A Higher Level of Performance

Data Sheet

Sultan

Acoustic Wave Series

Level, Flow, Positioning, Collision Protection

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

Overview

Sultan Acoustic Wave Series

Principle of Operation

The SULTAN 234 emits a high powered Acoustic Wave transmit pulse which is reflected from the surface of the material being measured. The reflected signal is processed using specially developed software to enhance the correct signal and reject false or spurious echoes.

The transmission of high powered Acoustic Waves ensures minimal losses through the environment where the sensor is located. Due to the high powered emitted pulse, any losses have far less effect than would be experienced by traditional ultrasonic devices. More energy is transmitted hence more energy is returned. Advanced receiver circuitry is designed to identify and monitor low level return signals even when noise levels are high. The measured signal is temperature compensated to provide maximum accuracy to the outputs and display.

Function

The Sultan 234 is a non intrusive Acoustic Wave transmitter with flexibility, used for measuring level of liquids, slurries and solids.

Universal Supply

- 2 Wire Loop Powered
- 3 Wire DC
- 4 Wire AC / DC.

Certifications

ATEX, SAA / IECEx, CE, CSA.

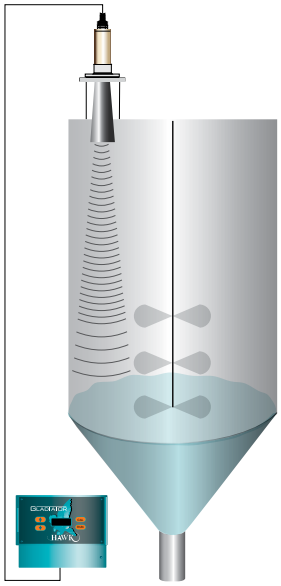
Primary Areas of Application

- Dirty / dusty / build up prone applications
- Self Cleaning sensor face requires no maintenance.
- **Water / Wastewater:**
  River Level, Wet Wells, Inlet Screens, Tanks, Sumps, Pump Stations, Water Towers, Dams, Basin Levels, Chemical Storage.
- **Mining:**
  Crushers, Surge Bins, Ore Passes, Conveyor Profile, Blocked Chute, Stockpile, Stackers, Reclaimers, Storage Silos, etc.
- **Power Stations:**
  Boiler Bunkers, Raw Coal Bunkers, Ash Pits, Fly Ash Silos, etc.
- **Others:**
  Food, Cement, Plastics, Grain, Chemicals, Paper, Irrigation, Quarries.

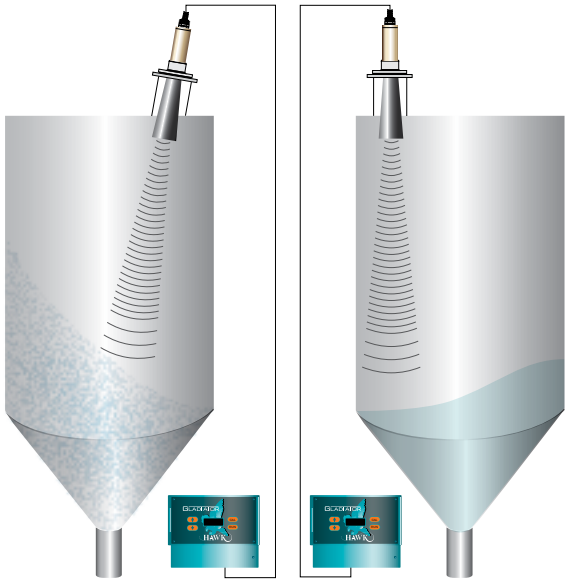
Features

- Non contact measurement
- High Power even with two wire loop supply
- Low cost per point
- Wide range of communications:
  DeviceNet, GosHawk, HART, Modbus, Profibus DP, Foundation Fieldbus & Profibus PA
- Pump Control x5 pumps
- Auto compensation for dust, steam and losses
- Protection class IP67, NEMA 4x (IP68 Transducer)
- Programmable fail safe mode
- 3G remote setup options / configuration
- Differential and average level control (2 transducers).

