



Advantages/Benefits

- ▶ Detects liquid through the wall of any plastic or fiberglass tank
- ▶ The level switch solution for ultrapure measurement
- ▶ PP or PE fitting mounts directly onto the outer wall of the tank
- ▶ FET switch output provides selectable NO or NC states
- ▶ Calibration procedure is fast, simple and accurate
- ▶ LED light provides calibration and liquid status feedback
- ▶ Pulsed, 1MHz RF capacitance measurement with shielded probe and cable

Design/Function

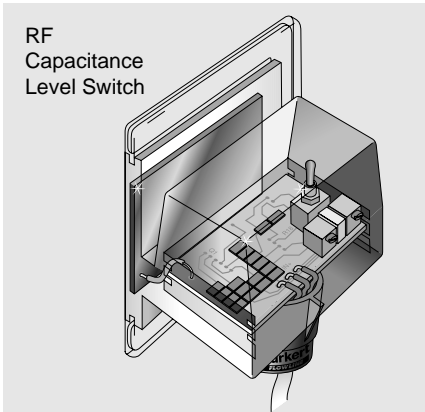
The FET switch output provides a solid state, DC level interface with PLCs, relays and alarms.

For remote 12 amp relay control, select from Burkert's family of SL31 rail mount controllers.

Applications

- Ultrapure liquids contained in plastic or fiberglass tanks
- Clean liquids contained in plastic or fiberglass tanks
- Corrosive liquids contained in plastic or fiberglass tanks
- Leak detection on the wall of plastic or fiberglass secondary containment vessels





Principle of operation

An electrical capacitor is formed between the sensing probe and the plastic or fiberglass tank wall.

As liquid comes into contact with the wall, the capacitance effect is greatly increased and the switch changes state.

The RF capacitance switch is user calibrated for application with liquids having a dielectric constant value between 10 and 80 (K).

Switch and fitting design

The RF capacitance switch is installed with a U-shaped, PP or PE fitting which mounts directly onto the tanks outer wall.

The snap lock fitting enables the switch to be quickly installed or removed, making process changes both simple and affordable.

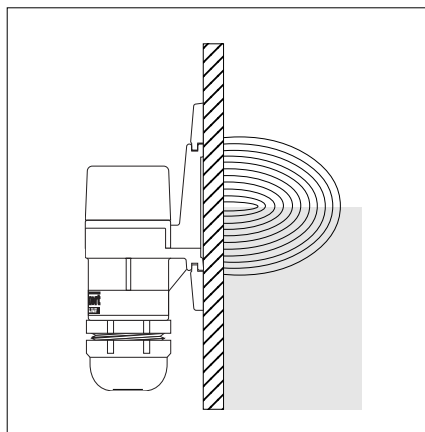
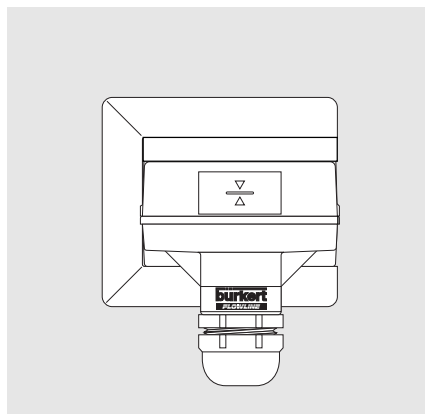
Calibration instructions and components can be easily accessed by opening the enclosure.

Switch with FET Output

The RF capacitance level switch offers a unique and reliable alternative to invasive level detection and has a wide range of application with clean or ultrapure liquids.

