INNOVATE
WITH CERTAINTY

sensience

ADVANCED SENSING TECHNOLOGIES

MICROTEMP®

FOUNDED 1965

THERMODISC

FOUNDED 1947

FUSITE™

FOUNDED 1942

THUNDERLINE-Z

FOUNDED 1991

SENSING & PROTECTION

SENSING SOLUTIONS

Putting systems in touch with their surroundings to enable new levels of understanding, awareness and response.

PACKAGED SENSORS	ELECTRO-MECHANICAL	AUTOMATED CONTROLS
Temperature	Bi-metals	Electronic
Gas Sensing	Thermal Fuses (TCO)	Heating
Pressure		Control

HERMETIC SOLUTIONS

Ensuring a robust electrical or signal connection across adverse environmental conditions.

AC/R	INDUSTRIAL	DEFENSE
Terminals	Sensor/Power Feedthroughs	Packages
SH Plates	Battery Seals	Feedthroughs
Power Bolts		Initiator Assemblies
Sight Glass		Laser Lidding

ENABLING SAFE, RELIABLE AND EFFICIENT SYSTEM CONTROL

75+ Trustworthy, stable company with over 75 years of proven reliability

Leading product application experts

Multi-site, multi-region production for risk mitigation

Over 900 million units produced annually

Broadest range of product options

Rapid custom prototypes

GAS SENSORS

REFRIGERANT GAS SENSOR

Introducing Sensience's newly developed A2L gas detection sensor, enabled by patented NevadaNano technology, is an all-in-one sensing solution for accurate refrigerant detection systems to save development time and effort while providing high system reliability.

Model	30G
Communication Interface	RS-485 Digital Serial (3.3V or 5V) Analog (0-3.3V) Discrete I/O (alarm)
Voltage	5V ± 5%
Dimensions (Inches)	2.72 x 1.77 x 0.64
Selectivity*	All A2L Refrigerants, R-32, R-454B, R-454C
Response Time*	<10 Sec. to 25% LFL Level
Measurement Range*	0-100% LFL
Sensitivity*	Insensitive to Poisoning Chemicals

*Meets all AHRTI and UL-60335-2-40 Annex LL testing requirements

VAPOR SENSOR

The 25VS flammable vapor sensor is a silicone-based sensor that detects vapors released during a typical gasoline spill. The 25VS requires no power to operate and offers long life and good sensitivity to most gasoline components within a wide temperature operating range.

Model	25VS
Base Resistance @ 25°C	7 to 25kΩ
Trip Point*	50kΩ
Operating Temperature Range*	0°C to 65°C 32°F to 150°F
Storage Temperature*	-40°C to 80°C -40°F to 175°F
Voltage*	5 VDC Max
Humidity*	10% to 90% RH
Vapor Detected	Gasoline Vapor

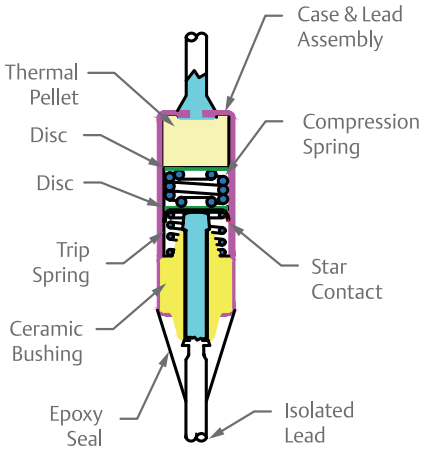
*CSA Agency Rating Standard: ANSI Z21.94·CSA 6.31

THERMAL FUSES

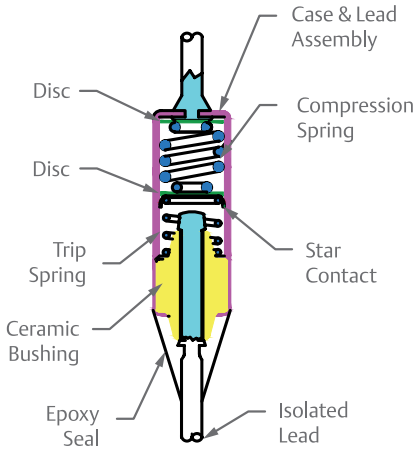
MICROTEMP® thermal fuses are available in a variety of standard and custom configurations, providing reliable one-shot over-temperature protection for a wide variety of applications.

