

SONDALOOP

INSTALLATION AND SETTING UP INSTRUCTIONS

General

The **SONDALOOP** is a loop powered ultrasonic level transmitter that produces a 4-20mA signal proportional to fluid depth or target distance.

It is powered from a nominal 24V D.C. supply, and has an operating range of up to 8m. Proven circuitry eliminates spurious echoes and ensures a steady output signal. The ultrasonic sensor and electronics are sealed in to give IP68 protection. Calibration (scaling) is achieved by defining the 4 and 20mA set points by either entering the set level distance or by direct simulation.

Specifications

PHYSICAL

Measuring Range:	0.5 to 8 metres
Resolution:	1mm
Operating Temperature:	-10 to +60 °C
Operating Pressure:	- 0.25 to +2 bar
Ultrasonic Cone:	12° included angle

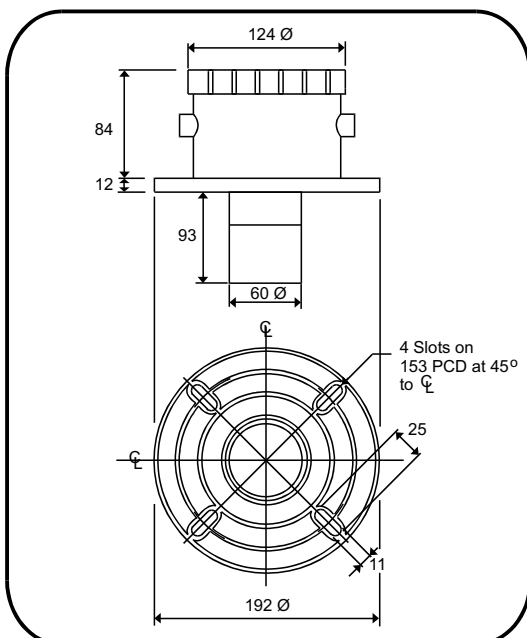
Weatherproof: IP68 (Immersion in water 2m for at least 24Hrs)

Housing Material: Polypropylene housing, UPVC sensor.

Recommended Cable: Screened instrument cable
Unit supplied with 5m
2 core screened cable sealed in

Weight: 1 Kg

Dimensions



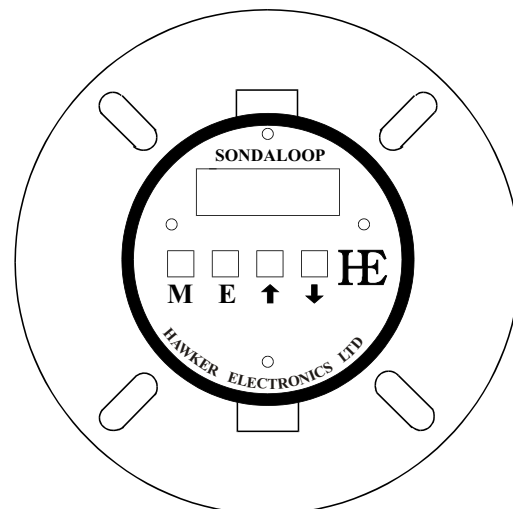
ELECTRICAL

Supply:	20-38V D.C. Reverse polarity protected (Nominally 24V D.C.)
Max power:	0.5 Watts @ 24V D.C.
Outputs:	Normal operating range 4-20mA into 250 Ohms @ 24V D.C. or 1000 ohms @ 38V D.C. Lost Echo 4mA, 20mA, 21mA or hold last good reading, user selectable. Liquid Crystal Display 1mm Resolution.
Accuracy:	0.25% of measurement range

