

INTERTECHNOLOGY INC.

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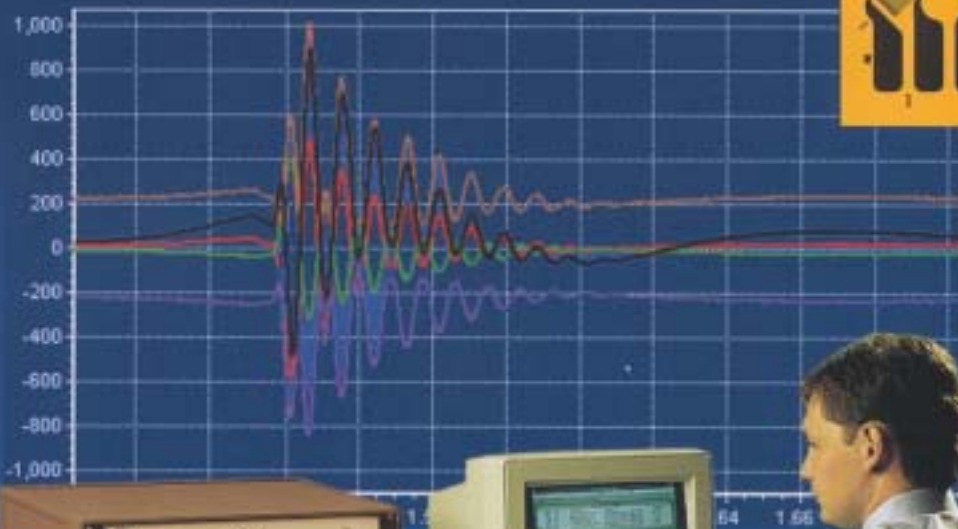
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Strain Gauge Instrumentation SELECTION GUIDE



The Instruments Division of Measurements Group, Inc. offers a wide selection of reliable, precision strain gauge instrumentation for stress-analysis, structural and materials testing.

This Selection Guide will introduce you to our instruments and assist you in selecting those most appropriate for your measurement needs.

Considerations for Instrument Selection

For Static Signals



Basic instrumentation requirements call for stability, accuracy and high resolution when making measurements under static loading conditions and particularly where measurements are to be taken over long periods of time.

If test conditions involve predominantly constant measurement signals, the first choice for a measuring instrument will ideally incorporate a digital or analog display and, depending on the degree of sophistication, output to a printer, microprocessor or computer. Multi-channel capability can be provided by manual or automatic switching/multiplexing units, which may include balance and/or span control facilities.

Many strain indicators have an analog output available for making single-channel measurements in conjunction with, for example, an oscilloscope, recorder, peak-read indicator or analog-to-digital converter. However, this capability may have limitations with respect to frequency response and amplifier gain compared to an instrument designed specifically for high speed measurements.

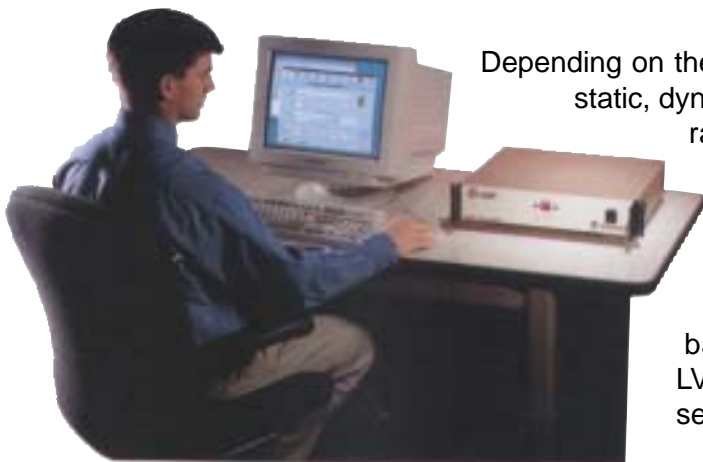
For Dynamic Signals

When signals are produced by dynamically applied loads of frequencies above 0.1 Hz, or are transients, measuring instrumentation requires adequate frequency response and a wide amplifier gain range for output to the appropriate recording or display device. Such an instrument consists of an amplifier and signal conditioner with built-in or shared power supply. Individual units are normally required for each channel when simultaneous recording or multiple channels are needed. With the output sent to a suitable display device, signal conditioning amplifiers can be used for making long-term measurements under static loading conditions, when maximum stability and accuracy are not primary considerations.