G4/G6/Z6/G7 FUSE CUTAWAY

Before Operation

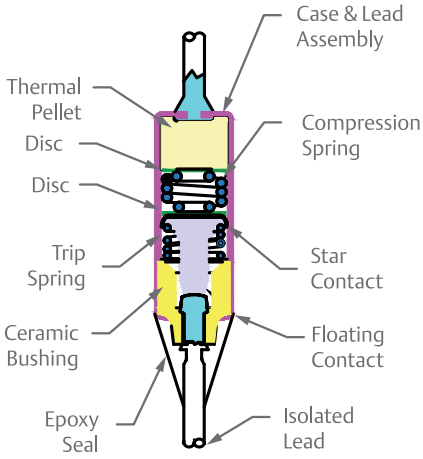


After Operation

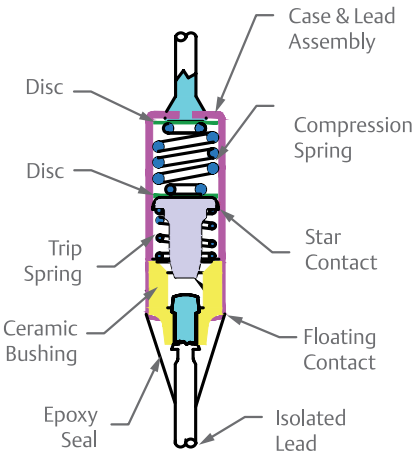


G5/G8 CUTAWAY

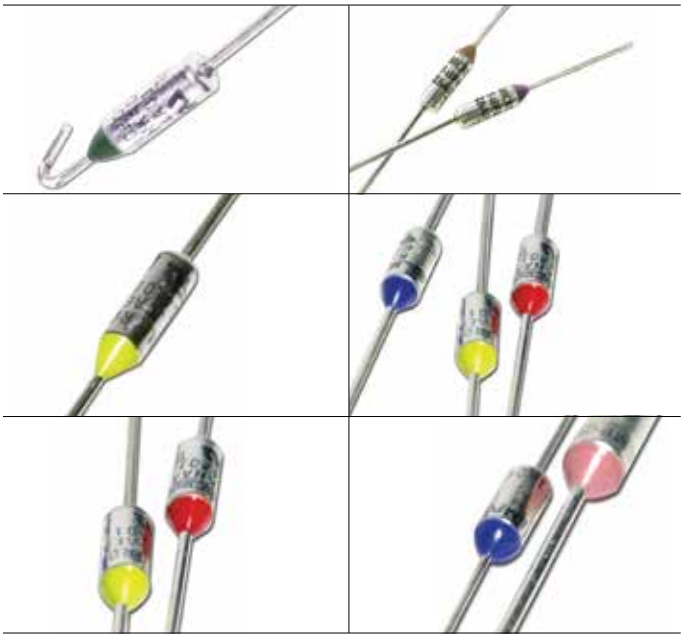
Before Operation



After Operation



THERMAL FUSES



PACKAGED THERMAL FUSES

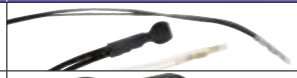
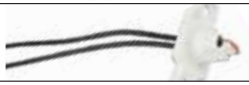
MICROTEMP® THERMAL FUSES

Model	Tf Range	Tm Range	Electrical Rating
G4 Series	72°C – 257°C, 162°F - 495°F	Up to 470°C (878°F)	10A/250VAC
G5 Series	72°C - 240°C, 162°F - 464°F	Up to 410°C (770°F)	20A/250VAC
G6 Series	72°C - 240°C, 162°F - 464°F	Up to 450°C (842°F)	16A/250VAC
Z6 Series	98°C - 240°C, 208°F - 464°F	Up to 380°C (716°F)	16A/250VAC
G7 Series	77°C - 192°C, 171°F - 378°F	Up to 270°C (518°F)	5A/250VAC
G8 Series	72°C - 240°C, 162°F - 464°F	Up to 410°C (770°F)	25A/250VAC
S9 Series	77°C - 240°C, 171°F - 464°F	N/A	15A/250VAC*

