NEW!

Differential Charge Amplifier

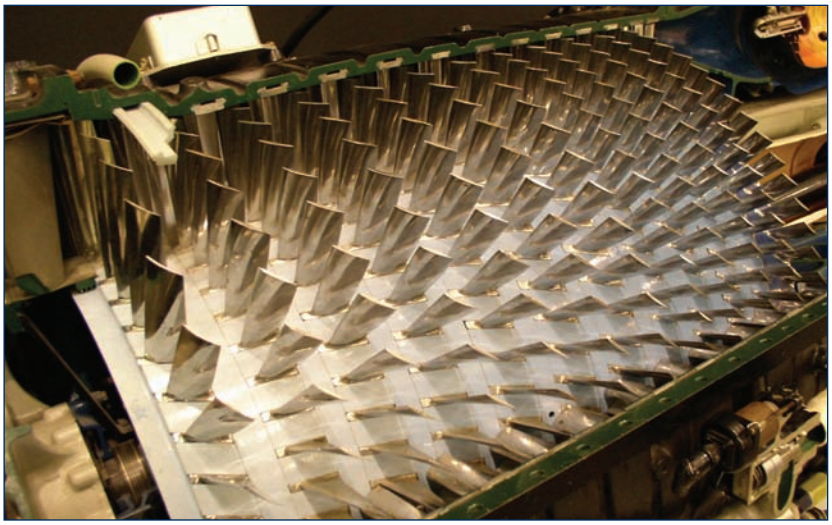
Designed for use with high temperature differential charge pressure and vibration sensors

Highlights

- Convert high impedance output from differential charge sensors to low-impedance voltage or current output
- Voltage output can be scaled in terms of acceleration, pressure or velocity
- Electronics include configurable high-pass and low-pass filters
- Current modulation allows for transmission over very long runs of cable
- For gas compressors, chemical plants, power generation and hazardous processes

Typical Applications

- Gas Turbine Bearing Health Monitoring
- Commissioning of Nuclear Power Plants
- Condition Monitoring of Power Generation Turbines
- Machinery Protection in Extremely High Temperature Environments
- Turbine Health Management
- Structural Damages on Gas Turbines
- Combustion Dynamics Monitoring



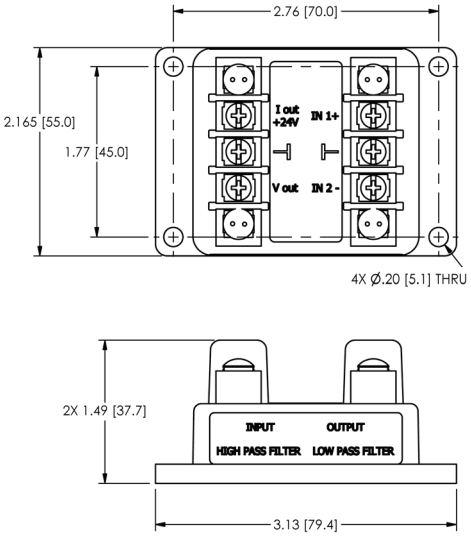
IMI Sensors has developed a new Differential Charge Amplifier Model 421A3X to be used in various gas turbine applications such as bearing health monitoring, condition monitoring, combustion dynamics monitoring and structural damages monitoring in conjunction with high temperature differential charge pressure sensors and vibration sensors. The new model converts the differential charge signal into a current or voltage signal via a high temperature 2-wire or 3-wire transmission cable. (Pre-configured versions have been made specifically for pressure applications [Model 421A30] and vibration applications [Model 421A31]).

