RECHNER SENSORS

Application Note 1
High Low Level Control

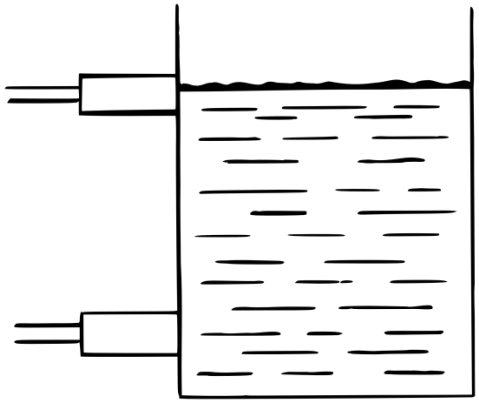
Description:

The Rechner KAS series sensors are ideal for use as level detection devices. The sensors work equally well for liquids, granulates, or powders. When a system is required to replenish a bin or tank when a low level point is reached, a control can be made using 2 sensors and the EGI-RLC-MM power supply logic controller.

Function:

When the system is installed as shown, the pump or conveyor used to fill the tank or bin will be controlled by the relay in the EGI-RLC-MM.

When the level in the tank drops below the min sensor, the relay will energize to start the pump motor. The relay will remain energized until the tank has been filled to the max sensor. At this point, the relay will de-energize and stop the filling process. The relay will remain de-energized until the level drops below the min sensor again. The cycle then repeats to keep the tank filled.



Once the sensors are mounted and connected to the EGI-RLC-MM, each sensor needs to be adjusted as follows:

1. **Locate the sensitivity adjustment potentiometer** on the back of the sensor.
2. **Fully immerse the sensor** into the product to be detected.
3. **Reset the sensor's sensitivity** by turning the potentiometer counter-clockwise 20 full turns, or until the sensor no longer sees the product.
4. **Adjust the sensor** to the product to be detected by turning the potentiometer clockwise until the sensor sees the product.
5. **Add 1/4 turn for safety** by turning the potentiometer a further 90 degrees clockwise.

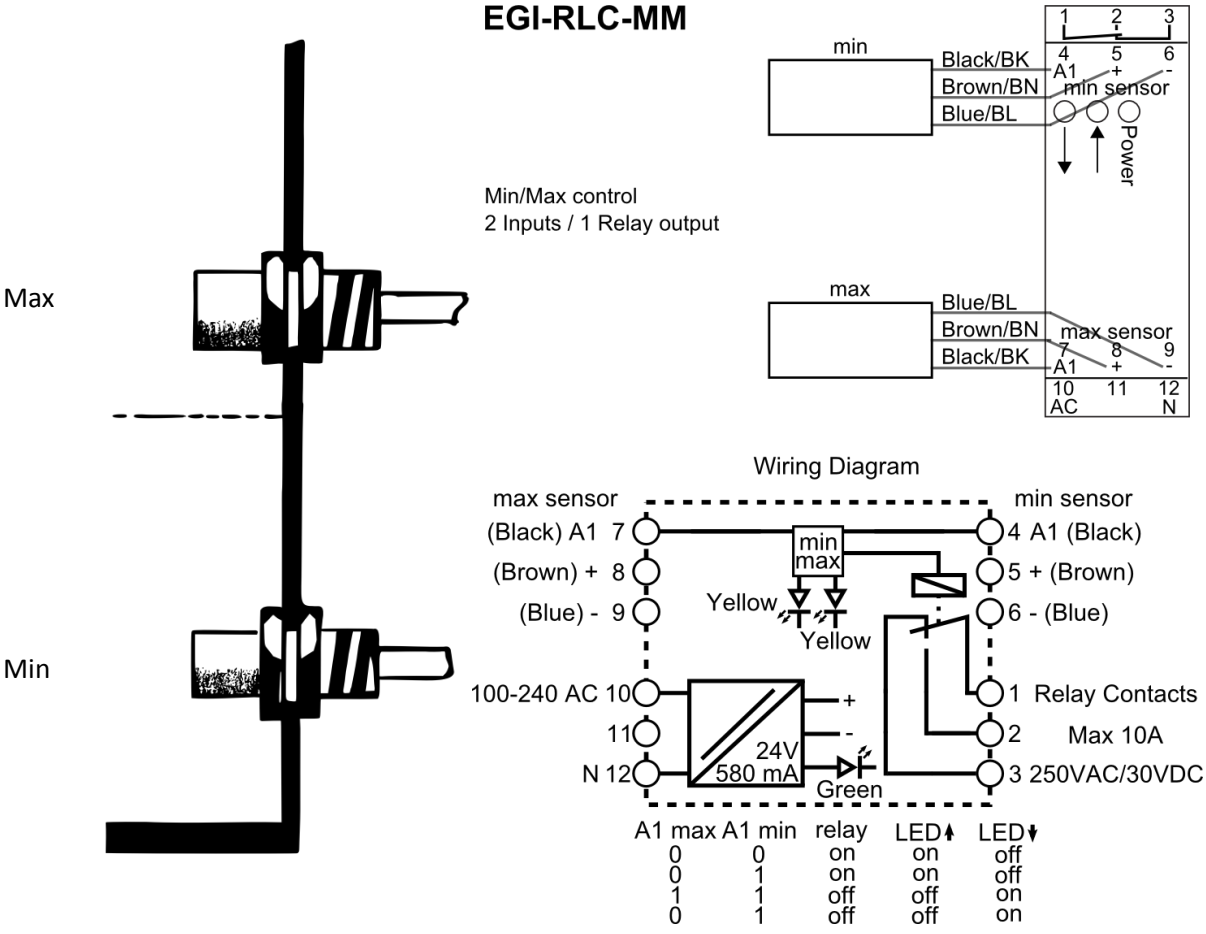
Parts Required:

2 Sensors: KAS-80-35-A-M32-Y3-NL
2 5 Meter Cables: 0.25SQX4C
1 Rechner Logic Controller: EGI-RLC-MM

RECHNER SENSORS

Application Note 1
High Low Level Control

Wiring Diagrams:



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RECHNER SENSORS

Application Note 4
Detection of Water in Oil Tanks

Description:

The Rechner KAS series sensors can easily be applied to detect the accumulation of water in the bottom of oil or petroleum product tanks. Since the dielectric constant of petroleum products is considerably lower than water (the dielectric constant of water is 80 and the dielectric constant of petroleum is between 2 and 4) the KAS sensor can be adjusted to detect the water and not the petroleum.

Function:

The sensor should be mounted at or below the maximum acceptable water accumulation level. When the sensor detects the water, it will energize the relay providing a high water indication or alarm.

The KAS sensor is capable of detecting water through glass up to 4mm (5/32 inch) thick. If a sight glass is available at or below the maximum acceptable water accumulation level, installing the sensor to detect through the sight glass eliminates the need to make a mounting hole through the tank.

Adjust the sensor to ignore the oil in the tank:

1. **Locate the sensitivity adjustment potentiometer** on the back of the sensor.
2. **Fully immerse the sensor** into the oil.
3. **Find the switching point of the oil** by turning the potentiometer clockwise until the sensor detects the oil.
4. **Adjust the sensor to ignore** the oil by turning the potentiometer counter-clockwise until the sensor turns off.
5. **Add 1/4 turn for safety** by turning the potentiometer a further 90 degrees counter-clockwise.