*S9 series rating is based on Japan's PSE JET standard only

TEMPERATURE SENSORS

APPLICANCE AND HVAC

Model	Operating Environment	Operating Temperature*	Mounting Configuration[1]	Product Images	Thermal Response**
13J	Dry Exposed NTC	-40°C to 175°C -40°F to 347°F	• Push-In		< 1 second
76J	Dry Measures Airstream Temp.	-40°C to 200°C -40°F to 392°F	• Screw		< 2 seconds
93J	Humid Immersion	-40°C to 200°C -40°F to 392°F	• Push-In • Flange/Bayonet		< 10 seconds
95J	Humid or Gas Immersion	-40°C to 140°C -40°F to 284°F	• Push-In • Screw		11+ seconds
36J	Small Design Measures Airstream or Surface Temperature	-40°C to 200°C -40°F to 392°F	• Push-In • Clip-On • Screw		
93J	Humid Immersion	-40°C to 200°C -40°F to 392°F	• Push-In • Flange/Bayonet		
95J	Humid or Gas Immersion	-40°C to 140°C -40°F to 284°F	• Push-In • Screw		
10J	Dry	-40°C to 80°C or -20°C to 105°C -40°F to 221°F	• Push-In • Clip-On • Bracket		
11J	Wet or Dry	-40°C to 150°C -40°F to 302°F	• Push-In • Clip-On • Bracket		
12J	Humid Refrigeration Measures Surface Temp.	-40°C to 80°C -20°C to 105°C -40°F to 221°F -40°C to 130°C -40°F to 266°F -40°C to 130°C -40°F to 266°F	• Push-In • Clip-On • Twist & Lock • Screw		
74J	Humid	-40°C to 130°C -40°F to 266°F	• Push-In • Twist & Lock		
75J	Humid	-40°C to 130°C -40°F to 266°F	• Push-In • Twist & Lock		
76J	Dry or Humid Measures Airstream Temp.	-40°C to 200°C -40°F to 392°F	• Screw		

*Typical operating temperature – dependent on maximum temperature of components such as wire and epoxy

**Typical thermal response in stirred water

[1] Typical mounting configuration – various mounting and interface configurations available

HIGH TEMPERATURE SENSORS

	Type/Model	Applications	Primary Benefits	Key Features	Operating Temperature	Product Images
AUTOMOTIVE	**Thermocouple EGT Sensor – 22J**	• Emissions control • Diesel oxidation catalyst • Exhaust gas recirculation	• Stability over product lifetime • Automotive grade electronics • Multiple installation locations possible	• Digital (CAN, SENT, LIN) & analog output • Industry standard temperature tolerance • Fast Response • Thermocouple	-40°C to 1000°C	
APPLIANCE	**Cooking Oven Sensor – 11J**	• Residential & commercial cooking ovens & ranges • Residential & commercial HVAC equipment • Water heaters • Cooking equipment	• Wide temperature range • Customized packaging • Stable sensor output • Agency approval	• Design flexibility with various tip, wire lengths & connector configurations • Passive Sensor • Ready to use, fully assembled • RTD	-70°C to 600°C	
HVAC	**Thermocouple Sensor – 40J**	• Furnaces • Ovens • Hot plates • Stoves • Power generation • Other high temp applications	• PT200 RTD technology offers enhanced stability over product lifetime	• Highly resistant to corrosive exhaust gases • Long-term stability and high accuracy • Moisture proof design offers extended life • Flexible wire connection with the connector • Various hex dimensions and thread types • Thermocouple	-40°C to 1000°C	

20J SENSORS

	Sensor Type	Operating Environment	Operating Temperature*	Mounting Configuration[1]	Product Images	Thermal Response**
INTERNAL COMBUSTION ENGINES	**Ambient Air**	Ambient Air Temperature	-40°C to 105°C -40°F to 221°F	• Bracket • Push-In • Snap-In		< 1 second
	Intake Air	Air Intake to the Engine	-40°C to 125°C -40°F to 257°F	• Twist & Lock		< 2 seconds
	HVAC	Air Flow in Interior Air Ducts	-40°C to 85°C	• Push-In • Snap-In		< 10 seconds
		Evaporator Fin	-40°C to 85°C -40°F to 185°F	• Push-In		11+ seconds
	Engine Coolant and Exhaust	Fluid in Engine Coolant	-40°C to 150°C -40°F to 302°C	• Thread		
ELECTRIC VEHICLES	**Battery**	Battery Cells	-40°C to 150°C -40°F to 302°C	• Thread		
	Coolant	Fluid in Engine Coolant	-40°C to 150°C -40°F to 302°C	• Screw		
	Charge Port	Charge Port Inlet and Outlet	-40°C to 150°C	• Push-In		
	Motor-Busbar	Motor Coil and Busbar	-40°C to 200°C	• Surface Sensor		
	HVAC Temperature	Air Flow in Interior Air Ducts	-40°C to 85°C	• Push-In • Snap-In		

