Электрооптические переключатели уровня и датчики ELS

Технические характеристики

По вопросам продаж и поддержки обращайтесь:

Алматы (727)345-47-04
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
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Казань (843)206-01-48
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Кострома (4942)77-07-48
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Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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эл.почта: gsx@nt-rt.ru || сайт: https://gems.nt-rt.ru/

General Purpose ELS –1100 Series Satisfies Most Applications

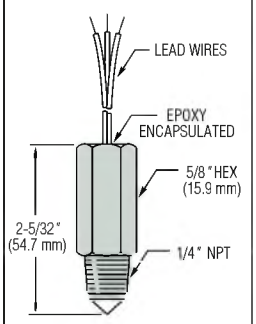
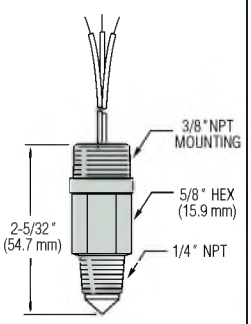
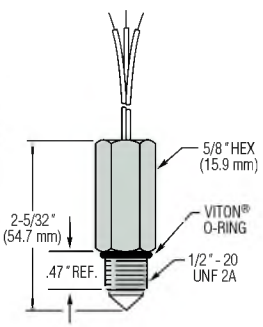
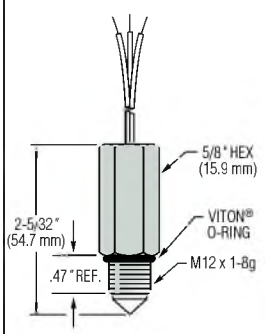
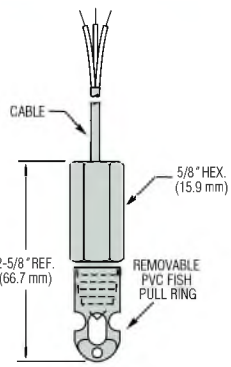
These polysulfone units are both compact and economical. They feature a variety of mountings, power requirements and electrical terminations to make it easy to find a perfect match for your application.

Specifications

Materials	
Housing and Prism	Polysulfone or Nylon
Operating Pressure	0 to 150 PSI, Maximum
Operating Temperature*	0°F to 176°F (-17.8°C +80°C)
Current Consumption	18 mA, Approximately
Output†	TTL/CMOS Compatible. Open Collector Output May Sink 40 mA UP TO 30 VDC.
Repeatability	±1 mm
EMI Susceptability	Meets (MIL-STD-461B Part 2 Modified) Specification of 10 V/M for Frequency Range 30 to 1000 MHz (Except 609 MHz = 9 V/M and 679 MHz = 7.5 V/M).

* These switches are not for use in freezing liquid or steam/high condensation environments. Contact Gems for alternative solutions.

Dimensions

	1/4˝ NPT Mounting	1/4˝ NPT Mounting with 3/8˝ Conduit	1/2˝ Straight Thread Mounting with O-Ring	M12x1-8g Straight Thread with O-Ring	"Fish" Pull Ring
					
Electrical Termination	Lead Wires, 22 AWG, PVC Jacketed, 12˝ to 14˝ Extended				25˝ Cable, 22 AWG, PVC Jacketed

How To Order

Specify Part Number based on Mounting Type, Input Power and Output Condition required.

Input Power	Probe Condition at Current Sink	Mounting Type					
		1/4˝ NPT	1/4˝ NPT & 3/8˝ Conduit		1/2˝ Straight Thread	M12x1-8g Straight Thread	"Fish" Pull Ring
		Polysulfone	Polysulfone	Nylon	Polysulfone	Polysulfone	Polysulfone
5 VDC	Wet	**138167**	**144225**	**175631**	**144235**	**166541**	—
10-28 VDC	Wet	**142700** ⚡	**143585** ⚡	**157750**	**143580**	**169555** ⚡	**143577**
	Dry	**143570** ⚡	**143590** ⚡	**175632**	**143575**	**169556**	**148973** ⚡

⚡ – Stock Items.