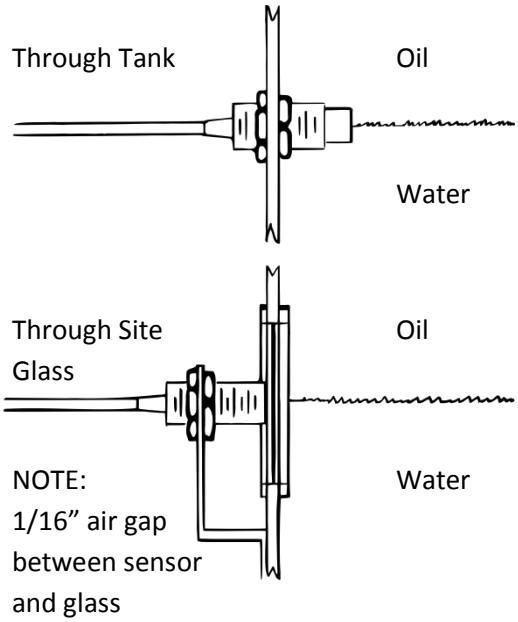
Parts Required:

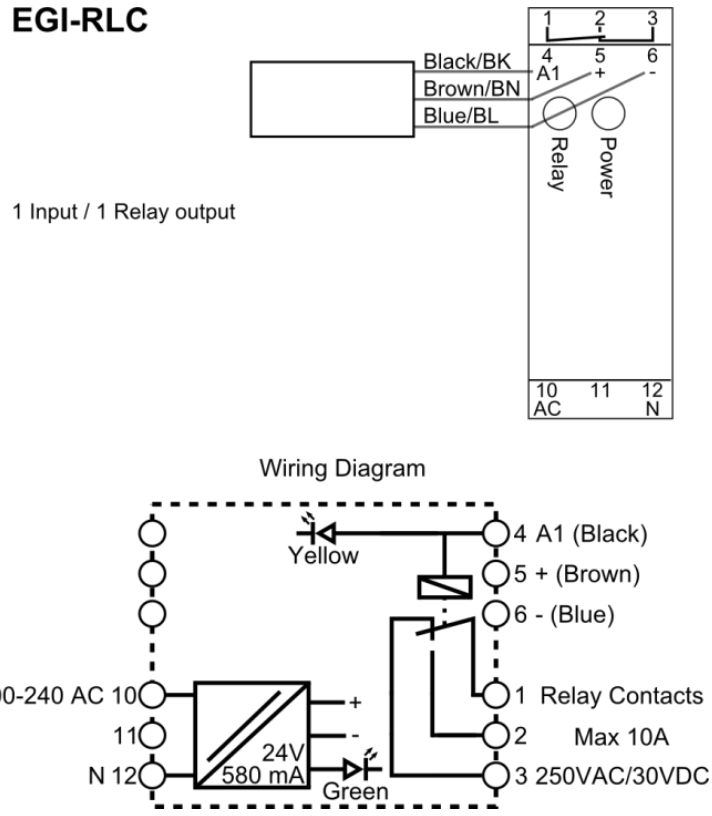
1 Rechner Logic Controller: EGI-RLC
1 5 Meter Cable: 0.25SQX4C
1 Sensor: KAS-80-A24-A-K-Y3-NL (for through tank installation)
-OR-
KAS-80-A14-A-K-Y3-NL (for through site glass)

RECHNER SENSORS

Application Note 4
Detection of Water in Oil Tanks

Wiring Diagrams:





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RECHNER SENSORS

Application Note 6
Replacement of Vibrating Rods

Description:

In many industrial applications vibrating rod-type level detectors are used. In some cases these devices cause problems as a result of the mechanical principle the sensor is based on. Vibrating rods, even though they are built tough, are prone to mechanical failure, or can give you false signals due to build up, or creating a cavity in compressible solids. Powder from granular material often works its way into the bearing and creates false level indication. The KAS-80-26-A-200-PTFE-1"-Y5 sensor has no moving parts and no place for material to build-up which eliminates the risk of mechanical failure.

The 26 Series sensors are made with food safe PTFE. Versions for areas with a risk of dust and gas explosion are also available with AtEx and IECEx approvals.

Function:

Remove the old level switch and mount the new Rechner Sensor. Modification to the mounting bracket may or may not be necessary. The sensor is connected to the Rechner Logic Controller with a standard M12 connector cable. The Logic controller needs to be supplied AC power (100-240VAC). The Logic controller provides 24VDC to the sensor and controls the relay output. Once the sensor is mounted and wired the sensor needs to be adjusted.

