FLEXEDGE® Strain Gage Module

FLEXEDGE® Intelligent Edge Automation Platform

The strain gage module is designed for use with the FlexEdge DA70 contoller, and features a single loop PID controller with two strain gage inputs designed to accept low level signals from a wide variety of bridge-type transducers. The strain gage module is easily configured in Crimson® software and available with user-selectable analog output and solid state or relay outputs.

- Strain Gage module for the DA70
- PID control with reduced overshoot
- Load Cell, Pressure and Torque bridge inputs
- Software selectable low level inputs (20 mV, 33 mV or 200 mV full scale)
- Software selectable 5 VDC or 10 VDC bridge excitation
- Digital Tare (re-zero), Batch Totalizer, and Peak/Valley (max/min) recording
- On demand auto-tuning of PID settings
- DC analog output
- Auto addressing minimizes configuration time
- Fully isolated design provides reliable operation
- Configured using Crimson software (version 3.2 or later)

UK CA CE Ex c UL us LISTED IND.CONT. EQ. E317425

Ordering Guide

Main Unit

Part Number	Description	Type
DAM00PDSG2RA0000	DA70 Series Module, Single Loop, Two Strain Gage Inputs, Relay and Analog Outputs [1]	Input Modules
DAM00PDSG2SA0000	DA70 Series Module, Single Loop, Two Strain Gage Inputs, SSR and Analog Outputs	

A listing of the entire DA70 family of products and accessories can be found at www.redlion.net.
[1] Module is not suitable for use in ATEX locations.

DA Strain Gage Module Specifications

Specifications

Power Requirements
Power is supplied by the DA host device.
DA Strain Gage Max Power: 5.6 W with four 350 ohm bridges

LEDs*
STS – RGB Status LED shows module condition.
OP1, OP2, OP3 - Indicate status of outputs 1, 2, and 3
ALM - Alarm LED are lit during an internal alarm condition
* Default configuration.

Memory
Non-volatile memory retains all programmable parameters.

INPUTS
Software Selectable Input Range: ±20.000 mVDC, ±33.000 mVDC, ±200.00 mVDC
Connection Type:
4-wire bridge (differential)
2-wire (single-ended)
Sample Time: 50 msec (20 Hz)
Common Mode Range (with respect to input common): 0 to +5 VDC
Common Mode Rejection: > 100 dB, DC to 120 Hz
Temperature Coefficient (ratio metric): 20 ppm/°C max.
Step Response Time: 100 msec typ., 200 msec max.
Input Impedance: 100 M ohm
Max Continuous Overload: 30 V
PV Range: -30,000 to 30,000
Effective Resolution: 16-bit

Bridge Excitations
Software selectable:
5 VDC, ±2%, 65 mA max.
10 VDC, ±2%, 125 mA max. combined (excitation 1 plus excitation 2).
Temperature coefficient (ratio metric): 30 ppm/°C max.
Max. four 350 ohm bridges per module.

Isolation Level
500 Vrms @ 50/60 Hz for 1 minute between the following:
OP1 *
OP2 *
OP3 *
Linear Output
Signal Input (the 2 input channels are not isolated from each other)
Power Supply Input
* Outputs OP1, OP2 and OP3 of SSR model are not isolated from each other

Communications
Provided by the DA host device

Discrete Outputs
Available as (3) Solid State NFET, or (3) Form A relay.

Solid State Output:
Type: Switched DC, N Channel open drain MOSFET
Current Rating: 1 A max
VDS ON: 0.3 V @ 1 A
VDS MAX: 30 VDC
Offstate Leakage Current: 0.5 mA max
Form A Relay Output:
Type: N.O.
Contact rating per relay:
1.5 Amps @ 125 VAC or 30 VDC (resistive load) at 55 °C T_{AMB}
0.4 Amps @ 125 VAC or 30 VDC (resistive load) at 70 °C T_{AMB}
Unloaded at 75 °C T_{AMB}
Note: When relay contacts are connected to Mains, the Mains should be Overvoltage category II, Polution degree 2
Life Expectancy: 200,000 cycles at maximum load rating. (Decreasing load, increasing cycle time, and use of surge suppression such as RC snubbers increases life expectancy.)

Control Modes
Control: On/Off, P, PI, or PID
Output: Time proportioning or linear
Cycle Time: Programmable from 0.0 to 60.0 sec
Auto-Tune: When selected, sets proportional band, integral time, derivative time values, and output dampening time
Input Fault Response: Upscale

Alarms
Modes:
Manual
Absolute High Acting
Absolute Low Acting
Deviation High Acting
Deviation Low Acting
Inside Band Acting
Outside Band Acting
Reset Action: Programmable; automatic or latched
Standby Mode: Programmable; enable or disable
Hysteresis: Programmable
Sensor Fail Response: Upscale

Analog DC Output
Selectable/programmable for 0-10 VDC, 0-20 mA, or 4-20 mA
Resolution:
Voltage: 500 µV
Current: 1 µA
Accuracy:
0.1% of full scale (18 to 28 °C)
0.2% of full scale (-40 to 75 °C)
Update Time: 0.0 to 60.0 sec
Compliance (for current output only): 500 ohm max.
Minimum load (voltage output only): 10 K ohm min.
Outputs are software selectable for either 10 V or 20 mA. The output range may be field calibrated to yield approximate 10% overrange and a small underrange (negative) signal.