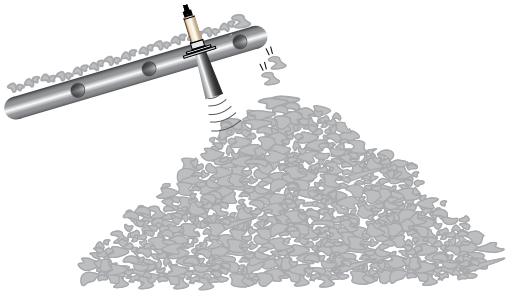
Conical Shape Vessels



Horizontal Cylindrical / Tanks



Stockpiles, Stackers, Reclaimers



Solids Vessels

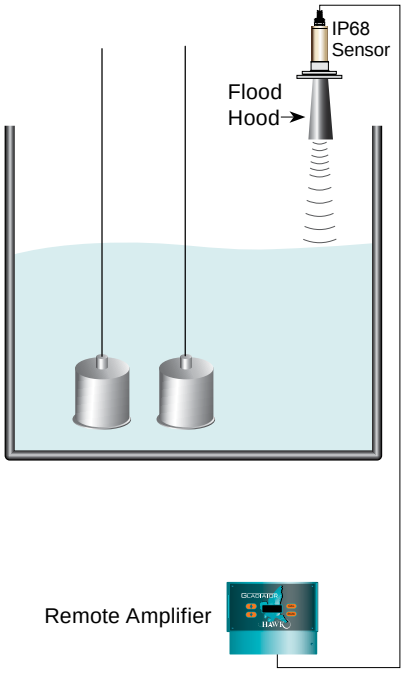
High / Low / Continuous level
(Granular / Powder)

Storage Tanks

High / Low / Continuous level
(Liquid / Chemical)

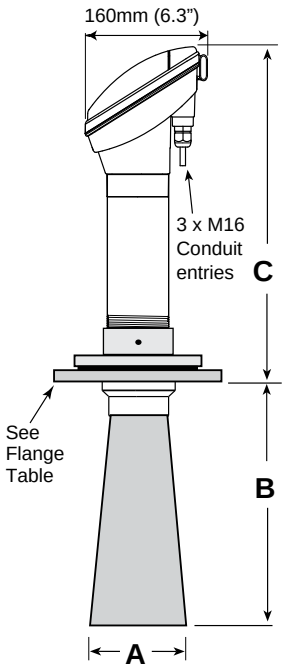
Sewage Wet Well

High / Low / Continuous level
Up to 5 Pumps

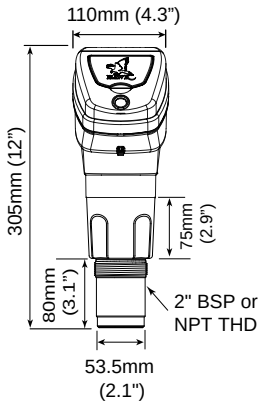


Integral Units

Standard Type

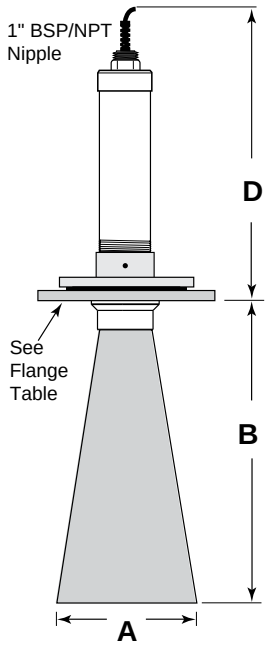


Compact Type (2"BSP / NPT)

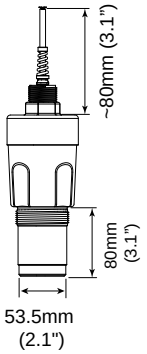


Remote Transducers

Standard Type



Compact Type (2"BSP / NPT)

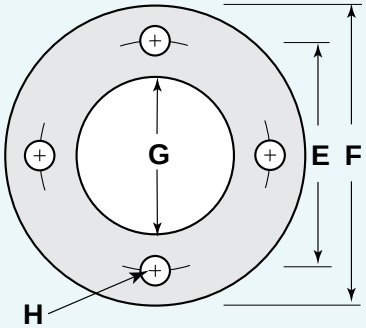


All cones must protrude into the main volume of the vessel by at least 50 mm (2 inches) past the lower end of the mounting nozzle.

