

A Higher Level of Performance

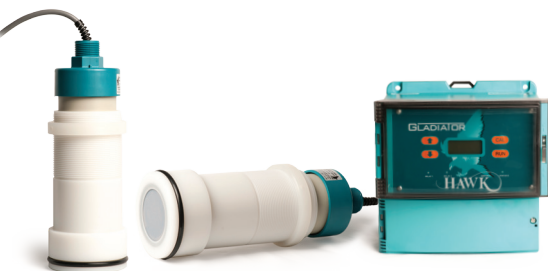


Data Sheet

Gladiator

Acoustic Switch Series

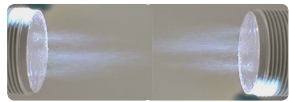
Non-contact Self Cleaning Blocked Chute Detection



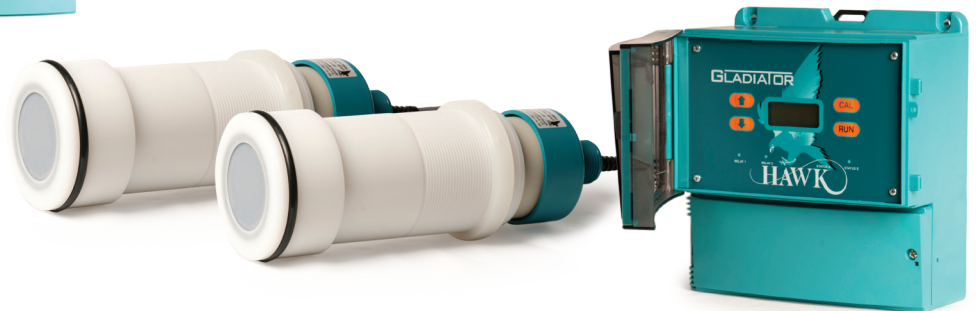
For more information, please visit >
www.hawkmeasure.com

Overview

Gladiator Acoustic Switch Series



Acoustic Cleaning



Principle of Operation

The Gladiator Acoustic Switch uses Acoustic Wave technology in a new Sender / Receiver form for blocked chute detection and anti collision for heavy machinery. The Gladiator Amplifier powers two AW Transducers which use special HAWK developed software where both units pulse and receive each other's Acoustic echoes. When the path between the Transducers is blocked, the units immediately detect the presence / absence change of the return signal and trigger a communications relay for indication or control purposes. The Transducers work both together and independently to detect pulse interference giving twice the application security.

HAWK's Acoustic Wave Transducers are self cleaning. The Acoustic Switch is designed for continuous operation in dusty, wet environments where other technologies fail. The power of each pulse (pressure wave) blows the water, moisture and build-up off the face of the diaphragm.

Typical Uses

- Blocked chute detection in wet or dry environments
- Wet screen blocked chute detection
- Nucleonic / tilt switch replacement
- High level alarm / Low level alarm
- Truck / machine detection
(ROM bins, Primary Crusher Dump Pockets)
- Sewage sludge handling
- Point level switch.

Function

The Gladiator Acoustic Switch can be used for blockage detection, barrier detection, machine detection / protection and point level measurement, and detection of objects or material between two points.

