echOsonix®
U11 Loop Powered Transmitter

Form 1185

The echOsonix U11 provides level measurement solutions for a wide variety of industries and applications. Its unique features allow more flexibility and reliability than other loop powered level transmitters in difficult applications.

Features and Benefits

- Low frequency sound for superior penetration through condensate and foam.
- Sophisticated modular power management system allows the echOsonix to produce the most powerful sensing signal on the market.
- Adaptive gain control continuously adjusts the sensitivity of the sensor according to process conditions.
- Two year warranty from date of manufacture.

The echOsonix is suitable for use in liquids and slurries. It operates by generating an intense pulse of sound and measuring the time for an echo to return from the process material. Knowing the elapsed time and the speed of sound allows the echOsonix to calculate the distance to the target. This distance is then output in the form of a 4-20mA analog signal.

Product Application

The echOsonix can be used in most applications that meet the specifications on page 2. Transducer selection is critical for proper operation. Some application guidelines are given below and transducer specifications are listed on page 2.

- Can be used on liquids or slurries based on transducer capabilities.
- No hard vacuum service - sound does not transmit in vacuum.
- Vapor content in the vessel must be constant - changing vapors will cause unavoidable errors.
- Consult page 2 for applications with condensate or foam.

The echOsonix has been successfully applied in many industries and applications. Some sample areas of application are:

Industries

- Power generation
- Food processing
- Water/wastewater treatment

Applications

- Sump pit monitoring
- Chemical storage
- Lime slurry
- Waste water

Product Specifications

Input	17 to 30 VDC	Memory	Non-volatile (no backup battery required)
Input Supply Current	4.0mA to 20.0 mA	Transmitter Operation Temperature	-4 to 140°F (-20 to 60°C)
Input Source	2-wire, loop power	Display Operation Temperature	14 to 140°F (-10 to 60°C)
Electronic Accuracy	±0.25% of maximum range	Enclosure Material	Cast Aluminum
Analog Output	4-20mA (maximum 250Ω at 17 VDC) (maximum 750Ω at 27 VDC) (proportional at 24 VDC)	Pressure Rating	15 psig (1.0 Bar)
Display	2x8 digit alpha/numeric LCD display		

Transducer Selection

Liquids and Slurries

Typical Blanking – a dead zone where the transmitter cannot detect the process.

Foam/Condensate Range – some conditions, like foam, steam, fog and condensate, reduce the effective range of echOsonix. Use this value to determine the estimated effective range of the transducer when any of these conditions are present.

Ideal Conditions Range – ideal conditions for liquids and slurries are little or no foam, steam, fog or condensate. Use this maximum range to select a transducer for these conditions.

Transducer Frequency	Typical Blanking	Foam / Condensate Range	Ideal Conditions Liquid & Slurries Range
30 kHz	12" (30cm)	N/R	23 ft (7m)
20 kHz	16" (40cm)	16 ft (5m)	40 ft (12m)

Focusing Cone Selection

A focusing cone (FC option in Transducer Model Number) is used to enhance echo quality. For 30 and 20 kHz, the FC option should be selected anytime for which the range the unit will be used is more than 1/2 of the stated range above.

Model Selection

The echOsonix is selected as two separate model numbers - one for the electronics package and one for the transducer. The transducer frequency must be specified in both the electronics and the transducer model numbers.

Electronics Model Number

3 Agency Approvals

None	00

4 Sensor

20	20kHz
30	30kHz

2 Output Type

4-20mA analog loop	H

5 Accessories

PP	Paper supplemental tag
RR	Wired on supplemental SS tag
VV	Fungicidal varnish on housing

1 Housing

NEMA 4/explosion proof with window	C
NEMA 4/explosion proof without window	D

U 1 1 C L 9 H 00 3 0 P P

Transducer Model Number

2 Process Connection

3" NPT	3 A
4" 150# flange	4 C
6" 150# flange	6 C
8" 150# flange	F C
10" 150# flange	G C