DA Strain Gage Module Specifications Cont. and Dimensions

Environmental

Operating Temperature Range:
Modules with Relays: -40 to 70 °C T_{AMB}
Modules with Solid-State Outputs: -40 to 75 °C T_{AMB}
Storage Temperature Range: -40 to +85 °C T_{AMB}
Shock to IEC 68-2-27: Operational 15 g (10 g, modules w/relays)
Vibration to IEC 68-2-6: Operational 5-500 Hz, 2 g
Operating and Storage Humidity: 0 to 85% max. relative humidity, non-condensing.
Altitude: Up to 2000 meters

Certification & Compliance

CE Approved
EN 61326-1 Immunity to Industrial Locations
Emission CISPR 11 Class A
IEC/EN 61010-1
RoHS Compliant
ATEX Approved
II 3 G Ex ec IIC T4 Gc
DEMKO 20 ATEX 2268X
IECEx Approved
IECEx UL 20.0007X
UKEX Approved
UL22UKEX2576X

UL Hazardous: File #E317425
Rugged IP30 enclosure

CONSTRUCTION

Metal and plastic enclosure with IP30 rating.
Weight: 11.1 oz (315 g)

Connections

Wire Strip Length: 0.3" (7.5 mm)
Wire Gauge Capacity: 14 to 24 AWG (2.08 to 0.20 mm^2) copper wire only

Mounting

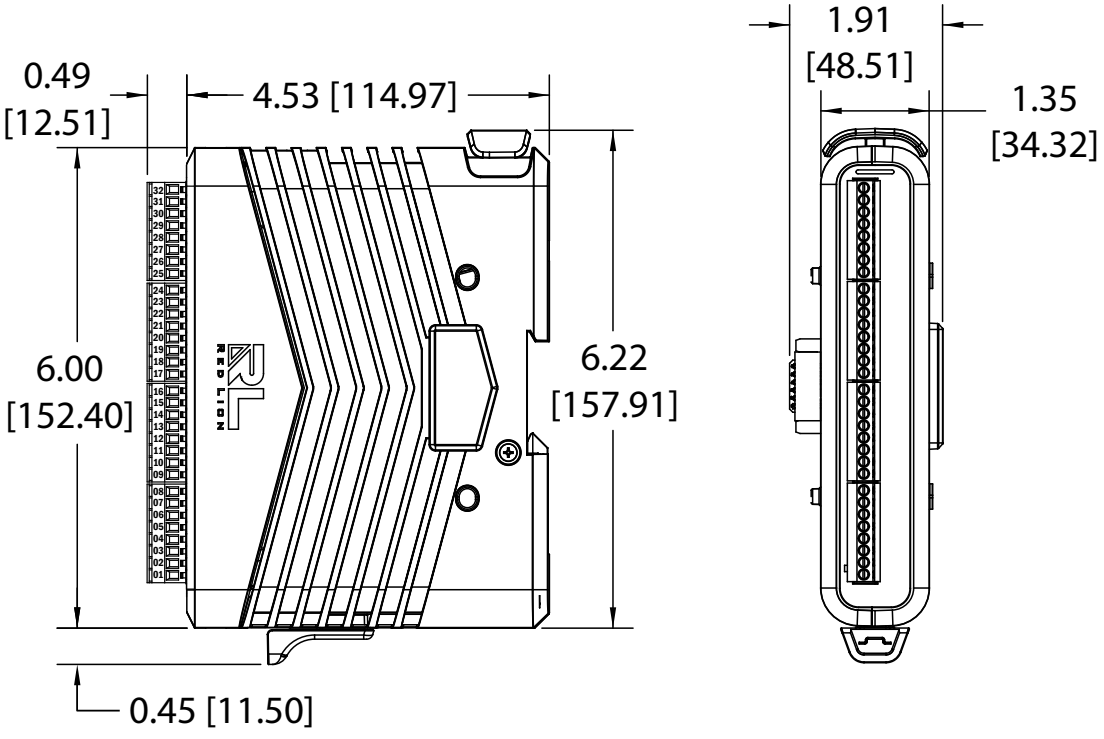
DIN Rail: Attaches to standard "T" profile DIN rail according to EN50022 - 35 x 7.5 and 35 x 15

Warranty

3 years on design and manufacturing defects.

Specifications are subject to change.
Visit www.redlion.net for more information.

Dimensions In inches [mm]



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