Intrinsically-Safe Versions

GEMS ELS-1100 Switches may be rendered intrinsically-safe for Class I, Division 1, Group C & D when used with appropriate GEMS Zener Barriers. Call Gems Sensors for special ELS-1100-IS (intrinsically-safe) part numbers and Installation Bulletins 148745 and 148744, File No. E44570.

Extended Power and Switching Capabilities of 12 VDC Models with Gems.

Converts TTL output signal to 5 Amp relay output. Available as open circuit board or mounted in a NEMA 4X enclosure (pictured). See Page A-33.

ELS-1100TFE Teflon®
For Ultra-Pure or Aggressive Fluids

When high purity or resistance to chemical attack is vital, ELS-1100TFE sensors are the ultimate solution. They feature a pure Teflon® body and prism construction. Even the Hypalon® vapor barrier and Teflon® coated lead wires give evidence to the care we've taken to make this the perfect liquid level sensor for pharmaceuticals, semiconductor manufacturing, food and beverage, chemical processing, or anywhere purity or chemical resistance is the major criteria.

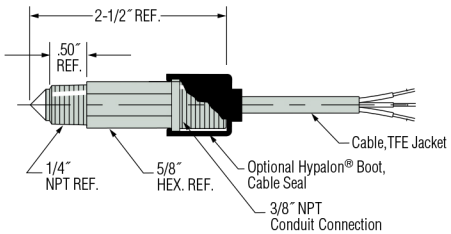
Specifications

Materials	
Housing and Prism	Teflon®
Operating Pressure	0 to 150 PSI, Maximum
Operating Temperature*	0°F to 176°F (-17.8°C +80°C)
Input Voltage	10 - 28 VDC
Current Consumption	18 mA, Approximately
Output†	TTL/CMOS Compatible. Open Collector Output May Sink 40 mA Up to 30 VDC.
Repeatability	±1 mm
EMI Susceptability	Meets (MIL-STD-461B Part 2 Modified) Specification of 10 V/M for Frequency Range 30 to 1000 MHz (Except 609 MHz = 9 V/M and 679 MHz = 7.5 V/M).

* These switches are not for use in freezing liquid or steam/high condensation environments. Contact Gems for alternative solutions.

† See Page A-25 for Wiring Diagrams

Dimensions



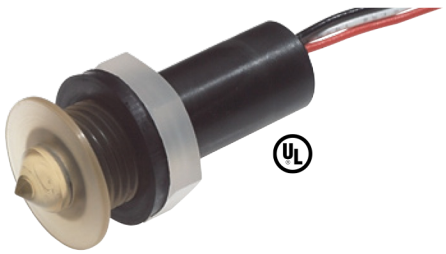
How To Order

Specify Part Number based on Output Condition and Boot Option.

Probe Condition at Current Sink	Part Number	
	With Cable Boot	No Cable Boot
Wet	**187595**	**173800** ⚡
Dry	**185600**	**173700**

ELS-1100FLG Flange Mounting for Installations Without Threaded Holes

The easy solution for thin wall tanks (≤1/4″ thick): ELS-1100FLG Series. No threads needed with these flanged units. Slip through a .75″ hole and tighten the jam nut; Viton® gasket forms a tight seal. Ideal for sheet metal, molded plastic tanks and medical applications where elimination of exposed threads removes potential bacterial breeding grounds.



