

## KSR KUEBLER MODEL *FW* BIN & SILO LEVEL SWITCH FOR BULK MATERIALS AND VISCOUS LIQUIDS & SLURRIES

### DESCRIPTION

KSR Kuebler Paddle Switch type FW is designed for use in powders, granules, and other bulk materials. It is especially suitable for use in sand, grains (oats, corn, etc), and other bulk and particulate materials. Use the FW in hard to sense liquids such as slurries and viscous media such as jams and creams.

KSR's design permits specifying the insertion length of the paddle shaft assembly permitting use in extra long nozzles where other types will not fit.

The model FW unit may be mounted in vertical or horizontal applications.

The model FW features a drive system with a motor protection design ensuring long life thus eliminating troublesome motor failures due to overloading. An on board fuse is also featured for additional protection.

Designed for continuous outdoor operation, the KSR Kuebler model FW will operate in ambient temperatures from -4°F (-20°C) to +140°F (60°C).

KSR Kuebler Silo Switches-

**Helping Businesses Stay in Control™.**

### STANDARD FEATURES

All model "FW" silo level switches from KSR Kuebler offer the following standard features:

- ◆ Custom Insertion Lengths to 240" (6000+mm)
- ◆ Great selection of extension shafts and paddles for most bulk materials and difficult to sense liquids
- ◆ Weather proof electrical enclosures
- ◆ Low power consumption
- ◆ 6 amp @ 220 VAC SPDT, potential free relay contacts
- ◆ Available in 24 VDC, and 24, 120 or 230 VAC supply voltage
- ◆ Variety of vessel connections are available on model FW
- ◆ Model FW-P available for pressurized bins up to 230 PSI

The above standard features allow you to select a configuration that best suits your process control needs, directly from this order guide.

KSR Kuebler series "FW" silo level switches are the highest quality cost efficient solution to difficult bulk material point level sensing.



### A Standard FW Unit

A KSR Kuebler silo level switch model FW is shown with the standard type NEMA 4X type enclosure with a 1/2" NPT conduit connection. A weather tight cable gripper fitting is also furnished with every unit for those who prefer this method of electrical connection. The FW shown features the standard paddle suitable for most bulk materials.

The KSR Kuebler model FW is designed to run continuously at 10 RPM. When bulk material comes in contact with the paddle, an opposite torque is generated. This torque causes the displacement of the motor assembly activating the control relay while shutting down the motor. When the level of bulk material drops away and releases the paddle, the motor returns to its normal position and is permitted to run again. This design prevents the motor from trying to run in the "stalled" or locked-rotor condition thus eliminating motor burn-out. This design combined with a heavy duty gear train provide long unit life.

Further protection is provided by an on-board fuse which protects the unit from accidental abuse or over-load.

All KSR Kuebler series "FW" bin level switches feature heavy duty 6/240 VAC amp switch contacts. This rating permits using the on-board relay to operate solenoids and motor starter coils directly without the need for interposing components.



FW shown at left with shaft extension support with Teflon bearing. This is used where an extra long reach is needed. The 4 blade "light media" paddle is also shown.

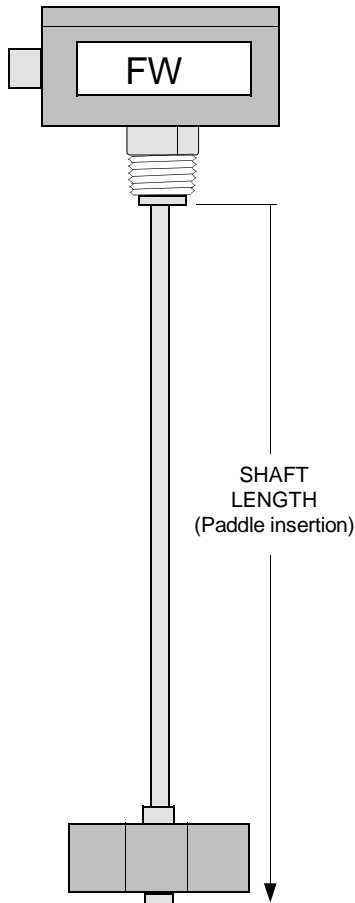
**Catalog 1010mini**  
05/08/02 rv C

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

Your Fax Number Please

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Your E-mail \_\_\_\_\_



**PADDLE DIMENSIONS INCHES (mm)**

Type	Height	Width	Shaft Length Min - Max
Flat Paddle	1.73" (44)	4.75" (120)	4" - 236" (100-6000)
Flat Paddle with Spring	1.73" (44) 4.49" (114)	4.75" (120) 4.75" (120)	5.9" - 236" (150-6000)
Cross Paddle	2.75" (70)	4.75" (120)	4" - 236" (500-6000)
Bellows Paddle	2.36" (60)	1.7" (43)	8.66" Only (220)