The 2100, 2200 and 2300 Systems accept low-level signals and condition and amplify them into high-level outputs suitable for multiple-channel, simultaneous, dynamic recording. All of these systems can be used in conjunction with a variety of recording devices.

Digital Data Systems



Depending on their design, digital data systems can be used for measurement of static, dynamic or both kinds of signals. System 6000, with higher sampling rates and digital filters, is suitable for signals of up to 4 kHz.

System 5000, with a 5 Hz low-pass analog filter and lower sampling rates, can be used for static or quasistatic signals.

System 5000 and System 6000, the StrainSmart Data Systems, accept inputs not only from strain gauges but also strain-gauge-based transducers, other transducers with high-level signals, LVDT's, thermocouples and (for System 6000 only) piezoelectric sensors.

Instrument Selection Guide

Strain Indicators

INSTRUMENT	DISPLAY	OPERATION	BRIDGE EXCITATION	INPUT POWER	MULTI-CHANNEL	REMARKS	DETAILS
P-3500	Digital	Manual, Direct-Reading	2.0 Vdc	Battery (AC Optional)	Manual (1)	Portable 0.05% Accuracy	Bulletin 245
3800	Digital	Manual, Direct-Reading	DC Step Selectable 1.0-15.0 V	AC	Manual (1)	Wide-Range, High-Precision Laboratory Strain Indicator	Bulletin 249

(1) Switch and balance units are used to sequentially read the outputs of two or more gauge inputs on a single indicator.

Signal Conditioning Amplifiers

INSTRUMENT	FREQUENCY RESPONSE (2)	OUTPUT (+/-)	AMPLIFIER GAIN	BRIDGE EXCITATION	INPUT POWER	REMARKS	DETAILS
2100	DC 17 kHz, -0.5 dB DC 50 kHz, -3 dB	10V at 100 mA	Continuously Variable 1-2,100	DC 0.5-12V	AC or Battery	General-Purpose Signal Conditioner	Bulletin 250
2200	DC 50 kHz, -0.5 dB DC 100 kHz, -3 dB	10V at 10 mA and 1 Vrms at 10 mA	Continuously Variable 1-3,300	DC: 0.5-15V or 0.5-15 mA	AC	High Performance for Demanding Environments	Bulletin 252
2300 (2310)	DC 25 kHz, -0.5 dB DC 65 kHz, -3 dB	10V or 100 mA	Continuously Variable 1-11,000	DC 0.5-15V	AC	Multi-Feature Signal Conditioner	Bulletin 251
2300 (2311)	DC 50 kHz, -0.5 dB DC 125 kHz, -3 dB	10V or 100 mA	Continuously Variable 1-11,000	DC: 0.5-15V 0.3-6V Variable	AC	High Frequency Response Multi-Feature Signal Conditioner	Bulletin 251

(2) Typical - see specific product bulletin and/or instruction manual for detailed performance specifications.

Digital Data Systems

INSTRUMENT	OPERATING MODE (3)	CHANNELS	SCANNING RATE	BRIDGE EXCITATION (4)	INPUT POWER	REMARKS	DETAILS
5000 (5100)	Stationary Online	5 - 1,200 (in sets of 5)	1 - 50 Samples/Sec/Channel	0 - 10 Vdc Programmable	AC	5-Hz Low-Pass Filter	Bulletin 257
6000 (6100)	Stationary Online	1 - 1,200	10 - 10,000 Samples/Sec/Channel	0 - 10 Vdc Programmable	AC	Programmable Digital Filters to 4 kHz	Bulletin 257
6000 (6200)	Remote Stand-alone	1 - 1,200	10 - 10,000 Samples/Sec/Channel	0 - 10 Vdc Programmable	DC (AC Optional)	Programmable Digital Filters to 4 kHz	Bulletin 257

(3) All systems can be operated with StrainSmart software for data acquisition, storage, reduction and presentation, or with other third-party software.

(4) Strain gauge cards only.

Considerations for instrument selection are provided on the facing page for all general-purpose instrumentation and data systems produced by the Measurements Group. Additionally, our Applications Engineering staff is always available to assist you in selecting the right instrument for your specific applications.