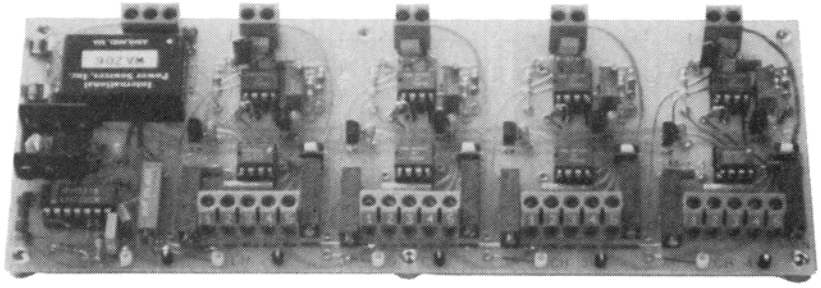
TM-1-4

WIDE-BAND 4 Channel DC POWERED AMPLIFIER / CONDITIONER

The TM-1-4 is a spin-off from the TM-1 Amplifier/Conditioner module. Product research dictates the requirement for more capacity and higher frequency response. With the introduction of Burr-Brown's new INA-118 instrument amplifier chip, the aforementioned can be accomplished at an affordable price. It is anticipated that the TM-1-4 will have wide application in industries such as: process control, automotive testing and structural testing. Combined with our BC-4 Bridge Completion Unit, it is a very cost effective approach to stain gage instrumentation.



MADE IN USA

FEATURES

- 12 VDC powered
- Precision Controls
- Excellent Stability
- R-Cal resistor and push button per channel
- Adjustable Excitation
- DC to 7 K Hz band-width
- Test jacks
- Low per channel cost

SPECIFICATIONS

AMPLIFIER SECTION

Type	Bipolar, Differential
Gain Range	100 to 1200 or 10 to 120
Input Sensitivity	1 MV/V min for 8 V output
Output Voltage	0 to ± 8 VDC (linear to 9.5)
Output Current	0 to 10 MA
Non-Linearity	.01% maximum
Compliance	.1% plus vs minus full scale
Stability	± .1% for 24 hours
Tempco	±.01% full scale/ °C
Noise and Ripple	Less than 10 MV P-P at gain = 1000
Filter Type	2 Pole Butterworth, 12 db/octave
Frequency Response	DC to 7 K Hz (4-5000 Hz available, no charge)

BRIDGE SECTION

Excitation Voltage	2 - 8 VDC ± .25
Sensor Resistance	120 OHM min, 1000 OHM max
Balance Range	± 3% of bridge resistance

GENERAL

Weight	Less than 6 oz.
Size	3 x 8 x .8 inches tall
Mounting	Corner standoffs, 4-40 thread
Input/Output	Via screw terminals
Operating Temp	0 to 70° C
Power Required	12 to 15 VDC at 370 MA

OPTIONS

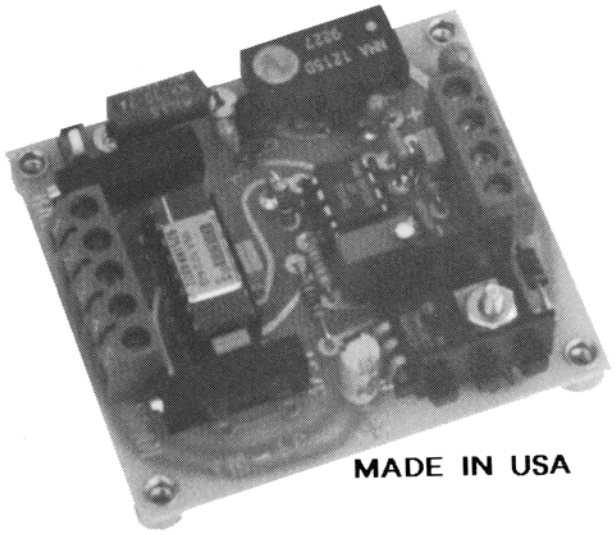
-15	Change in excitation section allows 2 to 12 VDC bridge excitation when operating system from 15 VDC
-F	Specifies a filter lower than standard cut-off frequency

12 VDC POWERED AMPLIFIER / CONDITIONER MODULE

The TM-1 Module provides low cost dedicated conditioning for one bridge type load or pressure sensor. The unit can be placed near the sensor for high level signal transmission. Several units can be powered from a common power supply. Balance and span pots are low Tempco metal film for long-term stability and good resolution. The TM-1 is ideal for imbedding in your system to support load sensors of pressure transducers.