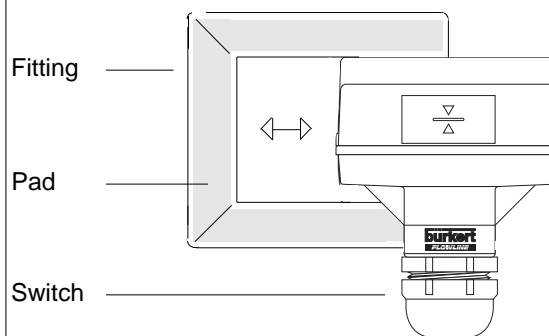
Unsuitable applications

Not suitable for: 1) liquids with a dielectric constant value below 10 (K); 2) installation within 10 cm of any metallic object such as a tank wall; 3) application with dirty, coating or scaling liquids; and 4) extreme levels of electromagnetic noise.



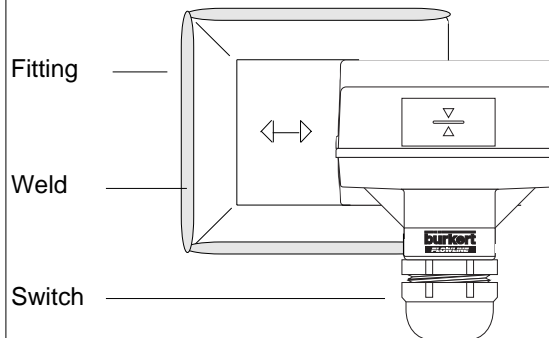
RF Capacitance Switch Installation

Adhesive Pad Installation



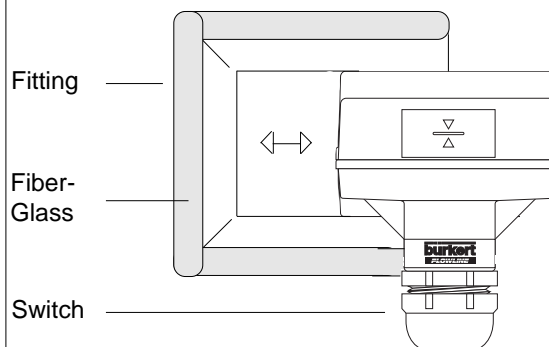
On the base of each PP or PE fitting is an adhesive pad which has been specially formulated for attachment to PP, PE and PVDF tank walls. Simply remove the pad liner and press the fitting into place. The adhesive pad is recommended for indoor application with clean, flat wall, plastic surfaces.

Bead Weld Installation

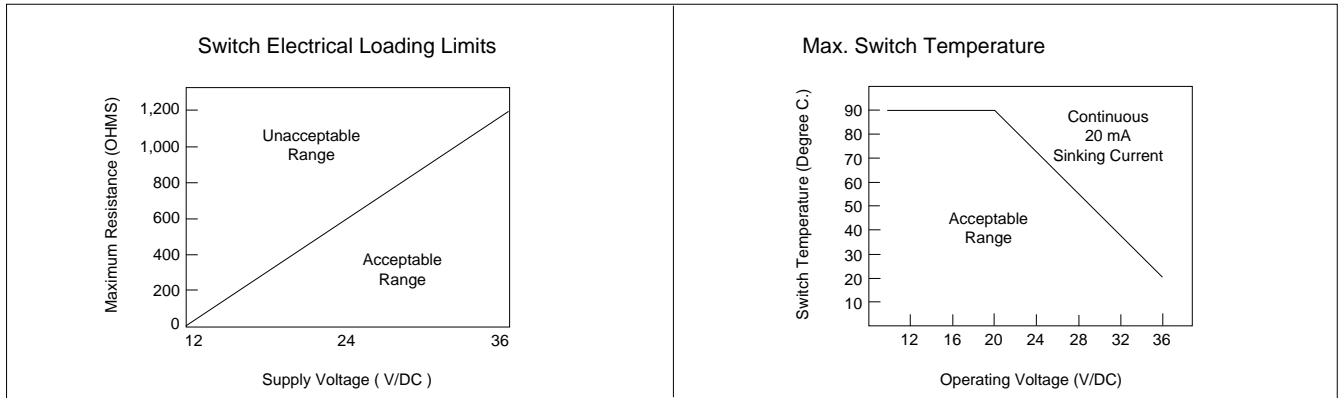


In critical or more difficult applications, it is recommended that the PP or PE fitting is bead welded directly to the tank wall. The switch is first installed using the adhesive pad. Following calibration and final system test, a plastic bead weld of the same material as the tank wall is used to permanently attach the fitting to the wall.

