▷ DATAFORTH®	Data Acquisition Systems	MAQ20

Analog Input Modules: Voltage & Current
Interface to Volt, Millivolt, and Milliamp Sensors & Equipment

Description

MAQ20 voltage and current analog input modules interface to a wide range of volt, millivolt, and milliamp sensors and equipment used in industrial and test and measurement applications. They offer 8-channel differential input or 16-channel single-ended input for precise measurement of voltage and current signals. All channels are individually configurable for range, alarm limits, and averaging 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 operation. Hardware low-pass filtering in each channel provides rejection of 50 and 60Hz line frequencies. 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. Overloaded channels do not adversely affect other channels in the module, thereby preserving data integrity.

Channels in a module can be selectively enabled for scanning. All channels are enabled by default; however, non-used channels can be disabled to increase the sampling rate of enabled channels.

Input ranges are selectable on a per-channel basis. The MAQ20-MVDN, -VDN, and -VSN modules have five user selectable input ranges; the MAQ20-IDN and -ISN modules have two. Over-range and under-range up to 2% beyond the specified input values is allowed, and accuracy is guaranteed to ±f.s.

Cables to interface 8B backpanels to the MAQ20-VSN module are available; the 8B modules and backpanel assembly provide 1500Vrms channel-to-channel isolation.

▶ Features

- Interface to Volt, Millivolt, Milliamp Sensors and Equipment
- 8-Channel Differential or 16-Channel Single-Ended Input
- All Channels Individually Configurable for Range, Alarms, Averaging
- 1500Vrms Input-to-Bus Isolation
- Each Channel Protected up to 240Vrms Continuous Overload
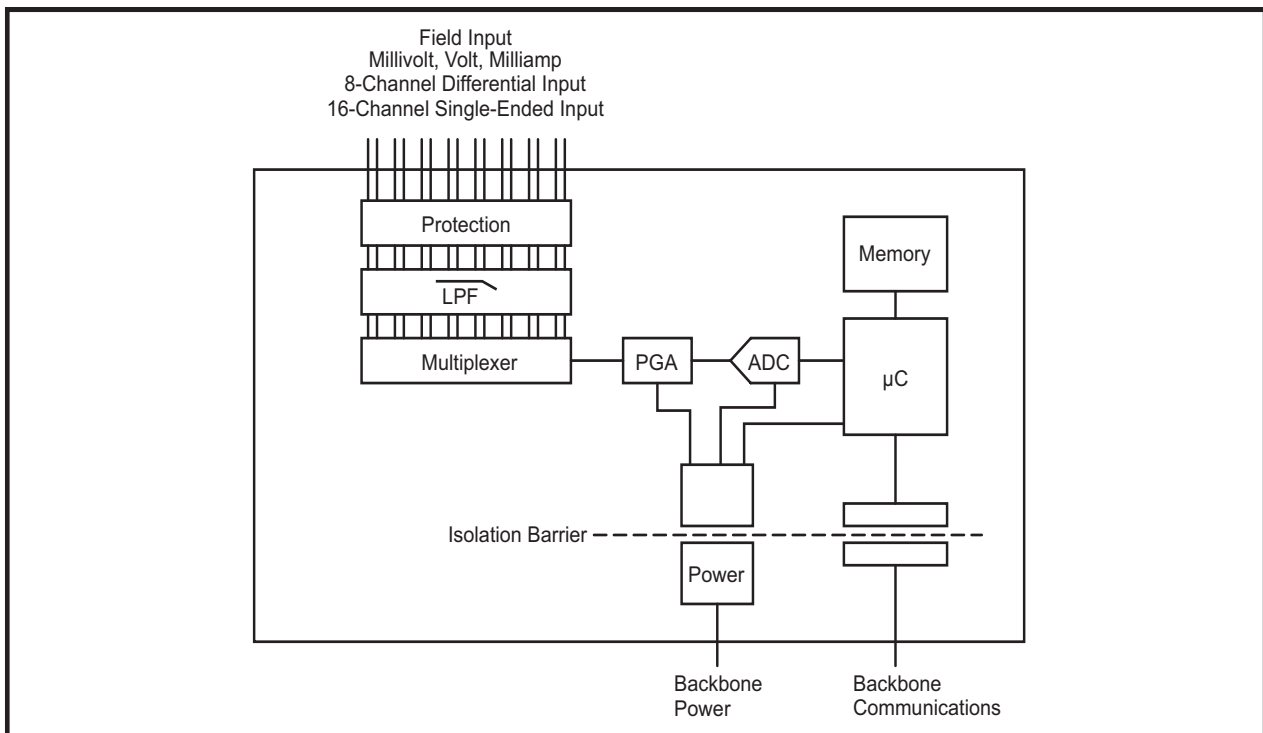- Selective Enabling of Module Channels for Scanning

