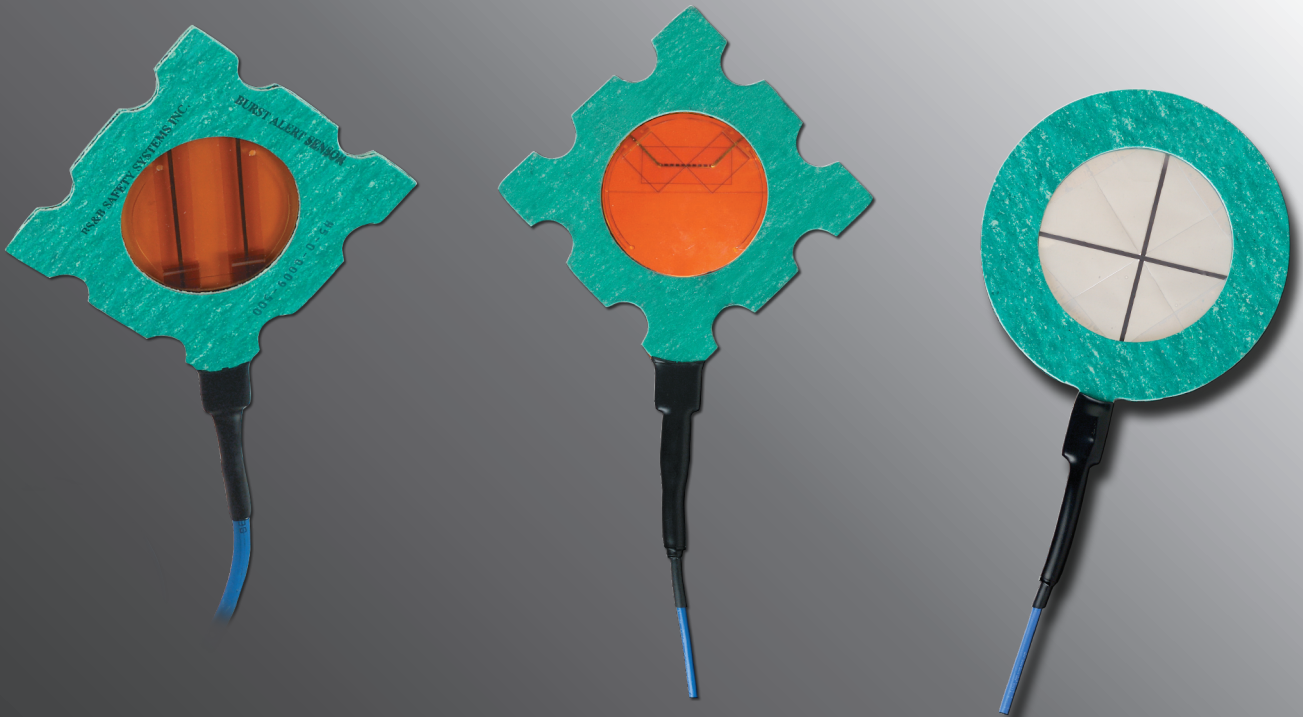




Burst Alert[®] Sensors

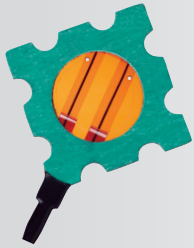
For immediate notification of a pressure relief event



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Burst Alert® Sensors for Rupture Disks and Other Devices



Sensor Type

BAS+™

Armored:
ABAS+™

Features

- Polyimide film
- Tantalum conductor wire
- Dual path conductor
- Reconnect Stops™
- Wide conductor separation

Burst Pressures

See Table 1

Note: Two Reconnect Stops™ are seen at the breaking ends of the tantalum conductor wire run into the gasket. The stops provide electrical insulation to minimize risk of sensor reconnection after a pressure relief event.