Primary Areas of Application

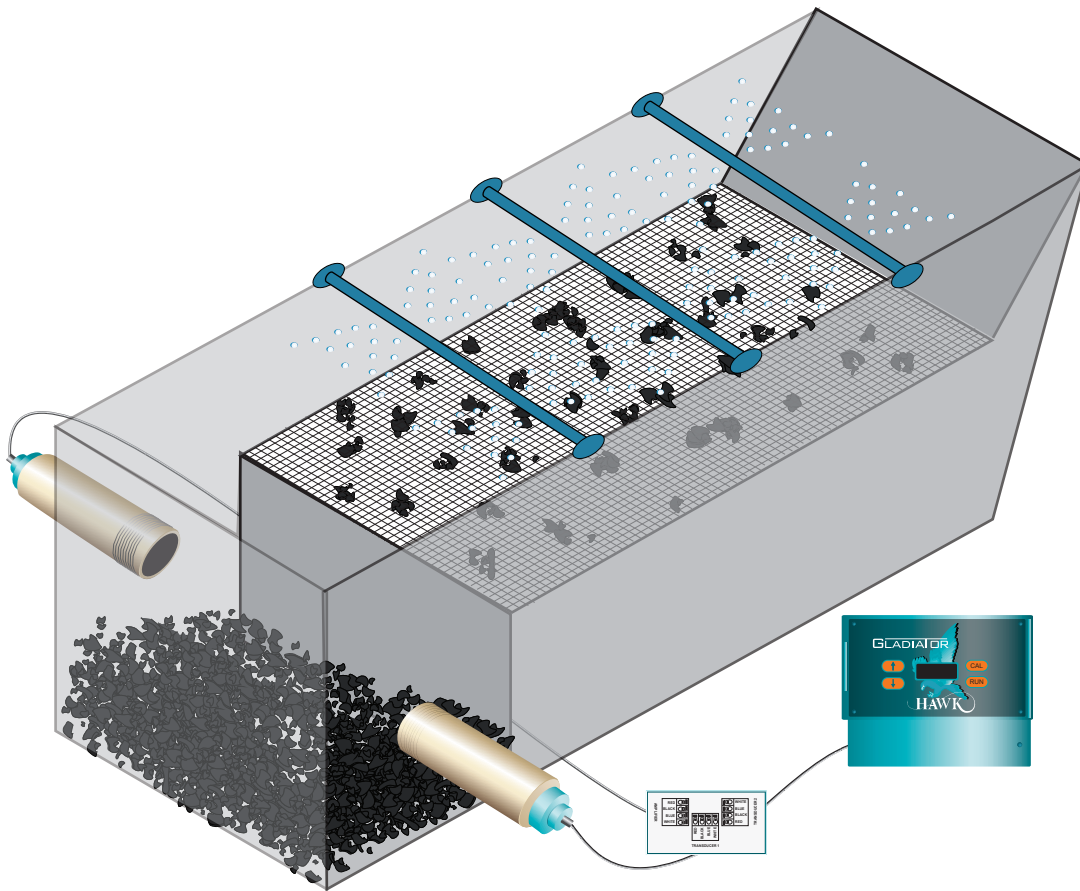
- | | |
|-------------------|----------------------------------|
| • Brewing | • Plastics |
| • Cement | • Refining |
| • Chemical | • Sugar |
| • Fertilizer | • Water & Wastewater |
| • Food & Beverage | • Sewage Sludge |
| • Glass | • Power Generation (coal fired). |
| • Mining & Metals | |
| • Packaging | |
| • Paper | |
| • Pharmaceutical | |

Features

- | | |
|---|---|
| • No contact with the product required | • 2 Relay outputs |
| • Self cleaning transducers | • Adjustable ON and OFF delays |
| • Heavy duty titanium version available | • Remote 3G connection option & support |
| • Designed for dusty, wet environments | • Remote amplifier to sensor separation up to 500 meters (1640 ft). |
| • LCD setup / diagnostics on remote amplifier | |
| • Simple '1-minute' setup | |

Typical Applications

Gladiator Acoustic Switch Series



Our on-ongoing commitment is to provide
Industry Leading Technology and
Cost Effective Solutions.



**Wet Screens
Blocked Chute Detection -
Water Sprays**



ROM Bins Blocked Chute Detection - Wet / Dry Product / Truck Detection / Water Sprays



