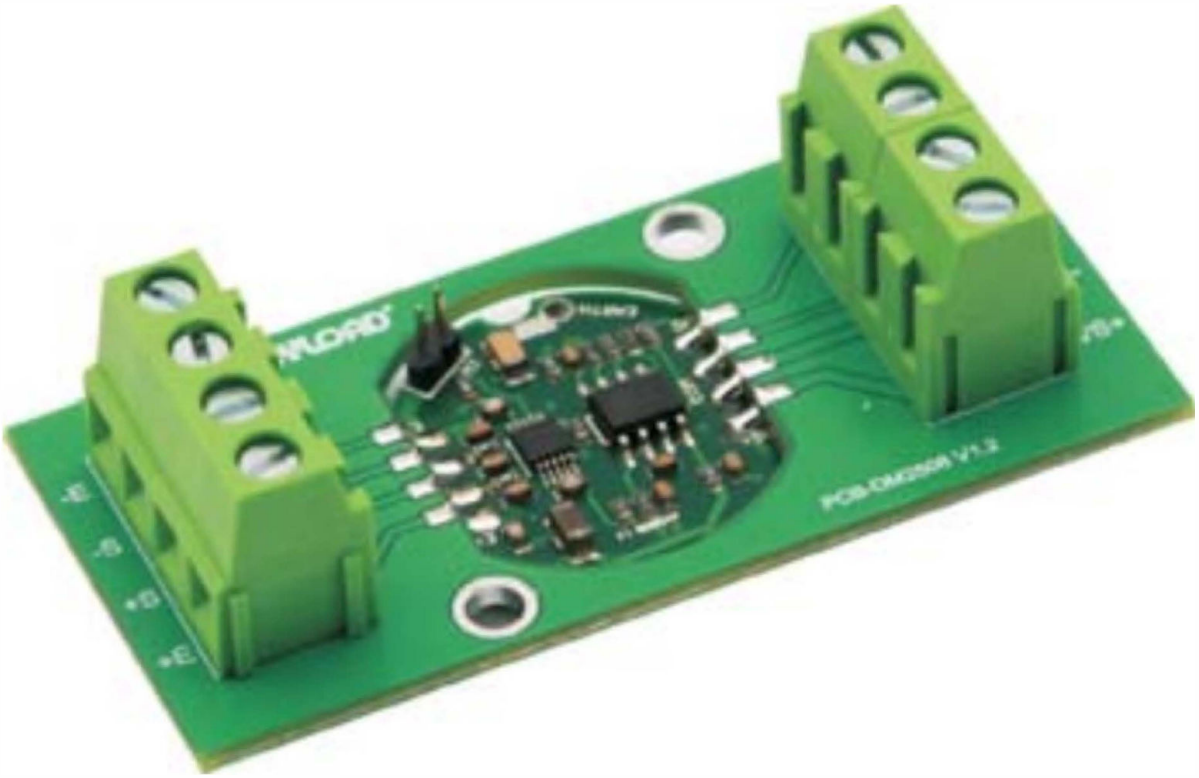
ANYLOAD®

DGB-AI2508x
DGB-AV2508x



1-855-269-5623
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TECHNICAL MANUAL

V1.0.0

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Revision History:

Record with brief description of all revisions made to product or manual

Version	Date	Description
1.0.0	June 6th, 2025	First public release version.

The most current version of this document, along with any software, firmware, and other product updates, can be found on our website:

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1. Introduction

This manual provides information on installation, configuration, calibration and servicing of the DGB-AI2508x/AV2508x Load Cell Amplifier.

For questions regarding this manual or the operation of ANYLOAD products, please contact your authorized ANYLOAD distributor or visit our website at www.anyload.com for support resources and service information.

1.1. Features

- Analog output options for 4-20mA signal (DGB-AI2508x) or adjustable 0-10V, ±5V (DGB-AV2508x)
- Reverse polarity protection
- Supports up to 2 x 350Ω load cells @ 24V DC power

1.2. Safety

READ this manual BEFORE operating or servicing this equipment or systems with this equipment incorporated.

FOLLOW these instructions carefully.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or modify this equipment.

SAVE and distribute this manual for future reference.

Failure to follow the instructions or heed the warnings could result in injury or death. Contact any ANYLOAD dealer or distributor for replacement manuals.