Differential Charge Amplifier
Series 421A3X

Differential Charge Amplifier

Technical Specifications

Performance	421A30	421A31	421A3x
Sensitivity (±5%)	20.6 mV/pC	10 mV/pC	Configurable
Input Range	± 242 pC	± 500 pC	Configuration-Dependent
Low Frequency Response (-3 dB)	10 Hz	10 Hz	Configurable
High Frequency Response (-1 dB)	5 kHz	1 kHz	Configurable
Non-Linearity	≤ 1.0 % FS	≤ 1.0 % FS	≤ 1.0 % FS
Environmental			
Temperature Range (Operating)	-22 to +185 °F	-22 to +185 °F	-22 to +185 °F
	-30 to +85 °C	-30 to +85 °C	-30 to +85 °C
Temperature Response	<1 %	<1 %	<1 %
Electrical			
Excitation Voltage	22 to 28 VDC	22 to 28 VDC	22 to 28 VDC
Standing Current	12 ±5 mA	12 ±5 mA	12 ±5 mA
Output Voltage	± 5 Vpk	± 5 Vpk	± 5 Vpk
Output Impedance	<750 Ohm	<750 Ohm	<750 Ohm
Output Bias Voltage	7.5 ±0.2 VDC	7.5 ±0.2 VDC	7.5 ±0.2 VDC
Broadband Electrical Noise (1 to 10,000 Hz)	250 µV	42 µV	Configuration-Dependent
Spectral Noise (1 Hz)	10 µV/√Hz	8 µV/√Hz	Configuration-Dependent
Spectral Noise (10 Hz)	20 µV/√Hz	8 µV/√Hz	Configuration-Dependent
Spectral Noise (100 Hz)	2 µV/√Hz	1 µV/√Hz	Configuration-Dependent
Spectral Noise (1 kHz)	0.5 µV/√Hz	0.2 µV/√Hz	Configuration-Dependent
Spectral Noise (10 kHz)	0.2 µV/√Hz	0.15 µV/√Hz	Configuration-Dependent
Resistance	50,000 Ohm	50,000 Ohm	50,000 Ohm
Source Capacitance Loading	0.0009 %/pF	0.0009 %/pF	0.0009 %/pF
Physical			
Housing Material	Aluminum	Aluminum	Aluminum
Electrical Connection (Input)	Terminal	Terminal	Terminal
Electrical Connection (Output)	Terminal	Terminal	Terminal
Weight	6.5 oz (184 gm)	6.5 oz (184 gm)	6.5 oz (184 gm)



Series 421 Model Matrix

421A3X	XXXX	X	XXXX	X	XX	XXX
Differential Charge Amplifier	**Input Sensitivity**	**Input Units**	**Output Sensitivity**	**Output Units**	**High Pass Filter**	**Low Pass Filter**
	0001-1000 pC/bar	B=bar	0001-0010 mV/mbar	B=mbar	X5=0.5 Hz	002=200 Hz
	0001-0100 pC/psi	P=psi	0001-1000 mV/psi	P=psi	01= 1 Hz	005=500 Hz
	0001-0200 pC/g	G=g's	0010-2000 mV/g	G=g's	02=2 Hz	010=1000 Hz
			0010/0020/0030/0060 mm/s	M=mm/s	05=5 Hz	020=2000 Hz
			0001/0002/0003/0004 ips	I=ips	10= 10 Hz	050=5000 Hz
						100=10000 Hz
						200=20000 Hz

IMI SENSORS
A PCB PIEZOTRONICS DIV.

3425 Walden Avenue, Depew, NY 14043-2495 USA

Toll-Free in the USA 800-959-4464

24-hour SensorLine℠ 716-684-0003

Fax 716-684-3823 ▪ **Email** imi@pcb.com

Website www.imi-sensors.com

ISO 9001 CERTIFIED ▪ A2LA ACCREDITED to ISO 17025

IMI-421A3X-0715 Printed in U.S.A.

Total Customer Satisfaction IMI SENSORS

Platinum Stock Products LIFETIME WARRANTY Delivery Now! Over 10,000 Sensors In-Stock, Ready to Ship

Product Finder Shop Online Now!

IMI Sensors designs and manufactures a full line of accelerometers, sensors, vibration switches, vibration transmitters, cables and accessories for predictive maintenance, continuous vibration monitoring, and machinery equipment protection. Products include rugged industrial ICP® accelerometers, 4-20 mA industrial vibration sensors and transmitters for 24/7 monitoring, electronic and mechanical vibration switches, the patented Bearing Fault Detector, high temperature accelerometers to +1300 °F (+704 °C), 2-wire Smart Vibration Switch, and the patented Reciprocating Machinery Protector. CE approved and intrinsically safe versions are available for most products.

Visit **www.imi-sensors.com** to locate your nearest sales office