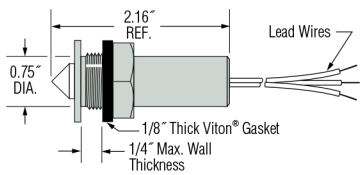
Specifications

Materials	
Housing and Prism	Polysulfone
Operating Pressure	0 to 150 PSI, Maximum
Operating Temperature*	0°F to 176°F (-17.8°C +80°C)
Input Voltage	10 - 28 VDC
Current Consumption	18 mA, Approximately
Output†	TTL/CMOS Compatible. Open Collector Output May Sink 40 mA Up to 30 VDC.
Repeatability	±1 mm
EMI Susceptability	Meets (MIL-STD-461B Part 2 Modified) Specification of 10 V/M for Frequency Range 30 to 1000 MHz (Except 609 MHz = 9 V/M and 679 MHz = 7.5 V/M).

* These switches are not for use in freezing liquid or steam/high condensation environments. Contact Gems for alternative solutions.

† See Page A-25 for Wiring Diagrams

Dimensions



How To Order

Specify Part Number based on Input Power and Output Condition Required.

	Probe Condition at Current Sink	
Input Power	**Wet**	**Dry**
5 VDC	**187575**	**187590**
10-28 VDC	**187585**	**187580**

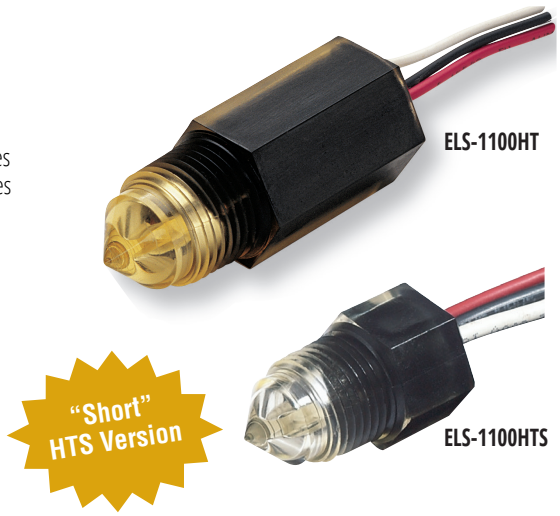
Extended Power and Switching Capabilities of 12 VDC Models with Gems.

Converts TTL output signal to 5 Amp relay output. Available as open circuit board or mounted in a NEMA 4X enclosure (pictured). See Page A-33.

ELS-1100HT

Handles Temperatures to 212°F

Slightly larger than the ELS-1100, the "HT" or High Temperature version is made from high performance Isoplast® plastic. While maintaining broad chemical compatibility, these units also handle fluid temperatures to 212°F. They feature 3/8-18 NPT mountings and the shortest of any of our plastic electro-optic switch bodies – HTS versions are a mere 1/2" long!



Typical Applications

- Coolant reservoir monitoring
- Medical diagnostic and sterilizer equipment
- Low lubricant warning on machine tools
- Low level warning in hydraulic reservoirs

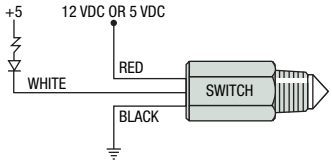
Specifications

Materials	
Housing and Prism	Isoplast®
Max. Operating Pressure	0 to 150 psi (0 to 10.3 bar)
Operating Temperature*	–40°F to +212°F (–40°C +100°C)
Current Consumption	45 mA, Approximately
Output	TTL/CMOS Compatible. Transistor Output with 10K Pull Up Resistor May Sink 18 mA. 12 VDC input power units switch a maximum 5 VDC on output
Repeatability	±1 mm

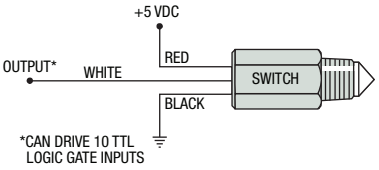
* These switches are not for use in freezing liquids or steam/high condensation environments. Contact Gems for alternative solutions.

Wiring Diagrams

Transistor Output



TTL Compatible Output



How To Order

HT Series

Specify Part Number based on Input and Output Condition required.

	Probe Condition at Current Sink	
Input Power	**Wet**	**Dry**
5 VDC	**153061**	**153062**
12 VDC*	**153063**	**153064**

* 12 VDC input power units switch a maximum 5 VDC on output.

Note: Extend the power and switching capabilities of 10–28 VDC models with Gems Opto-Pak Controllers.

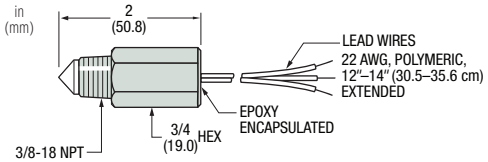
HTS Series - 5 VDC Input Only

Specify Part Number based on Wet or Dry switch actuation and mounting type.

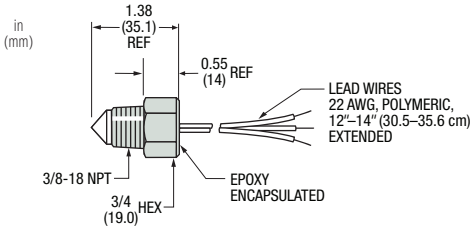
	Probe Condition at Current Sink	
Mounting Type	**Wet**	**Dry**
3/8-18 NPT	**181674**	**181675**
M16 × 2	**191341**	**191342**

Dimensions

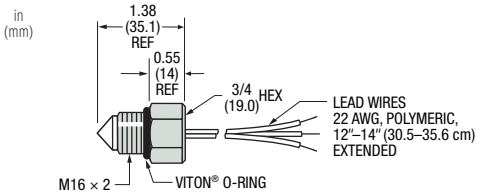
HT Series



HTS Series
3/8-18 NPT Mounting



M16 × 2 Straight Thread
Mounting with O-Ring



Extended Power and Switching Capabilities of 12 VDC Models with Gems.

Converts TTL output signal to 5 Amp relay output. Available as open circuit board or mounted in a NEMA 4X enclosure (pictured). See Page A-28.

ELS-1150

Compact Electro Optic Level Switch available in Nickel-Plated Steel or Stainless Steel

The enhanced ELS-1150 series is the highest performing electro optic level switch from Gems Sensors. The ELS-1150 features a microprocessor board design to provide a wide range of capabilities including sinking and sourcing and time delay outputs. The strong fused glass prism eliminates leak potential and is capable of handling extreme temperature and pressure applications up to 2500 psi (172.37 bar). Built with solid state reliability, the sensor is available at an affordable price in Nickel-Plated Carbon Steel or Stainless Steel. The compact size of the sensor makes them ideal candidates for monitoring the small, pressurized vessels found in HVAC, refrigeration and hydraulic applications in Oil and Gas. The sensors are most commonly used for low, high and intermediate level detection in a variety of media.

The stainless steel version (ELS-1150SS) is excellent for application requiring corrosion resistance and is ideal for acids, solvents and dielectric water applications. An explosion proof version, ELS-1150XP, is excellent for applications in Oil & Gas that require small, accurate level sensing of constant media (ie. hydraulic fluid or coolant).

Contact our factory experts for additional ordering information and options.

Applications

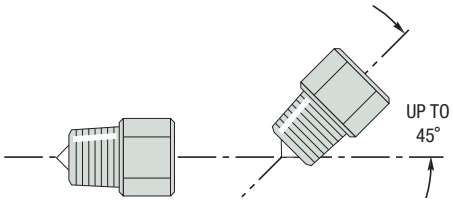
- Hydraulic and lubricating oil reservoirs
- Critical fluid level monitoring on machine tools, compressors, chillers and other industrial OEM equipment
- Corrosive liquids such as: acids, solvents, and dielectric water applications
- Medical Equipment; Anesthesia, Histology