Figure 1: MAQ20 Voltage & Current Input Module Block Diagram

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DATAFORTH®   Data Acquisition Systems   **MAQ20**

Specifications   Typical* at T$_A$=+25°C and +24VDC system power

Module	Description
MAQ20-MVDN	8-channel, milliVolt, Differential Input ±50mV, ±100mV, ±250mV, ±1.0V, ±2.0V (Default ±1.0V)
MAQ20-VDN	8-channel, Volt, Differential Input ±5V, ±10V, ±20V, ±40V, ±60V (Default ±5V)
MAQ20-VSN	16-channel, Volt, Single-Ended Input ±5V, ±10V, ±20V, ±40V, ±60V (Default ±5V)
MAQ20-IDN	8-channel, milliAmp, Differential Input 0-20mA, 4-20mA (Default 0-20mA)
MAQ20-ISN	16-channel, milliAmp, Single-Ended Input 0-20mA, 4-20mA (Default 0-20mA)

Per Channel Setup	Individually configurable for range, alarms, averaging
Input Protection	
Continuous	240Vrms max
Transient	ANSI/IEEE C37.90.1
CMV	
Channel-to-Bus	1500Vrms, 1 min
Channel-to-Channel	±28V peak (-VDN), ±3V peak (-MVDN, -IDN), 0V (-VSN, -ISN)
Transient	ANSI/IEEE C37.90.1
CMR	100dB at 50/60Hz
NMR	30dB at 50/60Hz

Accuracy[1]	±0.035% span
Linearity / Conformity	±0.02% span
Resolution	0.012% span
Stability	
Zero	±15ppm/C
Span	±35ppm/C

Bandwidth, –3dB	3Hz
Scan Rate	200 Ch/s
Alarms	High / High-High / Low / Low-Low
Power Supply Current	30mA

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/CUL Class I, Division 2, Groups A, B, C, D Pending

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

Ordering Information

Model	Description
MAQ20-MVDN	Analog Input Module; mV, 8-ch, Differential
MAQ20-VSN	Analog Input Module; V, 16-ch, Single Ended
MAQ20-VDN	Analog Input Module; V, 8-ch, Differential
MAQ20-ISN	Analog Input Module; mA, 16-ch, Single Ended
MAQ20-IDN	Analog Input Module; mA, 8-ch, Differential

Cables to Interface 8B Backpanels to MAQ20-VSN Module

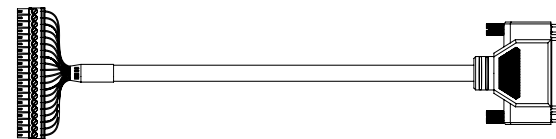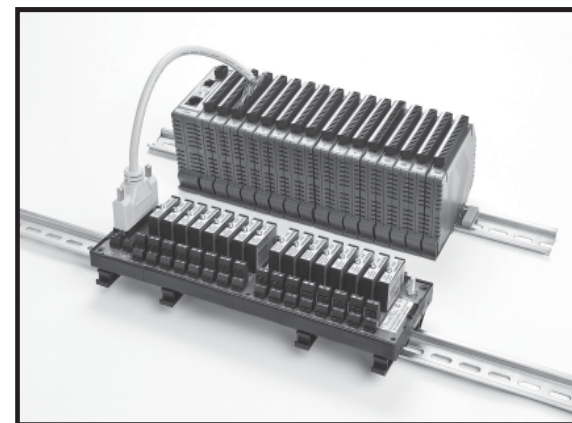| Model	Description
MAQ20-8B25-0.3	DB25-to-20 pos screw term Transition Cable, 0.3m long
MAQ20-8B25-0.6	DB25-to-20 pos screw term Transition Cable, 0.6m long
MAQ20-8B25-01	DB25-to-20 pos screw term Transition Cable, 1.0m long

MAQ20

Figure 2: 8B Backpanel Interface Cable

Figure 3: Cable Interfacing 8B Backpanel to MAQ20-VSN Module

For input connections and full details on module operation, refer to MA1041 – MAQ20 mV-V-mA Input Module Hardware User Manual, available for download at: www.dataforth.com/maq20_download.aspx

Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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