Digital Strain Gage Module (DSC)

Product Features & Benefits

- *Miniature package that fits into small enclosures.*
- *Ideal for single or multiple sensor systems.*
- *Up to 500 readings/second.*
- *Software tools included.*

Applications

- *Aerospace*
- *Industrial Weighing*
- *Marine*
- *Automotive*

Description

Digital Strain Gage Modules (DSC) are compact, high-performance strain gage digital signal conditioner modules. They are aimed at applications which require high measurement accuracy, resolution, and stability. The module and sensor may be powered by a typical DC power supply and communicates using standard or custom bus communications and protocols. Outputs include RS-232, RS-485, and CAN. Available protocols include ASCII, CAN, and Modbus.

The DSC may be mounted in several ways, including standard or custom enclosures.

Software tools are included for quick and convenient interfacing with device configuration, calibration, datalogging, and recording. A standard Windows DLL is provided for creating custom applications.

Contact Strainsert Engineering for assistance with mounting options using either standard and custom solutions, systems integration, or software development.

Specifications		**Units**
Bridge Measurement	*4-wire*	
Bridge Excitation Voltage	*4.5 to 5.25 (5 typical)*	*VDC*
Bridge Resistance	*320 to 5,000 (350, typical)*	*Ohms*
Bridge Sensitivity	*-3 to 3 (2.5, typical)*	*mV/V*
Stability with Temperature, Offset	*1 to 4 (0.6 to 2.2)*	*ppm/°C (ppm/°F)*
Stability with Temperature, Gain	*3 to 5 (1.7 to 2.8)*	
Stability with Time, Offset	*80, maximum (20, typical)*	*ppm/F.R.*
Stability with Time, Gain	*30, maximum (first year)*	
Non-Linearity before Linearization	*25, maximum (5, typical)*	*ppm/F.R.*
Internal Resolution	*16 Million*	*counts / divisions*
Resolution at 1Hz (noise stable) over 100s	*200,000*	
Resolution at 10Hz (noise stable) over 100s	*120,000*	
Resolution at 100Hz (noise stable) over 100s	*50,000*	
Resolution at 500Hz (noise stable) over 100s	*18,000*	
Signal Filter	*Dynamic recursive type - user programmable*	
Power Supply voltage	*5.8 to 18 (12, recommended)*	*VDC*
Power Supply ripple	*100, maximum*	*mVAC PK-to-PK*
Power Supply current	*60, maximum (45, typical max. with 350 Ohm Bridge)*	*mA*
Power Supply wattage	*450, typical with 350 Ohm Bridge*	*mW*

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Revision 1.4, 11/19/2020

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Specifications		Units
Temperature Range, Operating	-40 to 85 (-40 to 185)	°C (°F)
Temperature Range, Storage	-40 to 85 (-40 to 185)	
Humidity	0 to 95	%RH
Data transmission rate, RS232	2,400 - 230,400	bps
Data transmission rate, RS485	2,400 - 230,400	
Data transmission rate, CAN	20K - 1M	
Data cable length, RS232	15 to 20 (49 to 66), maximum. (Depending on Data Transmission rate, Single sensor only).	meters (feet)
Data cable length, RS485 & CAN	1,000 (3,280), maximum (Dependent on Data transmission rate and number of sensors)	

DSC module mounting and interconnection

Convenient mounting, interconnection, and environmental protection of DSC modules are facilitated using interconnection boards and IP65 rated ABS plastic enclosures. Enclosure cable entries via included cord grips. Wire terminations provided via included screw terminal headers.

Single Channel DSC1

Multiple Channel DSCx

Enclosure Specifications		Units
Temperature Range, Operating	-10 to +50 (+14 to +122)	°C (°F)
Temperature Range, Storage	-20 to +70 (-4 to +158)	
Humidity, non-condensing	0 to 95	%RH
Enclosure dimensions, Single Channel DSC1	160 x 80 x 55 (6.30 x 3.15 x 2.17)	mm (in)
Enclosure dimensions, Multiple Channel DSCx	200 x 120 x 75 (7.87 x 4.72 x 2.95)	mm (in)
Cord Grip cable size	4.5 to 7 (0.177 to 0.276)	mm (in)
Screw terminal wire size	Up to 2.5 (14 to 30)	mm^2 (AWG)

Single Channel DSC		
Order Code	Output	Protocol
DSC1-1A	RS232	ASCII
DSC1-1B	RS232	Modbus
DSC1-2A	RS485	ASCII
DSC1-2B	RS485	Modbus
DSC1-3A	CAN	CAN 2.0B

Multiple Channel DSC		
Order Code	Output	Protocol
DSCx-1A *	RS232	ASCII
DSCx-1B *	RS232	Modbus
DSCx-2A *	RS485	ASCII
DSCx-2B *	RS485	Modbus
DSCx-3A *	CAN	CAN 2.0B

* *Specify DSC2, DSC3, or DSC4 for a 2, 3, or 4 channel DSC, respectively, where the "x" in DSCx is the number of channels.*