



Liquid Level Switches

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Liquid Level Switches for All Your Applications



Plastic Liquid Level Switches



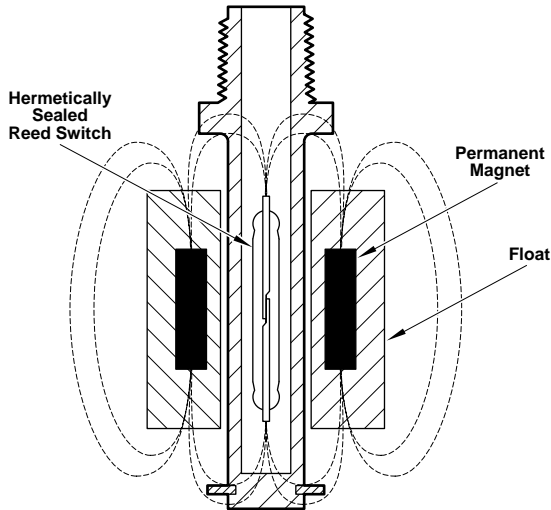
Teflon Liquid Level Switches



Multi Level Liquid Level Switches



High Quality Liquid Level Switches Engineered for Extended Service



Operation

The hermetically sealed reed switch located inside the stem is actuated by a magnetic field created by a magnet equipped float. As the float rises and falls the magnetic field passing the switch in the stem causes the switch to either close or open.

Norgren switches can be mounted from tank top or tank bottom or can be adapted for side mounting. Switches will operate normally with up to a 30° tilt from vertical .

Most single point switches operate in either a Normally Open (NO) or Normally Closed (NC) mode. Selecting the mode is as easy as removing the retaining clip and reversing the float on the stem. Norgren switches are shipped normally open as standard. However, some are non reversible and must be ordered as NO, NC or SPDT.

Design Considerations

- Pressure
- Temperature
- Mounting
- Termination
- Media Characteristics, such as
 - Specific gravity
 - Corrosive characteristics
 - Viscosity
- Actuation Point(s)
- Materials of construction
- Switch life/Switch load

Norgren liquid level switches are designed to meet a complete range of application requirements. Norgren has the design engineering and application engineering expertise to help you select the best level control for your application.

The switch contact ratings, as listed in the switch data chart, are based on use with a resistive type load. For applications requiring the control of an inductive or capacitance load, additional interface circuitry may be required. Please contact Norgren for assistance or to have a life-cycle test performed on your load with Norgren Leveline switches.

Design Flexibility

Interface Detection

Many Norgren models can be modified to detect the level of two dissimilar liquids such as oil and water.

Mounting Styles

Other mounting configurations are available such as flanges, bent stem, different NPT, straight thread and metric size mounting plugs.

Terminations

A variety of wire terminations, custom lead lengths, cable jackets and connectors are also available.

In addition to single point detectors, Norgren also offers multipoint products for OEM applications. Complete the Application Inquiry Sheet on page 26 and fax to 860-677-4999 or call Norgren at 800-722-5547.

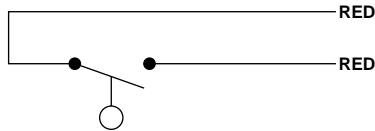


Electrical Data

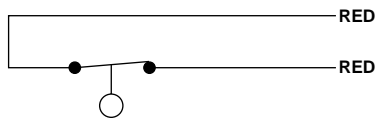
Norgren Standard Reed Switches are SPST or SPDT. The Diagrams Below Show the Typical Wiring.

Form A SPST - Single Pole / Single Throw

Normally Open Dry

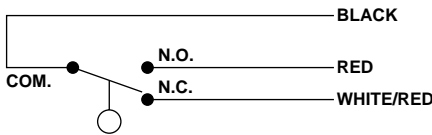


Normally Closed Dry



Form C SPDT - Single Pole / Double Throw

SPDT Dry Condition



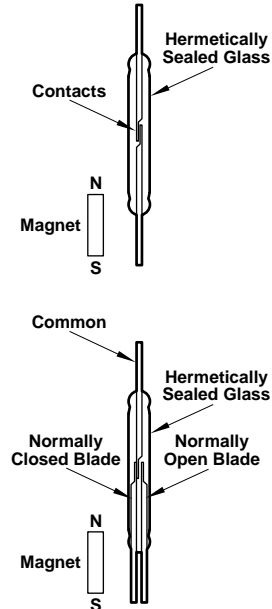
Each Norgren level switch varies in rating depending on the unit, see the chart below for electrical ratings.

Switch Ratings Max - Resistive Loads

Contact Rating	Volts	Amps AC	Amps DC
10 VA	0-50	.20	.13
	120	.08	.05
	240	.04	N/A
20 VA	0-50	.40	.30
	120	.17	.13
	240	.08	.06
50 VA	0-50	.50	.50
	120	.41	.41
	240	.20	.20
100 VA	120	.83	N/A
	240	.41	N/A

NOTE: Above ratings are for resistive loads only

The reed switch is designed for reliability to millions of cycles. To ensure long life and repeatability, see the contact protection information below.



Contact Protection

In order to take advantage of the long life, highly reliable characteristics of a reed switch, it is essential to provide protection when switching inductive loads.

When current is interrupted, the inductance of the load generates a high frequency voltage, which appears across the switch contacts. If the voltage is large enough, it can cause arcing. Arcing can cause the contacts to weld to each other resulting in unreliable switching performance. It is essential to

protect the circuit by suppressing the voltage to prevent arcing. This can easily be accomplished through the use of a diode for DC circuits (Figure 1) and a resistor-capacitor network for AC circuits (Figure 2).

Figure 1
D.C. Contact Protection

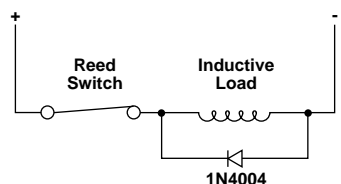
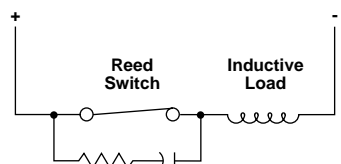


Figure 2
A.C. Contact Protection





LS 1 Series Level Switches

Compact, Rugged, Yet Economical!

The LS 1 Series of liquid level switches from Norgren provide a reliable, compact, low cost solution to liquid-level control for the selective OEM. This family of plastic level switches offers a broad variety of answers to many of today's demanding applications. Whether your problem is size, material compatibility, or wave motions falsely actuating switches, your answer should be found on these pages or through a quick conversation with Norgren. A variation to these standards will surely solve the most discriminating application.

FEATURES:

- Small, compact size with small displacement
- Highly reliable, yet inexpensive
- Seamless cellular construction
- Temperature range up to 225°F
- Excellent chemical resistance
- NSF Approved
- Unique hex designed stem



**Polypropylene
Foamed Float**



**Polypropylene
Hollow Float**



**PBT
Hollow Float**

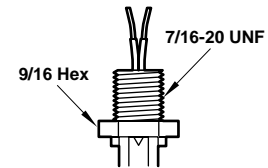
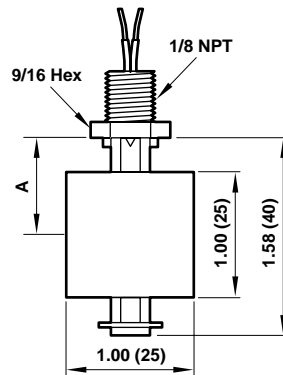
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File No. LR 90981



A - actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0.



SPECIFICATIONS:

MAXIMUM PRESSURE @70° F

Foamed Float 150 PSI (10.3 bar)
Hollow Float 10 PSI (.69 bar)

TEMP. OPERATING RANGE

Foamed Float -40° to 150° F (-40° to 66° C)
Hollow Float (PBT) -40° to 225° F (-40° to 107° C)

LEADWIRE

Polypro Units 22 AWG, 24" long
PBT Units 22 AWG, 24" long

RECOMMENDED MINIMUM LIQUID SP GR

Foamed Polypro Float .72
PBT Float .65
Hollow Polypro Float .55

LS 1 Series Ordering Numbers:

Part Number	MTG	Stem Material	Float Material	Other Wetted Parts	Switch Rating
0255-024†	1/8" NPT	Polypro	Polypro	Polypro	20VA*
0342-024	1/8" NPT	Polypro	Buna	Polypro	20VA*
0506-024†	1/8" NPT	Polypro	Polypro	316 SS	10VA
0507-024†	1/8" NPT	Polypro	Polypro	Polypro	10VA
0615-024†	7/16-20 UNF	Polypro	Polypro	Polypro	20VA*
0689-024†	1/8" NPT	Polypro	Polypro	Polypro	3VA SPDT
1072-024	7/16-20 UNF	PBT	PBT	PBT	20VA*
1073-024	1/8" NPT	PBT	PBT	PBT	20VA*

* UL and CSA switch ratings are 20VA pilot duty rated; 120VAC - 240VAC
† "NSF Certified" - These products conform to the requirements of NSF Criteria C2 - Special and/or Devices.
- For NSF label add prefix N to the part number when ordering.



Single Point Levels

All Dimensions in Inches (mm)

Mini LS 1 Series

The LS 1 Series with a Float Diameter of .75 Fits Into Those Hard to Reach Places...

FEATURES:

- Ultra compact size fits through small bottle or tank openings
- Seamless cellular construction for a rugged float design
- Ideal for food and beverage applications
- Unique hex stem design minimizes potential for liming

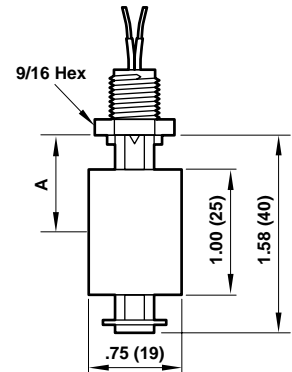
Specifications

Maximum Pressure	150 PSI (10.3 bar) @ 70°F
Temp. Operating Range	-40°F to 150°F (-40°C to 66°C)
Mounting	1/8" NPT or 7/16 - 20 UNF
Leads	22 AWG, 24" long
Recommended Minimum Liquid SP GR	.90
Float Material	Seamless Cellular Polypropylene
Stem and Other Parts	Polypropylene

Mini LS 1 Series Ordering Numbers:

Part Number	MTG	Material	Switch Rating
0763-024†	1/8" NPT	Polypro	20VA
1340-024†	7/16-20 UNF	Polypro	20VA

† "NSF Certified" - these products conform to the requirements of NSF Criteria C2 - Special and/or Devices.
 - for NSF label add prefix N to the part number when ordering.



