DATAFORTH®

2024 Catalog DSCA

High-performance, DIN, Isolated, Analog Signal Conditioners



Instrument Class®

Industrial Electronics

Celebrating 40 YEARS

Instrument Class®
INNOVATION

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

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The Company

"Our passion at Dataforth Corporation is designing, manufacturing, and marketing the best possible data acquisition and control, signal conditioning, and data communication products. Our mission is to set new standards of product quality, performance, and customer service." **Dataforth Corporation**, with 40 years of experience, is a worldwide leader in *Instrument Class*® **Industrial Electronics –** rugged, high-performance data acquisition and control, signal conditioning, and data communication products that play a vital role in maintaining the integrity of industrial automation, data acquisition, and quality assurance systems. Our products directly connect to most industrial sensors and protect valuable measurement and control signals and equipment from the dangerous and degrading effects of noise, transient power surges, internal ground loops, and other hazards.

Global Service and Support

Dataforth spans the globe with more than 50 International Distributors and US Representative Companies. Our customers benefit from a team of over 130 sales people highly trained in the application of precision products for industrial markets. In addition, we have a team of application engineers at our Tucson factory ready to solve any in-depth application questions, and we maintain ample inventory that allows small-quantity orders to be shipped from stock.

Research and Development Team

A professional staff of engineering and marketing personnel identify and develop products to satisfy our customers' most stringent requirements. Dataforth's design department specializes in innovative analog and isolation circuit development, high-performance mixed signal design, and software development, to ensure that our customers receive the highest performance products at an affordable price.

Automated Manufacturing and Test

Our products are manufactured in the USA on our state-of-the-art SMT systems to optimize time-to-ship and control costs. All products are tested multiple times, and many undergo a 48-hour burn-in at elevated temperatures to ensure performance and reliability.

Quality Control

Dataforth operates under the ISO9001:2015 quality management system. Since our products are used in critical industrial data acquisition, control, and test and measurement applications, we strive to produce the highest quality, premier performance products available on the market. Zero defects and complete customer satisfaction are our goals. To further strengthen our commitment to quality, Dataforth secures certifications such as UL, CSA, ATEX, and CE.

www.dataforth.com

Our website presents visitors with an intuitive, informative layout that quickly leads them to their areas of interest. A parametric search engine efficiently locates products by model number or functional description, and the ability to quickly access pricing information and place online orders. Fully detailed product data sheets and application and tech notes are available for download. Visitors can also view new product release data, sign up to receive our newsletters, get answers to technical questions, and quickly locate Distributors and Sales Representatives worldwide.

The Future

We fully understand that our ongoing success depends on satisfying our customers' requirements. Building upon our position as marketplace leader, Dataforth continues to seek out the most cost-effective emerging technologies in design and manufacturing in order to provide the highest performance quality products at an affordable price. By intelligently observing and responding to changing market needs, we ensure continuation of our critical customer partnerships.

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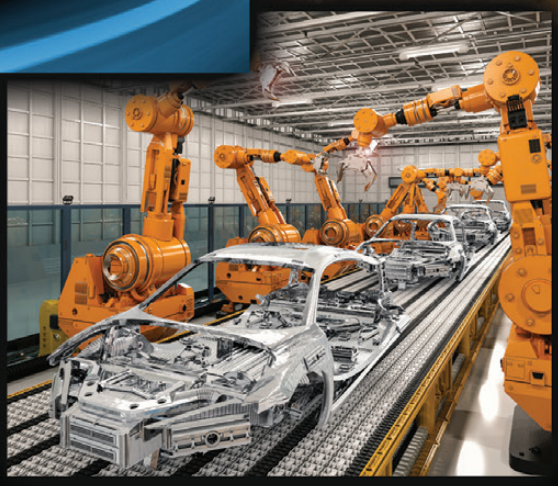


Dataforth

- 2000+ Products for Industrial Data Acquisition & Control, Signal Conditioning, and Data Communications
- Energy Monitoring
- 40 Years of Experience
- Better than 6σ Reliability
- Products Manufactured and Designed in the USA per RoHS III Directive (EU) 2015/863
- Quality Management System is ISO9001:2015 Registered

Additional Resources

- Application Notes
- Tech Notes
- Press & Product Releases



Our Track Record Proves We are Dedicated to Your Success!

For Product Information, Certifications, System Builders, and Online Ordering, go to: **www.dataforth.com**

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SCM5B Isolated Analog Signal Conditioning Modules

True 3-way Isolation, 5V Supply Voltage, Unparalleled Performance

20 family groups of 300+ different modules: a wide selection of input and output functions

Each SCM5B module provides a single channel of isolated analog input or output. Input modules interface to all types of industrial sensors. Analog inputs include voltage and current in narrow and wide bandwidths, thermocouple, RTD, accelerometer, potentiometer, strain gauge, frequency, and 2-wire and 3-wire, as well as 4-wire transmitter. Output modules accept a high-level analog voltage signal from a host system and provide process current or voltage output to field devices.

SCM5B Key Features

- ±0.03% Accuracy (typ)
- ±0.005% Linearity
- 1500Vrms Transformer Isolation & 240Vrms Field-Side Protection
- ANSI/IEEE C37.90.1 Transient Protection
- 5V Power Supply Voltage (30mA typ)
- 4- to 6-Pole Low-Pass Filtering
- Low Output Noise
- –40°C to +85°C Operating Temperature
- CSA C/US Certified, (Class I, Division 2, Groups A, B, C, D)
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863



SCM7B Isolated Process Control Signal Conditioning Modules

2-way Isolation, 14V - 35V Supply Voltage, Industrial Performance

15 family groups of 200+ different modules: a compact, low-cost solution for industrial data acquisition and process control applications

Each SCM7B module provides a single channel of isolated analog input or output. Various input modules accept analog voltage or current signals from all types of field sensors and sources; they provide high-level analog outputs suitable for use in a process control system. Output modules accept high-level analog voltage signals from a process control system and provide current or voltage output to a field device.



SCM7B Key Features

- ±0.03% Accuracy (typ)
- ±0.01% Linearity
- 1500Vrms Transformer Isolation & 120Vrms Field-Side Protection
- ANSI/IEEE C37.90.1 Transient Protection
- 14VDC to 35VDC Wide Supply Voltage
- 5-Pole Low-Pass Filtering
- Low Output Noise
- –40°C to +85°C Operating Temperature
- CSA C/US Certified (Class I, Division 2, Groups A, B, C, D)
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

The SCM5B, SCM7B product lines include a complete selection of backpanels, DIN-rail mounting options, cables, racks, power supplies, and other accessory items.

Custom SCM5B, SCM7B modules are available: consult factory for minimum quantity and pricing details on custom input ranges, output ranges, bandwidth, and other key parameters.

SensorLex® 8B Isolated Analog Signal Conditioning Modules

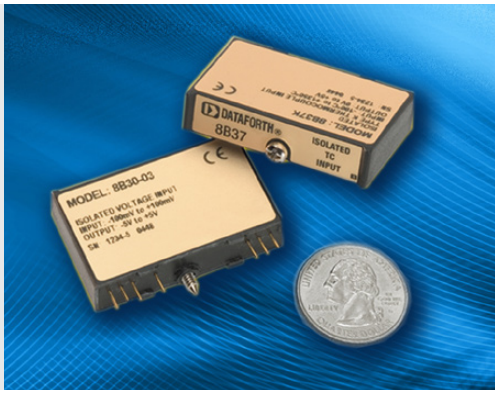
Miniature Size, 2-way Isolation, 5V Supply Voltage, *Instrument Class*® Performance

19 family groups of 130+ modules: an optimal solution for monitoring real-world process signals and providing high-level signals for data acquisition

Developed in response to customer requests for a smaller, isolated signal conditioner, SensorLex 8B modules are housed in a miniature package that is ideal for embedded and portable applications. All 8B modules are fully functional and provide *Instrument Class* analog voltage output. They interface to a wide variety of voltage, current, temperature, position, frequency, and strain measuring devices.

8B SensorLex Key Features

- ±0.05% Accuracy (typ)
- ±0.02% Linearity
- 1500Vrms Transformer Isolation & 240Vrms Field-Side Protection
- ANSI/IEEE C37.90.1 Transient Protection
- 5V Power Supply Voltage (30mA typ)
- 3- to 5-Pole Low-Pass Filtering
- Low Output Noise
- –40°C to +85°C Operating Temperature
- UL/cUL Listed (Class I, Division 2, Groups A, B, C, D)
- CE Compliant
- ATEX Compliance Pending
- Manufactured per RoHS III Directive 2015/863



SCMD Isolated Digital I/O Modules

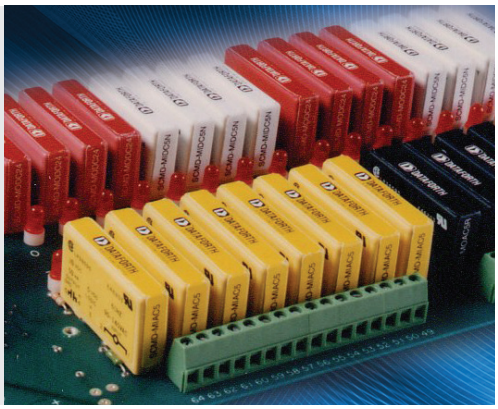
Miniature Digital I/O Modules with 4kV Isolation

A rugged, protective isolation barrier, effective to 4kV, between the field and computer system

SCMD miniature digital I/O modules are solid-state devices that send “On” and “Off” electrical signals to and from a computer. Input modules convert AC or DC voltages to DC logic signals and send them to the computer system. Output modules work in the opposite direction, switching either AC or DC circuits On or Off in response to logic-level voltage commands from the computer.

Key SCMD Features

- 4000Vrms Optical Isolation
- Industry Standard Packaging
- Input Modules Incorporate Input Filtering for Transient-Free Switching
- Complete Selection of Backpanels and Accessories
- Optional Low-Noise, Fast-Switching Models
- UL Listed, CSA Certified, CE Compliant
- Manufactured per RoHS III Directive 2015/863



The SensorLex 8B and SCMD product lines include a complete selection of backpanels, DIN-rail mounting options, cables, racks, power supplies, and other accessory items.

Custom SensorLex 8B modules are available: consult factory for minimum quantity and pricing details on custom input ranges, output ranges, bandwidth, and other key parameters.

DSCA High-performance, DIN-rail Mount, Isolated Signal Conditioners

True 3-way Isolation, High Accuracy, *Instrument Class*® Performance

16 family groups of 375+ different modules: a wide selection of input and output functions

Each *Instrument Class* DSCA module provides a single channel of isolated analog input or output for use in data acquisition, test and measurement, and control system applications.

DSCA Key Features

- ±0.03% Accuracy (typ)
- ±0.01% Linearity
- 1500Vrms Transformer Isolation & 240Vrms Field-Side Protection
- ANSI/IEEE C37.90.1 Transient Protection
- 15VDC to 30VDC Wide-Supply Voltage
- Industry Standard Outputs of 0-10V, ±10V, 0-20mA, or 4-20mA
- 4- to 6-Pole Low-Pass Filtering
- Low Output Noise
- –40°C to +80°C Operating Temperature
- Plug-in Terminal Blocks Simplify Wiring
- UL/cUL Listed (Class I, Division 2, Groups A, B, C, D)
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863



SCM9B Isolated Analog Signal Conditioning Modules

Isolated, Intelligent Signal Conditioning Products

11 family groups of 200+ different modules: a wide selection of input and output functions

High-quality 9B modules provide cost-effective protection and conditioning for a wide range of distributed data acquisition and control applications including but not limited to process monitoring and control, remote data logging, product testing, and motion and motor speed control.

Dataforth's extensive line includes fixed and programmable sensor-to-computer and computer-to-analog output interface modules, RS-232/RS-485 converters, RS-485 repeaters, and applications software. Accessories include a complete selection of backpanels, DIN-rail mounting options, interface cables, mounting racks, power supplies, and other accessory items.

SCM9B Key Features

SCM9B Sensor-to-Computer Modules

- 500Vrms Input Isolation
- Programmable Scaling and Linearization
- ASCII Command/Response Protocol
- 15-bit Measurement Resolution
- Continuous Self-Calibration
- Analog Readback
- DIN-rail Mountable D100 Series

SCM9B Computer-to-Analog Output Modules

- 0-1V, ±1V, 0-5V, ±5V, 0-10V, ±10V, 0-20mA, 4-20mA Output Ranges
- 500Vrms Output Isolation
- 12-bit Output Resolution
- Programmable 0.01V/s (mA/s) to 10,000V/s (mA/s) Output Slopes
- Analog Readback
- Data Scaling

SCM9B Converters and Repeaters

- Transparent to Host
- Optically Isolated Bidirectional Data Flows
- Automatic Internal RS-485 Bus Supervision
- DIN-rail Mountable D192 Model



Custom DSCA modules are available: consult factory for minimum quantity and pricing details on custom input ranges, output ranges, bandwidth, and other key parameters.

DSCL Industrial Loop Isolators and Transmitters

Passive, Active, Programmable 4-to-20mA Loop Products

Loop and universal AC/DC-powered isolators and transmitters in DIN-rail, component, and head-mount packages

This family includes basic loop-powered isolators, wide-range AC/DC-powered isolators and transmitters, and fixed-gain or hardware- and software-configurable models. They accept voltage, current, thermocouple, and RTD-input signals and provide high-level analog outputs for data acquisition, test and measurement, and control system applications.

Key DSCL Features

- Full Family of Loop Isolators and Transmitters
- Signal-Powered Passive Loop Isolator Models
- Wide Range 24-60V or 85-230V AC/DC Powered Models
- Jumper and Software Configurable Models
- 4000Vrms Isolation
- PCB, DIN-rail, Panel Mount, or Instrument Head Mounting
- Multiple Channels per Package Available
- No Recalibration or Maintenance Required
- Fault Detection of Input Signal Available
- CE Compliant
- Manufactured per RoHS III Directive 2015/863

Compact 6.2mm Signal Converters

- Ideal for Applications in Limited Space
- Dip-Switch Configuration
- 3 Power Supply Options
- 3.67” x 0.24” x 4.04” (93.1mm x 6.2mm x 102.5mm) casing
- 1.6 oz (45g) Per Module



DSCP User-Programmable Transmitters

Passive, Active, Programmable 4-to-20mA Loop Products

Loop and universal AC/DC-powered isolators and transmitters in DIN-rail, component, and head-mount packages

This family includes basic loop-powered isolators, wide-range AC/DC-powered isolators and transmitters, and fixed-gain or hardware and software configurable models. They accept voltage, current, thermocouple, and RTD-input signals and provide high-level analog outputs for data acquisition, test and measurement, and control system applications. The compact 6.2mm DSCP dip-switch configurable signal converters are ideal when space is limited.

Key DSCP Features

- Full Family of Loop Isolators and Transmitters
- Signal-Powered Passive Loop Isolator Models
- Wide Range 24-60V or 85-230V AC/DC Powered Models
- Jumper and Software Configurable Models
- 4000Vrms Isolation
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Compact 6.2mm Signal Converters

- Ideal for Applications in Limited Space
- Dip-Switch Configuration
- 3 Power Supply Options
- 3.67” x 0.24” x 4.04” (93.1mm x 6.2mm x 102.5mm) casing
- 1.6 oz (45g) Per Module



DSCT Loop-Powered Isolated Two-wire Transmitters

Instrument Class® Performance in a Low-Cost DIN-rail Mount Package

7 family groups of 45+ transmitter models: economical connections between sensors and control rooms

DSCT 2-wire transmitters condition and send analog signals from sensors located in the field to monitoring and control equipment-usually computers-located thousands of feet away in central control areas. The transmitters accept a wide range of inputs, including millivolt, volt, milliamp, thermocouple, RTD, potentiometer, and slide wire. They operate on power from a 2-wire signal loop and modulate the supply current to represent the input signal within a 4-to-20mA range.

Key DSCT Features

- ±0.03% Accuracy (typ)
- ±0.01% Linearity
- 1500Vrms Transformer Isolation & 240Vrms Field-Side Protection
- ANSI/IEEE C37.90.1 Transient Protection
- 10.8V to 60V Wide Loop Supply Voltage
- 5-Pole Low-Pass Filtering
- –40°C to +80°C Operating Temperature
- Mounts on DIN-rail EN 50022, 35x7.5 or 35x15
- CSA C/US Certified (Class I, Division 2, Groups A, B, C, D)
- CE Compliant
- Manufactured per RoHS III Directive 2015/863



DCP and LDM Industrial Data Communication Products

Line Drivers and Converters for RS-232, RS-422, and RS-485 Systems

9 family groups of 40+ transmitter models: economical connections between sensors and control rooms

Industrial LANs and data communication systems stretch over long distances, inside and outside, with signals exposed to electrical transients, noise, ground loops, power surges, and lightning. Our heavy duty products “harden” and protect these systems.

Key Data Communication Features

- Protects Equipment from Damage due to Power Surges, Transients, Lightning
- 1500Vrms Isolation with Optocouplers and Power DC-to-DC Converter (3000Vp, 1 min)
- Extends RS-232 Communication Distances without Expensive Low-Capacitance Cabling
- Connects RS-232 Devices to RS-422 and RS-485 Devices
- Data Rates to 115.2kbps
- Distances to 12 Miles (20km)
- 2- or 4-wire Simplex/Duplex Connection
- CE Compliant
- Manufactured per RoHS III Directive 2015/863



SCM5B isoLynx® SLX200 Data Acquisition System

Fast, Intelligent, Modular, Fully Isolated

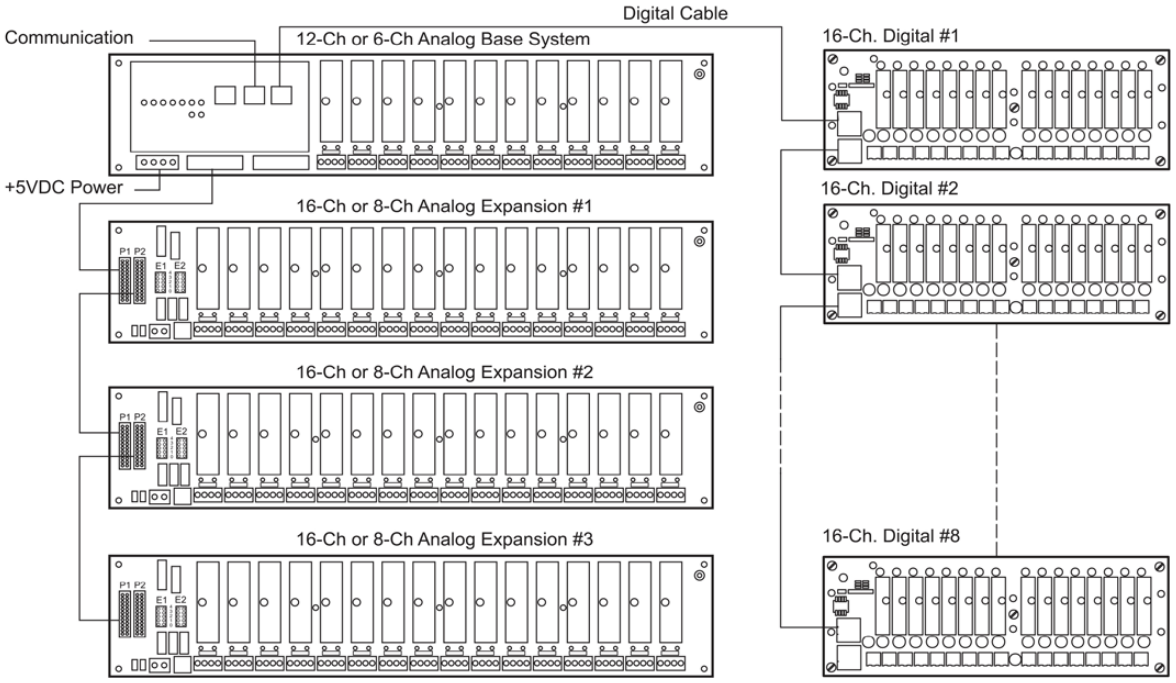
Implements industry-standard Modbus® RTU and TCP protocols, enabling communication with existing third-party software drivers and HMI/SCADA packages

Fully certified by Modbus-IDA and OPC compatible, the SCM5B isoLynx SLX200 provides superior reliability, accuracy, and isolation for a wide range of rugged industrial applications. The system offers maximum flexibility of analog and digital I/O selection; the modular design combines a 6- or 12-channel I/O Controller base system and optional 8- or 16-channel expansion backplanes, which can be panel or DIN-rail mounted. One I/O Controller unit can operate up to 60 channels of differential analog I/O and 128 channels of digital I/O, using Dataforth's SCM5B analog and SCMD digital modules. All I/O is channel-to-channel and input-to-output isolated.