1. **Locate the sensitivity adjustment potentiometer** on the back of the sensor.
2. **Fully immerse the sensor** into the product to be detected.
3. **Reset the sensor's sensitivity** by turning the potentiometer counter-clockwise 20 full turns, or until the sensor no longer sees the product.
4. **Adjust the sensor** to the product to be detected by turning the potentiometer clockwise until the sensor sees the product.
5. **Add 1/4 turn for safety** by turning the potentiometer a further 90 degrees clockwise.

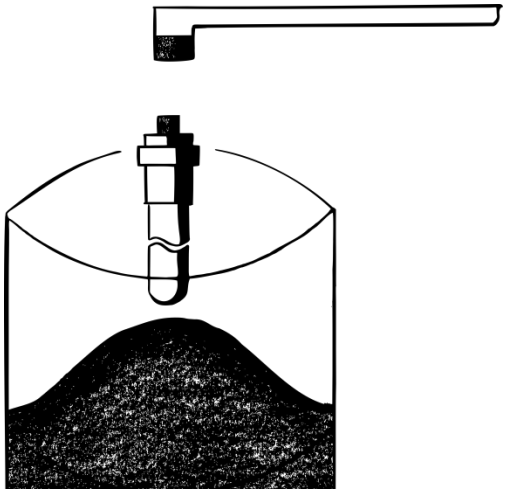
Parts Required:

1 Sensor: KAS-80-26-A-200-PTFE-1"-Y5
1 5 Meter Cable: 0.25SQX4C
1 Rechner Logic Controller: EGI-RLC

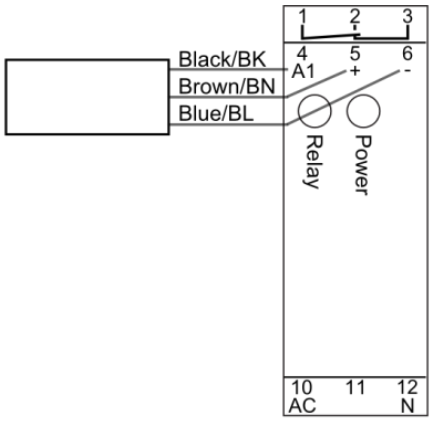
RECHNER SENSORS

Application Note 6
Replacement of Vibrating Rods

Wiring Diagrams:

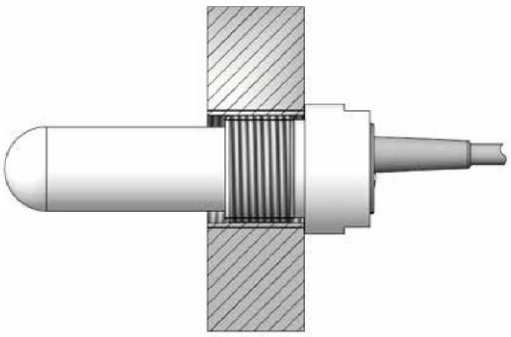


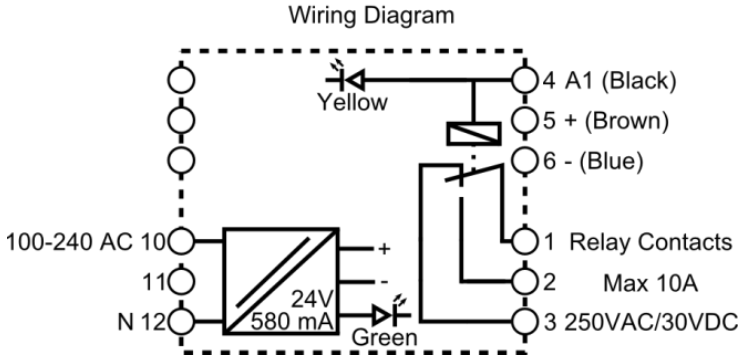
EGI-RLC



1 Input / 1 Relay output

or





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RECHNER SENSORS

Application Note 8
Low Level Alarm for Bins

Description:

KAS Series sensors are used as level detectors in the bulk processing industry for many operations. Dry glue pellets, which feed into hot melt glue machines, can be detected in bins, hoppers, and transfer systems. The signal from the sensors can be used to control bin levels, shut off pneumatic conveyors or operate alarm systems

Function:

The level of bulk pellets in the supply bin of a hot melt glue machine must be kept above a minimum level at all times to prevent the hot melt glue machine running empty. The supply bin of the machine is manually refilled with glue pellets by a worker.

