



A higher level of performance

Data Sheet

GLADIATOR

Acoustic Switch Series

- Non-contact self cleaning blocked chute detection -

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 & receive each others 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

Function

Detection of objects or material between two points. Can be used for blockage detection, barrier detection, machine detection / protection and point level detection.

Primary Areas of Application

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



Acoustic Cleaning

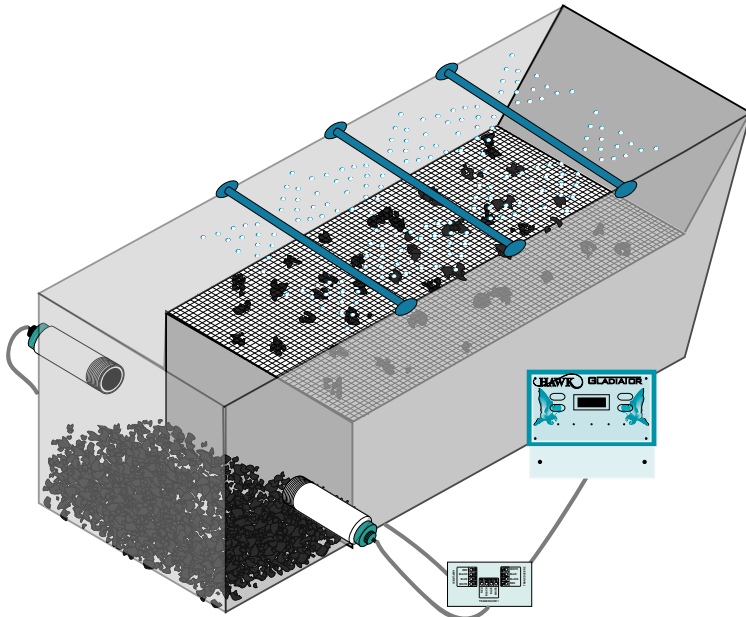
Features:

- No contact with the product required
- Self cleaning transducers
- Heavy duty titanium version available
- Designed for dusty, wet environments
- LCD setup/diagnostics on remote amplifier
- Ranges up to 20 meters (65 ft)
- Simple '1-minute' setup
- 2 Relay outputs
- Adjustable ON and OFF delays
- Communication options: GosHawk, Modbus, HART, Profibus DP, DeviceNet
- Remote GSM connection option & support
- Remote amplifier to sensor separation up to 500 meters (1640 ft)

