A2A-D2

Load Cell Amplifier

Product Manual (V1810B)

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1. Introduction

Thank you for choosing Anyload A2A-D2 load cell amplifier. A2A strain gage amplifier provides load cell and transducer signal conditioning. It is designed for converting mV signal from load cell output into a 4~20mA or 0±10V signal. The A2A strain gage amplifier is a DC powered and can drive up to 4 x 350Ω load cells or 8 X 700Ω load cells or 8 X 350Ω load cells or . It can be connected directly to 1 or 2 load cells or to more than 2 load cells through a junction box. The amplifier is equipped with individual adjustable resistors and has a wide input signal of 0±36mV and output signal of 0±10V or 2 to 20mA. The manual here provides the installation, operation and calibration procedures of the product.

2. Installation

Preinstalled GORE breather vent with capacitive stainless steel screws:

Only simple tools like small size slotted screw driver and Philips screwdriver are required for connecting cables during installation, adjusting the unit during calibration and installation of enclosure cover.

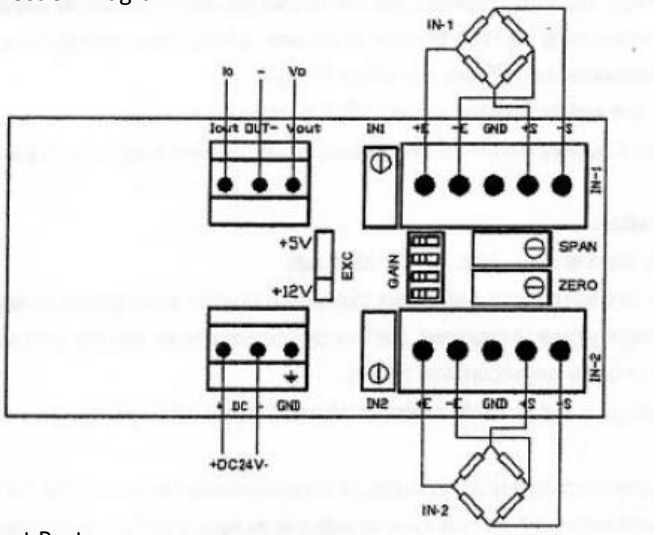
3. Specifications

Model		**A2A-D2**
Max Power	W	4.35
Power Supply	V	24
Input Range	mV	0±36
Output Signal	mA	4-20
	V	0±10
Working Temperature	°C (°F)	-10 …. +50(14 …. 122)
Max Input Offset voltage	μV	50
Min. Common Mode Ratio (G=10)	dB	100
Enclosure Material		Aluminum

4. Connection and Switch Diagrams

4.1 Connection Diagram

Red: E+
Black: E-
Green: S+
White: S-



4.2 Output Port

Refer to the diagram above, the left terminal (Io) is for the positive terminal for current output while the right terminal (Vo) is for the positive terminal for voltage output. The middle terminal (-) is the common ground for both current and voltage outputs.

Only the voltage terminals output can give complimentary voltage output (±10V)

4.3 Excitation voltage

Through the slide switch EXC, the A2A-D2 can provide either 12VDC or 5VDC excitation voltage to the load cell.

4.4 Gain

The A2A-D2 amplifier can be applied to any load cells with its specified sensitivity. It can support 4 ranges of Gain. User can select suitable gain that matches to the load cell's sensitivity, excitation voltage and output signal by configuring the excitation slide switch (EXC), the 4-bit DIP switch, and the SPAN potentiometer. Refer to Tables below for the DIP switch and Gain range selection.