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LS 1 Series with Slosh Shield

The LS 1 Series with Slosh Shield Provides a Means of Dampening Turbulent Fluids...

FEATURES:

- All Polypropylene construction ideal for beverage dispensing and ice machines
- Compact size allows for minimum displacement
- Easily adaptable to other switch types and float combinations for OEM applications

SPECIFICATIONS:

MAXIMUM PRESSURE	@70° F
Foamed Float	150 PSI (10.3 bar)
Hollow Float	10 PSI (.69 bar)

TEMP. OPERATING RANGE

Foamed Float	-40°F to 150° F (-40°C to 66° C)
Hollow Float (PP)	-40°F to 150° F (-40°C to 66° C)
Hollow Float (PBT)	-40°F to 225° F (-40°C to 107° C)

LS 1 Series with Slosh Shield:

Part Number	MTG	Stem Material	Float Material	Other Wetted Parts	Switch Rating
1347-001†	1/8" NPT	Polypro	Polypro	Polypro	20VA
1347-002†	7/16-20 UNF	Polypro	Polypro	Polypro	20VA
1347-003†	1/8" NPT	PBT	PBT	PBT	20VA
1347-004†	7/16-20 UNF	PBT	PBT	PBT	20VA
2841-024	1/8" NPT	Polypro	Hollow Polypro	Polypro	20VA
2842-024	7/16-20 UNF	Polypro	Hollow Polypro	Polypro	20VA

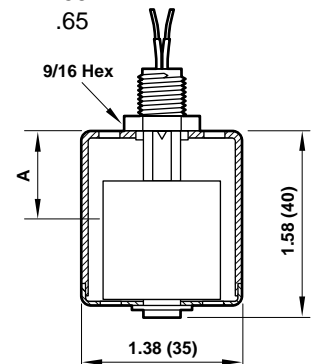
† "NSF Certified" - these products conform to the requirements of NSF Criteria C2 - Special and/or Devices.
 - for NSF label add prefix N to the part number when ordering.

LEADWIRE

Polypro Units	22 AWG, 24" long
PBT Units	22 AWG, 24" long

RECOMMENDED MINIMUM LIQUID SP GR

Foamed Polypro Float	.72
Hollow Polypro Float	.55
PBT Float	.65



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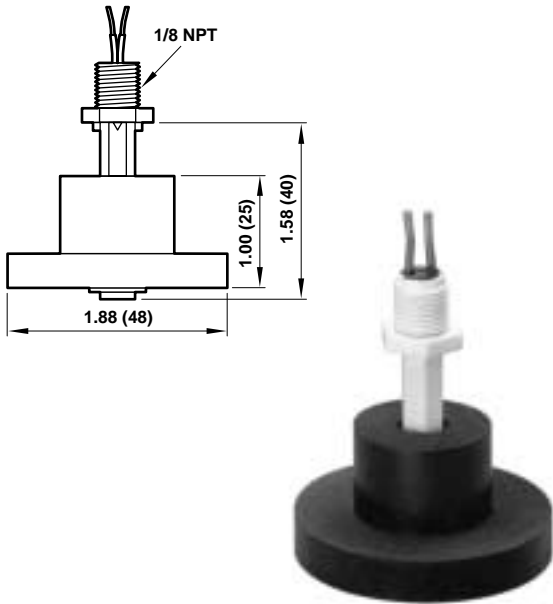


A - actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0.



LS 1 Series Ultra Low Level

When You Just Can't Detect Low Enough - The Norgren Ultra Low Level Switch Can Detect Liquids as Low as 5/8"



FEATURES:

- Due to the float shape and displacement, the reed switch is activated with float riding close to the surface of the liquid
- Variety of stem materials to meet your specific requirements
- Float can be combined with other floats on a miniature multi-level control only (see pages 18-19) for a custom liquid level sensor to meet your needs
- Available in different lead wire lengths, with connectors for OEM's

Specifications:

Maximum Pressure	50 PSI (3.4 bar)
Temp. Operating Range	-40° to 180°F in Water (-40° to 82°C)
Range	-40° to 225°F in Oil (-40° to 107°C) (Stainless and Brass)
Mounting	1/8" NPT
Leads	22 AWG, 24" long

LS 1 Series Ultra Low Level:

Part Number	Stem Material	Float Material	Other Material	Switch Rating
0768-024	Polypro	Buna N	316 SS	20VA N.C.
0769-024	Brass	Buna N	316 SS	20VA N.C.
0774-024	316 SS	Buna N	316 SS	20VA N.C.

LS 1 Series - Sidemount

Sidemounted Unit Ideal for Tight Spaces

Type B



Type P



FEATURES:

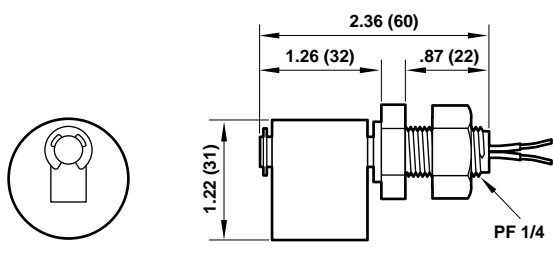
- Sidemount design fits small vessels
- Minimal float travel and displacement
- Highly chemical resistant

Specifications

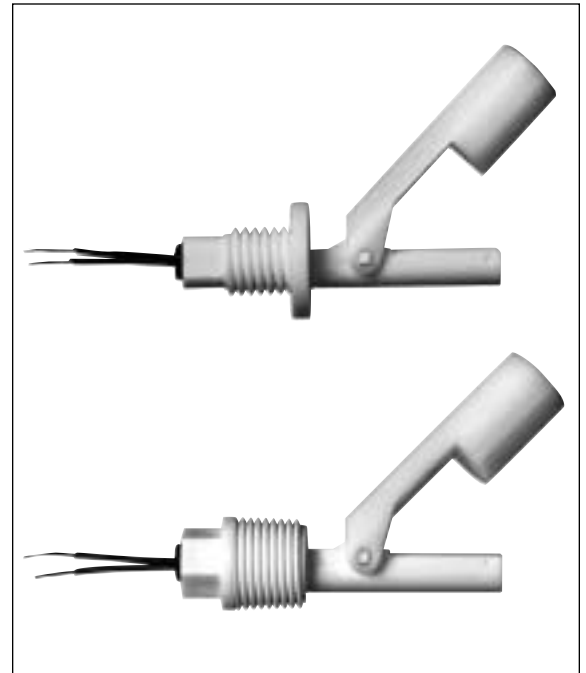
Maximum Pressure	Type B 70 PSI (4.8 bar) Type P 40 PSI (2.8 bar)
Temperature Range	Type B -40°F to 176°F (-40° to 80°C) Type P -40°F to 176°F (-40° to 80°C)
Mounting	PF 1/4
Leads	22 AWG, 24" long
Recommended Minimum Liquid SP GR	Type B .60 Type P .80

LS 1 Sidemount Ordering Numbers

Part Number	Stem Material	Float Material	Other Wetted Parts	Switch Rating
0508-024	Polyacetal	Buna N	316 SS	20VA
0509-024	Polypro	Polypro	Polypro	20VA



- Direct side mounted level controls in Polypropylene and PBT
- All polypropylene construction offers broad fluid compatibility
- Single unit offers normally open or normally closed operation
- Mounting available internally or direct external entry



Normally Open Dry Condition:

Float rises with liquid level to stop, where upon switch closes.

Normally Closed Dry Condition:

Float falls with liquid level to stop, where upon switch closes.

Actuation point is 15° +10° of float arc.

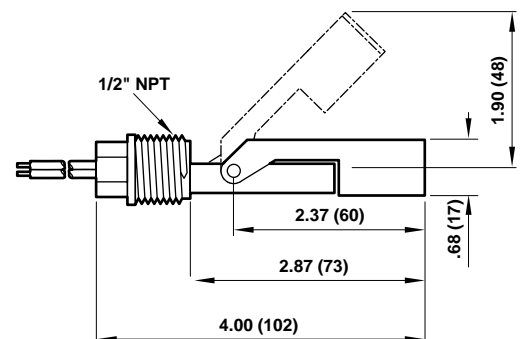
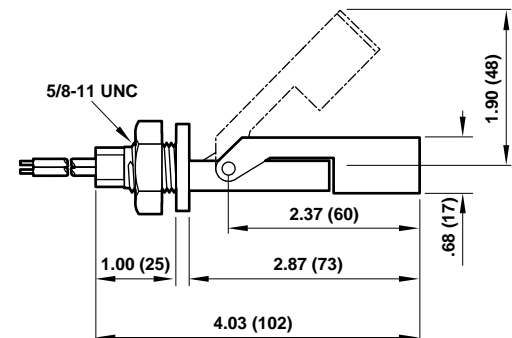


Specifications

Maximum Pressure	100 PSI (6.9 bar) @ 70°F
Temp. Operating Range	-40°F to 150°F (-40° to 66°C) Polypro -40°F to 225°F (-40° to 107°C) PBT
Leads	22 AWG, 24" long
Recommended Minimum Liquid SP GR	.65

LS 11 Ordering Numbers:

Part Number	Mounting	Material	Switch Rating
1870-024†	1/2" NPT	Polypro	20VA
1871-024	1/2" NPT	PBT	20VA
1872-024†	5/8-11 UNC	Polypro	20VA
1873-024	5/8-11 UNC	PBT	20VA



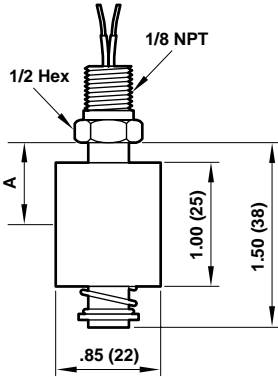
† "NSF Certified" - these products conform to the requirements of NSF Criteria C2 - Special and/or Devices.
- for NSF label add prefix N to the part number when calling

All Dimensions in Inches (mm)



25 BN Series—Teflon® Float

Norgren Offers Its 25 BN Series with a Spring Biased TEFLON® Float for High Pressure Applications



A - actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0.

