



### Advantages/Benefits

- ▶ Available in three configurations, probe only, compact design and probe with rail mount controller
- ▶ All plastic construction with PP or PFA materials
- ▶ Probe rated IP68 through the wall or IP67 when submersed
- ▶ Polypropylene enclosure rated IP65 with PG13 cable connector
- ▶ Available in both AC and DC switch power configurations
- ▶ Select FET switch, 6 amp or 12 amp relay outputs
- ▶ LED's for power, liquid and relay
- ▶ Power fail-safe relay control
- ▶ Shielded probe and cable

### Design/Function

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

The 6 amp, relay output provides an isolated level interface with valves, pumps, PLCs, relays and alarms.

The 12 amp, relay output provides an isolated level interface with large valves and pumps, including PLCs, relays and alarms.

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

### Applications

- Ultrapure liquids compatible with PFA / EPDM
- Clean liquids compatible with PP / PFA and viton / EPDM
- Corrosive liquids compatible with PP / PFA and viton / EPDM
- Dirty liquids ranging up to a maximum of medium slurry
- Coating liquids ranging up to a maximum of medium coating
- Leak detection in and around secondary containment vessels

**bürkert**  
*Easy* Fluid Control Systems



### Principle of operation

- An electrical capacitor is formed between the sensing probe and its application environment, air or liquid. As liquid comes into contact with the probe, the capacitance effect is greatly increased and the switch changes state. The RF capacitance level switch is factory calibrated for use in liquids having a dielectric constant value between 20 and 80 (K).

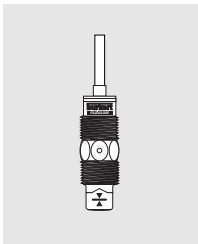
### Modular switch design

The RF capacitance level switch is available in a wide variety of configurations and materials to meet your specific requirements. The basic capacitance switch provides a FET output and is offered in both short and long probe lengths. The short switch is typically used for liquid level detection inside the tank, or leak detection in and around secondary containment vessels. The long switch is specifically designed for liquid level detection through the wall of the tank. Either switch may be combined with an IP65 junction box or compact relay controller for integral termination and/or expanded control features. For remote relay control, select from Burkert's family of SL31 rail mount controllers.

### Unsuitable applications

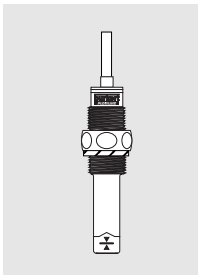
Not suitable for: 1) liquids with a dielectric constant value below 20 (K); 2) installation within 10 cm of any metallic object such as a tank wall or mixer; and 3) environments with extreme levels of electromagnetic noise.

### Short Switch with FET Output



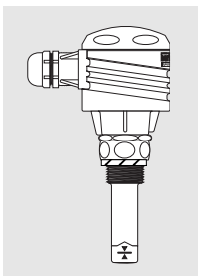
- Wetted materials all polypropylene or PFA
- Selectable normally open or normally closed states
- FET switch output for PLC, relay and LED alarm control interface
- Designed for installation inside the tank or vessel
- Probe rated IP68 through the wall or IP67 probe and cable when fully submersed
- 1 MHz, RF capacitance measurement with shielded probe and cable

### Long Switch with FET Output



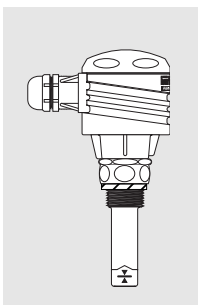
- Wetted materials all polypropylene or PFA
- Selectable normally open or normally closed states
- FET switch output for PLC, relay and LED alarm control interface
- Designed for installation through the tank wall
- Probe rated IP68 through the wall or IP67 probe and cable when fully submersed
- 1 MHz, RF capacitance measurement with shielded probe and cable

