

# DSA-6

Digital Strain Gage Amplifier



## DESCRIPTION

AMTI's DSA-6 amplifier is a six channel high speed and high accuracy signal conditioning and data acquisition front-end for strain gage bridge instrumentation. It is perfectly matched for use with AMTI's force platforms and transducers. The DigiAmp was developed and built to be flexible, reliable, and easy to use.

The DigiAmp provides:

- Strain gage amplification
- Bridge excitation
- Data acquisition (A/D conversion)
- Anti-aliasing filters
- Software adjustable digital filters

## Stability, Accuracy & Repeatability

The DigiAmp's exacting hardware and firmware design provides the highest stability, lowest noise strain gage signal conditioning platform today.

Built in quality features include:

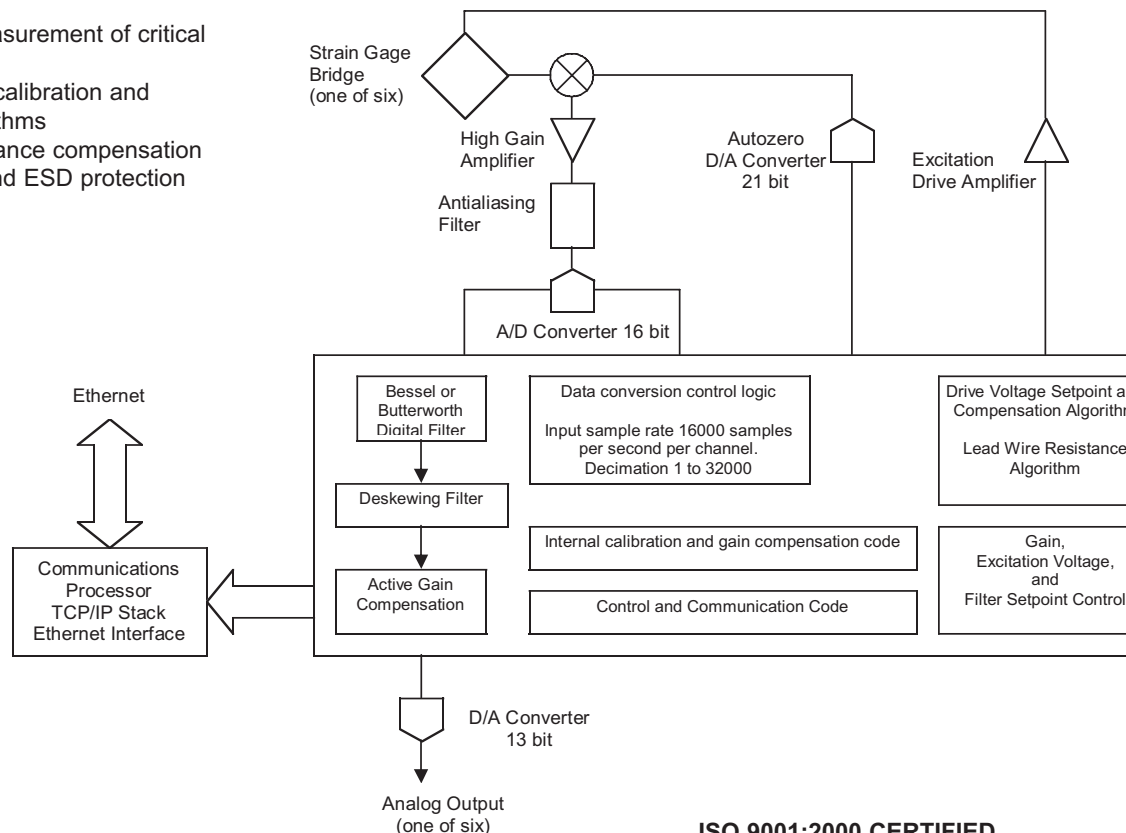
- Matched resistor packs on ceramic substrate for thermal and humidity stability
- Active front-end components with lowest possible theoretical noise floor
- Internal EMI cage and ground plane separation
- High stability, high linearity 16 bit A/D conversion
- Internal self measurement of critical parameters
- Compensation, calibration and correction algorithms
- Lead wire resistance compensation
- Four KV front-end ESD protection

## Operating Flexibility & Ease of Use

The DigiAmp is designed for a smooth transition from analog signal conditioning to digital instrumentation. The DigiAmp provides both analog and ethernet outputs allowing you to interface with existing analog data acquisition systems while planning for a future transition to digital data acquisition and signal conditioning.