Typical Applications

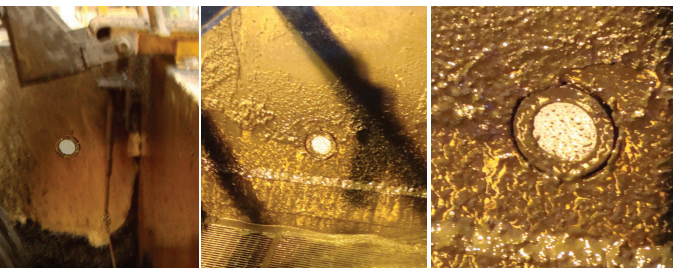
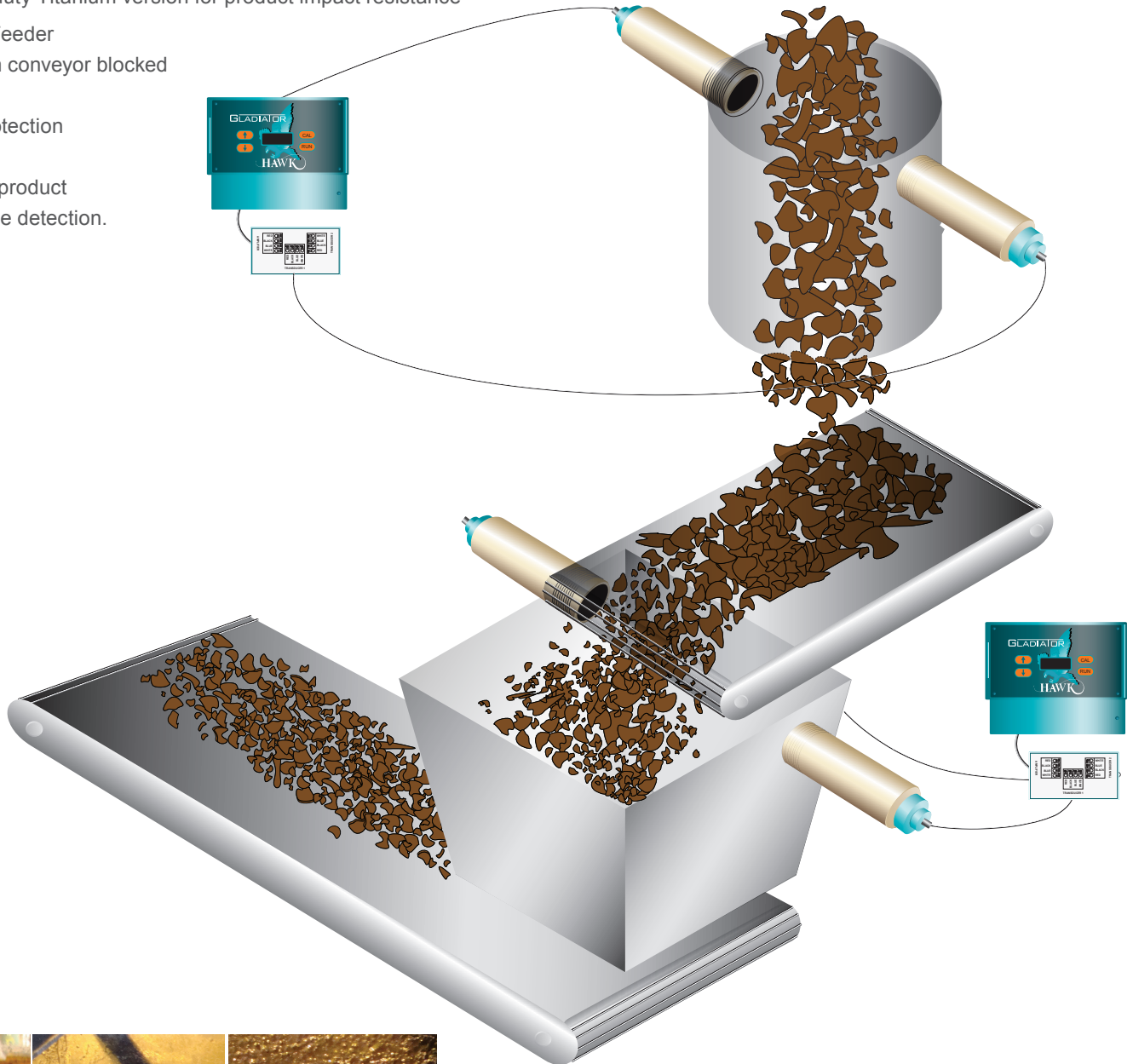
Gladiator Acoustic Switch Series



Process Protection - Blocked Chute

Bulk Solids

- Material flow blockage detection
- Designed for wet & dusty environments
- Self cleaning Transducers dislodge & prevent build up
- Heavy duty Titanium version for product impact resistance
- Apron Feeder
- Reclaim conveyor blocked
- Chute
- Jam protection
- Slurry
- Sludge product
- Stockpile detection.