Indicative Markings:

Symbol	Significance
⚠ WARNING ⚠	Warns of a potentially dangerous situation which can result in serious physical injury or death
⚠ CAUTION	Warns of a potentially dangerous situation which can result in slight or moderate physical injury
Notice	Failure to comply to information with this marking may lead to damage to property
⚑ **Important**	Important information about the product
ⓘ **Tip**	Application tips and other information that may be helpful
For emphasis (Italics)	Italics are used to emphasize key information

General Safety:

⚠ WARNING ⚠

ONLY qualified professionals approved should carry out intrinsically safe installations. This work involves extensive knowledge of the product, specific safety standards, and the potentially hazardous environment in which it will be operating.

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- Do not allow minors or inexperienced individuals to operate this unit.
- Ensure the unit is fully assembled before operation.
- Keep hands and fingers away from slots, openings, or any potential pinch points.
- Do not use this product if any component appears cracked or damaged.
- Avoid making alterations or modifications to the unit.
- Do not remove or obscure any warning labels.
- Do not submerge the unit in water.
- Before opening the unit, ensure the power cord is disconnected from the power source. Disconnect all power sources before servicing, as multiple power sources may be present. Failure to do so may result in property damage, personal injury, or death.
- For permanently connected equipment, incorporate a readily accessible disconnect device in the building's installation wiring.
- Pluggable units must be installed near an easily accessible socket/outlet.
- Use only copper or copper-clad aluminum conductors when wiring.

Recommendations for Proper Use:

- Keep the instrument away from heat sources and direct sunlight.
- Protect the instrument from rain unless it is a special IP-rated version.
- Do not clean with water jets unless specified for IP-rated models.
- Avoid dipping the instrument in water or spilling liquids on it.
- Use a soft, dry cloth for cleaning; do not use solvents or abrasive materials.
- Do not install the unit in areas with explosion hazards unless with specially rated models.
- If the working environment reaches the unit’s temperature limits, ensure proper airflow around the instrument to prevent malfunctions such as sudden shutdowns or disconnections.

Disposal Guidelines:

Product Disposal: Dispose of this product at authorized waste collection centers at the end of its life cycle. Proper disposal prevents environmental and health risks and supports recycling. Illegal disposal may result in legal penalties.

Battery Disposal: Dispose of batteries at designated centers as per local laws. Batteries may contain harmful substances (e.g., Cd, Li, Hg, Pb) and must not be discarded with household waste. Improper disposal may result in legal penalties.