### Switch and Junction Box with FET Output



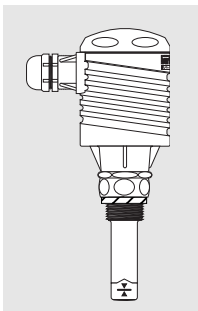
- Wetted materials all polypropylene or PFA
- Selectable normally open or normally closed states
- FET switch output for PLC, relay and LED alarm control interface
- Designed for installation through the tank wall
- 1 MHz, RF capacitance measurement with shielded probe and cable
- PP enclosure rated IP65 with rotational base, terminal strip and PG13 connector

### Switch and 14 - 36 VDC Controller with 6 Amp Relay Output



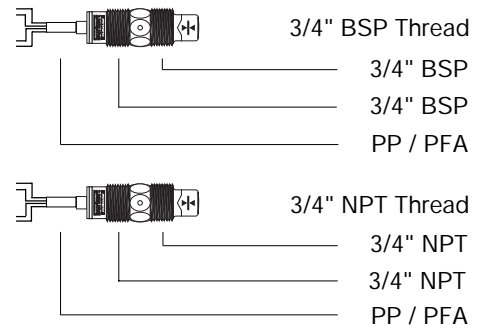
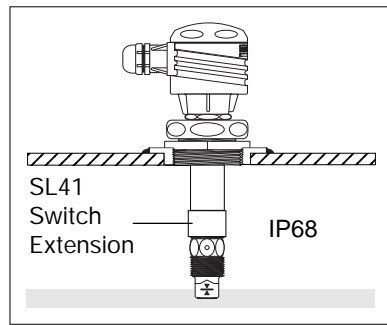
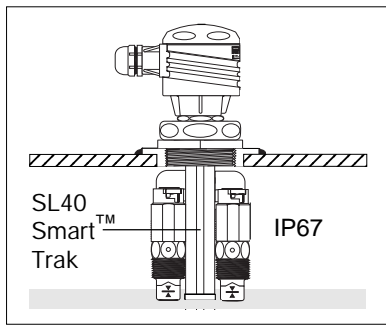
- Wetted materials all polypropylene or PFA
- Selectable normally open or normally closed states
- 6 amp, SPDT relay output for isolated PLC, pump and valve control interface
- LED lights for liquid, power and relay status
- 0 - 60 second time delay dampens process turbulence
- PP enclosure rated IP65 with rotational base and PG13 cable connector

### Switch and 110 / 220 VAC Controller with 12 Amp Relay Output

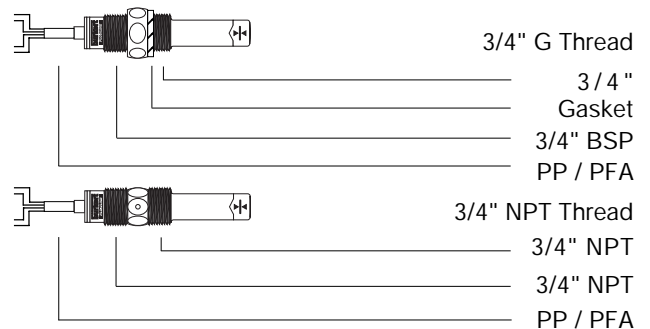
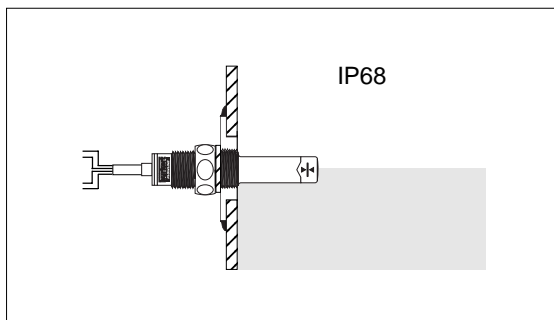


- Wetted materials all polypropylene or PFA
- Selectable normally open or normally closed states
- 12 amp, SPDT relay output for isolated PLC, pump and valve control interface
- LED lights for liquid, power and relay status
- 0 - 60 second time delay dampens process turbulence
- PP enclosure rated IP65 with rotational base and PG13 cable connector