Typical Applications

Wet Screens Blocked Chute Detection

Water Sprays



ROM Bins Blocked Chute Detection

Wet / Dry Product / Truck Detection

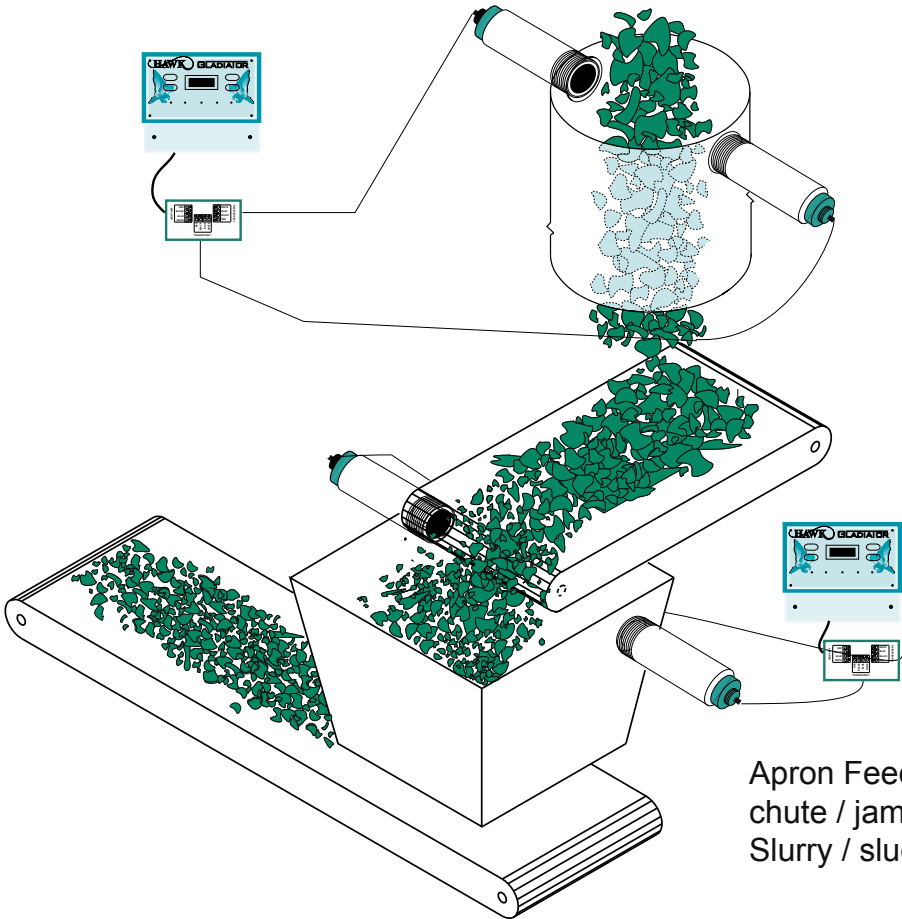
Water Sprays



Process Protection - Blocked Chute

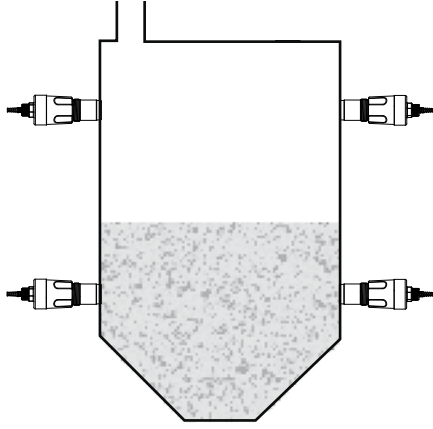
Bulk Solids

Material flow blockage detection.
Designed for wet & dusty environments.
Self cleaning Transducers dislodge & prevent build up.
Heavy duty Titanium version for product impact resistance.



Bulk Powders / Foods

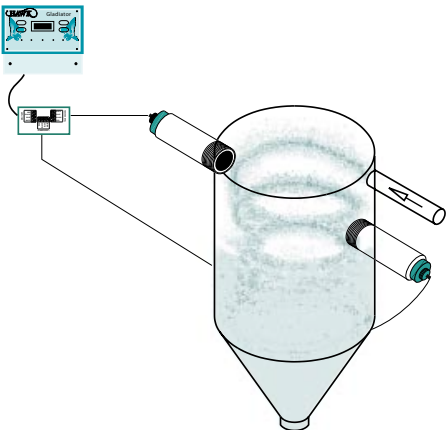
Point Level Switch



Apron Feeder / reclaim conveyor blocked chute / jam protection.
Slurry / sludge product / stockpile detection.

