



The RSF10 series drop float has been designed to eliminate problems associated with limescale build up around the pivot point of a conventional float switch. It is also suitable in more viscous liquids, that might affect the pivot action of a standard float type.

The drop float actuator allows the switch housing and float pivots to be located above the surface of the liquid and provides normally closed switch contact, opening as the liquid level rises. They are manufactured in a variety of materials, with a choice of gasket materials, to suit most commonly used liquids.

Typical applications include wall kettles and hot vending machines.



- **Pivot Clear of Liquid**
- **Compact design**
- **Available in Polypropylene or PPS**
- **Many variants are UL recognised components File No. E171218**
- **WRAS approval**

Technical Specification	RSF14	RSF16
Material	Polypropylene	Polyphenylene Sulphide (PPS)
Colour	Opaque	Grey
Temp. Range °C	-20 / +100	-10 / +120*
°F	-4 / +212	+14 / +248*
Min. Fluid S.G.	0.75	0.75
Must Close Level (S.G.=1)	39mm	33mm
Must Open Level (S.G.=1)	24mm	22mm

*Maximum temperature requires ETFE cable to be specified.

Electrical Specification	
Contact Form	N/C
Switching Power Max. VA	25
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	0.6

All ratings are for resistive load only.

Standard Parts	Material	Leadouts	Gaskets
RSF14Y100RF	Polypropylene	1.0m PVC 16/0.2 UL approved	Nitrile
RSF16Y100RF	PPS	1.0m PVC 16/0.2 UL approved	Nitrile

Custom versions can be made for particular applications. Please contact Cynergy3 with your requirements.

USA

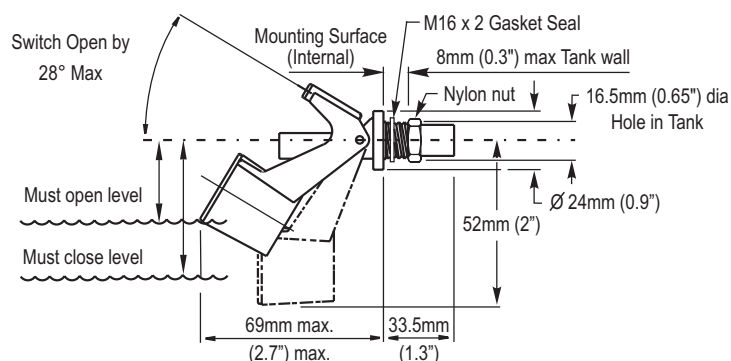
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Mechanical Dimensions

All dimensions are in millimeters (inches)





The RSF20 is designed to eliminate the problems associated with limescale build up around the pivot point on a conventional float switch.

This particular series is primarily for applications where a low level condition has to be monitored, in a system where the liquid is usually maintained at a high level, or where a wider differential is required between the opening and closing levels.

The extended drop float actuator allows the switch housing and float pivots to be located above the surface of the liquid, while the excess buoyancy of the float chamber itself ensures that it remains buoyant, even when scale builds up on the float chamber. Typical applications include wall kettles and hot vending machines.

The switch action is closed when the level is low (float down), and opens as the liquid level rises.



- *Low level switch position*
- *Hot/boiling water*
- *High buoyancy float*
- *WRAS approved for use in hot and cold water*
- *Many variants are UL recognised components. File number E171218*

Technical Specification	RSF26
Material	Polyphenylene Sulphide (PPS)
Colour	Grey
Temp. Range °C	-10 / +120*
°F	+14 / +248*
Min. Fluid S.G.	0.75
Must Close Level (S.G.=1)	140mm
Must Open Level (S.G.=1)	110mm

*Maximum temperature requires ETFE cable to be specified.

Electrical Specification	
Contact Form	N/C
Switching Power Max. VA	25
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	0.6

All ratings are for resistive load only.

Standard Parts	Material	Leadouts	Gaskets
RSF26Y100RF	PPS	1.0m PVC 16/0.2 UL approved	Nitrile

Custom versions can be made for particular applications. Please contact Cynergy3 with your requirements.

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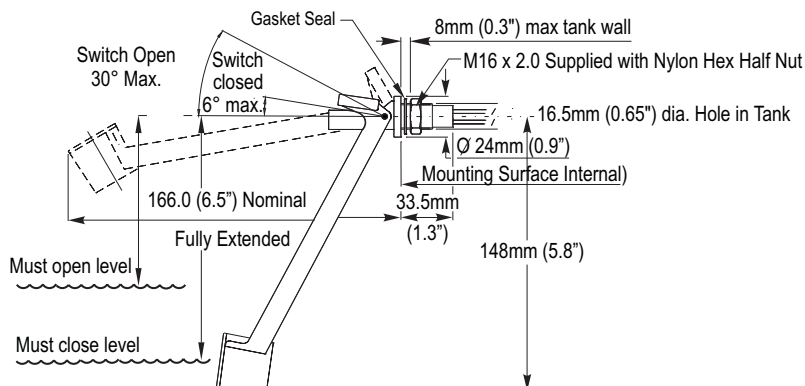
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Mechanical Dimensions

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Competitive part number cross-reference available at: www.cynergy3.com



The RSF30 series is a range of higher power side entry, internally fitted devices. These may be used for directly switching some small loads of less than 100VA. Mounting of this series requires access to the inside of the tank. They are manufactured in Nylon or Polypropylene, with a choice of gasket materials, to suit most commonly used liquids.

The switch action may be reversed by rotating the device through 180°.



- **100W contacts**
- **Rugged design**
- **Reliable reed switch contacts**
- **WRAS approval**
- **Many variants are UL recognised components File No. E171218**

Technical Specification	RSF33	RSF34
Material	Nylon	Polypropylene
Colour	Black	Opaque
Temp. Range °C	-20 / +75	-20 / +100
°F	-4 / +167	+4 / +212
Min. Fluid S.G.	0.8	0.8
Must Close Level (S.G.=1)	20mm	23mm
Must Open Level (S.G.=1)	47mm	52mm

*Maximum temperature requires ETFE cable to be specified.

Electrical Specification	
Contact Form	N/O (N/C)
Switching Power Max. VA	100
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	5

All ratings are for resistive load only.

Standard Parts	Material	Leadouts	Gaskets
RSF33Y100RC	Nylon	1.0m PVC 16/0.2 UL approved	Nitrile
RSF34W100RF	Polypropylene	1.0m PVC 16/0.2 UL approved	Nitrile

Custom versions can be made for particular applications. Please contact Cynergy3 with your requirements.

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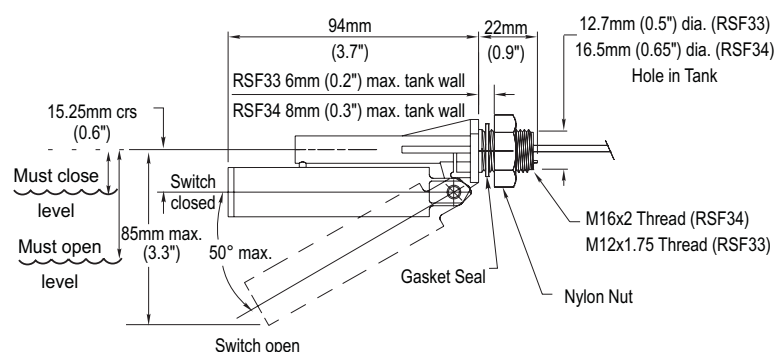
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Mechanical Dimensions

All dimensions are in millimeters (inches)





The RSF40 series is designed as a compact internal fitting device, with a wide range of options, making this ideal for size sensitive applications. Mounting of this series requires access to the inside of the tank.

Typical applications include vending machines, commercial washing machines and evaporator units.

They are manufactured in a variety of materials, with a choice of gasket materials, to suit most commonly used liquids.

The switch action may be reversed by rotating the device through 180°.

Some of these types are also available with 1/2" BSF thread.



- **Compact design**
- **Reliable reed switch contacts**
- **Available in Nylon, Acetal, Polypropylene or PPS**
- **WRAS approval**
- **Many variants are UL recognised components file number E171218**

Technical Specification	RSF41	RSF43	RSF44	RSF46
Material	Acetal	Nylon	Polypropylene	Polyphenylene Sulphide (PPS)
Colour	Red	Black	Opaque	Grey
Temp. Range °C	-10 / +60	-20 / +75	-20 / +100	-10 / +120*
°F	+14 / +140	-4 / +167	-4 / +212	+14 / +248*
Min. Fluid S.G.	0.875	0.85	0.85	0.85
Must Close Level (S.G.=1)	5mm	7mm	8mm	9mm
Must Open Level (S.G.=1)	18mm	20mm	20mm	24mm

*Maximum temperature requires ETFE cable to be specified.

Electrical Specification

Contact Form	N/O (N/C)
Switching Power Max. VA	25
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	0.6

All ratings are for resistive load only.

Standard Parts	Material	Leadouts	Gaskets
RSF43Y100RF	Nylon	1.0m PVC 16/0.2 UL approved	Nitrile
RSF44Y100RF	Polypropylene	1.0m PVC 16/0.2 UL approved	Nitrile
RSF46Y100RF	PPS	1.0m PVC 16/0.2 UL approved	Nitrile

Custom versions can be made for particular applications. Please contact Cynergy3 with your requirements.

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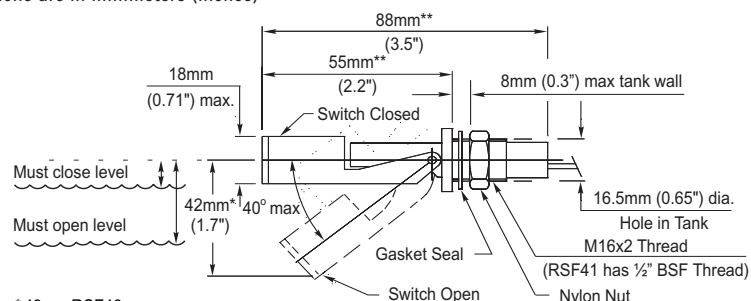
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Mechanical Dimensions

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* 49mm RSF46

** Add 10mm to dims, RSF46



The RSF70 series is designed for external fitting, achieved with a high grade compression seal. This avoids the need for access to the inside of the chamber and is ideally suited to applications where space or fitting time are prime considerations.

They are manufactured in a variety of materials, with a choice of gasket materials, to suit most commonly used liquids.

The switch action may be reversed by rotating the device through 180°.

Typical applications include auxilliary tanks on vehicles and commercial dishwashers.



- **External Mount**
- **Fast Fitting**
- **Compact size**
- **WRAS Approval**
- **Many variants are UL recognised components file number E171218**

Technical Specification		RSF73	RSF74	RSF76
Material		Nylon	Polypropylene	Polyphenylene Sulphide (PPS)
Colour		Black	Opaque	Grey
Temp. Range	°C	-20 / +75	-20 / +100	-10 / +120*
	°F	-4 / +167	-4 / +212	+14 / +248*
Min. Fluid S.G.		0.85	0.85	0.85
Must Close Level (S.G.=1)		7mm	8mm	9mm
Must Open Level (S.G.=1)		20mm	20mm	24mm

*Maximum temperature requires ETFE cable to be specified.

Electrical Specification	
Contact Form	N/O (N/C)
Switching Power Max. VA	25
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	0.6

All ratings are for resistive load only.

Standard Parts	Material	Leadouts	Gaskets
RSF73Y100RN	Nylon	1.0m PVC 16/0.2 UL approved	Nitrile
RSF74Y100RN	Polypropylene	1.0m PVC 16/0.2 UL approved	Nitrile
RSF76Y100RN	PPS	1.0m PVC 16/0.2 UL approved	Nitrile

Custom versions can be made for particular applications. Please contact Cynergy3 with your requirements.

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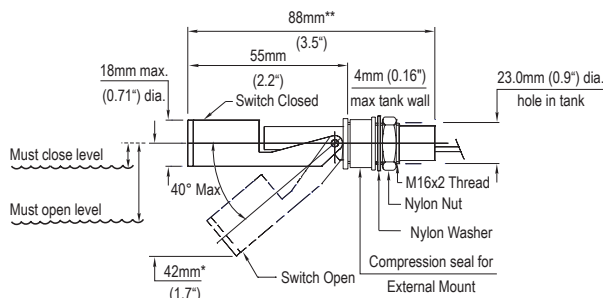
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Mechanical Dimensions

All dimensions are in millimeters (inches)



* 49mm RSF76

** Add 10mm to dims. RSF76



The RSF80 series is designed for external mounting, achieved with a 1/2" NPT taper thread. This avoids the need for access to the inside of the chamber and is ideally suited to applications where space or fitting time are prime considerations.

They are manufactured in a variety of materials to suit most commonly used liquids.

The switch action may be reversed by rotating the device through 180°.

Typical applications are Diesel level for Generators, Hydraulic Oil and Gearbox Oil Level.



- **External mount**
- **Quick to install**
- **Available in Nylon, Polypropylene or PPS**
- **Ideal for tanks with inaccessible tops or bottoms**
- **WRAS approval**
- **Many variants are UL recognised components File Number E171218**

Technical Specification	RSF83	RSF84	RSF86
Material	Nylon	Polypropylene	Polyphenylene Sulphide (PPS)
Colour	Black	Opaque	Grey
Temp. Range °C	-20 / +75	-20 / +100	-10 / +120*
°F	-4 / +167	-4 / +212	+14 / +248*
Min. Fluid S.G.	0.85	0.85	0.85
Must Close Level (S.G.=1)	7mm	8mm	9mm
Must Open Level (S.G.=1)	20mm	20mm	24mm

*Maximum temperature requires ETFE cable to be specified.

Electrical Specification	
Contact Form	N/O (N/C)
Switching Power Max. VA	25
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	0.6

All ratings are for resistive load only.

Standard Parts	Material	Leadouts
RSF83Y100R	Nylon	1.0m PVC 16/0.2 UL approved
RSF84Y100R	Polypropylene	1.0m PVC 16/0.2 UL approved
RSF86Y100R	PPS	1.0m PVC 16/0.2 UL approved

Custom versions can be made for particular applications. Please contact Cynergy3 with your requirements.

