10D-IO

Current Output, Digital-to-Analog Signal Conditioner

DESCRIPTION

10D-IO analog current output modules are designed to interface with a wide range of sensors and equipment used in industrial test and measurement applications that accept process current signals.

Each module provides a single channel of 14-bit controlled isolated current output for use in industrial process control applications.

Configurable discrete output pins enable real-time fault monitoring and rapid response, ensuring seamless process flow and fail-safe operation for enhanced reliability and efficiency in industrial environments.

Digital-to-output isolation is rated at a robust 1500Vrms and all field-side outputs are protected against accidental power-line connections up to 40Vrms. These features safeguard measurement and control equipment from the harmful effects of signal noise, transient surges, ground loops, and other industrial hazards.

Over-range up to 10% beyond specified output values are supported with accuracy guaranteed to ±full-scale. All 10D modules are housed in rugged thermoplastic packages and are specified to operate over the industrial temperature range of –40°C to +85°C

FEATURES

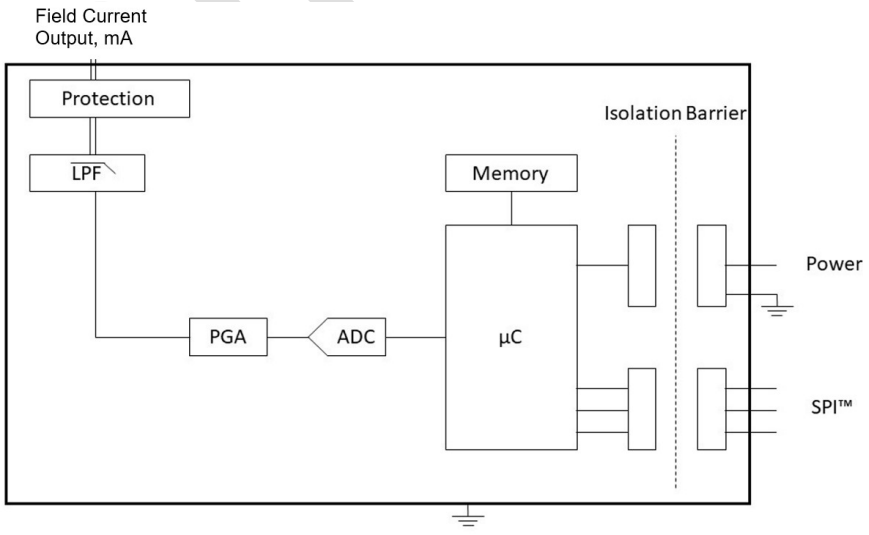
- Interface to Process Current Controlled Field Devices
- 1 Output Channel
- Configurable Default Channel Output
- Configurable Discrete Outputs for Fault Detection and Response
- 1500Vrms Digital-to-Output Isolation
- Output protected up to 40Vrms
- CE Compliant
- 14-Bit Resolution
- Operating Temperature: –40°C to +85°C

BENEFITS

- Small Footprint
- Simplifies Industrial Process Control Design
- Reduces System BOM
- Protects Sensitive System Components
- Breaks Ground Loops
- Reduces EMC Concerns

APPLICATIONS

- Signal Conditioning
- Relay Switching
- Temperature Regulation
- Test and Measurement
- PID Process
- Motor Control
- Pump Control
- Industrial Process Control



10D-IO Block Diagram

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Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

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Specifications

Typical* at T_A = +25°C and +3.3VDC power

Module	10D-IO-xxx-xx
10D-IO-xxx-xx	1-channel Process Current Output
Output Range	See Ordering Information
Compliance Voltage	+15VDC
Load Range	0 to 600Ω
Current Limit	26mA
Over/Under-range Capability	10% Span
Output Protection	
Continuous(1)	40Vrms (max)
Transient	EN6100-6-2
CMV	
Digital-to-Output	1500Vrms (max)
Transient	EN61000-6-2
CMR (50Hz or 60Hz)	100dB at 50/60Hz
Accuracy(3)	±0.04% Span
Linearity	±0.03% Span
Stability	
Zero	±25ppm/°C
Span	±35ppm/°C
Bandwidth, -3dB	100Hz
Update Rate	4000 S/s
ADC Resolution	14-bit
Discrete Inputs	1
Discrete Outputs	2
Discrete Output Drive Current	4mA
Interface	SPI(4)
Clock Input	1MHz (max)
SPI Mode	1
Bit Order	MSB First
Power Supply Voltage	+3.0 to +5.25VDC
Power Supply Current	70mA at No Load, 170mA at Full Load
Mechanical Dimensions (h)(w)(d)	0.350" x 2.00" x 1.00" (8.89mm x 50.8mm x 25.4mm)
Environmental	
Operating Temp. Range	–40°C to +85°C
Storage Temp. Range	–40°C to +85°C
Relative Humidity	0 to 95% Noncondensing
Emissions EN61000-6-4	ISM, Group 1
Radiated, Conducted Immunity	Class A
EN61000-6-2	ISM, Group 1
RF	Performance A ±0.5% Span Error
ESD, EFT	Performance B

NOTES:
*Contact factory or your local Dataforth sales office for maximum values.
(1) 40Vrms between +OUT and -OUT pins.
(2) Under-range not supported for 0mA to 20mA.
(3) Includes linearity, hysteresis, and repeatability.
(4) Refer to timing diagram in user manual.

Ordering Information

Model	Input	Output Range
10D-IO-1H1-01	SPI	4mA to 20mA
10D-IO-1H1-02	SPI	0mA to 20mA

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