**Consult Factory for Custom Paddles and Special Service Requirements**

Customer Name \_\_\_\_\_

Customer Ref.# \_\_\_\_\_

**Sensor Information**

Shaft Length \_\_\_\_\_

Shaft Material \_\_\_\_\_

Connection Type \_\_\_\_\_

Connection Size \_\_\_\_\_

Connection Rating \_\_\_\_\_

Max. Pressure \_\_\_\_\_

Max. Temp. \_\_\_\_\_

Min. Temp. \_\_\_\_\_

Media Type \_\_\_\_\_

**Electrical Information**

Electrical Housing: NEMA 4

Housing Material: Epoxy Coated Aluminum

Conduit Entry: \_\_\_\_\_ Cable Gripper: \_\_\_\_\_

Entry Quantity: 1 \_\_\_\_\_ 2 \_\_\_\_\_

**Paddle Information**

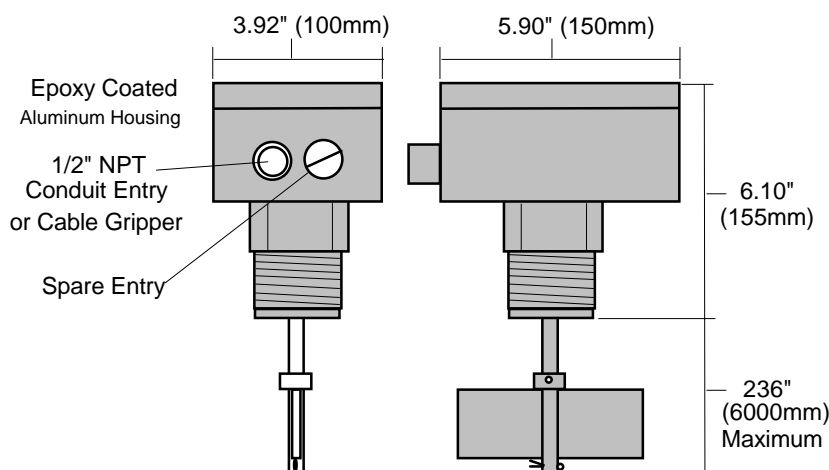
Paddle Material \_\_\_\_\_

Paddle Type \_\_\_\_\_

By \_\_\_\_\_

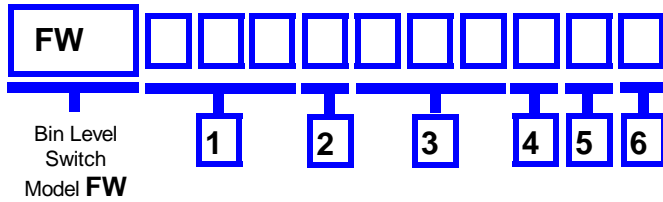
Date \_\_\_\_\_

**SERIES "FW" STANDARD DIMENSIONS**



TOLL FREE 1-888-577-5385

## MODEL "FW" HOW TO ORDER Bin Level Switches



TO CREATE A COMPLETE MODEL NUMBER, FILL IN THE BLOCKS WITH THE APPROPRIATE FEATURES REQUIRED FOR YOUR APPLICATION

**1. INSERTION LENGTH:** (Shaft length) In whole inches, up to a maximum of **240"**. (As measured from face of process connection to the tip of the paddle shaft.) EXAMPLE: AN 118" shaft would be entered as **118**.

**2. PADDLE TYPE:** **A**= Flat paddle; **B** = Flat paddle with spring; **C** = Cross type paddle; **D** = Bellows type paddle; **0** = None furnished. See previous page for selection of paddle types.

**3. CONNECTION SIZE AND TYPE:** **T15**= 1.5" Machine thread (standard) **N20**= 2" NPT, **F20**=2.0" ANSI flange; **F25**=2.5" ANSI flange; **F30**=3.0" ANSI flange; **F40**=4.0" ANSI flange; **F50**=5.0" ANSI flange; **F60**=6.0" ANSI flange. All flanges are 150# types for matching bolt pattern.

DIN and other flanges are available, consult factory.

**4. CONNECTION MATERIAL:** **A**=Aluminum (standard for T15 - 1.5" type); **C**=Carbon Steel; **S**=Stainless Steel. Other connection materials are available, please consult factory.