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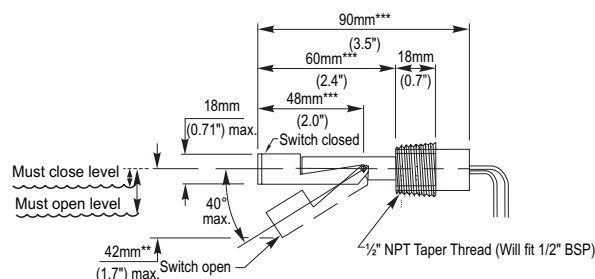
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Mechanical Dimensions

All dimensions are in millimeters (inches)



** 49mm RSF86

*** Add 10mm to dims, RSF86



The SSF211 series is a horizontally mounted switch that is mounted internally in the side of the tank, so requires access to the inside of the tank.

They are manufactured in 304 grade Stainless Steel, for those liquids and environments that require the use of Stainless Steel and will work in liquids of SG 0.8 minimum.

The switch action may be reversed by mounting the device with the float able to move upwards away from the body, instead of the more normal downwards direction.



- **Stainless steel**
- **Internal mounting**
- **Compact design**
- **Temperature range to 180°C**
- **User configurable N/O or N/C action**

Technical Specification

Mounting style	Internal	Cable length - standard	500mm
Mounting thread	1/8" BSP	Cable size	17/0.10 - AWG22
Float & Stem material	304 grade	Cable conductor material	Tinned copper
Maximum Temperature	120°C/ 180°C	Cable sheath material	XLPE
Maximum Pressure	5 bar	Cable temperature rating	125°C
Float SG	0.7	Sealing gasket	Not supplied
Minimum fluid SG	0.8	Tightening torque for fixing nut	2.0kg/cm

Electrical Specification

Contact Form	N/O
Switching Power Max. VA	50
Switching Current Max. A	0.5
Switching Voltage AC	300
Switching Voltage DC	300

All ratings are for resistive load only.

Standard Parts

Standard Parts	Version	Leadouts
SSF211X050	120°C	50cm XLPE wires
SSF211X050H	180°C	50cm XLPE wires

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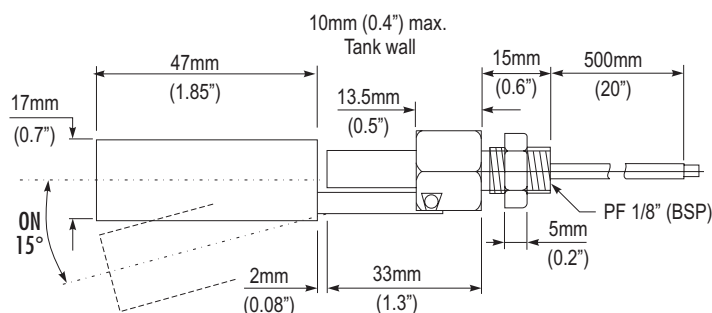
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Mechanical Dimensions

All dimensions are in millimeters (inches)





The SSF212 series is a horizontally mounted switch that is mounted externally in the side of the tank, with a ½" NPT (fits ½" BSP) thread.

They are manufactured in 304 grade Stainless Steel, for those liquids and environments that require the use of Stainless Steel and will work in liquids of SG 0.8 minimum.

The switch action may be reversed by mounting the device with the orientation arrow pointing downwards, instead of the normal upwards direction.

A version is available, Type SSF212XP, with a plug and socket, for customer wiring.



- **Stainless steel**
- **External fitting**
- **Compact design**
- **Temperature range to 180°C**
- **User configurable N/O or N/C action**

Technical Specification

Mounting style	External	Cable length - standard	500mm
Mounting thread	1/2" NPT	Cable size	17/0.10 - AWG22
Float & Stem material	304 grade	Cable conductor material	Tinned copper
Maximum Temperature	120°C/ 180°C	Cable sheath material	XLPE
Maximum Pressure	5 bar	Cable temperature rating	125°C
Float SG	0.7	Sealing gasket	Not supplied
Minimum fluid SG	0.8	Tightening torque for fixing nut	N/A

Electrical Specification

Contact Form	N/O
Switching Power Max. VA	50
Switching Current Max. A	0.5
Switching Voltage AC	300
Switching Voltage DC	300

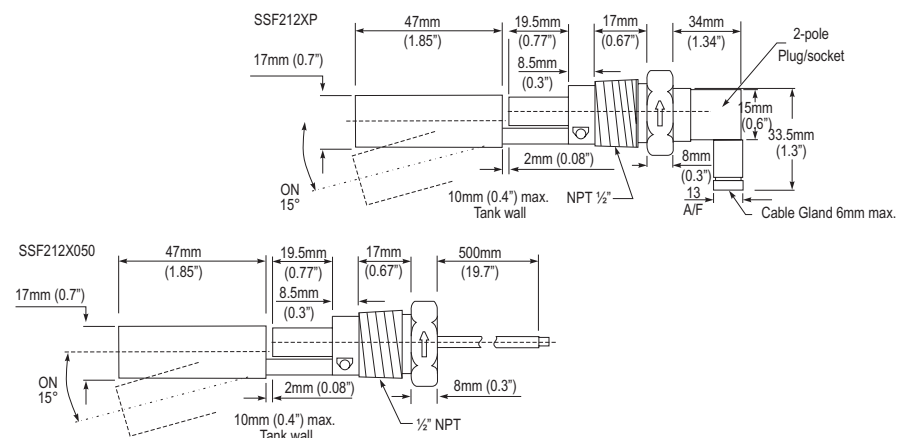
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Standard Parts

Standard Parts	Version	Leadouts
SSF212X050	120°C	50cm XLPE wires
SSF212X050H	180°C	50cm XLPE wires
SSF212XP	120°C	Plug and socket connection
SSF212XPH	180°C	Plug and socket connection

Mechanical Dimensions

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The SSF213 series is a miniature horizontally mounted switch that is mounted internally in the side of the tank, so requires access to the inside of the tank.

Total length inside tank for this type is 54.5 mm.

They are manufactured in 304 grade Stainless Steel, for those liquids and environments that require the use of Stainless Steel and will work in liquids of SG 0.8 minimum.

The switch action may be reversed by mounting the device with the float able to move upwards away from the body, instead of the normal downwards direction.



- **Stainless steel**
- **Internal mounting**
- **Miniature design**
- **Temperature range to 120°C**
- **User configurable N/O or N/C action**

Technical Specification

Mounting style	Internal	Cable length - standard	500mm
Mounting thread	1/8" BSP	Cable size	17/0.10 - AWG22
Float & Stem material	304 grade	Cable conductor material	Tinned copper
Maximum Temperature	120°C	Cable sheath material	XLPE
Maximum Pressure	5 bar	Cable temperature rating	125°C
Float SG	0.7	Sealing gasket	Not supplied
Minimum fluid SG	0.8	Tightening torque for fixing nut	2.0kg/cm

Electrical Specification

Contact Form	N/O
Switching Power Max. VA	1
Switching Current Max. A	0.1
Switching Voltage AC	24
Switching Voltage DC	24

All ratings are for resistive load only.

Standard Parts

SSF213T050

Leadouts

50cm XLPE wires

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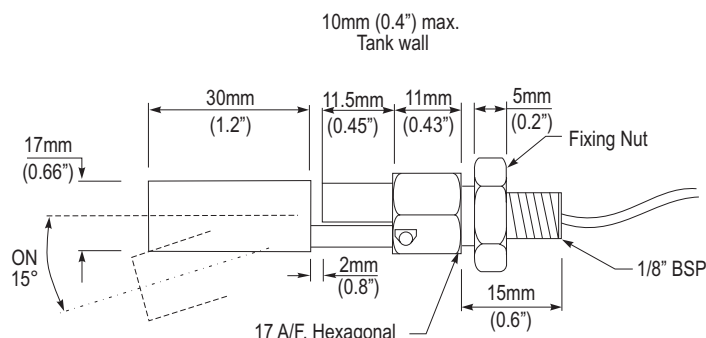
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Mechanical Dimensions

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The RSF50 series are compact vertically mounted devices with a single switch point. Mounting is in the top or bottom of the tank from the inside, so requires access to the inside of the tank.

Typical applications include printing systems and chemical dosing equipment.

They are manufactured in a variety of materials, with a choice of gasket materials, to suit most commonly used liquids.

The switch action may be reversed by removing the float, inverting it and then refitting it to the stem.

All types are also available with 1/8" NPT tapered thread.



- **Compact design**
- **User configurable N/O or N/C operation**
- **Reliable reed switch contacts**
- **Available in PPS, Polypropylene and Nylon**
- **WRAS approval**
- **Many variants are UL recognised components File No. E171218**

Technical Specification	RSF53	RSF54	RSF56
Material	Nylon	Polypropylene	Polyphenylene Sulphide (PPS)
Colour	Black	Opaque	Grey
Temp. Range °C	-20 / +75	-20 / +100	-10 / +120*
°F	-4 / +167	+4 / +212	+14 / +248*
Min. Fluid S.G.	0.8	0.65	0.85
Must Close Level (S.G.=1)	11.5mm	15.0mm	9.5mm
Must Open Level (S.G.=1)	22.5mm	26.0mm	20.5mm

*Maximum temperature requires ETFE cable to be specified.

Electrical Specification	(RSF53/54/56)
Contact Form	N/O (N/C)
Switching Power Max. VA	25
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	0.6

All ratings are for resistive load only.

Standard Parts	Material	Leadouts	Gaskets
RSF53Y100RC	Nylon	1.0m PVC 16/0.2 UL approved	Nitrile
RSF54Y100RC	Polypropylene	1.0m PVC 16/0.2 UL approved	Nitrile
RSF56Y100RC	PPS	1.0m PVC 16/0.2 UL approved	Nitrile

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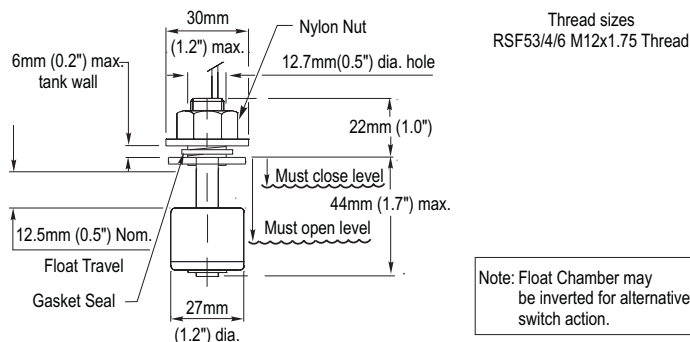
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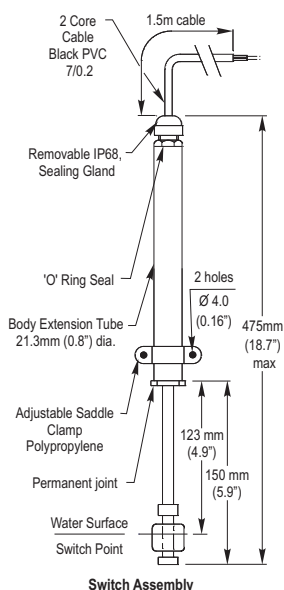
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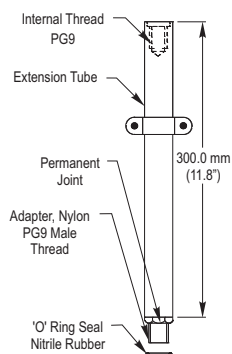


Mechanical Dimensions

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Switch Assembly



Extension Assembly

A vertical float switch, with either normally open or normally closed (when the float is down) switching action, permanently coupled to a 300mm PVC tube. This provides a float switch, whose overall depth can be varied between 150mm and 450mm, by adjusting its position in a sliding clamp.

Further 306mm PVC extension tubes may be added, up to a maximum of three, to provide insertion depths up to 1350mm.

- **Insertion Depth 150mm - 350mm**
- **Easy to install**
- **Adjustable Level**

Technical Specification

Operating Temperature	°C °F	0 / +75 32/+167
Minimum S.G. of Fluid		0.65
Float material		Polypropylene
Stem material		Polyphenylene Sulphide
Tube material		PVC Class 7
Cable length Metres		1.5
Maximum Switching Voltage	(V ac/dc)	250/120
Maximum Switching Current	(A)	0.5
Maximum Switching Power	(W/VA)	25

All ratings are for resistive load only

Electrical Specification

Contact Form	N/O (N/C)
Switching Power Max. VA	25
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	0.6



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Competitive part number cross-reference available at: www.cynergy3.com



A range of extension tubes available in Polypropylene or Stainless Steel (316L grade), which extend the reach of the various vertical float switches.

The Polypropylene tubes, with either M12 or M16 threads, are intended for use with our plastic types of float switches and are available in 250mm, 500mm and 750mm lengths.

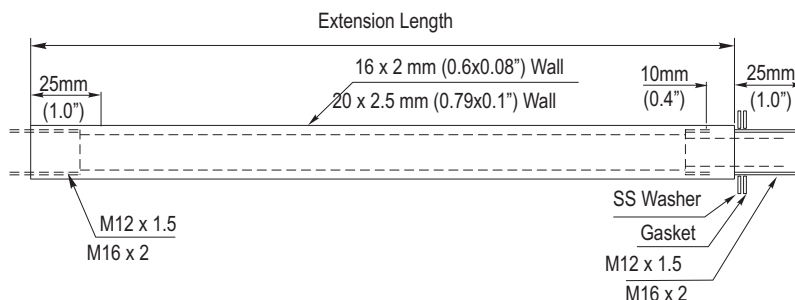
Stainless steel extension tubes, with either 1/8BSP (G1/8) or 3/8BSP (G3/8), are intended for use with our stainless steel float switches and are available in lengths from 250mm to 1000mm

Cynergy3 Part	Material	Thread type	Extension length	Gasket
EXT02 5M12PP	Polypropylene	M12x1.75	250mm	Nitrile
EXT050M12PP	Polypropylene	M12x1.75	500mm	Nitrile
EXT075M12PP	Polypropylene	M12x1.75	750mm	Nitrile
EXT025M16PP	Polypropylene	M16x2	250mm	Nitrile
EXT050M16PP	Polypropylene	M16x2	500mm	Nitrile
EXT075M16PP	Polypropylene	M16x2	750mm	Nitrile
EXT025G18SS	316 grade SS	G1/8	250mm	Nitrile
EXT050G18SS	316 grade SS	G1/8	500mm	Nitrile
EXT075G18SS	316 grade SS	G1/8	750mm	Nitrile
EXT100G18SS	316 grade SS	G1/8	1000mm	Nitrile
EXT025G38SS	316 grade SS	G3/8	250mm	Nitrile
EXT050G38SS	316 grade SS	G3/8	500mm	Nitrile
EXT075G38SS	316 grade SS	G3/8	750mm	Nitrile
EXT100G38SS	316 grade SS	G3/8	1000mm	Nitrile

Mechanical Dimensions

All dimensions are in millimeters (inches)

Ext. PP Versions



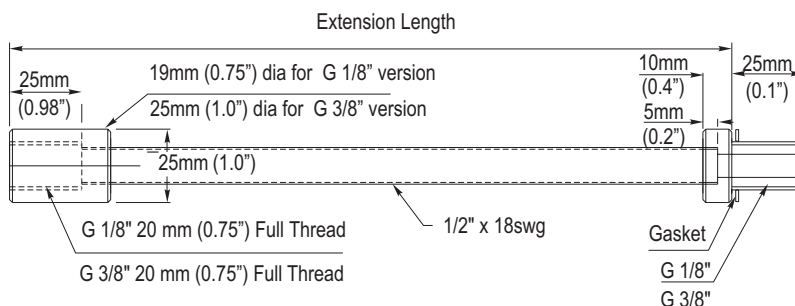
USA

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Ext. SS Versions





The SF22 series is a compact vertically mounted device designed to achieve reliable switching. Mounting is in the top or bottom of the tank from the inside, so requires access to the inside of the tank.