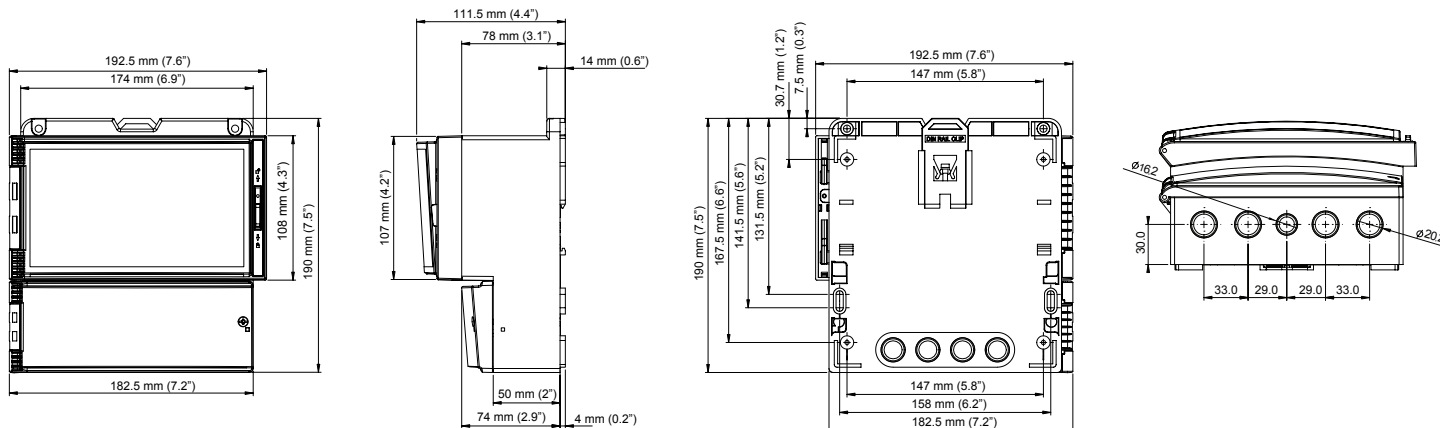


Dimensions

Gladiator Acoustic Switch Series



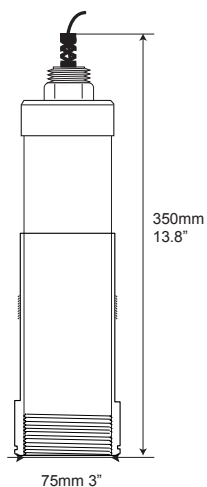
Remote Amplifier



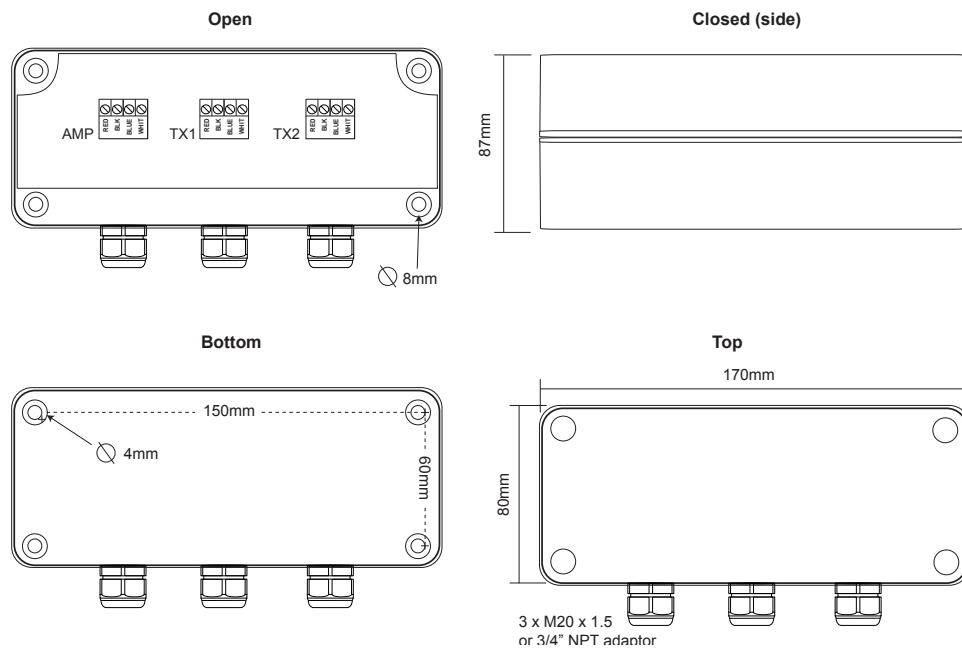
Remote Transducer

AWRT-JB Junction Box

15kHz



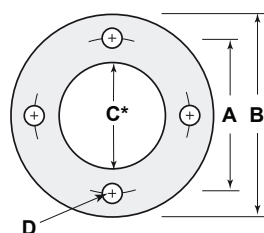
See 'blocked chute mounting' for sleeve dimensions



HAWK FA4A-4 Flange

STANDARD 4" ANSI FLANGE DIMENSIONS

SIZE	FLANGE TYPE	A (PCD) mm in.	B (OD) mm in.	C (ID) mm in.	D (Hole) mm in.
4"	FA4A	190.5 7.5	228 9.0	100 4	19 0.75



C* Interior diameter does not include HAWK's threaded decoupled connection flange



System Components

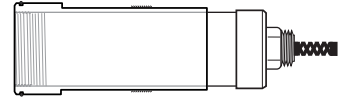
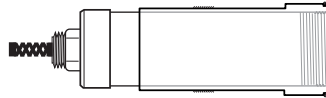
Amplifier



Junction Box

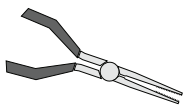


Acoustic Switch 15kHz Remote Transducers with UHMW flush mount sleeve



Gladiator Remote Amplifier Wiring

			SLAVE IN			MASTER OUT			TEST IN			RELAY 1			RELAY 2		
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3
1s	+	-	RED	BLACK	BLUE	WHITE	B	A	-	+	⊕	N	L				