Specifications

Mounting	1/2-14 NPT, 3/4-16 UNF
Materials	
Housing	Nickel-Plated Carbon Steel or Stainless Steel
Prism	Fused Glass
Max. Operating Pressure	0 to 2500 psi (0 to 172.37 bar)
Operating Temperature*	–40°F to +257°F (–40°C to +125°C)
Input Voltage	5–28 VDC ±5%
Current Consumption	~1 mA
Output	Open Collector/Emitter Output, 100 mA Sink @ 30 VDC, Max.; 100 mA Source, Max.
Electrical Termination	22 AWG, Polymeric, 12″ to 14″ Extended Lead Wires
Approvals	CE, UL File E31926

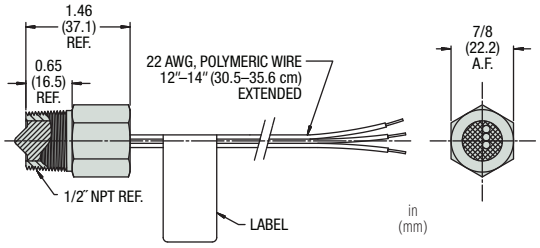
Mounting Attitude

These units must be mounted horizontally or up to 45° from horizontal only.

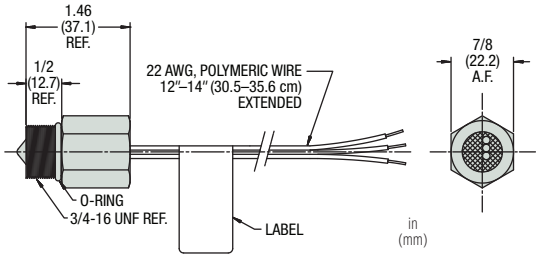


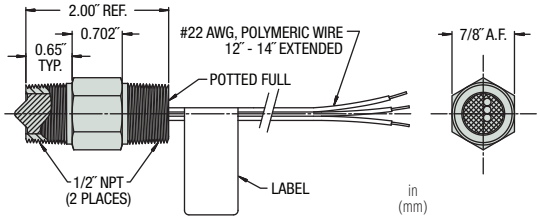
Dimensions

1/2-14 NPT Mounting



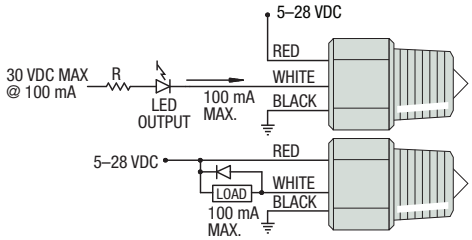
3/4-16 UNF Straight Thread Mounting



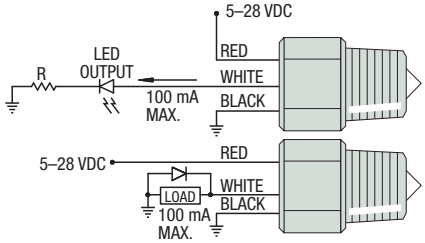


Wiring Diagrams - Typical

Sinking



Sourcing



Note: Inductive loads must be diode suppressed.

How To Order

Specify Part Number based on Input Power/ Output Condition and material required.

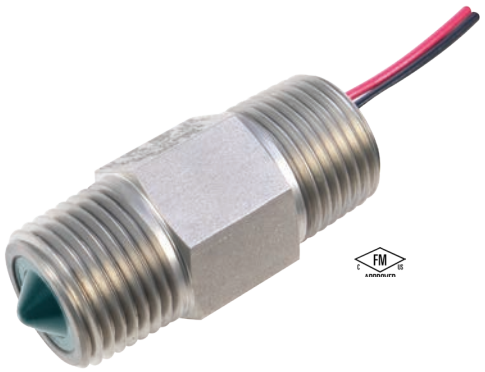
Housing Material	Output Configuration	Operation	1/2" NPT Mounting	3/4" – 16 Straight Thread
Nickel Plated Steel	Sink	Wet	**229251**	**232716**
		Dry	**229252**	**232717**
	Source	Wet	**229253**	**232718**
		Dry	**229254**	**232719**
Stainless Steel	Sink	Wet	**229255**	—
		Dry	**229256**	—
	Source	Wet	**229257**	—
		Dry	**229258**	—

Extended Power and Switching Capabilities of 12 VDC Models with Gems.

Converts TTL output signal to 5 Amp relay output. Available as open circuit board or mounted in a NEMA 4X enclosure (pictured). See Page A-28.

ELS-1150XP

FM-Approved Explosion-Proof



The explosion-proof ELS-1150XP series is designed for use in areas containing flammable bases or vapors in quantities sufficient to produce explosive or ignitable mixtures. It is FM-Approved for use with virtually all hydrocarbon based liquids, as well as with combustible atmospheres containing dusts of coal, coke, flour, starch of other grain.

These solid-state level sensors are available in nickel-plated carbon steel or stainless steel. The strong fused glass prism eliminates leak potential and is capable of handling high temperature and pressure applications up to 5000 psi. The compact size of the sensor makes them ideal candidates for monitoring the small, pressurized vessels found in oil, gas and petrochem environments.

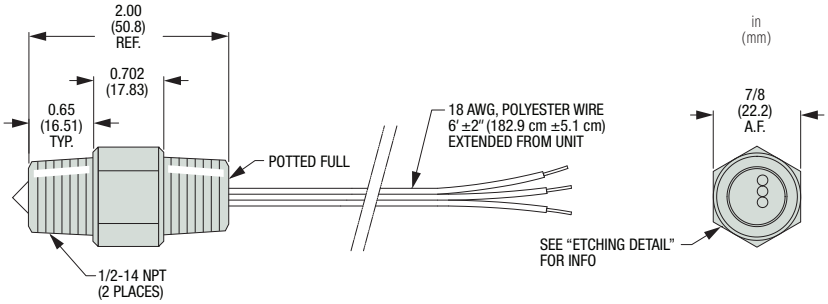
Applications

- Storage Tank Level Monitoring
- Chemical Injection
- Remote Level Monitoring
- Well Head Automation

Specifications

Mounting	1/2-14 NPT
Materials	
Housing	Nickel-Plated Carbon Steel or Stainless Steel
Prism	Fused Glass
Max. Operating Pressure	0 to 5000 psi, 10000 psi Proof (0 to 344.7 bar, 689.5 bar Proof)
Operating Temperature	–40°F to +257°F (–40°C to +125°C)
Input Voltage	5–28 VDC ±5%
Current Consumption	~1 mA
Output	Open Collector Output, 100 mA Sink @ 30 VDC, Max.; 100 mA Source, Max.
Electrical Termination	18 AWG, Polyester, 6' ±2" Extended Lead Wires
Approvals	FM Approved Class I, Div. I Groups A, B, C, D Class II/III, Groups E, F, G

Dimensions



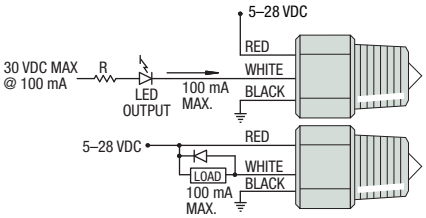
How To Order

Specify Part Number based on Output Logic State and material required.

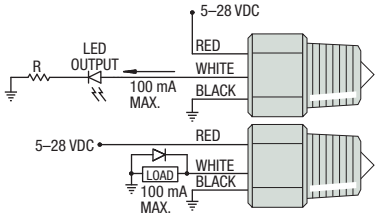
Output Logic State	Nickel-Plated Steel Housing	Stainless Steel Housing
Wet - Sink	**227201**	**227257**
Dry - Sink	**227202**	**227256**
Wet - Sourcing	**227203**	**227255**
Dry - Sourcing	**227204**	**227254**

Wiring Diagrams - Typical

Sinking



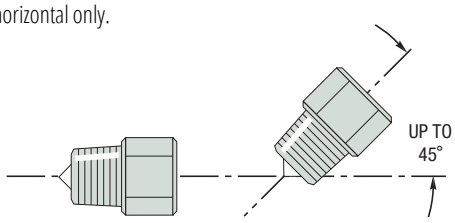
Sourcing



Note: Inductive loads must be diode suppressed.