They are manufactured in 316 grade Stainless Steel.

The switch action may be reversed by removing the float, inverting it and then refitting it to the stem.



- **Stainless steel**
- **Compact design**
- **Temperature range to 120°C**
- **User configurable N/O or N/C action**

Technical Specification

Mounting style	Internal	Cable length - standard	350mm
Mounting thread	1/8" BSP	Cable size	17/0.10 - AWG22
Float & Stem material	316 grade	Cable conductor material	Tinned copper
Maximum Temperature	120°C	Cable sheath material	XLPE
Maximum Pressure	10 bar	Cable temperature rating	125°C
Float SG	0.7	Sealing gasket	Not supplied
Minimum fluid SG	0.8	Tightening torque for fixing nut	2.0kg/cm

Electrical Specification

Contact Form	N/O or N/C
Switching Power Max. VA	50
Switching Current Max. A	0.5
Switching Voltage AC	300
Switching Voltage DC	300
Breakdown Voltage Min. DC	600

All ratings are for resistive load only.

Standard Parts

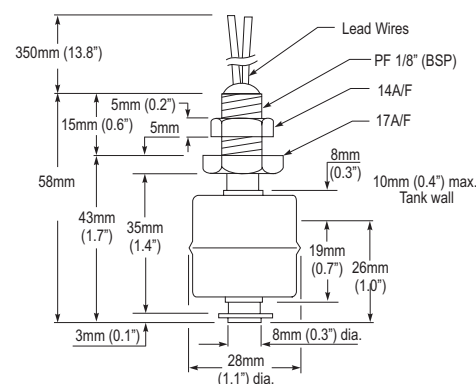
SSF22X035

Leadouts

35cm XLPE wires

Mechanical Dimensions

All dimensions are in millimeters (inches)



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The SSF24 series is a compact horizontally mounted device designed to achieve reliable switching.

Mounting is in the side of the tank from the inside, so requires access to the inside of the tank.

They are manufactured in 316 grade Stainless Steel, and will work in liquids of SG 0.8 minimum.

The switch action may be reversed by removing the float, inverting it and then refitting it to the stem.



- **Stainless steel**
- **Internal mounting**
- **Compact design**
- **Temperature range to 120°C**
- **User configurable N/O or N/C action**

Technical Specification

Mounting style	Internal	Cable length - standard	350mm
Mounting thread	1/8" BSP	Cable size	17/0.10 - AWG22
Float & Stem material	316 grade	Cable conductor material	Tinned copper
Maximum Temperature	120°C	Cable sheath material	XLPE
Maximum Pressure	10 bar	Cable temperature rating	125°C
Float SG	0.7	Sealing gasket	Not supplied
Minimum fluid SG	0.8	Tightening torque for fixing nut	2.0kg/cm

Electrical Specification

Contact Form	N/O or N/C
Switching Power Max. VA	50
Switching Current Max. A	0.5
Switching Voltage AC	300
Switching Voltage DC	300
Breakdown Voltage Min. DC	600

All ratings are for resistive load only.

Standard Parts

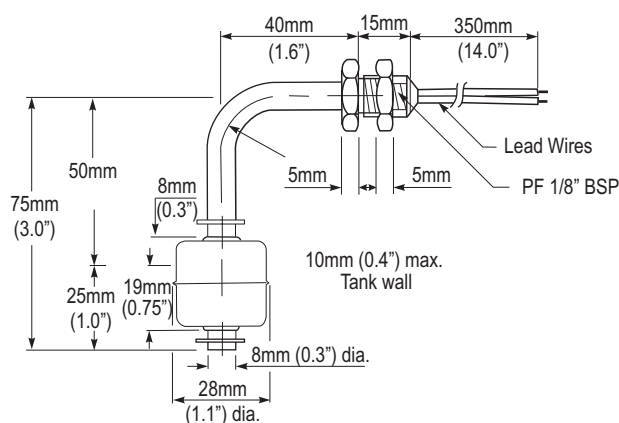
SSF24X035

Leadouts

35cm XLPE wires

Mechanical Dimensions

All dimensions are in millimeters (inches)



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The SSF26 series is a vertically mounted device designed to achieve reliable switching at higher temperatures.

Capable of working at temperatures up to 200°C.

Mounting is in the top or bottom of the tank from the inside, so requires access to the inside of the tank.

They are manufactured in 316 grade Stainless Steel, and will work in liquids of SG 0.65 minimum.

The switch action may be reversed by removing the float, inverting it and then refitting it to the stem.

Typical application is in Deep Frying Oil Tanks.



- **Stainless steel**
- **Internal mounting**
- **Temperature range to 200°C**
- **User configurable N/O or N/C action**

Technical Specification

Mounting style	Internal	Cable length - standard	350mm
Mounting thread	3/8" BSP	Cable size	17/0.10 - AWG22
Float & Stem material	316 grade	Cable conductor material	Tinned copper
Maximum Temperature	200°C	Cable sheath material	XLPE
Maximum Pressure	10 bar	Cable temperature rating	200°C
Float SG	0.55	Sealing gasket	Not supplied
Minimum fluid SG	0.65	Tightening torque for fixing nut	2.0kg/cm

Electrical Specification

Contact Form	N/O or N/C
Switching Power Max. VA	50
Switching Current Max. A	0.5
Switching Voltage AC	300
Switching Voltage DC	300
Breakdown Voltage Min. DC	600

All ratings are for resistive load only.

Standard Parts

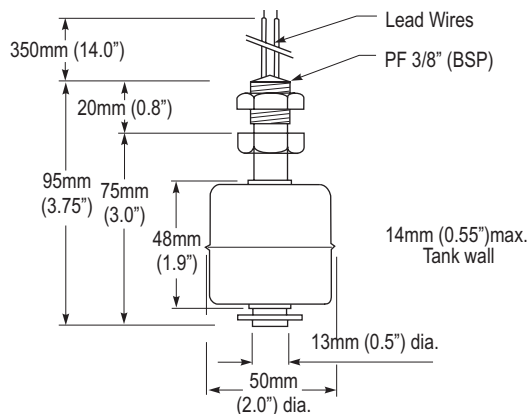
SSF26X035

Leadouts

35cm XLPE wires

Mechanical Dimensions

All dimensions are in millimeters (inches)



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The SSF28 series is a vertically mounted device designed to achieve reliable switching at higher pressures. Mounting is in the top or bottom of the tank from the inside, so requires access to the inside of the tank.

This type is capable of working at pressures of up to 40 bar.

They are manufactured in 316 grade Stainless Steel and will work in liquids of SG 0.7 minimum.

The switch action may be reversed by removing the float, inverting it and then refitting it to the stem.



- **Stainless steel**
- **Internal fitting**
- **Temperature range to 120°C**
- **Pressure up to 40 bar**
- **User configurable N/O or N/C action**

Technical Specification

Mounting style	Internal	Cable length - standard	350mm
Mounting thread	1/8" BSP	Cable size	17/0.10 - AWG22
Float & Stem material	316 grade	Cable conductor material	Tinned copper
Maximum Temperature	120°C	Cable sheath material	XLPE
Maximum Pressure	40 bar	Cable temperature rating	125°C
Float SG	0.6	Sealing gasket	Not supplied
Minimum fluid SG	0.7	Tightening torque for fixing nut	2.0kg/cm

Electrical Specification

Contact Form	N/O or N/C
Switching Power Max. VA	50
Switching Current Max. A	0.5
Switching Voltage AC	300
Switching Voltage DC	300
Breakdown Voltage Min. DC	600

All ratings are for resistive load only.

Standard Parts

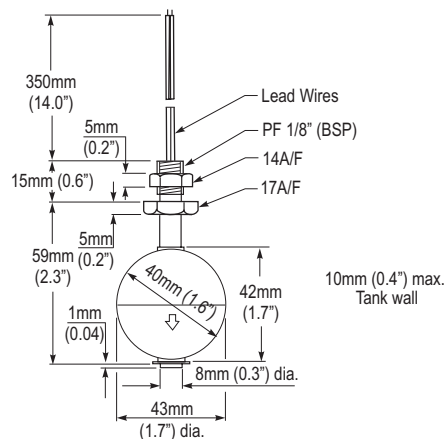
SSF28X035

Leadouts

35cm XLPE wires

Mechanical Dimensions

All dimensions are in millimeters (inches)



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The SSF29 series is a horizontally mounted device designed to achieve reliable switching at higher pressures. Mounting is in the side of the tank from the inside, so requires access to the inside of the tank.

This type is capable of working at pressures of up to 40 bar.

They are manufactured in 316 grade Stainless Steel, for those liquids and environments that require the use of Stainless Steel and will work in liquids of SG 0.7 minimum.

The switch action may be reversed by removing the float, inverting it and then refitting it to the stem.



- **Stainless steel**
- **Internal mounting**
- **Temperature range to 120°C**
- **Pressure up to 40 bar**
- **User configurable N/O or N/C action**

Technical Specification

Mounting style	Internal	Cable length - standard	350mm
Mounting thread	1/8" BSP	Cable size	17/0.10 - AWG22
Float & Stem material	316 grade	Cable conductor material	Tinned copper
Maximum Temperature	120°C	Cable sheath material	XLPE
Maximum Pressure	40 bar	Cable temperature rating	125°C
Float SG	0.6	Sealing gasket	Not supplied
Minimum fluid SG	0.7	Tightening torque for fixing nut	2.0kg/cm

Electrical Specification

Contact Form	N/O or N/C
Switching Power Max. VA	50
Switching Current Max. A	0.5
Switching Voltage AC	300
Switching Voltage DC	300
Breakdown Voltage Min. DC	600

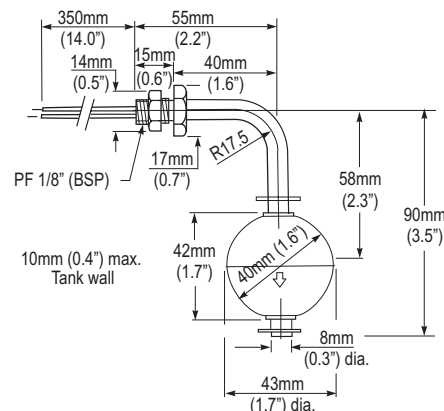
All ratings are for resistive load only.

Standard Parts

Standard Parts	Leadouts
SSF29X035	35cm XLPE wires

Mechanical Dimensions

All dimensions are in millimeters (inches)



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A range of extension tubes available in Polypropylene or Stainless Steel (316L grade), which extend the reach of the various vertical float switches.

The Polypropylene tubes, with either M12 or M16 threads, are intended for use with our plastic types of float switches and are available in 250mm, 500mm and 750mm lengths.

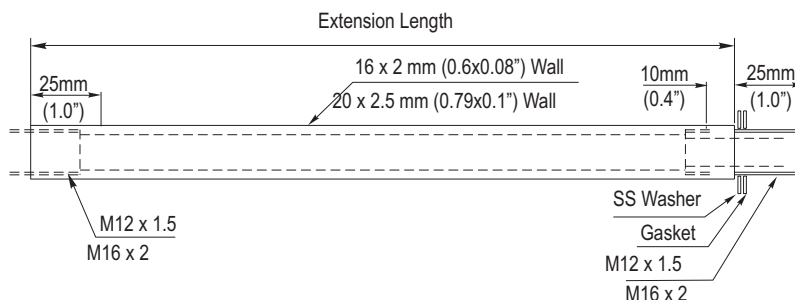
Stainless steel extension tubes, with either 1/8BSP (G1/8) or 3/8BSP (G3/8), are intended for use with our stainless steel float switches and are available in lengths from 250mm to 1000mm

Cynergy3 Part	Material	Thread type	Extension length	Gasket
EXT02 5M12PP	Polypropylene	M12x1.75	250mm	Nitrile
EXT050M12PP	Polypropylene	M12x1.75	500mm	Nitrile
EXT075M12PP	Polypropylene	M12x1.75	750mm	Nitrile
EXT025M16PP	Polypropylene	M16x2	250mm	Nitrile
EXT050M16PP	Polypropylene	M16x2	500mm	Nitrile
EXT075M16PP	Polypropylene	M16x2	750mm	Nitrile
EXT025G18SS	316 grade SS	G1/8	250mm	Nitrile
EXT050G18SS	316 grade SS	G1/8	500mm	Nitrile
EXT075G18SS	316 grade SS	G1/8	750mm	Nitrile
EXT100G18SS	316 grade SS	G1/8	1000mm	Nitrile
EXT025G38SS	316 grade SS	G3/8	250mm	Nitrile
EXT050G38SS	316 grade SS	G3/8	500mm	Nitrile
EXT075G38SS	316 grade SS	G3/8	750mm	Nitrile
EXT100G38SS	316 grade SS	G3/8	1000mm	Nitrile

Mechanical Dimensions

All dimensions are in millimeters (inches)

Ext. PP Versions



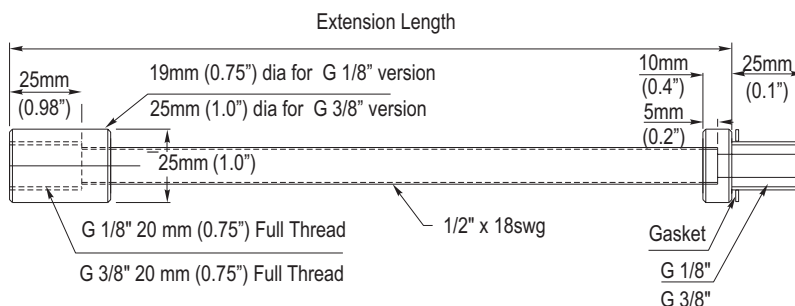
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Ext. SS Versions





The RSF66 floatswitch series has been specifically designed to offer the user a deep penetration float with a number of switching options to cater for a variety of system requirements. Manufactured from high grade Polyphenylene Sulphide (PPS) the RSF66 is compatible with most liquids and chemicals offering switching capabilities up to 240V AC.