Some of DigiAmp's many user interface features include:

- Ethernet output for simple connection to a PC or laptop
- Software coordinated setup and control via ethernet interface
- Cascade up to 6 amplifiers on a single ethernet line
- Analog outputs
- Stand alone key pad and LCD interface for Analog applications
- Software adjustable gains
- Software adjustable bridge excitation
- Software selectable low-pass Bessel or Butterworth filters
- Software selectable filter frequencies.
- Software auto-zero
- Software internal calibration



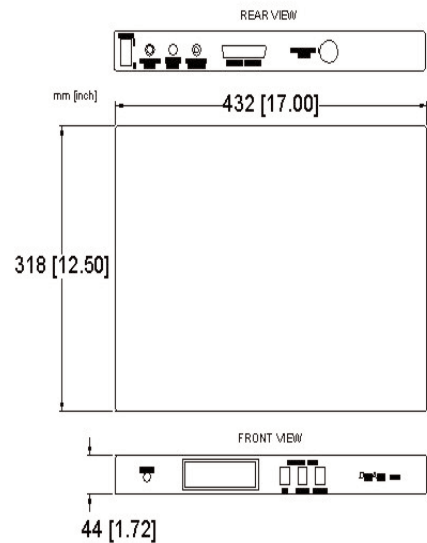
Item	Specification	Comment/Condition
<b>User Interface</b>		
Bridge Balance	Software or manual	Key pad LCD interface
Gain Adjust	Software or manual	Key pad LCD interface
Excitation Adjust	Software or manual	Key pad LCD interface
Filter Adjust	Software or manual	Key pad LCD interface
Internal Calibration	Software or manual	Key pad LCD interface
<b>Input Channels</b>		
Channels	6	
Input Type	Strain gage	120 to 1400 ohm bridge
Input Protection	4000 volt ESD protection	
<b>Analog Outputs</b>		
Channels	6	13 bit
Voltage Range	±10 Volts	
Load Impedance	>10 K ohm	
<b>Digital Output</b>	Ethernet	16 bit
<b>A/D Conversion</b>		
Resolution	16 bit	1 lsb linearity
Maximum Data Rate	16000	6 channel datasets per second
<b>Analog Gains</b>	1000, 2000, 4000, 8000	0.02% linearity
<b>Excitation Voltage</b>	0 -10 Volts	1/16th Volt steps
<b>Anti Aliasing Filters</b>	1600 Hz	
<b>Digital Filters</b>		
Frequency	10,20, 30, 50, 100, 200, 300, 500, 1000 Hz	
Type	Butterworth or Bessel	
<b>Synchronization</b>		
Modes	Triggered, genlock, free run	
Input Type	Opto isolated RCA jack	TTL level compatible
<b>Power Supply</b>	Desk top	100-240 VAC; 50-60 Hz
<b>Physical Dimensions</b>	1.75"H x 17.0"W x 12.5"L	Rack Mountable
<b>Weight</b>	13 lb	
<b>Ethernet Interface</b>		
Type	10 Mbs Ethernet	
Protocol	UDP Protocol	
Cable	Thinnet (RG-58)	BNC Connector
Max Length	500 ft	
throughput	up to 96000 sets/sec	PC may limit

### Rear Panel Features:

- Transducer input
- Analog output
- Ethernet output
- DIN power connector
- Power switch
- External Trigger port

### Front Panel Features:

- LCD controls
- Keypad
- Power-on indicator



ISO 9001:2000 CERTIFIED



**ADVANCED MECHANICAL TECHNOLOGY, INC.**  
 176 WALTHAM STREET WATERTOWN, MA 02472-4800  
 TEL: (617) 926-6700 • (800) 422-AMTI • FAX: (617) 926-5045  
 email: sales@amtmail.com • web: www.amti.biz

### I/O CONNECTOR SPECIFICATIONS

- Amplifier input connector: Souriau 851-02E16-26S50-44
- Mating connector: Souriau 851-06JC16-26P50-44
- Analog output connector: Cinch DB25S or equivalent
- Mating connector: Cinch DB25P or equivalent
- Digital output connector: BNC