Mounting Attitude

These units must be mounted horizontally or up to 45° from horizontal only.



Extended Power and Switching Capabilities of 12 VDC Models with Gems.

Converts TTL output signal to 5 Amp relay output. Available as open circuit board or mounted in a NEMA 4X enclosure (pictured). See Page A-28.

ELS-950 Series

Rugged Electro-Optic Level Sensors

The ELS-950 Series represents Gems' smallest electro-optic level sensors developed to monitor a broad range of media including OHV type fluids.

Our UL-approved design features a TPE over-molded electronics insert, TPE insulated wires, and fluorocarbon o-ring seals that create a watertight, environmentally resistant assembly, ideally suited for use in harsh environments offering excellent temperature and pressure capabilities.

The ELS-950 is excellent for industrial OEMs requiring a solid-state sensor for small space and high temperature environments.

File No. E108913

Specifications

Materials	
Housing	Polysulfone (Contact Gems for alternative material types)
Prism	Polysulfone
O-Ring	Fluorocarbon (1/4-18 NPSM - None)
Electronics	Over-molded TPE
Max. Operating Pressure	0 to 250 psi (0 to 17 bar)
Operating Temperature*	–40°F to +230°F (–40°C to 110°C)
Current Consumptions (No Load)	
5 VDC	4 mA No Load
12 VDC	10mA No Load
Output	Sink 40 mA max., up to 30 VDC
Repeatability	±1 mm
Lead Wires	3× TPE Insulated; 22 AWG
Approvals	CE, UL file No. E108913
	IP66/67 Rating
	ROHS Compliant

* These switches are not for use in freezing liquids or steam/high condensation environments. Contact Gems for alternative solutions.

How To Order

Specify Part Number based on Input and Output Condition required.

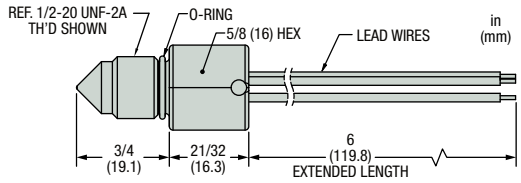
Input Power	Actuation Condition	Lead Wire Length	Mounting Type		
			1/4-18 NPSM	1/2-20 UNF-2B*	M12 × 1 – 8g*
5 VDC ±10%	Wet	6″	**224504** ⚡	**224501** ⚡	**224508** ⚡
		2 m	—	—	**226549**
	Dry	6″	—	—	**224509**
		2 m	—	—	**226550**
12 VDC ±10%	Wet	6″	**224506** ⚡	—	**224510** ⚡
		2 m	—	—	**226551**
	Dry	6″	—	—	**224511** ⚡

* Supplied with standard fluorocarbon o-ring.
⚡ Stock items.

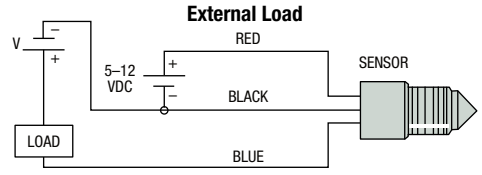
Typical Applications

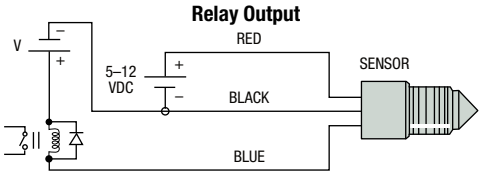
- Coolant reservoir monitoring and warning
- Medical diagnostic, sterilizer, washers and dialysis equipment
- Low lubricant warning on machine tools, generator sets, on- or off-highway vehicles
- Low level warning in hydraulic reservoirs
- Plastic over flow bottles, plastic radiators
- Leak detection for drip pans

