TYPE: D-CELL

DCELL 'In-cell' Digital Strain Gauge to Data Converter

Features

- Simple mounting using M2 screw
- Connections via plated through holes
- Low profile to fit in very small apertures
- Baud rates to 230k
- High speed to 500 readings/sec
- ±15KV ESD protected
- Real mV/V calibration
- Noise immunity 5 x heavy industrial level
- Diagnostics LED
- Peak and trough recording

Typical Applications

- Vessel weighing
- Performance yachting monitoring
- Vehicle weighing
- Automotive force measurement

Description

The DCELL is a high performance digital signal conditioner for the precision measurement of strain gauge based transducers. The micro miniature PCB is designed to fit inside the majority of sensors, providing a 'digital' load cell with the benefit of very high stability and an RS485 output.

LCM Systems offer the DCELL as a standalone product or built into most of our load cells. Including the DCELL into a load cell enables the building of very high accuracy load cells, using the built in linearization and temperature compensation facilities. LCM Systems can also supply PC based software packages, specially written to interface with DCELL based load cells and pressure transducers. Please contact our technical department to discuss your requirement.

For applications where it is not possible to fit the DCELL within the transducer, there is an in line housing available (model ILE).

Specification

DLCH High Stability	Min	Typ	Max
Bridge excitation (Ohms)	4.25	5	5.25
Bridge impedance (Ohms)	320	350	5000
Sensor impedance: 18V supply (Ohms) *	320	350	5000
Sensor impedance: 12V supply (Ohms) *	120	350	5000
Bridge sensitivity (mV/V)	-3		+3
Offset temperature stability (ppm/°C)		1	4
Gain temperature stability (ppm/°C)		3	5
Offset stability with time (%FR)		0.002	0.008
Gain stability with time (ppmFR/1st year)			30
Non linearity (%FR)		0.0005	0.0025
Internal Resolution (counts/divisions)		16 million	
Resolution @ 1Hz (noise stable)		200,000	
Resolution @ 10Hz (noise stable)		120,000	
Resolution @ 100Hz (noise stable)		50,000	
Resolution @ 500Hz (noise stable)		18,000	

DLCS Industrial Stability	Min	Typ	Max
Bridge excitation (Ohms)	4.25	5	5.25
Bridge impedance (Ohms)	320	350	5000
Sensor impedance: 18V supply (Ohms) *	320	350	5000
Sensor impedance: 12V supply (Ohms) *	120	350	5000
Bridge sensitivity (mV/V)	-3		+3
Offset temperature stability (ppm/°C)		5	10
Gain temperature stability (ppm/°C)		30	50
Offset stability with time (%FR)		0.0035	0.016
Gain stability with time (ppmFR/1st year)			300
Non linearity (%FR)		0.0005	0.0025
Internal Resolution (counts/divisions)		16 million	
Resolution @ 1Hz (noise stable)		66,000	
Resolution @ 10Hz (noise stable)		40,000	
Resolution @ 100Hz (noise stable)		10,000	
Resolution @ 500Hz (noise stable)		5,000	

* Subject to supply voltage (see electrical specifications)

Available Options

- Temperature Measurement Resolution (0.1°C) & Temperature Measurement Accuracy (1°C)

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LCM SYSTEMS
Solutions in Load Cell Technology

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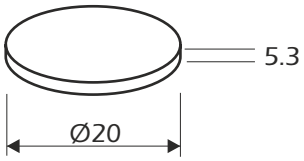
Specification (continued)

Power supply voltage (Vdc)	5.6 to 18 (12 typical)
Power supply noise/ripple (mVac pk-pk)	100
Supply current - 350R Bridge (mA)	45 to 60
Power@ 10V supply - 350R bridge (mW)	350
Excitation system	4 wire
RS485 data rate (Baud)	2400 min, 230,000 max
Protocols	ASCII, MantraBUS II, Modbus RTU
Storage temperature	-40 to +85°C
Operating temperature	-40 to +85°C
Relative humidity	95% maximum non-condensing
European EMC Directive	2004/108/EC
Low Voltage Directive	200/95/EC

Dimensions



All dimensions are in mm

Product Order Codes

High Stability	RS485 ASCII Protocol	DLCHASC
	RS485 MantraBUS Protocol	DLCHMAN
	RS485 Modbus RTU Protocol	DLCHMOD
Industrial Stability	RS485 ASCII Protocol	DLCSASC
	RS485 MantraBUS Protocol	DLCS
	RS485 Modbus RTU Protocol	DLCSMOD

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