The two float range provide Make/Make, or Break/Break, switch action with a choice of 50 or 100mm separations. This type is particularly suitable for controlling filling or emptying of tanks via electromechanical relays.



High & low level Switch

- Simple to mount and use
- PPS material
- WRAS approved
- Many variants are UL recognised component file number E17121

Technical Specification (Common to both Single and Double Float versions)

Mechanical			Electrical	
Material	PPS		Switching Power VA Max.	25
Colour	Grey		Switching Voltage AC Max.	240
Temp. Range	°C	-10 / +85	Switching Voltage DC Max.	120
	°F	+14 / +185	Switching Current Max. A	0.6
Min. Fluid S.G.	0.85			

All ratings are for resistive load only

Single Float Version Standard Parts	Upper Switch Level	Lower Switch Level	Total length	Gasket
RSF66A25B75	30mm	75mm	102mm	Nitrile
RSF66A25B100	30mm	100mm	127mm	Nitrile
RSF66A25B125	30mm	125mm	152mm	Nitrile
RSF66A25B150	30mm	150mm	177mm	Nitrile
RSF66A25B175	30mm	175mm	202mm	Nitrile

Two Float version					
RSF66A50A100	For Emptying	50mm	100mm	134mm	Nitrile
RSF66A50A150		50mm	150mm	184mm	Nitrile
RSF66B50B100	For Filling	50mm	100mm	127mm	Nitrile
RSF66B50B150		50mm	150mm	177mm	Nitrile

Custom versions can be made for particular applications. Please contact Crydom with your requirements.

Mechanical Dimensions

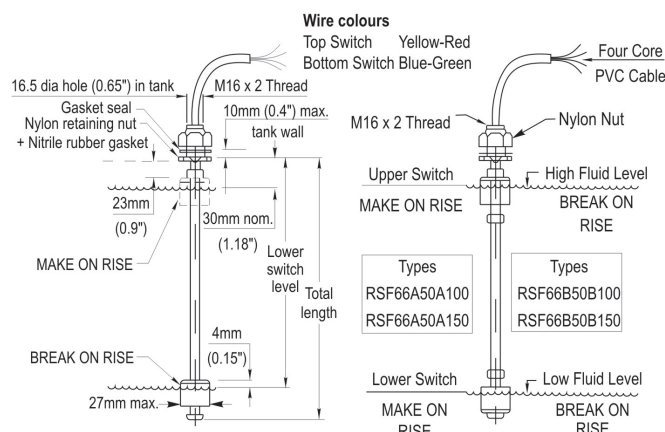
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ISO9001 CERTIFIED

Competitive part number cross-reference available at: www.cynergy3.com



The SSF67 has been designed to give the user a deep penetration float switch with a number of switching options, to cater for a wide variety of system requirements. Manufactured in Stainless Steel 316L grade material, these switches are suitable for use in many aggressive liquids or hygienic applications.



- **Stainless Steel 316L material**
- **Single or dual switching levels**
- **Close tolerance switching**
- **Process Temperature to 135°C**

The single float version provides high level (make on rise) and low level (make on fall) switch contacts. Suitable for high and low level alarms and control signals.

This switch is screw mounted vertically with a M16x2 thread, so requires access to the inside of the tank.

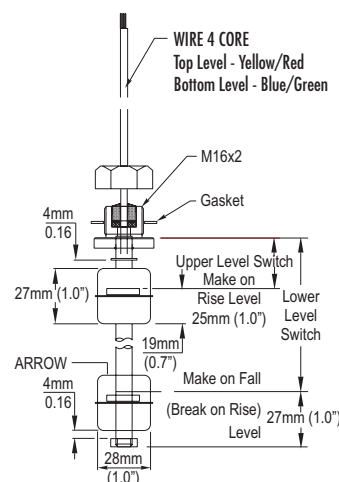
Typical applications are in water, diesel, oil, hydraulic tanks and reservoirs or in chemicals storage and process control.

Technical Specification		Electrical Specification	
Material	Stainless Steel 316L	Switching Power Max. VA	25
Temp. Range °C	-20 /+135	Switching Voltage AC	250
°F	-4 /+275	Switching Voltage DC	120
Min. Fluid S.G.	0.80	Switching Current Max. A	0.6
Minimum high level mm	25	All rating are for resistive load only	
Maximum low level mm	3500		
Switching differential (each level) nominal mm	1		
Maximum pressure bar	10 (up to 500mm stem length)		

Single Float Version Cynergy3 no.	Upper Switch Level	Lower Switch Level	Total Length	Gasket
SSF67A25B75	25mm	75mm	102mm	Nitrile
SSF67A25B100	25mm	100mm	127mm	Nitrile
SSF67A25B125	25mm	125mm	152mm	Nitrile
SSF67A25B150	25mm	150mm	177mm	Nitrile
SSF67A25B175	25mm	175mm	202mm	Nitrile

Mechanical Dimensions

All dimensions are in millimeters (inches)



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This transducer will give an output of 4-20mA over a measuring span of up to 2500mm. The output changes from 4 mA at low level to 20 mA at high level.

The transducer is top mounting, via a screwed entry, has a brass or stainless steel shaft and either a stainless steel or foamed float, and is normally installed from outside the tank. Volt free reed switches and resistors are mounted in the stem, to provide a varying resistance, as the float rises or falls, which is then converted into a 4 to 20mA stepped output.



- **4-20mA transducer for safe area use**
- **Maximum process temperature 100°C**
- **Maximum span 2500mm**
- **Standard 10mm stepped accuracy**
- **Standard screw entry G1.0" to G2.5"**

Mechanical

IP 65 enclosure in die cast Aluminium Alloy, hard anodised or polyester finish, with Nitrile O-ring and M20x1.5 conduit entry.

Stem assembly in Brass or Stainless Steel, fully silver soldered or TIG welded construction

Screwed entry mounting G1.0" to G2.5"

Float can be constructed in either Stainless Steel 316L, High temperature plastic foam or D300 closed cell PVC

Maximum Process Temperature 100°C

Maximum Ambient Temperature 70°C

Minimum high level 70mm

Maximum measurement span 2500mm

Standard 10mm stepped accuracy

Electrical

Output 4 to 20mA. 4 mA can be either High or Low

Input supply required is 15 to 30 Vdc

Can be connected to analogue or digital displays

Standards and Approvals

This design is tested to and meets the following standards:

DEFSTAN 59-41 Iss.4 :1992

BS1597 : 1995

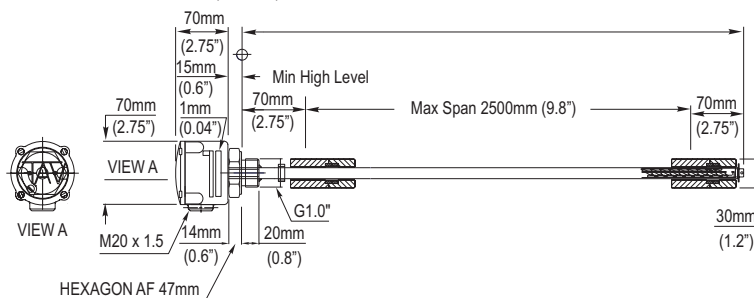
2&3 EN50081-1 :1992

EN50082-1 : 1992

Standard Parts	Upper Level	Measuring Span	Screw Entry	Float Material
SSF67VA70S500	70mm	500mm	G1"	D300 PVC Foam
SSF67VA70S1000	70mm	1000mm	G1"	D300 PVC Foam
SSF67VA70S1500	70mm	1500mm	G1"	D300 PVC Foam

Mechanical Dimensions

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A range of extension tubes available in Polypropylene or Stainless Steel (316L grade), which extend the reach of the various vertical float switches.

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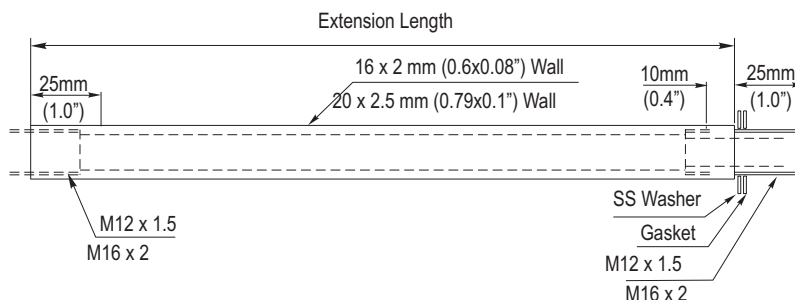
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Cynergy3 Part	Material	Thread type	Extension length	Gasket
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EXT050M16PP	Polypropylene	M16x2	500mm	Nitrile
EXT075M16PP	Polypropylene	M16x2	750mm	Nitrile
EXT025G18SS	316 grade SS	G1/8	250mm	Nitrile
EXT050G18SS	316 grade SS	G1/8	500mm	Nitrile
EXT075G18SS	316 grade SS	G1/8	750mm	Nitrile
EXT100G18SS	316 grade SS	G1/8	1000mm	Nitrile
EXT025G38SS	316 grade SS	G3/8	250mm	Nitrile
EXT050G38SS	316 grade SS	G3/8	500mm	Nitrile
EXT075G38SS	316 grade SS	G3/8	750mm	Nitrile
EXT100G38SS	316 grade SS	G3/8	1000mm	Nitrile

Mechanical Dimensions

All dimensions are in millimeters (inches)

Ext. PP Versions



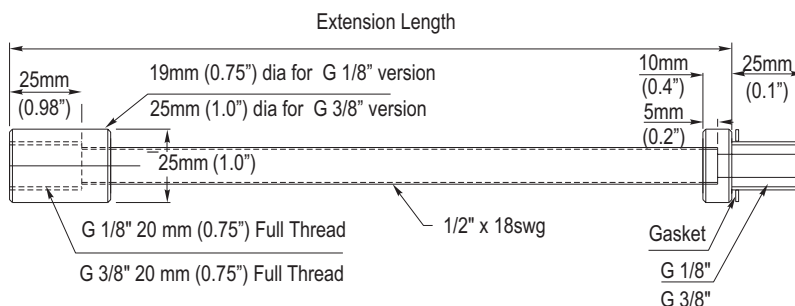
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Ext. SS Versions





This is designed for use in non-turbulent water, with fairly constant ambient temperature, such as in indoor tanks or covered reservoirs. The switching element is a microswitch, having UL, VDE and CENELEC approvals, with either 10 or 20 Amp contacts, activated by a moving stainless ball and having an electrical life of 200,000 operations.



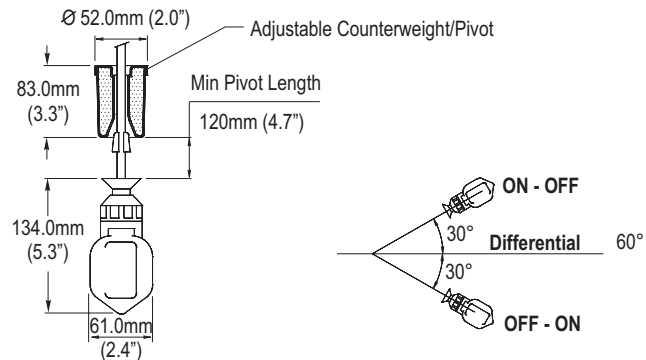
- **WRAS Approved**
- **Cable mounting**
- **100 metre depth Capability**

Technical Specifications		10 Amp	20 Amp
Switching Power Max.	AC	750 VA	1500 VA
	DC	180W	360W
Switching Current Max. Resistive	Resistive	10 Amps	20 Amps
	DC Inductive	1Amp	2 Amps
	AC Inductive	4 Amps	8 Amps
Switching Voltage Max.	DC	110	110
	AC	250	250

Material Specifications	
Body Material	High Density Polyethylene
Standard Cable	5 metres PVC sheathed 3 Core
W cable for Drinking Water	WRAS approved 3 core cable
U cable for Fuel Oils	Polyurethane sheathed 3 core cable
Temperature range	°C 0 to 55°C
	°F + 32 / +131
Max. working pressure	10bar

Mechanical Dimensions

All dimensions are in millimeters (inches)



USA

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This is suitable for open reservoirs and turbulent water and industrial wastewater. The switching element is self cleaning with 10 Amp contacts, and makes the complete switch insensitive to humidity and condensation, caused by wide temperature fluctuations. The switch is fitted with additional internal weight, such that it brings the centre of gravity and rotation close to the cable entry.



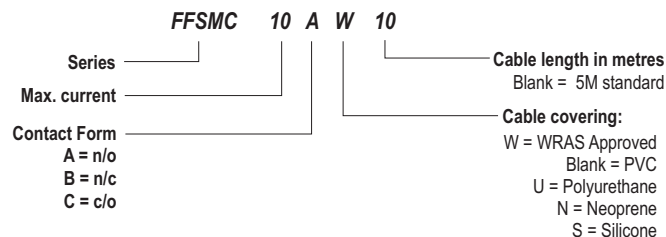
- **Operates in Turbulent Fluids**
- **Unaffected by Suspended Solids**
- **WRAS approved**
- **Cable Mounting**
- **100m Depth Capability**

Technical Specifications		10 Amp
Switching Power Max.	AC	750 VA
	DC	180W
Switching Current Max. Resistive	Resistive	10 Amps
Switching Voltage Max.	DC	110
	AC	250
Switching Current Max. Inductive	AC	4A
	DC	1A

Material Specifications	
Body Material	High Density Polyethylene
Standard Cable	5 metres PVC sheathed 3 Core
W cable for Drinking Water	WRAS approved 3 core cable
U cable for Fuel Oils	Polyurethane sheathed 3 core cable
Temperature range	°C 0 / 55°C
	°F + 32 / +131
Max. working pressure	10bars

It is necessary to use an auxiliary relay, when switching pump motors or any loads that are not purely resistive.