Electrical Connections

Connection: 5mts Factory fitted cable
twin screened cable

Red	+Loop Supply +V D.C.
Blue	- Loop Supply OV



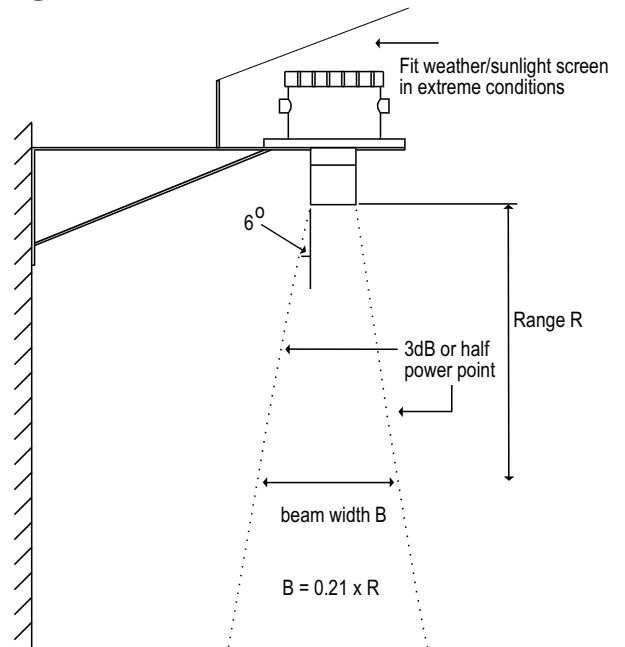
NOTE

Wiring must be done in accordance with all current regulations. Separate cables and conduits may be required to conform to standard instrumentation wiring practices or electrical codes.

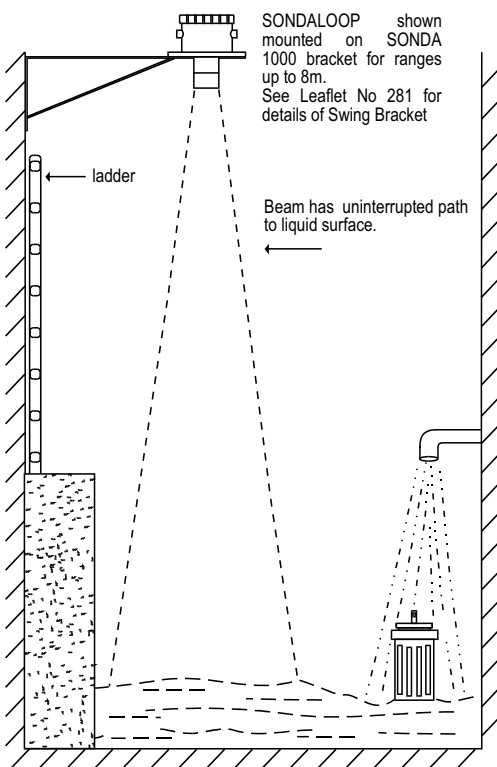
INSTALLATION

General

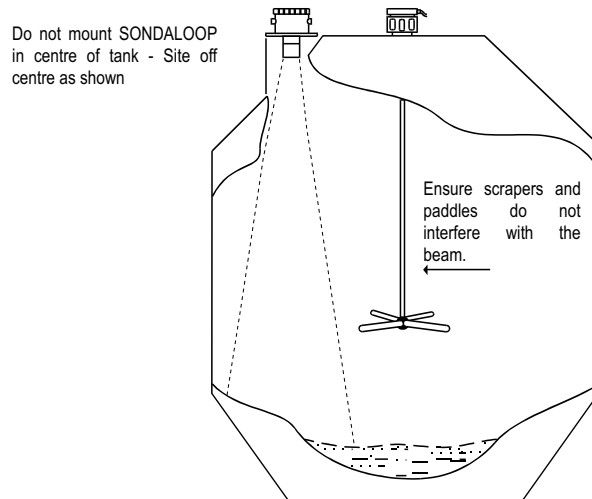
- * Ensure the SONDALOOP has a clear uninterrupted path between transducer face and 'zero level'.
- * Mount the SONDALOOP away from fill points, walls and ladders with its face horizontal.
- * Mount the SONDALOOP at least 0.3m above the highest liquid level, and 105mm away from walls for every 1m of measurement.
- * Do not over tighten mounting bolts.(Use plastic bolts).
- * Keep SONDALOOP away from high voltage or current runs and variable speed drives.
- * Shield the SONDALOOP from the effects of direct sunlight or extreme weather conditions.