FEATURES:

- Small float design (.850 Dia.) provides flexibility for those tight spaces
- Solid Teflon® float design for pressures up to 1000 PSI
- Variety of stem float combinations to meet your technical and cost requirements

Specifications:

Switch Rating	SPST 20VA
Operating Pressure	1000 PSI Maximum (68.9 bar)
Operating Temperature	-40° to 300°F (-40 to 149°C)
Float Material	Teflon®
Other Wetted Materials	300 Series Stainless, Epoxy
Leads	22 AWG, 24" long
Recommended Minimum Liquid SP GR	.75

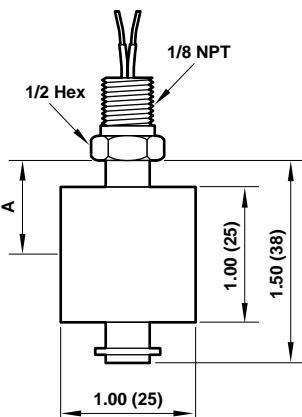
25 BN Series Ordering Numbers:

Part Number	Stem Material	Switch Rating
1275-024	316 SS	20VA N.O. DRY*
1276-024	316 SS	20VA N.C. DRY*

* UL and CSA switch ratings are 20VA pilot duty rated; 120VAC - 240VAC
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25 BN Series

Buna N General Purpose Single Point Detector



FEATURES:

- Small, compact size
- Precise repeatability
- Reliable, long-life performance
- Highly resistant to shock and vibration
- Stem available in 316 SS or Brass

Specifications:

Maximum Pressure	150 PSI (10.3 bar)
Temperature Operating Range	-40° to 225°F (-40° to 107°C) in oil to 180°F (82°C) in water
Mounting	1/8" NPT
Leads	22 AWG, 24" long
Recommended Minimum Liquid SP GR	.50

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File No. LR 90981



25 BN Series Ordering Numbers:

Part Number	Stem Material	Float Material	Other Wetted Parts	Switch Rating
0105-024	316 SS	Buna N	316 SS	20VA
0106-024	Brass	Buna N	316 SS	20VA

A - actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0.

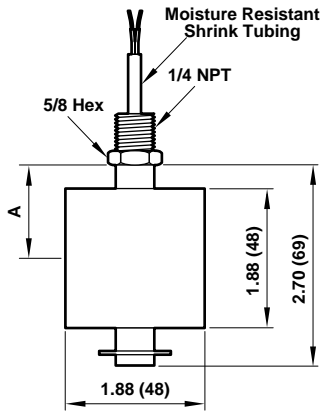


Single Point Levels

All Dimensions in Inches (mm)

50 BN Moisture Resistant Liquid Level Switch

Construction Provides Maximum Resistance to Moisture, Condensation or Water.



A - actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0.



FEATURES:

- Ideal for use in sumps or bilges
- Construction can be adapted to other Norgren switches
- Dual wall polyolefin shrink tubing resists moisture

Specifications:

Maximum Pressure	150 PSI (10.3 bar)
Temperature Operating Range	-40°F to 225°F (-40°C to 107°C) in oil -40°F to 180°F (-40°C to 82°C) in water
Mounting	1/4" NPT
Leads	18 AWG, 36" long
Recommended Minimum Liquid SP GR	.55

Liquid Level Switch Ordering Numbers:

Part Number	Stem / Float Material	Other Wetted Mounting Material	Switch Rating
1344-001	Brass / Buna	Stainless / Epoxy	SPST 20VA
1344-002	Brass / Buna	Stainless / Epoxy	SPST 100VA
1344-003	304 SS / Buna	Stainless / Epoxy	SPST 20VA
1344-004	304 SS / Buna	Stainless / Epoxy	SPST 100VA
1344-005	304 SS / 316 SS	316 SS	SPST 20VA
1344-006	304 SS / 316 SS	316 SS	SPST 100VA



50 BN Series Intermediate

Intermediate Size General Purpose Detector

FEATURES:

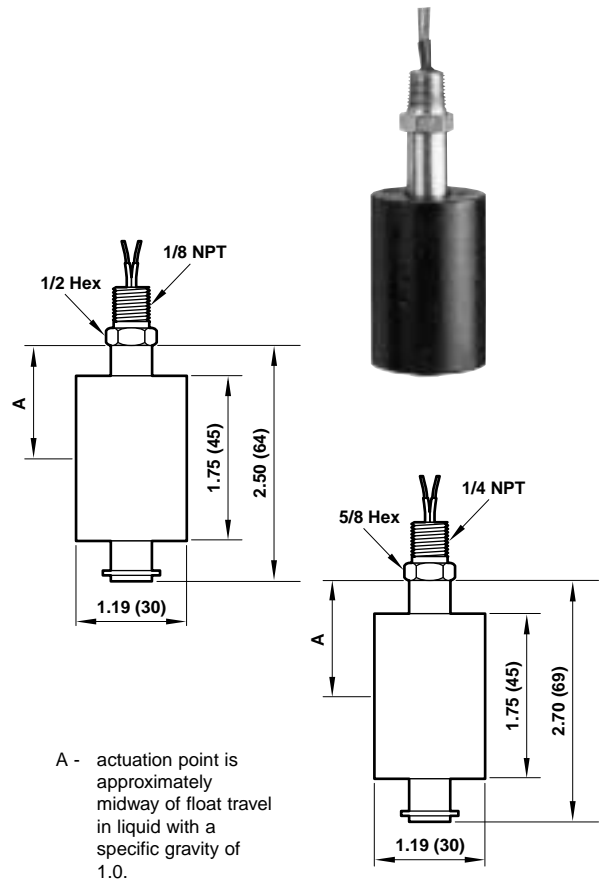
- Highly reliable, yet inexpensive
- Compact, narrow displacement
- Stem available in 316 SS or Brass
- Long operating life

Specifications:

Maximum Pressure	150 PSI (10.3 bar)
Temp. Operating Range	-40°F to 225°F (-40°C to 107°C) in oil -40°F to 180°F (-40°C to 82°C) in water
Mounting	1/8" NPT - 1/4" NPT
Leads	18 AWG, 24" long
Recommended Minimum Liquid SP GR	.58

50 BN Series Inter. Ordering Numbers:

Part Number	MTG	Stem Material	Float Material	Other Wetted Parts	Switch Rating
0108-024	1/8"	316 SS	Buna N	316 SS	100VA
0109-024	1/8"	Brass	Buna N	316 SS	100VA
0500-024	1/4"	316 SS	Buna N	316 SS	100VA
0501-024	1/4"	Brass	Buna N	316 SS	100VA
0502-024	1/8"	316 SS	Buna N	316 SS	20VA
0503-024	1/8"	Brass	Buna N	316 SS	20VA
0504-024	1/4"	316 SS	Buna N	316 SS	20VA
0505-024	1/4"	Brass	Buna N	316 SS	20VA



50 BN Series Large

Large Size General Purpose Detector

FEATURES:

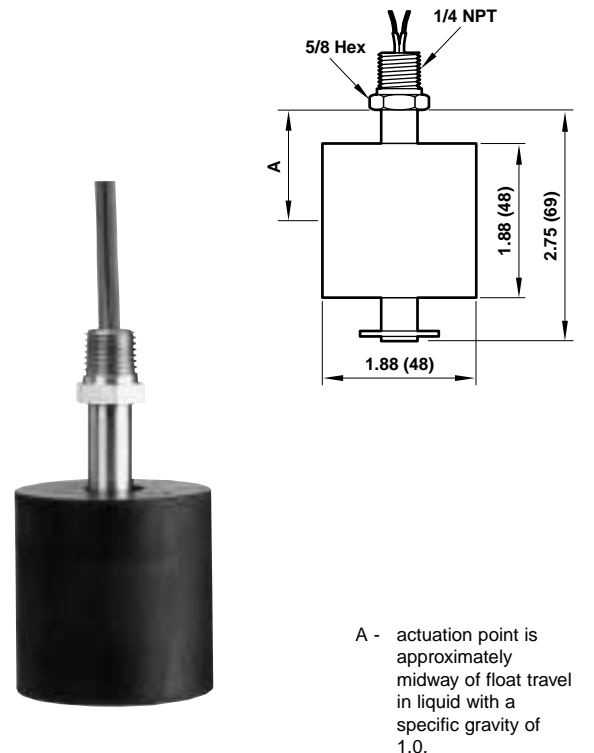
- Large float provides maximum displacement in high viscosity fluids
- Can be easily extended to multiple float arrangement up to 72" long (see pages 20-21)
- Rugged design for heavy duty service

Specifications:

Maximum Pressure	150 PSI (10.3 bar)
Temp. Operating Range	-40°F to 225°F (-40°C to 107°C) in oil -40°F to 180°F (-40°C to 82°C) in water
Mounting	1/4" NPT
Leads	18 AWG, 24" long
Recommended Minimum Liquid SP GR	.55

50 BN Series Large Ordering Numbers:

Part Number	MTG	Stem Material	Float Material	Other Wetted Parts	Switch Rating
0512-024	1/4"	316 SS	Buna N	316 SS	100VA
0513-024	1/4"	Brass	Buna N	316 SS	100VA
0514-024	1/4"	316 SS	Buna N	316 SS	20VA
0515-024	1/4"	Brass	Buna N	316 SS	20VA





35 SS Series

Compact Stainless Steel Detector for High Corrosive, High Temperature Applications

FEATURES:

- Compact size
- Long operating life
- Highly resistant to shock and vibration

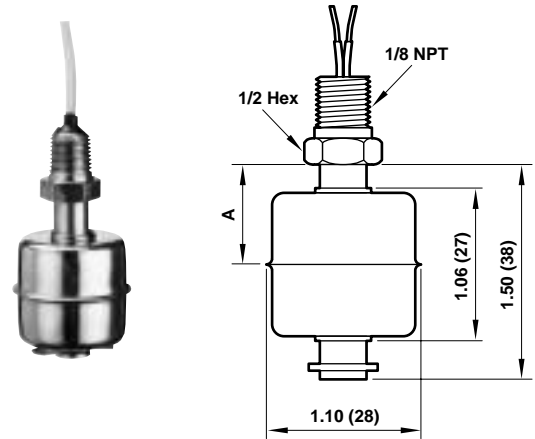
Specifications:

Maximum Pressure	275 PSI (19.0 bar)
Temp. Operating Range	-40° to 300°F (-40° to 149°C)
Mounting	1/8" NPT
Leads	22 AWG, 24" long
Recommended Minimum Liquid SP GR	.80

35 SS Series Ordering Numbers:

Part Number	Stem Material	Float Material	Other Wetted Parts	Switch Rating
0107-024†	316 SS	316 SS	316 SS	20VA*
0511-024	Brass	304 SS	316 SS	20VA*

* UL and CSA switch ratings are 20VA pilot duty rated; 120VAC - 240VAC
† "NSF Certified"- these products conform to the requirements of NSF Criteria C2 - Special and/or Device.
- for NSF label add prefix N to the part number when ordering



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35 SS Series - Sidemount

"Bent Stem" Level Control for Mounting through Tank Walls

FEATURES:

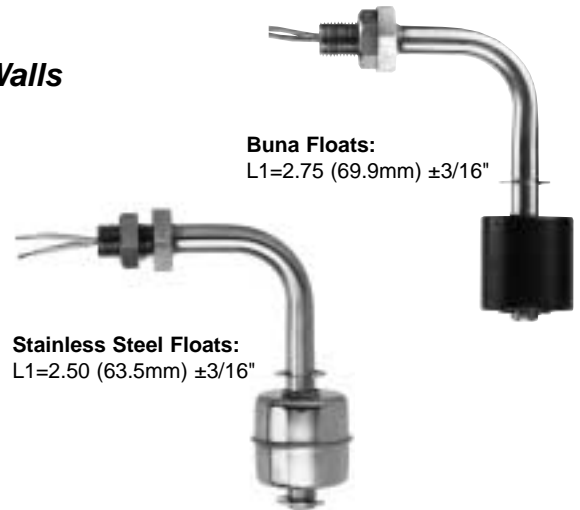
- 90° bend allows for side mounting where access to tank top and bottom is restricted
- Available in all 316 SS construction

Specifications:

Maximum Pressure	SS	275 PSI (19.0 bar)
	Buna	150 PSI (10.3 bar)
Temp. Operating Range	Buna Float	-40°F to 300°F (-40°C to 149°C)
		-40°F to 225°F (-40°C to 107°C) in oil
		-40°F to 180°F (-40°C to 82°C) in water
Mounting		3/8 - 24
Leads		22 AWG, 24" long
Recommended Minimum Liquid SP GR	SS	.80
	Buna	.50

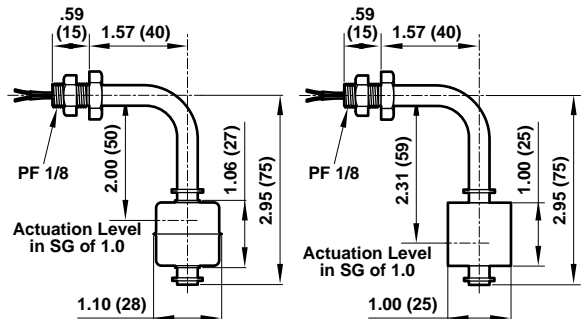
35 SS Series Sidemount Ordering Numbers:

Part Number	Stem Material	Float Material	Other Wetted Parts	Switch Rating
2350-024	316 SS	316 SS	PH 15-7 MO	20VA
2351-024	316 SS	Buna	PH 15-7 MO	20VA
2352-024	Brass	316 SS	Beryllium Copper	20VA
2353-024	Brass	Buna	Beryllium Copper	20VA



Buna Floats:
L1=2.75 (69.9mm) ±3/16"

Stainless Steel Floats:
L1=2.50 (63.5mm) ±3/16"

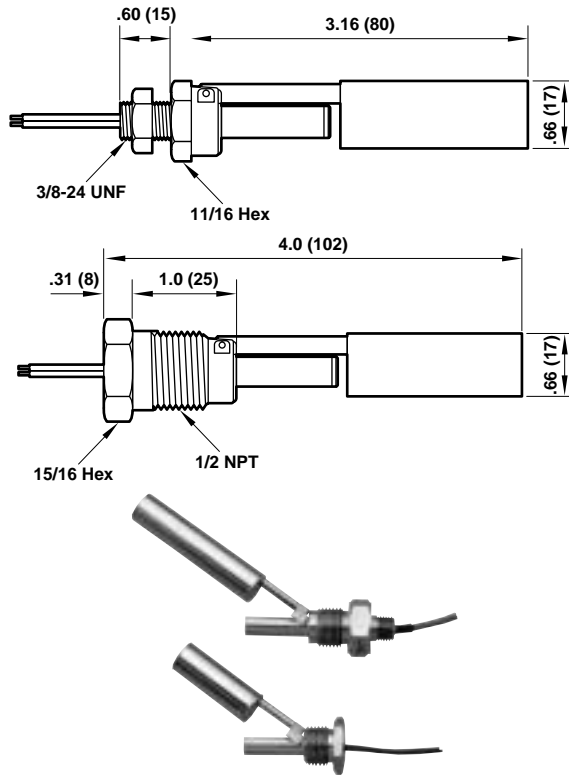


L1 Dimension is Actuation Level in Liquid Specific Gravity of 1.0



40 SS Series Sidemount

Direct Side Mounted Level Controls



FEATURES:

- Precise repeatability
- Ease of installation
- Internal and external mounting available

Specifications:

Maximum Pressure	400 PSI (27.6 bar)
Temp. Operating Range	-40° to 300°F (-40° to 149°C)
Leads	22 AWG, 24" long
Recommended Minimum Liquid SP GR	.58

40 SS Series Sidemount Ordering Numbers:

Part Number	Mounting	Stem Material	Other Wetted Materials	Switch Rating
3736-024	3/8-24 UNF	316 SS	304 SS	20VA
3735-024	1/2" NPT	316 SS	304 SS	20VA



Single Point Levels

All Dimensions in Inches (mm)

50 SS Series Low Specific Gravity

Buoyant Float Design for Media with Specific Gravity as Low as .40

Features:

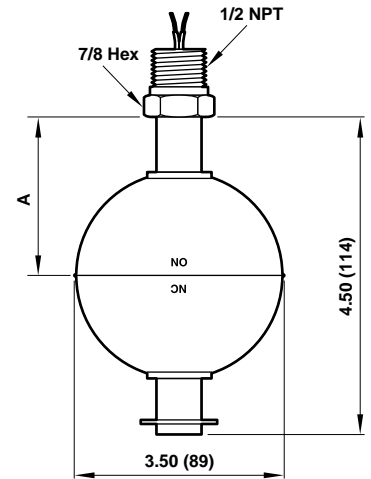
- Ideal for use as a high, low or intermediate level alarm in the storage of propane and butane
- Float design can be adapted to Norgren multi-level configuration for total control
- Temperature range of -40°F to 300°F

Specifications:

Maximum Pressure	300 PSI (20.7 bar)
Temp. Operating Range	-40°F to 300°F (-40°C to 149°C)
Mounting	1/2" NPT
Lead Wires	18 AWG, 24" long
Recommended Minimum Liquid SP GR	.40

Low Gravity Float Ordering Numbers:

Part Number	Stem / Float Material	Other Wetted Materials	Switch Rating
1348-001	Brass / 316 SS	Stainless Steel	SPST 20VA
1348-002	Brass / 316 SS	Stainless Steel	SPST 100VA
1348-003	Brass / 316 SS	Stainless Steel	SPDT 20VA
1348-004	316 SS / 316 SS	Stainless Steel	SPST 20VA
1348-005	316 SS / 316 SS	Stainless Steel	SPST 100VA
1348-006	316 SS / 316 SS	Stainless Steel	SPDT 20VA



A - actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0.

50 SS Series

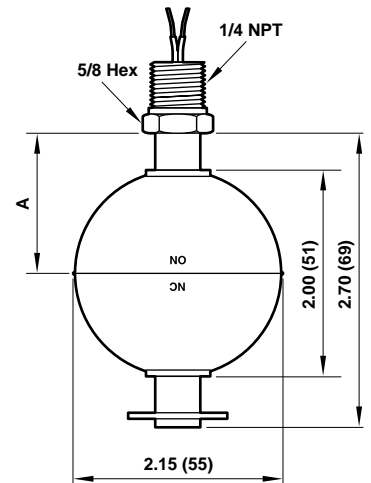
Stainless Steel Detector for High Pressure, Corrosive and High Temperature Applications

Features:

- All stainless steel wetted surfaces
- High resistance to corrosive chemicals
- Operates in high temperatures
- Operates in high pressure environments

Specifications:

Maximum Pressure	750 PSI (51.7 bar)
Temp. Operating Range	-40°F to 300°F (-40°C to 149°C)
Mounting	1/4" NPT
Leads	18 AWG, 24" long
Recommended Minimum Liquid SP GR	.73



A - actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0.



