Analog Input Modules: Process Voltage & Process Current

Isolated Channel-to-channel, High-resolution Conversion, Wide Bandwidth

DESCRIPTION

The MAQ®20-ISOMV1 and MAQ20-ISOVx voltage input modules and MAQ20-ISO1 current input module offer 8 isolated input channels with multiple signal ranges and high-resolution conversion for precise measurement of a wide range of analog voltage and current signals. All channels are individually configurable for range, alarm limits, averaging, and high-speed burst scan to match the most demanding applications. High, Low, High-High and Low-Low alarms provide essential monitoring and warning functions to ensure optimum process flow and fail-safe applications. Signal bandwidth is 1kHz for voltage input and 1kHz for current input. The burst scan mode allows up to 5kS/s per channel to be captured simultaneously. Field I/O connections are made through a pluggable terminal block with four positions provided for the termination of wiring shields.

Input-to-bus isolation is a robust 1500Vrms and each individual channel is protected up to 240Vrms continuous overload in case of inadvertent wiring errors. In addition, the MAQ20-ISOMV1, -ISOVx, and -ISOI1 modules have 300Vrms continuous channel-to-channel isolation. Overloaded channels do not adversely affect other channels in the module, thereby preserving data integrity.

Signal ranges for the voltage input modules are from ±100mV to ±60V, and for the current input module, 0 to 20mA.

All MAQ20 modules are designed for installation in Class I, Division 2 hazardous locations and have a high level of immunity to environmental noise commonly present in heavy industrial environments.

FEATURES

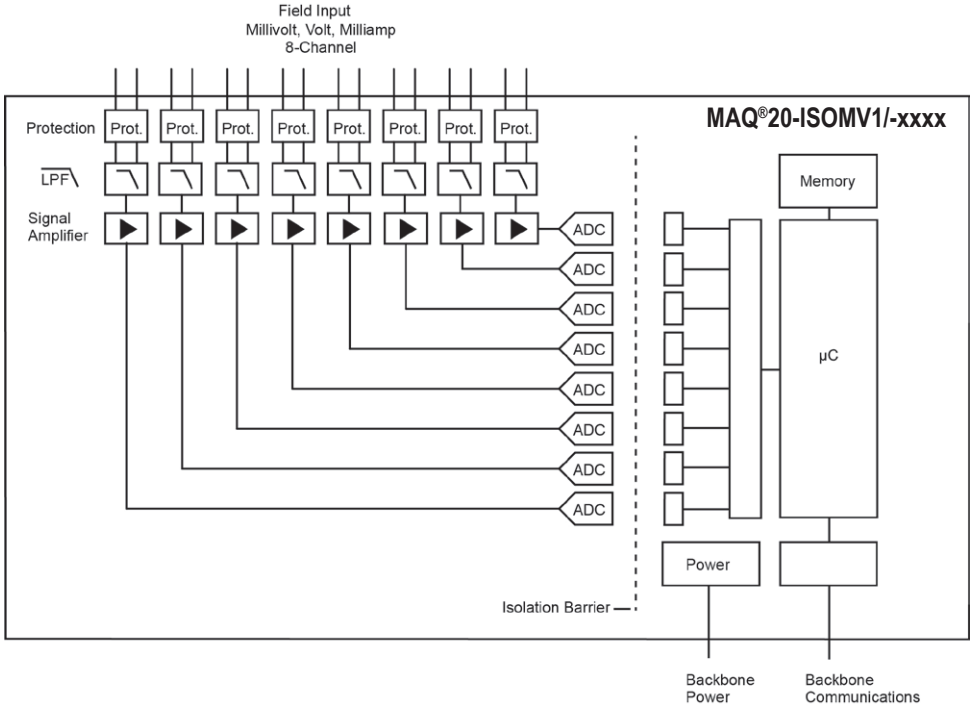
- 8 Isolated Input Channels with Multiple Ranges and High Resolution Conversion
- Precise Measurement of Wide Range of Analog Voltage and Current Signals
- Channels Individually Configurable for Range, Alarm Limits, Averaging, and High-speed Burst Scan Mode
- 1500Vrms Input-to-Bus Isolation
- 300Vrms Ch-to-Ch Isolation
- Each Channel Protected up to 240Vrms Continuous Overload
- Overloaded Channels Do Not Adversely Affect Other Channels
- Heavy Industrial CE Compliant
- UL/cUL (Class I, Div 2, Groups A, B, C, D) File E232858
- ATEX Compliance Pending
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Highly Compact
- Low Cost per Channel
- Modular
- On-vehicle/-mobile Use Possible (Wide Power Supply Voltage)
- Open Software Platform Options
- Easy and Fast Setup/Installation

