

# GEMS Continuous Electrical Output Transmitters Provide Direct Liquid Measurement

- ▶ Lengths to 18 feet (5.5 m)
- ▶ Alloys or Engineered Plastic Wetted Parts
- ▶ Analog Output

Completely electronic, Gems Liquid Level Transmitters provide reliable and durable remote tank gauging. A wide variety of material combinations provide compatibility for most liquid media. Gems XM- & XT-300, 700 and 800 Series provide solutions for most small to mid-size tanks in both process and OEM applications; for deeper tanks (to 18 feet) look to Gems 36000 and 66000 Series.

Gems experienced engineering and sales staff can provide customized solutions for applications not satisfied by the standard transmitters shown in this catalog. Do not hesitate to contact Gems if you require a configuration not shown here.

## Single Probe or Complete Systems

As a component, Gems transmitters provide the output options compatible with most programmable controllers and other digital receivers. Combined with Gems Digital Receivers you can create a complete tank gauging system.

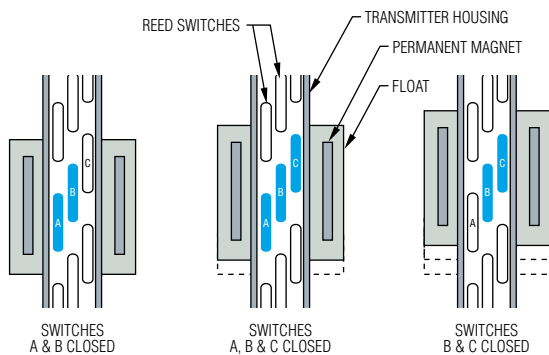
## Typical Applications

Consider GEMS' versatile transmitters for all your continuous liquid level monitoring needs — water, diesel, lube oils and fuels, as well as various chemical and petrochemical liquids. Here are just a few areas where GEMS' transmitters are used:

- Utilities • Beverage Industry • Medical • Pharmaceuticals • OHV
- Food Processing • Wineries • Printing • HVAC • Semiconductor

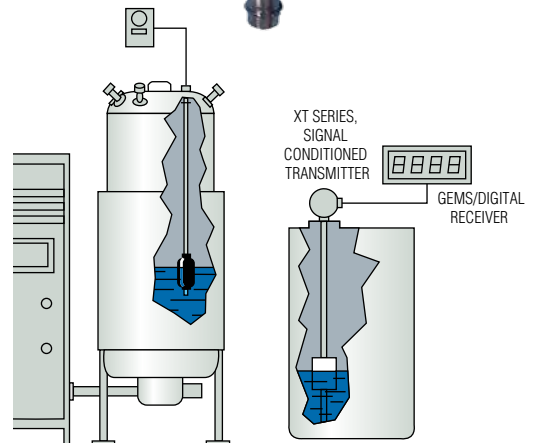
## Operating Principle

Gems voltage divider design uses a staggered series of reed switches. As the float moves with the liquid level, the magnets in the float close these reed switches in a “2-3-2 at-a-time” sequence. With every movement of the float, either one additional switch closes or one drops off.

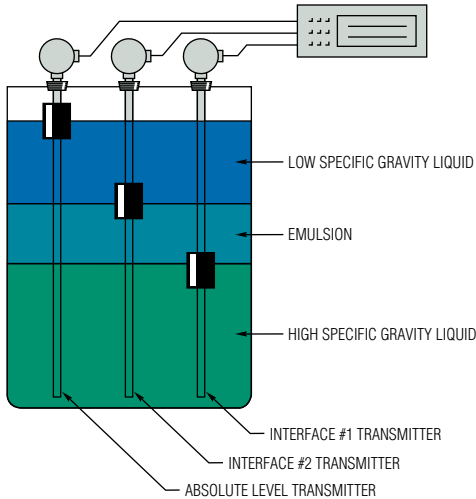


## What does this mean to you?

Ensures better accuracy — if one switch was to fail, the signal would be affected only at that point.



