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

SECTION 4 - DSCA

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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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