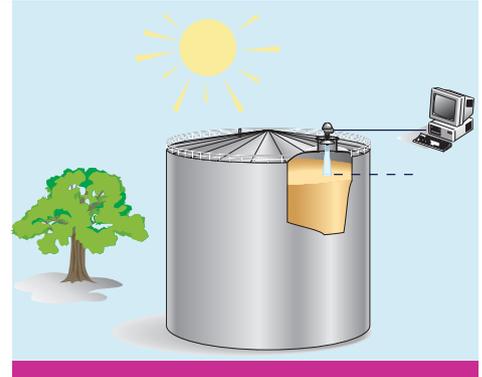


Overfill Protection for Increased Safety

BENEFITS

- One of the safest possible alarm solutions on the market
- TÜV-tested for overfill protection
- Third party assessed, and considered suitable in SIL 2 safety functions
- Proven reliability and safety based on 30 years of radar level experience
- All-situation single device level measurement and overfill protection
- Flexible Hi-Hi alarm limit through configuration



An undetected overfill incident at a fuel production or storage facility can have severe consequences for society, the environment and the companies involved. Thus, all refineries, tank farms and fuel depots have a huge responsibility to ensure that overfill incidents do not occur.

Emerson supplies an automatic tank gauging system for highly reliable High-High level alarm functionality. With Rosemount TankRadar® Rex or Pro radar gauges, it is possible to have both overfill protection and simultaneously use the gauge for continuous level measurements.

Rosemount TankRadar Rex is third-party assessed and considered suitable in SIL 2 safety functions.

Both Rosemount TankRadar Rex and Pro gauges are TÜV-tested and approved for overfill protection according to the German WHG (Wasserhaushaltsgesetz) regulations.

If an even higher safety level is required for the system, there is a possibility to introduce redundancy by using multiple devices.

Self-checking Level Gauge Ensures a Reliable Overfill Alarm

A conventional overfill alarm sensor used in storage tanks, such as a float or a switch, has one major weakness. It is activated only when the product level reaches a certain point. To ensure proper function, regular manual testing is required.

In contrast, the TankRadar gauge gives the operator continuous information about its status and performance since it is being used in the everyday operations of the tank farm. This ensures that the instrument will work properly if/when the level reaches the pre-defined Hi-Hi alarm value, which was configured during setup.

Failures detected by the diagnostic capabilities of the gauge, such as a fault in level measurement, power supply, internal hardware or software, generates an alarm and the operator can take appropriate action under safe conditions.



TankRadar Rex® radar gauge



TankRadar Pro® radar gauge

TÜV-tested for Overfill Protection

TÜV is a German testing organization responsible for testing overfill protection equipment according to requirements stated by the German WHG institute concerning water protection.

In 1999 TankRadar Rex and Pro received the overfill protection certificates. Both gauge models passed the comprehensive reliability test comprising 10.000 overfill situations over the whole temperature range (-40 to +70 °C).

SIL 2 Safety

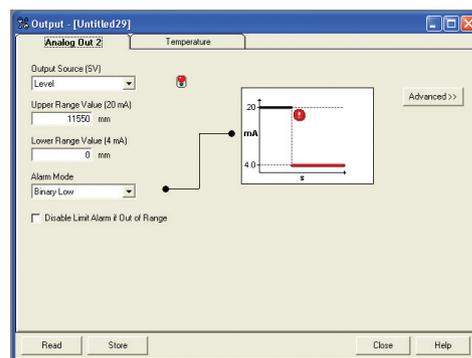
Rosemount TankRadar Rex has been third-party assessed by Exida and is considered suitable for use in SIL 2 safety functions, in accordance with IEC 61508/61511. The safety function is based on the relay outputs. One relay, or a combination of two, can be used for overfill or dry run protection. Any decision to operate proven-in-use devices always rests with the end user. However, third party assessment by Exida provides a good basis for such decisions, in accordance with section 11.5.3 of IEC 61511.

Overfill Alarm Output

The outputs (relay or binary 4 or 20 mA) are normally activated, and will be deactivated when an alarm occurs.

For TankRadar Pro, the secondary analog output is used for overfill alarm. The active output is set to 20 mA during normal operation and switches to 4 mA when a Hi-Hi alarm occurs. The primary output is dedicated for continuous level measurements. By using an optional external relay unit, relay outputs can be obtained.

For TankRadar Rex, the built-in relay contacts are used for overfill alarm.



Configuration window for TankRadar Pro. When the level reaches 11.55 m, the output current value drops from 20 mA to 4 mA (binary low) and an overfill alarm is generated.

	TankRadar Rex	TankRadar Pro
Instrument Accuracy	± 0.5 mm (± 0.020 in.) *	± 3 mm (± 0.12 in.) *
Repeatability	± 1 mm (± 0.04 in.)	± 1 mm (± 0.04 in.)
Ambient Temperature	-40 to +70 °C (-40 to +158 °F)	-40 to +70 °C (-40 to +158 °F)
Tank Temperature	-162 to +230 °C (-260 to +445 °F)	-40 to +400 °C (-40 to +752 °F)
Antennas	Horn/Cone, parabolic, still-pipe array antennas	Cone, parabolic, and still-pipe array antennas
Flange Connections	6-20 in. ANSI, DIN standards	2-20 in. ANSI, DIN standards
Overfill Output	Relay Output (normally open)	Binary 4 or 20 mA
Applications	Storage tanks	Storage tanks

* Other accuracies are available depending on model.

Technical details are subject to change without prior notice. For more details, see Rex Technical Description.