FEATURES

- Modest cost
- Single 12 VDC power
- R-Cal resistor included
- Push button Cal
- Precision Bal/Span trimmers
- High level output
- Excellent stability
- Wide band option



SPECIFICATIONS

AMPLIFIER SECTION

Type	Bipolar, Differential
Gain Range	75 to 1000
Input Sensitivity	1 MV/V min for 8 V output
Output Voltage	0 to ± 8 VDC (linear to 9.5)
Output Current	0 to 10 MA
Non-Linearity	.01% maximum
Compliance	.1% plus vs minus full scale
Stability	± for 24 hours
Tempco	±.01% full scale/ °C
Noise and Ripple	Less than 5 MV P-P at gain = 1000
Filter Type	2 Pole Butterworth, 12 db/octave
Frequency Response	DC to 22 Hz (4-500 Hz available, no charge)

BRIDGE SECTION

Excitation Voltage	8 VDC ± .25
Sensor Resistance	120 OHM min, 1000 OHM max
Balance Range	± 3% of bridge resistance

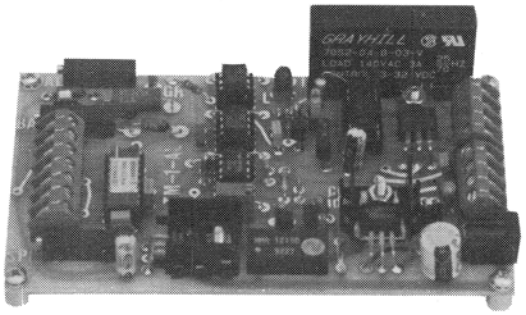
GENERAL

Weight	Approx, 2 oz.
Size	2.25 x 2.5 x .8 inches tall
Mounting	Corner standoffs, 4-40 thread
Input/Output	Via screw terminals
Operating Temp	0 to 70° C
Power Required	12 VDC ± .5 at 65 MA

OPTION -H : DC to 5000 Hz band-width

ALARM VERSION
AMPLIFIER / CONDITIONER MODULE

The TM-1-AL combines all of the features of the TM-1 Module with a variety of alarm interfaces. Alarm level is set via a trimmer and test points. Alarm action is selected for above set point or below set point. alarm can typically be tested with R-Cal and verified with the on-board lamp. Alarm output can be via AC relay, DC relay or both. Power may be supplied by user (12 VDC) or provided from an optional wall mount unit.



MADE IN USA

FEATURES

- External wall mount power supply available
- Alarm relay outputs
- Adjustable alarm lever
- On-board status LED lamp
- Precision controls

SPECIFICATIONS

AMPLIFIER SECTION

Type	Bipolar, Differential
Gain Range	75 to 1000
Input Sensitivity	1 MV/V min for 8 V output
Output Voltage	0 to ± 8 VDC (linear to 9.5)
Output Current	0 to 10 MA
Non-Linearity	.01% maximum
Compliance	.1% plus vs minus full scale
Stability	± for 24 hours
Tempco	±.01% full scale/ °C
Noise and Ripple	Less than 5 MV P-P at gain = 1000
Filter Type	2 Pole Butterworth, 12 db/octave
Frequency Response	DC to 22 Hz (4-500 Hz available, no charge)

BRIDGE SECTION

Excitation Voltage	8 VDC ± .25
Sensor Resistance	120 OHM min, 1 K OHM max
Balance Range	± 3% of bridge resistance