**5. INPUT (Supply) VOLTAGE:** **A**= 120 VAC; **B**= 230 VAC; **C** = 24 VAC; **D** = 24 VDC.

**6. PRESSURE CLASS:** **0** = Non-Pressurized Vessel Type model; **P** = Pressurized vessel model, up to 230 PSI - consult factory for details & pricing.

**Note:** The standard FW unit is NOT designed nor is suitable for pressurized vessels.

Select type FW-P for pressurized vessel service up to 230 PSI.

At right is the standard "flat" paddle. This is the standard paddle and is useful on most bulk media and is suitable for grains, plastic pellets, and many other bulk materials.



## MODEL SERIES "FW" SPECIFICATIONS

Product Series FW Specification	FW-0	FW-P
Maximum Insertion Length Standard Solid Shaft Including Paddle	236" (6000 mm)	236" (6000 mm)
Minimum Insertion Length Standard Solid Shaft Including Paddle	2.75" (127 mm)	5" (127 mm)
Paddle Shaft Diameter	.39" (10 mm)	.39" (10 mm)
Standard Paddle Shaft Material	Aircraft Aluminum	Aircraft Aluminum
Optional Paddle Shaft Material	316 Stainless Steel	316 Stainless Steel
Standard Mounting Nut Material	Aircraft Aluminum	Aircraft Aluminum
Optional Mounting Nut Material	316 Stainless Steel	316 Stainless Steel
Paddle Material	316Ti Stainless Steel Other Materials On Request	316Ti Stainless Steel Other Materials On Request
Maximum Process Pressure	Atmospheric	232 PSI (16 Bars)
Maximum Process Temperature (Higher Temps Possible, Call Factory)	+212°F (100°C)	+275°F (120°C)
Minimum Process Temperature	-4°F (-20°C)	-20°F (-29°C)
Power Consumption	3-4 VA (AC Models)	3-4 VA (AC Models)
Minimum & Maximum Ambient Temperature	-4°F to +140°F (-20°C to + 60°C)	-4°F to +140°F (-20°C to + 60°C)
Conduit Entry NEMA 4X	1/2" NPT (dual is optional)	1/2" NPT (dual is optional)
Input Voltage Options	24, 120, & 230 VAC (50-60Hz) 24 VDC	24, 120, & 230 VAC (50-60Hz) 24 VDC
Relay Type & Rating	SPDT 6 Amps @ 220 VAC	SPDT 6 Amps @ 220 VAC



Above is shown a "bellows" type paddle installed on a model FW. This paddle type is used on viscous fluids (jams, jellies, slurries) and also in fine powders and dusts.

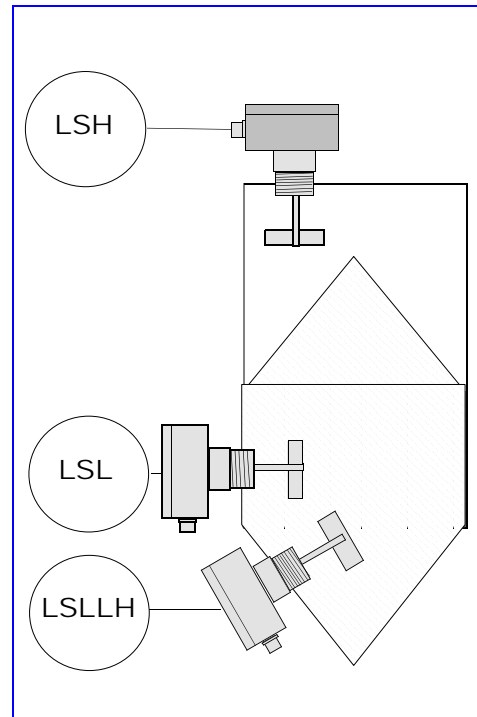


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KSR Kuebler model FW is shown at left in typical installations to perform three functions; high product level (where the bin incoming feed is shut down), low product level (where the bin feed is resumed), and the third unit is used as a low-low level alarm to alert the operator that there is a problem with the bin feed system.

Engineered for a fast & economical installation and reliable operation, KSR Kuebler series "FW" bin level switches are practical solutions to difficult level sensing problems.

The models FW shown have NEMA 4X enclosures and a threaded tank fitting. KSR Kuebler also offers ANSI flanges, NPT connections, and machine threads for your tank mounting needs.



### Typical Models FW Installed In A Typical Bin Application

PADDLE DIMENSIONS INCHES (mm)			
Type	Height	Width	Shaft Length Min - Max
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