Part Numbering System for both products



USA

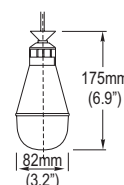
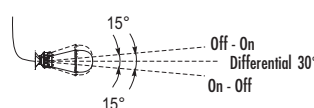
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Mechanical Dimensions

All dimensions are in millimeters (inches)





This is suitable for use in water, industrial wastewater and sewage, that can have wide variations of temperature. This compact design of switch is for use in more confined spaces, where there is not enough room for the larger FFSMC type.

The rounded body design and floating attitude prevents accumulation of solids on the body. The switch has additional internal ballast, to bring the centre of gravity and rotation close to the cable entry point.

The switching element is a self cleaning type, that makes the complete switch insensitive to humidity and condensation, allowing this type to operate in widely fluctuating temperatures. The switch contacts are rated at 10 Amp resistive.

Supplied, as standard, with 5 metres cable and adjustable counterweight



- **For smaller tanks and restricted space**
- **Use in sewer and industrial waste water**
- **Shape avoids “ragging”, in sewer systems**
- **Unaffected by suspended solids**
- **Operates in Turbulent Fluids**

Technical specifications		LM10A	LM10B	LM10C
Contact Form		N/O	N/C	C/O
Material		High Density Polyethylene		
Temp Range	°C	0 / +55		
	°F	+32 / +131		
Cable (standard length 5m)		With protective earth		no earth
Standard cable covering		PVC		
U cable option for Fuel oils		Polyurethane		
Max. working pressure		10 bar		

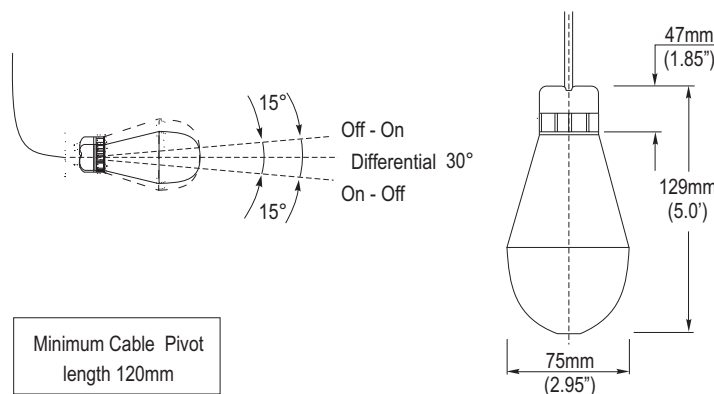
Electrical Specifications

Switching Power Max.	AC : 750 VA/DC : 180W
Switching Voltage	AC : 250 V/DC : 110 V
Switching Current Max. Resistive	10 A
Switching Current Max. Inductive	AC : 4A/DC : 1 A

It is necessary to use an auxiliary relay, when switching pum motors or any loads that are not purely resistive.

Mechanical Dimensions

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This is designed for use in non-turbulent water, with fairly constant ambient temperature, such as in indoor tanks or covered reservoirs. The switching element is a microswitch, having UL, VDE and CENELEC approvals, with either 10 or 20 Amp contacts, activated by a moving stainless steel ball and having an electrical life of 200,000 operations.



- **Cable mounting**
- **100 metre depth Capability**

Technical Specifications		10 Amp	20 Amp
Switching Power Max.	AC	750 VA	1500 VA
	DC	180W	360W
Switching Current Max. Resistive	Resistive	10 Amps	20 Amps
	DC Inductive	1Amp	2 Amps
	AC Inductive	4 Amps	8 Amps
Switching Voltage Max.	DC	110	110
	AC	250	250

Material Specifications	
Body Material	High Density Polyethylene
Standard Cable	5 metres PVC sheathed 3 Core
W cable for Drinking Water	WRAS approved 3 core cable
U cable for Fuel Oils	Polyurethane sheathed 3 core cable
Temperature range	°C 0 to 55°C
	°F + 32 / +131
Max. working pressure	10bar

Mechanical Dimensions

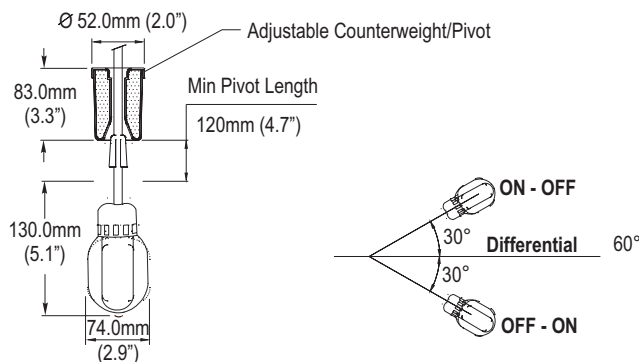
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This is a single switch point liquid level probe, for use in water or aqueous liquids, designed to be suspended into the liquid by its cable. It can be configured to give make or break action on either rise or fall, by removing the protective shield and reversing the float orientation. The switching level may be adjusted by varying the cable length. The reedswitch contact is suitable for switching signal levels, up to 50 volts.

The main uses for this probe are level switch for narrow boreholes, or applications with restricted space, and also as a signal switch for reservoir high or low level monitoring.

These are manufactured with standard PVC cable lengths of 15 or 25 metres but can be manufactured with other lengths.

Other switch types and configurations, cable gland and cable type are possible, please contact the factory with your requirement.



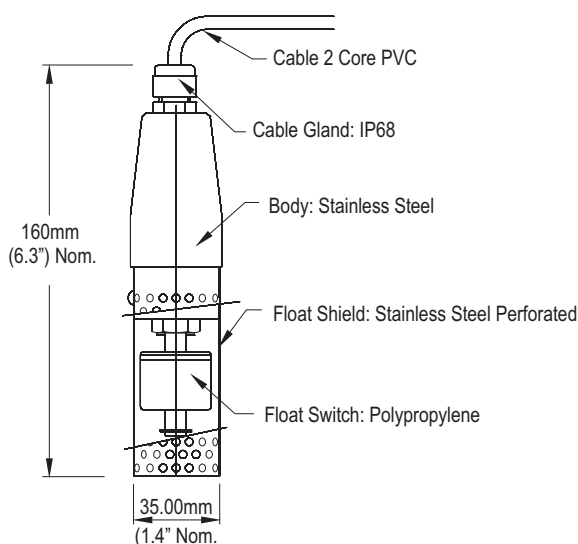
- **Submersible probe**
- **Low space requirement**
- **Cable mounted**
- **N/O or N/C configurable**
- **No power requirement**

Technical Specification		Electrical Specification	
Float	Polypropylene	Contact Form	N/O (N/C)
Housing	Stainless Steel	Switching Power Max. VA	25
Shield	Stainless Steel	Switching Voltage AC/DC Max.	50
Cable gland	Nylon	Switching Current Max. A	0.6
Cable	2 core PVC sheathed	All ratings are for resistive load only.	
Cable length	15M / 25M		
Temperature range °C	0 / +55		
°F	+32 / +131		
Min. Fluid S.G.	0.8		
Max working pressure	5 bar		

Standard Parts	Cable Length
SLP4AP15	15 metres
SLP4AP25	25 metres

Mechanical Dimensions

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The RSF60 series is designed to offer a vertical float switch with factory configurable options of one, two or three switch positions, in one unit. Floats are manufactured in Polypropylene (PP) or Polyphenylene Sulphide (PPS), which are compatible with a wide range of liquids (refer to factory for specific chemical suitability).

Units can be factory assembled on to PVC extension tubes, or the user can obtain a range of PP and SS extension tubes. Please see pages Variable Insertion Depth float switches RSF64EXS and Accessories, Extension Tubes for details.



- **Factory configurable to customer requirements**
- **1, 2 or 3 switch options**
- **Long reach**
- **PPS Stem material**
- **WRAS approval**
- **Many variants are UL recognised components file number E171218**
- **Extension Tubes available**

Technical Specification		RSF64	RSF66
Material	Float	PP	PPS
	Stem	PPS	PPS
Float colour		Opaque	Grey
Temp. Range	°C	-20/+85	-10 / +120*
	°F	-4/+185	+14 / +248*
Min. Fluid S.G.		0.65	0.85

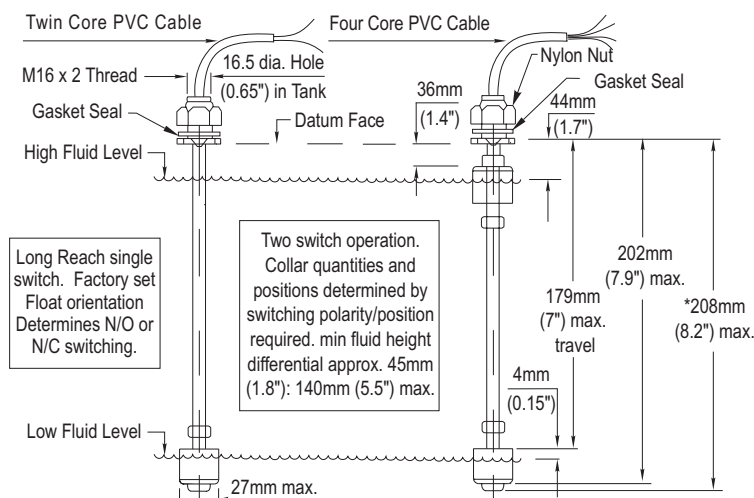
*Maximum temperature requires ETFE cable to be specified.

Electrical Specification	
Contact Form	N/O (N/C)
Switching Power Max. VA	25
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	0.6

All ratings are for resistive load only.

Mechanical Dimensions

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Our range of Flow Switches are reed switch based devices which are manufactured in Acetal resin. These switches are designed for use in liquid flow systems up to 10 Bar pressure. Advanced design ensures minimal fluid flow restriction.



- **Maximum Operating Pressure 10 bar. (140 PSI)**
- **Low flow version available**
- **WRAS approval**
- **Temperature rated to 85°C (185°F)**

Electrical Specifications	All types
Contact form	N/O
Switching Power Max. VA	15
Switching Voltage AC Max.	240
Switching Voltage DC Max.	120
Switching Current Max. A	1.0

All ratings are for resistive load only.

Technical Specifications		FS15A	FS15LF	FS22A
Operate Flow Rate*	litres/min	2.0	0.90	3.75
	US gals/min.	0.53	0.24	0.99
Release Flow Rate**	litres/min	0.3	0.25	1.40
	US gals/min.	0.08	0.07	0.37

* The switch will have operated when the flow rate rises above this value.

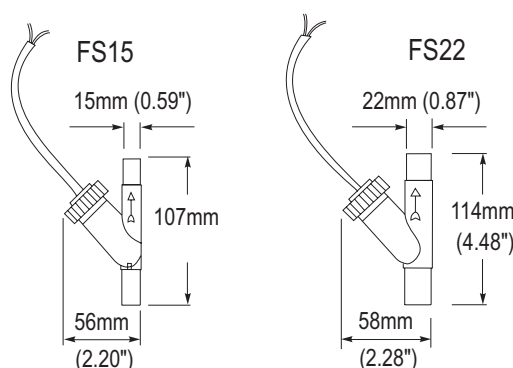
** The switch will have released when the flow rate falls below this value.

Installation

Flow switches can be mounted horizontally or vertically. As the operating piston is returned to its original position by gravity the cap must always be upwards. Greater operate flow sensitivity is achieved with vertical installation. Supplied with 25cm Cable.

Mechanical Dimensions

All dimensions are in millimeters (inches)



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Flowsonic Ultrasonic Flow Meter UF

This innovative design provides a high accuracy, non-invasive, flow measurement device at a fraction of the cost of other current non-invasive systems. The unique measurement technique automatically compensates for viscosity and temperature variations. The measurement of flow is by ultrasonic transit time in-line cell.

The flow path is designed to minimise pressure drop and, having no moving parts within, will not clog or jam. The flowsonic sensor also allows contaminants to pass through without affecting its performance.

The flowsonic sensor can be supplied with either a 4-20mA analogue output, or a pulsed Open Collector (Open Drain) output.

Technical Specifications	UF25C	UF25P
Max. flow L/min	20	
Min. flow L/min	0.2	
Output	4-20mA	Pulse
Performance	UF25C	UF25P
Accuracy 3% of reading or	±0.03L/min	
	whichever is greater	
Resolution better than	0.001L/min	
Reverse flow	0-20L/min	
Response time	Better than 0.1s	
Interface	UF25C	UF25P
Connection	3 wires (RED supply +ve, BLACK common, BLUE output)	
Supply	8 - 24VDC (input current typically 10mA)	
Output	4-20mA	1000 pulses/L
	Analogue (4.20mA) max. load impedance 100 ohms	
Operation		
Principle	Ultrasonic transit time in-line flow cell	
Temp. range (fluid)	-10°C to 85°C	
Continuous fluid sound	Maintains performance regardless of fluid type, temperature or viscosity for speed measurement fluids with sound speeds 1250 - 1750 m/s	
Physical characteristics		
Flow tube material	Glass filled plastic, Grivory HTV-4FWA Black 9225 (FDA and EU approved for foodstuffs)	
Flow tube internal diameter	10mm	
Connection thread	3/8" BSP	
Internal bore of connection	10mm	
Suitable Pushfit adaptor (to fit 1/2" OD Tube)	John Guest Speedfit PI451613S	
Maximum pressure	15 bar	
Case material	ABS Black	
Case integrity	Ultrasonically welded, not liquid proof	
Environmental protection	internal electronics conformally coated	
Ordering Code		

UF 25 P 100

Series _____ Cable length (cms) _____
 Flow range (25= 0 to 20L/min) _____ Output (P = pulse, C=4-20mA) _____

UF25P2008



- Non-invasive sensor technology
- No moving parts
- Automatic viscosity and temperature compensation
- Unaffected by fluid contaminants
- Low pressure drop

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Very high isolation voltages, up to 15kV, are achieved through the use of high vacuum reed switches with either Rhodium or Tungsten contacts and make these relays suitable for high reliability applications such as cardiac defibrillators, test equipment and high voltage power supplies.

