

Part Number	Bridge120
Range	
Resolution	See Table Below*
Accuracy	
Memory	32,767
Sample Rate	20Hz to 12 hours
Units	V, mV, μ V, Engineering Units specified through software
Required Interface Package	IFC110 or IFC200
Baud rate	57,600
Typical Battery Life	25 days
Operating Environment	-40°C to +80°C (-40°F to 176°F), 0%RH to 95%RH (non-condensing)
Material	ABS plastic
Dimensions	0.8" x 1.7" x 2.7" (20mm x 43mm x 69mm)
Approvals	CE Pending

*Bridge120 Range, Resolution and Accuracy

Nominal Range	± 10 mV	± 25 mV	± 100 mV	± 1000 mV
Measurement Range	± 15 mV	± 37.5 mV	± 120 mV	± 1200 mV
Resolution	1 μ V	2.5 μ V	5 μ V	50 μ V
Accuracy	$\pm 0.25\%$ FSR	$\pm 0.10\%$ FSR	$\pm 0.05\%$ FSR	$\pm 0.01\%$ FSR
Input Range	0 to 2.5V	0 to 2.5V	0 to 2.5V	0 to 2.5V
Reference Voltage	2.5V	2.5V	2.5V	2.5V

Battery Warning

WARNING: FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CHARGE, FORCE OVER DISCHARGE, DISASSEMBLE, CRUSH, PENETRATE OR INCINERATE. BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 80°C (176°F).

Specifications subject to change.



Bridge120-10

10mV, 20 Hz, Bridge Data Logger

Bridge120-25

25mV, 20 Hz, Bridge Data Logger

Bridge120-100

100mV, 20 Hz, Bridge Data Logger

Bridge120-1000

1000mV, 20 Hz, Bridge Data Logger

Product Notes

The Bridge120 data logger is designed to interface with and measure strain gauges and load cells. The device provides an excitation voltage of 2.5V's and is available in the following millivolt input ranges: ±10mV, ±25mV, ±100mV, ±1000mV. The Bridge120 features a sampling rate of up to 20Hz.

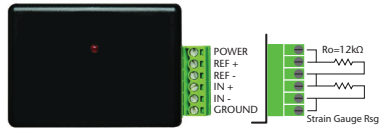
LEDs

Once started, the LED will flash at the selected reading rate to indicate the device is running.

Configuring the Data Logger

Voltage Divider Configuration

The Voltage Divider configuration is a frequently used setup to measure bridge strain.



1. Jumper between POWER and REF+
2. Place a 12k resistor between REF+ and REF-
3. Jumper between REF- and IN+
4. Place the strain gage between IN+ and IN-
5. Jumper between IN- and GROUND

Conversions

To convert the Voltage values into Ohms, use the following formula:

$$\Omega_m = 120\Omega \times \left(\frac{V_m}{mV_{ref}} \right) \Rightarrow 4.8 \times V_{in}$$

Example: The MadgeTech software reports a voltage of 20mV in the circuit described above. The strain gage resistance is therefore:

$$\Omega_{in} = 4.8 \times V_{in} = 4.8 \times 20mV = 96\Omega$$

The resistor R_o between REF+ and REF- and the strain gage value form the mV reference (mVref). This may be expressed as:

$$mV_{ref} = 2.5 \times \frac{R_{sg}}{R_o}$$

The Bridge120-25 has a resolution of about 2µV. If the resistance of the strain gage changes by +.1, the device would measure a change of approximately +20µV. Conversely, this voltage resolution translates in Ohms to approximately:

$$120\Omega \times \frac{0.020mV}{25mV_{ref}} \approx 0.096\Omega$$

Note: The maximum voltage must be kept within the specified input range. See data sheet for details.

Installation Guide

Installing the Interface cable

- IFC200
Insert the device into a USB port. The drivers will install automatically.
- IFC110
Plug the serial cable into the port and verify it is secure.

Installing the software

Insert the Software USB into an open USB port. If the autorun does not appear, locate the drive on the computer and double click on Autorun.exe. Follow the onscreen instructions.

Connecting the data logger

- Once the software is installed and running, plug the interface cable into the data logger.
- Click the Communication Menu, then Auto Configure Port.
- After a moment, a box will appear stating a device has been found.
- Click **OK**. The **Device Status** box will appear. Click **OK**.
- At this point, communications have been configured for your logger. These settings can be found under the **Communication Menu**.

Device Operation

Starting the data logger

- Click **Device Menu** then **Start Device**.
- Choose the desired start method.
- Choose the start parameters by selecting a **Reading Rate** suitable for your application.
- Enter in any other desired parameters and click **Start**.
- A box will appear stating the data logger has been started. Click **OK**.
- Disconnect the data logger from the interface cable and place it in the environment.

Note: The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Downloading data from a data logger

- Connect the data logger to the interface cable.
- Click the **Device Menu** then **Read Device Data**. This will offload recorded data onto the PC.

Device Maintenance

Battery Replacement

Materials: **Small Phillips Head Screwdriver** and a **Replacement Battery (LTC-7PN)**

- Puncture the center of the back label with the screw driver and unscrew the enclosure.
- Remove the battery by pulling it perpendicular to the circuit board.
- Insert the new battery into the terminals and verify it is secure.
- Screw the enclosure back together securely.

Note: Be sure not to over tighten the screws or strip the threads.

Recalibration

Bridge120 standard calibration values:

Logger Voltage	10mV	25mV	100mV	1000mV
Strain (V)	0V and 9-10mV	0V and 22.5-25mV	0V and 90-100mV	0V and 900-1000mV