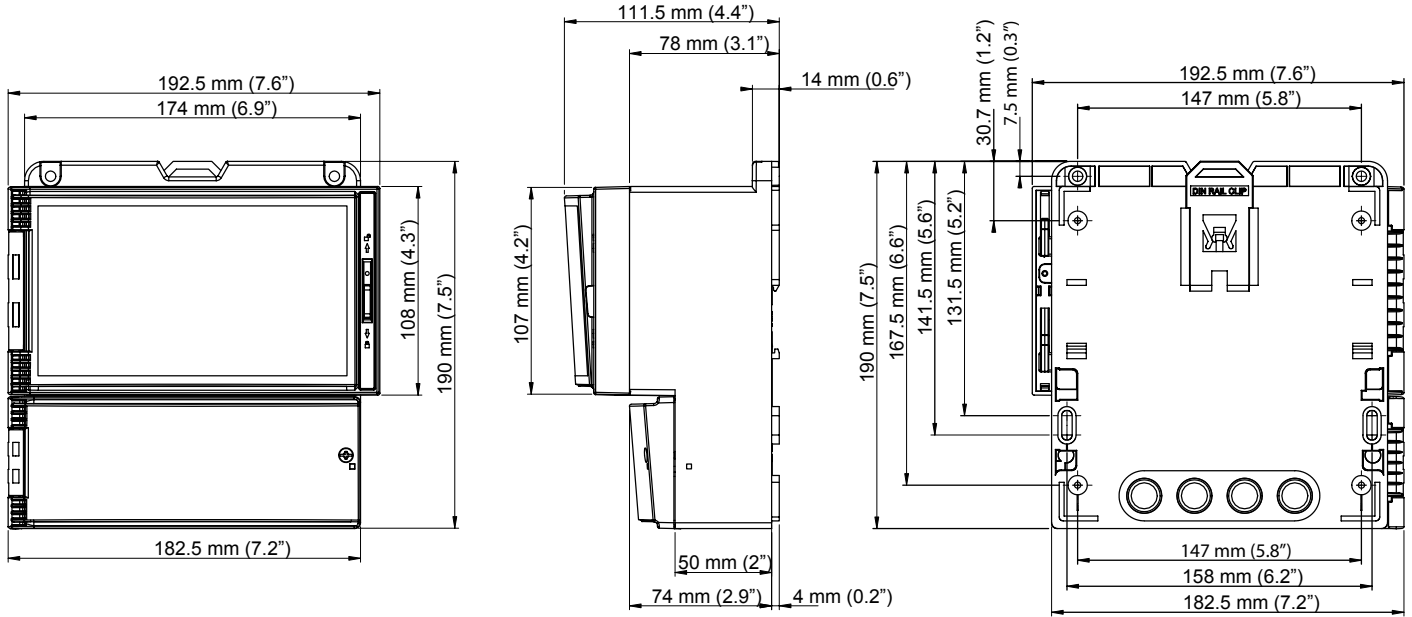
Cyclone Bins

High/low presence/absence of wet product

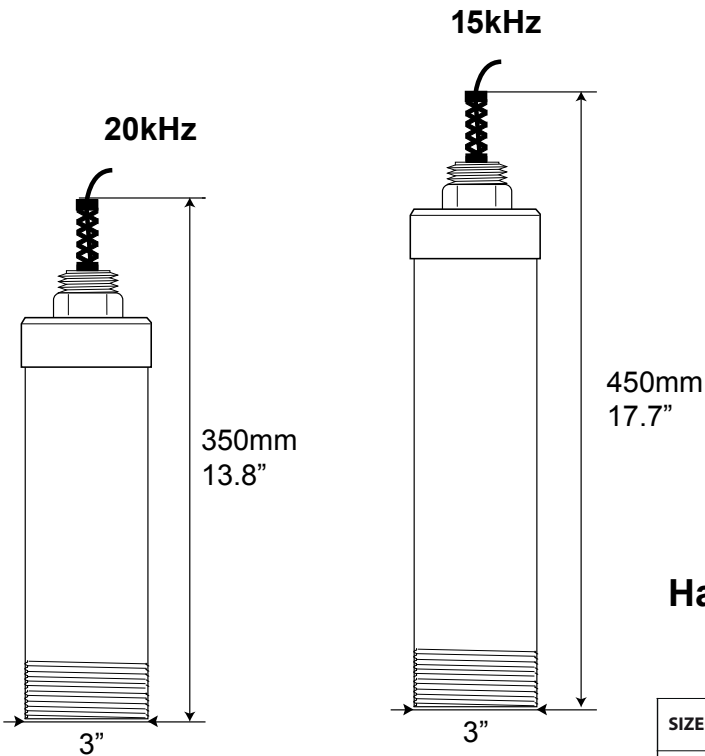


Dimensions

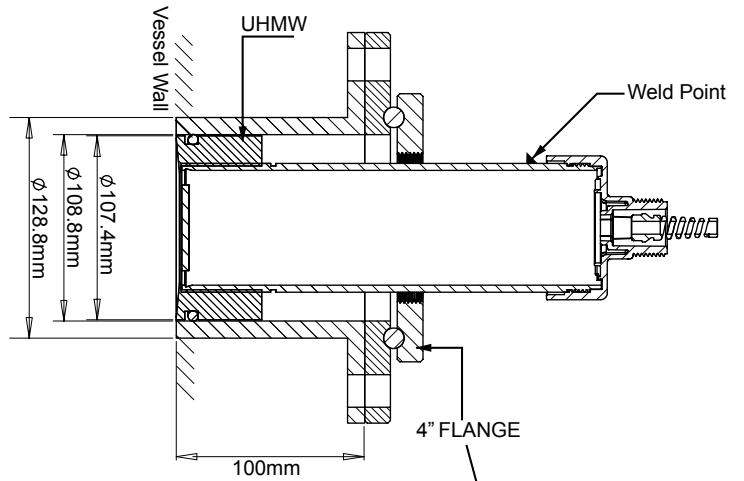
Remote Amplifier Enclosure



Remote Transducers



Flange & Mounting (20kHz shown)