Cone / Transducer Dimensions Table

Sensor Frequency	Selected Flange	A		B		C		D	
		mm	in.	mm	in.	mm	in.	mm	in.
5 kHz	10"	236	10.0	455	17.9	840	33.1	750	29.5
10 kHz	10"	236	10.0	455	17.9	540	21.3	450	17.7
	8"	195	8.0	280	11.1	540	21.3	450	17.7
15 kHz	10"	236	10.0	455	17.9	440	17.3	350	13.8
	8"	195	8.0	280	11.0	440	17.3	350	13.8
20 / 30 kHz	4"	98.5	4.0	280	11.0	390	15.4	300	11.8
30 / 40 / 50 kHz	4"	98.5	4.0	280	11.0	350	3.8	260	10.2

Flanges

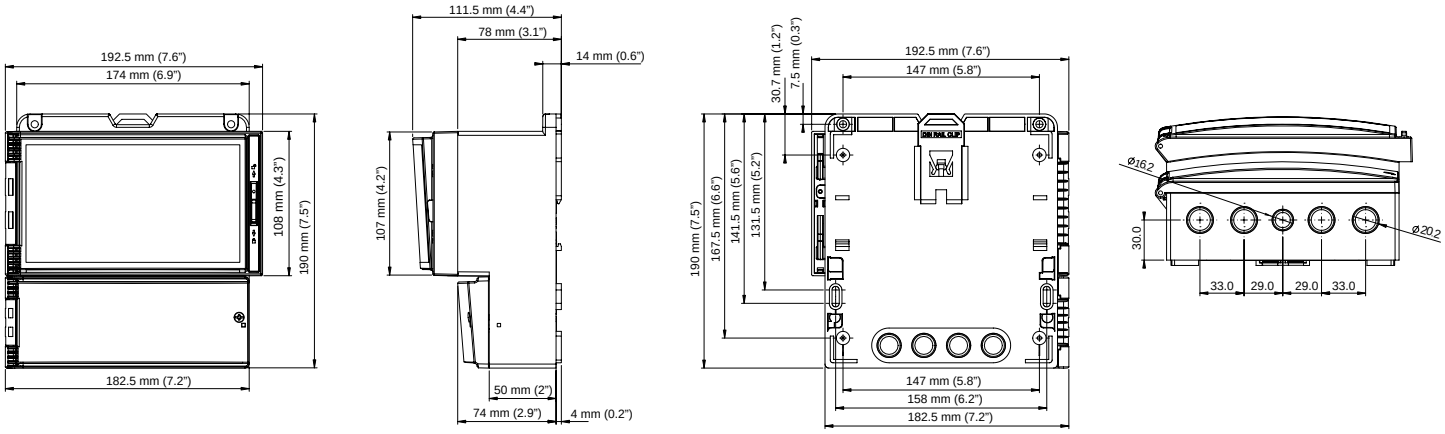


FLANGE TYPE:
A = ANSI Flange
J = JIS Flange
D = DIN Flange

Standard ANSI/DN/JIS Flange Dimensions

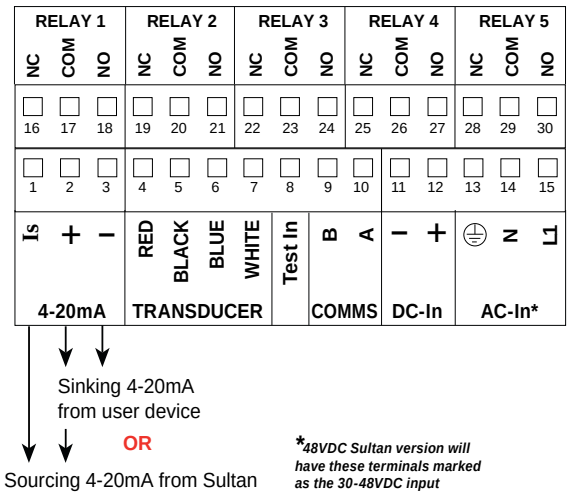
Size	Flange Type	E (PCD)		F (OD)		G (ID)		H (Hole)		No. Holes
		mm	in.	mm	in.	mm	in.	mm	in.	
4"	FA4 ANSI class 150	190.5	7.5	229	9.0	100	4	19	0.75	8
	FD4 DIN100 PN10/16	180	7.1	220	8.7	100	4	18	0.71	8
	FJ4 JIS B2220-1984 10kg	175	6.9	210	8.4	100	4	19	0.75	8
6"	FA6 ANSI class 150	241.5	9.5	279	11.0	150	6	22	0.87	8
	FD6 DIN150 PN10	240	9.4	285	11.2	150	6	23	0.91	8
	FJ6 JIS B2220-1984 10kg	240	9.4	280	11.0	150	6	23	0.91	8
8"	FA8 ANSI class 150	298.5	11.8	343	13.5	200	8	22	0.85	8
	FD8 DIN200 PN10	295	11.6	340	13.4	200	8	22	0.85	8
	FJ8 JIS B2220-1984 10kg	290	11.4	330	13.0	200	8	19	0.91	12
10"	FA10 ANSI class 150	362	14.3	406	16.0	250	10	25	1.02	12
	FD10 DIN200 PN10	350	13.7	395	16.0	250	10	23	0.85	12
	FJ10 JIS B2220-1984 10kg	355	14.0	400	15.7	250	10	25	0.99	12

