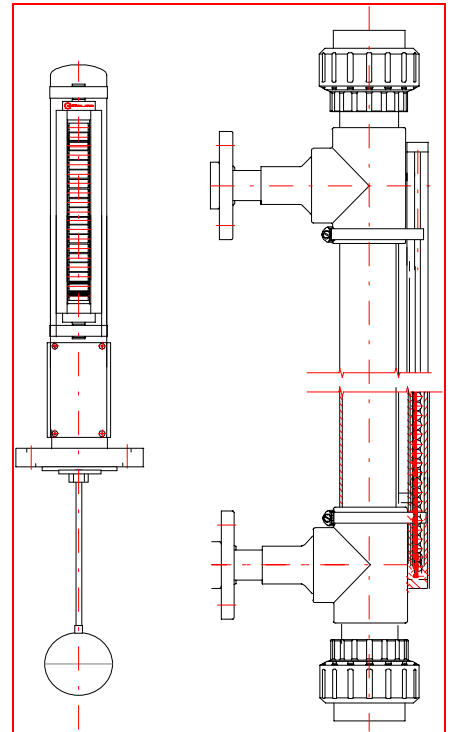
We're On Your Level!™

STANDARD FEATURES

Models "TM", "CP", "CTL", "CHJ", and "CLG" Magnetic Sight Glass units from KSR Kuebler offer the following standard features:

- ◆ PVC, PVDF, Polypropylene, TFE lined stainless steel, stainless steel and Hastelloy materials of construction.
- ◆ Top of tank models for UST and small process vessel service.
- ◆ Wide selection of transmitters and switches
- ◆ Lengths over 120" (3,000+mm)
- ◆ Factory Mutual Approved explosion proof and intrinsically safe accessories for use in hazardous locations.
- ◆ Complete selection of industrial process connections
- ◆ Chambers for Liquid Gas applications.
- ◆ 100% Borosilicate Glass units.
- ◆ Special unit with integral heating jacket as standard.

The above standard features allow you to select a model that best suits your process control needs.

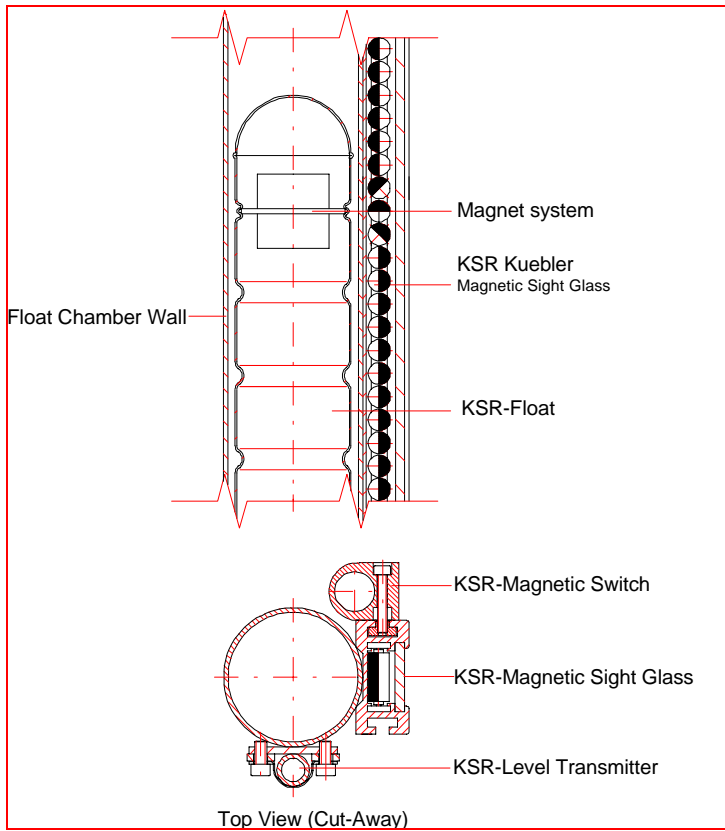


Above are two standard KSR Kuebler magnetic sight glass units.

The unit on the right mounts directly to the top of a vessel, ideal for small tanks requiring visual indication.

The unit on the left is KSR's standard Engineering Plastics unit available in PVDF, PP, and PVC.

All of these units can be fitted with KSR's 4-20mA transmitter and with other accessories such as level switches or scales.

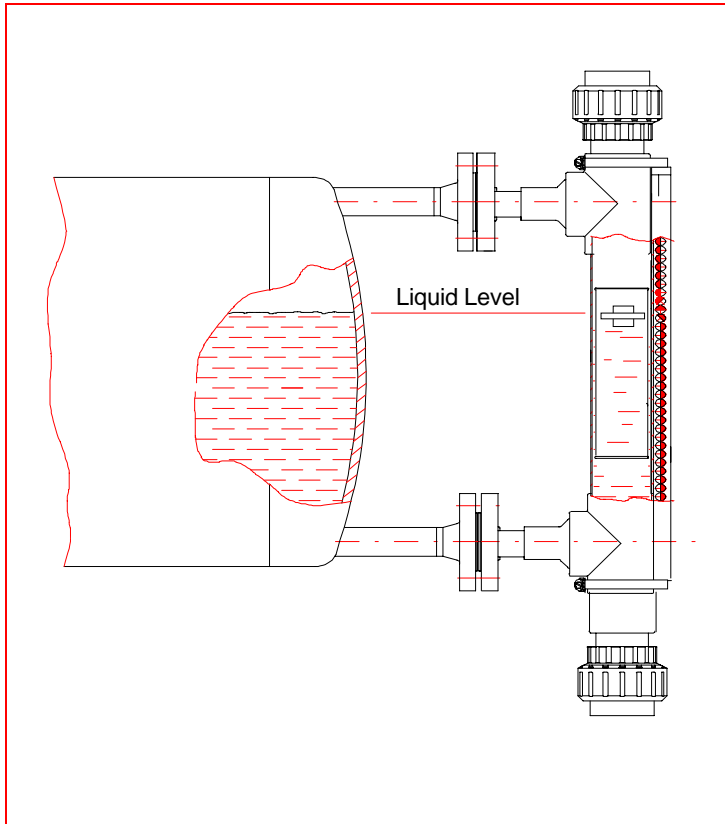


Operating Principle

The float chamber is mounted to the side of a liquid storage vessel, and as the liquid rises and falls, a float with a built in magnetic system inside the external chamber rises and falls with the liquid level. The chamber is completely sealed so that the only moving part of the apparatus is the float.

On the dry side or chamber exterior is the KSR Magnetic Indicator Display, a column of magnetic rollers which are white on one side and red on the other side. As the float moves up or down, the concentrated magnetic field of the float magnet pulls the rollers through a rotation of 180 degrees, thus changing their color. As the float rises the color is changed from white to red, and as the float falls they are changed back to white again. This means that the amount of liquid in the tank is constantly represented by a red column without any external power supply.

Typical Installation Shown at Left



Model "CP" products are mounted external to the process vessel, they provides a reliable indication of liquid level where turbulence or accessibility to the tank interior is a problem. External mounting also provides for ease of maintenance and process calibration verification, as the unit may be taken off line for these purposes without interruption of the process.

KSR Kuebler also has provided a wide range of accessories for the series CP such as continuous 4-20mA output transmitters and electrical switches. Also offered are graduated scales constructed from aluminum or stainless steel.

The series "CP" product combine reliability and high performance into one easy to specify unit.



TOLL FREE 1-888-577-5385

KSR Kuebler Level Control Products of America has made specifying Magnetic Sight Glass units easy. The following "How to Order" guides allow you to select the exact configuration you need to meet your process control requirements.

Choose the model that suits your needs. For corrosive liquids at low pressures and ambient temperatures, the CP series offer float chambers constructed from engineering plastics.

Underground tanks or small vessels with top entries can utilize the top mounting of the series TM. up to 360 PSI. Liquids that require constant heating to maintain their viscosity can be measured with KSR series CHJ which has a built in heating jacket for hot oil or steam heating.

Liquid gases such as Liquefied Natural Gas and Carbon Dioxide can be measured with KSR model CLG which incorporates exclusive design features for fluids that tend to boil easily.

KSR also has a means of including special (non-cataloged) features on these products. For special features, place an "X" in the proper field of the model number, and include a description of these features. KSR Kuebler can build models per your exact needs.

1. LEVEL TRANSMITTER and RESOLUTION: You may select a 4-20mA output transmitter . Select the transmitter that's right for your application. Select the resolution and maximum temperature to meet your requirements.

2. TRANSMITTER HOUSING TYPE: Choose from NEMA 4X in die cast aluminum to explosion proof types in aluminum or stainless steel.

3. MATERIALS OF CONSTRUCTION FOR CHAMBER (Wetted Parts): Select from Polyvinylchloride (PVC), PVDF (Kynar), or Polypropylene.

4. CHAMBER CONSTRUCTION CLASS: Choose the model to meet your requirements. Remember that the process connection you select may limit the maximum pressure rating of any chamber.

5. PROCESS CONNECTION SIZE AND TYPE: Choose between ANSI flanges, NPT or socket weld connections .

6. CONNECTION CLASS: Choose a connection class to suit your needs. Maximum pressure rating is dependent upon flange rating, float or chamber pressure rating.

7. CONNECTION ORIENTATION: KSR offers both side and side connections and side and bottom as standard. Enter an "X" in this field for special requirements such as top and bottom or top and side type connections.

8. MEASURING RANGE: You may select a measuring range in inches or millimeters. Enter your selection here. Refer to the Application Data Sheet for details.

9. FLOAT SELECTION: Select the materials and other float ratings that your process conditions require.

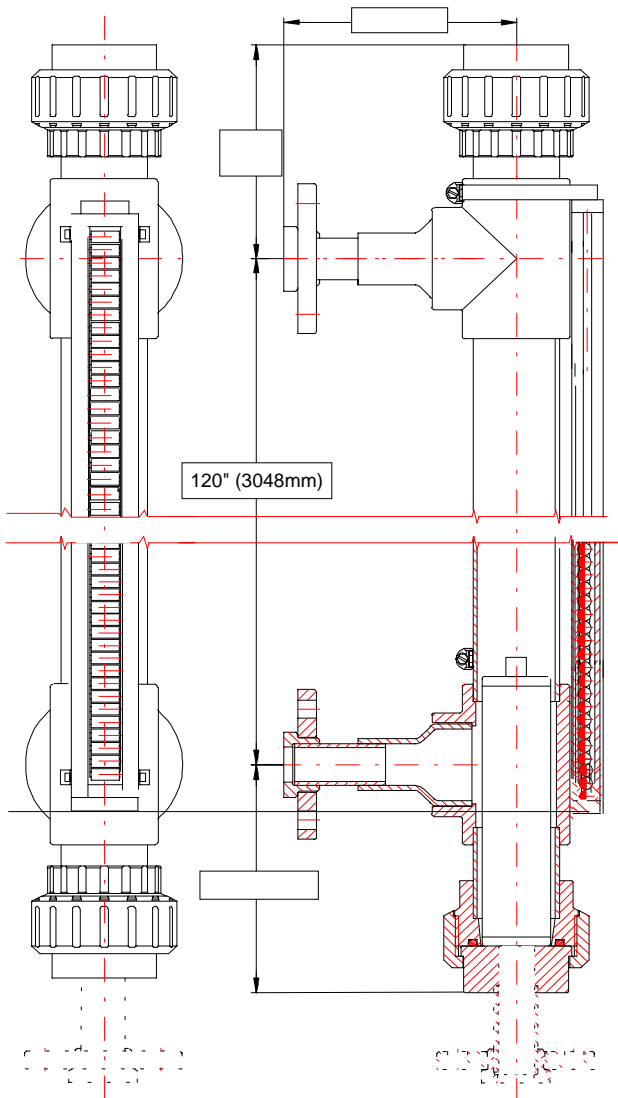
10. MAGNETIC LEVEL INDICATOR KSR Kuebler offers four different configuration for various process and environmental applications. Choose from anodized aluminum or stainless steel for the body, and special thermo plastic or ceramic for the roller indicators.