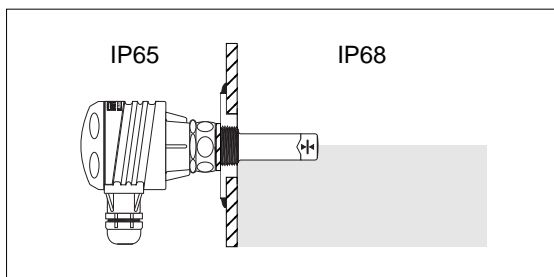
## Short Switch with FET Output



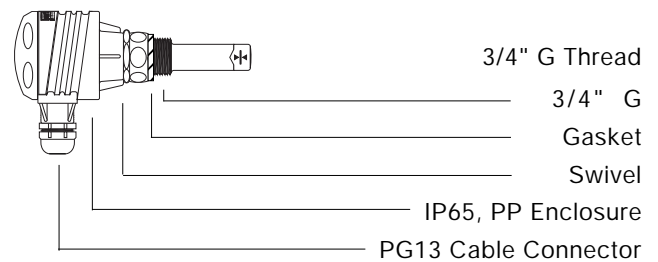
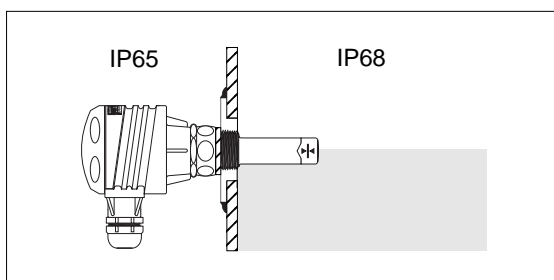
## Long Switch with FET Output



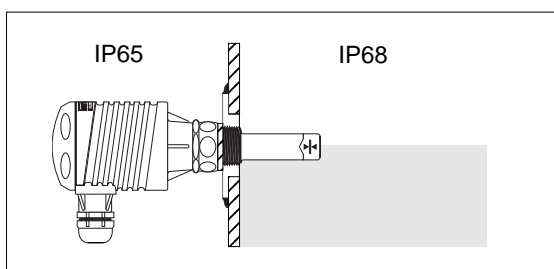
## Switch and Junction Box with FET Output



