

Description

The DCELL is a high performance digital signal conditioner with a host of additional features 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 a 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 products enable the building of very high accuracy load cells, using the built in linearization and temperature compensation facility.

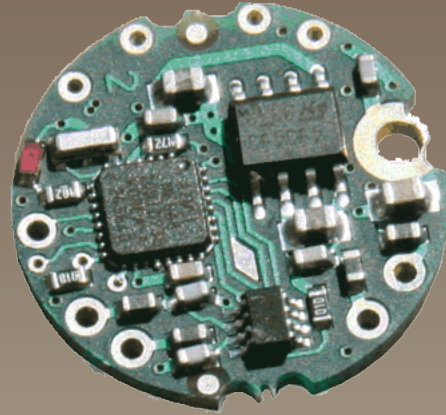
LCM Systems can also supply PC based software packages, specially written to interface with DCELL based load cells and pressure transducers. Please contact our technical department to discuss your requirements.

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

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

DCELL 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
- $\pm 15\text{KV}$ 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)

Digital Strain Gauge to Data Converter Specification

Product Description	DLCH High Stability			DLCS Industrial Stability			Units
	Min	Typ	Max	Min	Typ	Max	
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 of FR/1 st 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)

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	mA
Power@10V Supply (350R Bridge)		350			350		mW
Excitation System		4 wire			4 wire		

Communications

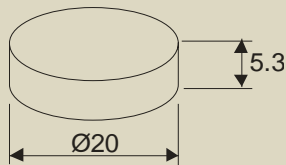
	Min	Typ	Max	Min	Typ	Max	Units
RS485 Data Rate	2400		230k	2400		230k	Baud
Protocols	ASCII, MANTRABUS II, Modbus RTU						

CE & Environmental

Storage temperature	-40 to +85°C
Operating temperature	-40 to +85°C
Relative humidity	95% maximum non-condensing
Safety/Low Voltage Directive	73/23/EEC amended by 93/68/EEC BS EN 61010-1:2001, IEC 1010-1-1990
EMC Directive	89/336/EEC Basic Standard BS EN 61326:1998
EMC Emissions	BS EN 55011:1998
EMC Immunity	BS EN 61000-42:1995 BS EN 61000-4-3:2002 BS EN 61000-4-4:2004 BS EN 61000-4-11:2004

Mechanical Dimensions

All dimensions in millimeters



Product Order Codes

High Stability DLCH	Order code
RS485 ASCII Protocol	DLCHASC
RS485 MANTRABUS II Protocol	DLCHMAN
RS485 Modbus RTU Protocol	DLCHMOD
Industrial Stability DLCS	Order code
RS485 ASCII Protocol	DLCSASC
RS485 MANTRABUS II Protocol	DLCSMAN
RS485 Modbus RTU Protocol	DLCSMOD

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

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