11. SIGHT GLASS SCALE: Choose inches, millimeters or centimeters in either aluminum or stainless steel. The scale permits a visual indication and precise liquid height where you need it-at the sight glass.

12. ADJUSTABLE LEVEL SWITCHES: KSR offers NEMA 7 or NEMA 4 types.

13 LEVEL SWITCHES-QUANTITY: Enter the quantity of switches you require. Please note that you must allow 4.5" between switches for units with a scale.

Magnetic Sight Glass Model CP, Engineering Plastics Construction



MODEL "CP" GENERAL SPECIFICATIONS

Chamber: $\varnothing 2.48" \times .118"$ wall ($\varnothing 63 \times 3\text{mm}$)

Chamber end top: Threaded fitting
Options: - Vent valve, - Vent flange

Chamber end bottom: Threaded fitting
Options: - Drain valve, - Drain flange

Process connections: side-side & side -bottom

Flanges or NPT
ANSI types; $\frac{1}{2}" - 2"$
Dimensions: ANSI B 16.5

Distance center-to-center
(Distance between flange centers)
min.200mm to max.4000mm

Float: Type Z..S..
Length of float depending on S.G. (see page 8)

Material: PVDF, PP or PVC-U

Nominal pressure: 58 PSI max. (0,4 MPa)

Process Liquid Temperature:
PVDF: max. 176°F (80°C)
PP: max. 140°F (60°C)
PVC: max. 104°F (40°C)

Magnetic Roller Display: Aluminum & Plastic
See how to order and technical data and further features

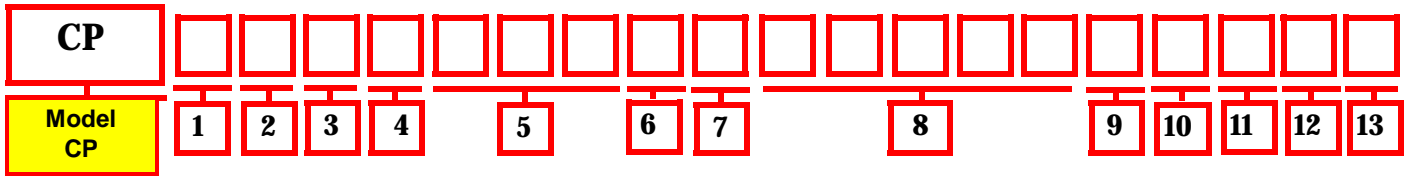
Further options:

- Magnetic switches
- Level Sensors
- Insulation
- Heat Tracing
- Drain Valves

MODEL "CP" BASIC DIMENSIONS
Side & Side flange arrangement shown
(Side & Bottom shown dotted lines)



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1. LEVEL TRANSMITTER and RESOLUTION: **0** = No transmitter required.; **A** = 0.196" (5mm); **B** = 0.39" (10mm); **C** = 0.59" (15mm); **D** =0.787" (20mm); All KSR transmitters are 4-20mA output loop powered. Models BTX and BTXI are explosion proof and Intrinsically Safe. See transmitter specs on pages 23 - 27. Maximum process temperature for model C40 with transmitter is 570 °F.

2. TRANSMITTER HOUSING: ELECTRICAL HOUSING: **0** = No transmitter required.; **3** = Group B explosion proof stainless steel with viewing window for LCD Indicator, dual 3/4" NPT conduit entries, **4** = NEMA 4X die cast aluminum w/ industrial gray epoxy coating & 3/4" NPT conduit entry; **7** = Group B explosion proof & NEMA 4X cast aluminum with KSR blue epoxy coating & dual 3/4" NPT conduit entries; **8** = Explosion proof (Gr B) explosion proof & NEMA 4X stainless steel with dual 3/4" NPT conduit entry. **9** = NEMA 7/9 (Group B) explosion proof cast aluminum with viewing window for LCD Indicator, dual 1/2" NPT conduit entries, KSR blue epoxy finish. LCD local indicator included.

3. MATERIALS OF CONSTRUCTION FOR CHAMBER (Wetted Parts): **V**=PVC (Polyvinylchloride) plastic; **K**=Kynar (PVDF) plastic **P**=Polypropylene plastic

4. CHAMBER CONSTRUCTION CLASS: **P**= Plastic construction, 58 PSI (.4 MPa) maximum rating

5. PROCESS CONNECTION SIZE AND TYPE*: **F05**=1/2" ANSI flange; **F75**=3/4" ANSI flange; **F10**=1.0" ANSI flange; **F15**=1.5" ANSI flange; **F20**=2.0" ANSI flange; **N05**=1/2" NPT male fitting; **N75**=3/4" male fitting; **N10**=1" NPT male fitting; **XXX**=for special customer specified connection. Plastic flanges are ANSI style but are not ANSI pressure rated.

6. CONNECTION CLASS*: **A**=150# ANSI, **N**=NPT and socket weld fittings equals chamber rating; **X**=Special.
NOTE: Maximum pressure rating is chamber pressure rating of 58 PSI.

7. CONNECTION ORIENTATION: **H** = Horizontal (side & side) connections off the float chamber body (this option also comes standard with a 3/4" NPT plugged and safety wired drain at chamber bottom; **V**= Vertical (side and bottom), upper connection is horizontally oriented and the bottom connection is made from the bottom of the float chamber inspection flange.

8. MEASURING RANGE: 1_ _ _ _ =Lenght in inches & tenths (_ _ _ . _) Example: 114- 1/2" ,enter 1114.5.
 2_ _ _ _ =Lenght in full millimeters (_ _ _ _) Example: 356 mm, enter 20356.

9. FLOAT SELECTION (Materials): **V**=PVC (Polyvinylchloride) plastic; **K**=Kynar (PVDF) plastic **P**=Polypropylene plastic
 Consult KSR for interface float selection.

10. MAGNETIC SIGHT GLASS: **0** = None required; **1** = Standard, aluminum housing with thermo-plastic indicators; **2** = Stainless steel housing with thermo-plastic indicators.

11. SIGHT GLASS SCALE: **0**=none; **1**=Aluminum w/inches; **2**=Aluminum w/millimeters; **3**=Stainless steel w/inches; **4**=Stainless steel w/millimeters. **X**= Special Scale, please specify on Application Data Sheet.

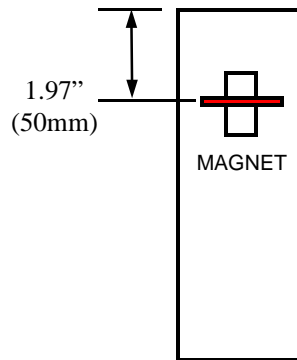
12. ADJUSTABLE LEVEL SWITCHES: **0** = none; **1**=General Purpose (MRS-2-4X) NEMA 4X type with 1/2" conduit entry, **2**=Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP); **3**=Explosion Proof with dual 3/4" NPT conduit entry, 5 amp dry contact type (MMS-5-XP); **4** = DPDT Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-DPDT); **5** = DPDT Weather Proof with 1/2" NPT conduit entry, (MRS-2-4X-DPDT); **6**=General purpose (MRS-2-SS) stainless housing with 39" silicon lead wire; **8**= High temp explosion proof (MRS-2-XP-HT), **9** = DPDT High Temp, Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-HT-DPDT); .

13. LEVEL SWITCHES-QUANTITY: **0**=none; **1 THROUGH 9.** Allow 4-1/2" minimum dimension between switches. Switches may be mounted closer than 4-1/2" if mounted on opposing sides of the magnetic sight glass housing.

Select the float that is closest to your fluids normal operating specific gravity as possible. Proper float selection optimizes the accuracy of the magnetic sight glass unit by placing the sensing magnet directly at the liquid level surface. The Zero Offset density number for each float part number allows the float to project from the liquid level 1.97" (50mm). This 1.97" dimension is the magnetic center for the float magnet.

NOTE: Be sure to allow for variances in your fluid density due to temperature changes.

PVDF Floats (Kynar®)		PP Floats Polypropylene		PVC Floats Polyvinylchloride	
Working Pressure: 58 PSI (.4MPa) Working Temperature: 176 °F (80 C)		Working Pressure: 58 PSI (.4MPa) Working Temperature: 140 °F (60 C)		Working Pressure: 58 PSI (.4MPa) Working Temperature: 104 °F (40 C)	
<u>Part Number</u>	<u>Sp. Gr. for Zero Offset</u>	<u>Part Number</u>	<u>Sp. Gr. for Zero Offset</u>	<u>Part Number</u>	<u>Sp. Gr. for Zero Offset</u>
ZPFS150	1.48	ZPPS150	1.32	ZPS150	1.25
ZPFS200	1.14	ZPPS200	0.97	ZPS200	0.90
ZPFS250	0.98	ZPPS250	0.79	ZPS250	0.74
ZPFS300	0.89	ZPPS300	0.68	ZPS300	0.63
ZPFS350	0.81	ZPPS350	0.61	ZPS350	0.57



Typical Plastic Float

Interface calibrated floats are available for model CP. Please phone 1-888-KSR-LEVL with your needs.

KSR Kuebler floats get their numerical number from their length in millimeters. For example, a ZPS250 is 250mm in length.

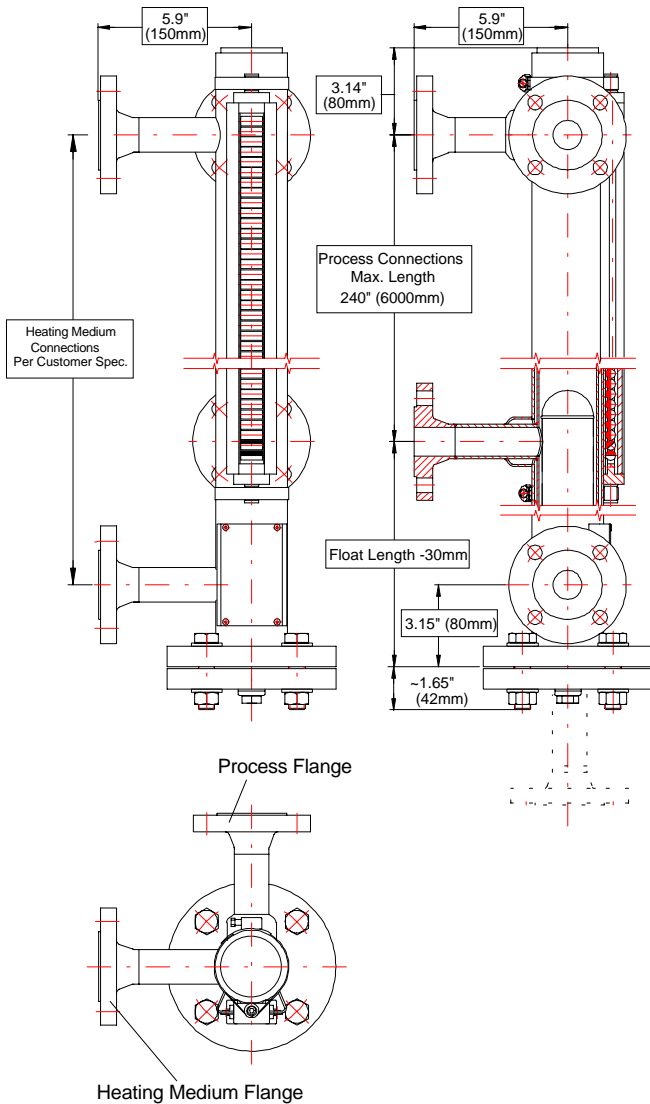
The float above shows the optimum magnet location while in service. The balance of the float length is immersed in the liquid.