*Typical operating temperature – dependent on maximum temperature of components
**Typical thermal response in stirred water
[1] Typical mounting configuration – various mounting and interface configurations available

PRESSURE SENSORS*

The pressure sensor contains piezo resistive MEMS chip for a smaller, simpler design. The sensor is moisture resistant and able to withstand harsh media including refrigerants. The sensor has applications in many industries with flexibility to meet custom mounting and connection requirements.

	Type	Output	Pressure	Product Images
AUTOMOTIVE	• Absolute • Differential • Temperature Pressure Combo**	Voltage	Low	
			Medium	
HVACR	• Absolute • Differential • Temperature Pressure Combo**	Voltage mA**	Low	
			Medium	
			High	
INDUSTRIAL	• Absolute • Differential • Temperature Pressure Combo**	mA**	Low	
			Medium	
			High	

Pressure Level (bar)
Low <1
Medium 1-20
High 20-50

*Operation Temp: -40°C -150°C, Accuracy Performance: ±1% FS at 10°C -120°C, Response Time: < 5ms
** In development

HERMETIC PRODUCTS

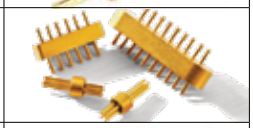
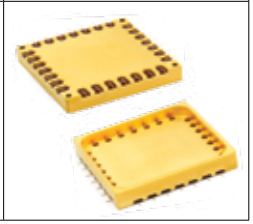
Glass-to-metal seals (GTMS) provide a way to hermetically isolate electrical conductors from one environment to another. Glass forms a hermetic barrier and acts as an insulator between the pins and housing, since glass exhibits superior dielectric or electrical insulation properties and very low thermal conductivity. GTMS enable reliable electrical power and signal transmission in harsh environments, such as high pressure or temperature excursions and exposure to corrosive chemicals.

Pin Metal Key	
CC	Copper Core
SS	Stainless Steel
A52	Alloy 52
M	Molybdenum
K	Kovar

	Model	Pin Metal	Bursting Pressure[1]	Minimum Dielectric Voltage	Product Images
INDUSTRIAL	**Sensor Feedthrough*†**	A52 SS	25,000 PSI	2,500 volts @ <0.5 mA leakage	
INDUSTRIAL	**Pump Feedthrough*†**	CC SS	2,250 PSI	2,500 volts @ <0.5 mA leakage	
INDUSTRIAL	**Hybrid Car Compressor Electrical Feedthrough*†**	CC	Should be verified in customer specific applications	2,500 volts @ <0.5 mA leakage	
INDUSTRIAL	**Battery Feedthrough*†**	SS A52 M	-	-	
AIR CONDITIONING & REFRIGERATION	**Compressor Feedthroughs*†**	CC	2,250 PSI	2,500 volts @ <0.5 mA leakage	
AIR CONDITIONING & REFRIGERATION	**CO_2 Compressor Feedthrough*†**	CC	8,000 or better PSI	2,500 volts @ <0.5 mA leakage	
AIR CONDITIONING & REFRIGERATION	**Single Pin Feedthrough*†**	SS CC	2,250 PSI	2,500 volts @ <0.5 mA leakage	
AIR CONDITIONING & REFRIGERATION	**Semi-Hermetic Electrical Feedthroughs*†**	CC	Up to 1,450 PSI	5,000 volts @ <0.5 mA leakage utilizing ceramic insulators or rubber overmolding	
AIR CONDITIONING & REFRIGERATION	**Sight Glasses**	-	5,000 PSI	-	

* Hermeticity of < 1 x 10-7 standard cc/sec helium or better
† Insulation Resistance of 10,000 megohm @500 VDC or better
[1] Should be verified in customer specific applications
[2] Hermeticity of < 1 x 10-8 standard cc/sec helium or better