Remote Amplifier



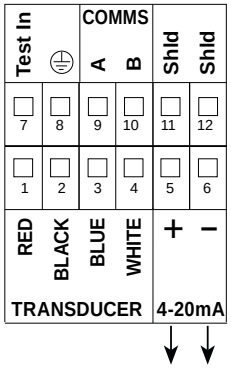
AWR Remote Transmitter

AWR234



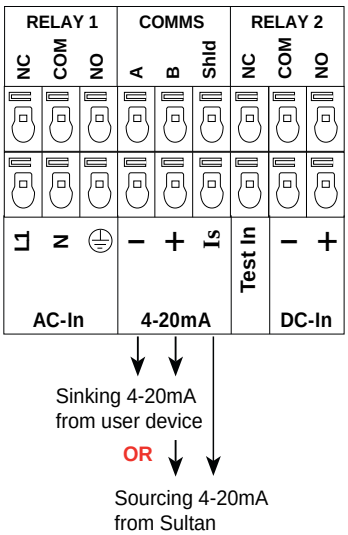
*48VDC Sultan version will have these terminals marked as the 30-48VDC input

AWR2

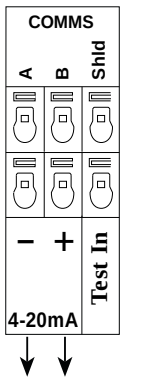


AWI Integral Transmitter

AWI234



AWI2



Sultan Remote Transmitter

Model

AWR2 Remote 2 Wire, No relays, 12-30VDC only, Modbus

AWR234 Remote 2 / 3 / 4 Wire, 5 relays, Modbus

Housing

S Polycarbonate

Power Supply

B 12-30VDC

C[1] 30-48VDC and 48-90VAC

U[1] 12-30VDC and 90-260VAC

Additional Communications (PC comms GosHawk standard)

S[1] Switch only. 5 relays

W Modbus only

X 4-20mA analogue

H[2] 4-20mA analogue with HART 2 wire

I[1] 4-20mA analogue with HART Isolated 4 wire

A Profibus PA

P[1] Profibus DP

F Foundation Fieldbus

D[1] DeviceNet

This option is no longer available

X Option no longer available

Approval Standard

X Not Required

i0[3] IECEx Zone 0 Ex ia IIA T4 IP67 Tamb -20°C to 70°C

A0[3] ATEX Grp II Cat 1 GD IP67 EEx ia IIA T4

i20[3] IECEx Zone 20 DIP A20 TA85C IP68 Tamb -20°C to 75°C

A20[3] ATEX Grp II Cat 1 D T85°C IP67 Tamb -20°C to 75°C

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

GP CSA Equip Class 2; Pollution deg 2; Tamb -20°C to 75°C (Ordinary Locations)

RN[1] CSA Class I; Div 1/2; Group D; Zone 0; AEx / Ex ia IIA; T4

Position Slave / Crane Master

X Not Required

PS[1] Position Slave

CM[1] Crane Master

AWR234	S	U	X	X	X	X

[1] Model AWR234 only

[2] Model AWR2 only

[3] Model AWR2 only. Communication Option W, X, H only

Sultan Remote Transducer 3” and 3.5”

Model

AWRT Acoustic Wave Remote Transducer

Transducer Frequency

30 30kHz for applications up to 15m for 3” (Cone required[1])
20 20kHz for applications up to 20m, 3” only (Cone required[1])
15 15kHz for applications up to 30m, 3” only (Cone required[1])
10 10kHz for applications up to 40m, 3.5” only (Cone required[1])
09 9kHz Positioning / Position Slave applications up to 180m (Cone required[1])
05 5kHz for applications up to 60m, 3.5” only (Cone required[1])
04 4kHz fPositioning / Position Slave applications up to 180m (Cone required[1])