KSR Kuebler can also calibrate floats for interface applications. Please consult KSR Kuebler for interface calibrated floats.



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Magnetic Sight Glass Model CHJ, with *Integral* Heating Jacket!



MODEL "CHJ" GENERAL SPECIFICATIONS

- Chamber:** $\varnothing 2.37'' \times 0.078''$ (60.3 x 2mm)
- Heating Jacket:** $\varnothing 2.75'' \times 0.078''$ (69.8 x 2mm)
- Chamber end top:** Welding cap or flat top or flanged ANSI 2" 300 lb
Options: - Vent plug - Vent valve, Vent flange
- Chamber end bottom:** ANSI 2" 150lb or 300 lb with drain plug $\frac{1}{2}''$ NPT
Options: - Drain valve, Drain flange
- Process connections:** side-side, side-bottom. Flanges to 300 lb, ANSI B 16.5 ; $\frac{1}{2}''$ - 2", NPT thread or welding stubs.
Optional: top and side, top and bottom connections.
- Heating jacket connections:** side-side. Flanged 150 lb, ANSI B 16.5 ; $\frac{1}{2}''$ - 2", NPT thread or welding stubs.
- Distance center-to-center:** min. 6" (150mm) to max. 240" (6000mm) distance between flange centers (other dimensions on request).
- Float:** Type Z.....
Length of float depending on S.G.
- Chamber Material:** Stainless steel 1.4571 or 316L. Other Materials on request
- Nominal pressure**
Process: max. 232 PSI / 1.6 MPa to 362 PSI / 2.5 MPa Depending on chamber flange or float
- Temperature range:** -22°F(-30C) to +840°F(+450C) (according to design and options)
- Magnetic Roller Display Types:**
Red & White thermo-plastic indicators, aluminum housing- max. 390°F (200C) or
Blue & White ceramic indicators with stainless steel housing, up to 840 degrees°F (450 C).
- Further options:**
Magnetic switches:
Level Sensors:
Electr. trace heating:

MODEL "CHJ" BASIC DIMENSIONS
Side & Side process flange arrangement shown
(Side & Bottom shown dotted lines)

CHJ																				
Model CHJ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				

1. **LEVEL TRANSMITTER and RESOLUTION:** 0 = No transmitter required.; A = 0.196" (5mm); B = 0.39" (10mm); C = 0.59" (15mm); D = 0.787" (20mm). All KSR transmitters are 4-20mA output loop powered. Models BTX and BTXI are explosion proof and Intrinsically Safe. See transmitter specifications.
2. **TRANSMITTER HOUSING: ELECTRICAL HOUSING:** 0 = No transmitter required.; 3 = Group B explosion proof stainless steel with viewing window for LCD Indicator, dual 3/4" NPT conduit entries, 4 = NEMA 4X die cast aluminum w/ industrial gray epoxy coating & 3/4" NPT conduit entry; 7 = Group B explosion proof & NEMA 4X cast aluminum with KSR blue epoxy coating & dual 3/4" NPT conduit entries; 8 = Explosion proof (Gr B) explosion proof & NEMA 4X stainless steel with dual 3/4" NPT conduit entry. 9 = NEMA 7/9 (Group B) explosion proof cast aluminum with viewing window for LCD Indicator, dual 1/2" NPT conduit entries, KSR blue epoxy finish. LCD local indicator included.
3. **MATERIALS OF CONSTRUCTION FOR CHAMBER (Wetted Parts):** S=316 Ti Stainless steel; L=316L Stainless; C=Hastelloy C; B=Hastelloy B; and T=Titanium.
4. **CHAMBER CONSTRUCTION CLASS*:** A=150# - ANSI head flange; B=300# - ANSI head flange. **NOTE:** Unit pressure rating may be lower due to float or process connection selection.
5. **PROCESS CONNECTION SIZE AND TYPE:** F05=1/2" ANSI flange; F75=3/4" ANSI flange; F10=1.0" ANSI flange; F15=1.5" ANSI flange; F20=2.0" ANSI flange; N05=1/2" NPT/SW combination fitting; N75=3/4" NPT/SW combo; N10=1" NPT/SW combo; XXX=for special customer specified connection.
6. **CONNECTION CLASS*:** A=150# ANSI, B=300# ANSI, C=600# ANSI, N=NPT and socket weld fittings equals chamber rating; X=Special. Maximum pressure rating is dependent upon the minimum rating among the flanges, float or chamber pressure rating.
7. **PROCESS CONNECTION ORIENTATION:** H = Horizontal (side & side) connections off the float chamber body (this option also comes standard with a 3/4" NPT plugged drain at chamber bottom; V= Vertical (side and bottom), upper connection is horizontally oriented and the bottom connection is made from the bottom of the float chamber inspection flange.
8. **MEASURING RANGE:** 1_____ =Length in inches & tenths (_____) Example: 114- 1/2" ,enter 1114.5.
2_____ =Length in full millimeters (_____) Example: 356 mm, enter 20356.
9. **FLOAT SELECTION (Materials):** S = 316Ti stainless steel float; T = Titanium float.
10. **MAGNETIC SIGHT GLASS:** 0 = None required; 1 = Standard, aluminum housing with thermo-plastic indicators(390 F max.); 2 = Stainless steel housing with thermo-plastic indicators (392 °F max. temp.); 3 = High temp ceramic indicators & aluminum housing (840°F max. temp.); 4= High temp. ceramic indicators and stainless steel housing, (840°F max. temp.).
11. **SIGHT GLASS SCALE:** 0=none; 1=Aluminum w/inches; 2=Aluminum w/millimeters; 3=Stainless steel w/inches; 4=Stainless steel w/millimeters. X= Special Scale, please specify on Application Data Sheet.
12. **ADJUSTABLE LEVEL SWITCHES:** 0 = none; 1=General Purpose (MRS-2-4X) NEMA 4X type with 1/2" conduit entry, 2=Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP); 3=Explosion Proof with dual 3/4" NPT conduit entry, 5 amp dry contact type (MMS-5-XP); 4 = DPDT Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-DPDT); 5 = DPDT Weather Proof with 1/2" NPT conduit entry, (MRS-2-4X-DPDT); 6=General purpose (MRS-2-SS) stainless housing with 39" silicon lead wire; 8= High temp explosion proof (MRS-2-XP-HT), 9 = DPDT High Temp, Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-HT-DPDT); .
13. **LEVEL SWITCHES-QUANTITY:** 0=none; 1 THROUGH 9. Allow 4-1/2" minimum dimension between switches. Switches may be mounted closer than 4-1/2" if mounted on opposing sides of the magnetic sight glass housing.
14. **HEATING MEDIUM CONNECTION SIZE AND TYPE:** F05=1/2" ANSI flange; F75=3/4" ANSI flange; F10=1.0" ANSI flange; N05=1/2" NPT/ SW combination fitting; N75=3/4" NPT/SW combo; N10=1" NPT/SW combo; XXX=for special customer specified connection.
15. **HEATING MEDIUM CONNECTION CLASS*:** A=150# ANSI, 230 PSI Maximum operating pressure for heating connections.
16. **HEATING MEDIUM CONNECTION ORIENTATION:** H = Horizontal only, (side & side) connections off the float chamber body.

Select the float that is closest to your fluids normal operating specific gravity as possible. Proper float selection optimizes the accuracy of the magnetic sight glass unit by placing the sensing magnet directly at the liquid level surface. The Zero Offset density number for each float part number allows the float to project from the liquid level 1.97" (50mm). This 1.97" dimension is the magnetic center for the float magnet.

Be sure to allow for variances in your fluid density due to temperature changes.

CHJ Stainless Steel Floats

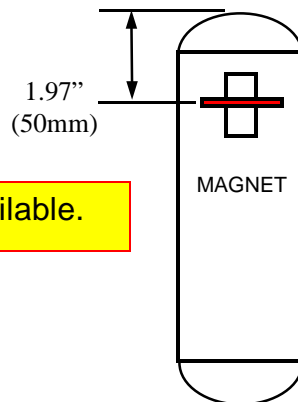
Working Pressure: 230 PSI (1.6MPa)
Working Temperature: 392 °F (200 C)*

Part Number	Sp. Gr. for Zero Offset
ZVS200/1,6/200/K2	1.13
ZVS250/1,6/200/K2	0.95
ZVS300/1,6/200/K2	0.84
ZVS350/1,6/200/K2	0.76
ZVS400/1,6/200/K2	0.71
ZVS450/1,6/200/K2	0.67

CHJ Titanium Alloy Floats

Working Pressure: 230 PSI (1.6MPa)
Working Temperature: 392 °F (200 C)*

Part Number	Sp. Gr. for Zero Offset
ZTS150/1,6/200/K2	1.32
ZTS200/1,6/200/K2	0.96
ZTS250/1,6/200/K2	0.78
ZTS300/1,6/200/K2	0.66
ZTS350/1,6/200/K2	0.61
ZTS400/1,6/200/K2	0.57
ZTS450/1,6/200/K2	0.53
ZTS500/1,6/200/K2	0.49



* Higher temperature floats available.

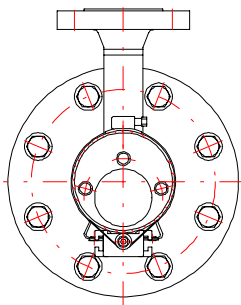
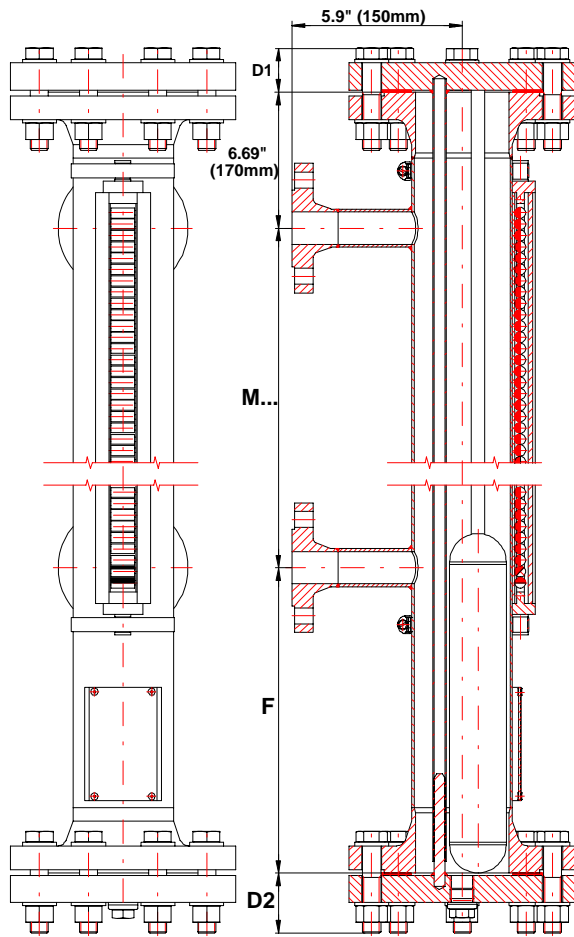
Hastelloy C & B floats are available for model HJ. Please phone 1-888-KSR-LEVEL with your needs.