For detection of glue pellets, it is recommended that the sensors be immersed in the material. The non-flush mount type of sensor is installed through the wall of the bin to obtain accurate results.

One KAS sensor is mounted through the wall of the supply bin at the refill level. The sensor detects a low level of glue pellets in the bin and turns on an alarm or a visual signal. This signal indicates to a worker that it is time to add more glue pellets to the bin.

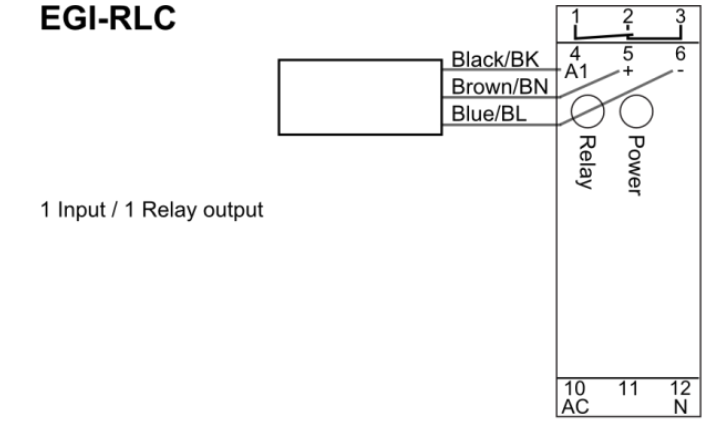
In this application the EGI-RLC power supply is wired as shown. The EGI-RLC acts as the power supply for the sensor as well as a signal conditioner to turn the sensor signal into a SPDT relay output. This simplifies installation and allows for a wider variety or signal devices to be used.

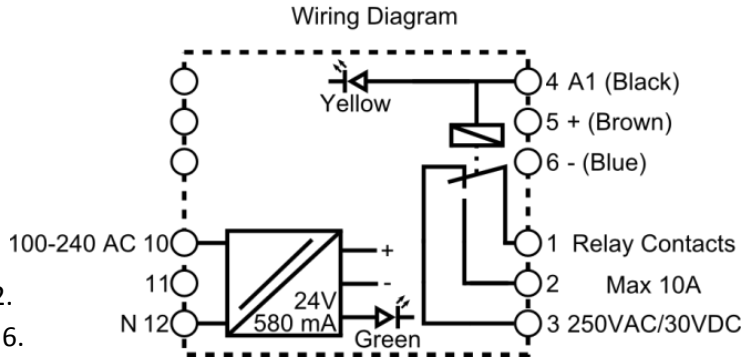
Parts Required:

1 Rechner Logic Controller: EGI-RLC
1 Sensor: KAS-80-A24-A-K-Y3-NL (M30 diameter)
-OR-
KAS-80-35-A-M32-Y3-NL (M32 diameter)
1 5 Meter Cable: 0.25SQX4C

RECHNER SENSORS

Application Note 8
Low Level Alarm for Bins





Wiring:

AC power is wired to terminals 10, and 12.
The **sensor** is wired to terminals 4, 5, and 6.
The **low level signal** is wired to terminals 1 and 2.

Adjust the sensor to detect the pellets in the tank:

1. **Locate the sensitivity adjustment potentiometer** on the back of the sensor.
2. **Fully immerse the sensor** into the bulk material.
3. **Find the switching point of the bulk material** by turning the potentiometer clockwise until the sensor detects the product.
4. **Add 1/4 turn for safety** by turning the potentiometer a further 90 degrees clockwise.