AEROSPACE & DEFENSE

	Model	Pin Diameter (In.)	Material	Plating	Product Images
FEEDTHROUGHS	**Surface Mount Bell Pins[2]**	.009 or .015 or .030	K	Gold Silver Tin	
	RF-50 OHM Feedthroughs[2]	.009 to .020	K	Gold Silver Tin	
	DC Feedthroughs[2]	.018 to .040	K	Gold Silver Tin	
	Multi Pin Feedthrough Array[2]	.018	K	Gold Silver Tin	
	Capacitor Filter Feedthroughs[2]	.020 or .025 or .030	K CRS	Gold Silver Tin	
PACKAGES	**Model**	**Sealing Method**	**Material**	**Plating**	**Product Images**
	Hermetic Electronic Packages[2]	Solder—Gold/ Tin (80/20) & Tin Based (Sn96, Sb5)/Braze Laser Welding	K CRS SS Inconel	Nickel Silver Gold Copper Tin	
	Laser Lidding and Component Installation[2]	Laser Welding	K Aluminum Alumina Alloys CRS SS Inconel	Nickel Silver Gold Copper Tin	

Material Key	
CC	Copper Core
SS	Stainless Steel
A52	Alloy 52
K	Kovar
CRS	Cold Rolled Steel

† Insulation Resistance of 10,000 megohm @500 VDC or better
[1] Should be verified in customer specific applications
[2] Hermeticity of < 1 x 10-8 standard cc/sec helium or better

BI-METAL SNAP CONTROLS & LIMITS

Since 1947, Sensience's Therm-O-Disc® has been the global leader in the design, innovation and manufacture of temperature sensors and controls. Our bi-metal snap controls and limits provide temperature control, overheating protection, and unique configurations for many applications covering a wide array of industries.

	Model	Max Calibration	Amps	Switching Action
AUTO RESET	**36T**	220°C (428°F)	15	SPST
	60T	177°C (350°F)	25	SPST/SPDT
	64T	177°C (350°F)	25	DPST
	49T	288°C (550°F)	25	SPST
	69T	112°C (233°F)	25	SPST/SPDT
	44T	149°C (300°F)	1	SPST
	48T	150°C (302°F)	10	SPST
MANUAL RESET	**36T**	177°C (350°F)	15	SPST
	60T	177°C (350°F)	25	SPST
	10H	177°C (350°F)	25	SPST
	66T	113°C (235°F)	40	DPST
	HLX	149°C (300°F)	50	DPST

36T

60T

64T

49T

69T

44T

48T

66T

10H

HLX

FUSE "ONE-SHOT"	**36F**	220°C (428°F)	15	SPST
	60F	177°C (350°F)	25	SPST
	64F	149°C (300°F)	40	DPST
	61F	177°C (350°F)	49	SPST
MOISTURE RESISTANT	**37T**	149°C (300°F)	10	SPST/SPDT
	39T	105°C (221°F)	10	SPST
	14T	105°C (221°F)	25	SPST/SPDT
ADJUSTABLE	**58T**	66°C (150°F)	25	SPST
	74T	121°C (250°F)	25	SPST
	59T	93°C (200°F)	30	SPST/SPDT
SPECIALTY	**12S** **14S** **15S**	-	30	SPST/SPDT/ DPST/3 Pole
	10H	177°C (350°F)	25	SPST
	10RS	-	5.7	SPST
	75TF	149°C (300°F) (Auto Reset Function) 177°C (350°F) (Fuse Disc Function)	25	SPST
	30M	149°C (300°F)	50 (LRA)	SPST (Manual Reset)

36T

60F

64F

61F

37T

39T

14T

58T

74T

59T

12S

14S

15S

10H

10RS

75TF

30M

ADVANCED SENSING TECHNOLOGIES

THERM-O-DISC CHANGES ITS NAME TO SENSIENCE

Sensience is a global manufacturer of highly engineered sensing, control and sealing components that ensure safety and enhance performance. The company has been renamed in recognition of its new status as an independent entity. The new name pays homage to the company's legacy of delivering reliable sensor science while representing its dedication to future growth and success. Sensience creates mission-critical protection and valuable data for a wide range of systems, including appliances, heating, air conditioning and refrigeration units, industrial process equipment, motor vehicles, aircraft, and other important platforms.

Important Notice

The scope of the technical and application information included in this article is necessarily limited. Operating environments and conditions can materially affect the operating results of Therm-O-Disc® and Fusite® products.

Users must determine the suitability of any Therm-O-Disc and Fusite component for their specific application, including the level of reliability required, and are solely responsible for the function of the end-use product. It is important to review the Application Notes which can be found at Sensience.com

Sensience.com

Contact Us:
Please scan,
or call 1.419.525.8500

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