KSR Kuebler floats get their numerical number from their length in millimeters. For example, a ZVS250 is 250mm in length.

The float above shows the optimum magnet location while in service. The balance of the float length is immersed in the liquid.

KSR Kuebler can also calibrate floats for interface applications. Please consult KSR Kuebler for interface calibrated floats.

Magnetic Sight Glass Model CLG, for Liquid Gas Applications



M = Measuring Range
 F = Float Length - 1.18" (30mm)
 D1 is approx. 1.6" (40mm)
 D2 is approx. 2.1" (53mm)

MODEL "CLG25" GENERAL SPECIFICATIONS

Chamber: $\varnothing 2.37" \times 0.078"$ (60.3 x 2mm)

Chamber end top: Welding cap or flat top or flanged ANSI 2" 300 lb
 Options: - Vent plug - Vent valve, Vent flange

Chamber end bottom: ANSI 2" 150lb or 300 lb with drain plug $\frac{1}{2}"$ NPT
 Options: - Drain valve, Drain flange

Process connections: side-side, side-bottom.
 Flanges to 300 lb, ANSI B 16.5 ; $\frac{1}{2}"$ - 2", NPT thread or welding stubs.
 Optional: top and side, top and bottom connections.

Heating jacket connections: side-side.
 Flanged 150 lb, ANSI B 16.5 ; $\frac{1}{2}"$ - 2", NPT thread or welding stubs.

Distance center-to-center: min. 6" (150mm) to max. 240" (6000mm) distance between flange centers (other dimensions on request).

Float: Type Z.SS...
 Length of float depending on S.G.

Chamber Material: Stainless steel 1.4571 or 316L.
 Other Materials on request

Nominal pressure

Process: max. 232 PSI / 1.6 MPa to 362 PSI / 2.5 MPa
 Depending on chamber flange or float

Temperature range: -22°F(-30C) to +840°F(+450C)
 (according to design and options)

Magnetic Roller Display Types:

Red & White thermo-plastic indicators, aluminum housing-max. 390°F (200C) or
 Blue & White ceramic indicators with stainless steel housing, up to 840 degrees°F (450 C).

Further options:

Magnetic switches:

Level Sensors:

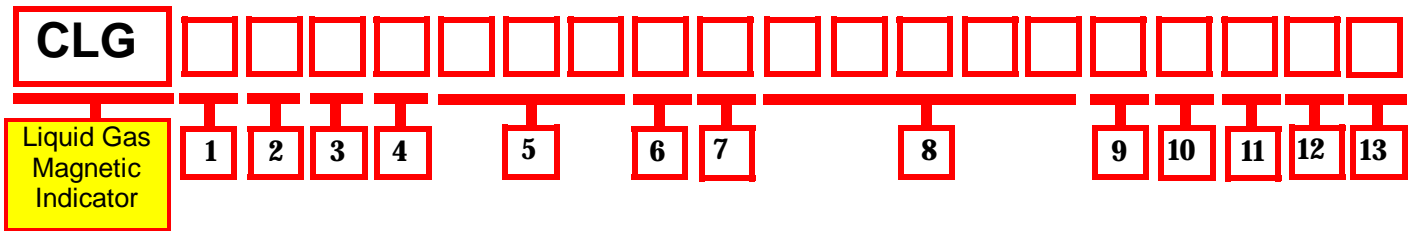
Electr. trace heating: on request

Chamber insulation: on request

MODEL "CLG" BASIC DIMENSIONS

Side & Side flange arrangement shown
 (Side & Bottom shown dotted lines)





Minimum specific gravity for Model CLG is .53 (with Titanium Float). Maximum pressure for CLG is 360 PSI

1. LEVEL TRANSMITTER and RESOLUTION: **0** = No transmitter required.; **A** = .196" (5mm); **B** = .39" (10mm); **C** = .59" (15mm); **D** =.787" (20mm). All KSR transmitters are FM Intrinsically Safe and are 4-20mA output loop powered. Models BTX and BTXI are explosion proof and Intrinsically Safe. Maximum process temperature for Model C25 with transmitter is 570 °F.

2. TRANSMITTER HOUSING: ELECTRICAL HOUSING: **0** = No transmitter required.; **3** = Group B explosion proof stainless steel with viewing window for LCD Indicator, dual 3/4" NPT conduit entries, **4** = NEMA 4X die cast aluminum w/ industrial gray epoxy coating & 3/4" NPT conduit entry; **7** = Group B explosion proof & NEMA 4X cast aluminum with KSR blue epoxy coating & dual 3/4" NPT conduit entries; **8** = Explosion proof (Gr B) explosion proof & NEMA 4X stainless steel with dual 3/4" NPT conduit entry. **9** = NEMA 7/9 (Group B) explosion proof cast aluminum with viewing window for LCD Indicator, dual 1/2" NPT conduit entries, KSR blue epoxy finish. LCD local indicator included.

3. MATERIALS OF CONSTRUCTION FOR CHAMBER (Wetted Parts): **S**=316 Ti Stainless steel; **L**=316L Stainless.

4. CHAMBER CONSTRUCTION CLASS*: **A**=150# - ANSI head flange; **B**=300# - ANSI head flange. **NOTE:** Unit pressure rating may be lower due to float or process connection selection.

5. PROCESS CONNECTION SIZE AND TYPE: **F05**=1/2" ANSI flange; **F75**=3/4" ANSI flange; **F10**=1.0" ANSI flange; **F15**=1.5" ANSI flange; **F20**=2.0" ANSI flange; **N05**=1/2" NPT/SW combination fitting; **N75**=3/4" NPT/SW combo; **N10**=1" NPT/SW combo; **XXX**=for special customer specified connection. Flange rating defaults to chamber pressure class selected.

6. CONNECTION CLASS*: **A**=150# ANSI, **B**=300# ANSI, **C**=600# ANSI, **N**=NPT or socket weld fittings; **X**=Special. Maximum pressure rating is dependent among the process flange rating, float or chamber pressure rating.

7. CONNECTION ORIENTATION: **H** = Horizontal (side & side) connections off the float chamber body (this option also comes standard with a 3/4" NPT plugged and safety wired drain at chamber bottom; **V**= Vertical (side and bottom), upper connection is horizontally oriented and the bottom connection is made from the bottom of the float chamber inspection flange.

8. MEASURING RANGE: 1_ _ _ _ =Lenght in inches & tenths (_ _ _ . _) Example: 114- 1/2" ,enter 1114.5.
2_ _ _ _ =Lenght in full millimeters (_ _ _ _) Example: 356 mm, enter 20356.

9. FLOAT SELECTION (Materials): **S** = 316Ti stainless steel float; **B** = Hastelloy B float; **C** = Hastelloy C float; **T** = Titanium float.

10. MAGNETIC SIGHT GLASS: **0** = None required; **1** = Standard, aluminum housing with thermo-plastic indicators(390 F max.); **2** = Stainless steel housing with thermo-plastic indicators (392 °F max. temp.); **3** = High temp ceramic indicators & aluminum housing (810°F max. temp.); **4**= High temp. ceramic indicators and stainless steel housing.

11. SIGHT GLASS SCALE: **0**=none; **1**=Aluminum w/inches; **2**=Aluminum w/millimeters; **3**=Stainless steel w/inches; **4**=Stainless steel w/millimeters. **X**= Special Scale, please specify on Application Data Sheet.

12. ADJUSTABLE LEVEL SWITCHES: **0** = none; **1**=General Purpose (MRS-2-4X) NEMA 4X type with 1/2" conduit entry, **2**=Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP); **3**=Explosion Proof with dual 3/4" NPT conduit entry, 5 amp dry contact type (MMS-5-XP); **4** = DPDT Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-DPDT); **5** = DPDT Weather Proof with 1/2" NPT conduit entry, (MRS-2-4X-DPDT); **6**=General purpose (MRS-2-SS) stainless housing with 39" silicon lead wire; **8**= High temp explosion proof (MRS-2-XP-HT), **9** = DPDT High Temp, Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-HT-DPDT); .

13. LEVEL SWITCHES-QUANTITY: **0**=none; **1** thru **9**. Allow 4-1/2" minimum dimension between switches. Switches may be mounted closer than 4-1/2" if mounted on opposing sides of the magnetic sight glass housing.

Select the float that is closest to your fluids normal operating specific gravity as possible. Proper float selection optimizes the accuracy of the magnetic sight glass unit by placing the sensing magnet directly at the liquid level surface. The Zero Offset density number for each float part number allows the float to project from the liquid level 1.97" (50mm). This 1.97" dimension is the magnetic center for the float magnet.

Be sure to allow for variances in your fluid density due to temperature changes.

CLG Stainless Steel Floats

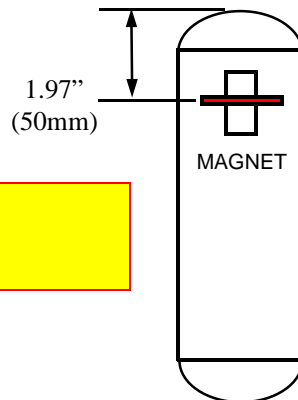
Working Pressure: 362 PSI (2.5MPa)
 Working Temperature:
 -148°F (-100°C) to +392 ° F (200 C)*

Part Number	Sp. Gr. for Zero Offset
ZVS200/2.5/200/K2	1.16
ZVS250/2.5/250/K2	0.97
ZVS300/2.5/300/K2	0.85
ZVS350/2.5/350/K2	0.78
ZVS400/2.5/400/K2	0.73
ZVS450/2.5/450/K2	0.69

CLG Titanium Alloy Floats

Working Pressure: 362 PSI (2.5MPa)
 Working Temperature:
 -148°F (-100°C) to +392 ° F (200 C)*

Part Number	Sp. Gr. for Zero Offset
ZTS150/2.5/200/K2	1.32
ZTS200/2.5/200/K2	0.96
ZTS250/2.5/200/K2	0.78
ZTS300/2.5/200/K2	0.66
ZTS350/2.5/200/K2	0.61
ZTS400/2.5/200/K2	0.57
ZTS450/2.5/200/K2	0.53
ZTS500/2.5/200/K2	0.53



* Higher temperature floats available.

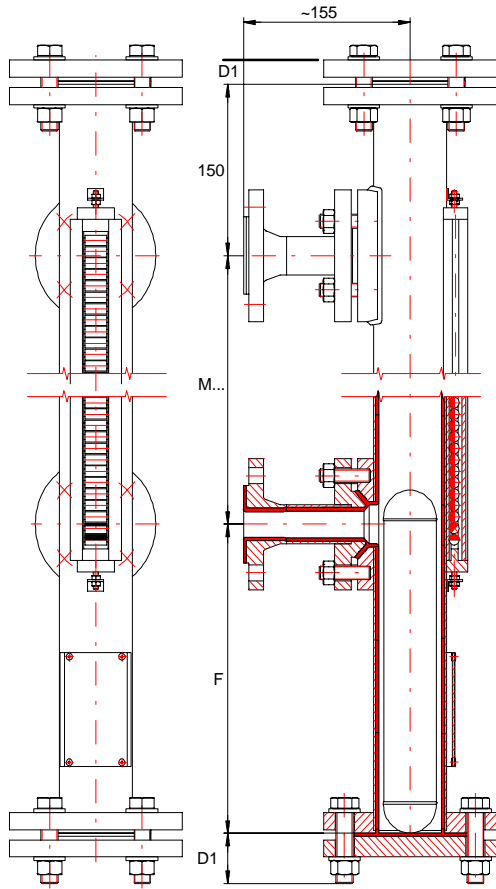
Hastelloy C & B floats are available for model CLG. Please phone 1-888-KSR-LEVL with your needs.