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2. Connection Diagram

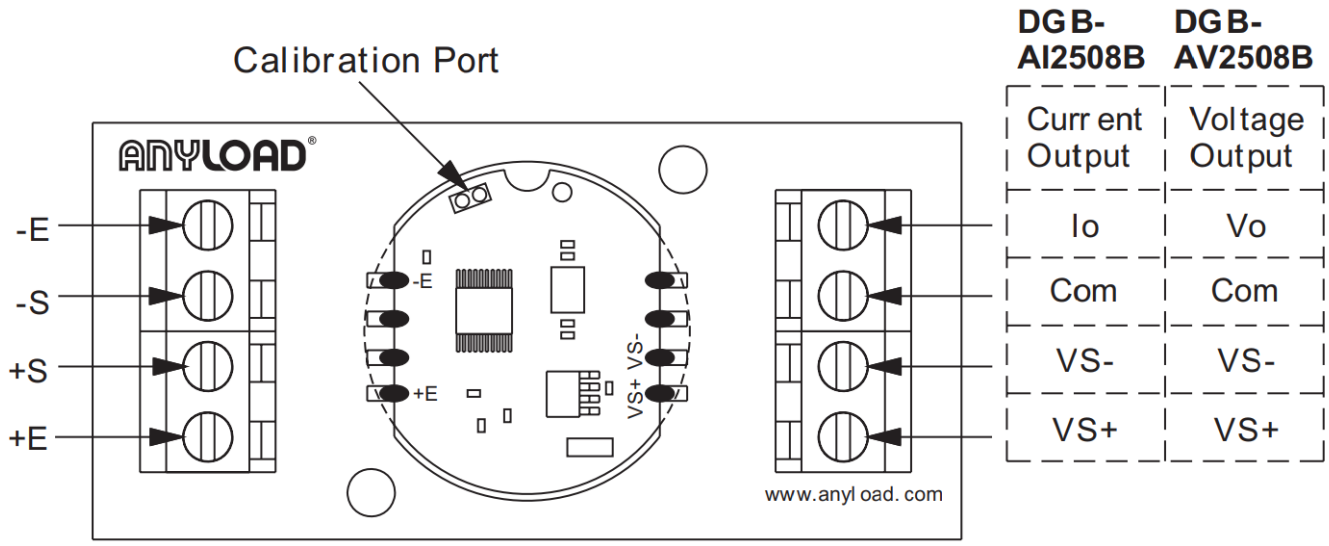

Figure 2-1: Connection Diagram

3. Installation

3.1. Connecting Power and Signal Wires

Connecting the power, output signal, and load cell to the amplifier can be accomplished with a small flat head screwdriver.

1. Loosen the terminals far enough that the lower section of the terminal clamp is visible.
2. Insert the loose, stripped wire into the terminal, ensure the wire remains near the top of the terminal hole.
3. Once the terminal is tightened, lightly check that the wires are clamped correctly and will not fall out of the terminal.

   Note: If a wire is not clamped correctly, loosen the terminal again, and ensure the wire is inserted properly into the clamp assembly before tightening.

3.2. Securing the Board

The board includes two holes for M3 or #4 screws to secure it. Ensure that the board is being installed on appropriate height standoffs to provide adequate space for solder joints and components underneath the board once the assembly is fastened properly.

⚠ CAUTION

Care must be taken when tightening the screws to not overtighten them as this can result in cracking or breaking the PCB.

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4. Calibration

Calibration is performed using the two pins (calibration interface) on the board, the calibration tool, and the Anyload Amplifier Manager software. Ensure you have a device on hand that can output your desired mV/V set points so you can verify the calibration. This is best accomplished using a load cell simulator but can also be carefully performed with a known output load cell and calibration weights.

1. Ensure the load cell is powered on with a 12-24VDC supply.
2. Connect the calibration tool to the calibration interface, ensuring the connector is oriented correctly and the wire labelled "1W" on the tool connects to its corresponding pin on the calibration interface.
3. Connect the calibration tool to a USB port on a computer.
4. Launch the Anyload Amplifier Manager software.
5. Click "Add" on the top left and select "Analogue" under the Protocol, then choose the appropriate model on the right.

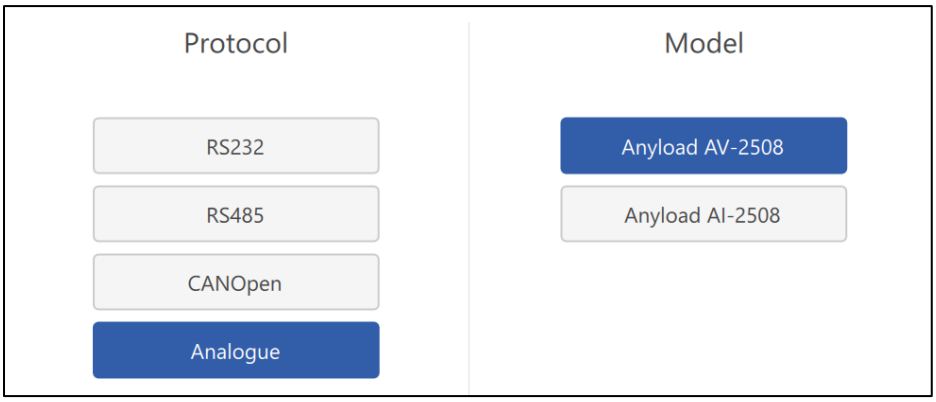

Figure 4-1:Board Type Selection

6. Once the amplifier connects successfully, a screen will display the available calibration banks. If there are 0 empty banks, the unit cannot be recalibrated anymore.

