

ARD154

Wheatstone bridge amplifier

SPECIFICATIONS

- DIN Rail Amplifier
- 350 Ω to 10000 Ω full Wheatstone bridges
- ± 10 V Analogue or 0/4-20 mA Current Output
- 24 Vdc Isolated Power Supply
- 2 kHz or 20 kHz max. Bandwidth

TE Connectivity (TE) offers comprehensive measurement solutions including electronic signal conditioning and display units.

The **ARD154** is a DIN rail mountable amplifier, which adapts to most strain gage-based load cells, pressure transducers and accelerometers. The bridge supply voltage can be set to 5V or 10V ± 10 V analogue output signals or 0/4-20mA current outputs. It covers sensitivity range from 0.1mV/V to 30mV/V. It also allows connecting four 350 Ω sensors in parallel with 5Vdc excitation.

Through its modular design, the **ARD154** adapts to many different applications. Basic settings with onboard jumpers includes:

Bridge supply voltage

Bandwidth

Signal output for voltage or current

Zero and Gain adjusting is facilitated by trimmers on the front panel.

Other Rail DIN electronics are available such as **LDM 1000** for LVDT linear or RVDT rotary sensors.

FEATURES

- Suited for 1 to 4 Strain Gage Sensors in parallel
- 120 to 10000 Ω Bridge Impedance
- 10 V or 5 V Bridge Excitation – 4 or 6 wires
- Adjustable Sensitivity Range 0.1 to 30 mV/V
- Calibration Pushbutton from 0.1 to 10 mV/V
- Zero and Gain Fine Tuning by Trimmers
- 0.01% F.S. Accuracy.
- 12 Vdc ± 10 % Isolated Power Supply on request

APPLICATIONS

- Monitoring devices
- Weighing
- Robotic and effectors
- Laboratory and Research

CARACTERISTIQUES (valeurs typiques à température 23°C)

General Characteristics

| | |
|---------------------------|---------------------------------------|
| Dimensions (H x L x D) | 99 x 17.5 x 112 mm [4 x .69 x 4.4 in] |
| DIN rail mountable module | European format 35mm large |
| Operating Temperature | -10 ° C to 60° C [14 to 140° F] |
| Storage Temperature | -40 ° C to 70 ° C [-40 to 158° F] |
| Screw Connector Blocs | 4 x 3 terminals |
| Weight | 110 grams [.25lb] |

Electrical Characteristics

| | |
|------------------------|--|
| Power Supply | 24 Vdc (18-36 Vdc) or optional 12 Vdc (9-18 Vdc) |
| | Consumption 100 mA max. |
| Power Supply Isolation | 1000 Vdc max. 1 min between 0 V and GND output |
| | 400 V peak 0V input/ ground or GND output/ground |

Sensory Input

| | |
|----------------------------|--|
| Sensor type | Full bridge, strain gauge-based, 4 or 6 wires. Bridge 350 to 10000Ω (120Ω on request) Max current 60 mA |
| Bridge Impedance | $120 \Omega < Z < 10000 \Omega$ (for 120 Ω, bridge excitation 5 V max.) |
| Bridge Supply Voltage | 10 Vdc or 5 Vdc (for 120 Ω select 5 V) I maxi 60 mA |
| Sensor Cable Rejection | $2.10^{-5} / \Omega$ |
| Input Sensitivity | 5 ranges from 0.1 mV/V to 30 mV/V |
| Fixed Zero Offset | 4 ranges from ±50% to ±100% F.S. |
| Adjustable Zero Offset | ± 50% F.S. |
| Calibration Levels | 0.1 to 10 mV/V |
| Calibration Level Accuracy | 0.01% F.S. for range 1 to 3 mV/V, 0.1% other ranges |