KSR Kuebler floats get their numerical number from their length in millimeters. For example, a ZVS250 is 250mm in length.

The float above shows the optimum magnet location while in service. The balance of the float length is immersed in the liquid.

KSR Kuebler can also calibrate floats for interface applications. Please consult KSR Kuebler for interface calibrated floats.

Magnetic Sight Glass Model CTL, for Applications Requiring TFE Wetted Parts



M = Measuring Range
 F = Float Length - 1.18" (30mm)
 D1 is approx. 1.6" (40mm)
 D2 is approx. 2.1" (53mm)

MODEL "CTL" GENERAL SPECIFICATIONS

Chamber: 2.75" x .080" (ø70 x 2mm)

Chamber end top: Flanged
 Options: - Vent flange

Chamber end bottom: Flanged
 Options: - Drain flange

Process connections: side-side, side-bottom.
 Flanges to 300 lb, ANSI B 16.5 ;
 Optional: top and side, top and bottom connections.

Distance center-to-center: min. 12" (300mm) to max. 240" (6000mm) distance between flange centers (other dimensions on request).

Float: Type Z..ECS.../1,6/200/K2
 Length of float depending on S.G.

Material: 316 L Stainless or Stainless steel 1.4571 (similar SS 316 Ti) PTFE-lined

Lining: 3mm wall thickness
 vacuum-proof

Nominal pressure: 145 PSI max. (1 MPa)

Temperature range: depending on liquid

Magnetic Roller Display Types:
 Red & White thermo-plastic indicators, aluminum housing- max. 390°F (200C) or
 Blue & White ceramic indicators with stainless steel housing, up to 840 degrees°F (450 C).

Further options:

Magnetic switches:

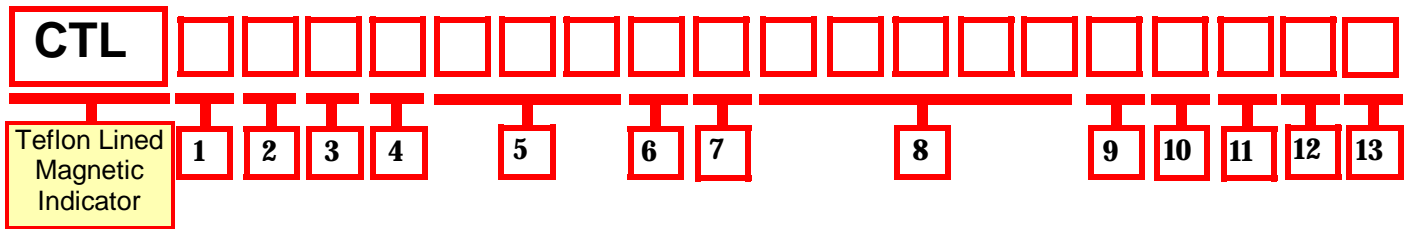
Level Sensors:

Electr. trace heating: on request

Chamber insulation: on request

Teflon Lined Magnetic Indicator
 This unit design features a Teflon lining, rather than a coating

MODEL "CTL" BASIC DIMENSIONS
 Side & Side flange arrangement shown
 (Side & Bottom -consult factory)



Minimum specific gravity for Model CTL is .61 (with TFE coated Titanium Float).
 Maximum pressure for CTL is 145 PSI

1. LEVEL TRANSMITTER and RESOLUTION: 0 = No transmitter required.; A = .196" (5mm); B = .39" (10mm); C = .59" (15mm); D =.787" (20mm). All KSR transmitters are FM Intrinsically Safe and are 4-20mA output loop powered. Models BTX and BTXI are explosion proof and Intrinsically Safe.

2. TRANSMITTER HOUSING: ELECTRICAL HOUSING: 0 = No transmitter required.; 3 = Group B explosion proof stainless steel with viewing window for LCD Indicator, dual 3/4" NPT conduit entries, 4 = NEMA 4X die cast aluminum w/ industrial gray epoxy coating & 3/4" NPT conduit entry; 7 = Group B explosion proof & NEMA 4X cast aluminum with KSR blue epoxy coating & dual 3/4" NPT conduit entries; 8 = Explosion proof (Gr B) explosion proof & NEMA 4X stainless steel with dual 3/4" NPT conduit entry. 9 = NEMA 7/9 (Group B) explosion proof cast aluminum with viewing window for LCD Indicator, dual 1/2" NPT conduit entries, KSR blue epoxy finish. LCD local indicator included.

3. MATERIALS OF CONSTRUCTION FOR CHAMBER (Wetted Parts): S=316 Ti Stainless steel; L=316L Stainless.

4. CHAMBER CONSTRUCTION CLASS*: A=150# - ANSI head flange; B=300# - ANSI head flange. **NOTE:** Unit pressure rating may be lower due to float or process connection selection.

5. PROCESS CONNECTION SIZE AND TYPE: F05=1/2" ANSI flange; F75=3/4" ANSI flange; F10=1.0" ANSI flange; F15=1.5" ANSI flange; F20=2.0" ANSI flange; XXX=for special customer specified connection. Flange rating defaults to chamber pressure class selected.

6. CONNECTION CLASS*: A=150# ANSI, B=300# ANSI, X=Special. Maximum pressure rating is dependent among the process flange rating, float or chamber pressure rating.

7. CONNECTION ORIENTATION: H = Horizontal (side & side) connections off the float chamber body (this option also comes standard with a 3/4" NPT plugged and safety wired drain at chamber bottom; V= Vertical (side and bottom), upper connection is horizontally oriented and the bottom connection is made from the bottom of the float chamber inspection flange.

8. MEASURING RANGE: 1_ _ _ _ =Lenght in inches & tenths (_ _ _ . _) Example: 114- 1/2" ,enter 1114.5.
 2_ _ _ _ =Lenght in full millimeters (_ _ _ _) Example: 356 mm, enter 20356.

9. FLOAT SELECTION (Materials): S = Teflon coated 316Ti stainless steel float; T = Teflon coated Titanium float.

10. MAGNETIC SIGHT GLASS: 0 = None required; 1 = Standard, aluminum housing with thermo-plastic indicators(390 F max.);
 2 = Stainless steel housing with thermo-plastic indicators (392 °F max. temp.); 3 = High temp ceramic indicators & aluminum housing (810°F max. temp.); 4= High temp. ceramic indicators and stainless steel housing.

11. SIGHT GLASS SCALE: 0=none; 1=Aluminum w/inches; 2=Aluminum w/millimeters; 3=Stainless steel w/inches; 4=Stainless steel w/millimeters. X= Special Scale, please specify on Application Data Sheet.

12. ADJUSTABLE LEVEL SWITCHES: 0 = none; 1=General Purpose (MRS-2-4X) NEMA 4X type with 1/2" conduit entry, 2=Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP); 3=Explosion Proof with dual 3/4" NPT conduit entry, 5 amp dry contact type (MMS-5-XP); 4 = DPDT Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-DPDT); 5 = DPDT Weather Proof with 1/2" NPT conduit entry, (MRS-2-4X-DPDT); 6=General purpose (MRS-2-SS) stainless housing with 39" silicon lead wire; 8= High temp explosion proof (MRS-2-XP-HT), 9 = DPDT High Temp, Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-HT-DPDT); .

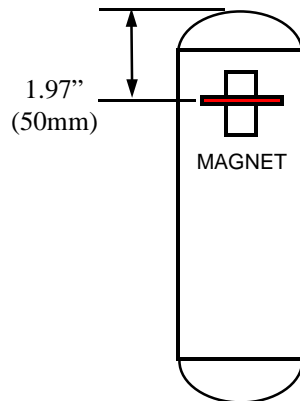
13. LEVEL SWITCHES-QUANTITY: 0=none; 1 THROUGH 9. Allow 4-1/2" minimum dimension between switches. Switches may be mounted closer than 4-1/2" if mounted on opposing sides of the magnetic sight glass housing.

Select the float that is closest to your fluids normal operating specific gravity as possible. Proper float selection optimizes the accuracy of the magnetic sight glass unit by placing the sensing magnet directly at the liquid level surface. The Zero Offset density number for each float part number allows the float to project from the liquid level 1.97" (50mm). This 1.97" dimension is the magnetic center for the float magnet.

Be sure to allow for variances in your fluid density due to temperature changes.

CTL Stainless Steel Floats Teflon (E-CTFE) Coated	
Working Pressure: 232 PSI (1.6MPa)	
Working Temperature: -148°F (-100°C) to +392 ° F (200 C)*	
<u>Part Number</u>	<u>Sp. Gr. for Zero Offset</u>
ZVECS200/1.6/200/B2	1.39
ZVECS250/1.6/200/B2	1.15
ZVECS300/1.6/200/B2	1.01
ZVECS350/1.6/200/B2	0.91
ZVECS400/1.6/200/B2	0.85
ZVECS450/1.6/200/B2	0.80

CTL Titanium Alloy Floats Teflon (E-CTFE) Coated	
Working Pressure: 232 PSI (1.6MPa)	
Working Temperature: -148°F (-100°C) to +392 ° F (200 C)*	
<u>Part Number</u>	<u>Sp. Gr. for Zero Offset</u>
ZTECS150/1.6/200/B2	1.68
ZTECS200/1.6/200/B2	1.20
ZTECS250/1.6/200/B2	0.98
ZTECS300/1.6/200/B2	0.85
ZTECS350/1.6/200/B2	0.77
ZTECS400/1.6/200/B2	0.70
ZTECS450/1.6/200/B2	0.66
ZTECS500/1.6/200/B2	0.61



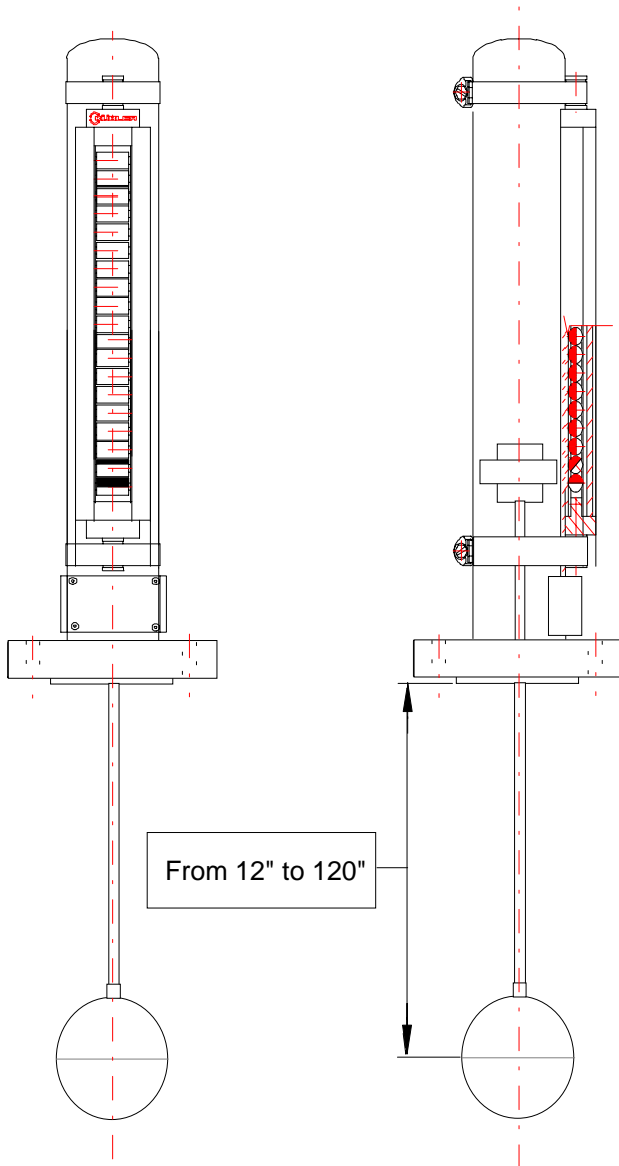
Engineering Plastics plus Hastelloy C & B floats are available for model CTL. Please phone 1-888-KSR-LEVL with your needs.

