

# IS-2000 SERIES ATEX Certified Sensors

## MODELS IS-2000, IS-2200 & IS-2201 and INSTRUMENTATION



The AVT **IS2000 series** of high performance, ATEX certified, acoustic emission transducers offer high sensitivity-low noise measuring capability for a wide range of industrial applications in designated hazardous areas. The transducers are fully encapsulated with polyurethane within satin-chromed thick walled brass housing. Mounting to the test specimen is achieved using a suitable silicon rubber or epoxy adhesives or alternatively with isolated magnetic clamps and silicon grease couplant. There are three basic models, each with its own temperature rating, which are available in four versions covering the frequency range from 70 to 650 kHz.

The sensors are designed to be used as part of a complete certified measuring chain. The chain comprises an ATEX certified **IA-2100 amplifier** in the hazardous area connected to an **IF-410 interface unit** and **LD-610 line driver** in the safe area as shown below. The **IA-2100** is both a 34 dB amplifier and a pulser driver. Therefore calibration pulses can be introduced to the test specimen under the control of the monitoring system. It also includes a preset filter which ensures optimum response from each channel by matching the amplifier and sensor responses.

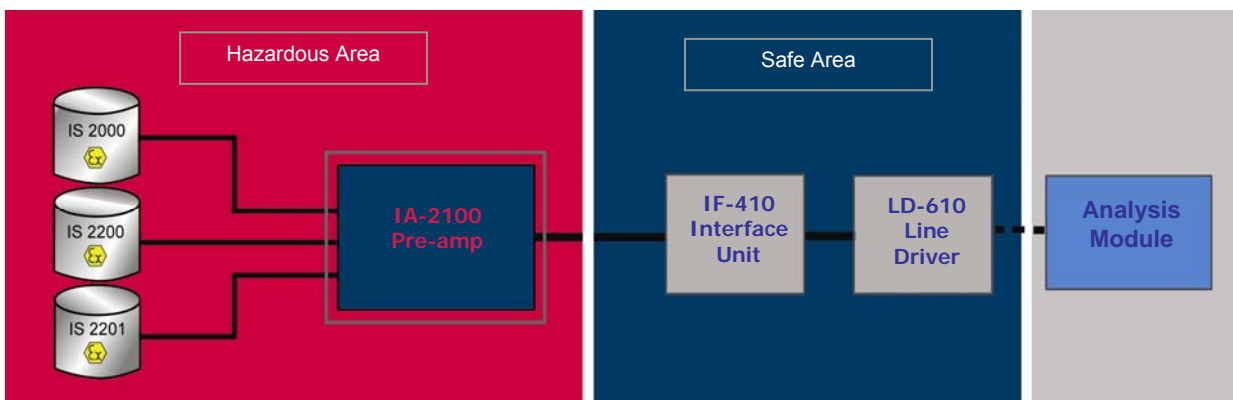
The **IF-410** interface unit provides a power-limited supply to the pre-amplifier and is classified as 'associated electrical apparatus'. The **LD-610** is classified as 'uncertified safe area apparatus' and converts the high impedance output signal from the **IF-410** to a lower impedance output for driving signals up to 500 m to a remote monitoring station. The **IF-410** also provides a gain of 6 dB, giving the system an overall gain of 40 dB.

### SPECIFICATIONS

<b>Sensor Type:</b>	Tuned resonant pzt piezoelectric
<b>Nominal Frequency:</b>	IS-2XXX-70 70 kHz IS-2XXX-190 90 kHz IS-2XXX-450 450 kHz IS-2XXX-650 650 kHz
<b>Temp Range:</b>	See table below
<b>Sealing:</b>	Internally potted
<b>Couplant Shoe:</b>	Ceramic
<b>Couplant:</b>	Silicon rubber/epoxy mounting adhesive or silicon grease
<b>Protection:</b>	Diode/zener diode
<b>Calibration:</b>	Pulser function via <b>IA-2100</b>



Model	ATEX Certification Details
<b>IS-2000</b>	Ex II 1 G EEx ia IIC T6 (-20°C ≤ T <sub>amb</sub> ≤ +80°C) (Baseefa 03 ATEX 0197)
<b>IS-2200</b>	Ex II 1 G EEx ia IIC T6 (-20°C ≤ T <sub>amb</sub> ≤ +115°C) (Baseefa 03 ATEX 0198)
<b>IS-2201</b>	Ex II 1 G EEx ia IIC T6 (-20°C ≤ T <sub>amb</sub> ≤ +190°C) (Baseefa 03 ATEX 0199)
<b>IA-2100</b>	Ex II 1 G EEx ia IIC T6 (-20°C ≤ T <sub>amb</sub> ≤ +70°C) (Baseefa 03 ATEX 0195X)
<b>IF-410</b>	Ex II 1 G EEx ia IIC ( Baseefa 03 ATEX 0194)



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# IS-200 SERIES ATEX Certified Sensors

## INSTRUMENTATION

PRODUCT DATA



IA-2100 Pre-amplifier



IF-410 Interface Unit



LD-610 Line Driver

### PRE-AMPLIFIER – MODEL IA-2100

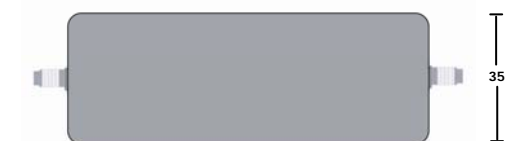
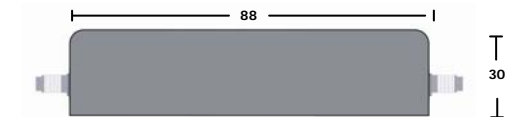
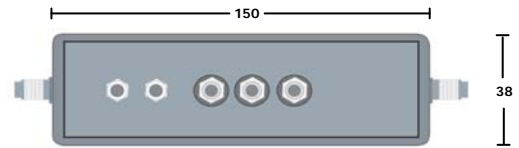
**Type:** Combined Pre-amplifier & Pulser Driver  
**Gain:** 34 dB  
**Input Impedance:** 33 kW/20 pF  
**Output to IF-410:**  $\pm 1.25$  V/ $\mu$ s  
**Pulse Output to Transducer:** 5 V/ $\mu$ s  
**Noise (RTI):** <3  $\mu$ V RMS  
**Sealing:** IP66 (When used with HP100 enclosure)  
**Current Drain:** 8 mA  
**Supply:** 11.5 VDC (From IF410)  
**Protection:** Current limited supply diode protection  
**Dimensions:** 150 x 64 x 35 mm  
**Weight:** 450 g approx

### INTERFACE UNIT – MODEL IF-410

**Gain:** 6 dB  
**Bandwidth:** 50 kHz to 1 MHz  
**Input Impedance:** 50 W  
**Output Impedance:** 1500 W  
**Sealing:** IP20  
**Supply Voltage:** 12 VDC (From LD-600)  
**Supply Current:** 50 mA  
**Dimensions:** 150 x 64 x 38 mm

### LINE DRIVER – MODEL LD-610

**Gain:** 0 dB to -0.3 dB  
**Bandwidth:** 50 kHz to 1 MHz  
**Input Impedance:** 1500 W  
**Output:**  $\pm 2.5$  V into 50 W  
**Sealing:** IP20  
**Supply Voltage:** 28 VDC  
**Supply Current:** 60 mA  
**Dimensions:** 88 x 35 x 30 mm



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