## Switch and 14 - 36 VDC Controller with 6 Amp Relay Output

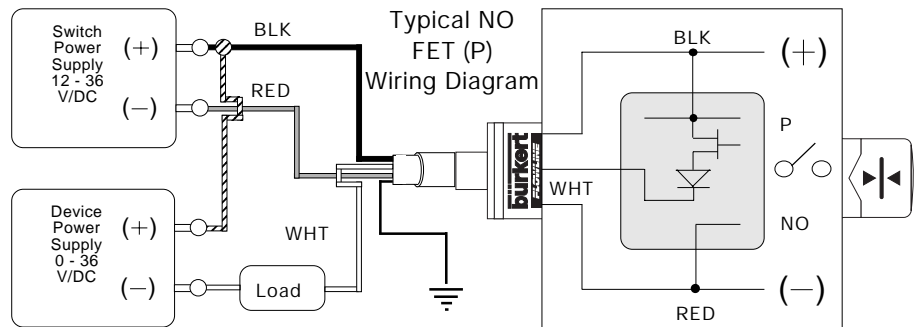


## Switch and 115 / 230 VAC Controller with 12 Amp Relay Output



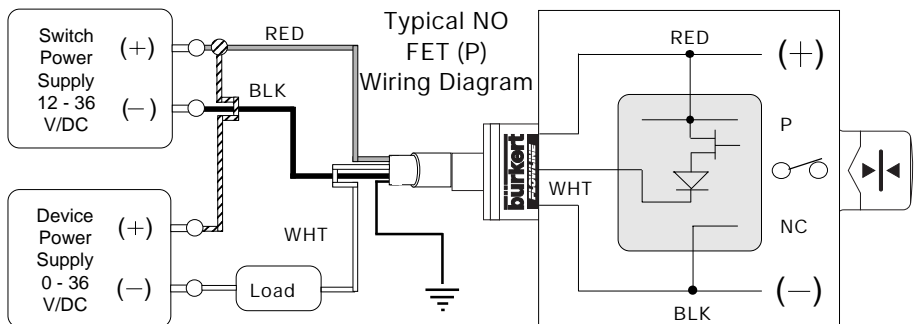
## Short Switch with FET Output

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



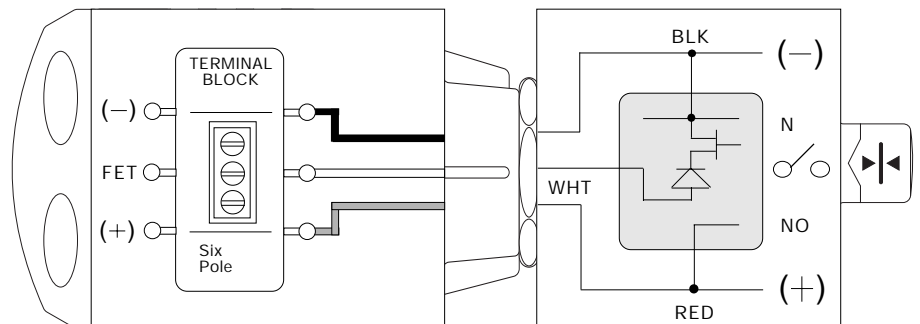
## Long Switch with FET Output

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



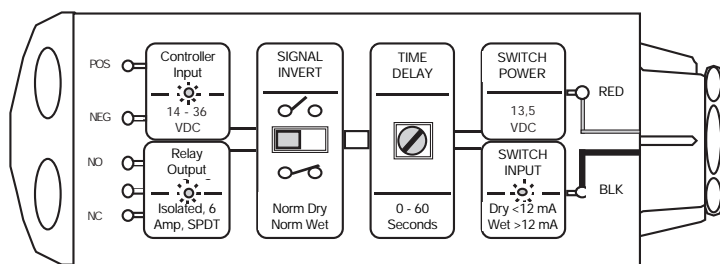
## Switch and Junction Box with FET Output

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



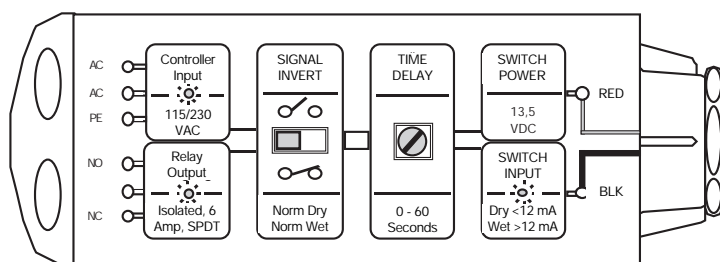
## Switch and 14 - 36 VDC Controller with 6 Amp Relay Output

Relay type	Isolated, 6 Amp SPDT
Relay mode	Selectable, NO or NC
Time delay	Adjustable 0 - 60 seconds
Display	LED lights for liquid, power and relay status



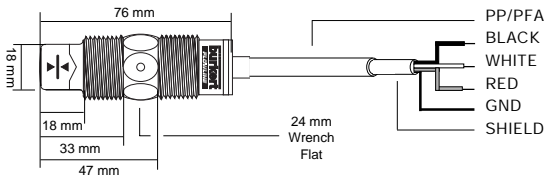
## Switch and 115 / 230 VAC Controller with 12 Amp Relay Output

Relay type	Isolated, 12 Amp SPDT
Relay mode	Selectable, NO or NC
Time delay	Adjustable 0 - 60 seconds
Display	LED lights for liquid, power and relay status