Fiberglass Installation



In applications with fiberglass tanks, it is recommended that the PP or PE fitting is glassed directly to the tank wall. The switch is first installed using the adhesive pad. Following calibration and final system test, a layer of fiberglass (fiber and resin composite) is used to permanently attach the fitting to the wall.



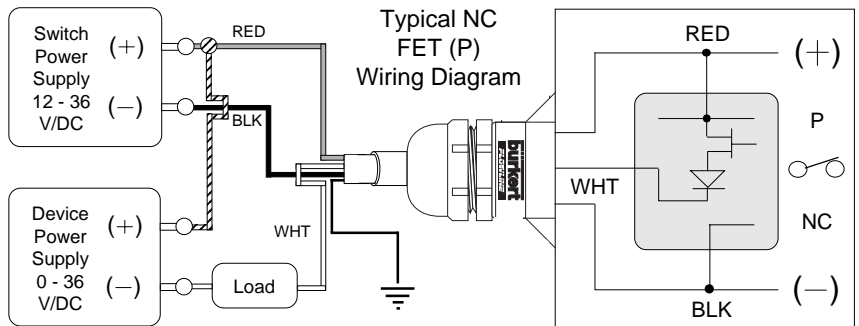
Switch with FET

Voltage input 12 - 36 VDC, 0.1 amp max

Current Consumption Dry: 5 mA (+/-1 mA)
Wet: 19 mA (+/-1 mA)