50 SS Series Ordering Numbers:

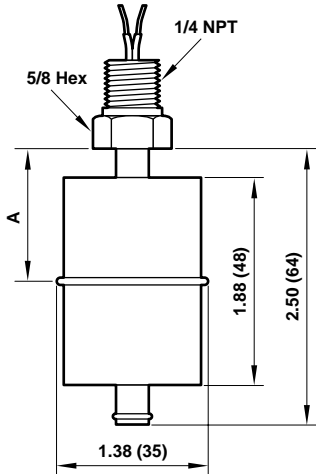
Part Number	Stem Material	Float Material	Other Wetted Parts	Switch Rating
0110-024†	316 SS	316 SS	316 SS	100VA
0520-024	Brass	316 SS	316 SS	100VA
0521-024†	316 SS	316 SS	316 SS	20VA
0522-024	Brass	316 SS	316 SS	20VA

† "NSF Certified"- these products conform to the requirements of NSF Criteria C2 - Special and/or Devices.
- for NSF label add prefix N to the part number when ordering.



50 TT Series

Teflon® Level Detector for High Purity, High Corrosive Applications



FEATURES:

- All Teflon® wetted surfaces
- PFA float for greater resistance to corrosives
- Low particulate generation
- Chemically inert

Specifications:

Maximum Pressure	70 PSI (4.8 bar)
Temp. Operating Range	-40°F to 300°F (-40°C to 149°C)
Mounting	1/4" NPT
Leads	22 AWG, 24" long
Recommended Minimum Liquid SP GR	.90

UL Recognized
File No. E 129277



CSA Approved
File No. LR 90981



A - actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0.

50 TT Series Ordering Numbers:

Part Number	Stem Material	Float Material	Description	Switch Rating
0111-024	TFE	PFA	SPST, NO Dry	20VA*
0112-024	TFE	PFA	SPST, NC Dry	20VA*
0113-024	TFE	PFA	SPDT	3VA

* UL and CSA switch ratings are 20VA pilot duty rated; 120VAC - 240VAC
© Teflon is a registered trademark of E.I. Dupont De Nemours Co.

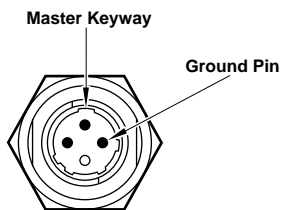
80% Shut-Off Switch for Recovery Refill Cylinders

- Designed specifically for overfill protection of Refrigerant Recovery Tanks
- Meets rigid UL Requirements for Refrigerant Recovery Equipment
- Switches have been specified to meet the dimensions of the recovery tank manufacturer
- Customize a switch to meet your specific needs including multiple floats, various actuation levels and a variety of wire or connector terminations

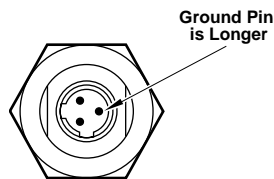


CONNECTOR SELECTION DATA

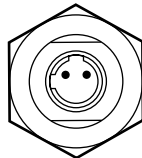
AMP CONNECTOR
MATES WITH AMP P/N 206060-1



BRAD HARRISON 3-PIN
MATES WITH BH-P/N 70303



BRAD HARRISON 2-PIN
MATES WITH BH-P/N 70023

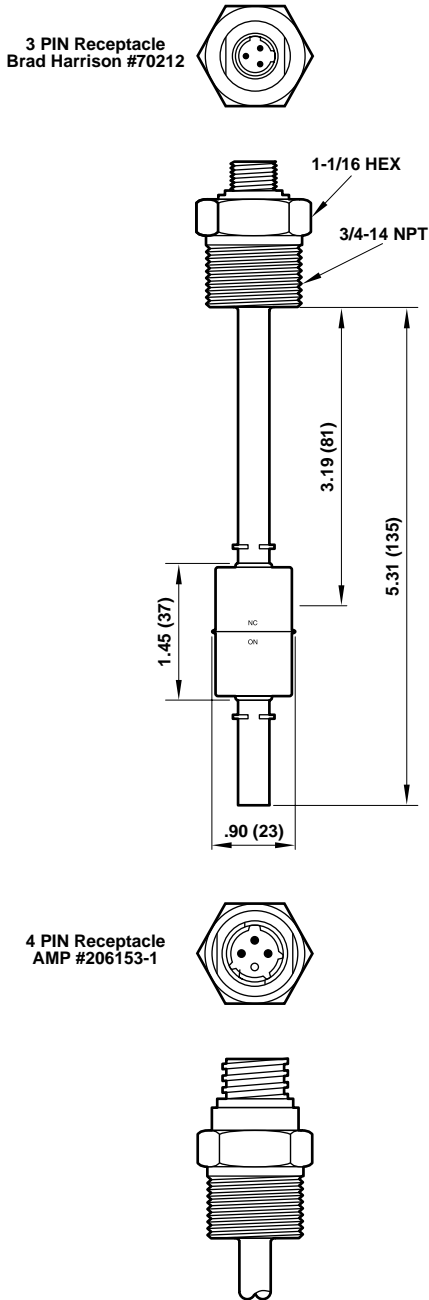


Features:

- Pressure rating to 400 PSIG (27.6 bar)
- Standard for 30# and 50# D.O.T. refrigerant tanks
- Grooved stems keep floats from moving or falling off
- Can be customized for use in other size cylinders
- Available with multiple floats
- UL endurance tests performed at 120/60, 240/60, 24/60, 5 VDC, 12 VDC, 24 VDC



80% Shut-Off Switch Part Numbering System





Specifications:

Maximum Pressure	400 PSIG Maximum (27.6 bar)
Temperature Operating Range	-40° to 221°F SS Float (-40° to 105°C)
Switch Type	SPST, Normally Closed Dry
Switch Rating	20VA
Mounting Plug	3/4" NPT

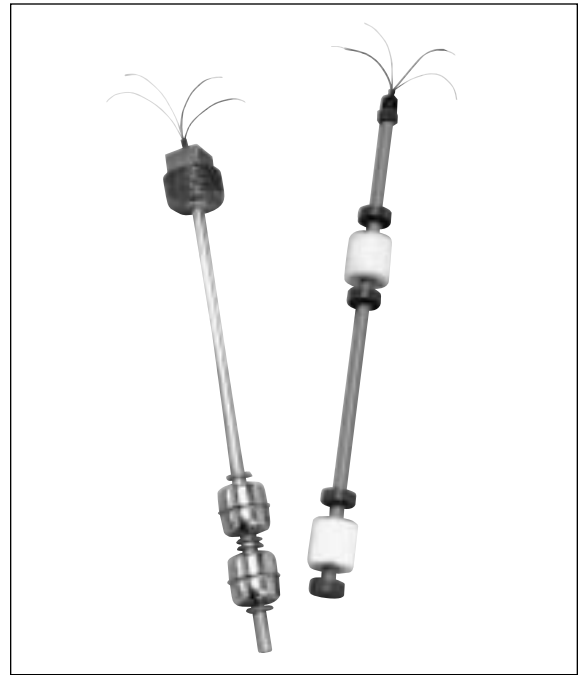
Refrigerant Level Ordering Numbers:

Part Number	"A" Dim.	"B" Dim.	Tank Mfr.	Tank Size	PIN Type
0708-001	3.19 (81)	5.31 (135)	(MAN)*, (WOR)**	30#, 50#	Brad 3-Pin
0808-001	3.19 (81)	5.31 (135)	(MAN)*, (WOR)**	30#, 50#	AMP 3-Pin
1007-001	3.19 (81)	5.31 (135)	(MAN)*, (WOR)**	30#, 50#	Brad 3-Pin
1038-001	8.40 (213)	10.13 (257)	(MAN)*, (WOR)**	250#	Brad 3-Pin
1047-001	6.75 (172)	8.88 (226)	(MAN)*, (WOR)**	100#	Brad 3-Pin
1302-001	3.562 (90)	5.688 (144)	(AMTROL)	26#	Brad 3-Pin
1303-001	3.875 (98)	6.00 (152)	(AMTROL)	50#	Brad 3-Pin
1546-001	8.40 (213)	10.13 (257)	(MAN)*, (WOR)**	250#	AMP 3-Pin
1628-001	3.562 (90)	5.688 (144)	(AMTROL)	26#	AMP 3-Pin
1629-001	3.875 (98)	6.00 (152)	(AMTROL)	50#	AMP 3-Pin
1632-001	6.75 (172)	8.88 (226)	(MAN)*, (WOR)**	100#	AMP 3-Pin

* MAN = Manchester
** WOR = Worthington

- Apply any of our Single Point Detectors to your Multi-Point Application
- Up to 48" overall length
- Up to 5 control points
- UL Recognized File #E129277 
- CSA Approved File #90981 

Norgren Miniature Multi-Point Level controls provide a convenient method of customizing your level control with standard lead times and costs. Our Miniature Multi-Point offers floats as small as .787 diameter for those hard to reach areas with up to 5 actuation levels on a single tank entry. Extend your imagination and allow Norgren to build your custom level control when an off the shelf switch won't do.



Obtain a copy of Norgren Level Switch Inquiry Application Sheet and define the general requirements (see page 26):

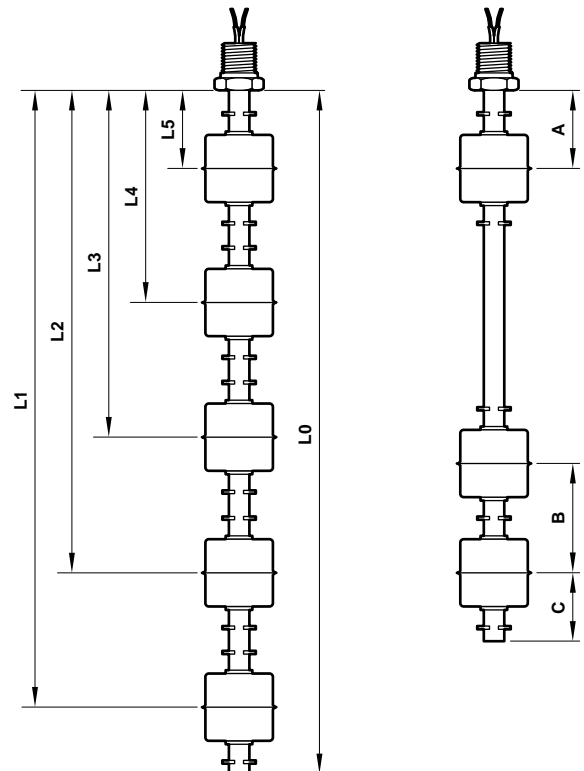
1. Mounting type.
2. Stem and float material.
3. Float type, noting temperature ranges, pressure limitations and minimum recommended specific gravity.
4. Switch type, considering voltage and load requirements.
5. Wiring group, noting that wiring group I can be utilized with up to 5 levels and wiring group II can be utilized with 3 levels max.
6. Number of actuation points and the distance from the bottom of the mounting plug- Specify L1 through L5.
7. LO-Overall length, which is L1 plus the "C" dimension of your float selection.
8. Switch logic, either normally closed or normally open. When specifying switch logic, please indicate switch condition when tank is dry.
9. Provide a sketch or drawing along with other pertinent information for proper switch selection.

A = minimum distance to highest level

B = minimum distance between levels using two floats

C = distance from lowest level to end of unit

FLOAT NUMBER	A DIM.	B DIM.	C DIM.
0118-001	3/4"	1-1/2"	1"
0126-002	3/4"	1-1/2"	1"
0630-001	3/4"	1-1/2"	1"
0564-002	1"	2"	1-1/8"
1093-001	3/4"	1-1/2"	1"
1415-001	5/8"	1-9/32"	3/4"
1416-001	3/4"	1-1/2"	1"
2161-001	3/4"	1-1/2"	1"
2304-001	3/4"	1-1/2"	1"



USE THE APPLICATION INQUIRY SHEET ON PAGE 26 FOR QUOTATION AND ORDERING



Miniature Multi-Point Design Considerations

Mounting Styles

SELECTION CHOICES	TYPE A	TYPE B	TYPE C	TYPE D	TYPE E	TYPE F
Unit Configuration						
Mounting	1/8" NPT	1/4" NPT	1" NPT	3/4" NPT	5/16" Tubing	3/8" -24 THD
Maximum Length	316 SS, Brass up to 48" or PVC up to 24"					

Specifications:

Stem and Mounting Material	316 SS and Brass up to 48" Length PVC up to 24" Length
Switches	SPST, 10VA or 50VA SPDT, Optional
Float Stops	Brass Units - Beryllium Copper Grip rings SS Units - ARMC0 PH 15-7 MO PVC Units - PVC 316 SS Collar Optional
Leads	22 AWG, 24" long

	0630-001 316 SS Float	0118-001 Buna N (closed cell) Float	0126-002 Polypropylene	0564-002 304 SS Float	1093-001 Polypro Float	1415-001 Buna Float	1416-001 PBT Float
FLOAT CHOICES							
Maximum Pressure	400 PSI (19 bar)	150 PSI (10.3 bar)	150 PSI (10.3 bar)	400 PSI (27.6 bar)	150 PSI (10.3 bar)	150 PSI (10.3 bar)	10 PSI (.69 bar)
Operating Temperature	-40°F to 300°F (-40°C to 149°C)	(Oil) -40°F to 225°F (-40°C to 107°C) (Water) -40°F to 180°F (-40°C to 82°C)	-40°F to 150°F (-40°C to 66°C)	-40°F to 300°F (-40°C to 149°C)	-40°F to 150°F (-40°C to 66°C)	(Oil) -40°F to 225°F (-40°C to 107°C) (Water) -40°F to 180°F (-40°C to 82°C)	-40°F to 225°F (-40°C to 107°C)
Rec. Min. Liquid SP GR	.80	.50	.72	.95	.90	.80	.65

	2161-001 316 SS Float	2304-001 PVC Float	1417-001 Polypro Float (Hollow)
FLOAT CHOICES			
Maximum Pressure	275 PSI (19 bar)	50 PSI (3.4 bar)	10 PSI (.69 bar)
Operating Temperature	-40°F to 300°F (-40°C to 149°C)	-40°F to 150°F (-40°C to 66°C)	-40°F to 150°F (-40°C to 66°C)
Rec. Min. Liquid SP GR	.70	.80	.55

WIRING	SPST SWITCHES	
	Group 1	Group 2
Wire	#22 AWG	#22 AWG
Common	Black	None
	NO/NC	SW Com. NO/NC
L1	Red	Red
L2	Yellow	Yellow
L3	Blue	Blue
L4	Brown	
L5	Orange	

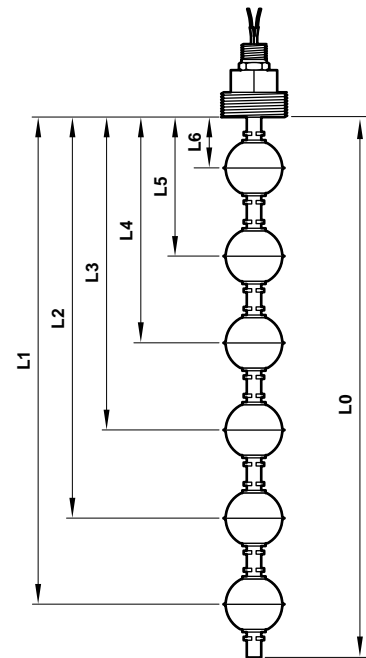
Standard Multi-Point Level Switches





- Customize Norgren's larger single point detectors for your multi-point application
- Up to 72" overall length
- Up to 6 control points
- Standard Multi-Point Level controls provide a convenient method of customizing your level control with standard lead times and costs
- Standard Multi-Point offers up to 6 actuation levels on a single tank entry



Obtain a copy of Norgren Level Switch Inquiry Application Sheet and define the general requirements: (see page 26)

1. Determine mounting type.
2. Select the stem and float material.
3. Choose float type, noting temperature ranges, pressure limitations, and minimum recommended specific gravity.
4. Select switch type considering voltage and load requirements.
5. Specify wiring group.
6. Determine the number of actuation points and the distance from the bottom of the mounting plug. Specify L1 through L6.
7. Specify LO-Overall length, which is L1 plus the "C" dimension of your float selection.
8. Determine switch logic, either normally closed or normally open. When specifying switch logic, please indicate switch condition when tank is dry.
9. Provide a sketch or drawing along with other pertinent information for proper switch selection.



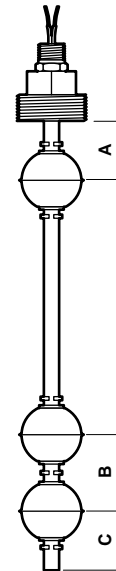
WIRING	SPST SWITCHES			SPDT SWITCHES				
	Group 1 #22 AWG	Group 2 #22 AWG		Group 3 #22 AWG		Group 4 #22 AWG		
Common	Black	None		Black		None		
	NO/NC	SW Com.	NO/NC	NO	NC	SW Com	NO	NC
L1	Red	Red	Red	Red	Wh/Red	Red	Wh/Red	Wh/Blk/Red
L2	Yellow	Yellow	Yellow	Yellow	Wh/Yellow	Yellow	Wh/Yellow	Wh/Blk/Yel
L3	Blue	Blue	Blue	Blue	Wh/Blue	Blue	Wh/Blue	Wh/Blk/Blue
L4	Brown	Brown	Brown	Brown	Wh/Brown	Brown	Wh/Brown	Wh/Blk/Brn
L5	Orange	Orange	Orange	Orange	Wh/Orange	Orange	Wh/Orange	Wh/Blk/Orng
L6	Gray	Gray	Gray	Gray	Wh/Gray	Gray	Wh/Gray	Wh/Blk/Gray
								



Multi-Point Design Considerations

Mounting Styles

SELECTION CHOICES	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6
Unit Configuration						
Mounting	1/2" NPT	1-1/4" NPT	2" NPT	3" 150# CS Flange	1/2" Tubing	1-1/2" NPT
Max. Length	72"	72"	72"	72"	72"	72"



	0127-001 316 SS Float	0114-001 Buna N (closed cell) Float	0489-001 Buna N (closed cell) Float	2305-001 PVC Float
FLOAT CHOICES				
Maximum Pressure	750 PSI (51.7 bar)	150 PSI (10.4 bar)	150 PSI (10.4 bar)	15 PSI (1.03 bar)
Operating Temperature	-40°F to 300°F (-40°C to 149°C)	(Oil) -40°F to 225°F (-40°C to 107°C) (Water) -40°F to 180°F (-40°C to 82°C)	(Oil) -40°F to 225°F (-40°C to 107°C) (Water) -40°F to 180°F (-40°C to 82°C)	-40°F to 150°F (-40°C to 66°C)
Recommended Min. Liquid SP GR	.73	.58	.55	.55

Specifications:

Stem and Mounting Material	316 SS and Brass up to 72" Length
Switches	SPST, 10VA, 50VA or 100VA SPDT, Optional
Float Stops	Brass Units - Beryllium Copper Grip rings SS Units - ARMCO PH 15-7 MO 316 SS Collar Optional
Leads	22 AWG, 24" long

FLOAT NUMBER	A DIM.	B DIM.	C DIM.
0127-001	1-1/2"	3"	2"
0114-001	1-1/2"	3"	2"
0489-001	1-1/2"	3"	2"
2305-001	1-1/2"	3"	2"

A = minimum distance to highest level
B = minimum distance between levels using two floats
C = distance from lowest level to end of unit

USE THE APPLICATION INQUIRY SHEET ON PAGE 26 FOR QUOTATION AND ORDERING

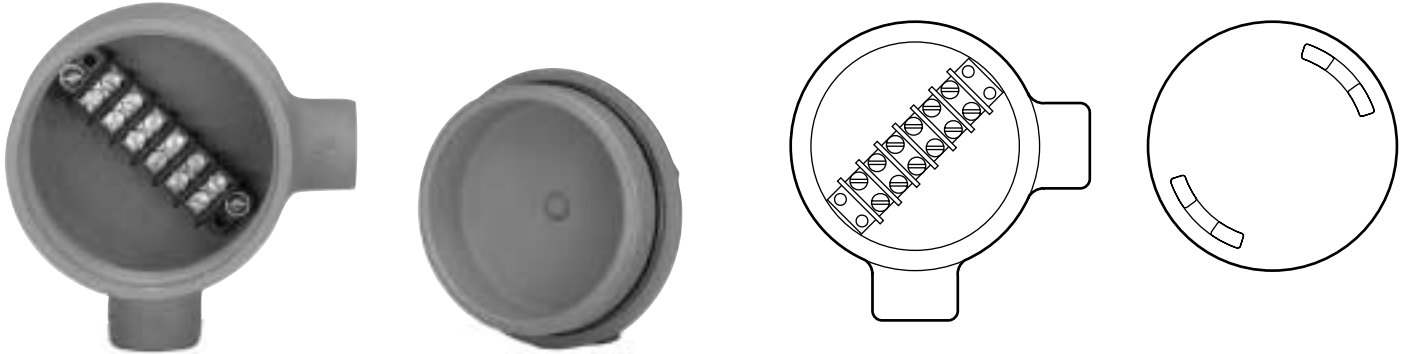


Multi-Point Levels

All Dimensions in Inches (mm)