KSR Kuebler floats get their numerical number from their length in millimeters. For example, a ZVECS250 is 250mm in length.

The float above shows the optimum magnet location while in service. The balance of the float length is immersed in the liquid.

KSR Kuebler can also calibrate floats for interface applications. Please consult KSR Kuebler for interface calibrated floats.

Magnetic Sight Glass Model TM, for Top of Tank Applications



MODEL TM GENERAL SPECIFICATIONS

Magnetic Sight Glass Chamber: $\varnothing 2.37'' \times 0.078''$ (60.3 x 2mm)

Chamber end top: Welding cap or flat top or flanged to ANSI 2" 300 lb
Options: - Vent plug - Vent valve, Vent flange

Tank Mounting Connection: ANSI 2" to 6" 150lb or 300 lb

Float: Type Z.SS...
Length of float depending on S.G.

Sight Glass Chamber Material: Stainless steel 1.4571 or 316L.
Other Materials on request

Nominal pressure

Process: max. 232 PSI / 1.6 MPa to 362 PSI / 2.5 MPa
Depending on chamber flange or float

Chamber Temperature range: -22°F(-30C) to +572°F(+300 C)
(according to design and options)

Magnetic Roller Display Types:

Red & White thermo-plastic indicators, aluminum housing-max. 390°F (200C) or
Blue & White ceramic indicators with stainless steel housing, up to 572°F(+300 C)

Further options:

Magnetic switches:

Level Sensors:

Electr. trace heating: on request

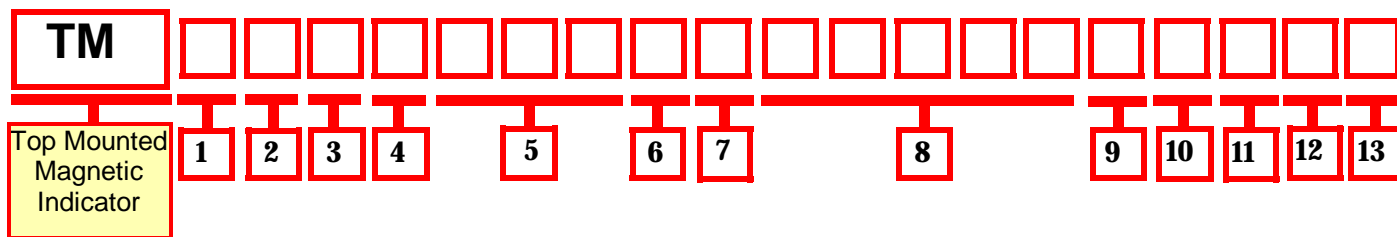
Chamber insulation: on request

MODEL TM BASIC DIMENSIONS

Top of Tank Mounted
Magnetic Sight Glass Unit



TOLL FREE 1-888-577-5385



Minimum specific gravity for Model TM is .60 (with Titanium Float). Maximum pressure for model TM is 360 PSI

1. LEVEL TRANSMITTER and RESOLUTION: **0** = No transmitter required.; **A** = .196" (5mm); **B** = .39" (10mm); **C** = .59" (15mm); **D** =.787" (20mm). All KSR transmitters are FM Intrinsically Safe and are 4-20mA output loop powered. Models BTX and BTXI are explosion proof and Intrinsically Safe.

2. TRANSMITTER HOUSING: ELECTRICAL HOUSING: **0** = No transmitter required.; **3** = Group B explosion proof stainless steel with viewing window for LCD Indicator, dual 3/4" NPT conduit entries, **4** = NEMA 4X die cast aluminum w/ industrial gray epoxy coating & 3/4" NPT conduit entry; **7** = Group B explosion proof & NEMA 4X cast aluminum with KSR blue epoxy coating & dual 3/4" NPT conduit entries; **8** = Explosion proof (Gr B) explosion proof & NEMA 4X stainless steel with dual 3/4" NPT conduit entry. **9** = NEMA 7/9 (Group B) explosion proof cast aluminum with viewing window for LCD Indicator, dual 1/2" NPT conduit entries, KSR blue epoxy finish. LCD local indicator included.

3. MATERIALS OF CONSTRUCTION FOR CHAMBER (Wetted Parts): **S**=316 Ti Stainless steel; **L**=316L Stainless.

4. CHAMBER CONSTRUCTION CLASS*: **A**=150# - ANSI mounting flange; **B**=300# - ANSI mounting flange. **NOTE:** Unit pressure rating may be lower due to float or process connection selection.

5. PROCESS CONNECTION SIZE AND TYPE: **F25**=2.5" ANSI flange; **F30**=3.0" ANSI flange; **F40**=4.0" ANSI flange; **F50**=5.0" ANSI flange; **F20**=6.0" ANSI flange; **XXX**=for special customer specified connection. Flange rating defaults to chamber pressure class selected.

6. CONNECTION CLASS*: **A**=150# ANSI; **B**=300# ANSI; **C**=600# ANSI; **X**=Special. Maximum pressure rating is dependent among the process flange rating, float or chamber pressure rating.

7. INDICATOR BODY PRESSURE RATING*: **A**=232 PSI (16 BAR); **B**= 362 PSI (25 BAR).

8. MEASURING RANGE: 1____=Lenght in inches & tenths (_____) Example: 30- 1/2" ,enter 1030.5.
Max. Length is 72" 2____=Lenght in full millimeters (_____) Example: 356 mm, enter 20356.

9. FLOAT SELECTION (Materials): **S** = 316Ti stainless steel float; **B** = Hastelloy B float; **C** = Hastelloy C float; **T** = Titanium float.

10. MAGNETIC SIGHT GLASS: **0** = None required; **1** = Standard, aluminum housing with thermo-plastic indicators(390 F max.);

2 = Stainless steel housing with thermo-plastic indicators (392 °F max. temp.); **3** = High temp ceramic indicators & aluminum housing (810°F max. temp.); **4**= High temp. ceramic indicators and stainless steel housing.

11. SIGHT GLASS SCALE: **0**=none; **1**=Aluminum w/inches; **2**=Aluminum w/millimeters; **3**=Stainless steel w/inches; **4**=Stainless steel w/millimeters. **X**= Special Scale, please specify on Application Data Sheet.

12. ADJUSTABLE LEVEL SWITCHES: **0** = none; **1**=General Purpose (MRS-2-4X) NEMA 4X type with 1/2" conduit entry, **2**=Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP); **3**=Explosion Proof with dual 3/4" NPT conduit entry, 5 amp dry contact type (MMS-5-XP); **4** = DPDT Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-DPDT); **5** = DPDT Weather Proof with 1/2" NPT conduit entry, (MRS-2-4X-DPDT); **6**=General purpose (MRS-2-SS) stainless housing with 39" silicon lead wire; **8**= High temp explosion proof (MRS-2-XP-HT), **9** = DPDT High Temp, Explosion Proof with dual 3/4" NPT conduit entry, (MRS-2-XP-HT-DPDT); .

13. LEVEL SWITCHES-QUANTITY: **0**=none; **1** THROUGH **9**. Allow 4-1/2" minimum dimension between switches. Switches may be mounted closer than 4-1/2" if mounted on opposing sides of the magnetic sight glass housing.

Models TM16 (150# Class) Cylindrical Float Selection

TM16 Stainless Steel Floats

Working Pressure: 290 PSI (2MPa)
Working Temperature: 480 °F (250 C)*

Part Number	Specific Gravity
ZVS150TM16	1.42
ZVS200TM16	1.08
ZVS250TM16	0.88
ZVS300TM16	0.78
ZVS350TM16	0.72
ZVS400TM16	0.68
ZVS450TM16	0.63

TM16 Titanium Alloy Floats

Working Pressure: 230 PSI (1.6MPa)
Working Temperature: 480 °F (250 C)*

Part Number	Specific Gravity
ZTS150TM16	0.94
ZTS200TM16	0.86
ZTS250TM16	0.70
ZTS300TM16	0.60
ZTS350TM16	0.54
ZTS400TM16	0.51
ZTS450TM16	0.48

Model TM25 (300# Class) Cylindrical Float Selection

TM25 Stainless Steel Floats

Working Pressure: 362 PSI (2.5 MPa)
Working Temperature: 392 °F (200 C)*

Part Number	Specific Gravity
ZVS200TM25	1.03
ZVS250TM25	0.87
ZVS300TM25	0.78
ZVS350TM25	0.72
ZVS400TM25	0.67
ZVS450TM25	0.64

M25 Titanium Alloy Floats

Working Pressure: 362 PSI (2.5 MPa)
Working Temperature: 392 °F (200 C)*

Part Number	Specific Gravity
ZTS150TM25	1.14
ZTS200TM25	0.85
ZTS250TM25	0.71
ZTS300TM25	0.64
ZTS350TM25	0.58
ZTS400TM25	0.54
ZTS450TM25	0.51
ZTS500TM25	0.48

Magnetic Sight Glass Models TM16 & TM25
Spherical (Ball) Float Selection

Float Part #	Float Mat'l	Float Dia.	Float Ht.	Float S.G.	Max. Press.	Max. Temp.
SVD-TM	316Ti S/S	4.13" (105mm)	4.01" (102mm)	.55 (.55g/cm3)	362.5PSI (25Bars)	482°F (250C)
SVF23-TM	316Ti S/S	4.72" (120mm)	4.60" (117mm)	.42 (.42g/cm3)	362.5PSI (25Bars)	482°F (250C)
SVF38-TM	316Ti S/S	4.72" (120mm)	4.48" (114mm)	.60 (.60g/cm3)	362.5PSI (25Bars)	482°F (250C)
SV200-TM	316Ti S/S	7.87" (200mm)	7.55" (192mm)	.55 (.55g/cm3)	232PSI (16Bars)	482°F (250C)
SV300-TM	316Ti S/S	11.81" (300mm)	11.57" (294mm)	.40 (.40g/cm3)	232PSI (16Bars)	482°F (250C)



TOLL FREE 1-888-577-5385

TRANSMITTER MODEL "BT" - HOW IT WORKS

TYPE "BT" MAGNETIC TRANSMITTER

KSR Level Sensors are used to measure and transmit the level of liquids in conjunction with a KSR output control unit. It is based on magnetic interaction in a 3-wire potentiometer circuit.

A float with a built-in magnetic system actuates small reed contacts through the pressure boundary wall of the float chamber. These special KSR Kuebler reed switches form a resistance measuring chain that continuously generates a voltage proportional to the height of the liquid level.

