Bridge120

Description	Bridge120
Range	See Table Below*
Resolution	
Accuracy	
Memory	32,767
Sample Rate	20 Hz to 12 hours
Units	V, mV, µV, Engineering Units specified through software
Required Interface Package	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 in x 1.7 in x 2.7 in (20 mm x 43 mm x 69 mm)
Weight	2 oz (60 g)
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 µV	2.5µV	5 µV	50 µV
Accuracy	±0.25 %FSR	±0.10 %FSR	±0.05 %FSR	±0.01 %FSR
Input Range	0 to 2.5 V	0 to 2.5 V	0 to 2.5 V	0 to 2.5 V
Reference Voltage	2.5 V	2.5 V	2.5 V	2.5 V

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.
See MadgeTech's terms and conditions at www.madgetech.com

Bridge120

Bridge120-10
10 mV, 20 Hz, Bridge Data Logger

Bridge120-25
25 mV, 20 Hz, Bridge Data Logger

Bridge120-100
100 mV, 20 Hz, Bridge Data Logger

Bridge120-1000
1000 mV, 20 Hz, Bridge Data Logger

To view the full MadgeTech product line, visit our website at www.madgetech.com.

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 2.5 V's and is available in the following millivolt input ranges: ±10 mV, ±25 mV, ±100 mV, ±1000 mV. The Bridge120 features a sampling rate of up to 20 Hz.
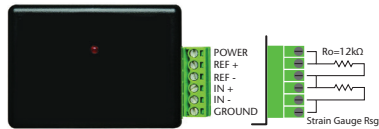
LEDs

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.

POWER
REF +
REF -
IN +
IN -
GROUND

Ro=12kΩ

Strain Gauge Rsg

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 Ω, use the following formula:

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

Example: The MadgeTech software reports a voltage of 20 mV 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 Ro 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 2 µV. If the resistance of the strain gage changes by +.1, the device would measure a change of approximately +20 µV. Conversely, this voltage resolution translates in Ω 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.

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 instructions provided in the Wizard.

Device Operation

Connecting and Starting the data logger

- Once the software is installed and running, plug the interface cable into the data logger.
- Connect the USB end of the interface cable into an open USB port on the computer.
- The device will appear in the Connected Devices list, highlight the desired data logger.
- For most applications, select "Custom Start" from the menu bar and choose the desired start method, reading rate and other parameters appropriate for the data logging application and click "Start". ("Quick Start" applies the most recent custom start options, "Batch Start" is used for managing multiple loggers at once, "Real Time Start" stores the dataset as it records while connected to the logger.)
- The status of the device will change to "Running", "Waiting to Start" or "Waiting to Manual Start", depending upon your start method.
- Disconnect the data logger from the interface cable and place it in the environment to measure.

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 logger to the interface cable.
- Highlight the data logger in the Connected Devices list. Click "Stop" on the menu bar.
- Once the data logger is stopped, with the logger highlighted, click "Download". You will be prompted to name your report.
- Downloading will offload and save all the recorded data to 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:

Pricing:

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

Recalibration $70.00