Analogue Output

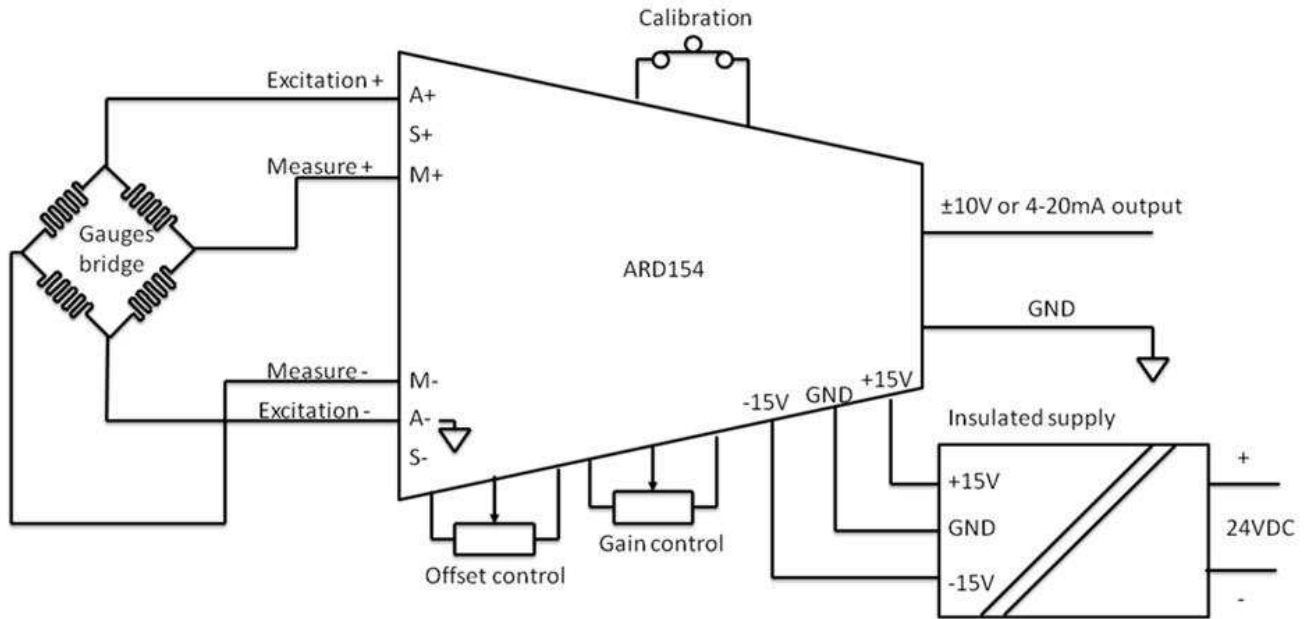
| | |
|--------------------------------------|--|
| Voltage Output | ±10 V max. |
| Output Current | 5 mA max. |
| Output Impedance | 0.2 Ω max. |
| Current Output | 4-20 mA or 0-20 mA |
| Dynamic of the Current Output | 0-10 V (Load Resistance 500 Ω at 20 mA) |
| Linearity | 0.01% F.S. |
| Maximum Drift at the Input | $< 1 \mu V / ^\circ C$ |
| Maximum Noise at the Input | $< 3 \mu V$ RMS/2 kHz, $10 \mu V$ RMS/20 kHz (typical) |
| Common Mode Rejection | 100 dB |
| Rejection of Power Supply Variations | 120 dB |
| Bandwidth | 2 kHz or 20 kHz at -3 dB (15 kHz max. for range 0.1mV/V) |

Example: four 350Ω bridges in parallel have a total of $4 \times 14,3 \text{mA} = 57,2 \text{mA}$ consumption under 5Vdc which is the limit (10Vdc power supply cannot be used)

ARD154

Amplificateur Rail DIN de pont de Wheatstone

WIRING SCHEMATIC



ORDERING INFORMATION

| Description | Part Number |
|------------------|---------------|
| ARD 154 18-36VCC | NEMEME001 |
| ARD 154 12VCC | EARD-X-C00002 |

NORTH AMERICA

Measurement Specialties, Inc.,
a TE Connectivity Company
Phone: +1 800 522 6752
Email: customercare.hmpt@te.com

EUROPE

Measurement Specialties (Europe), Ltd.
a TE Connectivity Company
Phone: +31 73 624 6999
Email: customercare.lcsb@te.com

ASIA

Measurement Specialties (China), Ltd.,
a TE Connectivity Company
Phone +86 400 820 6015
Email: customercare.shzn@te.com

TE.com/sensorsolutions

Measurement Specialties, Inc., a TE Connectivity company.

Measurement Specialties, TE Connectivity, TE Connectivity (logo) and EVERY CONNECTION COUNTS are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2015 TE Connectivity Ltd. family of companies All Rights Reserved.