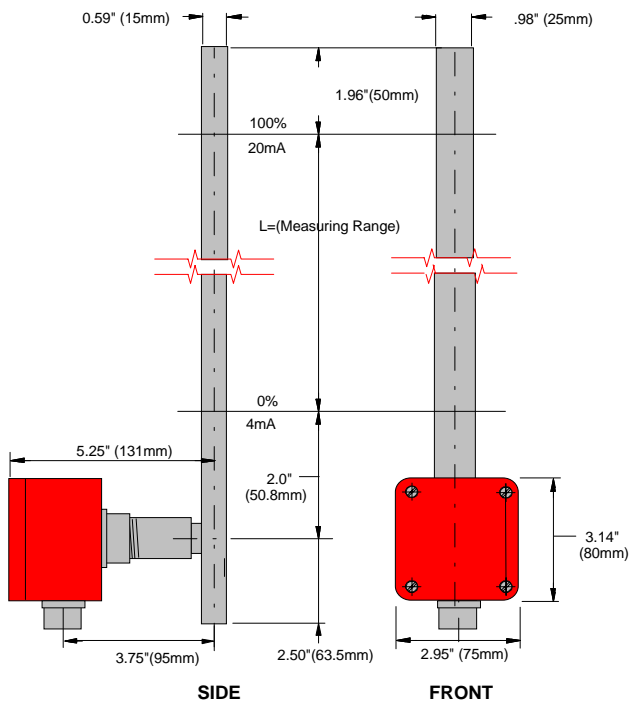
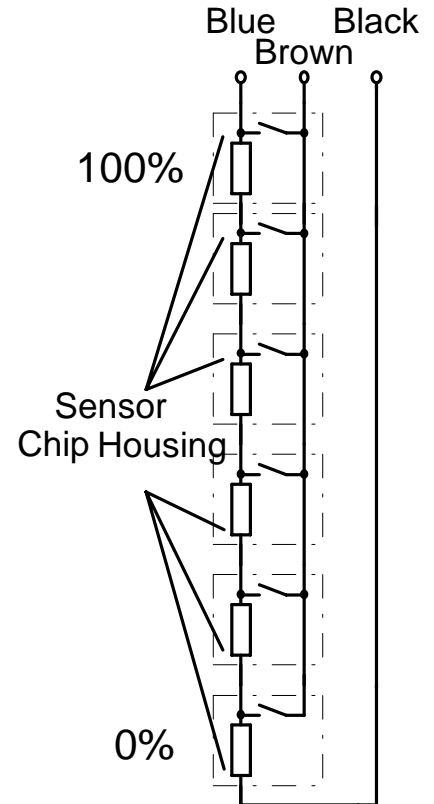
The resistance measuring chain is closely stepped and is made up from special small KSR chips positioned along a PCB. Due to this assembly the generated voltage is approximately continuous. The custom electronics converts the voltage change to a standard 4-20mA output signal.

The drawing at right depicts the internals of a KSR Kuebler transmitter. This design assures that there are always at least two contacts in the magnetic field, giving unmatched reliability.

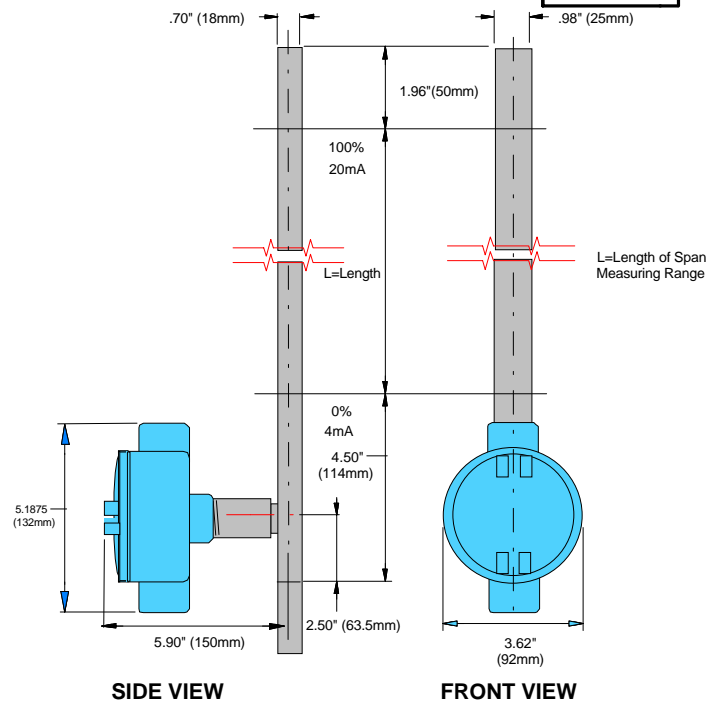
KSR Bypass transmitters are a completely independent system and can be fitted to a KSR Magnetic Gauge at any time. Due to its non-invasive design, the model "BT" may be removed from service without entry into the process, nor does the process need to be disturbed in any way.

Built for rugged industrial applications, the model "BT" transmitter is designed to give years of trouble free operation. Designed to be maintenance free, the KSR model "BT" never requires re-calibration.

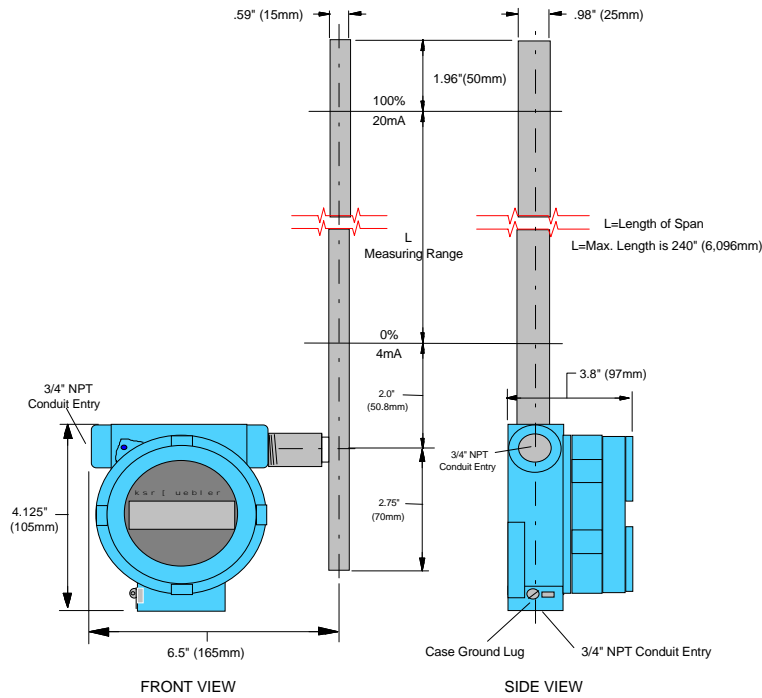
Depending on requirements and design several different contact separations (resolution) are available from KSR USA.



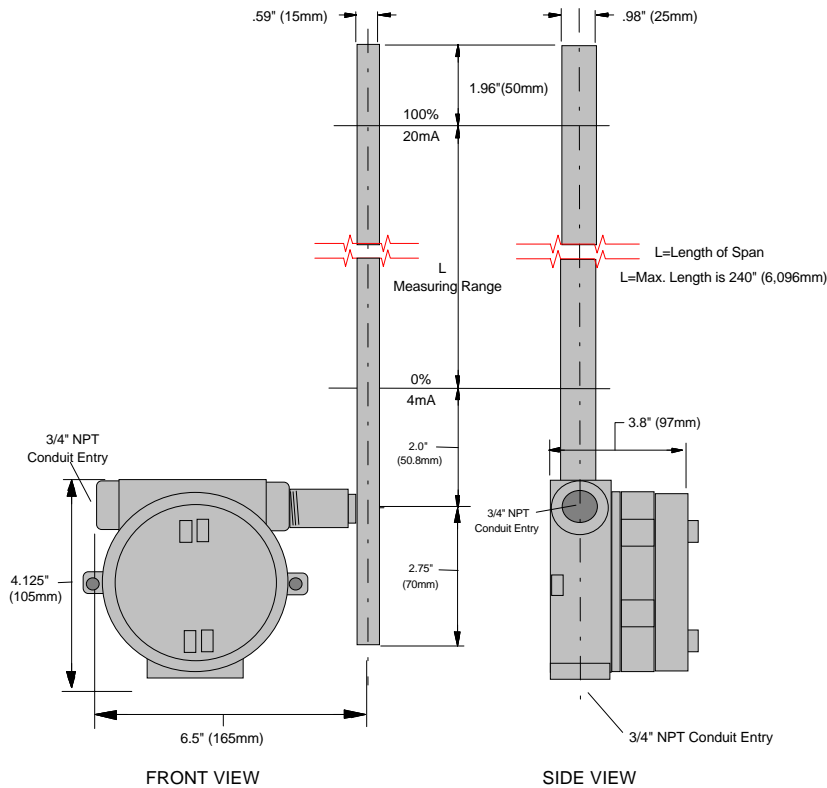
KSR KUEBLER MODEL BT
24VDC LOOP POWERED 4-20mA OUTPUT
INTRINSICALLY SAFE & NEMA 4 TYPE
MAGNETIC LEVEL TRANSMITTER



KSR KUEBLER MODEL BTX
24VDC LOOP POWERED
EXPLOSION PROOF (Gr.B, C & D) & INTRINSICALLY SAFE
MAGNETIC LEVEL TRANSMITTER



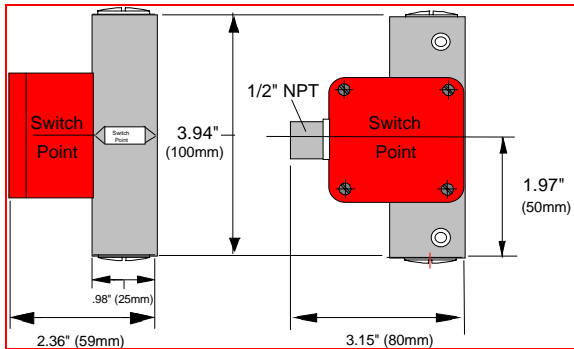
KSR KUEBLER MODEL BTXI (Cl. 1, Div. 1, Gr B)
24VDC LOOP POWERED SHOWN WITH OPTIONAL INTEGRAL LCD DISPLAY
EXPLOSION PROOF & INTRINSICALLY SAFE MAGNETIC LEVEL TRANSMITTER



KSR KUEBLER MODEL BTXSS (Cl. 1, Div. 1, Gr B)
24VDC LOOP POWERED INTEGRAL ELECTRONICS-STAINLESS HOUSING
EXPLOSION PROOF & INTRINSICALLY SAFE MAGNETIC LEVEL TRANSMITTER