4-20mA (N/A)			SENSOR			COMMS			DC-In			AC-In*					



Use long nose pliers to extract terminals

Relay 1 - Output Relay
Relay 2 - FailSafe Relay

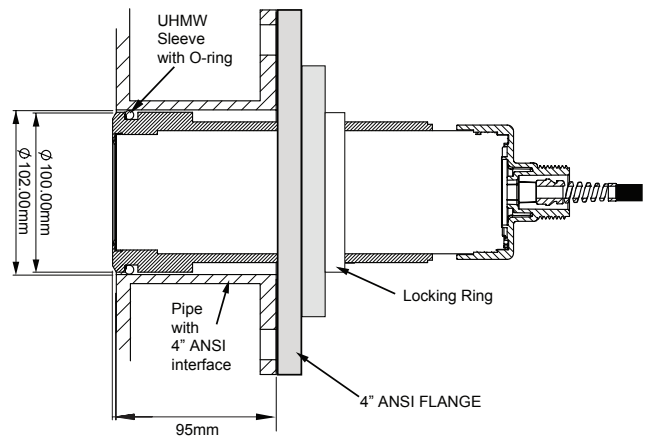
*AC-In is replaced by 36-60VDC with Power Input Option 'C'.

Connect colour to colour

RED	BLACK	BLUE	WHITE	RED	BLACK	BLUE	WHITE	RED	BLACK	BLUE	WHITE
AMPLIFIER	TRANSUDER 1	TRANSUDER 2									

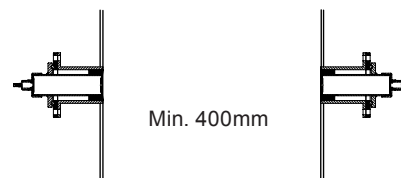
AWRT-JB-01 Junction Box

Blocked Chute Mounting



Pipe Specification
4-00" Z40 ID
100-102mm Black Pipe

Minimum Range



Part Numbering

Gladiator Acoustic Switch Series



Remote Amplifier

GSA Remote Gladiator System Amplifier

Housing

S Standard polycarbonate electronics housing

Power Supply

B 12-30 VDC

C 36-60VDC

U 12-30VDC and 90-260VAC

Output Options

S Switch. 1 level relay, 1 failsafe relay,
with Modbus

Other Options

A22 ATEX Grp II Cat 3 GD T85°C
IP67 Tamb -40°C to 70°C

GSA S U S

Mounting Flange

FA4A-4 HAWK 4" ANSI flange with decoupled
connection flange for acoustic switch sleeve