Process Temperature - Facing material selection

S[2] Polyolefin 80°C (176°F)
T[3] Teflon 80°C (176°F)
Y[4] Titanium 80°C (176°F)

Transducer Housing Material

4 Polypropylene

Back Cap Mounting Thread Standards

X Not Required (Standard Flange Mount)
TB BSP

Back Cap Mounting Thread Sizes

X Not Required (Standard Flange Mount)
30[5] 3” BSP
50[6] 3.5” BSP

Approval Standard

X Not Required
i0 IECEx Zone 0 Ex ia IIA T4 IP67 Tamb -20°C to 70°C
A0 ATEX Grp II Cat 1 GD IP67 EEx ia IIA T4
i1 IECEx Zone 1 Ex mb II IP68 T5(Tamb -20°C to 65°C) T6(Tamb -20°C to 50°C)
A1 ATEX Grp II Cat 2 GD EEx m II IP68 T5(Tamb -20°C to 65°C) T6(Tamb -20°C to 50°C)
i20 IECEx Zone 20 DIP A20 TA85C IP68 Tamb -20°C to 75°C
A20 ATEX Grp II Cat 1 D T85°C IP67 Tamb -20°C to 75°C
A22 ATEX Dust (Grp II Cat 3 D T85C IP67)
GP CSA Equip Class 2; Pollution deg 2; Tamb -20°C to 75°C (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&G; Class III; T6 T85 for Tamb -20°C to 75°C
QN CSA Class II; Div 1; Group E, F&G; Ex mb II; T5(T100) for Tamb -20°C to 65°C; T6(T85) for Tamb -20°C to 50°C

Connection

C IP68 Sealed unit with cable

Cable Length

6 6m cable
15 15m cable
30 30m cable
50 50m cable

Mounting Accessories

X Not Required
CS[6] End Cap Cable Suspension

Software Options

X Not Required
FP[6] Fast Pulsing
PS Position Slave (Requires Position Slave Amplifier)

[1] See Transducer / Cone / Flange combination table
[2] Transducer Frequency 04, 05, 09, 10 only
[3] Transducer Frequency 10, 15, 20, 30 only
[4] Transducer Frequency 15 only
[5] Transducer Frequency 15, 20, 30 only
[6] Transducer Frequency 04. 05, 09, 10
[7] Transducer Frequency 30, 20 only

AWRT	10	T	4	X	X	X	C	6	X	X

Sultan Remote Transducer 2”

Model

AWRT Acoustic Wave Remote Transducer

Transducer Frequency

- 50 50kHz for liquid applications up to 5m (Cone required[1])
- 40 40kHz for liquid applications up to 7m (Cone required[1])
- 30 30kHz for liquid applications up to 11m (Cone required[1])

Process Temperature - Facing material selection

- T Tefzel 80°C (176°F)

Transducer Housing Material

- 6 Tefzel

Thread Standard

- TB BSP
- TN NPT

Thread Size

- 20 2” thread

Approval Standard

- X Not Required
- i0 IECEx Zone 0 Ex ia IIA T4 IP67 Tamb -20°C to 70°C
- A0 ATEX Grp II Cat 1 GD IP67 EEx ia IIA T4
- i1 IECEx Zone 1 Ex mb II IP68 T5(Tamb -20°C to 65°C) T6(Tamb -20°C to 50°C)
- A1 ATEX Grp II Cat 2 GD EEx m II IP68 T5(Tamb -20°C to 65°C) T6 (Tamb -20°C to 50°C)
- i20 IECEx Zone 20 DIP A20 TA85C IP68 Tamb -20°C to 75°C
- A20 ATEX Grp II Cat 1 D T85°C IP67 Tamb -20°C to 75°C
- A22 ATEX Grp II Cat 3 GD T85°C IP67 Tamb -40°C to 70°C
- GP CSA Equip Class 2; Pollution deg 2; Tamb -20°C to 75°C (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&G; Class III; T6 T85 for Tamb -20°C to 75°C
- QN CSA Class II; Div 1; Group E, F&G; Ex mb II; T5(T100) for Tamb -20°C to 65°C; T6(T85) for Tamb -20°C to 50°C

Connection

- C IP68 Sealed unit with cable

Cable Length

- 6 6m cable
- 15 15m cable
- 30 30m cable
- 50 50m cable

Mounting Accessories

- X Not Required
- CS Cable Suspension on end cap

Software Options

- X Not Required

AWRT	30	T	6	TB	20	X	C	6	X	X

[1] See ‘Transducer / Cone / Flange combination table

Sultan Integral 3” and 3.5”