MODEL "BT" TECHNICAL SPECIFICATIONS			
Transmitter Product Specification	BT Intrinsically Safe & Weatherproof Magnetic Level Transmitter	BTX (BTXSS) Explosion Proof & Intrinsically Safe Magnetic Level Transmitter	BTXI (BTXISS) Explosion Proof & Intrinsically Safe Magnetic Level Transmitter
Maximum Length	240" (6096 mm)	240" (6096 mm)	240" (6096 mm)
Maximum Resolution	0.19" (5mm)	0.19" (5mm)	0.19" (5mm)
Maximum Non-Linearity	0.1% of Span	0.1% of Span	0.1% of Span
Hysteresis	<.5mm (.020") typical	<.5mm (.020") typical	<.5mm (.020") typical
Required Power Supply (D.C. Volts)	11 to 30 Volts DC	11 to 30 Volts DC	11 to 30 Volts DC
Maximum Loop Resistance (load) @ VDC	1,000 Ohms @ 30 VDC 750 Ohms @ 24 VDC 400 Ohms @ 12 VDC	1,000 Ohms @ 30 VDC 750 Ohms @ 24 VDC 400 Ohms @ 12 VDC	1,000 Ohms @ 30 VDC 750 Ohms @ 24 VDC 400 Ohms @ 12 VDC
Max. & Min. Process Temperature*	-300°F to +500°F (-198 C to +260 C)	-300°F to +500°F (-198 C to +260 C)	-300°F to +500°F (-198 C to +260 C)
Max/Min. Electronics Ambient Temperature (Housing)	-30°F to +160°F (-20 C to +71C)	-30°F to +160°F (-20 C to +71C)	-30°F to +160°F (-20 C to +71C)
Sensor Tube Diameter	.59" x 1.0" (15 x 25 mm)	.59" x 1.0" (15 x 25 mm)	.59" x 1.0" (15 x 25 mm)
Sensor Tube Wall Thickness	.120" (3 mm)	.120" (3 mm)	.120" (3 mm)
Conduit Entry Size NEMA 4	1/2" NPT	N/A	N/A
Conduit Entry Size NEMA 7 Cast Alum. Hsg Group B	N/A	3/4" (dual is standard) Blind Housing, no LCD	3/4" (dual is standard) Hsg with LCD & Window
Conduit Entry S/Steel Hsg. NEMA 4X & Gr. B	3/4" NPT (single is standard) Intrinsically Safe Only	3/4" (dual is standard)	3/4" (dual is standard)
Hazardous Area Ratings Alum. & S/S Hsg Explosion Proof FACTORY MUTUAL	Class 1, Div. 1, Grps B, C, & D Class II, Grps E, F, & G Intrinsically Safe	Class 1, Div. 1, Grps B, C, & D Class II, Grps E, F, & G Intrinsically Safe	Class 1, Div. 1, Grps B, C, & D Class II, Grps E, F, & G Intrinsically Safe

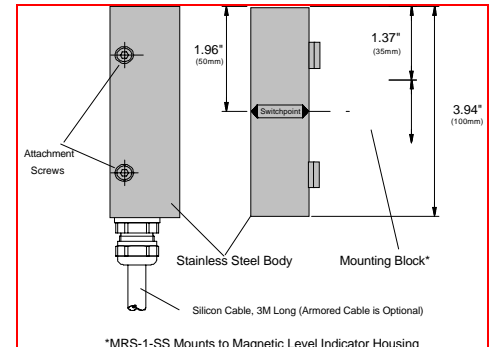
ANODIZED ALUMINUM HOUSING MAGNETIC LEVEL SWITCH



Type MRS-2-4X Specifications

Switch Type:	Magnetic Reed Contact
Contact type:	1 SPDT,
Contact behavior:	bistable (magnetically latched)
Switching capacity:	230V AC ; 60VA ; 1A
(non-inductive loads)	230V DC ; 30W ; 0,5A
Switch Type:	Glass Encapsulated
	(Hermetically Sealed)
Hysteresis:	2-3mm Typical
Max. Amb. Temperature:	302°F (150°C)
Switch Housing:	Aluminum, anodized
Terminal box:	Aluminum/Epoxy Painted
Termination Type:	Terminal Block
Housing protection:	NEMA 4X & IP65
Conduit Entry:	1/2" NPT Female

STAINLESS STEEL HOUSING MAGNETIC LEVEL SWITCH



*MRS-1-SS Mounts to Magnetic Level Indicator Housing

Type MRS-2-SS Specifications

Switch Type:	Magnetic Reed Contact
Contact type:	1 SPDT,
Contact behavior:	bistable (magnetically latched)
Switching capacity:	230V AC ; 60VA ; 1A
(non-inductive loads)	230V DC ; 30W ; 0,5A
Switch Type:	Glass Encapsulated
	(Hermetically Sealed)
Hysteresis:	2-3mm Typical
Max. Amb. Temperature:	302°F (150°C)
Switch Housing:	Series 300 Stainless Steel
Termination:	1 M (39") of Silicon Lead Wire
Housing protection:	NEMA 4X & IP65
Connection Type:	39" Silicone Cable

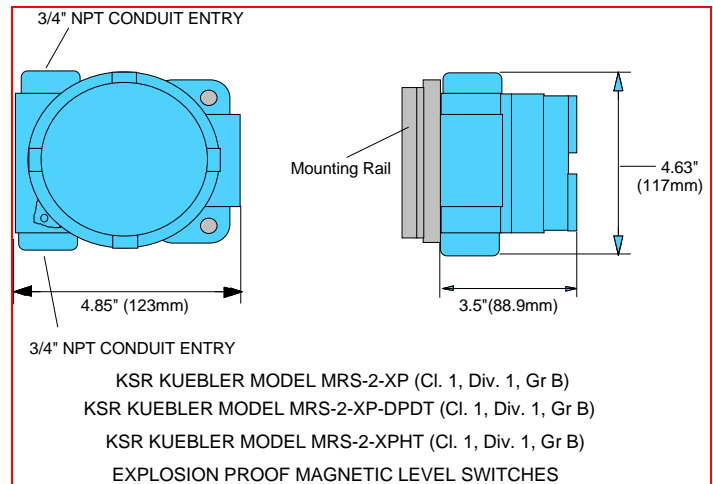
EXPLOSION PROOF TYPE MAGNETIC LEVEL SWITCHES

Type MRS-2-XP Specifications Type MRS-2-XP-DPDT Specifications

Switch Type:	Magnetic Reed Contact
Contact type:	1 SPDT, or 2 SPDT's as DPDT
Contact behavior:	bistable (magnetically latched)
Switching capacity:	230V AC ; 60VA ; 1A
(non-inductive loads)	230V DC ; 30W ; 0,5A
Switch Type:	Glass Encapsulated Hermetically Sealed
Hysteresis:	2-3mm Typical
Max. Process Temp.:	302°F (150°C)
Switch Housing:	Cast Aluminum Epoxy Coated (KSR Blue)
Termination Type:	Terminal Block
Housing Ratings:	Factory Mutual, Cl. 1, Div. 1, Gr. B.
Housing protection:	NEMA 7/9 & 4X & IP65
Conduit Entry:	2 ea. 3/4" NPT female

Type MRS-2-XP-HT Specs. (High Temp.) Type MRS-2-XP-HT-DPDT Specs. (High Temp.)

Switch Type:	Magnetic Reed Contact
Contact type:	1 SPDT, or 2 SPDT's as DPDT
Contact behavior:	bistable (magnetically latched)
Switching capacity:	230V AC ; 60VA ; 1A
(non-inductive loads)	230V DC ; 30W ; 0,5A
Switch Type:	Glass Encapsulated Hermetically Sealed
Hysteresis:	2-3mm Typical
Max. Process Temp.:	662°F (350°C)
Switch Housing:	Cast Aluminum Epoxy Coated (KSR Blue)
Termination Type:	Hi-Temp Terminal Block
Housing Ratings:	Factory Mutual, Cl. 1, Div. 1, Gr. B.
Housing protection:	NEMA 7/9 & 4X & IP65
Conduit Entry:	2 ea. 3/4" NPT female

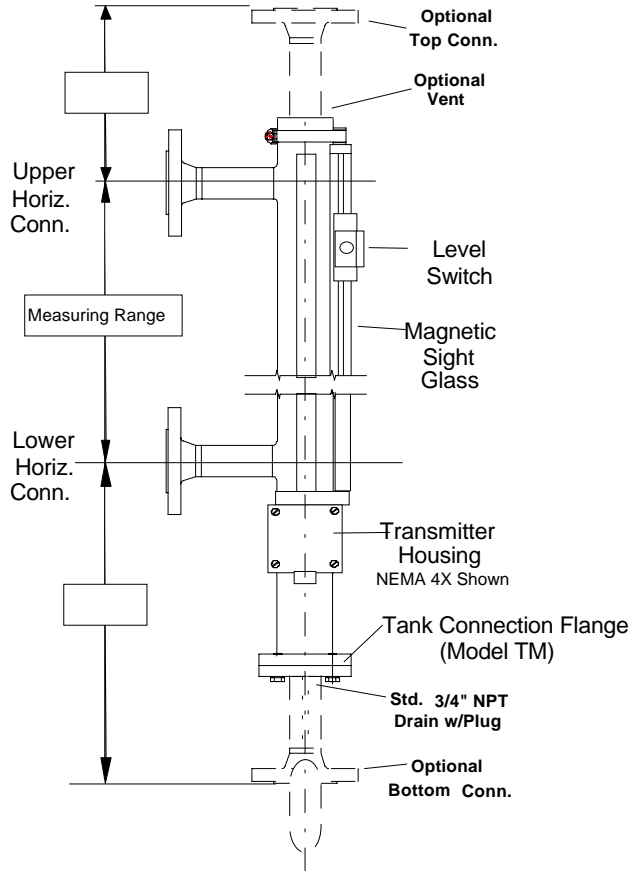


Type MMS-5-XP Specifications

Switch Type:	Dry Contact Snap Action
Contact type:	1 SPDT
Contact behavior:	bistable (magnetically latched)
Switching capacity:	230V AC ; 200VA ; 5A
(non-inductive loads)	230V DC ; 60W ; 2A
Switch Type:	Phenolic Body Dry Contact Switch
Hysteresis:	5-10mm Typical
Max. Process Temp.:	302°F (150°C)
Switch Housing:	Cast Aluminum Epoxy Coated (KSR Blue)
Termination Type:	Terminal Block
Housing Ratings:	Factory Mutual, Cl. 1, Div. 1, Gr. B.
Housing protection:	NEMA 7/9 & 4X & IP65
Conduit Entry:	2 ea. 3/4" NPT female

Fax this form to 1-434-374-9522 for assistance in model selection.

Customer Name _____
 Customer Ref.# _____
 KSR Model # _____
 Chamber Material _____
 Connection Centerline _____
 Connection Orientation _____
 Connection Type _____
 Connection Size _____
 Connection Rating _____
 Vent Connection _____
 Drain Connection _____
 Max. Pressure _____
 Max. Temp. _____
 Min. Temp. _____
 Liquid Name _____
 Output Type _____
 Transmitter Resolution _____
 Housing Gr. B _____ NEMA 4X _____
 Electrical Enclosure Material:
 Aluminum _____ Stainless Steel _____
 Conduit Entry: 1/2" _____ 3/4" _____
 Entry Quantity: 1 _____ 2 _____
 Float Material _____
 Float part# _____
 Upper Liq. S.G. _____
 Lower Liq. S.G. _____
 By _____
 Date _____



Chamber Connections can be Flanged,
NPT, Socket Weld, or Special Types

Your Numbers Please!

Ph. () _____ - _____
 Fax () _____ - _____
 Email _____

Electric Limit Switches Req'd: _____ Quantity: _____
 Switch Housing Type: Group B: _____ NEMA 4X: _____
 Magnetic Indicator Housing Type: Aluminum _____ S/Stl _____
 Magnetic Indicator Material: Plastic: _____ Ceramic: _____
 Scale Require: _____ Units-Inches: _____ Millimeters: _____
 Scale Material: Plastic: _____ Aluminum: _____ Stainless Stl: _____



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