Switch type P channel or N channel

Switch mode Selectable, NO or NC based on supply polarity

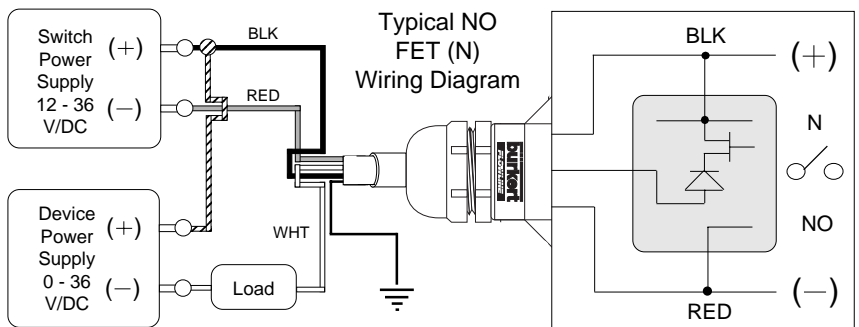


Voltage input 12 - 36 VDC, 0.1 amp max

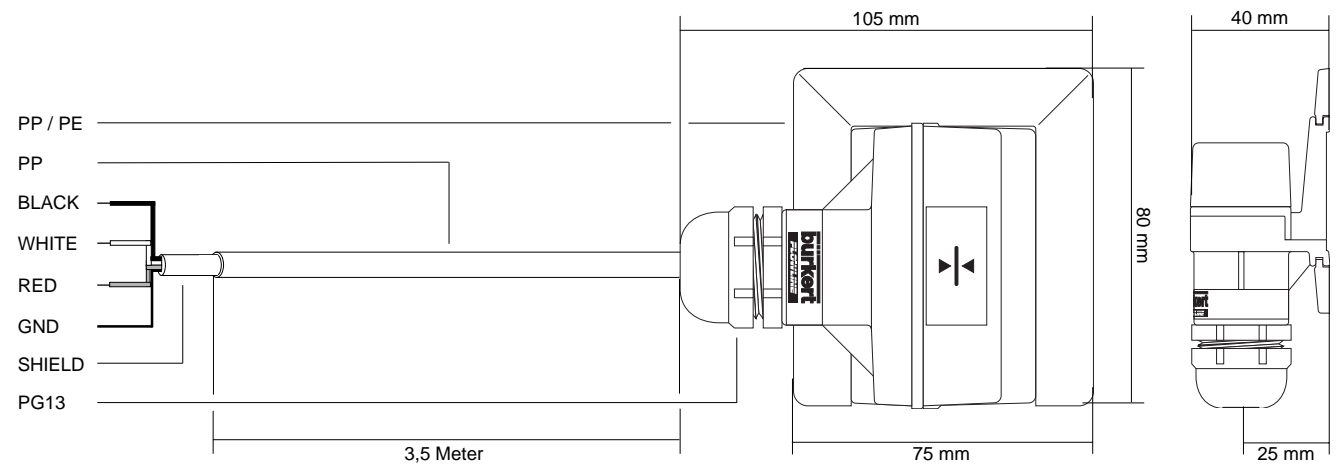
Current Consumption Dry: 5 mA (+/-1 mA)
Wet: 19 mA (+/-1 mA)

Switch type P channel or N channel

Switch mode Selectable, NO or NC based on supply polarity



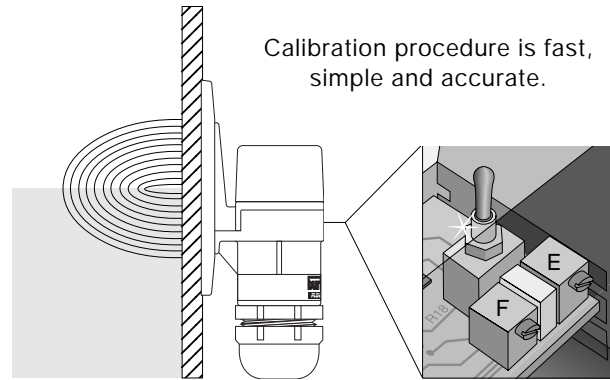
Dimensions



Capacitance Switch Technical Data

Accuracy	+ / - 1 mm in water
Repeatability	+ / - .5 mm in water
Dielectric range	10 - 80 dielectric units @ 1 Mhz
Tank compatibility	Plastic and fiberglass (non-metallic)
Tank wall thickness	Up to 2.5 cm maximum
Voltage input	12 - 36 VDC, 0.1 amp maximum
Current consumption	Dry: 5 mA (+/- 1 mA) Wet: 19 mA (+/- 1 mA)
FET switch voltage	0 - 36 VDC, 0.1 amp maximum
FET switch current	100 mA max (independent of supply)
FET switch mode	Selectable, normally open or normally closed states
Switch display	LED provides both calibration and liquid status feedback
Temperature rating	90 degrees C. maximum
Enclosure material	flame retardant (U.L.94VO) plastic
Enclosure rating	chemical resistant design
Cable connection	PG13 liquid-tight cable connector
Cable type	3 wire, 22 gauge with ground, foil shield and PP sealed jacket
Cable length	3.5 meters

Capacitance Switch Calibration



Following installation, remove the cap to expose the three position switch, two adjustment pots and LED calibration light. With the tank filled to the top of the sensor, set the switch to the "F" position (full) and adjust the pot until the LED turns on. With the tank drained at least 15 cm below the sensor, set the switch to the "E" position (empty) and adjust the pot until the LED turns on. Return the switch to the center position and the calibration procedure is complete.

Ordering Chart (Other Versions on Request)

Supply Voltage	Output	Probe Material	Specification	Order-No.
12 - 36 V/DC	FET (P)	PP	SL21-PP	417004 L
12 - 36 V/DC	FET (P)	PE	SL21-PE	417120 Q
12 - 36 V/DC	FET (N)	PP	SL21-NP	417121 D
12 - 36 V/DC	FET (N)	PE	SL21-NE	417122 E