SCM5B isoLynx SLX200 Key Features

- Modbus RTU Support on RS-232 and RS-485
- Modbus TCP Support (optional)
- 1500Vrms Input-to-Output and Channel-to-Channel Isolation
- 240Vrms Field-Side Protection
- Dual Ethernet for Redundancy
- System Expansion to 60 Analog Channels and 128 Discrete Channels
- All I/O Mix and Match Isolated
- Fast 16-Bit A/D, D/A
- Best I/O Selection with 250+ Different I/O Modules
- Drop-in Data Acquisition for Existing Installations
- Two Analog Scan Modes
- –40°C to +85°C Operating Temperature
- Free Configuration Software
- CSA C/US Certified (Class I, Division 2, Groups A, B, C, D)
- CE Compliant
- Manufactured per RoHS III Directive 2015/863





SCM5B isoLynx SLX200 System Example

8B isoLynx® SLX300 Data Acquisition System

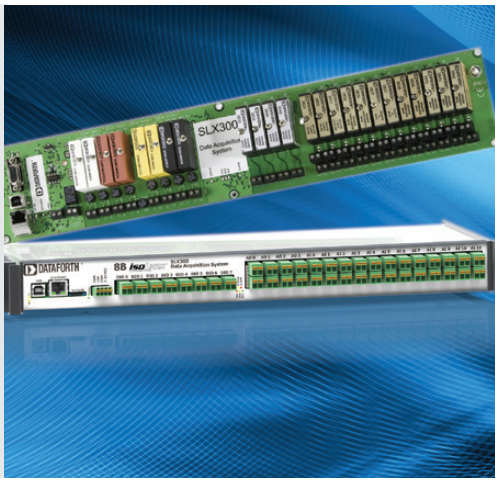
Flexible, Compact, Modular, Reliable

Configure with up to 12 isolated analog-input channels, 4 isolated analog-output channels, and 8 isolated digital I/O channels

Building on the proven reliability and outstanding performance of the SCM5B isoLynx SLX200 and miniature-sized SensorLex® 8B isolated signal conditioning modules, the 8B isoLynx SLX300 is a compact, low cost solution for wide ranging rugged industrial applications. The system enables the mix and match of analog and digital I/Os at sustained rates of up to 3.0kS/s (100kS/s burst) and supports Modbus® RTU and TCP protocols. The SLX300 also offers 7 advanced special functions and 4 alarm states. The system can be panel or DIN-rail mounted.

8B isoLynx SLX300 Key Features

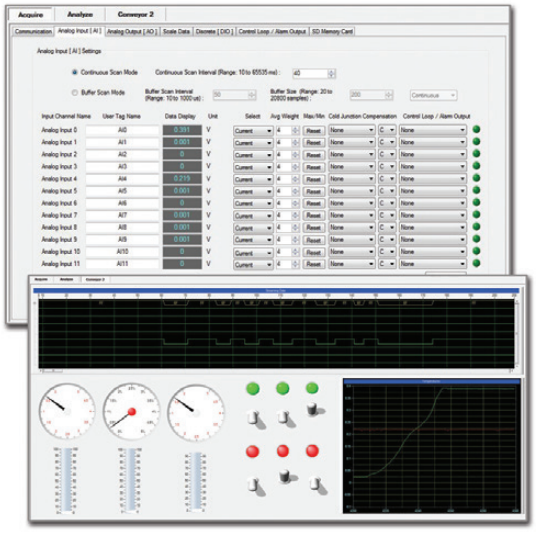
- Modbus RTU and TCP Support
- 1500Vrms Input-to-Output and Channel-to-Channel Isolation
- 240Vrms Field-Side Protection
- Wide I/O Selection
  - – Analog – 19 product families, 130+ models
  - – Digital – 6 product families, 20+ models
- Mix & Match Analog & Digital I/O
- Advanced Features Including Alarms, Counters, Timers, PWMs, and more
- –40°C to +85°C Operating Temperature
- Free Configuration Software
- UL/cUL Listed (Class I, Division 2, Groups A, B, C, D)
- CE Compliant
- ATEX Compliance Pending
- Manufactured per RoHS III Directive 2015/863



ReDAQ® Shape Software for SLX300

Out-of-the-box DAQ software for the 8B isoLynx SLX300 data acquisition system

ReDAQ Shape software for SLX300 provides the easiest and most efficient development tool to create, save, and open graphical user interface projects for test, process, data collection and data analysis applications. Built-in functions in the software are pre-configured and can be used without setup; just three easy steps are required to create data acquisition and control projects.



ReDAQ Shape for SLX300 Key Features

- 64 High-Quality Toolbox Tools
- 3 Easy Steps to Create Data Acquisition and Control Projects
- Pre-configured Built-in Software Functions
- Supports Any Graphical File Format
- Integrated, Across-the-Board Applicability
- Most Effective Way to Set Up and Configure 8B isoLynx SLX300

Functions:

- – Continuous and Burst Scan Modes For 12 Analog Input and 4 Analog Output Channels
- – Automatically Scales Data from Counts to Engineering Units
- – 8 Discrete I/O with 7 Special Functions Pulse/Frequency Counter, Pulse/Frequency Counter with De-Bounce, Waveform Measurement, Time Between Events, Frequency Generator, PWM Generator, One-Shot Pulse Generator
- – Customer User Tag Name for Any Input and Output
- – Cold Junction Compensation and Linearization for Thermocouple-input Modules
- – Control Loop and Alarm Output
- – Three Function Timer (Count-Down, 24hr/Day, Day/Time) with 10 Programmable Events

MAQ®20 Industrial Data Acquisition & Control System

High Performance, Powerful, Flexible, Industrial, Rugged Design

The industry's lowest cost-per-channel Data Acquisition & Control System offering, integral PID loop control, ±0.035% system accuracy; ideal for test and measurement, factory, process, and machine automation, military and aerospace, power and energy, environmental monitoring, and oil and gas applications

Encompassing more than 35 years of design excellence and quality in the industrial test and measurement and control industry, the MAQ20 family consists of DIN-rail mounted, programmable, multi-channel, rugged industrial signal conditioning input and output modules and communication modules. Each I/O module has a 1500Vrms isolation barrier between field-side and system-side wiring, and many models offer per-channel isolation. The MAQ20 is supported by both ReDAQ® Shape software for MAQ20 and your own ModBus® compatible data acquisition/test and measurement software.

MAQ20 Key Features

- Industry's Lowest Cost per Channel
- ±0.035% Accuracy (Typical)
- 1500Vrms Channel-to-Bus Isolation
- Up to 240Vrms Continuous Field I/O Protection
- ANSI/IEEE C37.90.1 Transient Protection
- Graphical Control Software
  - ReDAQ Shape for MAQ20 Software
  - Customer own ModBus® compatible DAQ Software
- Advanced Features Including Integral PID Control, Alarms, Counters, Timers, PWMs
- 7-34VDC Wide-Range Input Power
- –40°C to +85°C Industrial Operating Temperature
- Heavy Industrial CE Compliant
- UL/cUL Listed (Class I, Division 2, Groups A, B, C, D)
- ATEX Compliance Pending
- Manufactured per RoHS III Directive 2015/863

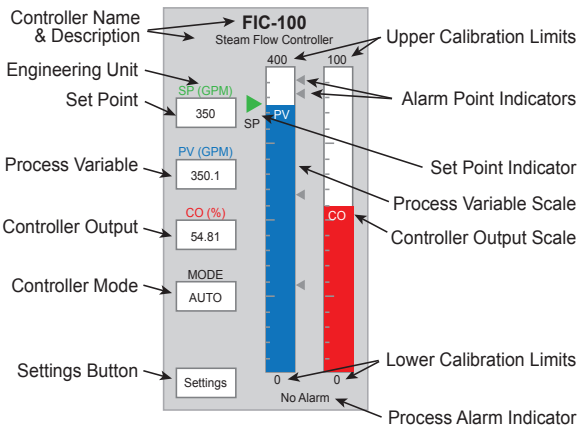


PID Loop Control

This highly effective controller operates in ReDAQ Shape for MAQ20 software

With ReDAQ Shape software, the MAQ20 Data Acquisition System runs in real time and provides up to 8 loops of PID control; faceplates within the software enable an engineer or operator to interact with the MAQ20 Data Acquisition System. Typical PID applications include steam, water, and chemical flow control; tank level control, heat-exchanger/reactor temperature control, and pressure control.

Key PID Controller Features... with ReDAQ Shape Software



PID Faceplate in ReDAQ Shape Software

- Separate Panels for Setting Basic, Advanced, and Alarm Items
- Noninteracting and Parallel PID Control Algorithms
- Proportional and Derivative Modes can Act on Error or Process Variable
- Gap Control
- Built-in Process Variable Filtering
- Bumpless Transfer
- Change Tuning Settings Easily
- Process Variable Set Point Tracking
- Limit Controller Output Range
- Anti-reset Windup
- Four Process Alarms
- Full-featured Faceplate for Numeric and Visual Feedback
- Integrated Auto Tuner

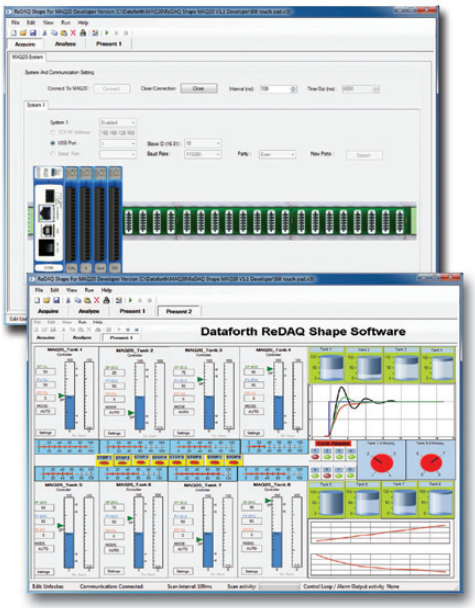
ReDAQ® Shape Software for MAQ®20

Ideal for data acquisition, monitoring and control; enables users to easily interact with the Dataforth MAQ20 Data Acquisition System

ReDAQ Shape software for MAQ20 is an easy and efficient development tool as well as an effective way to configure and customize MAQ20 functions for specific application requirements. Faceplates within the software enable an engineer or operator to interact with the MAQ20 Data Acquisition System and its features, for example PID Loop Control.

ReDAQ Shape for MAQ20 Key Features

- 3 Easy Steps to Create Customized Presentation Panels
- No Setup or Configuration Required to Acquire and Analyze Data
- Faceplates for PID Loop Control
- 65 High-Quality Toolbox Tools
- Supports any Graphical File Format
- Integrated, Across-the-Board Applicability
- Most Efficient Way to Configure and Run MAQ20 Systems:
  - Continuous Acquisition and Burst Scan Modes
  - Automatically Scales Data From Counts to Engineering Units
  - Discrete I/O Offers 7 Special Functions: Pulse/Frequency Counter, Pulse/Frequency Counter with De-Bounce, Waveform Measurement, Time Between Events, Frequency Generator, PWM Generator, One-Shot Pulse Generator
  - Assign Tag Names for any Input and Output
  - Configure Control Loops and Alarm Outputs
  - Three Function Timer (Count-Down, 24hr/ Day, Day/Time) with 10 Programmable Events



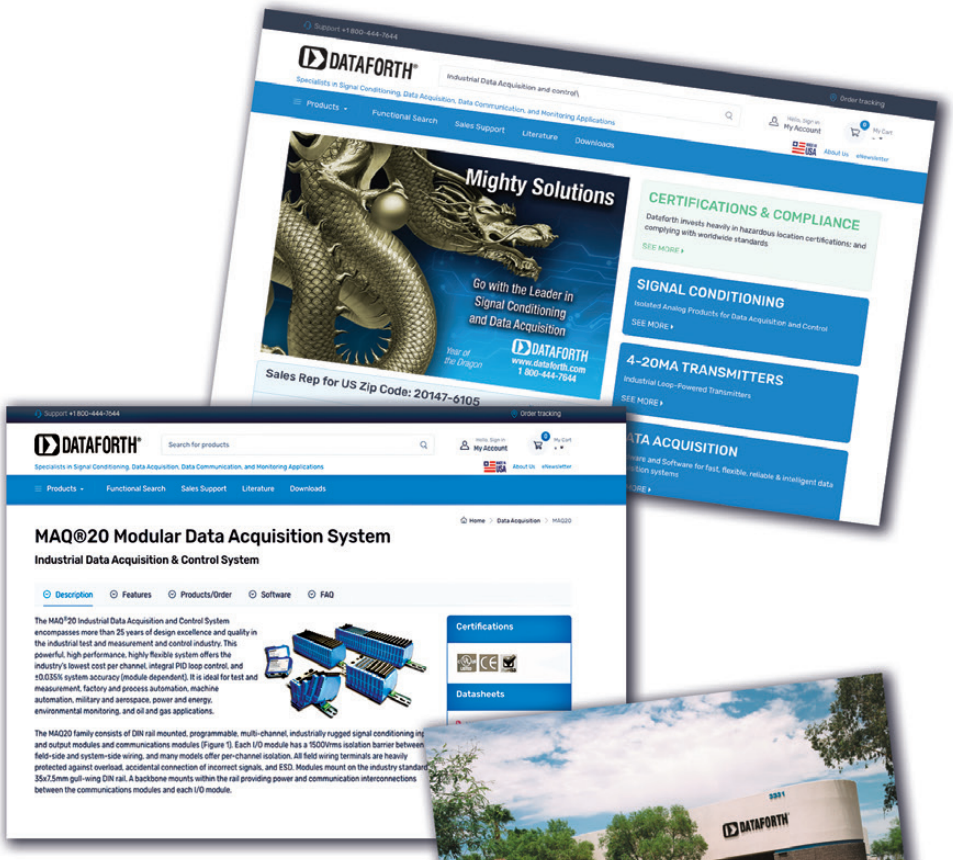
The Dataforth System Builder

Dataforth's System Builder is an innovative, interactive online tool that allows you to create your own system, module by module. Based on your stated requirements and parameters, suggestions are automatically given on which products to choose to build the most effective system. Pricing information is continuously updated, thereby enabling you to obtain the best system for your needs at the most cost-effective price

Visit Dataforth's Website: dataforth.com

Dataforth's website is an easy-to-use, comprehensive source for sales, products, and applications information. The site includes:

- Fast, accurate parametric search capabilities for all Dataforth industrial signal conditioning, data acquisition, and data communication products
- Online product quote and purchase
- Online product data sheets, application notes, and user manuals
- Direct applications assistance, sales, and customer service help lines readily available
- Latest news on company operations and new products
- Comprehensive signal conditioning, data acquisition, and control tutorials
- Worldwide corporate and sales contact information





Online Help
Online Ordering
Data Sheets
Application Notes
Product Information



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SCM5B, SCM7B, 8B, SCM9B

Characteristic	SCM5B	SCM7B	8B	SCM9B
Mechanical Format	Modular Plug-in-Board	Modular Plug-in-Board	Modular Plug-in-Board	Plug-in or Hockey Puck
Isolation: Voltage Type	1500Vrms Transformer 3-way	1500Vrms Transformer 2-way	1500Vrms Transformer 2-way	500Vrms Transformer/Optical 2-way
CMR	160dB	110dB	100dB	100dB
NMR (60Hz) Rejection	95dB (4Hz Modules)	85dB (3Hz Modules)	70dB	Software Configurable
Bandwidth	4Hz to 10kHz	3Hz to 10kHz	3Hz to 20kHz	Software Configurable
Filter	6-Pole	5-Pole	3- to 5-Pole	Digital
Input Voltage Withstand	240Vrms	120Vrms	240Vrms	120 or 250Vrms
Input Signals	(1)	(2)	(1)	(3)
Output Range to System	0-5VDC, 0-10VDC, ±5VDC, ±10VDC, 0-1mA, 0-20mA, 4-20mA	1-5VDC, 0-5VDC, 0-10VDC, ±10VDC	0-5VDC, ±5VDC	RS-232 or RS-485
Output Range to Field	4-20mA, 0-20mA, ±20mA, ±5VDC, ±10VDC, 0-5VDC, 0-10VDC	±10VDC, 4-20mA, 0-20mA	4-20mA, 0-20mA, ±20mA, ±5VDC, ±10VDC, 0-5VDC, 0-10VDC	4-20mA, 0-20mA, 0-1VDC, ±1VDC, 0-5VDC, ±5VDC, 0-10VDC, ±10VDC
Gain/Offset Adjust	Fixed	Fixed	Fixed	Auto Zero, Auto Cal
Accuracy	0.03% Typ	0.03% Typ	0.05% Typ	0.02% Typ
Output Control	Enable/Disable	Always Enabled	Always Enabled	RS-232 or RS-485
Supply Voltage	+5VDC ±5% at 30-350mA	14-35VDC (+24V Nom) at 12-70mA	+5VDC ±5% at 25-225mA	12-30VDC at 0.75W max
Dimensions (h)x(w)x(d)	2.28" x 2.26" x 0.6" 58mm x 57mm x 15mm	2.13" x 1.7" x 0.6" 54.1mm x 43.3mm x 15.4mm	1.11" x 1.65" x 0.4" 28.1mm x 41.9mm x 10.2mm	3.60" x 2.45" x 1.10" 91.4mm x 62.2mm x 27.9mm
Interface	14-Pin	5- or 6-Pin	5-, 6- or 7-Pin	10- or 20-Pos Term Block
Customization	Yes	Yes	Yes	No

DIN-rail, Head-Mount Products - DSCA, DSCT, DSCL, DSCP

Characteristic	DSCA	DSCT	DSCL	DSCP
Mechanical Format	DIN-rail Mount	DIN-rail Mount	DIN-rail, Component, Panel	DIN-rail, Head Mount
Isolation: Voltage Type	1500Vrms Transformer 3-way	1500Vrms Transformer 3-way	500Vrms to 4000Vrms Transformer/Optical	Non/1500Vrms/2300Vrms Transformer/Optical 3-way
CMR	160dB	160dB	70-110dB	Consult Data Sheet
NMR (60Hz) Rejection	85dB (3Hz Modules)	85dB (3Hz XMTRs)	20dB/Decade	SW or Dip-Switch Config
Bandwidth	3Hz to 3kHz	3Hz	5Hz to 750Hz	SW or Dip-Switch Config
Filter	6-Pole	6-Pole	2-Pole	SW or Dip-Switch Config
Input Voltage Withstand	240Vrms	240Vrms	N/A	N/A
Input Signals	(1)	(5)	4-20mA, 0-20mA	(4)
Output Range to System	0-10VDC, ±10VDC, 0-1mA, 4-20mA, 0-20mA	4-20mA	4-20mA, 0-20mA, V, & Selectable	SW or Dip-Switch Config
Output Range to Field	4-20mA, 0-20mA, ± 20mA, ±10VDC, 0-10VDC	N/A	N/A	N/A
Gain/Offset Adjust	±5%	±10%	±10% on Some Models	Software Configurable
Accuracy	0.03% Typ	0.03% Typ	0.05% to 0.1% Typ	0.1% Typ
Output Control	Always Enabled	Always Enabled	Always Enabled	Always Enabled
Supply Voltage	15-30VDC (+24V Nom) at 25-80mA	10.8-100VDC Loop at 4-20mA	24VDC Loop at 4-20mA	24VDC Loop, or 24-230VDC/VAC
Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)	Consult Data Sheet	Consult Data Sheet
Interface	8-Pos Term Block	6-Pos Term Block	Terminal Block	Terminal Block
Customization	Yes	Yes	No	SW or Dip-Switch Config

NOTES:
(1) V, I, RTD, TC, Potentiometer, Strain, True RMS, 2-wire, Frequency
(2) V, I, RTD, TC, Potentiometer, 2-wire
(3) V, I, RTD, TC, Frequency, Digital I/O
(4) V, I, RTD, TC
(5) V, I, RTD, TC, Potentiometer

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High-Accuracy Energy Monitoring Module

Module	PWRM10-01	PWRM20-01
Phase Voltage Range	85-265VAC	85 – 525VAC
Phase Frequency	50/60Hz Input	
Electrical System		
	Single-Phase (2-wire)	
Voltage Measurement	Two-Phase (3-wire)	
(Direct Connection or VT)	Three-Phase Wye or Delta (3-wire)	
	Three-Phase Wye or Delta (4-wire)	
Current Measurement	Shunt, Ct, Rogowski Coil	
Measured Parameters and Accuracy		
RMS Voltage	±0.1% of Full-Scale Range	
RMS Current	±0.1% of Full-Scale Range	
Active Power	±0.2%	
Apparent Power	±0.2%	
Reactive Power	±0.2%	
Power Factor	±0.2%	
Frequency Range	45-65Hz	
Active Energy	±0.25%	
Apparent Energy	±0.25%	
Fundamental Active & Reactive Energy	±0.25%	
Phase Angles	±0.1%	
Line Periods	±0.1%	
Measurement Bandwidth		
RMS Voltage & Current (–3dB)		
Total Active Energy (–3dB)	3.3kHz	
Fundamental Reactive Energy (–3dB)	3.3kHz	
Harmonic (–3dB)	3.3kHz (2.8kHz No Attenuation Pass Band)	
Temperature Drift	±100ppm°C	
Events	Over-Voltage, Over-Current, Sag	
Security	Password to Access Control	
Data Logging	Configurable, Automatic Download and Storage	
Connectivity	Ethernet, TCP/IP	
Mounting	DIN-rail	
Dimensions (h)x(w)x(d)	4.01" x 0.89" x 5.04" 102mm x 22.6mm x 128mm	

Data Acquisition (DAQ) System - MAQ20

Components - Communication - MAQ20-COM2, -COM4	
Standard Industrial Buses	Ethernet, RS-232, RS-485
USB Software Interfaces	Modbus TPC/IP or RTU
Components - Analog Input - MAQ20-MVDN, -VDN, -VSN, -IDN, -ISN, -FREQ, -BRDG1, -JTC, -KTC, -RSTC, -TTC, -RTD31, -RTD41, -ISOI1, -ISOMV1, ISOV2, -ISOV2, -ISOV3, -ISOV4, -ISOV5	
Channel Count	Up To 16 Channels, Independently Configurable
Voltage and Current Inputs	8 Differential or 16 Single-Ended
Thermocouple	8-Channel Measurement, 5 Thermocouple Types
RTD Inputs	2-, 3-wire Sensors, Including 6 RTD Types and Potentiometers
Strain Gauge Input	Connect to Full-Bridge Sensors, Narrow/Wide BW Filtering
Frequency Input	Zero Crossing and TTL Signals of 500Hz-100kHz Frequencies
Components - Analog Output - MAQ20-VO, -IO	
Voltage and Current Outputs	Up to 8 Channels of 300vrms Ch-to-Ch Isolated Output
Components - Discrete Input/Output - MAQ20-DIV20, -DIVC20, -DIOL, -DIOH, -DODC20SK, -DORLY20	
Channel Count	5 Input/5 Output Channels per Module
Inputs	3-60VDC Input; or, 90-280VAC/VDS at 3A
Outputs	3-60VDC Output; or, 24-280VAC at 3A
Overall System Specifications	
Accuracy	±0.035% (typ)
Voltage and Current Outputs	Up To 8 Channels Of 300Vrms Ch-To-Ch Isolated Output
Field I/O Protection	Up To 240Vrms, Continuous
Transient Protection	ANSI/IEEE C.37.90.1
Wide-Range Input Power	7-34VDC
ReDAQ Shape Software	Up To 8 PID Loops
Operating Temperature	–40°C To +85°C
Advanced PID Control	Alarms, Counters, Timers
Operating Temperature	–40°C To +85°C

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High-Voltage Attenuator Modules - SCMHVAS-Mxxxx

Module	SCMHVAS-Mxxx
Input Range	±100V_{PEAK} to ±2000V_{PEAK} (70VAC to 1414VAC)
Input Voltage (max)	±2000V_{PEAK}
Input Resistance	>10MΩ
Accuracy	±0.03%
Stability	±50ppm/ºC
Output Range	±1V
Output Resistance	<100kΩ
Mechanical Dimensions	2.13" x 1.705" x 0.605"
(h)x(w)x(d)	(54.1mm x 43.3mm x 15.4mm)
Environmental	
Operating Temp. Range	–40ºC to +85ºC
Storage Temp. Range	–40ºC to +85ºC
Relative Humidity	0 to 95% Noncondensing

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

See Discontinued Devices at the end of the Document.

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DSCA

High-performance, DIN-mountable, Isolated Analog Signal Conditioners



DESCRIPTION

Each *Instrument-Class*® DSCA module provides a single channel of isolated analog input or output. Input modules accept analog voltage or current signals from all types of field sensors and sources, and filter, isolate, amplify, linearize, and convert these input signals to high-level analog outputs suitable for use in data acquisition, test and measurement, and control system applications. Output modules accept high-level analog voltage signals from a system, then buffer, isolate, filter, and amplify them before providing a current or voltage output to a field device.

FEATURES

- Accepts Millivolt and Voltage Level Signals
- Industry-standard Output of 0 to +10V, ±10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 160dB CMR
- 85dB NMR at 60Hz, 80dB NMR at 50Hz
- ±0.03% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Breaks Ground Loops
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Reduces EMC Concerns

APPLICATIONS

- Analog Signal Conditioning
- Analog Signal Isolation
- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring

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DSCA Selection Guide

†OUTPUT RANGES AVAILABLE

Output Range	Part No. Suffix	Example
1. –10V to +10V	None	DSCA30-01
2. 0V to +10V	None	DSCA30-04
3. 4-20mA	C	DSCA30-01C
4. 0-20mA	E	DSCA30-04E
5. 0 to +5V	A	DSCA33-01A
6. 0 to 1mA	B	DSCA33-01B

ANALOG VOLTAGE INPUT MODULES, 3Hz BW

MODEL	INPUT RANGE	OUTPUT RANGE†
DSCA30-01	–10mV to +10mV	1
DSCA30-02	–50mV to +50mV	1
DSCA30-03	–100mV to +100mV	1
DSCA30-04	–10mV to +10mV	2, 3, 4
DSCA30-05	–50mV to +50mV	2, 3, 4
DSCA30-06	–100mV to +100mV	2, 3, 4
DSCA30-07	0 to +10mV	2, 3, 4
DSCA30-08	0 to +50mV	2, 3, 4
DSCA30-09	0 to +100mV	2, 3, 4
DSCA31-01	–1V to +1V	1
DSCA31-02	–5V to +5V	1
DSCA31-03	–10V to +10V	1
DSCA31-04	–1V to +1V	2, 3, 4
DSCA31-05	–5V to +5V	2, 3, 4
DSCA31-06	–10V to +10V	2, 3, 4
DSCA31-07	–20V to +20V	1
DSCA31-08	–20V to +20V	2, 3, 4
DSCA31-09	–40V to +40V	1
DSCA31-10	–40V to +40V	2, 3, 4
DSCA31-11	0 to +1V	2, 3, 4
DSCA31-12	0 to +5V	2, 3, 4
DSCA31-13	0 to +10V	2, 3, 4
DSCA31-14	0 to +20V	2, 3, 4
DSCA31-15	0 to +40V	2, 3, 4

ANALOG CURRENT INPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE†
DSCA32-01	4-20mA	2, 3, 4
DSCA32-02	0-20mA	2, 3, 4
DSCA32-03	±20mA	1

ISOLATED TRUE RMS INPUT MODULES

MODEL	INPUT RANGE (rms)	OUTPUT RANGE (dc)†
DSCA33-01	0 to 100mV	2, 3, 4, 5, 6
DSCA33-02	0 to 1V	2, 3, 4, 5, 6
DSCA33-03	0 to 10V	2, 3, 4, 5, 6
DSCA33-04	0 to 150V	2, 3, 4, 5, 6
DSCA33-05	0 to 300V	2, 3, 4, 5, 6
DSCA33-06	0 to 1A	2, 3, 4, 5, 6
DSCA33-07	0 to 5A	2, 3, 4, 5, 6

LINEARIZED 2- or 3-WIRE RTD-INPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE†
100Ω Pt **		
DSCA34-01	–100°C to +100°C (–148°F to +212°F)	2, 3, 4
DSCA34-02	0°C to +100°C (+32°F to +212°F)	2, 3, 4
DSCA34-03	0°C to +200°C (+32°F to +392°F)	2, 3, 4
DSCA34-04	0°C to +600°C (+32°F to +1112°F)	2, 3, 4
DSCA34-05	–50°C to +350°C (–58°F to +662°F)	2, 3, 4
120Ω Ni **		
DSCA34N-01	0°C to +300°C (+32°F to +572°F)	2, 3, 4

POTENTIOMETER-INPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE†
DSCA36-01	100Ω	2, 3, 4
DSCA36-02	500Ω	2, 3, 4
DSCA36-03	1kΩ	2, 3, 4
DSCA36-04	10kΩ	2, 3, 4

THERMOCOUPLE-INPUT MODULES

MODEL	TYPE‡	INPUT RANGE	OUTPUT RANGE†
DSCA37J-01	J	–100°C to +760°C (–148°F to +1400°F)	2, 3, 4
DSCA37K-02	K	–100°C to +1350°C (–148°F to +2462°F)	2, 3, 4
DSCA37T-03	T	–100°C to +400°C (–148°F to +752°F)	2, 3, 4
DSCA37E-04	E	0°C to +900°C (+32°F to +1652°F)	2, 3, 4
DSCA37R-05	R	0°C to +1750°C (+32°F to +3182°F)	2, 3, 4
DSCA37S-06	S	0°C to +1750°C (+32°F to +3182°F)	2, 3, 4
DSCA37B-07	B	0°C to +1800°C (+32°F to +3272°F)	2, 3, 4
DSCA37N-08	N	–100°C to +1300°C (–148°F to +2372°F)	2, 3, 4

STRAIN GAUGE INPUT MODULES

MODEL	INPUT	EXCITATION	OUTPUT RANGE†
DSCA38-01	±10mV Full Bridge Input, (3mV/V)	+3.333V	1
DSCA38-02	±30mV Full Bridge Input, (3mV/V)	+10.0V	1
DSCA38-03	±10mV Half Bridge Input, (3mV/V)	+3.333V	1
DSCA38-04	±30mV Half Bridge Input, (3mV/V)	+10.0V	1
DSCA38-05	±20mV Full Bridge Input, (2mV/V)	+10.0V	1
DSCA38-06	±33.3mV Full Bridge Input, (10mV/V)	+3.333V	1
DSCA38-07	±100mV Full Bridge Input, (10mV/V)	+10.0V	1
DSCA38-08	±10mV Full Bridge Input, (3mV/V)	+3.333V	2, 3, 4
DSCA38-09	±30mV Full Bridge Input, (3mV/V)	+10.0V	2, 3, 4
DSCA38-10	±10mV Half Bridge Input, (3mV/V)	+3.333V	2, 3, 4
DSCA38-11	±30mV Half Bridge Input, (3mV/V)	+10.0V	2, 3, 4
DSCA38-12	±20mV Full Bridge Input, (2mV/V)	+10.0V	2, 3, 4
DSCA38-13	±33.3mV Full Bridge Input, (10mV/V)	+3.333V	2, 3, 4
DSCA38-14	±100mV Full Bridge Input, (10mV/V)	+10.0V	2, 3, 4
DSCA38-15	0 to +10mV Full Bridge Input, (3mV/V)	+3.333V	2, 3, 4
DSCA38-16	0 to +30mV Full Bridge Input, (3mV/V)	+10.0V	2, 3, 4
DSCA38-17	0 to +10mV Half Bridge Input, (3mV/V)	+3.333V	2, 3, 4
DSCA38-18	0 to +30mV Half Bridge Input, (3mV/V)	+10.0V	2, 3, 4
DSCA38-19	0 to +20mV Full Bridge Input, (2mV/V)	+10.0V	2, 3, 4
DSCA38-20	0 to +33.3mV Full Bridge Input, (10mV/V)	+3.333V	2, 3, 4
DSCA38-21	0 to +100mV Full Bridge Input, (10mV/V)	+10.0V	2, 3, 4

CURRENT OUTPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE
DSCA39-01	0V to +10V	4-20mA
DSCA39-02	–10V to +10V	4-20mA
DSCA39-03	0V to +10V	4-20mA
DSCA39-04	–10V to +10V	4-20mA
DSCA39-05	0mA to 20mA	4-20mA
DSCA39-07	–10V to +10V	4-20mA

ANALOG VOLTAGE INPUT MODULES, 3kHz BW

MODEL	INPUT RANGE	OUTPUT RANGE†
DSCA40-01	–10mV to +10mV	1
DSCA40-02	–50mV to +50mV	1
DSCA40-03	–100mV to +100mV	1
DSCA40-04	–10mV to +10mV	2, 3, 4
DSCA40-05	–50mV to +50mV	2, 3, 4
DSCA40-06	–100mV to +100mV	2, 3, 4
DSCA40-07	0 to +10mV	2, 3, 4
DSCA40-08	0 to + 50mV	2, 3, 4
DSCA40-09	0 to +100mV	2, 3, 4

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DSCA Selection Guide (Continued)

†OUTPUT RANGES AVAILABLE

Output Range	Part No. Suffix	Example
1. –10V to +10V	None	DSCA30-01
2. 0V to +10V	None	DSCA30-04
3. 4-20mA	C	DSCA30-01C
4. 0-20mA	E	DSCA30-04E
5. 0 to +5V	A	DSCA33-01A
6. 0 to 1mA	B	DSCA33-01B

ANALOG VOLTAGE INPUT MODULES, 3kHz BW

MODEL	INPUT RANGE	OUTPUT RANGE†
DSCA41-01	–1V to +1V	1
DSCA41-02	–5V to +5V	1
DSCA41-03	–10V to +10V	1
DSCA41-04	–1V to +1V	2, 3, 4
DSCA41-05	–5V to +5V	2, 3, 4
DSCA41-06	–10V to +10V	2, 3, 4
DSCA41-07	–20V to +20V	1
DSCA41-08	–20V to +20V	2, 3, 4
DSCA41-09	–40V to +40V	1
DSCA41-10	–40V to +40V	2, 3, 4
DSCA41-11	0 to +1V	2, 3, 4
DSCA41-12	0 to +5 V	2, 3, 4
DSCA41-13	0 to +10V	2, 3, 4
DSCA41-14	0 to +20V	2, 3, 4
DSCA41-15	0 to +40V	2, 3, 4

2-WIRE TRANSMITTER INTERFACE MODULES

MODEL	INPUT RANGE	OUTPUT RANGE†
DSCA42-01	4-20mA	2, 3, 4
DSCA42-02	4-20mA	2V to +10V

GENERAL-PURPOSE INPUT MODULES, DC EXCITATION

MODEL	INPUT RANGE	OUTPUT RANGE†
DSCA43-01	–1V to +1V	1
DSCA43-02	–2V to +2V	1
DSCA43-03	–3V to +3V	1
DSCA43-04	–4V to +4V	1
DSCA43-05	–5V to +5V	1
DSCA43-06	–6V to +6V	1
DSCA43-07	–7V to +7V	1
DSCA43-08	–8V to +8V	1
DSCA43-09	–9V to +9V	1
DSCA43-10	–10V to +10V	1
DSCA43-11	–1V to +1V	2, 3, 4
DSCA43-12	–2V to +2V	2, 3, 4
DSCA43-13	–3V to +3V	2, 3, 4
DSCA43-14	–4V to +4V	2, 3, 4
DSCA43-15	–5V to +5V	2, 3, 4
DSCA43-16	–6V to +6V	2, 3, 4
DSCA43-17	–7V to +7V	2, 3, 4
DSCA43-18	–8V to +8V	2, 3, 4
DSCA43-19	–9V to +9V	2, 3, 4
DSCA43-20	–10V to +10V	2, 3, 4

FREQUENCY INPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE†
DSCA45-01	0 to 500Hz	2, 3, 4
DSCA45-02	0 to 1kHz	2, 3, 4
DSCA45-03	0 to 2.5kHz	2, 3, 4
DSCA45-04	0 to 5kHz	2, 3, 4
DSCA45-05	0 to 10kHz	2, 3, 4
DSCA45-06	0 to 25kHz	2, 3, 4
DSCA45-07	0 to 50kHz	2, 3, 4
DSCA45-08	0 to 100kHz	2, 3, 4

LINEARIZED THERMOCOUPLE-INPUT MODULES

MODEL	TYPE‡	INPUT RANGE	OUTPUT RANGE‡
DSCA47J-01	J	0°C to +760°C (+32°F to +1400°F)	2, 3, 4
DSCA47J-02	J	–100°C to +300°C (–148°F to +572°F)	2, 3, 4
DSCA47J-03	J	0°C to +500°C (+32°F to +932°F)	2, 3, 4
DSCA47K-04	K	0°C to +1000°C (+32°F to +1832°F)	2, 3, 4
DSCA47K-05	K	0°C to +500°C (+32°F to +932°F)	2, 3, 4
DSCA47K-13	K	–100°C to +1350°C (–148°F to +2462°F)	2, 3, 4
DSCA47K-14	K	0°C to +1200°C (+32°F to +2192°F)	2, 3, 4
DSCA47T-06	T	–100°C to +400°C (–148°F to +752°F)	2, 3, 4
DSCA47T-07	T	0°C to +200°C (+32°F to +392°F)	2, 3, 4
DSCA47E-08	E	0°C to +1000°C (+32°F to +1832°F)	2, 3, 4
DSCA47R-09	R	+500°C to +1750°C (+932°F to +3182°F)	2, 3, 4
DSCA47S-10	S	+500°C to +1750°C (+932°F to +3182°F)	2, 3, 4
DSCA47B-11	B	+500°C to +1800°C (+932°F to +3272°F)	2, 3, 4
DSCA47N-15	N	–100°C to +1300°C (–148°F to +2372°F)	2, 3, 4

VOLTAGE OUTPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE
DSCA49-04	0Vto +10V	–10V to +10V
DSCA49-05	–10Vto +10V	–10V to +10V
DSCA49-06	–10Vto +10V	0V to +10V

ACCESSORIES

SCMXRAIL1-XX	DIN EN 50022-35 x 7.5 (Slotted Steel), Length -xx, in Meters
SCMXRAIL3-XX	DIN EN 50022-35 x 15 (Slotted Steel), Length -xx, in Meters

POWER SUPPLIES

PWR-PS5R7W	Power Supply, 24V, 0.3A, 100-240VAC Input
PWR-PS5R15W	Power Supply, 24V, 0.65A, 100-240VAC Input
PWR-PS5R30W	Power Supply, 24V, 1.3A, 100-240VAC Input
PWR-PS5R60W	Power Supply, 24V, 2.5A, 100-240VAC Input
PWR-PS5R120W	Power Supply, 24V, 5.0A, 100-240VAC Input

‡THERMOCOUPLE ALLOY COMBINATIONS

Standards: DIN IEC 584, ANSI MC96-1-82, JIS C 1602-1981

Type	Material
J	Iron vs. Copper-Nickel
K	Nickel-Chromium vs. Nickel-Aluminum
T	Copper vs. Copper-Nickel
E	Nickel-Chromium vs. Copper-Nickel
R	Platinum-13% Rhodium vs. Platinum
S	Platinum-10% Rhodium vs. Platinum
B	Platinum-30% Rhodium vs. Platinum-6% Rhodium
C	Tungsten-5% Rhenium vs. Tungsten-26% Rhenium
N	Nickel-14.2% Chromium-1.4% Silicon vs. Nickel-4.4% Silicon- 0.1% Magnesium

**RTD STANDARDS

Type	Alpha Coefficient	DIN	JIS	IEC
100Ω Pt 120Ω Ni	0.00385 0.00672	DIN 43760	JIS C 1604-1989	IEC 751

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA30/31

Analog Voltage-input Signal Conditioners, Narrow Bandwidth

DESCRIPTION

Each DSCA30/31 voltage-input module provides a single channel of analog input which is filtered, isolated, amplified, and converted to a high-level voltage output (Figure below). Signal filtering is accomplished with a five-pole filter which provides 85dB of normal-mode rejection at 60Hz and 80dB at 50Hz. An anti-aliasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common mode spikes or surges.

Module output is either voltage or current. For current-output models a dedicated loop supply is provided at Terminal 3 (+OUT) with loop return located at Terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

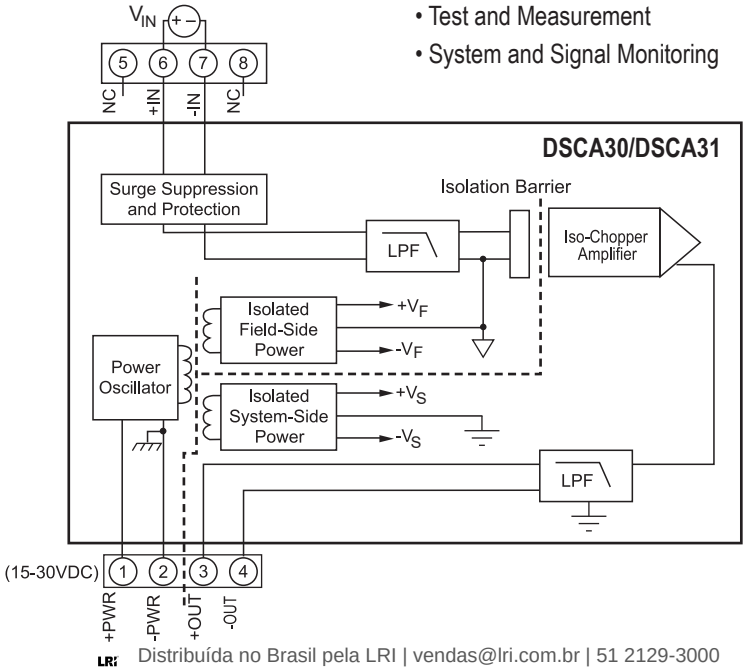
- Accepts Millivolt and Voltage Level Signals
- Industry-standard Output of 0 to +10V, ±10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 160dB CMR
- 85dB NMR at 60Hz, 80dB NMR at 50Hz
- ±0.03% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA30/DSCA31 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA30	DSCA31
Input Range	±10mV to ±100mV	±1V to ±40V
Input Bias Current	±0.5nA	±0.05nA
Input Resistance		
Normal	50MΩ	500kΩ (min)
Power Off	65kΩ	500kΩ (min)
Overload	65kΩ	500kΩ (min)
Input Protection		
Continuous	240Vrms (max)	240Vrms (max)
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
Output Range	See Ordering Information	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection		
Short to Ground	Continuous	Continuous
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power		
Continuous	1500Vrms (max)	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
CMV, Output to Power		
Continuous	50VDC (max)	50VDC (max)
CMR (50Hz or 60Hz)	160dB	160dB
Accuracy(1)	±0.03% Span	±0.03% Span
Linearity	±0.01% Span	±0.01% Span
Adjustability	±5% Zero and Span	±5% Zero and Span
Stability		
Input Offset	±0.5µV/°C	±5µV/°C
Output Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Zero Suppression	±50ppm(V_z)(2)/°C	±50ppm(V_z)(2)/°C
Gain	±35ppm/°C	±55ppm/°C
Output Noise, 100kHz BW	250µVrms (V_{OUT}), 1µArms (I_{OUT})	250µVrms (V_{OUT}), 1µArms (I_{OUT})
Bandwidth, –3dB	3Hz	3Hz
NMR	85dB at 60Hz, 80dB at 50Hz	85dB at 60Hz, 80dB at 50Hz
Response Time, 90% Span	165ms	165ms
Power Supply		
Voltage	15 to 30VDC	15 to 30VDC
Current	25mA (V_{OUT}), 55mA (I_{OUT})	25mA (V_{OUT}), 55mA (I_{OUT})
Sensitivity	±0.0001%/%	±0.0001%/%
Protection		
Reverse Polarity	Continuous	Continuous
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental		
Operating Temp. Range	–40°C to +80°C	–40°C to +80°C
Storage Temp. Range	–40°C to +80°C	–40°C to +80°C
Relative Humidity	0 to 95% Noncondensing	0 to 95% Noncondensing
Emissions EN61000-6-4	ISM, Group 1	ISM, Group 1
Radiated, Conducted	Class A	Class A
Immunity EN61000-6-2	ISM, Group 1	ISM, Group 1
RF	Performance A ±0.5% Span Error	Performance A ±0.5% Span Error
ESD,EFT	Performance B	Performance B

NOTES:
*Contact factory or your local Dataforth sales office for maximum values.
(1) Includes linearity, hysteresis, and repeatability.
(2) V_z is the nominal input voltage that results in 0V or 0mA output.

Ordering Information

Model	Input Range	Output Range†
DSCA30-01	–10mV to +10mV	1
DSCA30-02	–50mV to +50mV	1
DSCA30-03	–100mV to +100mV	1
DSCA30-04	–10mV to +10mV	2, 3, 4
DSCA30-05	–50mV to +50mV	2, 3, 4
DSCA30-06	–100mV to +100mV	2, 3, 4
DSCA30-07	0 to +10mV	2, 3, 4
DSCA30-08	0 to +50mV	2, 3, 4
DSCA30-09	0 to +100mV	2, 3, 4
DSCA31-01	–1V to +1V	1
DSCA31-02	–5V to +5V	1
DSCA31-03	–10V to +10V	1
DSCA31-04	–1V to +1V	2, 3, 4
DSCA31-05	–5V to +5V	2, 3, 4
DSCA31-06	–10V to +10V	2, 3, 4
DSCA31-07	–20V to +20V	1
DSCA31-08	–20V to +20V	2, 3, 4
DSCA31-09	–40V to +40V	1
DSCA31-10	–40V to +40V	2, 3, 4
DSCA31-11	0 to +1V	2, 3, 4
DSCA31-12	0 to +5V	2, 3, 4
DSCA31-13	0 to +10V	2, 3, 4
DSCA31-14	0 to +20V	2, 3, 4
DSCA31-15	0 to +40V	2, 3, 4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	DSCA30-01
2. 0V to +10V	NONE	DSCA30-04
3. 4-20mA	C	DSCA30-04C
4. 0-20mA	E	DSCA30-04E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA32

Analog Current-input Signal Conditioners

DESCRIPTION

Each DSCA32 current-input module provides a single channel of analog input which is filtered, isolated, amplified, and converted to a high-level voltage output (Figure below). Signal filtering is accomplished with a five-pole filter which is optimized for step response. An anti-aliasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

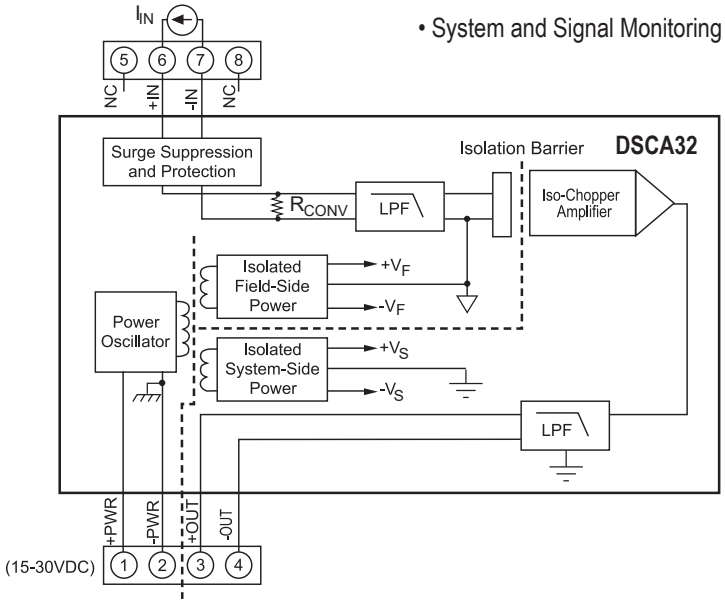
- Accepts mA Level Signals
- Industry-standard Output of 0 to +10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 105dB CMR
- 5-Pole Filtering
- ±0.03% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA32 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA32
Input Range	0-20mA, 4-20mA, ±20mA
Input Resistance	
Normal	<100Ω
Power Off	<100Ω
Overload	65kΩ
Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	105dB
Accuracy(1)	±0.03% Span
Linearity	±0.01% Span
Adjustability	±5% Zero and Span
Stability	
Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Gain	±40ppm/°C
Output Noise, 100kHz Bandwidth	300µVrms (V_{OUT}), 1µArms (I_{OUT})
Bandwidth, –3dB	100Hz
NMR (–3dB at 100Hz)	100dB per Decade above 100Hz
Response Time, 90% Span	5ms
Power Supply	
Voltage	15-30VDC
Current	25mA (V_{OUT}), 55mA (I_{OUT})
Sensitivity	±0.0001%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°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

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

Ordering Information

Model	Input Range	Output Range†
DSCA32-01	4-20mA	2, 3, 4
DSCA32-02	0-20mA	2, 3, 4
DSCA32-03	±20mA	1

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	None	DSCA32-03
2. 0V to +10V	None	DSCA32-01
3. 4-20mA	C	DSCA32-01C
4. 0-20mA	E	DSCA32-02E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA33

Isolated True RMS Input Signal Conditioners

DESCRIPTION

Each DSCA33 True RMS input module provides a single channel of AC input which is converted to its True RMS DC value, filtered, isolated, amplified, and converted to standard process voltage or current output (Figure below).

The field-voltage or current-input signal is processed through an AC coupled pre-amplifier and RMS converter on the field side of the isolation barrier. The converted DC signal is then filtered and chopped by a proprietary chopper circuit and transferred across the transformer isolation barrier, suppressing transmission of common-mode spikes and surges. The computer-side circuitry reconstructs, filters, and converts the signal to industry-standard outputs.

Module output is either voltage or current. For current-output models, a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of power-line voltages up to 480VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are pluggable terminal blocks for ease of system assembly and reconfiguration.

DSCA33 modules have excellent stability over time and do not require recalibration, however, both zero and span settings are adjustable to accommodate situations where fine tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

Due to circuit limitations, DSCA33-04x and -05x are not ATEX compliant.

FEATURES

- Interfaces RMS Voltage (0 – 300V) or RMS Current (0 – 5A)
- Designed for Standard Operation with Frequencies of 45Hz to 1000Hz (Extended Range Operation to 20kHz)
- Compatible with Standard Current and Potential Transformers
- Industry Standard Output of 0 to 1mA, 0-20mA, or 4-20mA, 0 to +5V, or 0 to +10V
- ±0.25% Factory Calibrated Accuracy (Accuracy Class 0.2)
- ±5% Adjustable Zero and Span
- 1500Vrms Transformer Isolation
- Input Overload Protected to 480V (Peak AC and DC) or 10Arms Continuous
- 100dB CMR
- ANSI/IEEE C37.90.1 Transient Protection
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed and CE Compliant
- ATEX Compliant (all models except DSCA33-04x, -05x)
- Manufactured per RoHS III Directive 2015/863

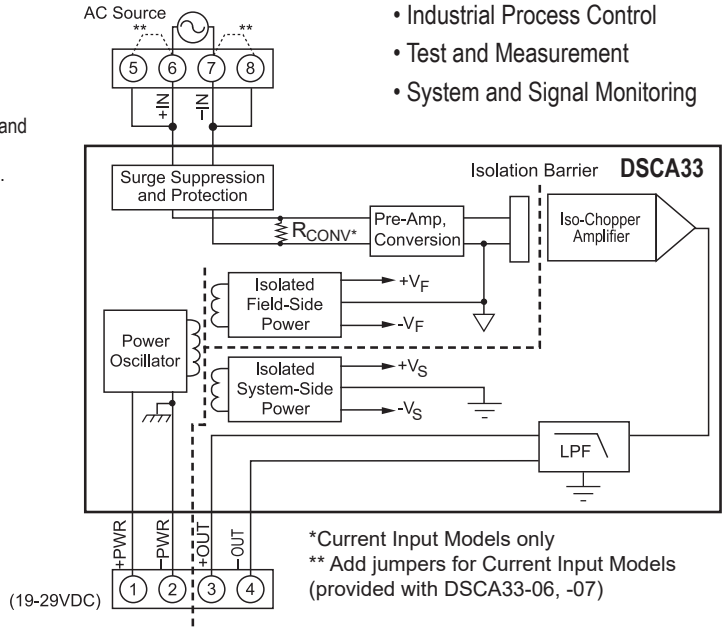
BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring

WARNING: The DSCA33 interfaces to hazardous voltages and should only be wired by qualified personnel or licensed electricians.



*Current Input Models only
** Add jumpers for Current Input Models (provided with DSCA33-06, -07)

DSCA33 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA33
Input	
Signal Range	0mV to 300Vrms, 0 to 5Arms
Standard Frequency Range	45Hz to 1000Hz
Extended Frequency Range	1kHz to 20kHz
Impedance	499KΩ // <100pF (-01 thru -05), 0.10Ω (-06), 0.025Ω (-07)
Coupling	AC
Protection	
Continuous (-01 thru -05)	350Vrms
Continuous (-06 thru -07)	5Arms (-06), 10Arms (-07) (max)
Transient (-01 thru -05)	ANSI/IEEE C37.90.1
Transient (-06 thru -07)	See Note 1
Output	
Signal Range	See Ordering Information
Adjustability	±5% Zero & Span
Load Resistance	10kΩ (max) (0-1mA Models), 600Ω (max) (0/4-20mA Models)
Current Limit	1.4mA (0-1mA Models), 30mA (0/4-20mA models), 8mA (0-5/10V Models)
Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
Ripple and Noise	<0.025% Span rms
Accuracy (10-100% Span)(2) (3)	
Sinusoid	
50/60Hz	±0.25% Span
45Hz-1kHz	±0.25% Reading Additional Error
1kHz-20kHz	±0.75% Reading Additional Error
Non-Sinusoid	
Crest Factor = 1 to 2	±0.05% Reading Additional Error
Crest Factor = 2 to 3	±0.15% Reading Additional Error
Crest Factor = 3 to 4	±0.30% Reading Additional Error
Crest Factor = 4 to 5	±0.40% Reading Additional Error
Vs. Temperature	±100ppm/°C
Isolation (Common Mode)	
Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
Output to Power	
Continuous	50VDC (max)
Response Time (0 to 99%)	<400ms
CMR (50 or 60Hz)	100dB
Power Supply	
Voltage	19 to 29VDC
Current	45mA (V_{OUT}), 65mA (I_{OUT})
Sensitivity	±0.0002%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°C
Relative Humidity	0 to 95% Noncondensing
HazLoc ATEX	All models except DSCA33-04x, -05x
Emissions EN61000-6-4	ISM, Group 1
Radiated, Conducted	Class A
Immunity EN61000-6-2	ISM, Group 1
RF	Performance A ±0.83% Span Error
ESD, EFT	Performance B

NOTES:
*Contact factory or your local Dataforth sales office for maximum values.
(1) For 1 to 25 seconds the max allowable transient current rating is √ 2500 / (event time). For less than 1 second, ANSI/IEEE C37.90.1 applies with a 0.05Ω load. For greater than 25 seconds, the 10A (max) continuous rating applies.
(2) For 0-10% Span measurements, add 0.25% accuracy error (-02 thru -07) or 1.00% accuracy error (-01). Accuracy includes linearity, hysteresis, and repeatability but not source or external shunt inaccuracy (if used).
(3) At standard 60Hz factory calibration (90Hz for -01, -06). Consult factory for calibration at other frequencies.

Ordering Information

Model	Input (rms)†	Output (DC)†
DSCA33-01	0mV to 100mV	2, 3, 4, 5, 6
DSCA33-02	0V to 1V	2, 3, 4, 5, 6
DSCA33-03	0V to 10V	2, 3, 4, 5, 6
DSCA33-04	0V to 150V	2, 3, 4, 5, 6
DSCA33-05	0V to 300V	2, 3, 4, 5, 6
DSCA33-06	0A to 1A	2, 3, 4, 5, 6
DSCA33-07	0A to 5A	2, 3, 4, 5, 6

†Modules can be ordered with other input/output ranges.
Consult factory for ordering details and specifications

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	N/A	N/A
2. 0V to +10V	NONE	DSCA33-01
3. 4-20mA	C	DSCA33-01C
4. 0-20mA	E	DSCA33-01E
5. 0 to +5V	A	DSCA33-01A
6. 0 to 1mA	B	DSCA33-01B

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA34

Linearized 2- or 3-wire RTD-input Signal Conditioners

DESCRIPTION

Each DSCA34 RTD-input module provides a single channel of RTD input which is filtered, isolated, amplified, linearized, and converted to a high-level voltage output (Figure below). Signal filtering is accomplished with a five-pole filter which provides 85dB of normal-mode rejection at 60Hz and 80dB at 50Hz. An antialiasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

RTD excitation is provided from the module using a precision current source. Lead compensation is achieved by matching two current paths which cancels the effects of lead resistance. The excitation current is small (approx. 0.25mA) which minimizes self-heating of the RTD.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of powerline voltages up to 240VAC and against transient events as defined by ANSI/ IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease-of-system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration, however, zero and span settings are adjustable up to ±3% to accommodate; situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

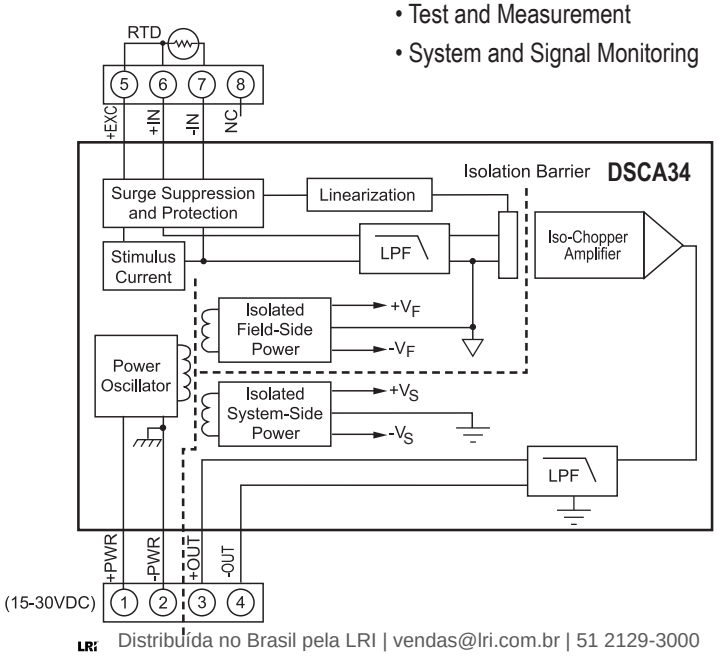
- Interfaces to 100Ω Platinum or 120Ω Nickel RTDs
- Linearizes RTD Signal
- Industry-standard Output of 0 to +10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 160dB CMR
- 85dB NMR at 60Hz, 80dB NMR at 50Hz
- ±0.08% Accuracy
- ±0.025% Conformity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



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DSCA34 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA34
Input Range Limits	–200°C to +850°C (100Ω Pt) –80°C to +320°C (120Ω Ni)
Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Sensor Excitation Current	≈ 250µA
Lead Resistance Effect	±0.02°C/Ω
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	160dB
Accuracy	See Ordering Information
Conformity	±0.025% (100Ω Pt) ±0.07% (120Ω Ni)
Adjustability	±3% Zero and Span
Stability	
Input Offset	±1µV/°C
Output Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Gain	±60ppm/°C
Output Noise, 100kHz Bandwidth	250µVrms (V_{OUT}), 1µArms (I_{OUT})
Bandwidth, –3dB	3Hz
NMR	85dB at 60Hz, 80dB at 50Hz
Response Time, 90% Span	165ms
Open Input Response	
+IN	Upscale
–IN	Non-deterministic
+EXC	Downscale
Power Supply	
Voltage	15 to 30VDC
Current	25mA (V_{OUT}), 55mA (I_{OUT})
Sensitivity	±0.0001%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°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

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

Ordering Information

Model	Input Range	Output Range†	Accuracy(1)	
100Ω Pt				
DSCA34-01	–100°C to +100°C (–148°F to +212°F)	2, 3, 4	±0.08%	±0.16°C
DSCA34-02	0°C to +100°C (+32°F to +212°F)	2, 3, 4	±0.10%	±0.10°C
DSCA34-03	0°C to +200°C (+32°F to +392°F)	2, 3, 4	±0.08%	±0.16°C
DSCA34-04	0°C to +600°C (+32°F to +1112°F)	2, 3, 4	±0.05%	±0.30°C
DSCA34-05	–50°C to +350°C (–58°F to +662°F)	2, 3, 4	±0.05%	±0.20°C
120Ω Ni				
DSCA34N-01	0°C to +300°C (+32°F to +572°F)	2, 3, 4	±0.15%	±0.45°C

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	N/A
2. 0V to +10V	NONE	DSCA34-01
3. 4-20mA	C	DSCA34-01C
4. 0-20mA	E	DSCA34-01E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

RTD Standards

Type	Alpha Coefficient	DIN	JIS	IEC
100Ω Pt 120Ω Ni	0.00385 0.00672	DIN 43760	JIS C 1604-1989	IEC 751

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA36

Potentiometer-input Signal Conditioners

DESCRIPTION

Each DSCA36 potentiometer-input module provides a single channel of potentiometer-input which is filtered, isolated, amplified, and converted to a high-level voltage output (Figure below). Signal filtering is accomplished with a five-pole filter which provides 85dB of normal-mode rejection at 60Hz and 80dB at 50Hz. An anti-aliasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

Potentiometer excitation is provided from the module using a precision current source. Lead compensation is achieved by matching two current paths which cancels the effects of lead resistance. The excitation current is small (approx. 0.25mA) which minimizes self-heating of the sensor.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of powerline voltages up to 240VAC and against transient events as defined by ANSI/ IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

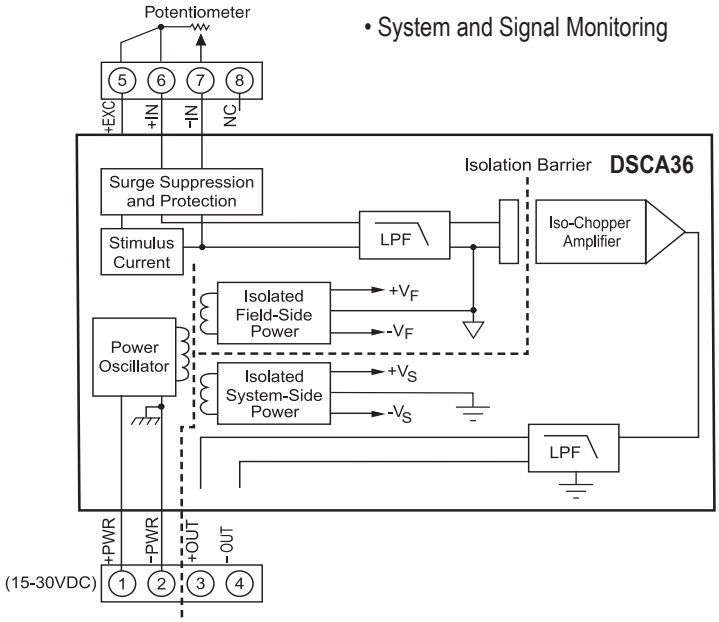
- Interfaces to Potentiometers up to 10kΩ
- Industry-standard Output of 0 to +10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 160dB CMR
- 85dB NMR at 60Hz, 80dB NMR at 50Hz
- ±0.03% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA36 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA36
Input Range Limits	0Ω to 10kΩ
Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Sensor Excitation Current	260µA; 100Ω, 500Ω, 1kΩ Sensor 65µA; 10kΩ Sensor
Lead Resistance Effect	±0.01Ω/Ω; 100Ω, 500Ω, 1kΩ Sensor ±0.02Ω/Ω; 10kΩ Sensor
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA(I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	160dB
Accuracy(1)	±0.03%
Conformity	±0.01%
Adjustability	±5% Zero and Span
Stability	
Input Offset	±0.004Ω/°C; 100Ω, 500Ω, 1kΩ Sensor ±0.01Ω/°C; 10kΩ Sensor
Output Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Gain	±60ppm/°C
Output Noise, 100kHz Bandwidth	250µVrms (V_{OUT}), 1µArms (I_{OUT})
Bandwidth, –3dB	3Hz
NMR	85dB at 60Hz, 80dB at 50Hz
Response Time, 90% Span	165ms
Open Input Response	
+IN	Upscale
–IN	Non-deterministic
+EXC	Downscale
Power Supply	
Voltage	15 to 30VDC
Current	25mA (V_{OUT}), 55mA (I_{OUT})
Sensitivity	±0.0001%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°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

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

Ordering Information

Model	Input Range	Output Range†
DSCA36-01	0 to 100Ω	2, 3, 4
DSCA36-02	0 to 500Ω	2, 3, 4
DSCA36-03	0 to 1kΩ	2, 3, 4
DSCA36-04	0 to 10kΩ	2, 3, 4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	N/A
2. 0V to +10V	NONE	DSCA36-01
3. 4-20mA	C	DSCA36-01C
4. 0-20mA	E	DSCA36-01E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA37

Non-linearized Thermocouple-input Signal Conditioners

DESCRIPTION

Each DSCA37 non-linearized thermocouple-input module provides a single channel of thermocouple-input which is filtered, isolated, amplified, and converted to a high-level voltage output (Figure below). Signal filtering is accomplished with a five-pole filter which provides 85dB of normal-mode rejection at 60Hz and 80dB at 50Hz. An anti-aliasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

The DSCA37 can interface to eight industry-standard thermocouple types: J, K, T, E, R, S, B and N. Each module has cold-junction compensation to correct for parasitic thermocouples formed by the thermocouple wire and input screw terminals on the module. Upscale open thermocouple detection is provide by internal circuitry. Downscale indication can be implemented by installing a 47MΩ, ±20% resistor between screw terminals 6 and 8 on the input terminal block.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

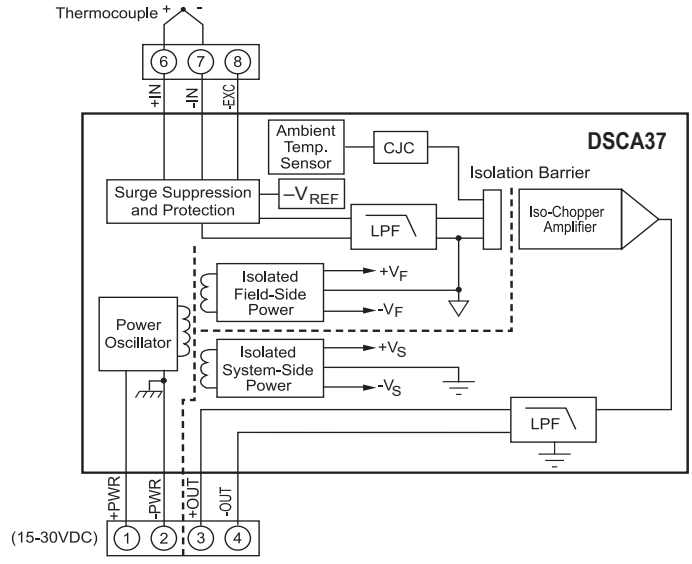
- Interfaces to Types J, K, T, E, R, S, B, and N Thermocouples
- Industry-standard Output of 0 to +10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 160dB CMR
- 85dB NMR at 60Hz, 80dB NMR at 50Hz
- ±0.05% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA37 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA37
Input Range	Standard Thermocouple Temperature Limits as per NIST Monograph 175, ITS-90
Input Bias Current	–30nA
Input Resistance	
Normal	50MΩ
Power Off	65kΩ
Overload	65kΩ
Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Cold Junction Compensation	
Accuracy, +5°C to +45°C	±0.5°C
Accuracy, –40°C to +80°C	±1.25°C
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	160dB
Accuracy(1)	See Ordering Information
Linearity	±0.01% Span
Adjustability	±5% Zero and Span
Stability	
Input Offset	±0.5µV/°C
Output Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Gain	±35ppm/°C
Output Noise, 100kHz Bandwidth	250µVrms (V_{OUT}), 1µArms (I_{OUT})
Bandwidth, –3dB	3Hz
NMR	85dB at 60Hz, 80dB at 50Hz
Response Time, 90% Span	165ms
Open Input Response	Upscale
Open Input Detection Time	<5s
Power Supply	
Voltage	15-30VDC
Current	25mA (V_{OUT}), 55mA (I_{OUT})
Sensitivity	±0.0001%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°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

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

Ordering Information

Model	TC Type	Input Range	Output Range†	Accuracy[1]	
DSCA37J-01	J	–100°C to +760°C (–148°F to +1400°F)	2, 3, 4	±0.05%	±0.43°C
DSCA37K-02	K	–100°C to +1350°C (–148°F to +2462°F)	2, 3, 4	±0.05%	±0.73°C
DSCA37T-03	T	–100°C to +400°C (–148°F to +752°F)	2, 3, 4	±0.05%	±0.25°C
DSCA37E-04	E	0°C to +900°C (+32°F to +1652°F)	2, 3, 4	±0.05%	±0.45°C
DSCA37R-05	R	0°C to +1750°C (+32°F to +3182°F)	2, 3, 4	±0.05%	±0.88°C
DSCA37S-06	S	0°C to +1750°C (+32°F to +3182°F)	2, 3, 4	±0.05%	±0.88°C
DSCA37B-07	B	0°C to +1800°C (+32°F to +3272°F)	2, 3, 4	±0.05%	±0.90°C
DSCA37N-08	N	–100°C to +1300°C (–148°F to +2372°F)	2, 3, 4	±0.05%	±0.70°C

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	N/A
2. 0V to +10V	NONE	DSCA37J-01
3. 4-20mA	C	DSCA37J-01C
4. 0-20mA	E	DSCA37J-01E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

Thermocouple Alloy Combinations

Standards: DIN IEC 584, ANSI MC96-1-82, JIS C 1602-1981

Type	Material
J	Iron vs. Copper-Nickel
K	Nickel-Chromium vs. Nickel-Aluminum
T	Copper vs. Copper-Nickel
E	Nickel-Chromium vs. Copper-Nickel
R	Platinum-13% Rhodium vs. Platinum
S	Platinum-10% Rhodium vs. Platinum
B	Platinum-30% Rhodium vs. Platinum-6% Rhodium
C	Tungsten-5% Rhenium vs. Tungsten-26% Rhenium
N	Nickel-14.2% Chromium-1.4% Silicon vs. Nickel-4.4% Silicon- 0.1% Magnesium

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA38

Strain Gauge Input Signal Conditioners

DESCRIPTION

Each DSCA38 strain gauge input module provides a single channel of strain gauge input which is filtered, isolated, amplified, and converted to a high-level voltage output (Figure 1). Signal filtering is accomplished with a five-pole filter which is optimized for step response. An anti-aliasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

The DSCA38 can interface to transducers with a nominal resistance of 100Ω to 10kΩ. Strain gauge excitation is provided from the module by a stable 10V or 3.333V source. This source is fully isolated, allowing the amplifier inputs to operate over the full range of the excitation voltage. This feature enables the module to be interfaced to other sensors requiring excitation.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide signal input and excitation protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The zero adjustment can be used to offset bridge imbalances. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

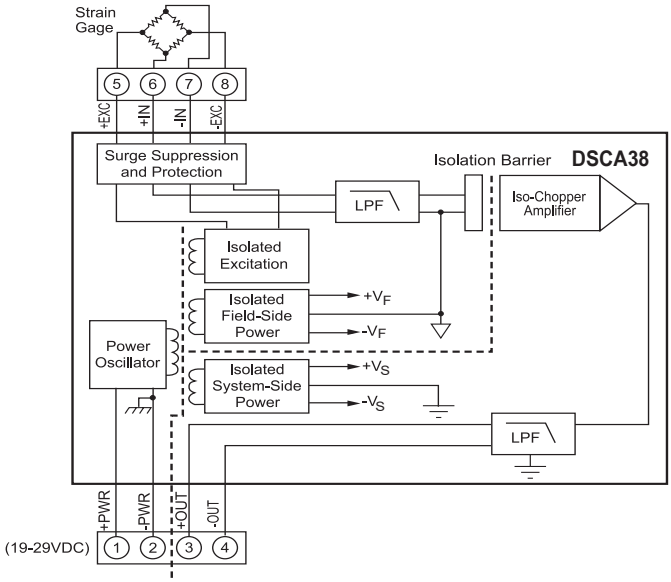
- Interfaces to 100Ω through 10kΩ Strain Gauges
- Industry-standard Output of ±10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 100dB CMR
- Fully Isolated Excitation Supply
- ±0.03% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA38 Block Diagram For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA38
Input Range	±10mV to ±100mV
Input Bias Current	±0.5nA
Input Resistance	
Normal	50MΩ
Power Off	65kΩ
Overload	65kΩ
Signal Input Protection	
Continuous	240Vrms (max) (Full Bridge) 120Vrms (max) (Half Bridge)
Transient	ANSI/IEEE C37.90.1
Excitation	
Output	10V ±0.03% or 3.33V ±0.03%
Half Bridge Output Level	Excitation Output/2 ±0.03%
Load Resistance (10V)	300Ω to 10kΩ
Load Resistance (3.33V)	100Ω to 10kΩ
Load Regulation	±5ppm/mA
Stability	±15ppm/°C
Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	100dB
Accuracy(1)	±0.03% Span
Linearity	±0.01% Span
Adjustability	±5% Zero and Span
Stability	
Input Offset	±1µV/°C
Output Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Gain	±55ppm/°C
Output Noise, 100kHz Bandwidth	750µVrms (V_{OUT}), 3µArms (I_{OUT})
Bandwidth, –3dB	3kHz
NMR	100dB per Decade above 3kHz
Response Time, 90% Span	170µs
Power Supply	
Voltage	19 to 29VDC
Current	60mA (V_{OUT}), 80mA (I_{OUT})
Sensitivity	±0.0002%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°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

NOTES:
*Contact factory or your local Dataforth sales office for maximum values.
(1) Includes linearity, hysteresis, and repeatability. (2) Strain Element.

Ordering Information

Model	Type Bridge Input	Input Range	Excitation	Sens.	Output Range†
DSCA38-01	Full	–10mV to +10mV	+3.333V	3mV/V	1
DSCA38-02	Full	–30mV to +30mV	+10.0V	3mV/V	1
DSCA38-03	Half	–10mV to +10mV	+3.333V	3mV/V	1
DSCA38-04	Half	–30mV to +30mV	+10.0V	3mV/V	1
DSCA38-05	Full	–20mV to +20mV	+10.0V	2mV/V	1
DSCA38-06	Full	–33.3mV to +33.3mV	+3.333V	10mV/V	1
DSCA38-07	Full	–100mV to +100mV	+10.0V	10mV/V	1
DSCA38-08	Full	–10mV to +10mV	+3.333V	3mV/V	2, 3, 4
DSCA38-09	Full	–30mV to +30mV	+10.0V	3mV/V	2, 3, 4
DSCA38-10	Half	–10mV to +10mV	+3.333V	3mV/V	2, 3, 4
DSCA38-11	Half	–30mV to +30mV	+10.0V	3mV/V	2, 3, 4
DSCA38-12	Full	–20mV to +20mV	+10.0V	2mV/V	2, 3, 4
DSCA38-13	Full	–33.3mV to +33.3mV	+3.333V	10mV/V	2, 3, 4
DSCA38-14	Full	–100mV to +100mV	+10.0V	10mV/V	2, 3, 4
DSCA38-15	Full	0 to +10mV	+3.333V	3mV/V	2, 3, 4
DSCA38-16	Full	0 to +30mV	+10.0V	3mV/V	2, 3, 4
DSCA38-17	Half	0 to +10mV	+3.333V	3mV/V	2, 3, 4
DSCA38-18	Half	0 to +30mV	+10.0V	3mV/V	2, 3, 4
DSCA38-19	Full	0 to +20mV	+10.0V	2mV/V	2, 3, 4
DSCA38-20	Full	0 to +33.3mV	+3.333V	10mV/V	2, 3, 4
DSCA38-21	Full	0 to +100mV	+10.0V	10mV/V	2, 3, 4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	DSCA38-01
2. 0V to +10V	NONE	DSCA38-08
3. 4-20mA	C	DSCA38-08C
4. 0-20mA	E	DSCA38-08E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

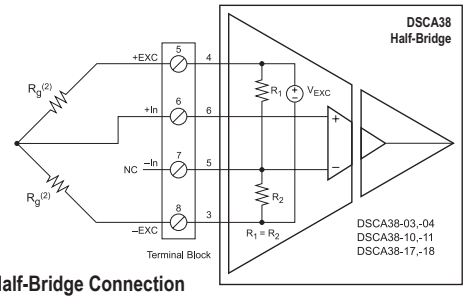


Figure 1: Half-Bridge Connection

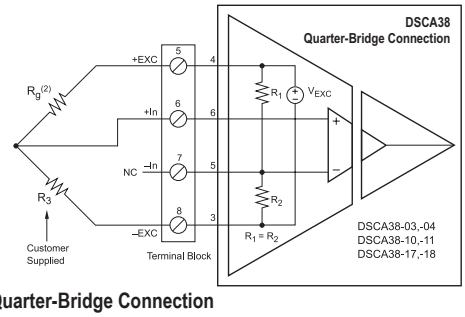


Figure 2: Quarter-Bridge Connection

Installation Notes:
1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B, C, D, or Non-hazardous Locations Only.
2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.
3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.
4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA39

Current-output Signal Conditioners

DESCRIPTION

Each DSCA39 current-output module provides a single channel of analog output. The input signal is buffered, isolated, filtered, and converted to a unipolar or bipolar current output (Figure below). Signal filtering is accomplished with a five-pole filter which provides 100dB per decade of attenuation above 1kHz. An anti-aliasing pole is located on the system side of the isolation barrier, and the other four poles are on the field side. After the initial system-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common- mode spikes or surges.

Special output circuits provide protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal input and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

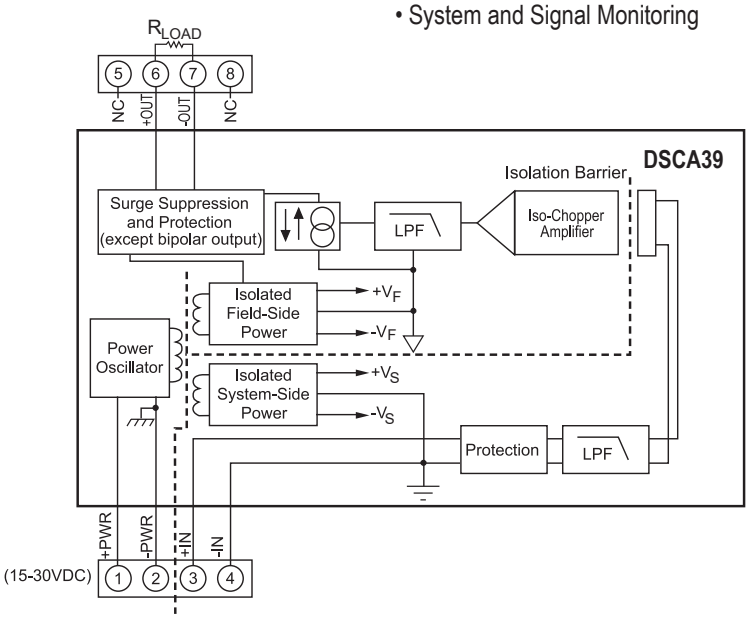
- Accepts High-level Voltage Input
- Provides 4-20mA, 0-20mA, or ±20mA Output
- ANSI/IEEE C37.90.1 Transient Protection
- 1500Vrms Transformer Isolation
- ±0.03% Accuracy
- ±0.01% Linearity
- Output Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 100dB CMR
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA39 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA39-01, -02, -03, -04	DSCA39-05	DSCA39-07
Output Range	4-20mA or 0-20mA	0-20mA	±20mA
Over Range Capability	10%	10%	5%
Output Compliance Voltage (Open Circuit)	22VDC	22VDC	±15VDC
Load Resistance Range	0 to 750Ω	0 to 750Ω	0 to 500Ω
Output Protection			
Continuous	240Vrms (max)	240Vrms (max)	240Vrms (max)
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
Input Range	±10V or 0V to +10V	0-20mA	±10V
Input Resistance			
Normal	2MΩ	<100Ω	<100Ω
Power Off	2MΩ	<100Ω	<100Ω
Overload	2MΩ	65kΩ	65kΩ
Input Protection			
Continuous	±35V (max)	75mA	±35V (max)
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
CMV, Output to Input, Output to Power			
Continuous	1500Vrms (max)	1500Vrms (max)	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
CMV, Input to Power			
Continuous	50VDC (max)	50VDC (max)	50VDC (max)
CMR (50Hz or 60Hz)	110dB	110dB	110dB
Accuracy(1)	±0.03% Span	±0.03% Span	±0.05%
Linearity	±0.01% Span	±0.01% Span	±0.01% Span
Adjustability	±5% Zero and Span	±5% Zero and Span	±5% Zero and Span
Stability			
Offset	±20ppm/°C	±20ppm/°C	±20ppm/°C
Gain	±40ppm/°C	±50ppm/°C	±40ppm/°C
Output Noise, 100kHz Bandwidth	4µArms	4µArms	4µArms
Bandwidth, –3dB	1kHz	1kHz	1kHz
NMR	100dB per Decade Above 1kHz	100dB per Decade Above 1kHz	100dB per Decade Above 1kHz
Response Time, 90% Span	475µs	475µs	475µs
Power Supply			
Voltage	15 to 30VDC	15 to 30VDC	19 to 29VDC
Current	65mA	65mA	65mA
Sensitivity	±0.0003%/%	±0.0003%/%	±0.0003%/%
Protection			
Reverse Polarity	Continuous	Continuous	Continuous
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 35x7.5 or 35x15 Rail	DIN EN 50022 35x7.5 or 35x15 Rail	DIN EN 50022 35x7.5 or 35x15 Rail
Environmental			
Operating Temperature Range	–40°C to +80°C	–40°C to +80°C	–40°C to +80°C
Storage Temperature Range	–40°C to +80°C	–40°C to +80°C	–40°C to +80°C
Relative Humidity	0 to 95% Noncondensing	0 to 95% Noncondensing	0 to 95% Noncondensing
Emissions EN61000-6-4	ISM, Group 1	ISM, Group 1	ISM, Group 1
Radiated, Conducted	Class A	Class A	Class A
Immunity EN61000-6-2	ISM, Group 1	ISM, Group 1	ISM, Group 1
RF	Performance A ±0.5% Span Error	Performance A ±0.5% Span Error	Performance A ±0.5% Span Error
ESD, EFT	Performance B	Performance B	Performance B

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

Ordering Information

Model	Input Range	Output Range†
DSCA39-01	0V to +10V	4-20mA
DSCA39-02	–10V to +10V	4-20mA
DSCA39-03	0V to +10V	0-20mA
DSCA39-04	–10V to +10V	0-20mA
DSCA39-05	0mA to 20mA	0-20mA
DSCA39-07	–10V to +10V	±20mA

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	N/A
2. 0V to +10V	NONE	N/A
3. 4-20mA	C	DSCA39-01C
4. 0-20mA	E	DSCA39-01C
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A
7. ±20mA	NONE	DSCA39-07

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA40/41

Analog Voltage-input Signal Conditioners, Wide Bandwidth

DESCRIPTION

Each DSCA40/41 voltage-input module provides a single channel of analog input which is filtered, isolated, amplified, and converted to a high-level voltage output (Figure below). Signal filtering is accomplished with a five-pole filter. An antialiasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of powerline voltages up to 240VAC and against transient events as defined by ANSI/ IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration, however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

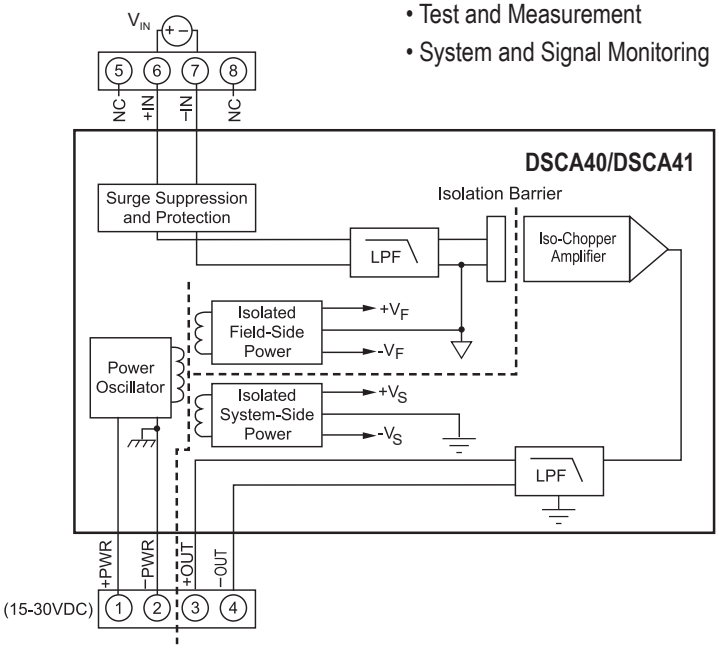
- Accepts mV and Voltage-level Signals
- Industry-standard Output of 0 to +10V, ±10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 100dB CMR
- 3kHz Signal Bandwidth
- ±0.03% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA40/DSCA41 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA40	DSCA41
Input Range	+10mV to +100mV	±1V to ±40V
Input Bias Current	±0.5nA	±0.05nA
Input Resistance		
Normal	50MΩ	500kΩ (min)
Power Off	65kΩ	500kΩ (min)
Overload	65kΩ	500kΩ (min)
Input Protection		
Continuous	240Vrms (max)	240Vrms (max)
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
Output Range	See Ordering Information	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection		
Short to Ground	Continuous	Continuous
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power		
Continuous	1500Vrms (max)	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
CMV, Output to Power		
Continuous	50VDC (max)	50VDC (max)
CMR (50Hz or 60Hz)	100dB	100dB
Accuracy(1)	±0.03% Span	±0.03% Span
Linearity	±0.01% Span	±0.01% Span
Adjustability	±5% Zero and Span	±5% Zero and Span
Stability		
Input Offset	±0.5µV/°C	±5µV/°C
Output Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Zero Suppression	±50ppm(V_z)(2)/°C	±50ppm(V_z)(2)/°C
Gain	±35ppm/°C	±55ppm/°C
Output Noise, 100kHz Bandwidth	500µVrms (V_{OUT}), 2µArms (I_{OUT})	500µVrms (V_{OUT}), 2µArms (I_{OUT})
Bandwidth, –3dB	3kHz	3kHz
NMR	100dB per Decade Above 3kHz	100dB per Decade Above 3kHz
Response Time, 90% Span	170µs	170µs
Power Supply		
Voltage	15-30VDC	15-30VDC
Current	25mA (V_{OUT}), 55mA (I_{OUT})	25mA (V_{OUT}), 55mA (I_{OUT})
Sensitivity	±0.0001%/%	±0.0001%/%
Protection		
Reverse Polarity	Continuous	Continuous
Transient	ANSI/IEEE C37.90.1	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 Rail	DIN EN 50022 -35x7.5 or -35x15 Rail
Environmental		
Operating Temperature Range	–40°C to +80°C	–40°C to +80°C
Storage Temperature Range	–40°C to +80°C	–40°C to +80°C
Relative Humidity	0to 95% Noncondensing	0to 95% Noncondensing
Emissions EN61000-6-4	ISM, Group 1	ISM, Group 1
Radiated, Conducted	Class A	Class A
Immunity EN61000-6-2	ISM, Group 1	ISM, Group 1
RF	Performance A ±0.5% Span Error	Performance A ±0.5% Span Error
ESD, EFT	Performance B	Performance B

NOTES:
*Contact factory or your local Dataforth sales office for maximum values.
(1) Includes linearity, hysteresis, and repeatability.
(2) V_z is the nominal input voltage that results in 0V or 0mA output.

Ordering Information

Model	Input Range	Output Range†
DSCA40-01	–10mV to +10mV	1
DSCA40-02	–50mV to +50mV	1
DSCA40-03	–100mV to +100mV	1
DSCA40-04	–10mV to +10mV	2, 3, 4
DSCA40-05	–50mV to +50mV	2, 3, 4
DSCA40-06	–100mV to +100mV	2, 3, 4
DSCA40-07	0 to +10mV	2, 3, 4
DSCA40-08	0 to +50mV	2, 3, 4
DSCA40-09	0 to +100mV	2, 3, 4
DSCA41-01	–1V to +1V	1
DSCA41-02	–5V to +5V	1
DSCA41-03	–10V to +10V	1
DSCA41-04	–1V to +1V	2, 3, 4
DSCA41-05	–5V to +5V	2, 3, 4
DSCA41-06	–10V to +10V	2, 3, 4
DSCA41-07	–20V to +20V	1
DSCA41-08	–20V to +20V	2, 3, 4
DSCA41-09	–40V to +40V	1
DSCA41-10	–40V to +40V	2, 3, 4
DSCA41-11	0 to +1V	2, 3, 4
DSCA41-12	0 to +5V	2, 3, 4
DSCA41-13	0 to +10V	2, 3, 4
DSCA41-14	0 to +20V	2, 3, 4
DSCA41-15	0 to +40V	2, 3, 4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	DSCA40-01
2. 0V to +10V	NONE	DSCA40-04
3. 4-20mA	C	DSCA40-04C
4. 0-20mA	E	DSCA40-04E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA42

2-wire Transmitter-interface Signal Conditioners with Loop Power

DESCRIPTION

Each DSCA42 2-wire transmitter-interface module provides a single channel of 4-20mA process current input which is filtered, isolated, amplified, and converted to a high-level voltage output (Figure below). An isolated 24V power supply is provided to power the 2-wire transmitter. Signal filtering is accomplished with a five-pole filter which is optimized for step response. An anti-aliasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of powerline voltages up to 240VAC and against transient events as defined by ANSI/ IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

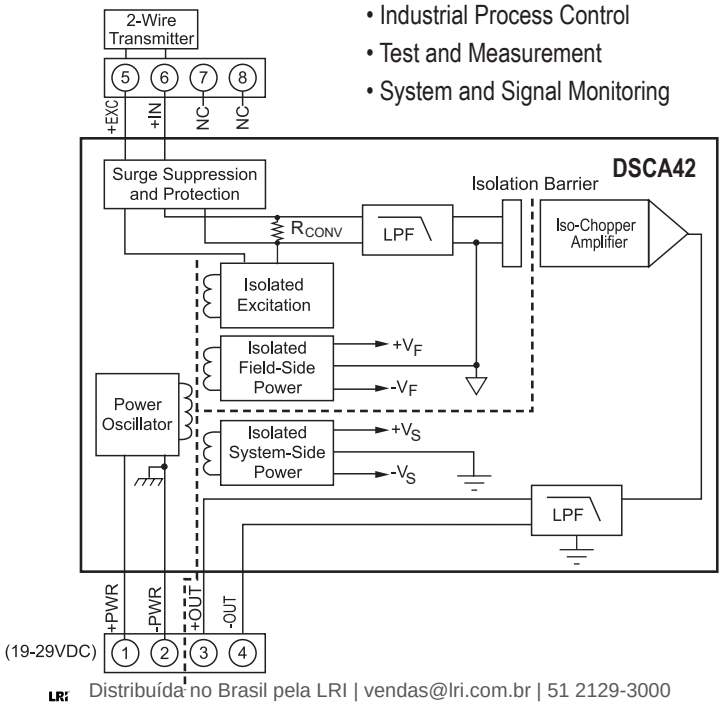
- Accepts Process Loop Signals
- Industry-standard Output of 0 to +10V, 2 to +10V, 0-20mA, or 4-20mA
- Provides Isolated Loop Excitation
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protection to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 105dB CMR
- 5-Pole Filtering
- ±0.03% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



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DSCA42 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA42
Input Range	4-20mA
Input Resistance	
Normal	<100Ω
Power Off	<100Ω
Overload	65kΩ
Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Loop Supply Voltage	+20VDC
Isolated Excitation Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	105dB
Accuracy(1)	±0.03% Span
Linearity	±0.01% Span
Adjustability	±5% Zero and Span
Stability	
Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Gain	±40ppm/°C
Output Noise, 100kHz Bandwidth	300µVrms (V_{OUT}), 1.5µArms (I_{OUT})
Bandwidth, –3dB	100Hz
NMR (–3dB at 100Hz)	100dB per Decade above 100Hz
Response Time, 90% Span	5ms
Power Supply	
Voltage	19 to 29VDC
Current	60mA (V_{OUT}), 80mA (I_{OUT})
Sensitivity	±0.0002%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions	2.95" x 0.89" x 4.13"
(h)x(w)x(d)	(75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°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

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

Ordering Information

Model	Input Range	Output Range†
DSCA42-01	4-20mA	2
DSCA42-02	4-20mA	1
DSCA42-01C	4-20mA	3
DSCA42-01E	4-20mA	4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. 2V to +10V	NONE	DSCA42-02
2. 0V to +10V	NONE	DSCA42-01
3. 4-20mA	C	DSCA-42-01C
4. 0-20mA	E	DSCA42-01E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA43

General-purpose Input Signal Conditioners, with DC Excitation

DESCRIPTION

Each DSCA43 general-purpose input module provides a single channel of transducer input which is filtered, isolated, amplified, and converted to a high-level voltage output (Figure below). Signal filtering is accomplished with a five-pole filter which is optimized for step response. An anti-aliasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

Transducer excitation is provided from the module by a stable 10V source. This source is fully isolated, allowing the amplifier inputs to operate over the full range of the excitation voltage. This feature enables the module to be interfaced to a wide variety of sensors requiring excitation.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide signal input and excitation protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

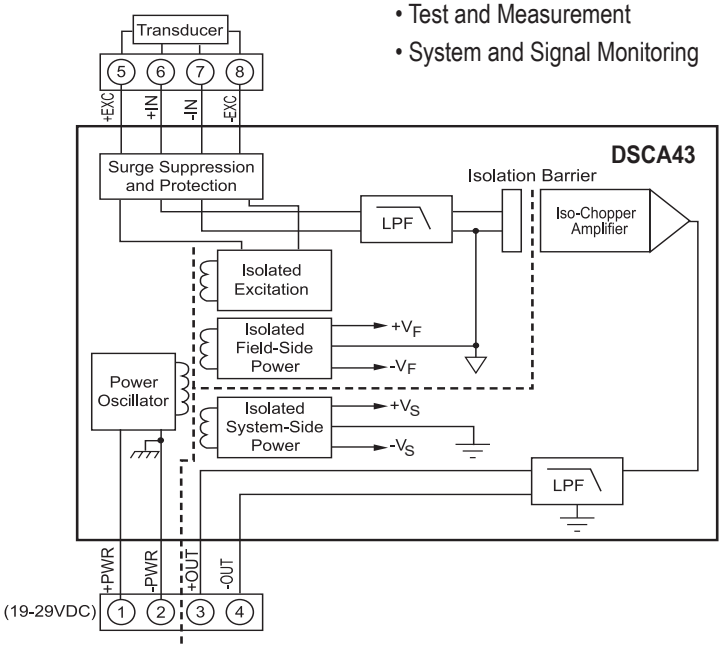
- Interfaces to Transducers and Other Devices Requiring a Stable, Isolated DC Supply
- Industry-standard Output of 0 to +10V, ±10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 100dB CMR
- Fully Isolated Excitation Supply
- ±0.03% Accuracy
- ±0.01% Linearity
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA43 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA43
Input Range	±1V to ±10V
Input Bias Current	±0.05nA
Input Resistance	
Normal	>500kΩ
Power Off	>500kΩ
Overload	>500kΩ
Signal Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Excitation	
Output Voltage (–EXC to +EXC)	10V ± 0.03%
Output Current	40mA (max)
Load Regulation	±5ppm/mA
Stability	±15ppm/°C
Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	100dB
Accuracy(1)	±0.03% Span
Linearity	±0.01% Span
Adjustability	±5% Zero and Span
Stability	
Input Offset	±5µV/°C
Output Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Gain	±55ppm/°C
Output Noise, 100kHz Bandwidth	500µVrms (V_{OUT}), 2µArms (I_{OUT})
Bandwidth, –3dB	3kHz
NMR	100dB per Decade Above 3kHz
Response Time, 90% Span	170µs
Power Supply	
Voltage	19 to 29VDC
Current	60mA (V_{OUT}), 80mA (I_{OUT})
Sensitivity	+0.0002%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°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

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

Ordering Information

Model	Input Range	Output Range†
DSCA43-01	–1V to +1V	1
DSCA43-02	–2V to +2V	1
DSCA43-03	–3V to +3V	1
DSCA43-04	–4V to +4V	1
DSCA43-05	–5V to +5V	1
DSCA43-06	–6V to +6V	1
DSCA43-07	–7V to +7V	1
DSCA43-08	–8V to +8V	1
DSCA43-09	–9V to +9V	1
DSCA43-10	–10V to +10V	1
DSCA43-11	–1V to +1V	2, 3, 4
DSCA43-12	–2V to +2V	2, 3, 4
DSCA43-13	–3V to +3V	2, 3, 4
DSCA43-14	–4V to +4V	2, 3, 4
DSCA43-15	–5V to +5V	2, 3, 4
DSCA43-16	–6V to +6V	2, 3, 4
DSCA43-17	–7V to +7V	2, 3, 4
DSCA43-18	–8V to +8V	2, 3, 4
DSCA43-19	–9V to +9V	2, 3, 4
DSCA43-20	–10V to +10V	2, 3, 4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	DSCA43-01
2. 0V to +10V	NONE	DSCA43-11
3. 4-20mA	C	DSCA43-11C
4. 0-20mA	E	DSCA43-11E
5. 0 to +5V	A	N/A
6. 0-1mA	B	N/A

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA45

Frequency-input Signal Conditioners

DESCRIPTION

Each DSCA45 frequency-input module provides a single channel of frequency input which is isolated and converted to a standard analog voltage or current output (Figure below).

The frequency input signal can be a TTL level or zero-crossing signal. Terminal 7 (–IN) on the field-side terminal block is the "common" or ground connection for input signals. A TTL signal is connected from terminal 6 (+IN) to terminal 7 (–IN), while a zero-crossing signal is connected from terminal 5 (+EXC) to terminal 7 (–IN). Input circuitry for each of the signal types has hysteresis built in. An input signal must cross entirely through the hysteresis region in order to trigger the threshold comparator.

A +5.1V excitation is available for use with magnetic pick-up or contact-closure type sensors. The excitation is available on terminal 8 (–EXC) with return at terminal 7 (–IN).

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of powerline voltages up to 240VAC and against transient events as defined by ANSI/ IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are pluggable terminal blocks for ease of system assembly and reconfiguration.

DSCA45 modules have excellent stability over time and do not require recalibration; however, both zero and span settings are adjustable to accommodate situations where fine tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

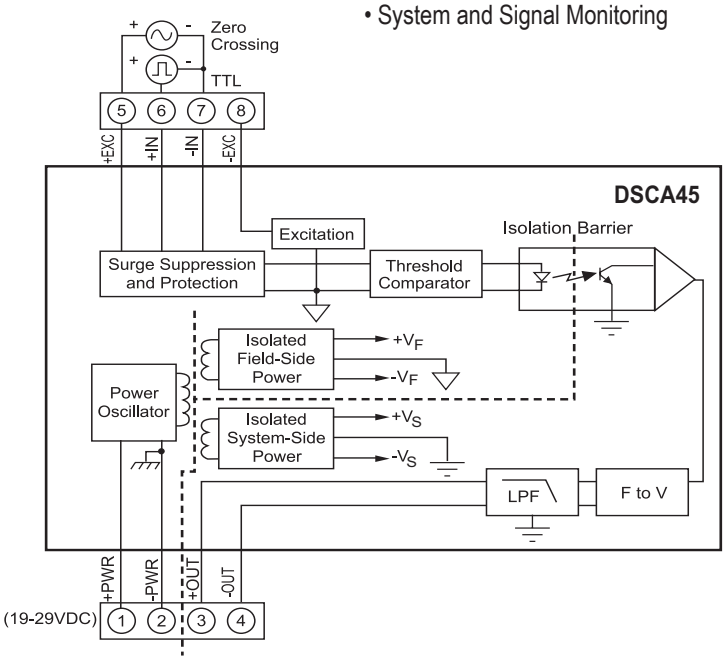
- Accepts Frequency Inputs of 0 to 100kHz
- Industry-standard Output of 0 to +10V, 0-20mA, or 4-20mA
- ±0.05% Factory-calibrated Accuracy
- Adjustable Zero (±5%) and Span (±5%)
- 1500Vrms Transformer Isolation
- Input Overload Protected to 240VAC Continuous
- 120dB CMR
- ANSI/IEEE C37.90.1 Transient Protection
- Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA45 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA45
Input	
Range	0 to 100kHz (max)
Threshold	Zero Crossing
Minimum Input	60mVp-p
Maximum Input	350Vp-p
Minimum Pulse Width	4µs
TTL Input Low	0.8V (max)
TTL Input High	2.4V (min)
Hysteresis	
Zero Crossing	40mV
TTL	1.5V
Resistance	100kΩ
Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Output Range	See Ordering Information
Adjustability	±5% Zero & Span
Load Resistance (I_{OUT})	600Ω (max)
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
Ripple	<0.20% Span at input >2% Span
Accuracy(1)	±0.05% Span
vs. Temperature	±40ppm/°C (Zero & Span)
Linearity	±0.02% Span
Isolation (Common Mode)	
Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
Output to Power	
Continuous	50VDC (max)
Rejection (50-60Hz Common Mode)	120dB
Response Time (0 to 90%)	
DSCA45-01, -02, -03	310ms, 175ms, 50ms
DSCA45-04, -05, -06	30ms, 30ms, 15ms
DSCA45-07, -08	15ms, 1.5ms
Field Excitation	+5.1V ±5% at 8mA (max)
Power Supply	
Voltage	19 to 29VDC
Current	60mA (V_{OUT}), 80mA (I_{OUT})
Sensitivity	±0.0002%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temp. Range	–40°C to +80°C
Storage Temp. Range	–40°C to +80°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

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

Ordering Information

Model	Input Range	Output Range†
DSCA45-01	0Hz to 500Hz	2, 3, 4
DSCA45-02	0kHz to 1kHz	2, 3, 4
DSCA45-03	0kHz to 2.5kHz	2, 3, 4
DSCA45-04	0kHz to 5kHz	2, 3, 4
DSCA45-05	0kHz to 10kHz	2, 3, 4
DSCA45-06	0kHz to 25kHz	2, 3, 4
DSCA45-07	0kHz to 50kHz	2, 3, 4
DSCA45-08	0kHz to 100kHz	2, 3, 4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	N/A
2. 0V to +10V	NONE	DSCA45-01
3. 4-20mA	C	DSCA45-01C
4. 0-20mA	E	DSCA45-01E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA47

Linearized Thermocouple-input Signal Conditioners

DESCRIPTION

Each DSCA47 thermocouple-input module provides a single channel of thermocouple-input which is filtered, isolated, amplified, linearized, and converted to a high-level voltage output (Figure below). Signal filtering is accomplished with a five-pole filter which provides 85dB of normal-mode rejection at 60Hz and 80dB at 50Hz. An anti-aliasing pole is located on the field side of the isolation barrier, and the other four poles are on the system side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

The DSCA47 can interface to eight industry standard thermocouple types: J, K, T, E, R, S, B and N. Each module has cold junction compensation to correct for parasitic thermocouples formed by the thermocouple wire and input screw terminals on the module. Upscale open thermocouple detection is provided by internal circuitry. Downscale indication can be implemented by installing a 47MΩ, ±20% resistor between screw terminals 6 and 8 on the input terminal block.

Module output is either voltage or current. For current output models a dedicated loop supply is provided at terminal 3 (+OUT) with loop return located at terminal 4 (–OUT). The system-side load may be either floating or grounded.

Special input circuits provide protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/ IEEE C37.90.1. Protection circuits are also present on the signal output and power input terminals to guard against transient events and power reversal. Power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±3% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

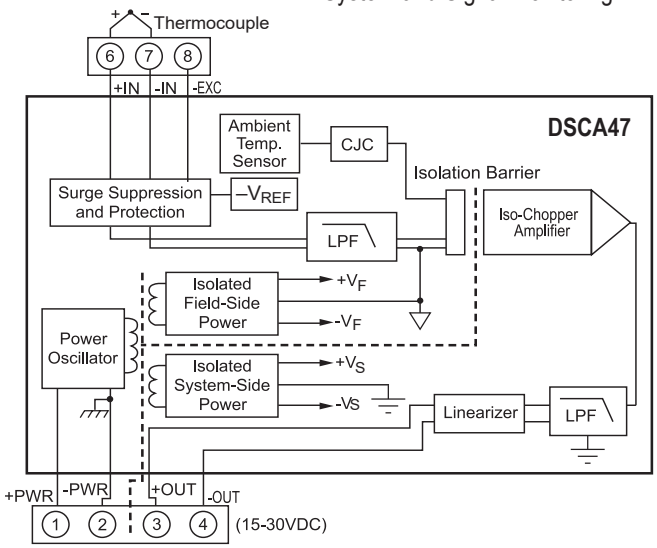
- Interfaces to Types J, K, T, E, R, S, B, and N Thermocouples
- Linearizes Thermocouple Signal
- Industry-standard Output of 0 to +10V, 0-20mA, or 4-20mA
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 160dB CMR
- 85dB NMR at 60Hz, 80dB at 50Hz
- ±0.08% Accuracy
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA47 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

SECTION 4 - DSCA

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA47
Input Range	Standard Thermocouple Temperature Limits as Per Nist Monograph 175, ITS-90
Input Bias Current	–30nA
Input Resistance	
Normal	50MΩ
Power Off	65kΩ
Overload	65kΩ
Input Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Cold Junction Compensation	
Accuracy, +5°C to +45°C	±0.5°C
Accuracy, –40°C to +80°C	±1.25°C
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600Ω
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, Input to Output, Input to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	160dB
Accuracy	See Ordering Information Below
Adjustability	±3% Zero and Span
Stability	
Input Offset	±0.5µV/°C
Output Offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})
Gain	±40ppm/°C
Output Noise, 100kHz Bandwidth	250µVrms (V_{OUT}), 1µArms (I_{OUT})
Bandwidth, –3dB	3Hz
NMR	95dB at 60Hz, 85dB at 50Hz
Response Time, 90% Span	165ms
Open Input Response	Upscale
Open Input Detection Time	<5s
Power Supply	
Voltage	15 to 30VDC
Current	25mA (V_{OUT}), 55mA (I_{OUT})
Sensitivity	±0.0001%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
Storage Temperature Range	–40°C to +80°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

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

Installation Notes:
1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B, C, D, or Non-hazardous Locations Only.
2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.
3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.
4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A (max).

Ordering Information

Model	TC Type‡	Input Range	Output Range†	Accuracy(1)	
DSCA47J-01	J	0°C to +760°C (+32°F to +1400°F)	2, 3, 4	±0.08%	±0.61°C
DSCA47J-02	J	–100°C to +300°C (–148°F to +572°F)	2, 3, 4	±0.08%	±0.32°C
DSCA47J-03	J	0°C to +500°C (+32°F to +932°F)	2, 3, 4	±0.07%	±0.35°C
DSCA47K-04	K	0°C to +1000°C (+32°F to +1832°F)	2, 3, 4	±0.08%	±0.80°C
DSCA47K-05	K	0°C to +500°C (+32°F to +932°F)	2, 3, 4	±0.08%	±0.40°C
DSCA47K-13	K	–100°C to +1350°C (–148°F to +2462°F)	2, 3, 4	±0.08%	±1.16°C
DSCA47K-14	K	0°C to +1200°C (+32°F to +2192°F)	2, 3, 4	±0.08%	±0.96°C
DSCA47T-06	T	–100°C to +400°C (–148°F to +752°F)	2, 3, 4	±0.16%	±0.80°C
DSCA47T-07	T	0°C to +200°C (+32°F to +392°F)	2, 3, 4	±0.13%	±0.26°C
DSCA47E-08	E	0°C to +1000°C (+32°F to +1832°F)	2, 3, 4	±0.10%	±1.00°C
DSCA47R-09	R	+500°C to +1750°C (+932°F to +3182°F)	2, 3, 4	±0.10%	±1.25°C
DSCA47S-10	S	+500°C to +1750°C (+932°F to +3182°F)	2, 3, 4	±0.10%	±1.25°C
DSCA47B-11	B	+500°C to +1800°C (+932°F to +3272°F)	2, 3, 4	±0.15%	±1.95°C
DSCA47N-15	N	–100°C to +1300°C (–148°F to +2372°F)	2, 3, 4	±0.08%	±1.12°C

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	N/A
2. 0V to +10V	NONE	DSCA47J-01
3. 4-20mA	C	DSCA47J-01C
4. 0-20mA	E	DSCA47J-01E
5. 0 to +5V	A	N/A
6. 0 to 1mA	B	N/A

‡Thermocouple Alloy Combinations

Standards: DIN IEC 584, ANSI MC96-1-82, JIS C 1602-1981

Type	Material
J	Iron vs. Copper-nickel
K	Nickel-chromium vs. Nickel-aluminum
T	Copper vs. Copper-nickel
E	Nickel-chromium vs. Copper-nickel
R	Platinum-13% Rhodium vs. Platinum
S	Platinum-10% Rhodium vs. Platinum
B	Platinum-30% Rhodium vs. Platinum-6% Rhodium
N	Nickel-14.2% Chromium-1.4% Silicon vs. Nickel-4.4% Silicon- 0.1% Magnesium

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DSCA49

Voltage-output Signal Conditioners

DESCRIPTION

Each DSCA49 voltage-output module provides a single channel of analog output. The input signal is buffered, isolated, filtered, and converted to a voltage output (Figure below). Signal filtering, is accomplished with a five-pole filter which provides 100dB per decade of attenuation above 1kHz. An anti-aliasing pole is located on the system side of the isolation barrier, and the other four poles are on the field side. After the initial system-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common-mode spikes or surges.

Special output circuits provide protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal input and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration; however, zero and span settings are adjustable up to ±5% to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

FEATURES

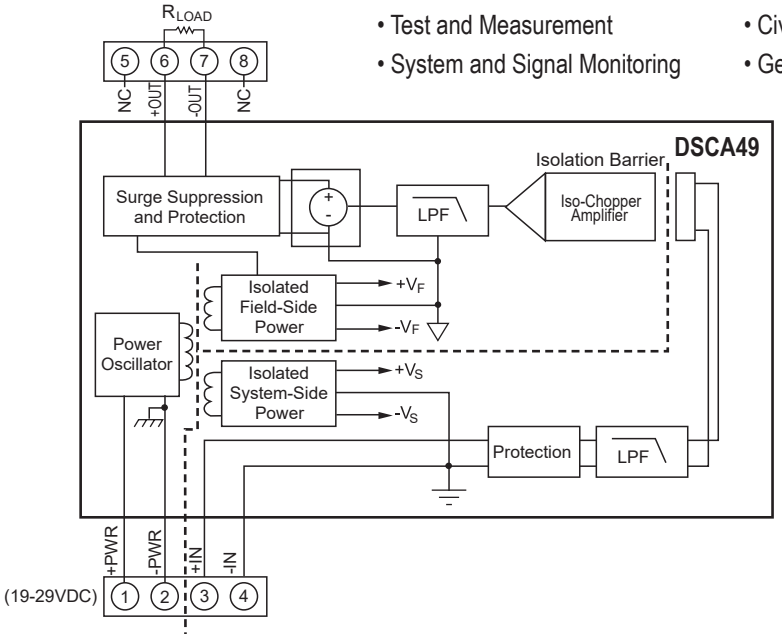
- Accepts High-level Voltage Input
- Provides High-level Voltage Outputs to ±10V at 50mA
- ANSI/IEEE C37.90.1
- 1500Vrms Transformer Isolation
- ±0.05% Accuracy
- ±0.02% Linearity
- Output Protected to 240VAC Continuous
- True 3-way Isolation
- Wide Supply Voltage Range
- 110dB CMR
- Easily Mounts on Standard DIN-rail
- UL/cUL Listed
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Reduces EMC Concerns
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops

APPLICATIONS

- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring



DSCA49 Block Diagram - For Module Dimensions and Pinouts, See Page 4-35

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Specifications

Typical* at T_A = +25°C and +24VDC Supply Voltage

Module	DSCA49-04, -05, -06
Output Range	0 to +10V or –10 to +10V
Over Range Capability	5%
Output Drive	±50mA (max)
Output Resistance	0.5Ω
Output Current Limit	75mA
Output Protection	
Continuous	240Vrms (max)
Transient	ANSI/IEEE C37.90.1
Input Range	0V to +10V or –10V to +10V
Input Resistance	
Normal	50MΩ
Power Off	65kΩ
Overload	65kΩ
Input Protection	
Continuous	±35V (max)
Transient	ANSI/IEEE C37.90.1
CMV, Output to Input, Output to Power	
Continuous	1500Vrms (max)
Transient	ANSI/IEEE C37.90.1
CMV, Input to Power	
Continuous	50VDC (max)
CMR (50Hz or 60Hz)	110dB
Accuracy(1)	±0.05% Span
Linearity	±0.02% Span
Adjustability	±5% Zero and Span
Stability	
Zero	±20ppm/°C
Span	±40ppm/°C
Output Noise, 100kHz Bandwidth	2mVrms
Bandwidth, –3dB	1kHz
NMR	100dB per Decade Above 1kHz
Response Time, 90% Span	425µs
Power Supply	
Voltage	19 to 29VDC
Current	80mA
Sensitivity	±0.0003%/%
Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Mechanical Dimensions (h)x(w)x(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022 -35x7.5 rail
Environmental	
Operating Temperature Range	–40°C to +80°C
ATEX Group II, Category 3	–40°C to +75°C
Storage Temperature Range	–40°C to +80°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

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

Ordering Information

Model	Input Range	Output Range†
DSCA49-04	0V to +10V	1
DSCA49-05	–10V to +10V	1
DSCA49-06	–10V to +10V	2

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –10V to +10V	NONE	N/A
2. 0V to +10V	NONE	DSCA49-04
3. 4-20mA	C	DSCA49-06
4. 0-20mA	E	N/A
5. 0 to +5V	A	N/A
6. 0-1mA	B	N/A

Installation Notes:

1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-hazardous Locations Only.