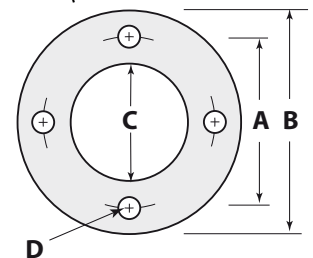


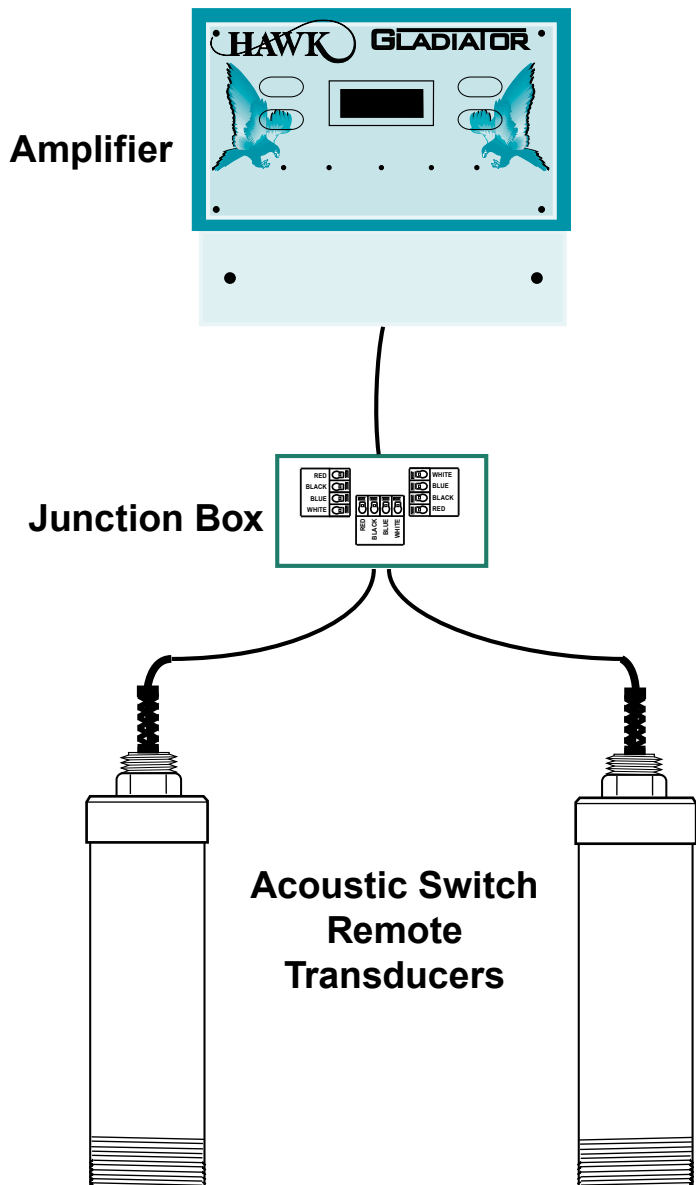
Hawk FA4B-4 Flange

STANDARD 4" ANSI FLANGE DIMENSIONS

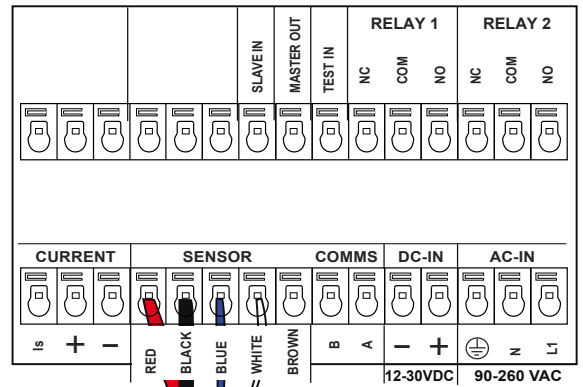
SIZE	FLANGE TYPE	A (PCD) mm in.	B (OD) mm in.	C (ID) mm in.	D (Hole) mm in.
4"	FA4	190.5 7.5	228 9.0	100 4	19 0.75

Note: Other flange sizes available upon request.