GEMS Transmitters monitor water, diesel or lube oils, chemicals and petrochemicals in industries such as pharmaceuticals, municipalities, breweries, textiles, automotive, pulp and paper and others.



**Got Mud?**

Here's a tip. Gems Float Sensors are the best, most reliable method to monitor mud pits. See our Large Size Alloy models on Page C-23, and use with the 8" float for best results.

Use multiple Gems Transmitters to accurately monitor proportions of dissimilar liquids and emulsions within a single tank.

**Only a Float Can Show True Interface!**

- By design or otherwise, dissimilar liquids often reside in the tank — one floating atop another. Most tank gauging methods are limited in these cases, and can only indicate the level of the uppermost surface. With GEMS Transmitters, you can easily monitor the interface between liquids...including the emulsions and slurries that sometimes form between them.
- By adjusting the density of the magnetic float, GEMS can adapt the transmitter to monitor the interface of a broad range of media. This principle applies to oil and water, slurries, acids, bilge and other dissimilar liquids.
- In conjunction with low level alarms, or automatic controllers, GEMS Transmitters will help assure that only the “correct” liquid is taken from a tank, or introduced into a process system.

**Selection Guide**

Tank Depth	Maximum Pressure	Primary Material	Resolution	Output	Transmitter Series
Less Than 12 Feet (3.7 m)	150 psi (10 bar)	Alloy	1/4 inch (6.4 mm)	10-30 VDC Proportional	<b>XM- &amp; XT-700</b> <b>XM-800/860</b>
				Signal Conditioned	<b>XT-800/860</b>
	50 psi (3.4 bar)	Engineered Plastic	1/4 inch (6.4 mm)	10-30 VDC Proportional	<b>XM- &amp; XT-300</b> <b>XMP-800</b>
				Signal Conditioned	<b>XTP-800</b>
	300 psi (2 bar)	Alloy	1/2 inch (12.7 mm)	0-12 VDC Proportional	<b>XM-860</b>
				Signal Conditioned	<b>XT-860</b>
12 to 18 Feet (3.7 m to 5.5 m)	500 psi (35 bar)	Alloy	1/2 inch (12.7 mm)	10-30 VDC Proportional	<b>XM-66400</b> <b>XM-36490</b>
				Signal Conditioned	<b>XT-66400</b> <b>XT-36490</b>
12 to 18 Feet (3.7 m to 5.5 m)	2000 psi (138 bar)	Alloy	1/2 inch (12.7 mm)	10-30 VDC Proportional	<b>XM-66400</b>
				Signal Conditioned	<b>XT-66400</b>

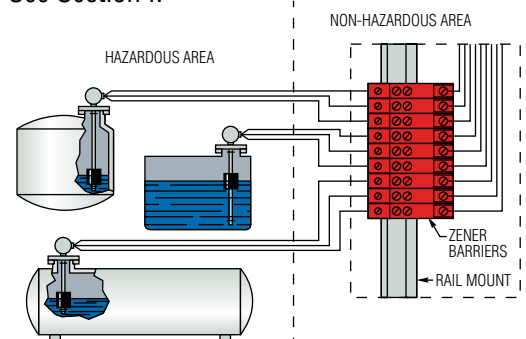
- Notes:
1. Proportional Voltage = DC voltage proportional to liquid level and source voltage.  
Ex. 5 VDC input, 0-5 VDC output.
  2. Signal Conditioned = Regulated 0-5 VDC, 0-10 VDC, 0-12 VDC and 4-20 mA outputs.

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**Intrinsic Safety**

GEMS transmitters are intrinsically safe for hazardous area operation when properly connected to a GEMS Zener Barrier, a solid-state, energy limiting device. Any need for explosion-proof housings or special wiring of any kind is eliminated. GEMS Zener Barriers are variously UL, CSA and MSHA approved. See Section I.



Any non-voltage-producing sensor or switch is rendered intrinsically safe for hazardous locations when properly connected to the output of GEMS Zener Barriers. These are described in Section I.