Use with the following rupture disk type

Sure-Saf	CSI, CSR
Sta-Saf	Sigma EXL, Sigma, SKR*, LPS, RLS, S-90, JRS, FRS
Eco-Saf	Order as EC-Alert Sensor: ECR, ECV, ECT, V/ECR (see table 1)
Forward acting	XN-85, XN, XT, XB disks in safety head types NFI-7RS, NF-7RS and NF-7R only. Also type LCN at higher pressures (see table 1) and XN-85S and XN disks size 1-3 inches (25-80mm) in safety head types NX-7R and NXV-7R
Graphite disks	Order as Graphite Alert Sensor (GAS) MB, MBV, AMB, AMBV, IMB, AIMB, IMBL, AIMBL, RE, REV
Other disks	B, BV, D, DV, SVI, RB-90 - except for special reduced height safety heads that do not enclose the disk dome, when DAS family sensors should be used

* Do not use BAS+ series sensor when installed in S90-7R safety head



Sensor Type

KBA™

Armored:
AKBA™

Features

- PTFE film
- Tantalum conductor wire
- Dual path conductor

Burst Pressures

See Table 2

Use with the following rupture disk type

Vac-Saf: DKB, P/DKB
Can be used with lower pressure graphite disks and lower pressure Eco-Saf disks. Contact BS&B.

Note: AVB alert is used for the AVB disk (no other sensor is compatible)



Sensor Type

KBA-S™

Armored: not available

Features

- PTFE film
- Tantalum conductor wire
- Dual path conductor

Burst Pressures

See Table 2

Use with the following rupture disk type

Vac-Saf (sanitary / aseptic)	VKB, P/VKB, AVB-ST, P/AVB-ST
Eco-Saf (sanitary / aseptic)	ECR-S, V/ECR-S, V/ECT-S



Sensor Type

LDAS™

Armored:
ALDAS™

Features

- Polyimide film
- Tantalum conductor wire
- Single path conductor
- Dual failure point
- Reconnect stops

Burst Pressures

Minimum companion disk burst pressure of 100 psig (7 barg). If lower burst pressures are required, contact BS&B for support.

The LDAS family of sensors detects both burst and leakage conditions.

Use with the following rupture disk type

Sure-Saf	CSI, CSR
Sta-Saf	Sigma EXL, Sigma SKR*, LPS, RLS, S-90 and high pressure LPS, JRS and FRS
High pressure Eco-Saf	ECR, ECV, ECT, V/ECR
Forward acting	XN-85, XN, XT, XB disks in safety head types NFI-7RS, NF-7RS and NF-7R only. Also type LCN at higher pressures and XN-85S and XN disks size 1-3 inches (25-80mm) in safety head types NX-7R and NXV-7R
High pressure graphite disks	MB, MBV, AMB, AMBV, IMB, AIMB, IMBL, AIMBL, RE, REV
Other disks	GFN, B, BV, D, DV, SVI, RB-90 - except for special reduced height safety heads that do not enclose the disk dome

Burst Alert® Sensors



Sensor Type

DAS™
DASSTM™
Armored:
ADAS™
ADASS™

Features

- Polyimide film
- Tantalum conductor wire
- Dual path conductor
- Domed to accommodate disk dome

Use with the following rupture disk type

Tension loaded disks	XT, XB, XN-85S and XN disks 4 inches (100mm) and larger used in NX-7R or NXV-7R safety heads. B, BV, D, DV, XN-85 disks used in special reduced height safety heads that do not enclose the disk dome. Atmospheric vent type disks: AV, AVV, AVE, AVEL
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Burst Pressures

The response pressure capability of the DAS family of sensors matches the minimum burst pressure for the AV disk



Sensor Type

AVB Alert

Features

- Polyimide film
- Tantalum conductor wire
- Dual path conductor
- Domed to accommodate disk dome

Use with the following rupture disk type

Vac-Saf	AVB
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Burst Pressures

The response pressure capability for the AVB sensor matches the minimum burst pressure for the AVB disk



