DF10D47

Linearized Thermocouple Input Board Level Signal Conditioner

DESCRIPTION

Each DF10D47 linearized thermocouple input module interfaces to a wide range of standard thermocouple types used in industrial and test and measurement applications.

The standard thermocouple types supported by the DF10D47 are: J, K, T, R, and S.

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

Each module offers built-in industry leading cold junction compensation (TBD) and Instrument Class™ measurement accuracy over the entire operating temperature range.

The thermocouple 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 ±fs.

The DF10D47 is housed in a vertically standing or horizontal package and is fully specified over the –40°C to +85°C temperature range.

FEATURES

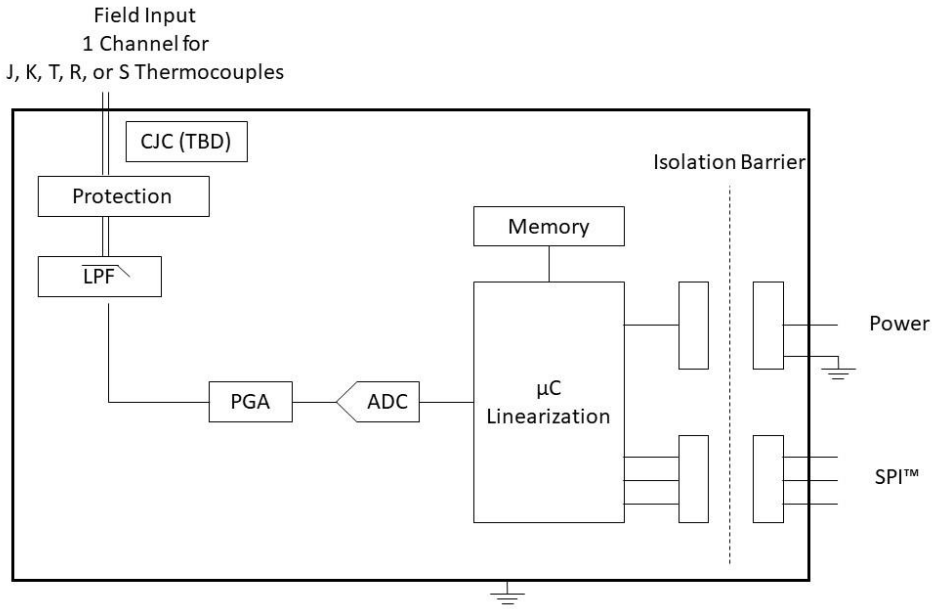
- Interface to thermocouple Types: J, K, T, R, and S
- 1 Input Channel
- Configurable for Alarms and Averaging
- 1500Vrms Input-to-SPI™ Isolation
- Protected against Overload
- CE compliant
- 24-Bit Resolution
- Operating temperature: –40°C to +85°C

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



DF10D47 Block Diagram - For dimensions see page xxx

Specifications

Typical* at T_A = +25°C and +5VDC power

Module	DF10D47-xxx
DF10D47-xxx	1 input channel
Channel Setup	Configurable for alarms and averaging
Input Range DF10D47-01x DF10D47-02x DF10D47-03x DF10D47-04x DF10D47-05x Input Protection Continuous Transient	 JTC: -100ºC to +760ºC KTC: -100ºC to +1350ºC TTC: -100ºC to +400ºC RTC: 0ºC to +1750ºC STC: 0ºC to 1750ºC TBD Vrms max CE
CMV Channel-to-Bus Transient CMR NMR	 1500Vrms, 1min CE TBD 30dB/decade
Accuracy (1) Conformity ADC Resolution Stability Zero Span	±0.08% to ±0.16% Span based on sensor ±0.05% to ±0.10% Span based on sensor 24-bit TBD ppm/°C TBD ppm/°C
Bandwidth, -3dB Sampling Rate Alarms	3Hz TBD S/s High, Low
Digital Output Resolution	 24-bit
Interface Clock Input	SPI™ 5MHz
Power Supply Voltage Power Supply Current	+2.8VDC to +5.5VDC TBD mA (1-ch) / TBD mA (4-ch)
Mechanical Dimensions (h)(w)(d) Vertical package Horizonal package	 TBD" x TBD" x TBD" (TBDmm x TBDmm x TBDmm) TBD" x TBD" x TBD" (TBDmm x TBDmm x TBDmm)
Environmental Operating Temp. Range Storage Temp. Range 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 ±0.5% Span Error Performance B

Ordering Information

Model	Channels / Input	Output
DF10D47-01V	1 Channel, J, vertical	SPI™
DF10D47-02V	1 Channel, K, vertical	SPI™
DF10D47-03V	1 Channel, T, vertical	SPI™
DF10D47-04V	1 Channel, R, vertical	SPI™
DF10D47-05V	1 Channel, S, vertical	SPI™
DF10D47-01H	1 Channel, J, horizonal	SPI™
DF10D47-02H	1 Channel, K, horizontal	SPI™
DF10D47-03H	1 Channel, T, horizontal	SPI™
DF10D47-04H	1 Channel, R, horizontal	SPI™
DF10D47-05H	1 Channel, S, horizontal	SPI™

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