Discrete Input Modules: High Density Voltage

20 Input Channels with or without Compliance Voltage

Description

The MAQ20-DIV20 and MAQ20-DIVC20 are two versions of the same module, offering 20 discrete input channels. The MAQ20-DIV20 interfaces to 10-120VDC/VAC signals. The MAQ20-DIVC20 interfaces to 10-24VDC signals and has a 24VDC compliance voltage source on each channel for interfacing to relay contacts, solid state switches, or other devices that require an excitation. Discrete input states can be read individually or as a block. Logic polarity can be user defined as standard or inverted. The field inputs are designed for harsh industrial environments and have fast switching times. Pulses as narrow as 200µs can be measured. Field input connections are made through high density spring cage terminal blocks.

Input-to-bus isolation is a robust 1500Vrms and each individual channel is protected up to 150Vrms continuous overload in case of inadvertent wiring errors.

The high channel count within the narrow module package gives exceptional functionality while preserving valuable mounting space. The high density minimizes cost per channel resulting in economical monitoring solutions.

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

- 20 Discrete Input Channels
- Interfaces to 10-120VDC/VAC Signals (MAQ20-DIV20)
- 24VDC Compliance Voltage for Interface to Relay Contacts, Solid State Switches & Other Devices Requiring Excitation (MAQ20-DIVC20)
- 1500Vrms Input-to-Bus Isolation
- Each Channel Protected up to 150Vrms Continuous Overload
- User Defined Logic Polarity
- Fast Switching Times
- Field Input Connections Use Spring Cage Terminal Blocks
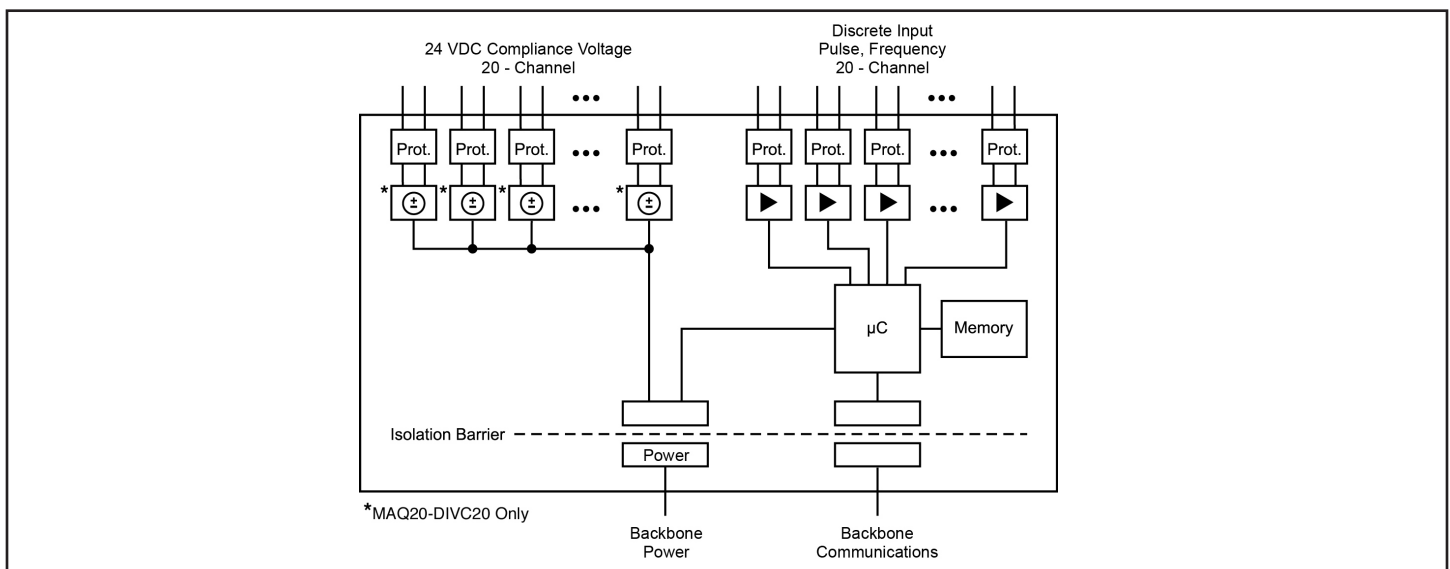- Most Affordable Price per Channel