Dimensions



Wiring Diagrams



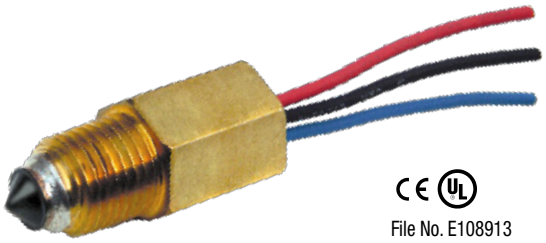


ELS-950M Series

Rugged Electro-Optic Level Sensors

The ELS-950M Series represents Gems' most compact alloy-housed electro-optic level sensors. They monitor a broad range of media including OHV type fluids.

Our UL-approved design features a brass housing, fused glass prism, and TPE insulated wires. They provide a durable, watertight, and environmentally resistant assembly, ideally suited for use in harsh environments including outdoors and engine bays. They offer excellent temperature and pressure capabilities. The ELS-950M is excellent for industrial OEMs requiring a solid-state sensor for small space and high temperature environments.



File No. E108913

Specifications

Materials	
Housing	Brass
Prism	Fused Glass
O-Ring	Fluorocarbon (1/4-18 NPSM - None)
Electronics	Over-molded TPE
Max. Operating Pressure	0 to 250 psi (0 to 17 bar)
Operating Temperature*	–40°F to +230°F (–40°C to 110°C)
Current Consumptions (No Load)	
5 VDC	4 mA No Load
12 VDC	10mA No Load
Output	Sink 40 mA max., up to 30 VDC
Repeatability	±1 mm
Lead Wires	3× TPE Insulated; 22 AWG
Approvals	CE, UL file No. E108913
	IP66/67 Rating

* These switches are not for use in freezing liquids or steam/high condensation environments. Contact Gems for alternative solutions.

How To Order

Specify Part Number based on Input and Output Condition required.

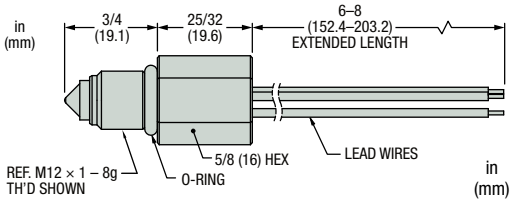
Input Power	Actuation Condition	Lead Wire Length	Mounting Type		
			1/4-18 NPSM	1/2-20 UNF-2B*	M12 × 1 – 8g*
5 VDC ±10%	Dry	6″	**232176**	**232172**	**232180**
12 VDC ±10%	Wet	6″	**232177**	**232173**	**232181**

* Supplied with standard fluorocarbon o-ring.

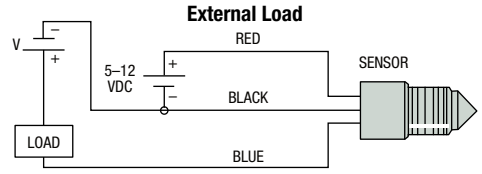
Typical Applications

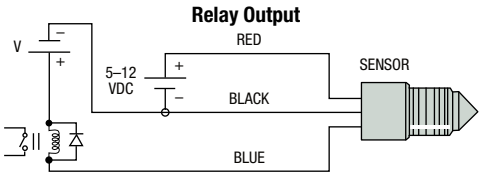
- Coolant reservoir monitoring and warning
- Low lubricant warning on machine tools, generator sets, on- or off-highway vehicles
- Low level warning in hydraulic reservoirs
- Leak detection for drip pans

Dimensions



Wiring Diagrams





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