

# DF10D31



## Analog Voltage Input Board Level Signal Conditioner

### DESCRIPTION

Each DF10D31 voltage analog input module interfaces to a wide range of sensors and equipment used in industrial and test and measurement applications which output process voltage level signals.

Each module provides a single channel of analog input which is filtered, isolated, amplified, and converted to 24-bit digital data for precise measurement of voltage signals.

The analog input channel is configurable for alarm limits and averaging to match the most demanding applications. Alarms provide essential monitoring and warning functions to ensure optimum process flow and fail-safe operation. Hardware low-pass filtering provides rejection of 50 and 60Hz power line frequencies.

Input-to-Output isolation is a robust 1500Vrms and the input channel is protected against overload in case of inadvertent wiring errors.

Over-range and under-range up to 2% beyond the specified input values is allowed, and accuracy is guaranteed to  $\pm$ f.s

The DF10D31 is housed in a vertically standing or horizontal package and is fully specified over the  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  temperature range.

### FEATURES

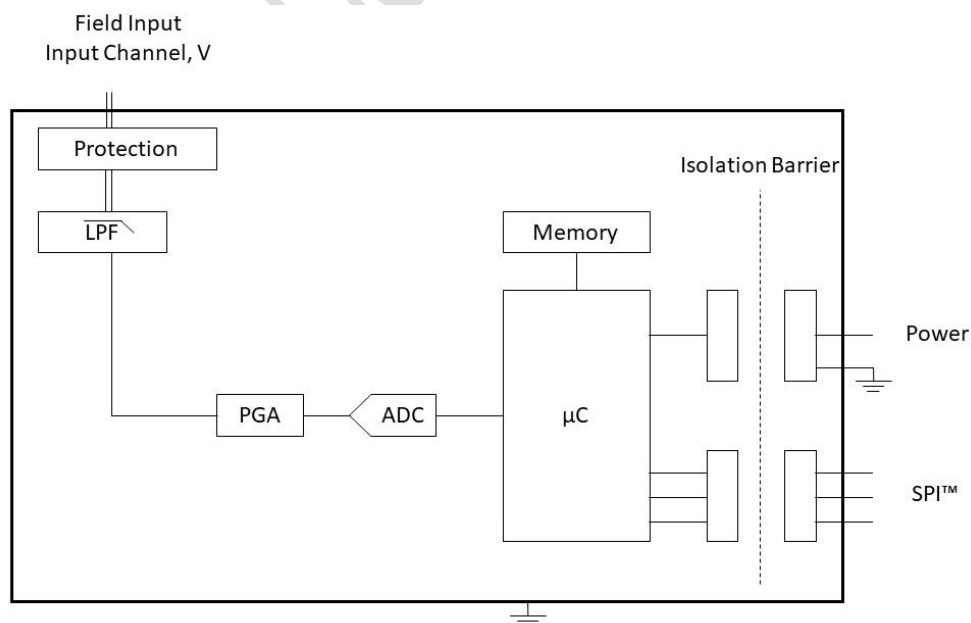
- Interface to Volt Level Signals
- 1 Input Channel
- Configurable for Alarms and Averaging
- 1500Vrms Input-to-SPI™ Isolation
- Protected against Overload
- CE compliant
- 24-Bit Resolution
- Operating temperature:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

### BENEFITS

- Small footprint
- Simplifies sensor interface and signal conditioning design
- Reduces system BOM
- Provides isolation of external sensors
- Protects sensitive system components
- Breaks ground loops
- Reduces EMC concerns

### APPLICATIONS

- Signal Conditioning
- Signal Isolation
- Signal Filtering
- Industrial Process Control
- Test & Measurement
- System & Signal Monitoring



DF10D31 Block Diagram - [For dimensions see page xxx](#)

## Specifications

Typical\* at T<sub>A</sub> = +25°C and +5VDC power

Module	DF10D31-xxx
DF10D31-xxx	1 input channel, V
Channel Setup	Configurable for alarms and averaging
Input Range	
DF10D31-01x	±1V
DF10D31-02x	±5V
DF10D31-03x	±10V
DF10D31-04x	±20V
DF10D31-05x	±30V
DF10D31-06x	±40V
DF10D31-07x	±50V
DF10D31-08x	±60V
Input Protection	TBD Vrms max
Continuous	CE
Transient	
CMV	
Channel-to-Bus	1500Vrms, 1min
Transient	CE
CMR	TBD
NMR	30dB/decade
Accuracy <sup>(1)</sup>	±0.035% Span
Linearity	±0.002% Span
ADC Resolution	24-bit
Stability	
Zero	TBD ppm/°C
Span	TBD ppm/°C
Bandwidth, -3dB	3Hz
Sampling Rate	TBD S/s
Alarms	High, Low
Digital Output	
Resolution	24-bit
Interface	SPI™
Clock Input	5MHz
Power Supply Voltage	+2.8VDC to +5.5VDC
Power Supply Current	TBD mA
Mechanical Dimensions (h)(w)(d)	
Vertical package	TBD" x TBD" x TBD" (TBDmm x TBDmm x TBDmm)
Horizontal package	TBD" x TBD" x TBD" (TBDmm x TBDmm x TBDmm)
Environmental	
Operating Temp. Range Storage	-40°C to +85°C
Temp. Range Relative Humidity	-40°C to +85°C
Emissions EN61000-6-4	0 to 95% Noncondensing
Radiated, Conducted Immunity	ISM, Group 1
EN61000-6-2	Class A
RF	ISM, Group 1
ESD, EFT	Performance A ±0.5% Span Error Performance B

## Ordering Information

Model	Channels / Input	Output
DF10D31-01V	1 Channel, ±1V, vertical	SPI™
DF10D31-02V	1 Channel, ±5V, vertical	SPI™
DF10D31-03V	1 Channel, ±10V, vertical	SPI™
DF10D31-04V	1 Channel, ±20V, vertical	SPI™
DF10D31-05V	1 Channel, ±30V, vertical	SPI™
DF10D31-06V	1 Channel, ±40V, vertical	SPI™
DF10D31-07V	1 Channel, ±50V, vertical	SPI™
DF10D31-07V	1 Channel, ±60V, vertical	SPI™
DF10D31-01H	1 Channel, ±1V, horizontal	SPI™
DF10D31-02H	1 Channel, ±5V, horizontal	SPI™
DF10D31-03H	1 Channel, ±10V, horizontal	SPI™
DF10D31-04H	1 Channel, ±20V, horizontal	SPI™
DF10D31-05H	1 Channel, ±30V, horizontal	SPI™
DF10D31-06H	1 Channel, ±40V, horizontal	SPI™
DF10D31-07H	1 Channel, ±50V, horizontal	SPI™
DF10D31-07H	1 Channel, ±60V, horizontal	SPI™

### NOTES:

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

(1) Includes linearity, hysteresis and repeatability.