The Rhodium contacts have low contact resistance while the Tungsten contacts can switch higher voltages.

Printed Circuit Board (PCB) or Panel mount, via nylon studs, versions are available.

Connection options include PCB, solder turret tag, flying lead and Faston* style Spade Terminals.

Available as Form A (SPNO) or Form B (SPNC) contact configurations.

- **15kV Isolation**
- **Low Contact Resistance**
- **High Power Switching**
- **PCB or Panel Mount**
- **Flying Lead, Solder and Faston* Style Spade Terminal Options**

Contact	Units	Conditions	10kV Form A			10kV Form B			15kV Form A		
Contact Materials			Rhodium	Tungsten		Rhodium	Tungsten		Tungsten		
Isolation Across Contacts	kV	DC or AC peak	10	10		10	10		15		
Max. Switching Power	W		50	50		50	50		50		
Max. Switching Voltage	V	DC or AC peak	1000	7000		1000	7000		10000		
Max. Switching Current	A	DC or AC peak	3	2		3	2		2		
Max. Current Carry	A	DC or AC peak	4	3		4	3		2		
Capacitance Across Contacts	pF	Coil/Screen Grounded	<0.2	<0.2		<0.2	<0.2		<0.2		
Lifetime	Operations	Dry Switching	10 ⁹	10 ⁹		10 ⁹	10 ⁹		10 ⁹		
Lifetime	Operations	50W Switching	10 ⁶	10 ⁶		10 ⁶	10 ⁶		10 ⁸		
Contact Resistance	mOhms	Maximum (Typical)	50 (15)	250 (100)		50 (15)	250 (100)		250 (100)		
Insulation Resistance	Ohms	Minimum (Typical)	10 ¹⁰ (10 ¹³)	10 ¹⁰ (10 ¹³)		10 ¹⁰ (10 ¹³)	10 ¹⁰ (10 ¹³)		10 ¹⁰ (10 ¹³)		
Coil at 20°C			5V	12V	24V	5V	12V	24V	5V	12V	24V
Must Operate	V	DC	3.7	9	20	3.7	9	20	3.7	9	20
Must Release	V	DC	0.5	1.25	4	0.5	1.25	4	0.5	1.25	4
Operate Time	ms	Diode Fitted	3.0	3.0	3.0	2.0	2.0	2.0	3.0	3.0	3.0
Release Time	ms	Diode Fitted	2.0	2.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0
Resistance	Ohms		28	150	780	38	240	925	16	95	350
Construction											
Isolation Contact to Coil	kV	DC or AC peak	17			17			17		
Insulation Resistance Contact											
to All Other Terminals	Ohms	Minimum (Typical)	10 ¹⁰ (10 ¹³)			10 ¹⁰ (10 ¹³)			10 ¹⁰ (10 ¹³)		
Environmental											
Operating Temperature Range	°C		-20 to +70			-20 to +70			-20 to +70		
Weight	Version	Standard	Panel			Spade			Flying Lead		
	Form A	gm	23			29			38		
	Form B	gm	31			37			46		

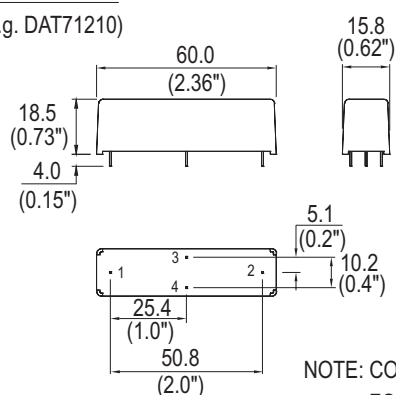
Part Numbering System

Reed Switch size: **D** ——— **D** **A** **T** **7** **24** **15** **F**
 Contact Form - **A**: Form A **B**: Form B
 Contact Material **R**: Rhodium **T**: Tungsten
 Moulding Ref. Number —————
 Coil Voltage **05**: 5V **12**: 12V **24**: 24V
 Isolation Between Contacts - **10**: 10kV, **15**: 15kV (dat only)

Mounting Style:
No suffix: Standard PCB mount
F: Flying Lead Contact Terminals
P: Panel Mount via nylon studs, turret contact/coil terminals
S: Panel Mount via nylon studs, Faston* style spade terminals

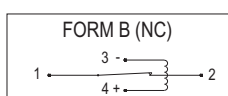
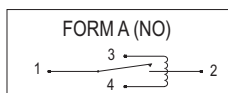
STANDARD

(e.g. DAT71210)



CIRCUIT DIAGRAMS (ALL VARIANTS)

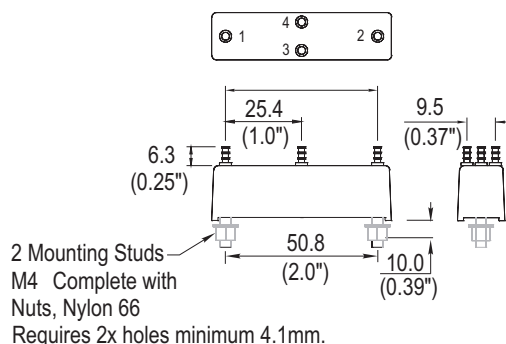
Viewed from underside



NOTE: COIL POLARITY IS IMPORTANT FOR FORM B VARIANT ONLY.

PANEL MOUNT

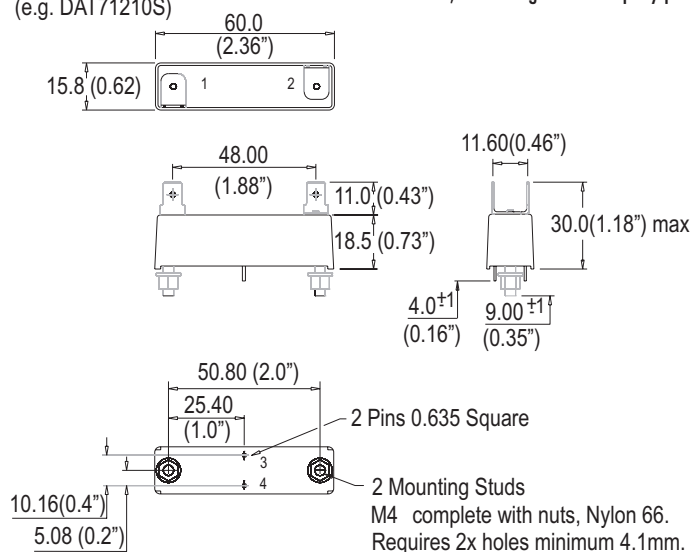
(e.g. DAT71210P)



SPADE TYPE

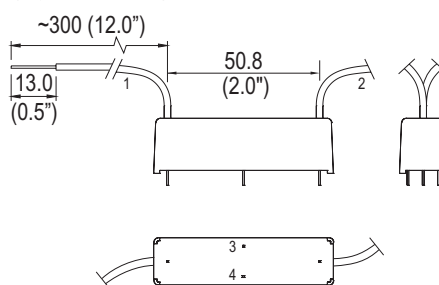
(e.g. DAT71210S)

'S' Suffix denotes the 6.3 'Push On' blade connectors, M4 fixing bolts and Epoxy potting.



FLYING LEAD

(e.g. DAT71210F)



NOTE: PINS WHICH ARE NOT NUMBERED HAVE NO ELECTRICAL CONNECTION.

ISO9001 Certified

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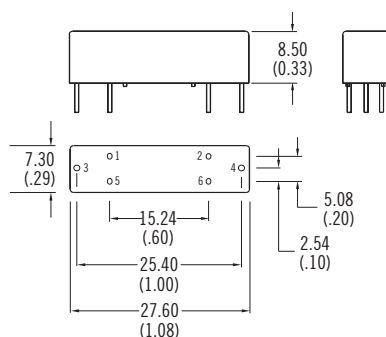
The S series was developed for the high voltage ATE market, where printed circuit board (PCB) space is at a premium, the S series high voltage reed relay offers a 3 or 5* kV isolation performance in a 30mm size package. With low contact resistance, the S series is suitable for many high voltage applications at DC and low frequency, where performance and reliability are paramount.



- ***Compact Footprint***
- ***Designed Specifically for High Voltage***
- ***Rhodium Contacts for Low Resistance***
- ***3 or 5kV * Isolation Between Contacts***
- ***Excellent Lifetime Characteristics***

Mechanical Dimensions

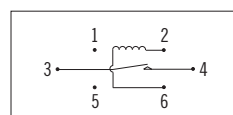
All dimensions are in Millimetres (inches)



PIN SIZE

PINS 1, 2, 5 & 6	0.7 Square (0.025")
PINS 3 & 4	0.8 (0.031") dia.

CIRCUIT DIAGRAM



(Viewed from Underside)

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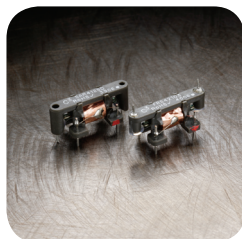
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Contact	Units	Conditions	3kV Form A			5kV Form A		
Contact Materials			Rhodium			Rhodium		
Isolation Across Contacts	kV	DC or AC peak	3			5*		
Max. Switching Power	W		10			10		
Max. Switching Voltage	V	DC or AC peak	20			20		
Max. Switching Current	A	DC or AC peak	0.5			0.5		
Max. Carry Current	A	DC or AC rms (60Hz)	1.5			1.5		
Capacitance Across Contacts	pF	Coil/Screen Grounded	<0.1			<0.1		
Lifetime	Operations	Dry Switching	10 ⁹			10 ⁹		
Lifetime	Operations	10W Switching	10 ⁸			10 ⁸		
Contact Resistance	mOhms	Maximum (Typical)	80 (30)			80 (30)		
Insulation Resistance Contact to All Other Terminals	Ohms	Minimum (Typical)	10 ¹⁰ (10 ¹³)			10 ¹⁰ (10 ¹³)		
Coil at 20°C			5V	12V	24V	5V	12V	24V
Must Operate	V	DC	3.7	9	20	3.7	9	20
Must Release	V	DC	0.5	1.25	3	0.5	1.25	3
Operate Time	ms	Diode Fitted	1.0	1.0	1.0	1.0	1.0	1.0
Release Time	ms	Diode Fitted	0.5	0.5	0.5	0.5	0.5	0.5
Resistance	Ohms		140	600	1000	140	600	1000
Construction								
Isolation Contact to Coil to All Other Terminals	kV Ohms	DC or AC peak Minimum (Typical)	5			5		
Environmental								
Operating Temperature Range	°C		-20 to +70			-20 to +70		

Part Numbering System

Reedswitch Size - **S** **S** **A** **R** **9** **12** **05**
 Contact Form - **A**: Form A
 Contact Material - **R**: Rhodium
 Moulding Reference Number
 Coil Voltage - **05**:5V, **12**:12V, **24**:24V
 Isolation Between Contacts - **03**:3kV, **05**:5kV

* DC only. Pin 3 +HV



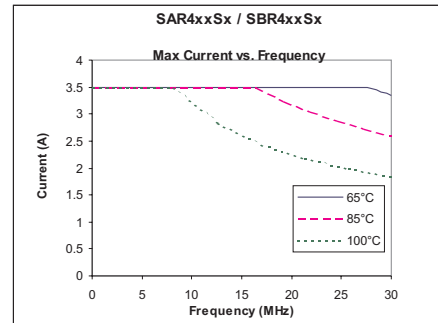
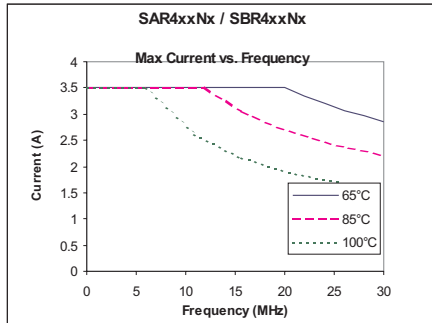
A highly flexible, low cost package for RF applications in the 1-30MHz band. The use of vacuum reed switches with rhodium contacts offers high isolation voltages, low contact resistance and long operating lifetime. Additional RF screening is available to further enhance RF performance for more demanding applications.

Available as Form A (SPNO), Form B (SPNC) or latching (bistable) contact configurations with switch connections via either PCB or flying lead.