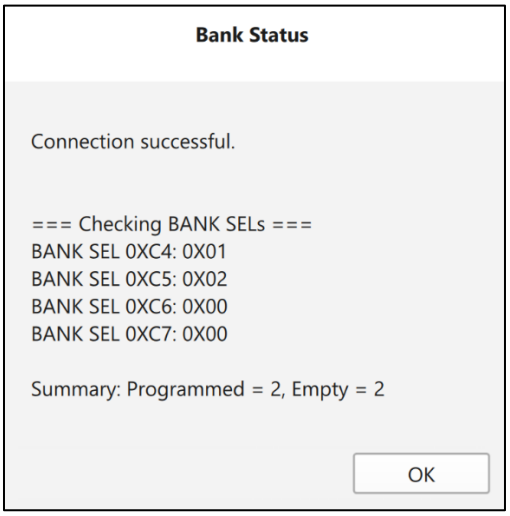

Figure 4-2: Calibration Bank Status Display

7. Once the board is selected, click "Connect". If the board cannot connect, begin troubleshooting, calibration cannot be performed until the board is connected to the software.

   Note: if required, change the COM port, verify the COM port in use using device manager.

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8. Input desired parameters after selecting the desired output range from the drop-down menu and click "Calibrate" to temporarily write the target calibration values to the amplifier *without* overwriting the permanent banks.

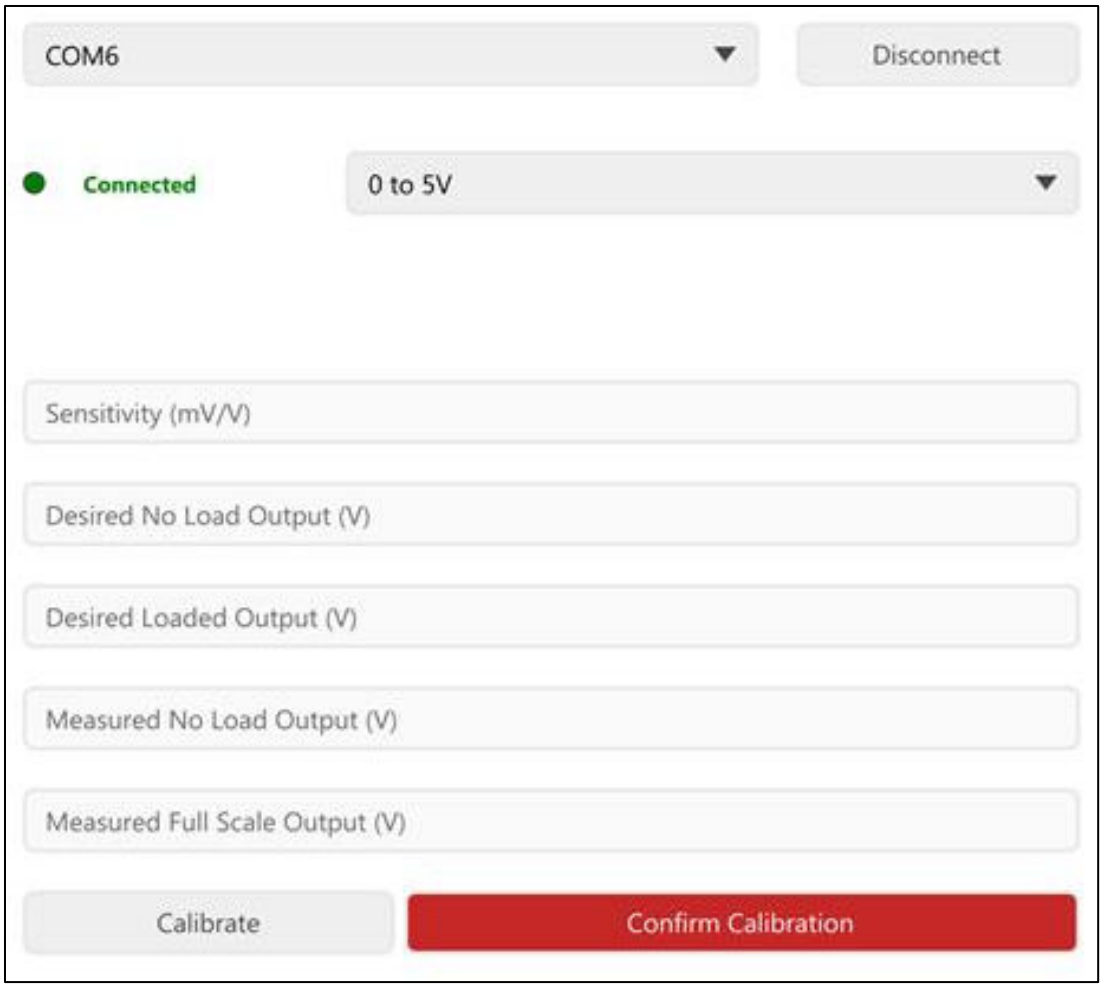

Figure 4-3: Input Parameter Configuration

9. Using a multimeter, measure the output of the amplifier. Record the measurements at both the no load and loaded output in the corresponding fields labelled "Measured" and click "Calibrate" again.