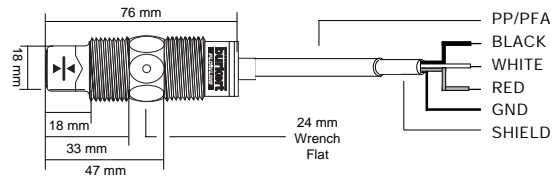


## Short Switch with FET Output

### Switch with 3/4" BSP Mounting Threads

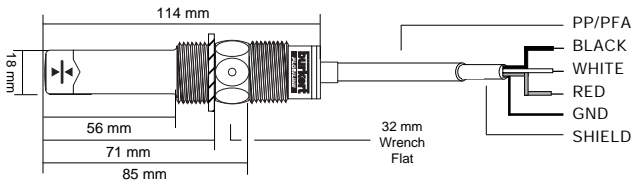


### Switch with 3/4" NPT Mounting Threads

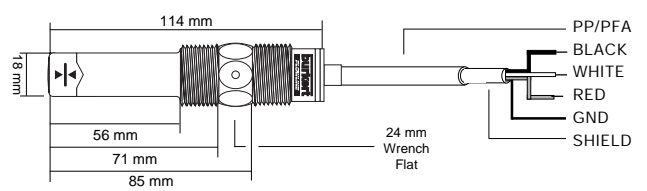


## Long Switch with FET Output

### Switch with 3/4" G Mounting Threads

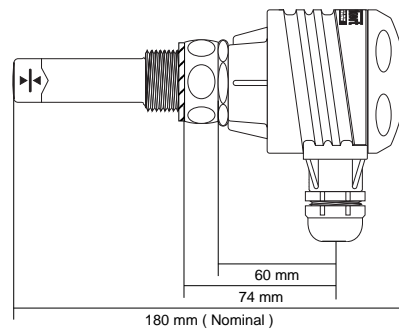
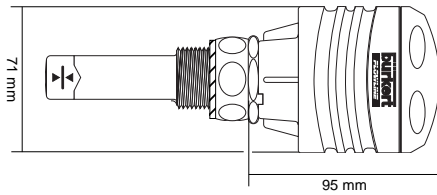


### Switch with 3/4" NPT Mounting Threads



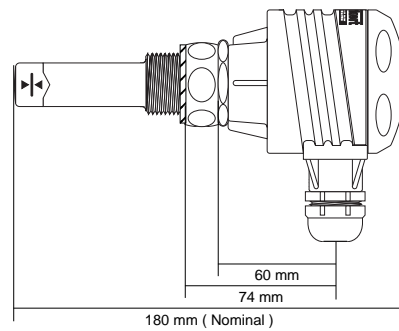
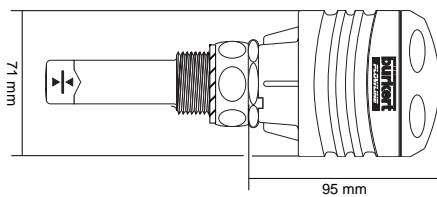
## Switch and Junction Box with FET Output

### Long Switch with 3/4" G Mounting Threads



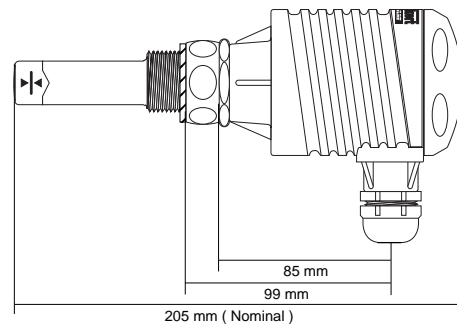
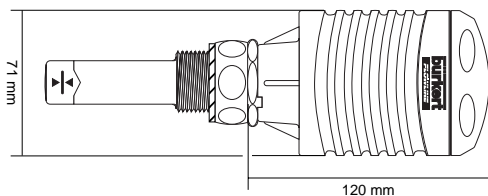
## Switch and 14 - 36 VDC Controller with 6 Amp Relay Output

