DCELL “In-Cell” Digital Strain Gauge to Data Converter

TYPE:DCELL

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 5x heavy industrial level
- Diagnostics LED
- Remote shunt calibration
- Very high stability
- Peak and trough recording
- Programmable dynamic filter

  Operating voltage (5.4 – 18Vdc

Typical Applications

- High accuracy Aircraft Weighing
- Crane weighing, using LDD-LITE large digit display
- Centre of Gravity PC based systems
- Condition and safety monitoring systems

Description

The DCELL is a high performance digital signal conditioner for the precision measurement of strain gauge based transducers.

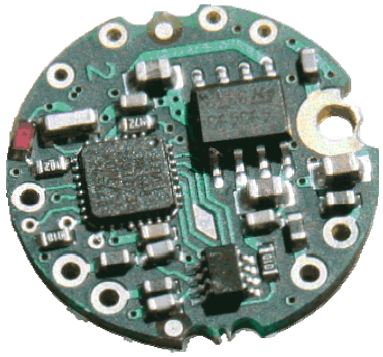
The Micro Miniature PCB is designed to fit inside the majority of sensors, providing a ‘digital’ load cell with the benefit of very high stability and an RS485 output.

LCM Systems offer the DCELL as a standalone product or built into most of our load cell based products.

Including the DCELL into load cell based product 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 requirements.

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



Specification

Product	**DLCH High Stability**			**DLCS Industrial Stability**			
Electrical	Min	Typ	Max	Min	Typ	Max	Units
Bridge Excitation	4.5	5		5.25	4.5	5	5.25 VDC
Bridge Impedance	320	350	5000	320	350	5000	Ohms
Sensor Impedance (18v supply)	320	350	5000	320	350	5000	Ohms Δ
Sensor Impedance (12v supply)	120	350	5000	120	350	5000	Ohms Δ
Bridge Sensitivity	-3		+3	-3		+3	mV/V
Offset Temperature Stability		1	4	5	10		ppm/°C
Gain Temperature Stability		3	5		30	50	ppm/°C
Offset Stability with time		0.002	0.008		0.0035	0.016	%FR
Gain Stability with time			30			300	ppm FR/1st year
Non Linearity		0.0005	0.0025		0.0005	0.0025	%FR
Internal Resolution			16 Million		16 Million		Counts/Divisions
Resolution @ 1Hz (Noise Stable)		400,000			100,000		Counts/Divisions
Resolution @ 10Hz (Noise Stable)		120,000			40,000		Counts/Divisions
Resolution @ 100Hz (Noise Stable)		50,000			10,000		Counts/Divisions
Resolution @ 500Hz (Noise Stable)		18,000			5,000		Counts/Divisions

Optional

Temp Measurement Resolution	0.1	0.1	°C
Temp Measurement Accuracy	1	1	°C

Notes: From original offset at any time© Stability over 100 seconds Subject to supply voltage (see electrical specifications

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Product	DLCH High Stability			DLCS Industrial Stability			
Electrical	Min	Typ	Max	Min	Typ	Max	Units
Power Supply Voltage	5.4	12	18	5.4	12	18	Vdc
Power Supply Noise/Ripple		100			100		mVac pk-pk
Supply Current (350R Bridge)		45	60		45	60	
Power@10V Supply (350R Bridge)		350			350		mW
Excitation System		4 wire			4 wire		

Communications	Min	Typ	Max	Min	Typ	Max	Units
RS485 Data Rate	2400		230k	2400		230k	Baud
Protocols	ASCII, MANTRABUS II, Modbus RTU						

CE & Environmental	
Storage temperature	-40 to +85ºC
Operating temperature	-40 to +85°C
Relative humidity	95% maximum non-condensing
European EMC Directive	2004/108/EC
Low Voltage Directive	2006/95/EC

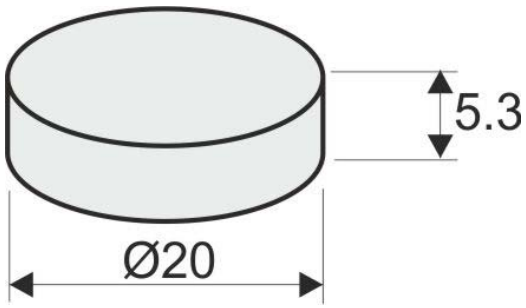
Product Order Codes

High Stability	Order code
RS485 ASCII Protocol	DLCHASC
RS485 MANTRABUS II Protocol	DLCHMAN
RS485 Modbus RTU Protocol	DLCHMOD

Industrial Stability	Order code
RS485 ASCII Protocol	DLCSASC
RS485 MANTRABUS II Protocol	DLCS
RS485 Modbus RTU Protocol	DLCSMOD

Mechanical Dimensions

All dimensions in millImeters



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Due to continual product development, LCM Systems Ltd. reserves the right to alter product specifications without prior notice.

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