Analog Input Module: Frequency

Measure Frequencies to 1MHz

DESCRIPTION

The MAQ®20-FREQ frequency input module offers 8 input channels for measuring frequencies up to 1MHz. All channels are individually configurable for range and alarm limits to match the most demanding applications. Four controllable outputs can be used for sensor excitation or as 5V logic compatible outputs. High, Low, High-High and Low-Low alarms provide essential monitoring and warning functions to ensure optimum process flow and fail-safe applications. Field I/O connections are made through a pluggable terminal block 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 240Vrms continuous overload in case of inadvertent wiring errors.

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 system sampling rate of enabled channels.

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

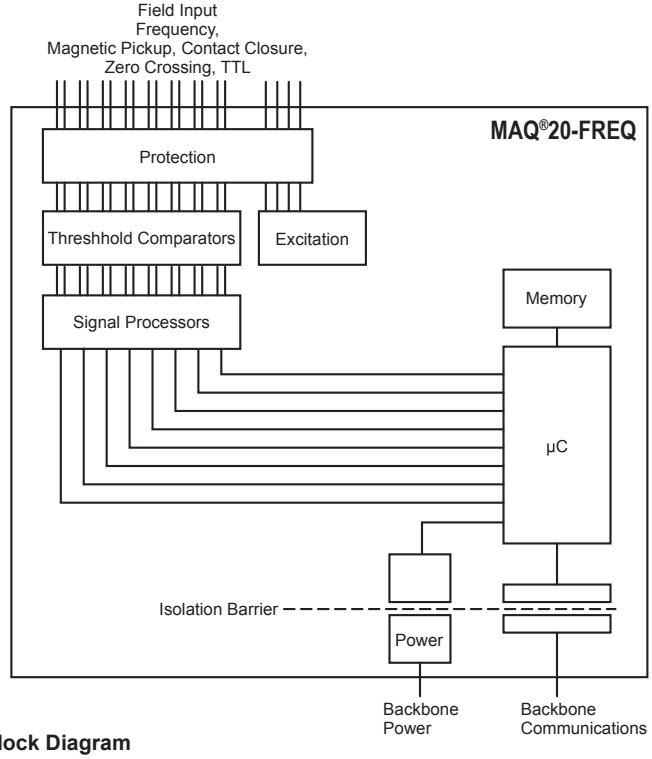
- 8 Input Channels
- 50mV Sensitivity
- 1Hz to 1MHz plus State Change Frequency Range
- DC + Signal ≤300Vrms Operating Range
- All Channels Individually Configurable for Range and Alarms
- 4 Excitation Sources to Power Sensors or Provide 5V Logic Compatible Output
- 1500Vrms Input-to-Bus Isolation
- Each Channel Protected up to 240Vrms
- Selective Enabling of Module Channels for Scanning
- 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-FREQ Frequency-input Module Block Diagram

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Specifications

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

Module	Description
MAQ20-FREQ	8-channel, Frequency-input, 1Hz to 1MHz, Plus State Change Detect
Input Signal	50mV Sensitivity Operating Range: DC + Signal 300Vrms
Excitation	Four 5V Sources at 8mA each Use for Sensor Excitation or 5V Logic Compatible Output
Per Channel Setup	Individually Configurable for Range, Alarms
Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV	
Channel-to-Bus	1500Vrms, 1 Minute
Channel-to-channel	0V
Transient	ANSI/IEEE C37.90.1
Resolution and Accuracy	32 Bits
Clock Accuracy	±0.003%
Clock Accuracy Over Temp	±0.01%, –40°C to +85°C
Scan Rate	1000 Ch/s
Alarms	High / High-High / Low / Low-Low
Power Supply Current	400mA
Dimensions (h)x(w)x(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 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.

For input connections and full details on module operation, refer to:
MA1048 – MAQ20 Frequency-input Module Hardware User Manual

Ordering Information

Model	Description
MAQ20-FREQ	Analog Input Module; Frequency, 8-ch

Terminal Block Position (top to bottom)	MAQ20-FREQ I/O Connections
1	CH0 +IN
2	CH0 –IN
3	CH1 +IN
4	CH1 –IN
5	EXC0 / OUT0
6	CH2 +IN
7	CH2 –IN
8	CH3 +IN
9	CH3 –IN
10	EXC1 / OUT1
11	CH4 +IN
12	CH4 –IN
13	CH5 +IN
14	CH5 –IN
15	EXC2 / OUT2
16	CH6 +IN
17	CH6 –IN
18	CH7 +IN
19	CH7 –IN
20	EXC3 / OUT3

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