Sensor Type

SAS
SLDS

Armored:
Not Available

Sanitary Alert Sensor, see Table 1.
Sanitary Leak Alert Sensor, consult BS&B for minimum applicable rupture disk burst pressure

Burst Pressures

See Table 1

Use with the following rupture disk type

GCR-S, GCR-SM, GCR-SE, GCR-N
GFR-S, GFR-SM, GFR-SE
SLP-S, SLP-SM, SLP-SE, SLP-N

Burst Pressure Tables

Table 1

Size of rupture disk		Minimum coincident pressure for BAS+ / BAS series sensors	
in	mm	psig	barg
1	25	14	0.96
1.5	40	12	0.83
2	50	7	0.48
3	80	5	0.34
4	100	5	0.34
6	150	3	0.2
8	200	3	0.2
10	250	3	0.2
12	300	3	0.2

Table 2

Size of rupture disk		Minimum coincident pressure for KBA series sensors	
in	mm	in WC	millibar
1	25	N/A	N/A
1.5	40	N/A	N/A
2	50	8.5/13.5	21/34*
3	80	7.5/8.5	19/21*
4	100	5.5/7.5	14/19*
6	150	8.5/10.5	21/26*
8	200	5.5/6.5	14/16*

Table 2 Note: The first pressure value applies to temperatures from -40° to 90°F (-40° to 32°C). The second pressure value applies from 90° to 175°F (32° to 79°C*).

*Only applies to the DKB line

Table 3

Size of rupture disk		Minimum coincident pressure for LDAS+ series sensors	
in	mm	psig	barg
1	25	N/A	N/A
1.5	40	N/A	N/A
2	50	5	0.3
3	80	2.5	0.2
4	100	1.6	0.1
6+	150	1	0.1

Table 3 Note: These pressure values indicate the maximum pressure buildup upstream of the sensor before activation to detect leakage and/or operation of a pressure relief device.

Table 4

Size of rupture disk		Minimum coincident pressure for BAS series sensors	
in	mm	psig	barg
1	25	20	1.4
1.5	40	10	0.7
2	50	5	0.3
3	80	2.5	0.2
4	100	1.6	0.1
6+	150	1	0.1

For companion disk burst pressure exceeding 750psig (52barg), contact BS&B for technical assistance.

Operation / Electrical Information

Burst Alert Sensors operate in a “normally closed” electrical circuit with a polymer membrane supporting its electrical conducting circuit. When the pressure event (disk rupture / valve opening) occurs, the flow (gas or liquid) breaks the tantalum electrical conductor located on the polymer membrane. The electrical status of the sensor changes to “normally open.” The recommended maximum operating limits for Burst Alert Sensors is a current of 500mA, maximum voltage 24 VDC; satisfactory operation can be obtained at a few milliamperes current.

Materials

Gaskets: Compressed fiber is the standard gasket material. Optional materials, such as glass filled fluoropolymer, Garlock® 3000, and fluoropolymer are available upon request. The maximum service pressure for standard compressed fiber gaskets is 1450 psig (100barg). (1000 psig / 69barg for Garlock 3000 and 800 psig / 55barg for fluoropolymer).

Membrane: Each Burst Alert Sensor type uses a film of polymer material to support the electrical conductor and provide electrical insulation. Either Polyimide (yellow color in photographs) or fluorocarbon (white color in photographs) is used for this purpose.

All Burst Alert Sensors use a flattened tantalum wire as the electrical conductor for optimum corrosion resistance. The user shall determine the compatibility of Burst Alert Sensor materials for each application.

Temperature Range

- Burst Alert Sensors are suitable for a temperature range of -40°F to 500°F (-40°C to 260°C); 250°F (121°C) for the LDAS family
- When supplied with standard cable, the cable temperature capability is -22°F to 221°F (-30°C to 105°C)
- Optional high-low temperature cable permits use over the range from -85°F to 392°F (-65°C to 200°C)

Intrinsic Safety

Burst Alert Sensors are compatible with the requirements for operation of intrinsically safe electrical systems. All types of Burst Alert Sensor store no electrical energy; they are a “simple device” suitable for use in Classes I and II, Division I, Groups A through G provided that appropriate electrical apparatus is used (powered through a Zener Barrier).