APPLICATIONS

- Process Control
- Factory Measurement and Control
- Machine Automation
- Military and Aerospace
- Scientific Measurement and Monitoring
- Battery Management



MAQ20-ISOMV1/-ISOVx/-ISO1 Modules Block Diagram

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Specifications

Typical* at T_A =+25°C and +24VDC System Power

Module	Description
MAQ20-ISOMV1 MAQ20-ISOV1 MAQ20-ISOV2 MAQ20-ISOV3 MAQ20-ISOV4 MAQ20-ISOV5 MAQ20-ISOI1	0 to +100mV, ±100mV (Default) 0 to +1V, ±1V (Default) 0 to +10V, ±10V (Default) 0 to +20V, ±20V (Default) 0 to +40V, ±40V (Default) 0 to +60V, ±60V (Default) 0-20mA (Default), 4-20mA, ±20mA
Per Channel Setup	Individually Configurable for Range, Alarms, Averaging, Burst Scan
Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV	
Channel-to-Bus	1500Vrms, 1 Minute
Channel-to-channel	300Vrms, 425V_{PEAK}
Transient	ANSI/IEEE C37.90.1
CMR	100dB at 50/60Hz
NMR	20dB/decade
Accuracy(1)	±0.035% Span
Linearity / Conformity	±0.02% Span
Resolution	0.0015% Span
Stability	
Zero	15ppm/°C
Span	35ppm/°C
Bandwidth	1kHz Voltage-input, 1kHz Current-input
Scan Rate	
Continuous	500 Ch/s net, 65 Ch/s at 8-ch Simultaneous
Burst	5kS/s per Channel
Alarms	High / High-High / Low / Low-Low
Open Input Response	
mV Input	Upscale
Detection Time	<5s
Power Supply Current	270mA
Dimensions (h)x(w)x(d)	3.27" x 4.51" x 0.60" ((83.1mm x 114.6mm x 15.3mm))
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 Compliant UL/cUL (Class I, Division 2, Groups A, B, C, D) File E232858 ATEX Compliance Pending

NOTES:
*Contact factory or your local Dataforth sales office for maximum values.
(1) Includes linearity/conformity, hysteresis and repeatability.

For input connections and full details on module operation, refer to:
MA1062 – MAQ20 Ch-ch Isolated mV-V-mA Input Module Hardware User Manual

Ordering Information

Model	Description
MAQ20-ISOMV1	Isolated Analog Voltage-input Module, 8-ch, ±100mV
MAQ20-ISOV1	Isolated Analog Voltage-input Module, 8-ch, ±1V
MAQ20-ISOV2	Isolated Analog Voltage-input Module, 8-ch, ±10V
MAQ20-ISOV3	Isolated Analog Voltage-input Module, 8-ch, ±20V
MAQ20-ISOV4	Isolated Analog Voltage-input Module, 8-ch, ±40V
MAQ20-ISOV5	Isolated Analog Voltage-input Module, 8-ch, ±60V
MAQ20-ISOI1	Isolated Analog Current-input Module; 8-ch, ±20mA

Terminal Block Position (Top to Bottom)	Input Connections
1	CH0 +IN
2	CH0 –IN
3	SHIELD
4	CH1 +IN
5	CH1 –IN
6	CH2 +IN
7	CH2 –IN
8	SHIELD
9	CH3 +IN
10	CH3 –IN
11	CH4 +IN
12	CH4 –IN
13	SHIELD
14	CH5 +IN
15	CH5 –IN
16	CH6 +IN
17	CH6 –IN
18	SHIELD
19	CH7 +IN
20	CH7 –IN

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