Figure 1: MAQ20-DIV20/-DIVC20 Discrete Input Voltage Modules Block Diagram

Specifications Typical* at T_A =+25°C and +24VDC system power

Module	Description
MAQ20-DIV20 MAQ20-DIVC20	10 to 120VDC/VAC Input, 24VDC Nominal 10 to 24VDC Input, 24VDC Compliance Voltage per channel
Number of Channels Input Resistance	20 77kΩ

Switching Characteristics
  Turn-On/Turn-Off Time
  Switching Threshold,
  Turn-On/Turn-Off
	
	50µs / 50µs
	9.0V / 5.5V

Input Protection
  Continuous
  Transient
CMV
  Channel-to-Bus
  Channel-to-Channel
  Transient
	
	150Vrms max
	ANSI/IEEE C37.90.1
	
	1500Vrms, 1 min
	0V
	ANSI/IEEE C37.90.1

Input Functions
  Logic Selection
  Block Read
	
	Standard / Inverted
	20 Channel

Scan/Update Rate Power Supply Current	1300 Ch/s net, 65 Ch/s at 20-Ch Simultaneous 50mA
Dimensions (h)(w)(d)	3.27" x 4.51" x 0.60" (83.1mm x 114.6mm x 15.3mm)

Environmental
  Operating Temperature
  Storage Temperature
  Relative Humidity
Emissions, EN61000-6-4
  Radiated, Conducted
Immunity EN61000-6-2
  RF
  ESD, EFT
	
	-40°C to +85°C
	-40°C to +85°C
	0 to 95% Noncondensing
	ISM Group 1
	Class A
	ISM Group 1
	Performance A
	Performance B

Certifications	Heavy Industrial CE Compliant ATEX Compliance Pending UL/CUL Listing Pending (Class I, Division 2, Groups A, B, C, D)

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

Ordering Information

Model	Description
MAQ20-DIV20 MAQ20-DIVC20	Analog Input Module; Discrete Input Voltage, 20-ch Analog Input Module; Discrete Input 24VDC Compliance Voltage, 20-ch

Field Connection (MAQ20-DIV20/-DIVC20)	Terminal	Terminal	Field Connection (MAQ20-DIV20)	Field Connection (MAQ20-DIVC20)
CH0 +IN	1	2	CH0 -IN	CH0 VC*
CH1 +IN	3	4	CH1 -IN	CH1 VC*
CH2 +IN	5	6	CH2 -IN	CH2 VC*
CH3 +IN	7	8	CH3 -IN	CH3 VC*
CH4 +IN	9	10	CH4 -IN	CH4 VC*
CH5 +IN	11	12	CH5 -IN	CH5 VC*
CH6 +IN	13	14	CH6 -IN	CH6 VC*
CH7 +IN	15	16	CH7 -IN	CH7 VC*
CH8 +IN	17	18	CH8 -IN	CH8 VC*
CH9 +IN	19	20	CH9 -IN	CH9 VC*
CH10 +IN	21	22	CH10 -IN	CH10 VC*
CH11 +IN	23	24	CH11 -IN	CH11 VC*
CH12 +IN	25	26	CH12 -IN	CH12 VC*
CH13 +IN	27	28	CH13 -IN	CH13 VC*
CH14 +IN	29	30	CH14 -IN	CH14 VC*
CH15 +IN	31	32	CH15 -IN	CH15 VC*
CH16 +IN	33	34	CH16 -IN	CH16 VC*
CH17 +IN	35	36	CH17 -IN	CH17 VC*
CH18 +IN	37	38	CH18 -IN	CH18 VC*
CH19 +IN	39	40	CH19 -IN	CH19 VC*

NOTES: *VC = Vcompliance

MAQ®20

For input connections and full details on module operation, refer to MA1059 – MAQ20-DIV20/-DIVC20 Discrete Input Module Hardware User Manual, available for download at: www.dataforth.com/maq20_download.aspx