- **3.5A RF at 1-30MHz**
- **3.5kV Isolation**
- **Contacts Form A, B or Latching**
- **Long Lifetime**

Contact	Units	Conditions	Form A			Form B			Latching	
Contact Material			Rhodium			Rhodium			Rhodium	
Isolation across contacts	kV	DC or AC peak	3			3			3.5	
Max. carry current	A	DC or AC rms	3.5*			3.5*			1.5	
Max. switching power	W		10			10			10	
Max. switching voltage	V	DC or AC peak	20			20			20	
Max. switching current	A	DC or AC peak	0.5			0.5			0.5	
Capacitance across contacts	pF	coil/screen grounded	<0.1			<0.1			<0.1	
Lifetime	operations	dry switching	10 ⁹			10 ⁹			10 ⁹	
Lifetime	operations	10W switching	10 ⁸			10 ⁸			10 ⁸	
Contact Resistance	mOhms	maximum (typical)	80 (30)			80 (30)			80 (30)	
Insulation Resistance	Ohms	minimum (typical)	10 ¹⁰ (10 ¹³)			10 ¹⁰ (10 ¹³)			10 ¹⁰ (10 ¹³)	
ESR at 30MHz (no screen)	mOhms	typical	95 @ 3A rms			95 @ 3A rms			200 @ 1.5A rms	
ESR at 30MHz (part screen)	mOhms	typical	80 @ 3A rms			80 @ 3A rms			180 @ 1.5A rms	
Coil			5V	12V	24V	5V	12V	24V	5V	12V
Must Operate	V	DC, 20°C	3.5	8	15	3.5	8	15	3	7
Must Release	V	DC, 20°C	1	2	4	1	2	4	N/A	N/A
Min Pulse Length	ms		N/A	N/A	N/A	N/A	N/A	N/A	2.0	2.0
Operate Time	ms		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Release Time	ms	diode fitted	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0
Resistance	Ohms	20°C	70	380	1500	65	350	1200	188	500
Construction										
Isolation contact to coil	kV	DC or AC peak	3			3			3.5	
Capacitance contact to all other terminals	pF	Contacts open	<1.0			<1.0			<1.0	
Capacitance contact to all other terminals	pF	Contacts closed	<1.5			<1.5			<1.5	
Environmental										
Operating temperature range	°C	Limited Current	-40 to +100*			-40 to +100*			-40 to +100	
Storage temperature range	°C		-40 to +125			-40 to +125			-40 to +125	
Weight	gm	typical	3.5			4.2			3.1	

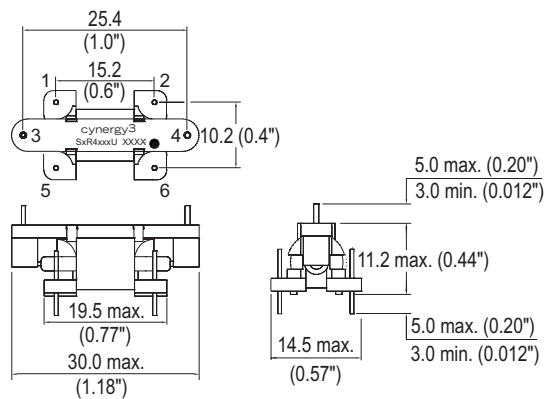
*see graphical data



Mechanical Dimensions

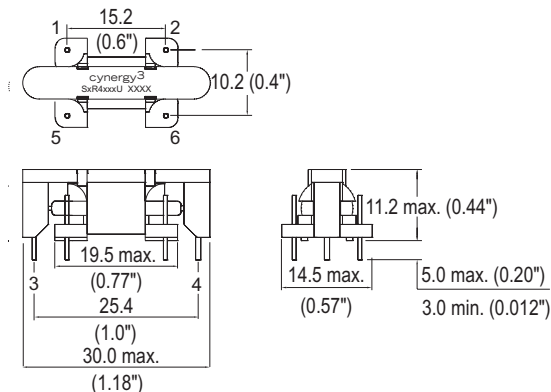
All dimensions are in millimeters (inches)

Flying Lead

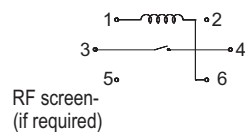


Pins 1, 2, 5, 6 require 0.9mm diameter \pm 0.05mm holes

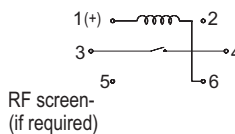
PCB Mount



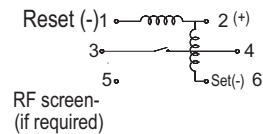
Circuit Diagram, Form A



Circuit Diagram, Form B



Circuit Diagram, Latching



(all circuit diagrams viewed from above)

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A fully screened relay offering low RF loss and high current carrying capacity, which was developed with RF design engineers in the radio communications industry. The relay coil is totally enclosed in a copper screen, resulting in lower self-heating and RF loss, and Rhodium contacts are used in the vacuum reed switches, yielding higher carry currents for a given frequency and ambient temperature.

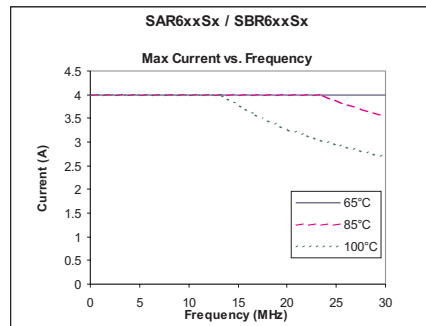
Available as Form A (SPNO), Form B (SPNC) or latching (bistable) contact configurations with switch connections via either PCB or flying lead

- **Excellent RF Characteristics**
- **Carry Current up to 4A RF at 30MHz**
- **3.5 kV Isolation**
- **Low RF Loss**
- **Long Lifetime**

Contact	Units	Conditions	Form A			Form B			Latching	
Contact Material			Rhodium			Rhodium			Rhodium	
Isolation across contacts	kV	DC or AC peak	3			3			3.5	
Max. carry current	A	DC or AC rms	4*			4*			1.5	
Max. switching power	W		10			10			10	
Max. switching voltage	V	DC or AC peak	20			20			20	
Max. switching current	A	DC or AC peak	0.5			0.5			0.5	
Capacitance across contacts	pF	coil/screen grounded	<0.1			<0.1			<0.1	
Lifetime	operations	dry switching	10 ⁹			10 ⁹			10 ⁹	
Lifetime	operations	10W switching	10 ⁸			10 ⁸			10 ⁸	
Contact Resistance	mOhms	maximum (typical)	80 (30)			80 (30)			80 (30)	
Insulation Resistance	Ohms	minimum (typical)	10 ¹⁰ (10 ¹³)			10 ¹⁰ (10 ¹³)			10 ¹⁰ (10 ¹³)	
Coil			5V	12V	24V	5V	12V	24V	5V	12V
Must Operate	V	DC, 20°C	3.5	8	15	3.5	8	15	N/A	N/A
Must Release	V	DC, 20°C	1	2	4	1	2	4	3	7
Min Pulse Length		ms	N/A	N/A	N/A	N/A	N/A	N/A	2.0	2.0
Operate Time		ms	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Release Time	ms	diode fitted	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0
Resistance	Ohms	20°C	70	380	1500	65	350	1200	100	500
Construction										
Isolation contact to coil	kV	DC or AC peak	3			3			3.5	
Environmental										
Operating temperature range	°C	Limited Current	-40 to +100*			-40 to +100*			-40 to +100	
Storage temperature range	°C		-40 to +125			-40 to +125			-40 to +125	
Weight	gm	typical	5.3			6.1			5.0	

*see graphical data

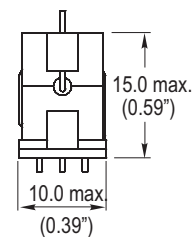
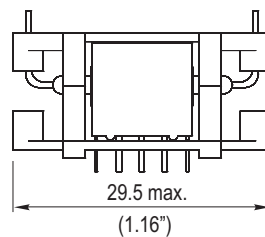
Part Numbering system			S	A	R	6	05	S	U
Reed switch Size - S									
Contact Form A: Form A, B: Form B, L: Latching									
Contact Material R: Rhodium									
Relay Series Number									
Coil Voltage 5: 5V, 12: 12V, 24: 24V									
Screening S: Fully Screened									
Contact Pin Orientation D: PCB U: flying lead									



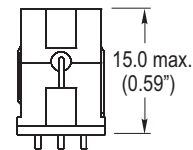
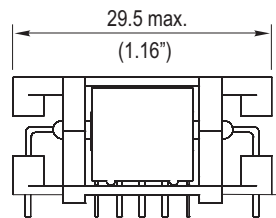
Mechanical Dimensions

All dimensions are in millimeters (inches)

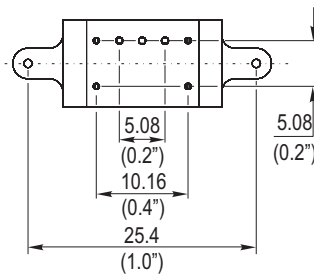
Flying Lead



PCB Mount

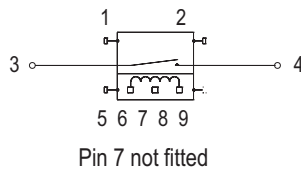


Pins 3, 4 require
1mm diameter ± 0.05 holes

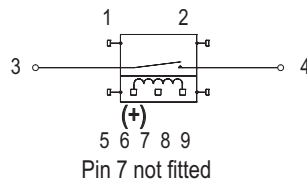


The following Pins require 0.9mm
diameter ± 0.05 mm holes, where
fitted 1, 2, 5, 6, 7, 8, 9

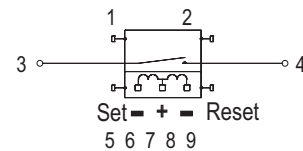
Circuit diagram, Form A



Circuit diagram, Form B



Circuit diagram, Latching



(all pins views from above)

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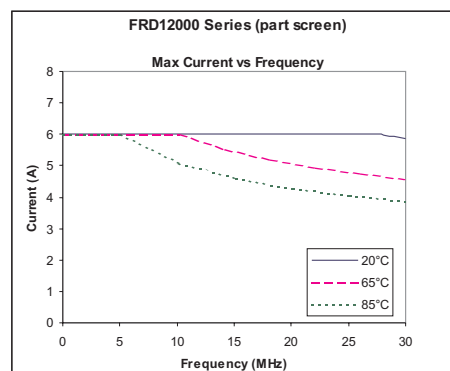
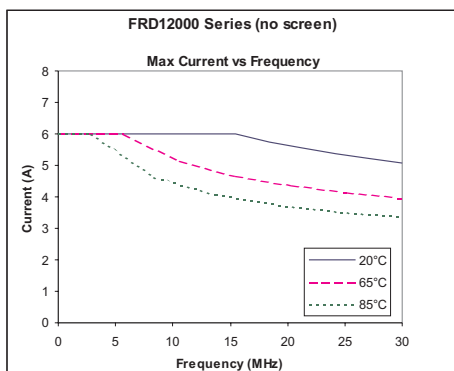
An open frame RF reed relay with 8kV isolation and 6A (at 30MHz) carry current, the FRD12000 series has been used many HF radio system specifications over the years, with applications in commercial maritime (GMDSS) equipment and military HF radio units worldwide. The use of vacuum reed switches with rhodium contacts offers high isolation voltages, low contact resistance and long operating lifetime.

Available as Form A (SPNO) or Form B (SPNC) contact configurations.

- **Up to 8kVDC Isolation between Contacts**
- **6A Carry Current (up to 30MHz)**
- **Excellent RF Performance**
- **Ideal for Antenna Tuning Units**
- **Form A/B Contact Configuration**
- **Customising Facility**

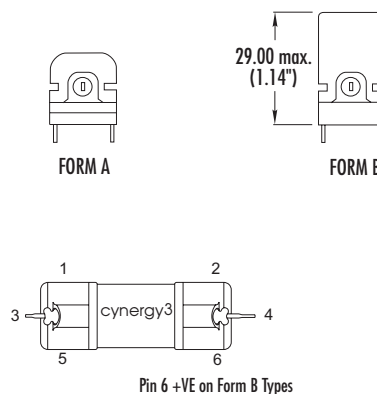
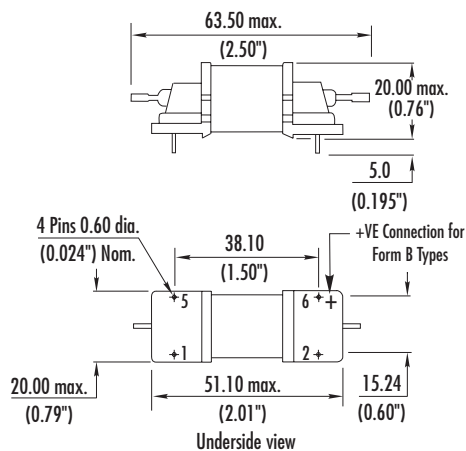
Contact	Units	Conditions	FRD12015	FRD12021	FRD12023	FRD12049
Action (form A, B or Latching)		A	A	B	A	B
Switching Voltage	V	DC max	20	20	20	20
Switching Current	A	DC max	1	1	1	1
Carry Current	A	RMS max	6	6	6	6
Isolation	kV	DC max	8	8	5	8
Capacitance	pF	coil/screen gnd	0.4	0.6	0.6	0.6
Lifetime	operations	dry switching	10 ⁹	10 ⁹	10 ⁹	10 ⁹
Contact Resistance	mOhms	maximum (typical)	50 (15)	50 (15)	50 (15)	50 (15)
Insulation Resistance	Ohms	minimum (typical)	10 ¹⁰ (10 ¹³)	10 ¹⁰ (10 ¹³)	10 ¹⁰ (10 ¹³)	10 ¹⁰ (10 ¹³)
ESR at 4.5A, 30MHz	mOhms	typical	100	150	150	150
COIL at 20°C						
Nominal Working Voltage	VDC		24	12	12	24
Must Operate	VDC	max	15	8	8	14
Must Release	VDC	min	2	2	2	4
Nominal Resistance	ohms	+/-10%	1000	380	480	1500
RF Screening			Part	-	-	-
RF Screening Connection		pin position	2 & 5	2 & 5		
Coil Connections		pin position	1 & 6	1 & 6	1 & 6	1 & 6
RELAY						
Operate time (including bounce)	ms		2	3	3	3
Release time	ms		1	2	1	2
Isolation contact to all other terminals	kV	DC max	10	10	10	10
Isolation coil to screen	kV	DC max	0.5	N/A	N/A	N/A
Capacitance contact to all other terms	pF	contacts open	2.0	2.5	1.5	2.5
ENVIRONMENTAL						
Storage temperature range	°C		-55 to +125			
Operating temperature range	°C	Limited current*	-40 to +85			
Shock	g	11ms 1/2 sine pk	100			
Bump	g	6ms 1/2 sine pk	40			
Vibration	g	10- 500Hz	10			
Weight	gm		24	33	24	33

see graphical data.



Mechanical Dimensions

All dimensions are in millimeters (inches)



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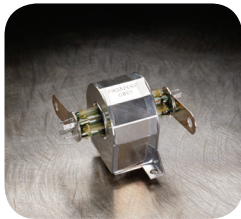
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The very high carry current capacity and high voltage isolation of this series is achieved through the use of multiple high vacuum reed switch contacts, ensuring a high level of performance and reliability. The two standard models will carry currents of 12 and 20Amps respectively at 30MHz and feature silver plated, fully screened coil assemblies for ultra-low RF losses. Typical applications include over the horizon (OTH) HF radar systems and 1kW base station transmitters.

Available as Form A (SPNO) only.

