

# Analog Input Module: Strain Gage

Interface to Full, Half, and Quarter Bridge Sensors

## Description

The MAQ20 strain gage input module offers 4 input channels and can interface to full, half, and quarter bridge sensors using 4-wire or 6-wire connections. All channels are individually configurable for range, alarms, and averaging to match the most demanding applications. In addition, sampling rate, resolution, bandwidth, excitation voltage, and shunt calibration are user settable parameters. Input signals are sampled simultaneously and burst mode can be used to capture fast events. High, Low, High-High and Low-Low alarms provide essential monitoring and warning functions to ensure optimum process flow and fail-safe applications. Hardware low-pass filtering in each channel provides rejection of unwanted frequencies. Field I/O connections are made through spring cage terminal blocks with positions designated for the termination of wiring shields.

Input-to-bus isolation is a robust 1500Vrms and each individual channel is protected up to 30Vrms continuous overload in case of inadvertent wiring errors. Overloaded channels do not adversely affect other channels in the module, which preserves data integrity.

Input ranges are selectable on a per-channel basis. Four ranges are available. Over-range and under-range up to 2% beyond the specified input values is allowed, and accuracy is guaranteed to  $\pm$ fs.

## ► Features

- 4 Input Channels for 4-Wire or 6-Wire Sensors
- Interface to Full, Half and Quarter (with external bridge completion) Sensors
- All Channels Individually Configurable for Range, Alarms, Averaging
- Programmable Sampling Rate & Resolution
- Simultaneous Sampling of Input Signals
- Burst Mode for Capturing Fast Events
- Programmable Bandwidth, Excitation, Shunt Calibration
- 1500Vrms Input-to-Bus Isolation
- Each Channel Protected up to 30Vrms Continuous Overload

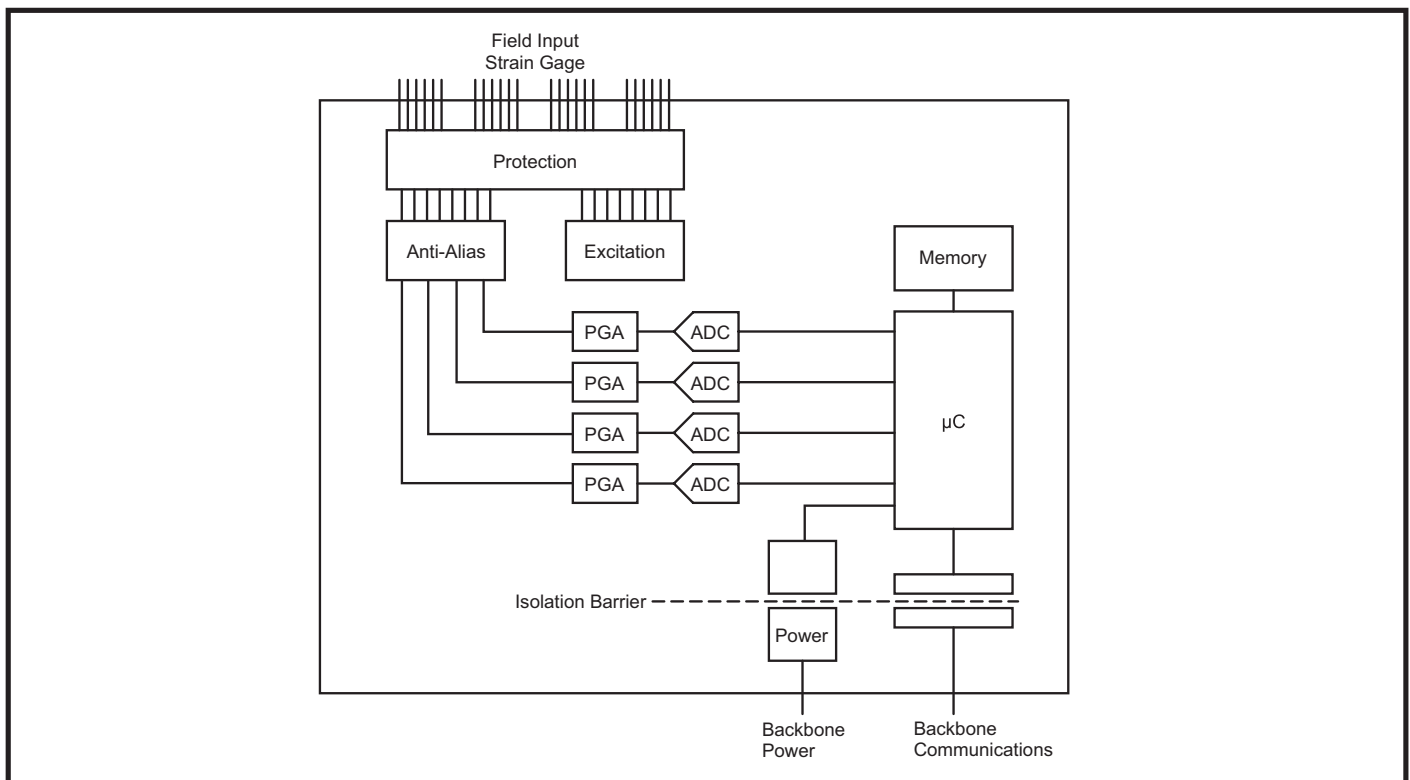


Figure 1: MAQ20 Strain Gage Input Module Block Diagram

## Specifications

Typical\* at T<sub>A</sub>=+25°C and +24VDC system power

Module	Description
MAQ20-BRDG1	4-channel, Full, Half, Quarter Bridge (w/ Ext. Bridge Compl.) 4-wire or 6-wire connection
Input Range	1.25mV/V, 2.5mV/V, 5mV/V, 10mV/V Sensitivity
Excitation Voltage	2.5V, 3.333V, 5.0V, 10.0V
Shunt Calibration	14.7kΩ, 43.2kΩ
Per Channel Setup	Individually configurable for range, alarms, averaging
Input Protection	30Vrms max
Continuous	ANSI/IEEE C37.90.1
Transient	
CMV	
Channel-to-Bus	1500Vrms, 1 min
Channel-to-Channel	±3V peak
Transient	ANSI/IEEE C37.90.1
CMR	100dB at 50/60Hz
NMR	60dB/decade
Accuracy <sup>(1)</sup>	±0.03% span
Linearity	±0.01% span
Resolution	0.0005% to 0.005% span
Stability	
Zero	±50ppm/°C
Span	±75ppm/°C
Bandwidth, -3dB	Programmable to 10kHz
Sampling Rate, Simultaneous	1kS/s to 64kS/s burst
Alarms	High / High-High / Low / Low-Low
Power Supply Current	600mA
Dimensions (h)(w)(d)	4.51" x 0.60" x 3.26" (114.6mm x 15.3mm x 82.8mm)
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Relative Humidity	0 to 95% Noncondensing
Emissions, EN61000-6-4	ISM Group 1
Radiated, Conducted	Class A
Immunity EN61000-6-2	ISM Group 1
RF	Performance A ±0.5% Span Error
ESD, EFT	Performance B
Certifications	Heavy Industrial CE, ATEX Pending UL Class I, Division 2, Groups A, B, C, D Pending

## Ordering Information

Model	Description
MAQ20-BRDG1	Analog Input Module; Bridge/Strain Gage, 4-ch

### NOTES:

\* Contact factory or your local Dataforth sales office for maximum values.

(1) Includes conformity, hysteresis and repeatability.