Multi-Point Options

OPTION A: Junction Boxes with Terminal Strips



J/Box comes pre-wired for levels, complete with wiring diagram

Temperature and Level Control

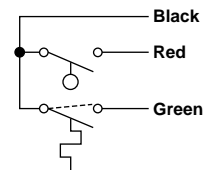
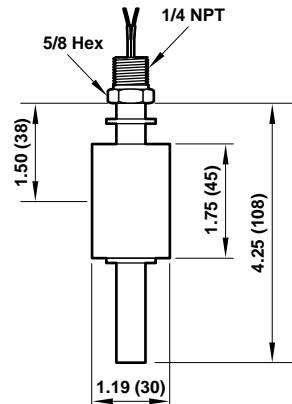
Combined for Ease of Installation. Convenient Switch-Wiring and Installation of the Level and Temperature Switch Through One Opening.

FEATURES:

- Simplifies installation for hydraulic power units
- Materials of construction ideal for water, hydrocarbons
- Available with a variety of switch configurations and temperature settings

Specifications:

Maximum Pressure	150 PSI (10.3 bar)
Operating Temperature	-40° to 225°F (-40 to 107°C) in oil -40° to 180°F (-40 to 82°C) in water
Lead Wires	No. 18 AWG, 24" long
Wetted Materials	Beryllium Copper, epoxy
Thermostat Rating	6A/120V 100VA (Non-inductive) 4A/240V 100VA (Non-inductive)
Recommended Minimum Liquid SP GR	0.58



Liquid Level Switch Ordering Numbers:

Part Number	Stem Material	Float Material	Switch Rating	Temperature Switch
0777-024	Brass	Buna N	100VA SPST*	N.C. Open on 160°F ±20°F, Increasing
0778-024	Brass	Buna N	100VA SPST*	N.O. Close on 160°F ±20°F, Increasing
1430-024	Brass	Buna N	20VA SPDT*	N.C. Open on 160°F ±20°F, Increasing
1431-024	Brass	Buna N	20VA SPDT*	N.O. Close on 160°F ±20°F, Increasing

NOTE: Other temperature settings and tolerances are available.

* Float may be reversed for N.C.

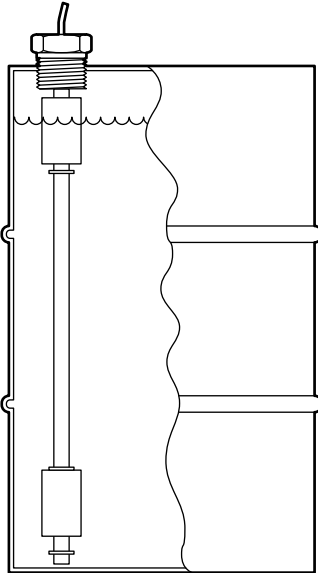
OTHER OPTIONS:

Norgren welcomes the challenge of building your total control assembly. We can provide custom bottles, assemblies, machining, flanges or other special mounting requirements.



Level Controls for 55 Gallon Drums

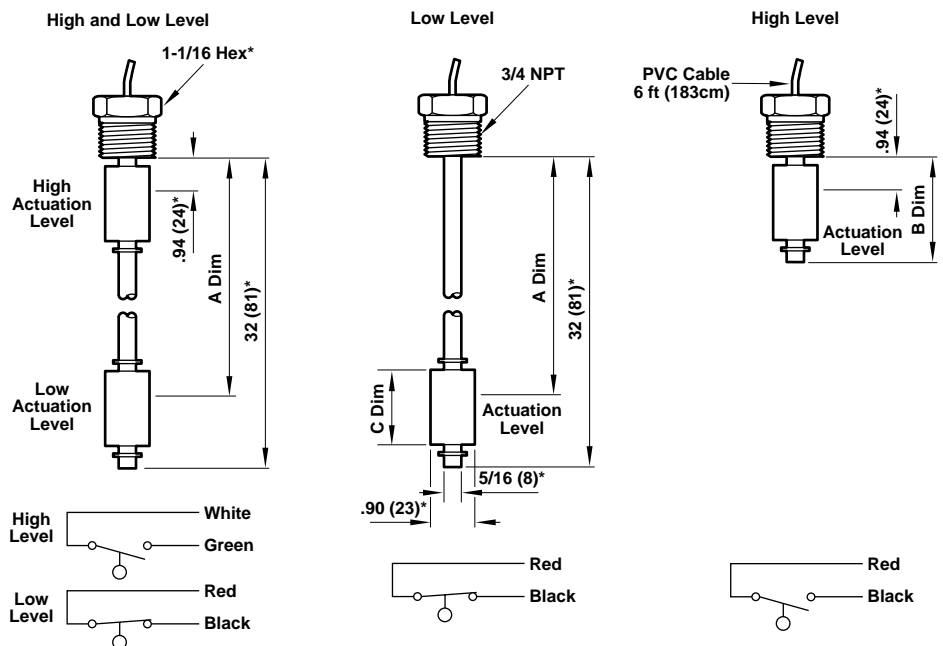
Obtain Valuable Information From the Unused 3/4" Bung Fitting In Your Drum By Installing a Norgren High, Low, or High And Low Level Switch.



Easy to install, the Norgren level switch will provide a signal for high level alarm to prevent spills, low level signal to warn operator it's time to refill, or high and low alarm combined for total control. High and low level signals can either provide input to alarms or can be combined with a relay or controller to operate valves or pumps.

Units are available in brass mounting and stem material, and Buna-N float for use in hydrocarbons as well as all stainless steel construction for more aggressive media.

Dim	Brass/Buna-N	Stainless Steel
A	31.00 (79cm)	30.38 (77cm)
B	2.00 (51)	2.63 (67)
C	1.25 (32)	1.50 (38)



* Other wetted materials:
 Brass/Buna unit - Beryllium Copper
 Epoxy: Stainless steel unit - ARMCO PH 15-7 MO grip rings

Specifications

Switch Rating	SPST 20 VA
Operating Pressure	100 PSIG Max (6.9 bar)
Operating Temperature	-40° to 300°F (-40 to 149°C) - SS Version -40° to 225°F (-40 to 107°C) - Buna (Oil) -40° to 180°F (-40 to 82°C) - Buna (Water)
Minimum Media Liquid SP GR	Buna N Floats .70 Stainless .80

Level Controls For 55 Gal. Drum Ordering Numbers:

Part Number	Stem / Float Material	Switch Logic	Function
1295-001	Brass/Buna	N.O. Dry	High Level
1295-002	Brass/Buna	N.C. Dry	Low Level
1295-003	Brass/Buna	N.O./N.C	High Level/Low Level
1295-004	304 SS/304 SS	N.O. Dry	High Level
1295-005	304 SS/304 SS	N.C. Dry	Low Level
1295-006	304 SS/304 SS	N.O./N.C	High Level/Low Level

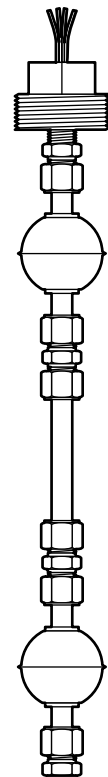
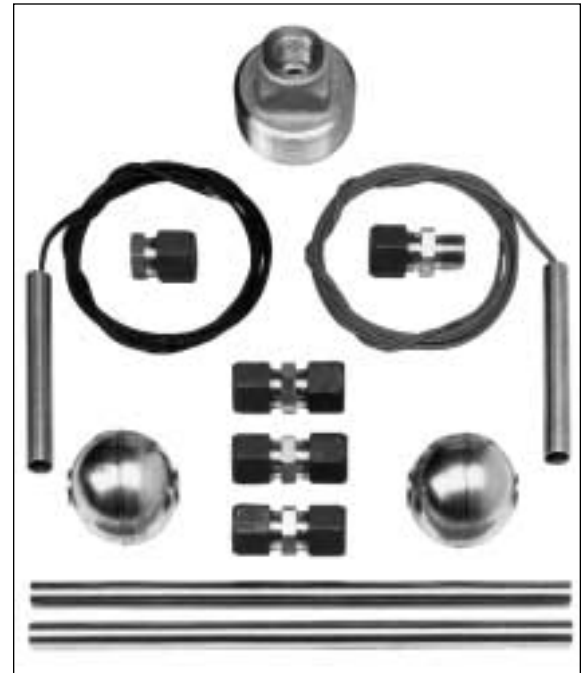
Off the shelf components allow you to assemble a custom level control in minutes. Start with the basic Norgren Kit and add up to 4 Norgren Kit Jr. 's to build your level control with up to six levels.

● **Each starter Norgren Kit contains:**

- 1 - Mounting Plug
- 2 - Switch/float assembly
- 2 - 12" extension tubes
- 1 - Tube end fitting
- 3 - Tube unions
- 1 - Tube connector

● **Each Norgren Kit Jr. contains:**

- 1 - Switch/float assembly
- 1 - Tube union
- 1 - Wire marker label



Norgren Kit

Part Number	Material	Mounting	Temperature	Pressure
0525-001	Buna N Float	1-1/4" NPT	0°F to 180°F in water	150 PSI max
0525-002	Brass Accessories	2" NPT	0°F to 225°F in oil	
0525-003	Buna N Float	1-1/4" NPT	0°F to 180°F in water	150 PSI max
0525-004	316 SS Accessories	2" NPT	0°F to 225°F in oil	
0526-001	316 SS Float Brass Accessories	2" NPT	0°F to 300°F	500 PSI max
0526-002	316 SS Float 316 SS Accessories	2" NPT	0°F to 300°F	500 PSI max

Norgren Kit Jr.