Model

AWI2 Integral 2 Wire, No relays, Modbus

AWI234 Integral 2 / 3 / 4 Wire, 2 relays, Modbus

Housing

S Valox 357U

Power Supply

B 12-30VDC

U[1] 12-30VDC and 90-260VAC

Transducer Frequency

30 30kHz for applications up to 11m for 2” and 15m for 3” (Cone required[6])

20 20kHz for applications up to 20m, available in 3” only (Cone required[6])

15 15kHz for applications up to 30m, available in 3” only (Cone required[6])

10 10kHz for applications up to 40m, available in 3.5” only (Cone required[6])

09 9kHz for Positioning / Position Slave applications up to 180m (Cone required[6])

05 5kHz for applications up to 60m, available in 3.5” only (Cone required[6])

04 4kHz for Positioning / Position Slave applications up to 180m (Cone required[6])

Process Temperature - Facing material selection

S[2] Polyolefin 80°C (176°F)

T[3] Teflon 80°C (176°F)

Y[4] Titanium 80°C (176°F)

Transducer Housing Material

4 Polypropylene

This option is no longer available

X Option no longer available

This option is no longer available

X Option no longer available

Additional Communication

S[1] Switch only. 2 relays

W Modbus only

X 4-20mA analogue

H[5] 4-20mA analogue with HART 2 wire

I[1] 4-20mA analogue with HART Isolated 4 wire

A Profibus PA

F Foundation Fieldbus

Approval Standard

X Not Required

i0[5] IECEx Zone 0 Ex ia IIA T4 IP67 Tamb -20°C to 70°

A0[5] ATEX Grp II Cat 1 GD IP67 EEx ia IIA T4

i20[5] IECEx Zone 20 DIP A20 TA85C IP68 Tamb -20°C to 75°C

A20[5] ATEX Grp II Cat 1 D T85°C IP67 Tamb -20°C to 75°C

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

Software Options

X Not Required

AWI234	S	U	10	S	4	X	X	X	X	X

[1] Model AWI234 only

[2] Transducer Frequency 04, 05, 09, 10 only

[3] Transducer Frequency 10, 15, 20, 30 only

[4] Transducer Frequency 15 only

[5] Model AWI2 only. Communication Option W, X, H only

[6] See Transducer / Cone / Flange combination table

Sultan Integral 2”

Model

AWI2 Integral 2 Wire, No relays, 12-30VDC only, Modbus

AWI234 Integral 2 / 3 / 4 Wire, 2 relays, Modbus

Housing

S Valox 357U

Power Supply

B 12-30VDC

U[1] 12-30VDC and 90-260VAC

Transducer Frequency

50 50kHz for liquid applications up to 5m (Cone required[6])

40 40kHz for liquid applications up to 7m (Cone required[6])

30 30kHz for liquid applications up to 11m (Cone required[6])

Process Temperature - Facing material selection

T Tefzel 80°C (176°F)

Transducer Housing Material

6 Tefzel

Thread Standards

TB BSP

TN NPT

Mounting Thread Sizes

20 2” thread

Additional Communication

S[1] Switch only

W Modbus only

X 4-20mA analogue

H[2] 4-20mA analogue with HART 2 wire

I[1] 4-20mA analogue with HART Isolated 4 wire

A Profibus PA

F Foundation Fieldbus

Approval Standard

X Not Required

i0[3] IECEx Zone 0 Ex ia IIA T4 IP67 Tamb -20°C to 70°C

A0[3] ATEX Grp II Cat 1 GD IP67 EEx ia IIA T4

i20[3] IECEx Zone 20 DIP A20 TA85C IP68 Tamb -20°C to 75°C

A20[3] ATEX Grp II Cat 1 D T85°C IP67 Tamb -20°C to 75°C

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

Software Options

X Not Required

AWI234	S	U	40	T	6	TB	20	X	X	X

[1] Model AWI234 only

[2] Model AWI2 only

[3] Model AWI2 only. Communication Option W, X, H only

[6] See Transducer / Cone / Flange combination table

Part Numbering

Sultan Acoustic Wave Series

Flange Selection

F Flange

Dimension Standard

A ANSI[2]
D DN[2]
J JIS[2]

Flange Sizes

2N Matches 2" NPT threaded units
2B Matches 2" BSP threaded units
3 3" acoustically isolated flange
4 4" acoustically isolated flange
6 6" acoustically isolated flange
8 8" acoustically isolated flange
10 10" acoustically isolated flange