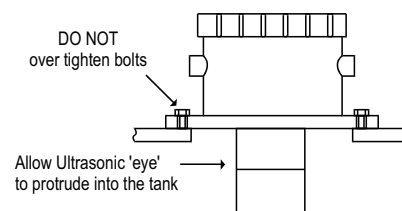
Open Tank/Sump Applications



Closed Tank Applications



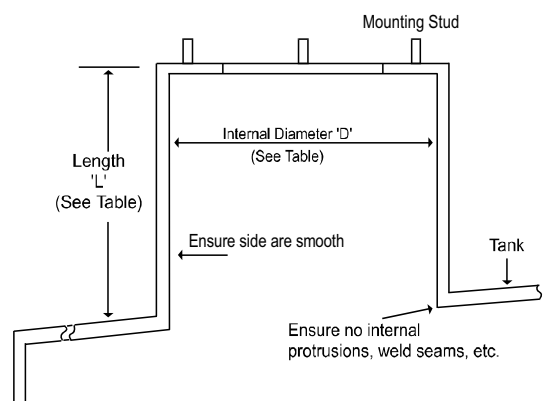
Standard Sensor Mounting Detail



Up-Stand Arrangements

Used in tank applications to offset the 'Dead Band' and allow measurement to the top of the tank.

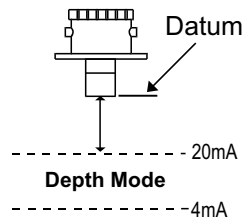
Stand pipe Internal diameter D	Max. length of Stand pipe L
80mm	125mm
100mm	200mm
150mm	300mm
200mm	500mm
230mm	600mm
250mm	650mm
300mm	700mm



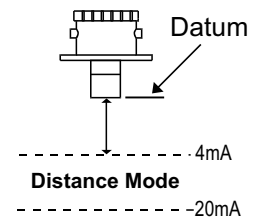
SCALING/SETTING UP

The unit can either be read in DISTANCE or DEPTH MODE

If the 20mA point is closer to the datum than the 4mA point, the unit is configured in Depth Mode.



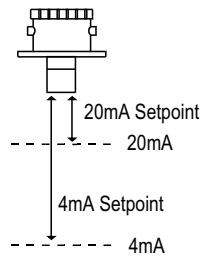
If the 4mA point is closer to the datum than the 20mA point, the unit is configured in Distance Mode.



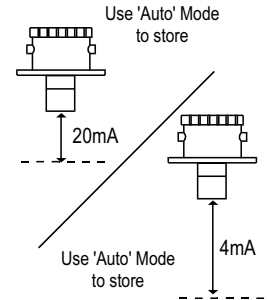
Set points must be separated by >10mm. These are shown in the Programming Flow Chart (PFC) under 'disp'. There are only 3 items to set up, making the SONDALOOP very friendly. These are:-

Manual Scaling or Auto Scaling

1. Manual Scaling is achieved by entering the distance from the transducer face (datum) to the target, corresponding to the 4mA & 20mA points. This is shown in the PFC as 'ENT'



1.1. Automatic Scaling is achieved by adjusting the physical tank contents to the 2 set point levels, (20mA and 4mA or visa versa) and allowing the SONDALOOP to store its measured values.



N.B. The SONDALOOP is weatherproof to IP68 with the cap screwed on. It is possible for moisture to affect the electronics if **Automatic Scaling** is carried out in the rain. This does not apply to **Manual Scaling** which can be carried out indoors

2. Display can show:-

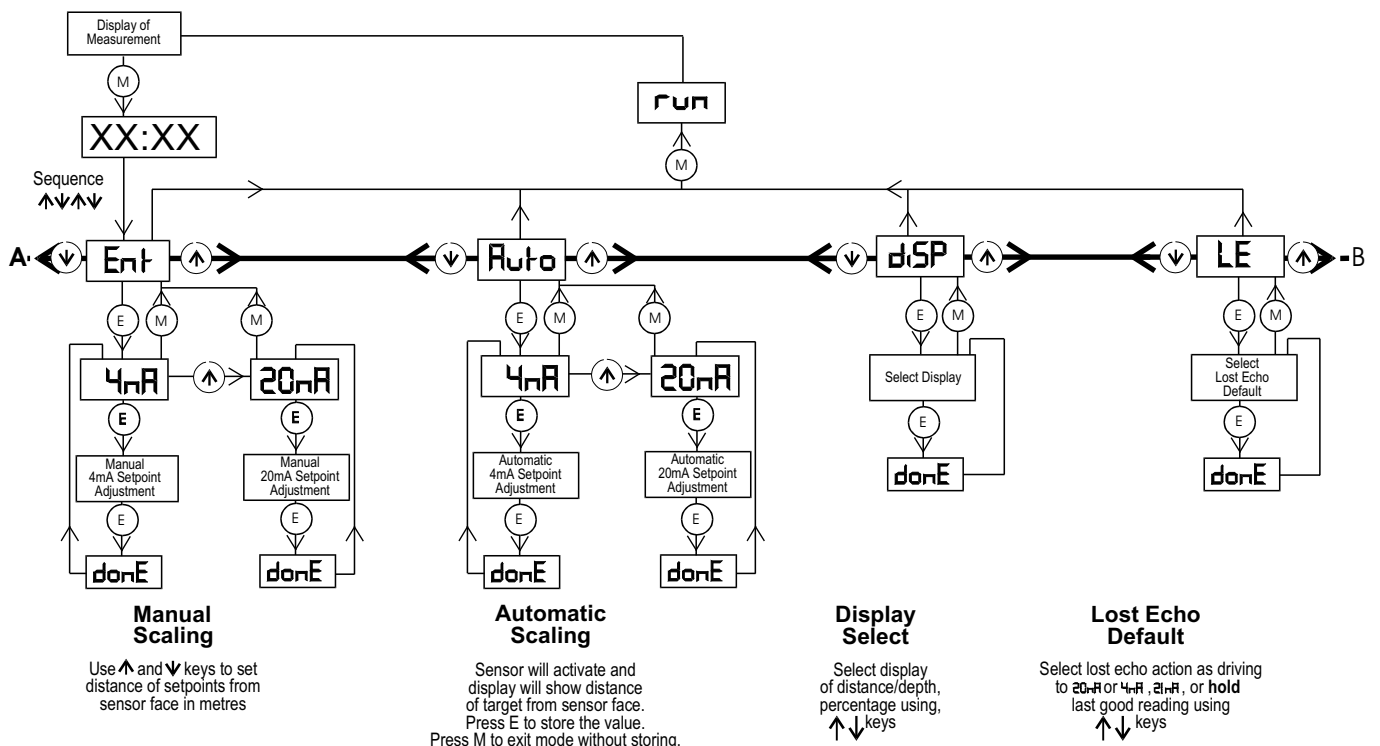
Depth Mode as either depth in metres above the 4mA point or percentage Depth as a % of range.

Distance Mode as either the distance above the 20mA point or percentage Distance as a % of range.

In the display, both Depth and Distance are shown under 'disp', depending on the relative positions of the 4mA and 20mA points (to select % press \downarrow to give 'PE rC' press E to enter).

3. Lost Echo occurs when the unit fails to receive any good echoes for approx 15 seconds. Action of the analogue output when SONDALOOP loses its echo can be preset to either 21mA, 20mA, 4mA or 'Hold last good reading'. Once the conditions causing lost echo have abated, the SONDALOOP analogue output & display will return to normal. Shown in PFC under LE.

Using the Programming Flow Chart (PFC)



To get into the PFC

Operation Press

M ↑↓↑↓

- ↑ sequentially
- ↓ sequentially

Manual Scaling

E
E
↑ to increase
↓ to decrease
E
↑
E
↑ to increase this number
↓ to decrease this number
E
M
M
M

Screen Shows






Stationary colon and previous number
---- followed by 'Ent'
'Ent' or 'Auto' or 'disP' or 'LE'
'LE' or 'disP' or 'Auto' or 'Ent'

start from "ENT"
4mA
Previous number which was entered
The new number is displayed



'donE' followed by 4mA
20mA
Previous number which was entered
The new number is displayed

donE' followed by 20mA
'ENT'
a random number
New number with flashing colon midway

On the PFC datum line AB, the up arrow ↑ moves the item to the right and the down arrow ↓ moves the item to the left.
Note that every 60 secs, the unit recalibrates because of any possible temperature changes, and the display will read 'rCAL'. This will not effect the user settings or mA output, and the display will revert after a few seconds.

Display Messages		
 Parameter Stored	 Measurement Over Range	 Colon indicates M key is pressed during running
 4mA and 20mA setpoints within 10mm of each other	 Measurement Under Range	

TROUBLE SHOOTING

Symptom	Cause	Action
Gives lost echo reading 'LE'.	Target out of range. Application too dusty or steamy. Excessive foam on liquid surface.	Check system specification. Check installation and tank conditions. Re-site transducer.
Reading does not change but level does.	Sondaloop processing wrong echo e.g. Structural member, agitator blade or vessel wall.	Move transducer to a better location.
No Display/Loop current.	Power Failure	Check Power supply.
Reading erratic.	Target unsteady. Electrical noise. Target within Dead Band.	Move transducer to a better location. Do not site transducer close to heavy electrical equipment. Move transducer such that target is always 300mm away from face.
Reading  or 	Target outside bounds of 4mA and 20mA setpoints.	Re-calibrate unit.
Reading occasionally goes high when vessel not full.	Close range echo being detected. Acoustic coupling to mounting Bracket.	Move transducer to a better location. Loosen mounting bolts - use foam gasket

This product has been designed and complies to the relevant standards as listed in its certificate of conformity. The installer/user must ensure system compliance

Because of continuing development we reserve the right to change the specifications without notice.

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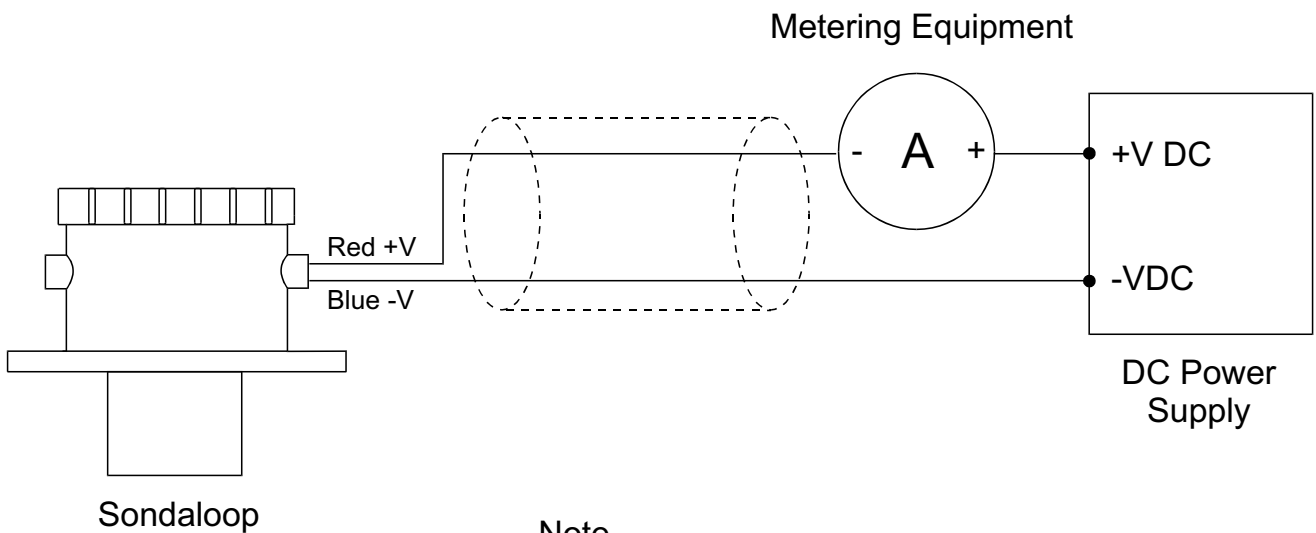


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HAWKER

LEVEL CONTROL SYSTEMS



Note
If Screened Cable is used terminate
at Power Supply end only.

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