Junction Box

AWRT-JB-01 HAWK multi purpose junction box for dual
transducer applications

AWRT-JB-06 HAWK multi purpose junction box for dual
transducer applications with 6m cable

Extra Cable (Length in metres)

CA-TXCC-R-	C15
	C30
	C50
	C100

Connection Cable

Belden 3084A

Belden 3082A

Contact HAWK for length availability & price

Remote Transducer

AWRT Acoustic Wave Remote Transducer

15 15kHz for applications with heavy duty self cleaning requirements

Transducer Diaphragm / Sleeve Material

T Teflon / UHMW (applications suitable for Teflon (no sensor face wear))

Y Titanium face / UHMW (applications with possible sensor face wear eg crushers)

Transducer Housing Material

4 Polypropylene

Thread Standards for End cap

X Not Available

Mounting Thread

X 15kHz - GAWSLV-3-X sleeve mounted (3.5" BSP thread to suit FA4A-4 flange)

Approval Standard

X Not Required

A22 ATEX Grp II Cat 3 GD T85°C IP67 Tamb -40°C to 70°C

Connection

C IP68 Sealed unit with cable

Cable Length

15 15m cable (standard)

30 30m cable

Accessories

X UHMW sleeve

Software Options

AS Gladiator Acoustic Switch

AWRT 15 Y 4 X X X C 15 X AS

Hazardous area approvals and intrinsically safe options available, contact your local distributor or head sales office for further information.

Specifications

Gladiator Acoustic Switch Series



Operating Voltage

- 12-30VDC (residual ripple no greater than 100mV)
- 90-260VAC
- 36-60VDC.

Power Consumption

- <0.8W @ 24VDC
- <6W @ 48VDC
- <5VA @ 240VAC
- <3VA @ 115VAC.

Communications

- GosHawk, Modbus
- Multidrop mode can address 1-250 units over 4 wires.

Relay Outputs: (2) Remote

- Form 'C' (SPDT) contacts, rated 5A at 240Vac resistive
- Remote fail-safe test facility for one relay.

Operating Temperature

- Remote Electronics -40°C (-40°F) to 80°C (176°F)
- Remote Transducers -20°C (-4°F) to 80°C (176°F).

Fail-Safe

- Selectable - presence or absence of material
- High level fail-safe:
Relay is activated when material is present.
- Low level fail-safe:
Relay is activated when no material is present.

Maximum Range

- Blocked Chutes:
Maximum: 15m (50ft)
Minimum: 400mm (32").

Transducer to Amplifier Separation

- Up to 500m (1640ft) using specified extension cable (Belden 3084A).

Maximum Operating Pressure

- 2 BAR.

Display

- 2 line x 12 character alphanumeric LCD
- Backlight standard.

Memory - Remote

- Non-Volatile (No backup battery required)
- >10 years data retention.

Enclosure Sealing

- Remote Electronics IP67 (Nema 4x)
- Remote Sensors IP68
- Junction Box IP67.

Cable Entries

Remote Sensors

- 1 x M20 Gland / 3/4" NPTF threaded adaptor.

Remote Amplifier

- 4 x 20mm (0.8"), 1 x 16mm (0.6") knock outs.

Mounting

15kHz Blocked Chute

- Transducer 4" ANSI flange with decoupled thread piece
- Remote Amplifier Back mount, DIN rail mount
- Pipe Specification: 4-00" Z40 ID = 100mm Black Pipe.

Typical Weight

	kg	lb
15kHz Transducer	8	17.6
Remote Amplifier	1	2.2

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Additional product warranty and application guarantees upon request.

Technical data subject to change without notice.

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