### Long Switch with 3/4" G Mounting Threads

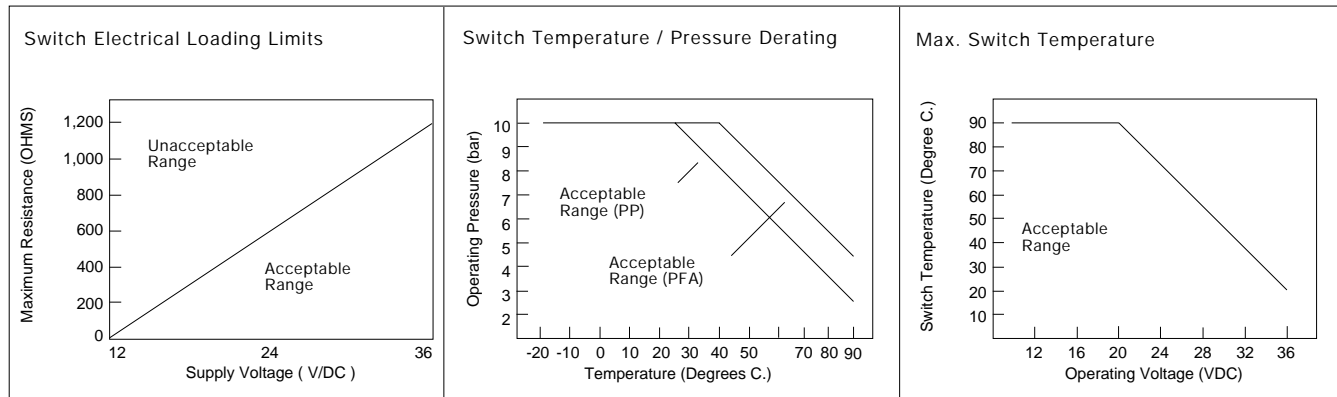


## Switch and 115 / 230 VAC Controller with 12 Amp Relay Output

### Long Switch with 3/4" G Mounting Threads



## Technical Data



## RF Capacitance Switch Technical Data

Accuracy	+ / - 1 mm in water
Repeatability	+ / - .5 mm in water
Dielectric range	20 - 80 dielectric units @ 1 MHz
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 maximum (independent of supply)
FET switch mode	Selectable, NO or NC states
Wetted materials	PP or PFA probe, viton or EPDM gasket
Pressure rating	PP probe: 10 bar @ 25 degrees C. derated @ .11338 bar per degree C. above 25 degrees C. or PFA probe: 10 bar @ 40 degrees C. derated @ .11338 bar per degree C. above 40 degrees C.
Temperature rating	90 degrees C. maximum
Mounting threads	Available in 3/4" G, 3/4" BSP & 3/4" NPT
Probe rating	IP68 through-wall / IP67 submersed
Cable type	3 wire, 22 gauge with ground, foil shield and PP or PFA sealed jacket
Cable length	3.5 meters

## Relay Controller Technical Data

Voltage input	AR type: 230 / 115 VAC, 50 - 60 Hz., DR type: 14 - 36 VDC
Current consumption	.25 amp maximum
Switch supply voltage	13.5 VDC (nominal)
Relay type	Isolated, SPDT ( form C )
Switching voltage	AR type: 380 VAC / 150 VDC, DR type: 240 VAC / 120 VDC
Switching current	AR type: 12 amp, DR type: 6 amp maximum non-inductive loads
Contact material	Silver cadmium oxide
Contact resistance	30 milliohms initially (at maximum current and voltage ratings)
Relay state	Switch selectable, normally open or normally closed states
Relay time delay	Adjustable from 0.15 - 60 seconds
Temperature rating	70 degrees C. maximum
Enclosure rating	IP65 splash proof and chemical resistant design
Enclosure material	PP flame retardant ( U.L. 94VO )
Cable connection	PG13 liquid-tight cable connector
Mounting threads	3/4" BSP or 3/4" NPT