2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.

3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or the Area is Known to be Non-hazardous.

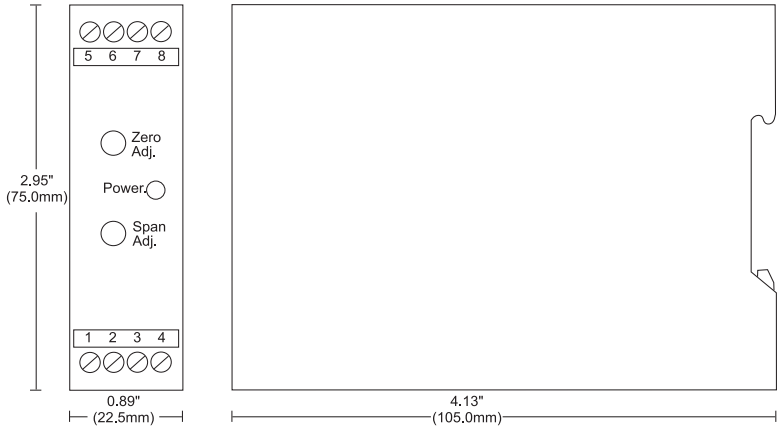
4.) The Power to These Devices Shall Be Limited by an Over-current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.

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DSCA

Module Dimensions



NOTES:
1) Pluggable terminal blocks accept wire sizes AWG 22-12. Strip wire insulation 0.27 in. (7mm) prior to insertion in terminal block.
2) DSCA modules can be mounted to DIN rails shown in Accessories section.

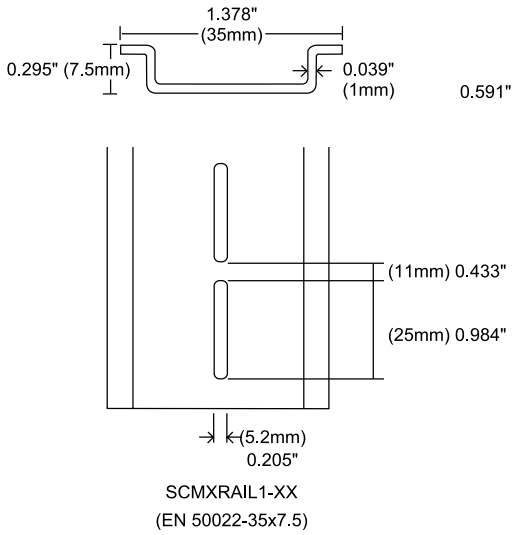
Accessories for DSCA Analog Modules

SCMXRAIL1-XX / SCMXRAIL3-XX

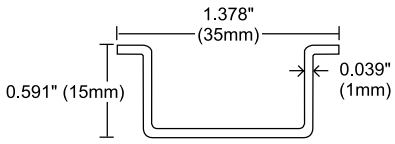
DIN-rail

DESCRIPTION

Two styles of DIN-rail are available. Specify length (-xx) in meters when ordering, -01 for 1 meter or -02 for 2 meter.



SCMXRAIL1-XX
(EN 50022-35x7.5)



SCMXRAIL3-XX
(EN 50022-35x15)

Ordering Information

Part Number	Description
SCMXRAIL1	DIN-rail, Gull-wing, (slotted steel), 35mm x 7.5mm, 1mm thick
SCMXRAIL1-01	DIN-rail EN 50022-35 x 7.5 (slotted steel), 1 meter length
SCMXRAIL1-02	DIN-rail EN 50022-35 x 7.5 (slotted steel), 2 meter length
SCMXRAIL3	DIN-rail, Gull-wing, (slotted steel), 35mm x 15mm, 1mm thick
SCMXRAIL3-01	DIN-rail EN 50022-35 x 15 (slotted steel), 1 meter length
SCMXRAIL3-02	DIN-rail EN 50022-35 x 15 (slotted steel), 2 meter length

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PWR-PS5RxW Series

Switching Power Supplies

DESCRIPTION

Dataforth's PWR-PS5RxW series sets new standards for switching power supply technology. Combining rugged, compact enclosures, incorporating all international standards and approvals, and offering customers a broad selection of inputs and outputs, the PWR-PS5RxW series makes your power supply choice a simple one. The PWR-PS5RxW series is UL/cUL and TUV Approved, CE Compliant, and UL 508 Listed. Models are available with output ratings from 7.5W to 120W with 24VDC output voltages. Customers may choose from a wide range of input voltages (85 to 264VAC, and 100 to 370VDC compatible), making the PWR-PS5RxW series an unbeatable package of versatility.

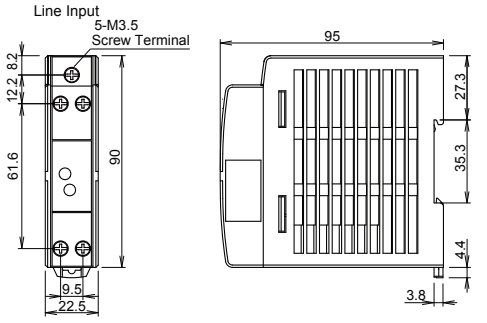
FEATURES

- Universal AC Input (85 to 264VAC)
- DC-compatible Input (100 to 370VDC)
- Unique Spring-up Terminals
- DIN-rail or Panel Mount
- Five Different Output Capacities: 7.5W to 120W
- UL/cUL, and TUV Approvals
- CE Compliant, UL 508 Listed
- Certified to EN60950-1
- IP20 Protection (EN60529)
- Compliant with EMC Directive EN61204-3
- Manufactured per RoHS III Directive 2015/863

Specifications PWR-PS5RxW Series

Typical at T_A = +25°C

Model	PWR-PS5R7W	PWR-PS5R15W	PWR-PS5R30W	PWR-PS5R60W	PWR-PS5R120W
Input	100 to 240VAC Nominal; 85 to 264VAC, 100 to 370VDC Compatible				
Frequency	50/60Hz				
Input Current	0.18A at 100V 0.10A at 200V	0.35A at 100V 0.19A at 200V	0.70A at 100V 0.30A at 200V	1.30A at 100V 0.80A at 200V	1.40A at 100V 0.70A at 200V
Output Voltage and Current Ratings	24V, 0.3A	24V, 0.65A	24V, 1.3A	24V, 2.5A	24V, 5.0A
Temperature Change	0.05%				
Ripple Voltage	1% p-p (max) (including noise)				
Overcurrent Protection	105% (min)				
Dielectric Strength	Between Input and Output Terminals: 3,000VAC, 1 Minute Between Input Terminals and Housing: 2,000VAC, 1 Minute Between Output Terminal and Housing: 500VAC, 1 Minute				
Insulation Resistance	Between Input and Output Terminals/Input Terminal and Housing: 100MΩ (min) (500VDC)				
Operating Temperature	–25°C to +75°C		–25°C to +70°C		–25°C to +65°C
Storage Temperature	–25°C to +75°C				
Operating Humidity	20 to 90% RH (avoid condensation)				
Dimensions (h)x(w)x(d)	2.95" x 1.77" x 2.76" (75mm x 45mm x 70mm)	3.54" x 0.89" x 3.74" (90mm x 22.5mm x 95mm)		3.74" x 1.42" x 4.25" (95mm x 36mm x 108mm)	4.53" x 1.81" x 4.76" (115mm x 46mm x 121mm)
Terminal Screw	M3.5 Phillips Screws In Spring-up Terminals				



PWR-PS5R15W, PWR-PS5R30W Physical Dimensions
(Consult factory for other model drawings)

Ordering Information

Model	Power	Output
PWR-PS5R7W	7.5W	24VDC/0.3A
PWR-PS5R15W	15W	24VDC/0.65A
PWR-PS5R30W	30W	24VDC/1.3A
PWR-PS5R60W	60W	24VDC/2.5A
PWR-PS5R120W	120W	24VDC/5.0A

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Downloads

Corporate Brochure
Full-Line Product Catalog
SCM5B/SCMHVAS Attenuator System Catalog
SCM7B Catalog
8B Catalog
DSCA Catalog
SCM9B/SCMD Catalog
MAQ®20 DAQ System Catalog
isoLYNX DAQ Systems Catalog
Loop Isolators and Transmitters Catalog
Data Communications Catalog
IoT Energy Monitoring Catalog

Press Releases

- Dataforth Introduces Next Generation High-Voltage Attenuator System
- Latest ISO 9001:2015 Quality Standards
- Dataforth's DSCA High-performance DIN Modules Receive Latest ATEX Certification
- Dataforth's DSCT Two-wire Transmitter Modules Receive ATEX Certification

See all PRESS RELEASES

Application Notes

ENGINEERING BASICS

- Measuring RMS Values of Voltage and Current (AN101)
- IC Op Amp Errors: What Are They and How Bad Can They Be (AN102)
- Common-Mode Voltage (AN103)
- 4-20mA Transmitters (AN104)
- Practical Thermocouple Temperature Measurements (AN107)
- When Good Grounds Go Bad (AN108)
- Single Phase AC Measurements Revisited (AN109)
- 3-Phase AC Calculations Revisited (AN110)
- Current Modules Measure Power Factor (AN111)
- Filtering in Signal Conditioning Modules, SCMs (AN112)
- Phase Angles and Time Delays (AN113)
- Accuracy versus Resolution (AN114)
- Sampling Law (AN115)
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- Basic Bridge Circuits (AN117)
- Strain Gauge Signal Conditioner (AN118)
- Six Sigma: What? Why? How? (AN119)
- Wind Turbines Today (AN120)
- Low-Pass Filter Rise Time vs Bandwidth (AN121)
- Introduction to PID Control (AN122)
- Tuning Control Loops for Fast Response (AN123)
- Tuning Control Loops with the IMC Tuning Method (AN124)
- Tuning Level Control Loops (AN125)
- Tuning Surge Tank Level Control Loop (AN126)
- Op Amp Errors, Another View (AN127)
- RMS Revisited (AN128)
- Harmonics and Utility Costs (AN129)

SCM5B MODULES

- Thermocouple Voltage-to-Temperature Conversion Method (AN501)
- SCM5B Ground Connections and Host System Interfaces (AN502)
- SCM5B Failure Rate Calculation and Prediction (AN503)
- Interpreting Drift Specifications (AN504)
- Hardware Linearization of Non-Linear Signals (AN505)
- ANSI/IEEE C37.90.1-1989 Transient Specification (AN506)
- Shield Grounding (AN507)
- Protecting Signal Lines Against EMI (AN508)
- SCM5B43 - DC LVDT Input Module (AN509)

SCM7B MODULES

- SCM7B Thermocouple Modules and CJC (AN701)
- SCM7B Frequency and Time Response (AN702)
- Failure Rate Calculation and Prediction (AN704)

DSCA MODULES

- DSCA Calibration Procedure (AN801)
- DSCA, SCM5B, SCM7B and 8B Failure Rate Calculation and Prediction (AN802)

LDM485, RS-485 DEVICES

- SCM9B/LDM422/LDM485 RS-485 Connection (AN201)
- LDM485-to-LDM485 to Other RS-485 Devices Configuration (AN202)

MAQ®20 MODULES

- Cross Point Switch Using MAQ20-DORLY Module (AN901)
- MAQ20 PID Control in a Home Heating Application (AN902)

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Tech Notes

- Active, Analog, Elliptic Filter
- Eddy Current - Skin, and Proximity Effects
- Could We Actually Achieve "Warp Speed"?
- What is This Crest Factor Thing?
- Coulomb's Law
- Faraday's Law of Induction
- Power Supply Isolation
- When to Use Closed-Loop Control Instead of Open-Loop Control
- Aliasing, Anti-Aliasing - What is That Anyway?
- Made in the USA
- MAQ20 Data Acquisition System Features
- Advanced CJC Method
- MAQ20-BRDG1, Strain Gauge Bridge Module
- 3-Year Warranty
- ISO9001
- Hazardous Locations in the European Union - ATEX Directive
- Hazardous Locations in North America
- Certifications
- Why Should Sensors Be Isolated
- Signal Conditioning and Alias Filters
- Low-Pass Filter Rise Time vs Bandwidth
- Strain Gauge Signal Conditioners
- Why Isolate Analog Signals?
- RTD Tutorial
- Six Sigma - What? Why? How?
- Windmill Applications
- Introduction to Thermocouples
- RTD, Resistance Temperature Detector
- Shielding and Grounding
- 5B for Piezo-Electric Accelerometers
- Configurable 5B Module
- Hysteresis Specifications
- Miniature Electronics... 8B Modules
- A Question from Dataforth's President
- Unbalanced Voltages Increase Cost
- Dataforth Test Reports
- Normal Mode Rejection, NMR
- Bridge Circuit Measurements
- Signal-to-Noise Ratio, SNR
- Accuracy versus Resolution
- Filtering - Phase Angles and Time Delays
- Uncertainty Principle
- Galvanic Isolation
- Quick Reference for RS-323, -422, -423, -485
- It's All About Isolation and Protection
- Serial Data
- Signal Conditioner with Power Supply
- Isolated I/O to Serial Data
- Loop Isolators
- Test Reports
- Measuring True RMS
- 2-wire, 4-20mA Applications
- System Accessories
- Why True RMS?
- Analog-to-Serial
- Transient Protection
- Signal Conditioner Life
- Common-Mode Voltage
- Thermocouples
- 5B or 7B
- DIN or 5B/7B Option
- Signal Conditioning Tutorial
- Programmable Signal Conditioning
- When Good Grounds Go Bad
- Input Resistance
- Drift Specs
- Failure Rates
- Industrial Date Acquisition
- Single Phase Revisited
- 3-Phase AC Calculations Revisited
- Using Ethernet for Data Acquisition
- Linearity and Conformity
- Reproducibility - Repeatability
- Surge Withstand Capability
- Easy Recalibration Procedure
- System Throughput
- Sampling Rates and THE LAW
- Signal Conditioning Article
- Measured vs Combinational Error
- Power Supply Sensitivity
- Filtering Noise
- Filtering in Signal Conditioning Modules
- Resistor Thermal Noise
- Sampling Law
- Signal Conditioners - Buy vs Build
- Confident Strain-Gauge Measurements
- Advanced CJC Method Used in Dataforth Thermocouples Significantly Improves Accuracy

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DISCONTINUED DEVICES - Isolator Products

Affected Devices	Replacement Devices	Affected Devices	Replacement Devices
DSCL22-01	None Available	DSCL24-11-1648	None Available
DSCL22-11	None Available	DSCL24-11-1675	None Available
DSCL22-21	None Available	DSCL24-11-1676	None Available
DSCL23-01	None Available	DSCL24-12-1540	None Available
DSCL23-02	None Available	DSCL24-12-1552	None Available
DSCL24-01	DSCP81-01	DSCL24-12-1553	None Available
DSCL24-02	DSCP81-02	DSCA24-12-1559	None Available
DSCL24-11	None Available	DSCL24-12-1617	None Available
DSCL24-12	None Available	DSCL24-12-1618	None Available
DSCL24-11-1575	None Available	DSCL24-12-1626	None Available

DISCONTINUED DEVICES - Backpanels

Affected Devices	Replacement Devices
SCMD-PB4RD	NONE
SCMD-JM8	Use To Depletion No Available Replacement
SCMD-PB8	SCMD-PB4, SCMD-PB16SM, SCMD-PB24SM
SCMD-PB8H	SCMD-PB4D, SCMD-PB16SMD, SCMD-PB24SMD
SCMD-PB8SM	SCMD-PB4, SCMD-PB16SM, SCMD-PB24SM
SCMD-PB8SMD	SCMD-PB4D, SCMD-PB16SMD, SCMD-PB24SMD
SCMD-PB16	SCMD-PB4, SCMD-PB16SM, SCMD-PB24SM
SCMD-PB16H	SCMD-PB4D, SCMD-PB16SMD, SCMD-PB24SMD

DISCONTINUED DEVICES - Power Supply

Affected Devices	Replacement Devices
PWR-4504	Use To Depletion No Available Replacement

DISCONTINUED DEVICES

Affected Devices	Replacement Devices
SLX200-20	None Available
SLX200-30	None Available
SLX200-21	None Available
SLX200-31	None Available
SLX200-20D	None Available
SLX200-30D	None Available
SLX200-21D	None Available
SLX200-31D	None Available

DISCONTINUED DEVICES - Sensor-to-Computer Products

Affected Devices	Replacement Devices	Affected Devices	Replacement Devices
SCM9B-1212	None Available	SCM9B-2562	None Available
SCM9B-1551	None Available	SCM9B-2611	None Available
SCM9B-1552	None Available	SCM9B-2612	None Available
SCM9B-1561	None Available	SCM9B-2641	None Available
SCM9B-1611	None Available	SCM9B-2642	None Available
SCM9B-1641	None Available	SCM9B-3161	None Available
SCM9B-2151	None Available	SCM9B-3162	None Available
SCM9B-2212	None Available	SCM9B-4121	None Available
SCM9B-2221	None Available	SCM9B-4131	None Available
SCM9B-2222	None Available	SCM9B-4162	None Available
SCM9B-2231	None Available	SCM9B-5311	None Available
SCM9B-2232	None Available	SCM9B-5331	None Available
SCM9B-2241	None Available	SCM9B-5341	None Available
SCM9B-2531	None Available	SCM9B-5342	None Available
SCM9B-2542	None Available	SCM9B-D132	None Available

DISCONTINUED DEVICES - Line Drivers and Converters

Affected Devices	Replacement Devices
LDM30-PE	None Available
LDM30-SE	None Available
LDM70-P	None Available
LDM70-PE	None Available
LDM70-PT	None Available
LDM70-SE	None Available
LDM80-S-025	None Available
LDM85-P	None Available
LDM85-PE	None Available
LDM85-PE-025	None Available
LDM85-S	None Available
LDM85-S-025	None Available
LDM85-SE-025	None Available
LDM85-ST	None Available
LDM422-PE	None Available
LDM422-SE	None Available
LDM485-PT	None Available
LDM485-ST	None Available
LDM485-PT-025	None Available
LDM485-SE	None Available

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High Performance Industrial Signal Conditioning, Data Acquisition & Control, and Data Communication Products Since 1984

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To view the current Dataforth Corporation Warranty, please click on the link below for the Dataforth Standard Terms and Conditions of Sale Applying to Products Sold by Dataforth Corporation. The Warranty in its entirety is Section 3. Please check this link periodically for updates.

https://www.dataforth.com/terms-and-conditions-sale

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Dataforth provides timely, high-quality product support. Call +**1-800-444-7644 TOLL-FREE**

Returns/Repair Policy

All warranty and repair requests should be directed to the Dataforth Customer Service Department at +1-520-741-1404. If a product return is required, visit dataforth.com, choose Sales Support on the blue bar and you will see the link to "Obtain an RMA". Fill out the online Return Materials Authorization (RMA) form. Be ready to provide the following information:

1. Complete product model number.
2. Product serial number.
3. Name, address, and telephone number of person returning product.
4. Special repair instructions or reason for return.
5. Purchase order number for out-of-warranty repairs.

The product should be carefully packaged, making sure the RMA number appears on the outside of the package, and shipped prepaid to:

Dataforth Corporation
ATTN: RMA Coordinator
6230 S. Country Club
Tucson, AZ 85706 USA

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