Flange Mounting Position[1]

A Cone Mounted (standard)
C Angled flange piece only

Flange Material

4 Polypropylene

F	A	4		A	-	4

Additional Flange Options[1]

FA8A-4-C4	8" ANSI, polypropylene	**FA8D50-4**	6" ANSI, polypropylene
FA10A-4-C4	10" ANSI, polypropylene	**FA10D50-4**	6" ANSI, polypropylene
FA6D50-4	6" ANSI, polypropylene		

Cone Selection

C Focaliser Cone

Cone Type[1]

02N	C04 cone for 2" NPT transducer
02B	C04 cone for 2" BSP transducer
04	4" cone for 20kHz and 3" 30kHz transducers
08-15	8" cone for 15kHz
08-10	8" cone for 10kHz
10-15	10" cone for 15kHz
10-10	10" cone for 10kHz and 9Hz
10-05	10" cone for 5kHz and 4kHz

Cone Material

4 Polypropylene
7A Carbon Fibre. Includes matching ANSI Flange (4", 8" or 10")
7D Carbon Fibre. Includes matching DN Flange (4", 8" or 10")
7J Carbon Fibre. Includes matching JIS Flange (4", 8" or 10")
8 Polyurethane

C	04	-	4

Additional Cone Options[1]

C04-4-ZOD90	C04-4 trimmed to fit 90mm ID nozzle.
C03-4-Z	Cone and coupling to fit 72mm ID nozzle for 20kHz and 30kHz (T4).

[1] Important: See Transducer / Cone / Flange combination table for valid part combinations
[2] See 'Flange Dimension Standards' table for full Flange specification

Transducer / Cone / Flange Combination Table

• Each line represents fitting combinations. Flange Dimension Standard A, D or J replaces underscore (_) position

Transducer	Cone	Flange Option 1	Flange Option 2	Flange Option 3	Flange Option 4
50 / 40kHz	C02	F_3A	F_4A		
30kHz (T6)	C02	F_3A	F_4A		
30kHz (T4)	C03-4-Z	F_3A			
	C04	F_3A	F_4A	F_6A	F_8A-4-C4
Back Cap Mount (TB30)		F_4A	FA6A		
20kHz	C03-4-Z	F_3A			
	C04	F_3A	F_4A	F_6A	F_8A-4-C4
Back Cap Mount (TB30)		F_4A	F_6A		
15kHz	C04	F_4A	F_6A		
	C08	F_8A	F_10A	F_6D50-4	
	C10	F_8A	F_10A	F_6D50-4	
Back Cap Mount (TB30)		F_4A	F_6A		
9 / 10kHz	C08	F_8A	F_10A	F_6D50-4	
	C10	F_8A	F_10A	F_6D50-4	
Back Cap Mount (TB50)		F_6D50-4	F_8D50-4	F_10D50-4	
4 / 5kHz	C08	F_8A	F_10A	F_6D50-4	
	C10	F_8A	F_10A	F_6D50-4	
Back Cap Mount (TB50)		F_6D50-4	F_8D50-4	F_10D50-4	

Not Recommended

Accessories

HAWKLink Data Modem

Model

HLR Remote stand alone HAWKLink system

Power Supply

B 12-30VDC
U 12-30VDC and 90-260VAC

Network Type

G3 3G Autoband

Sim Card

S3 Australian Sim Card expires after 3 month
S12 Australian Sim Card expires after 12 month
X Not Required

HLR	U	G3	S3

HAWKLink USB PC connector for GosHawkII
HAWKLink-USB

Stainless Steel Sunhood
SUNHOOD

Junction Box for twin Transducer applications
AWRT-JB-01
AWRT-JB-06 (includes 6m cable)

Extra Cable (Belden 3084A)

CA-TXCC-R-C15 15m cable
CA-TXCC-R-C30 30m cable
CA-TXCC-R-C50 50m cable
CA-TXCC-R-C100 100m cable

Specifications

Sultan Acoustic Wave Series

Frequency

- 4kHz, 5kHz, 9kHz, 10kHz, 15kHz, 20kHz, 30kHz, 40kHz, 50kHz (4kHz & 9kHz are special long range versions).

Operating Voltage

- 12 - 30VDC (residual ripple no greater than 100mV)
- 90 - 265VAC 50 / 60Hz
- 48VDC, 48VAC - 90VAC 50 / 60Hz.