## Ordering Chart (Other Versions on Request)

Supply Voltage	Output	Probe Length	Mounting Threads	Probe Material	Specification	Order-No.
12 - 36 V/DC	FET ( P )	SHORT	BSP 3/4"	PP	SL20-SPSMPO	417000 U
12 - 36 V/DC	FET ( P )	SHORT	BSP 3/4"	PFA	SL20-SPSMFO	417001 R
12 - 36 V/DC	FET ( N )	SHORT	BSP 3/4"	PP	SL20-SNSMPO	417110 N
12 - 36 V/DC	FET ( N )	SHORT	BSP 3/4"	PFA	SL20-SNSMFO	417112 C
12 - 36 V/DC	FET ( P )	LONG	G 3/4"	PP	SL20-SPLMPE	417208 D <sup>3)</sup>
12 - 36 V/DC	FET ( P )	LONG	G 3/4"	PP	SL20-SPLMPV	417332 Q <sup>2)</sup>
12 - 36 V/DC	FET ( P )	LONG	G 3/4"	PFA	SL20-SPLMFE	417089 R <sup>3)</sup>
12 - 36 V/DC	FET ( P )	LONG	G 3/4"	PFA	SL20-SPLMFV	417214 J <sup>2)</sup>
12 - 36 V/DC	FET ( N )	LONG	G 3/4"	PP	SL20-SNLMPE	417215 K <sup>3)</sup>
12 - 36 V/DC	FET ( N )	LONG	G 3/4"	PP	SL20-SNLMFV	417216 L <sup>2)</sup>
12 - 36 V/DC	FET ( N )	LONG	G 3/4"	PFA	SL20-SNLMFE	417217 M <sup>3)</sup>
12 - 36 V/DC	FET ( N )	LONG	G 3/4"	PFA	SL20-SNLMFV	417218 W <sup>2)</sup>
230 / 115 V/AC	12 AMP	SHORT	BSP 3/4"	PP	SL20-ARSMPO	417219 X
230 / 115 V/AC	12 AMP	SHORT	BSP 3/4"	PFA	SL20-ARSMFO	417220 U
14 - 36 V/DC	6 AMP	SHORT	BSP 3/4"	PP	SL20-DRSMPO	417221 R
14 - 36 V/DC	6 AMP	SHORT	BSP 3/4"	PFA	SL20-DRSMFO	417222 J
220 / 110 V/AC	12 AMP	LONG	G 3/4"	PP	SL20-ARLMPE	417223 K <sup>3)</sup>
230 / 115 V/AC	12 AMP	LONG	G 3/4"	PP	SL20-ARLMPV	417224 L <sup>2)</sup>
230 / 115 V/AC	12 AMP	LONG	G 3/4"	PFA	SL20-ARLMFE	417225 M <sup>3)</sup>
220 / 110 V/AC	12 AMP	LONG	G 3/4"	PFA	SL20-ARLMFV	417226 N <sup>2)</sup>
14 - 36 V/DC	6 AMP	LONG	G 3/4"	PP	SL20-DRLMPE	417227 P <sup>3)</sup>
14 - 36 V/DC	6 AMP	LONG	G 3/4"	PP	SL20-DRLMPV	417228 Y <sup>2)</sup>
14 - 36 V/DC	6 AMP	LONG	G 3/4"	PFA	SL20-DRLMFE	417229 Z <sup>3)</sup>
14 - 36 V/DC	6 AMP	LONG	G 3/4"	PFA	SL20-DRLMFV	417230 W <sup>2)</sup>
12 - 36 V/DC	FET ( P )	SHORT	BSP 3/4"	PP	SL20-JPSMPO	417231 K <sup>1)</sup>
12 - 36 V/DC	FET ( P )	SHORT	BSP 3/4"	PFA	SL20-JPSMFO	417232 L <sup>1)</sup>
12 - 36 V/DC	FET ( P )	LONG	G 3/4"	PP	SL20-JPLMPE	417233 M <sup>1)3)</sup>
12 - 36 V/DC	FET ( P )	LONG	G 3/4"	PP	SL20-JPLMPV	417234 N <sup>1)2)</sup>
12 - 36 V/DC	FET ( P )	LONG	G 3/4"	PFA	SL20-JPLMFE	417235 P <sup>1)2)</sup>
12 - 36 V/DC	FET ( P )	LONG	G 3/4"	PFA	SL20-JPLMFV	417236 Q <sup>1)2)</sup>

<sup>1)</sup> with Junction Box, <sup>2)</sup> Viton gasket, <sup>3)</sup> EPDM gasket.