3 Agency Approvals

00	None

4 Accessories

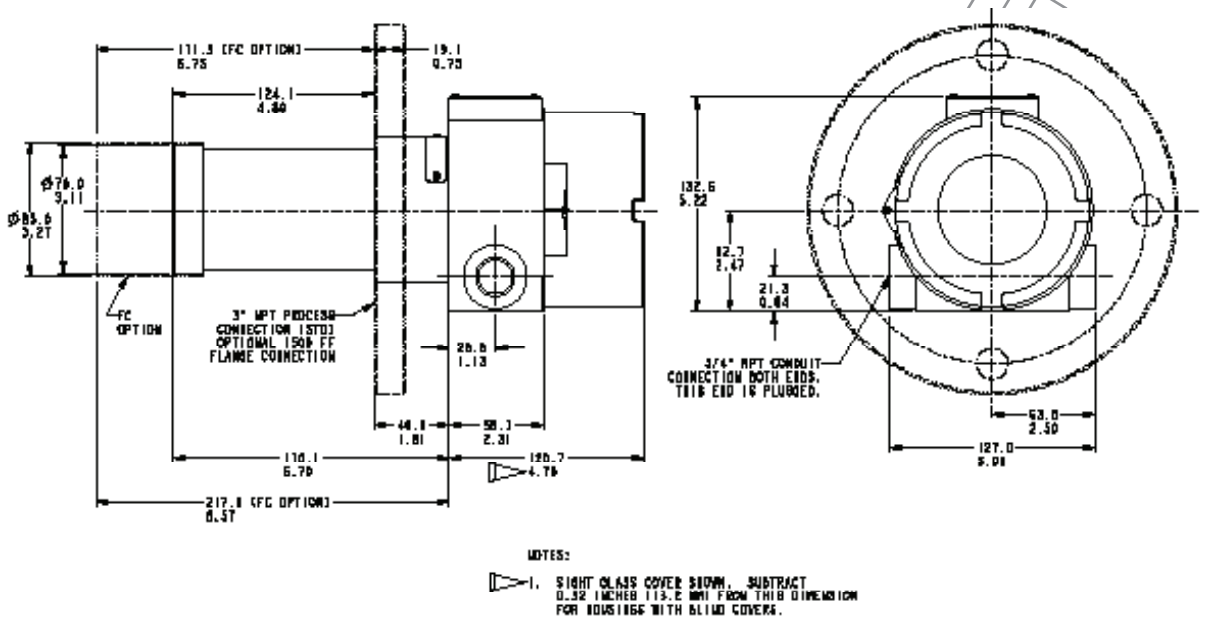
F C	Focusing cone (Requires 4" flange on 20 kHz units.)