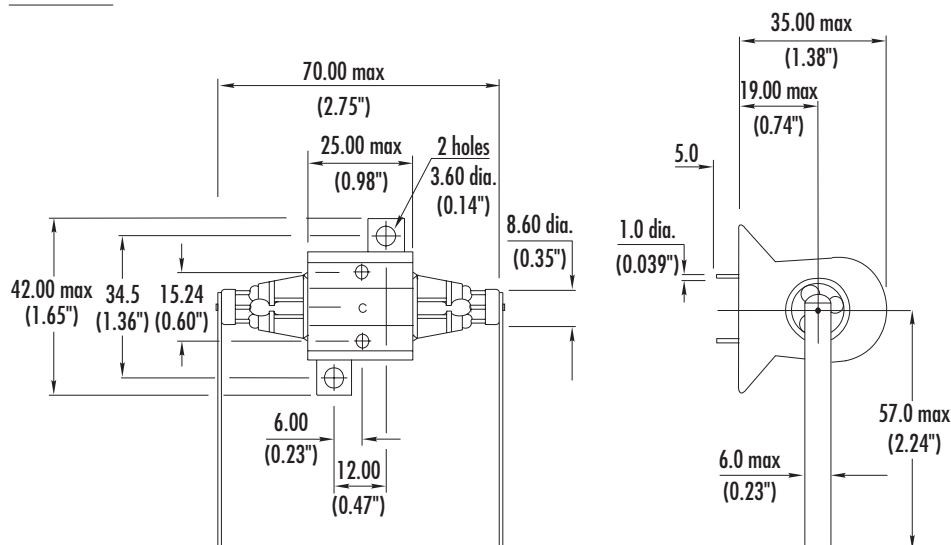
- **Up to 20A Carry Current at 30MHz**
- **6.5kV DC isolation across contacts**
- **Fully Screened Coil for Low RF Loss**
- **Cost Effective alternative to Vacuum Ceramic Devices**
- **Unique Design**
- **Suitable for 1 kW HF Transmitters**

CONTACT	UNITS	CONDITIONS	FRD32061	FRD32062
Action (form A, B or Latching)			A	A
Switching Voltage	V	DC max	20	20
Switching Current	A	DC max	1	1
Carry Current	A	RMS at 30MHz max	12	20
Isolation	kV	DC max	6	6.5
Capacitance (max.)	pF	coil/screen gnd	2	2
Lifetime	operations	dry switching	10 ⁹	10 ⁹
		24V, 1A	10 ⁷ -10 ⁸	10 ⁷ -10 ⁸
Contact Resistance	mOhms	maximum (typical)	50 (10)	50 (10)
Insulation Resistance	Ohms	minimum (typical)	10 ¹⁰ (10 ¹³)	10 ¹⁰ (10 ¹³)
COIL at 20°C				
Nominal Working Voltage	VDC		24	24
Must Operate	VDC	max	16	16
Must Release	VDC	min	4	4
Nominal Resistance	Ohms	+/-10%	430	270
RF Screening			Full	Full
RF Screening Connection			Via Mtg Screws	Via Mtg Screws
RELAY				
Operate time (incl. bounce)	ms		5	5
Release time	ms		3	3
Isolation contact to all other terminals	kV	DC max	10	10
Isolation coil to screen	kV	DC max	0.5	0.5
Capacitance contact to all other terms	pF	contacts open	6.0	6.0
ENVIRONMENTAL				
Storage temperature range	°C		-55°C to +125°C	
Operating temperature range	°C		-40°C to +85°C	
Weight	gm	typical	76	108

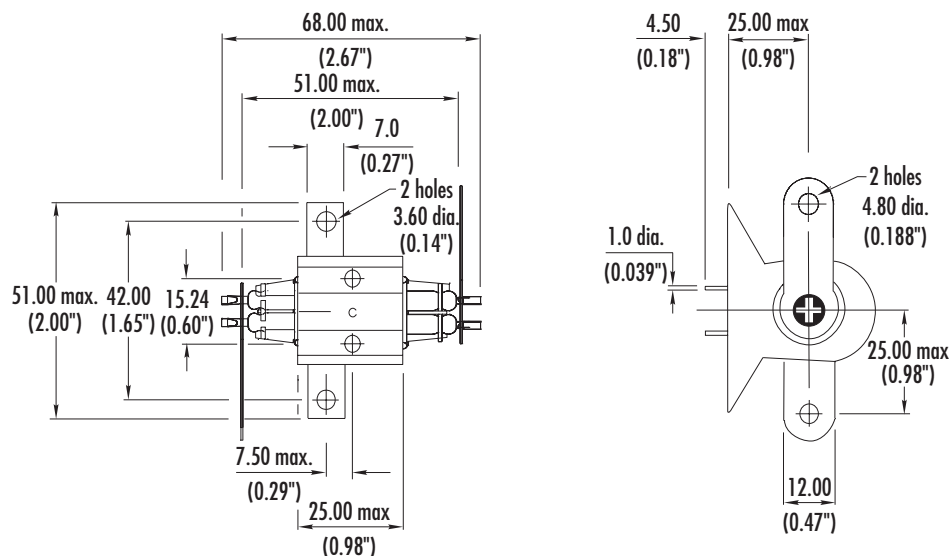
Mechanical Dimensions

All dimensions are in millimeters (inches)

FRD32061



FRD32062



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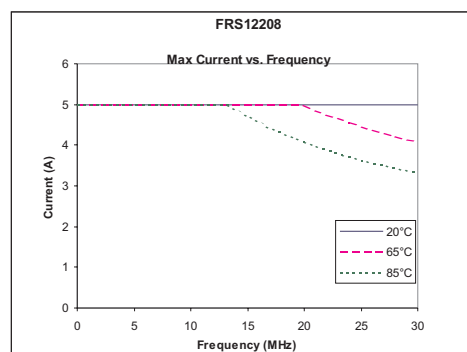
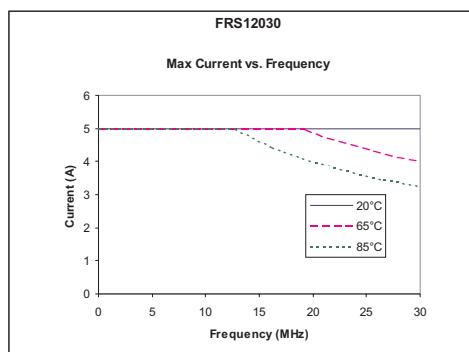
High current capability is achieved through the use of two reed switches in parallel. Open frame and covered construction are available, depending on voltage isolation requirements. The series uses materials with exceptional RF and temperature performance characteristics and, in addition, the coils are partially screened offering extended RF performance over the HF band.

- **Up to 3KV Isolation**
- **5A Carry Current (up to 30MHz)**
- **Excellent RF Characteristics**
- **Designed for HF Applications**
- **Compact Package on 0.1 " Pin Pitch**
- **Full Customising Facility**

CONTACT	UNITS	CONDITIONS	FRS12030	FRS12208
Action (form A, B or Latching)			A	A
Switching Voltage	V	DC max	20	20
Switching Current	A	DC max	0.5	0.5
Carry Current	A	RMS @ 30MHz max	5*	5*
Isolation	kV	DC max	0.5	2
Capacitance	pF	coil/screen gnd	0.3	0.3
Contact Connections		pin position	5 & 8	5 & 12
Lifetime	operations	dry switching	10 ⁹	10 ⁹
Contact Resistance	mOhms	maximum (typical)	80 (30)	80 (30)
Insulation Resistance	Ohms	minimum (typical)	10 ¹⁰ (10 ¹³)	10 ¹⁰ (10 ¹³)
ESR at 4.5A, 30MHz	mOhms	typical	90	90
COIL at 20°C				
Nominal Working Voltage	VDC		24	24
Working Voltage Range	VDC		19-31	19-30
Must Operate	VDC	max	2	4
Must Release	VDC	min	2	4
Nominal Resistance	ohms	+/-10%	1150	1000
RF Screening			Part	Part
RF Screening Connection		pin position	17	15
Coil Connections		pin position	3 & 11	4 & 13
RELAY				
Construction			Open Frame	Covered
Operate time (incl. bounce)	ms		2	2
Release time (incl. bounce)	ms		1	0.5
Contact to all other terminals	kV	DC max	0.5	2
Coil to screen	kV	DC max	0.5	0.5
Capacitance contact to all other terms	pF	contacts open	2.5	3.0
ENVIRONMENTAL				
Storage temperature range	°C			-55°C to +125°C
Operating temperature rang	°C	Limited current*		-40°C to +85°C
Shock	g	11ms 1/2 sine pk		100
Bump	g	6ms 1/2 sine pk		40
Vibration	g	60-500Hz		20
Weight	gm	typical	7	7

*see graphical data

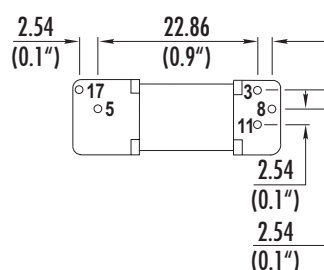
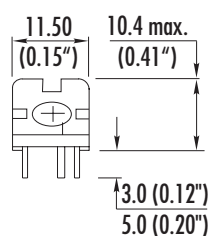
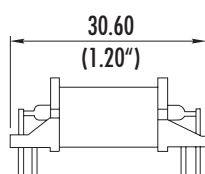
Many other variants in the FRS12000 family are available with different coil and contact configurations, as well as a number of pin footprints for drop-in replacements.



Mechanical Dimensions

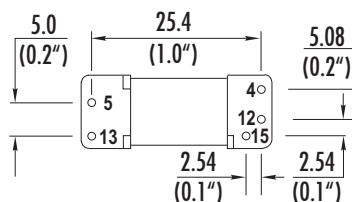
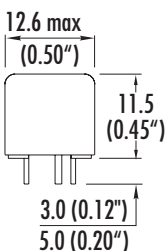
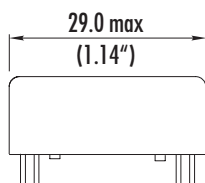
All dimensions are in millimeters (inches)

FRS12030



PIN SIZE :
3, 11 & 17 0.635mm (nom) square
5 & 8 0.7mm (nom) dia.

FRS12208



PIN SIZE :
4, 13, 15 0.635mm (nom) square
5, 12 0.7mm (nom) dia.

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A latching RF reed relay designed for manpack, portable HF radio systems, from 1-30MHz, where power resources are limited and board space is at a premium. These relays have separate set and reset coils to simplify board design, are capable of carrying up to 1.5A current at 30MHz and can withstand either 1.5, 3 or 3.5kV between contacts. The FRS22012 is a fast latching relay with RF and magnetic screening, that enables switching with coil pulse lengths down to 0.5ms.

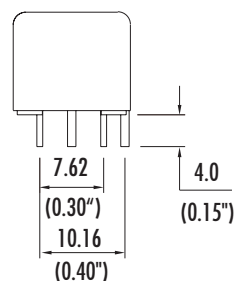
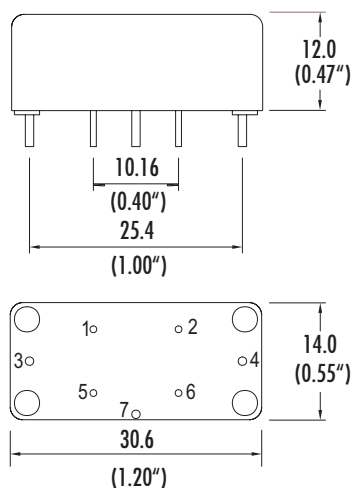
- **Bistable Latching Relay**
- **0.5 Coil Pulse length**
- **3.5kV DC Isolation**
- **1.5A Carry Current**
- **RF & Magnetic Screening**
- **Approved to MIL standards for Bump, Shock and Vibration**

Contact	Units	Conditions	FRS22012	SLR305SD01	SLR305SD02
Action (form A, B or Latching)			Latching		
Switching Voltage	V	DC max	20		
Switching Current	A	DC max	0.5		
Carry Current	A	RMS at 30MHz	1.5		
Isolation	kV	DC max	3.5	1.5	3.0
Capacitance	pF	coil/screen gnd	0.2	<1	<1
Contact Connections		pin number	3 & 4		
Lifetime	operations	dry switching	10 ⁹		
Contact Resistance	mOhms	maximum (typical)	80 (30)		
Insulation Resistance	Ohms	minimum (typical)	10 ¹⁰ (10 ¹³)		
ESR at 1.5A, 30MHz	mOhms	typical	400		
Coil At 20°C					
Nom. Working Voltage	VDC		12	5	5
Min. pulse length	ms	Minimum	0.5	2	2
Operate time	ms	diode fitted	0.5	2	2
Nominal Resistance	ohms	+/-10%	500	300	300
RF Screening			Part	No	No
RF Screening Connection		pin number	7		
Coil Connections	Set	pin number	1 & 2(+)		
Reset			5 & 6(+)		
Relay					
Isolation contact to coil/screen	kV	DC max	4		
Capacitance contact to all other terminals	pF	contacts open	2.5		
Capacitance contact to all other terminals	pF	contacts closed	4.0	3	3
Environmental					
Operating temperature range	°C		-40 to +85		
Storage temperature range	°C		-40 to +125		
Weight	gm		11	7	7

Mechanical Dimensions

All dimensions are in millimeters (inches)

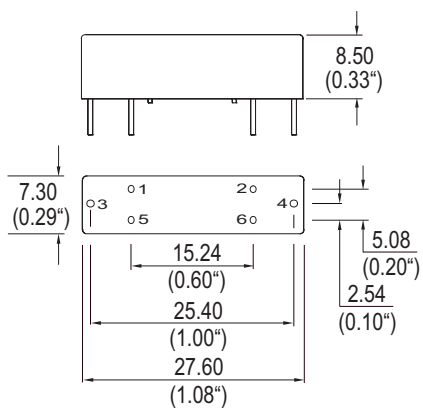
FRS22012



PIN SIZE

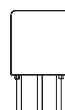
PINS 3 & 4	1.0 (0.039") dia.
PINS 1, 2, 5 & 6	0.7 (0.026") dia.
PIN 7	1.0 x 1.0 Square (0.039")

SLRS

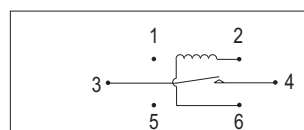


PIN SIZE

PINS 1, 2, 5 & 6	0.7 Square (0.025")
PINS 3 & 4	0.8 (0.031") dia.



CIRCUIT DIAGRAM.



ISO9001 Certified

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