Power Consumption

- <3W @ 24VDC
- <10VA @ 240VAC
- <4W @ 48VDC, <7VA @ 48VAC - 90VAC.

Analogue Output

- 4 -20mA
- Recommended 250 ohms with 24VDC supply, max. 750 ohms.

Communications

- GosHawk, HART, Modbus, Profibus PA, Profibus DP, DeviceNet, Foundation Fieldbus
- Mulitidrop mode can address 1 - 250 units over 4 wires.

Relay Output: (2) Integral (5) Remote

- Form 'C' (SPDT) contacts, rated 0.5A at 240VAC non-inductive
- All relays have independently adjustable dead bands
- Remote failsafe test facility for one relay.

Blanking Distance

- 50kHz = 0.25 m (10")
- 40kHz = 0.30 m (12")
- 30kHz = 0.35 m (14")
- 20kHz = 0.45 m (17")
- 15kHz = 0.60 m (24")
- 10 / 9kHz = 1.0 m (39")
- 5 / 4kHz = 1.5 m (59")

Maximum Range

• 5 m (16ft)	50kHz	liquids
• 7 m (22ft)	40kHz	liquids
• 11 m (33ft)	30kHz	liquids
• 20 m (65ft)	20kHz	liquids / slurries, 10m (33ft) solids
• 30 m (98ft)	15kHz	liquids / slurries, 20m (65ft) solids
• 40 m (165ft)	10kHz	liquids / slurries / powders / solids
• 60 m (196ft)	5kHz	liquids / slurries / powders / solids
• 180 m (588ft)	4 / 9kHz	for extended range

Resolution

- 1 mm (0.04") 50, 40, 30,20, 15, 10, 5kHz
- 4 mm (0.2") 9, 4kHz.

Sensor Accuracy

- +/- 0.25% of measured range.

Operating Temperature

- Integral System -40°C (-40°F) to 80°C (176°F)
- Remote Electronics -40°C (-40°F) to 80°C (176°F)
- Remote Transducer -40°C (-40°F) to 80°C (176°F).

Transducer / Amplifier Separation

- Up to 1000m using specified extension cable.

Cable

- 4 conductor shielded twisted pair instrument cable
- Conductor size dependent on cable length
- BELDEN 3084A, DEKORON or equivalent
- Max: BELDEN 3084A = 500m (1640 ft)
- Max: DEKORON IED183AA002 = 350m (980 ft).

IMPORTANT
"USE SPECIFIED CABLE ONLY"

Maximum Operating Pressure

- +/- 7.5 PSI (+/- 0.5 Bar).

Beam Angle

• 7.5°	without focaliser	50kHz / 40kHz / 30kHz
• 4°	with focaliser	50kHz / 40kHz
• 6°	with focaliser	30kHz / 20kHz / 15kHz / 10kHz / 5kHz
• 10°	with focaliser	9kHz / 4kHz

Display

- 2 line x 12 digit alphanumeric LCD.

Memory

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

Enclosure Sealing

- Integral System IP67
- Remote Electronics IP65 (Nema 4x)
- Remote Transducer IP68.

Cable Entries

- Integral: 3 x M16 Glands
- Remote: 3 x 20mm, 1 x 16mm knock outs.

Mounting

- ANSI, JIS or DIN Flange
- 4 in / 100mm to 10 in / 250mm
- 2in BSP Thread / NPT Thread.

Typical Weight

Sultan System with appropriate flange and cone

Frequency	kg	lb
4 or 5kHz Transducer	13	28.6
9 or 10kHz Transducer	10	22.0
15kHz Transducer	8	17.6
20 or 30kHz (3") Transducer	3	6.6
30, 40 or 50kHz (2") Transducer	1	2.2

Configuration	kg	lb
Remote Amplifier with 6m cable	1	2.2
Remote Amplifier with 15m cable	3	6.6
Remote Amplifier with 30m cable	6	13.2
Remote Amplifier with 50m cable	10	22.0

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
96 Glenn Street
Lawrence, MA 01843, USA
Phone: +1 888 HAWKLEVEL (1-888-429-5538)
Phone: +1 978 304 3000
Fax: +1 978 304 1462
info@hawkmeasure.com

Represented by:

For more information and global representatives: **www.hawkmeasure.com**

Additional product warranty and application guarantees upon request.
Technical data subject to change without notice.

DOC-S234-DAT 1214