1 Sensor Frequency

20kHz	F
30kHz	G

B G P 3A 00 00000 FC

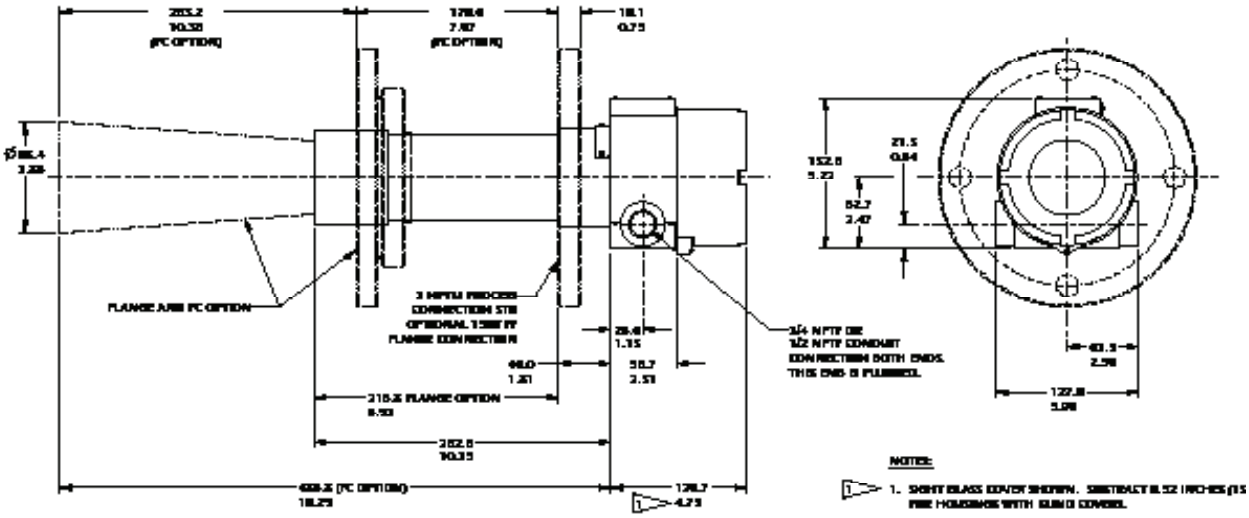
Integral Electronics
30 kHz Transducer



Drawing 0390629

Linear = mm/in.

Integral Electronics
20 kHz Transducer



Drawing 0390630

Linear = mm/in.

echosonix® Application Worksheet

Company Name _____ Contact _____

Industry _____ Phone _____

Address _____ FAX _____

_____ E-mail _____

Process Information

Material Monitored _____ ❑ Solid ❑ Liquid ❑ Slurry

Tag No. _____ Dust ..... ❑ Heavy ❑ Medium ❑ Light

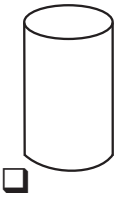
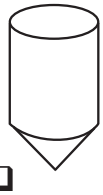
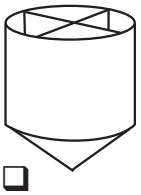
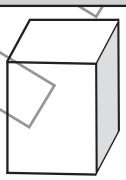
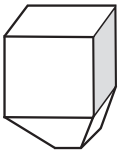
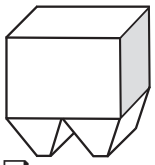
Temperature _____ Foam.....Thickness _____ ❑ Dense ❑ Light

Pressure _____ Condensation..... ❑ Y ❑ N Agitation..... ❑ Y ❑ N

Atmosphere..... ❑ Air Other _____ Homogenous ..... ❑ Y ❑ N

Installation Information

Vessel Shape *(check the one that applies, or sketch vessel below)*

Cylinder	Cone-bottom Cylinder	Section Cylinder	"Bullet" Tank	Box	Cone-bottom Box	Dual-outlet Box
 ❑	 ❑	 ❑	 ❑	 ❑	 ❑	 ❑

Vessel Height _____ Measured Range _____ Vessel Diameter _____

Vessel Material..... ❑ SS ❑ Other Metal ❑ Concrete ❑ Other _____

Mounting..... ❑ Stand Pipe ❑ Coupling ❑ Bracket ❑ Other _____

Connection Size / Type _____ Stand Pipe Diameter / Length _____

Instrument Requirements

Input Power ❑ 110VAC ❑ 220VAC
❑ 24 VDC Line Power
❑ 24 VDC Loop Power

Output Type ❑ 4-20 mA ❑ Relay
# of Relays _____ ❑ Modbus

Remote Electronics Distance _____

Integral Electronics _____

Area ❑ NEMA 4X

Classification ❑ Classes I, II & III; Div. 2
❑ Classes I, II & III; Div. 1 & 2
❑ _____

Sight Window ❑ Y ❑ N

Application Notes and Sketch

Please fax your completed worksheet to the number below.

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Form 1248 (08.14)

Weights

All weights are estimated. Consult the factory for actual weights and dimensions of shipments.

Range	Unit Weight*		Estimated Weight	
	lbs	kg	lbs	kg
20 kHz	9	4	15.25	7
30 kHz	8	3.5	14.25	6.5