Part Number	Float Material	Stem Material	Fitting Material	Temperature	Pressure (Max)
0527-001	1-3/16" Dia. Buna N use with 1-1/4" mtg	Brass	Brass	0°F to 180°F in water	150 PSI
0527-002		316 SS	316 SS	0°F to 225°F in oil	
0528-001	1-7/8" Dia. Buna N use with 2" mtg	Brass	Brass	0°F to 180°F in water	150 PSI
0528-002		316 SS	316 SS	0°F to 225°F in oil	
0529-001	2" Dia. 316 SS use with 2" mtg	Brass	Brass	0°F to 300°F	500 PSI
0529-002		316 SS	316 SS		

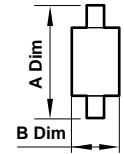
Assembly Options

All Dimensions in Inches (mm)

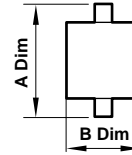


Float/Switch Assembly

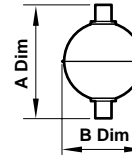
Part Number	Stem Material	Float Material	A DIM	B DIM	Lead Color
0530-001	Brass	Buna N	4.00	1.19	Red
0530-002	Brass	Buna N	4.00	1.19	Black
0530-003	316 SS	Buna N	4.00	1.19	Red
0530-004	316 SS	Buna N	4.00	1.19	Black
0531-001	Brass	Buna N	4.25	1.88	Red
0531-002	Brass	Buna N	4.25	1.88	Black
0531-003	316 SS	Buna N	4.25	1.88	Red
0531-004	316 SS	Buna N	4.25	1.88	Black
0532-001	Brass	316 SS	4.45	2.10	Red
0532-002	Brass	316 SS	4.45	2.10	Black
0532-003	316 SS	316 SS	4.45	2.10	Red
0532-004	316 SS	316 SS	4.45	2.10	Black



For Use With Any Mounting



Not For Use With 1-1/4" NPT Mounting

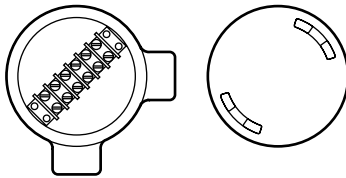


Not For Use With 1-1/4" NPT Mounting

Accessory Norgren Kit Components

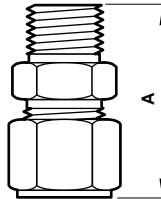
J/Box W/Terminal

Part Number
0523-001



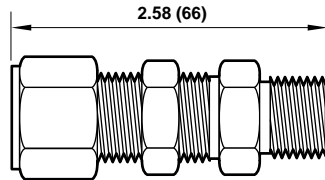
Mounting Plug Tube Connector

Part Number	Mounting	Material	A DIM
0533-001	3/8" NPT	Brass	1.75
0533-002	3/8" NPT	316 SS	1.75



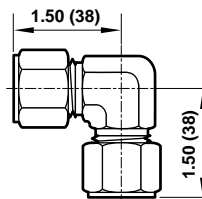
Bulkhead Connector 1/2" Tube

Part Number	Material
0536-001	Brass
0536-002	316 SS



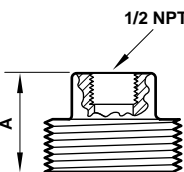
Union Elbow 1/2" Tube

Part Number	Material
0537-001	Brass
0537-002	316 SS



Mounting Plug

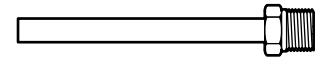
Part Number	Mounting	Material	A DIM
0600-001	1-1/4" NPT	Brass	1.25
0600-002	1-1/4" NPT	316 SS	1.25
0601-001	2" NPT	Brass	1.75
0601-002	2" NPT	316 SS	1.75



Accessory Norgren Kit Components

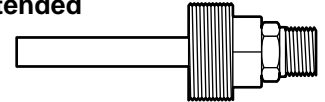
1/2" NPT with 6" Tube Extended

Part Number	Material
0541-001	Brass
0541-002	316 SS



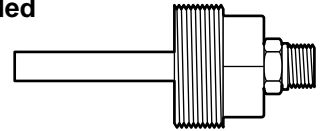
1-1/4" NPT with 6" Tube Extended

Part Number	Material
0542-001	Brass
0542-002	316 SS



2" NPT with 6" Tube Extended

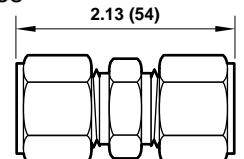
Part Number	Material
0543-001	Brass
0543-002	316 SS



1/2" Tube Union for connecting tubes

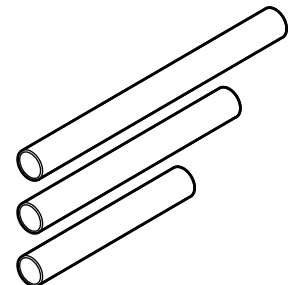
and switch assembly

Part Number	Material
0534-001	Brass
0534-002	316 SS



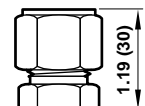
1/2" OD Tubing

Part Number	Length	Material
0538-001	12"	Brass
0538-002	12"	316 SS
0539-001	24"	Brass
0539-002	24"	316 SS
0540-001	36"	Brass
0540-002	36"	316 SS



1/2" Tube End Fitting for sealing and switch assembly

Part Number	Material
0535-001	Brass
0535-002	316 SS





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Fax it to Norgren at (860) 677-4999
Call us at (800) 722-5547
Date ___/___/___

Level Switch Inquiry Application Sheet

Name _____ Company _____
Address _____ City _____ E-mail _____
State _____ Zip _____ Telephone _____ Fax _____
Description of application _____

Immediate Quantity _____ Prototype Y _____ N _____ Estimated Yearly Quantity _____
Submit Sketch of Tank with Switch Location or Competitor Part Number _____

MEDIA INFORMATION

Liquid Media _____ Specific Gravity _____ Viscosity _____
Maximum Temp. _____ Minimum Temp. _____ Operating Temp. _____
Maximum Pressure _____ Operating Pressure _____ Tank Material _____

MINIATURE MULTI-POINT LEVEL SWITCH

Mounting: Top _____ Bottom _____ Side _____
Mounting Type: Type A _____ Type B _____ Type C _____ Type D _____ Type E _____ Type F _____
1/8" NPT _____ 1/4" NPT _____ 1" NPT _____ 3/4" NPT _____ 5/16" Tubing _____ 3/8-24 _____ Other _____
Stem Material: 316 SS _____ Brass _____ PVC _____ Other _____ Float Part Number _____

STANDARD MULTI-POINT LEVEL SWITCH

Mounting: Top _____ Bottom _____ Side _____
Mounting Type: Type 1 _____ Type 2 _____ Type 3 _____ Type 4 _____ Type 5 _____ Type 6 _____
1/2" NPT _____ 1-1/4" NPT _____ 2" NPT _____ 3"150# FL(CS) _____ 1/2" Tubing _____ 1-1/2 NPT _____ Other _____
Stem Material: 316 SS _____ Brass _____ Other _____ Float Part Number _____

SUCTION TUBE LIQUID LEVEL CONTROL

Mounting Type: Type E _____ Type F _____ Type G _____ Other _____
Stem Material: PVC _____ Polypropylene _____ Other _____ Float Part Number _____

Overall Length Suction Tube: LS _____ LSE (Extended) _____

OTHER SELECTION CRITERIA

Junction Box _____ Conduit Adapter _____

SWITCH TYPE

10VA SPST _____ 50VA SPST _____ 100VA SPST _____ 3VA SPDT _____ 20VA SPDT _____
Voltage _____ Load Description _____ Wiring Group I _____ Wiring Group II _____

DIMENSIONAL DATA

Actuation Level: Inches/MM Indicate N.O. or N.C. with Float in Dry Condition
L6 _____ N.O. _____ N.C. _____
L5 _____ N.O. _____ N.C. _____
L4 _____ N.O. _____ N.C. _____
L3 _____ N.O. _____ N.C. _____
L2 _____ N.O. _____ N.C. _____
L1 _____ N.O. _____ N.C. _____

Length Overall LO _____
Please Refer to Catalog for Limitation on Numbers of Levels with Each Switch Type and Wiring Group

Application Comments _____



Warning

These products are intended to use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under **Specifications**.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult Norgren.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure modes. **System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.**

Warranty

Limited Warranty, Disclaimer and Limitation of Remedies

Items sold by Norgren are warranted to be free from defects in materials and workmanship for a period of one year from the date manufacture, provided said items are used according to Norgren's recommended usages and within Norgren's specifications. Norgren's liability is limited to the repair of, or replacement in kind of, at Norgren's sole option, any items proved defective, provided these items are returned to Norgren prepaid. To confirm date of purchase, invoice date or invoice number must be furnished; otherwise, date code on product will be used to determine eligibility for warranty coverage. The warranties expressed above are in lieu of and exclusive of all other warranties.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products. System designers should also provide for all OSHA requirements including Title 29 CFR 1910.147 Lockout/Tagout.

It should be recognized that warnings are valid for any product, regardless of manufacturer, and are not restricted to products manufactured by Norgren. Norgren's reputation for product quality and performance is well established. We feel we have the additional obligation to provide information or warnings to customers to assist them in applying our products in a reasonable and safe manner.

There are no other warranties, expressed or implied, except as stated herein. There are no implied warranties of merchantability or fitness for a particular purpose, which are specifically disclaimed. Norgren's liability for breach of warranty as herein stated in the exclusive remedy, and in no event shall Norgren be liable or responsible for incidental or consequential damages, even if the possibility of such incidental or consequential damages has been made known to Norgren.

Norgren reserves the right to discontinue manufacture of any product or change product materials, design, or specifications without notice.