Tagging and Packaging

Each Burst Alert Sensor is individually tagged and packaged. Burst Alert sensors are tagged indicating type, size, flange rating (where applicable), part number and traceable lot number.

Size Availability

Standard BAS+, DAS and BAS family sensors are available up to size 12 inches (300mm) and the KBA and LDAS family sensors are available up to size 8 inches (200mm). Larger sizes are available upon request.

Sensor Cable-Optional Features

Each Burst Alert Sensor is supplied with a 3 feet (1m) length of standard cable. The following options are available:

- Customer specified lengths available
- High / low temperature, 3 feet (1m) length attached to sensor
- Wipe-down “clean service” two-part cable with molded water resistant connector, 3 feet (1m) length attached to sensor + 10 feet (3m) length for connection to junction box; customer specified lengths available
- SmartDisk™ System Connector added to the normally free end of each sensor cable
- Sensor connection options available including 2-lead wire, PVC connector, molded weather-tight connector, IP68 WSC connector, SmartSystem/ SmartDisk connector and customer specified (specialty)

Atex Compliance

Burst Alert Sensor types BAS+, ABAS+, LDAS+, DAS, ALDAS+, SAS, GCR-SS, GCR-SMS and GCR-SM comply with the requirements of the European Union Atex directive. Special tagging is required and it is essential that the application service temperature is identified for each sensor order item. For further information, please consult the Burst Alert Sensor installation manual or BS&B Safety Systems.

Optional Armored Design

Sensor families BAS+, KBA, DAS and LDAS+ are available in optional stainless steel armored configuration for increased rigidity of the sensor for handling and installation. In addition, armored sensors have a perimeter extension tab to which the cable is tied. This firmly anchors connection avoiding damage should the cable be pulled hard or blown in the wind for an extended period.

Optional Connector

Each Burst Alert Sensor can be supplied with an optional weatherproof connector. The standard connector option is type WSC. The characteristics of the type WSC connector are: Durable threaded internal pin connections (3 pin-positive / negative / shielding); Durable Nylon housing, threaded assembly of housing with Nitrile O-ring seals; 10 Amps, 250 V AC; UL listed IP 68, EN 60529:1992 conformance; Cable gland suitable for cable diameters from 0.1 to 0.2 inches (3.5 to 5mm); Operating temperature range -4° to 158°F (-20° to 70°C)

Alternative connectors available upon request

Cautions

The user is recommended to operate Burst Alert Sensors with a latching control and alarm system. Caution when using Burst Alert Sensor technology with conducting fluids. Even though the electrical conductor path is broken, conducting liquids may enable a new electrical circuit to be completed. In the event of back pressure, the operation of a Burst Alert Sensor may be influenced. Seek the advice of BS&B. When using the LDAS+ family of sensors, the user must consider the impact that accumulation of pressure upstream of the sensor will have on the set pressure of differential pressure sensitive relief devices located further upstream.

Products, specifications and all data in this literature are subject to change without notice. Questions regarding product selection and specifications for specific applications should be directed to BS&B Safety Systems, L.L.C. or BS&B Safety Systems Ltd. All sales are subject to BS&B Safety Systems, L.L.C. or BS&B Safety Systems Ltd. standard terms and conditions of sale. Nothing herein should be construed as a warranty of merchantability or fitness for a particular purpose.

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Tulsa, OK USA

+1 918 622 5950 | F: +1 918 665 3904 | sales@bsbsystems.com

Limerick, Ireland

+353 61 484700 | F: +353 61 227987 | sales@bsb.ie

BSBSystems.com | BSB.ie

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