Table 4.4.1 Suggested A2A-D2 Settings

Output Signal Excitation	Sensitivity Range (mV/V)	Voltage (V)	Gain Switch Number
0-10V (0±10V)	1.30-4.20	5	4
	1.35-2.60	12	1
	2.68-3.90		2
	0.54-1.89		4
4-20mA	1.51-2.91	5	1
	2.96-4.31		2
	0.61-2.02		4
	0.66-1.26	12	1
	1.30-1.89		2
	1.67-2.25		3
0-5V (0±5V)	1.56-3.02	5	1
	3.09-4.54		2
	0.64-2.13		4
	0.68-1.32	12	1
	1.35-1.97		2
	1.74-2.36		3

Note: When applicable, it is recommended to choose 12V excitation and configure Gain switches either 2, 3 or 4

Table 4.4.2 Gain Switch Settings

4-bit DIP Switch	No. of DIP Switch	Gain Range
GAIN	1	217-753
	2	153-303
	3	103-153
	4	86-118

Note: If the Gain setting is not achieved during calibration, change the Gain switch settings as shown in Table 4.4.2 and recalibrate.

5. Operations

A2A-D2 calibration has steps of Gain selection namely Zero calibration and Span calibration.

5.1 Gain Selection

1. Connect the load cell. Set the slide switch EXC and select load cell excitation voltage
2. Based on the excitation voltage chosen and the load cell's sensitivity (refer to load cell's documentation and refer to Table 4.4.1), set the recommended Gain Switch to select Gain range

5.2 Zero Calibration

1. Remove weights from load cell or scale like hooks, plate, tare, etc
2. If current signal output is desired, set the output current to 4.00mA by djusting the potentiometer ZERO

   If voltage signal output is desired, set the output voltage to 10.00V by adjusting the potentiometer ZERO

Note1: When adjusting the potentiometer to set zero, slightly rotate clockwise or counter clockwise the potentiometer's screw. For higher accuracy output, it is recommended to set zero to 4.00mA or 10.00V

Note2: The tare weight shall not exceed 20% full scale capacity of scale or load cell

Note3: When it gives output a complimentary signal (negative voltage), remove the load first then do zero calibration.

5.3 Span Calibration

1. Apply load up to the max capacity of the load cell or scale (max load can be at least 80% of the max capacity of load cell or scale)
2. If current signal output is desired, set the output current to 20.00mA by adjusting the potentiometer SPAN

   If voltage signal output is desired, set the output voltage to 10.00V (-10.00v) or 5.00V (-5.00V) by adjusting the potentiometer SPAN

If the gain range is not suitable after the above 2 steps, change the Gain range (4-bit DIP switch) and recalibrate

Note1: For higher accuracy of SPAN output, it is recommended to repeat steps in Zero Calibration and then Span calibration (steps 5.2 & 5.3) multiple times until you reach your desired output

Note2: Potentiometers IN1 & IN2 shall be adjusted if the amplifier is applied of having multiple input load cells or scales. When multiple load cells are connected, the maximum difference in sensitivity between each load cell shall not exceed 3%.

6. Maintenance

1) To ensure long term usage with accurate and stable output, please use reliable power supply
2) Do not adjust the SPAN potentiometer (of calibrated amplifier) by inexperienced personnel
3) The amplifier can only support up to 8 load cells with 350 Ohms each or combination of multiple load cells with equivalent power consumption for 8x350 Ohms load cells

7. Warnings & Precautions

1) To avoid damaging the interface, finish the wiring first then connect the 24VDC supply
2) For safety purposes, supply the 24VDC power by connecting the positive power terminal first, then the negative power terminal (common)

8. Illustrations

Marks in this manual are defined below:

Mark	Definition	Mark	Definition
+DC24V	Positive 24V DC power	DC24V-	Negative 24V DC power
GND	Ground	EXC	Switch of excitation
ZERO	Zero potentiometer	SPAN	Span potentiometer
Io	Positive current output	-	Common positive
Vo	Positive voltage output	GAIN	Gain selection
IN-1	Load cell 1 connection	IN-2	Load cell 2 connection
+E	Positive excitation	-E	Negative excitation
+S	Positive signal output	-S	Negative signal output
IN1	Potentiometer for load cell 1	IN2	Potentiometer for load cell 2