Figure 4-4: Output Verification Fields

⚠ CAUTION

Calibration can only be performed on an amplifier *four times in total*, after which it must be replaced. Ensure the calibration is performed adequately before saving the new values.

10. Measure the no load and loaded output once more, if the readouts are not acceptable, repeat steps 8-9 again until the results are satisfactory. Once the readouts are acceptable click "Confirm Calibration".

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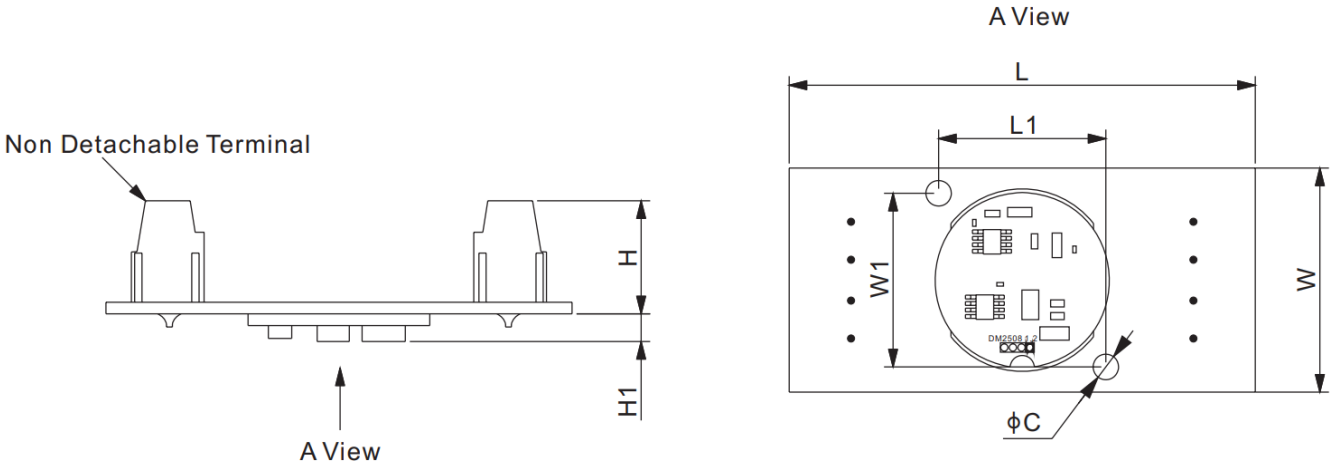
5. Operation

- The amplifier is not IP rated and must be kept away from water or debris ingress as these can significantly affect the output or render the amplifier inoperable. An enclosure is strongly recommended.
- For the most stable amplifier readouts, a stable and reliable DC power supply should be used.
- The load cell cable should be run through areas free of electrical and magnetic fields as the load cell must be able to transmit signal differences of a few µV to the amplifier, these fields can induce interference voltages.

6. Technical Specifications

6.1. Drawings & Dimensions



DIMENSIONS

	C	H	H1	L	L1	W	W1
inches	0.14	0.61	0.16	2.52	0.91	1.21	0.94
mm	3.5	15.5	4.0	64.1	23.0	30.7	23.8

Figure 6-1: Chip Dimensions

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6.2. Specifications Table

Table 1: Product Specifications

	DGB-AI2508x	DGB-AV2508x
Acceptable Load Cell Type	All strain gauge type	
Weight Approx. (g)	19	
Power Supply	12~24VDC	
Working Temperature	-22°F – 122°F / -30°C – 50°C	
Output signal	0-20mA	0-10V DC, 0-5V DC, ±5V DC
Non-linearity	<0.02%	
Calibration method	Software	
Load cell excitation voltage	5V	

⚑ Important

Specifications are subject to change *without* notice. Users are encouraged to refer to our website or confirm with our team any details, questions, or concerns.

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Please **Contact Our Authorized Dealer** for Technical Assistance:

Notes:

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