ALARM SECTION

Selection	On High / On Low
Adjustment Range	0 -100% of output
DC Response	1 millisecond
AC Response	16 milliseconds, max.
DC Rating	50 VDC @ 100 MA
AC Rating	140 VAC @ AMPS

GENERAL

Weight	Less than 6 oz.
Size	3.0 x 5.0 x 1.4 inches tall
Mounting	Corner standoffs, 4-40 thread
Input/Output	Via screw terminals
Operating Temp	0 to 70° C
Power Required	12 VDC ± .5 at 65 MA or -PS power option

OPTION -PS : Wall mounted power supply adequate for one module

TM-2

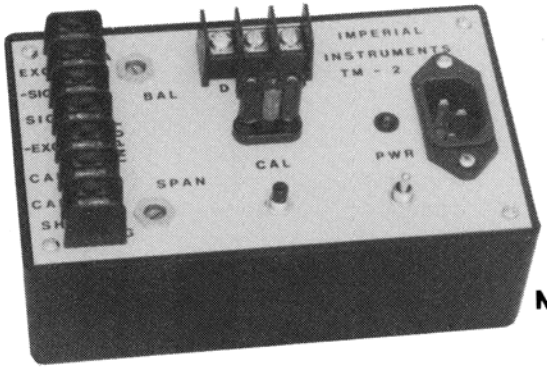
BENCH TOP AMPLIFIER / CONDITIONER MODULE

The TM-2 Transducer Module is a complete differential amplifier/signal conditioner with self contained power. The unit provides excitation, balance and span adjust via precision 10 turn pots, and shunt calibration necessary to couple a user supplied bridge type transducer to an indicating instrument. Full scale output is specified at 10 volts. The TM-2 provides a floating shunt calibration circuit which applies calibration at the transducer, thereby eliminating errors due to line losses. The excitation supply incorporates a Wagner Ground to greatly improve Common-Mode-Rejection. Power cord, R-Cal resistor and holder also included.

The primary application of the TM-2 Module will be instrumentation support for testing and process control, as a dedicated component or as part of a bench top breadboard. The factory set band-width of the module is narrow to improve stability for applications such as weighing scales.

FEATURES

- Self contained
- Precision controls
- High level output
- Modest cost
- Wide-band option



MADE IN USA

SPECIFICATIONS

SIGNAL CONDITIONER

Type	Full External Bridge
Bridge Resistance	120 to 1000 OHM
Balance Range	3% of bridge resistance
Shunt Calibration	Single point momentary
Calibration Value	1 MV/V resistor provided

BRIDGE AMPLIFIER

Type	Bipolar, Differential
Gain Range	67 to 737
Input Sensitivity	1 MV/V to 10 MV/V
Input Impedance	10 Megohm minimum
Output Voltage	0 to ± 10 volts
Output Current	0 to ± 10 MA
Output Impedance	75 OHM
CMR	110 db minimum, DC-60 Hz
Noise and Ripple	Less than 3 MVP-P
Non-Linearity	.01% maximum
Compliance	.15% plus vs minus F.S.

FILTER

Type	Low pass, 12 db/octave
Frequency Response	13 Hz standard, 4-500 Hz available

EXCITATION SUPPLY

Type	Constant voltage
Output	8 VDC ± .25%
Output Current	1 to 120 MA
Current Limit	Factory set at 65 MA
Load Regulation	.1% max for 100% load change

GENERAL

Balance Stability	± .1% for 8 hours
Gain Stability	± .01% for 8 hours
Tempco	± .02% full scale/ ° C
Operating Temp	0 to 50° C
Size	3 x 3.75 x 6.25 inches
Weight	Less than 2 lbs. approx.
Fuse	¼ AMP, slow blow, internal
Power	115 VAC ± 10%, 50-400 Hz, 3 watts

OPTIONS

-H	DC-5000 Hz or DC-10,000 Hz band-width
-A	Current Loop Output