Gladiator Remote Amplifier

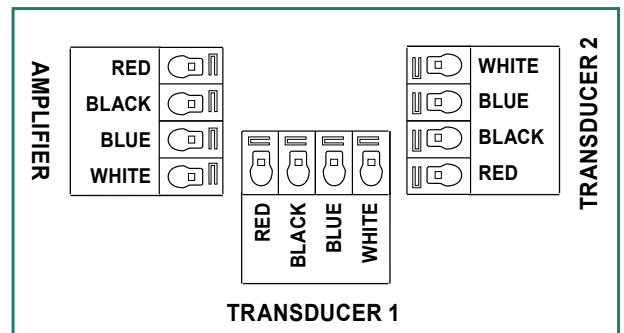


Relay 1 - Output Relay
Relay 2 - FailSafe Relay

To Junction Box

AWRT-JB-01 Junction Box

Connect colour to colour



Part Numbering

Remote Amplifier

GSA Remote Gladiator System Amplifier

Housing

S Standard polycarbonate electronics housing

Power Supply

B 24 VDC standard (12-30VDC)

C 48 VDC

U Universal AC power supply (90-260 VAC input) and 12-30VDC

Output Options

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

I HART Isolated. 1 level relay, 1 failsafe relay

D Devicenet. 1 level relay, 1 failsafe relay

P Profibus DP. 1 level relay, 1 failsafe relay

Z Special Request

GSA S B S

Junction Box

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

AWRT-JB-01

Mounting Flange

FA4B-4 Hawk Transducer mounted 4" ANSI flange

FA4B-4

Remote Transducer

AWRT Acoustic Wave Remote Transducer

- 30 30kHz for liquids and light density product/powders
- 20 20kHz for smaller chutes with heavy duty self cleaning
- 15 15kHz for larger chutes with heavy duty self cleaning requirements

Transducer Diaphragm Material

- T Teflon / UHMW
- Y Titanium face / UHMW for 15kHz only
- Z Special Request

Transducer Housing Material

- 4 Polypropylene
- 6 For 3" Teflon please contact factory

Thread Standards for End cap

- X Not Required (Standard Flange Mount, see flange & cone selection)

Mounting Thread Sizes

- X Not Required (Standard Flange Mount, see flange and cone selection)
- 30 3" thread on the back cap for. For 15kHz use "B" type flange.

Approval Standard

- X Not Required
- A0 IECEx Zone 0 (Ex ia IIA T4) / ATEX (Grp II Cat 1 GD IP67 EEx ia IIA T4)
- A1 ATEX Encapsulated (Grp II Cat 2 GD EEx m II IP68)
- A20 ATEX Dust (Grp II Cat 1 D T85C IP67)
- A21 ATEX Dust (Grp II Cat 2 D T85C IP67)
- A22 ATEX Dust (Grp II Cat 3 D T85C IP67)
- GP CSA Equip Class 2; Pollution deg 2; measurement II (ordinary locations)
- RN CSA Class I; Div 1/2; Group D; Zone 0; AEx/Ex ia IIA; T4
- KN CSA Class II; Div 2; Group F and G; Class III

Connection

- C IP68 Sealed unit with cable
- S Screw top with integral junction box without cable

Cable Length

- 6 6m cable (Standard)
- 15 15m cable
- 30 30m cable
- 50 50m cable
- X Not Required

Mounting Accessories

- X Not Required

Software Options

- AS Gladiator Acoustic Wave Switch

AWRT 20 T 4 X X X C 6 X AS

Specifications

Operating Voltage

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

Power Consumption

- <0.8W @ 24VDC
- <5VA @ 240Vac
- <3VA @ 115Vac

Communications

- GosHawk, Modbus
- HART, Profibus DP, Profibus PA, DeviceNet, Foundation Fieldbus
- 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 Sensors -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: Under ideal conditions: 15m (50ft)

Minimum Range

Blocked Chutes

- 30kHz 500mm (20")
- 20kHz 700mm (28")
- 15kHz 800mm (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

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

- Transducer 4" ANSI flange
- Remote Amplifier Back mount, DIN rail mount

Additional product warranty and application guarantees upon request.

Technical data subject to change without notice.

Contact

Hawk Measurement Systems (Head Office)

15-17 Maurice Court
Nunawading VIC 3131
Australia
Phone: +61 3 9873 4750
Fax: +61 3 9873 4538
info@hawk.com.au

Hawk Measurement

7 River Street
Middleton, MA 01949
USA
Phone: +1 888 HAWKLEVEL (1-888-429-5538)
Phone: +1 978 304 3000
Fax: +1 978 304 1462
info@hawkmeasure.com

Represented by:

