

Brief description

DiLiCo cell voltage 48/96



DiLiCo cell voltage 48



DiLiCo cell voltage 96

Version 3.16
20.08.2021

1. Brief description

DiLiCo cell voltage measures the single cell voltage (0...+4.5 V) of up to 96 galvanic elements connected in series per device. Figure 1 shows the two DiLiCo cell voltage versions for 48 and 96 cells.

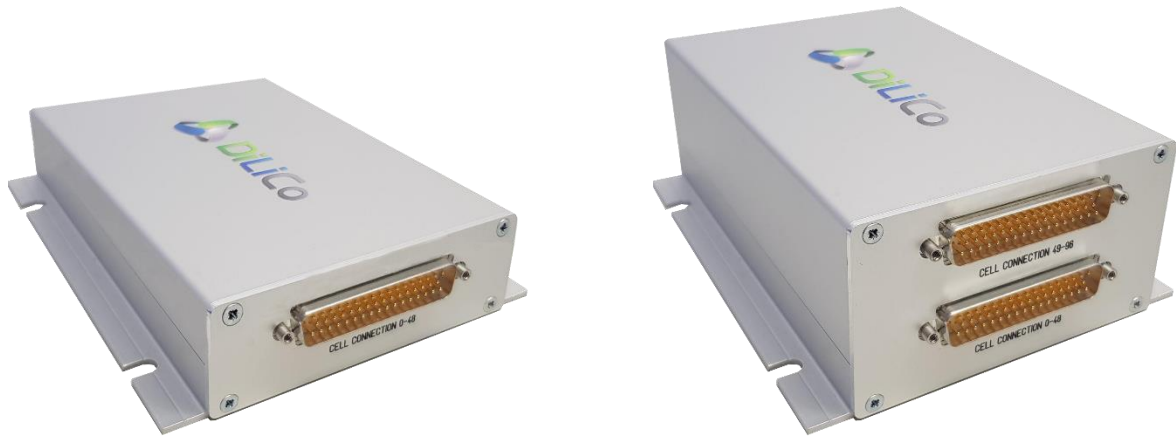


Figure 1: DiLiCo cell voltage 48 with 50-pin D-Sub connector for connecting 48 cells (165 x 130 x 40 mm³) on the left and DiLiCo cell voltage 96 for connecting 96 cells (165 x 130 x 60 mm³).

DiLiCo cell voltage 48 and 96 consists of two connection sides. Side A consists of the connection for the 24 VDC power supply, the communication interface (male), the power switch, a dry contact output, a switch for CAN-Termination (120 Ω) and a reset button.

Terminal B consists of one 50-pin D Sub connector (male) for DiLiCo cell voltage 48 and two 50-pin D Sub connector (male) for DiLiCo cell voltage 96, which receives the cell voltages.

Connections of DiLiCo cell voltage 48/96

Connection side	Designation on the device DiLiCo cell voltage	Note
A	15 - 36 VDC	External power supply
	COM	Communication for CAN (9-pin D-sub)
	POWER	Power switch
	Reset-button	Configuration of the communication and factory settings
	DCO	Dry contact out
	CTM	CAN-Termination switch (120 Ω resistor)
	B	CELL CONNECTION
CELL CONNECTION 0-48		Measuring inputs for cell voltages (50-pin D-sub) for DiLiCo cell voltage 96
CELL CONNECTION 49-96		

The DiLiCo cell voltage connection sides are shown in the following picture Figure 1. The left picture shows the POWER, COM and 24 VDC power connection. The right picture shows the 50-pin D-sub connection.



Figure 2: Connection side A (left) and B (right) of DiLiCo cell voltage 96.

Parameter of DiLiCo cell voltage 48/96

Measurement	Value	Note	
Supply voltage	15 to 36 VDC	External power supply	
Current consumption	ca. 100 mA		
Measuring range	0 ... 4.5 V	Per channel	
Channels	48 or 96		
Total measurement error at 25°C	Typ	Max	
	± 0.1 mV	± 1.0 mV	$0 \leq V_{\text{Cell}} \leq 2.0 \text{ V}$
	± 0.2 mV	± 1.4 mV	$2.0 < V_{\text{Cell}} \leq 3.3 \text{ V}$
	± 0.3 mV	± 1.8 mV	$3.3 < V_{\text{Cell}} \leq 4.5 \text{ V}$
Resolution	16 bit	16 bit Delta-Sigma ADC's	
Applications	Fuel cell, battery, electrolyzer, redox flow battery		
Interfaces	CAN, RS232	USB via adapter	
CAN baud rate	100 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 1 Mbit/s	Can be adjusted by customer	
RS232 baud rate	115.200 bit/s	Fixed	
Measuring interval	Up to 50 Hz / 20 ms (48 cells) Up to 30 Hz / 34 ms (96 cells)	Timing depends on CVM setup	
Leakage current on input	± 250 nA	Idle mode	
	± 2 µA	Measuring mode	

The following tables shows the measuring cycle times of DiLiCo cell voltage 48 and 96 depending on the number of devices and the set baud rate.

Total measuring cycle time DiLiCo cell voltage 48									
		Number of DiLiCo cell voltage devices on the same BUS							
		1	2	3	4	5	6	7	8
Baudrate	100 k	58 ms	97 ms	136 ms	175 ms	214 ms	253 ms	292 ms	331 ms
	125 k	49 ms	79 ms	109 ms	139 ms	169 ms	199 ms	229 ms	259 ms
	250 k	35 ms	51 ms	67 ms	83 ms	99 ms	115 ms	131 ms	147 ms
	500 k	29 ms	40 ms	51 ms	62 ms	73 ms	84 ms	95 ms	106 ms
	1 M	24 ms	30 ms	36 ms	42 ms	48 ms	54 ms	60 ms	66 ms

Total measuring cycle time DiLiCo cell voltage 96									
		Number of DiLiCo cell voltage devices on the same BUS							
		1	2	3	4	5	6	7	8
Baud rate	100 k	102 ms	178 ms	254 ms	330 ms	406 ms	482 ms	558 ms	634 ms
	125 k	84 ms	143 ms	202 ms	261 ms	320 ms	379 ms	438 ms	497 ms
	250 k	56 ms	87 ms	118 ms	149 ms	180 ms	211 ms	242 ms	273 ms
	500 k	46 ms	66 ms	86 ms	106 ms	126 ms	146 ms	166 ms	186 ms
	1 M	37 ms	49 ms	61 ms	73 ms	85 ms	97 ms	109 ms	121 ms

2. Scope of delivery

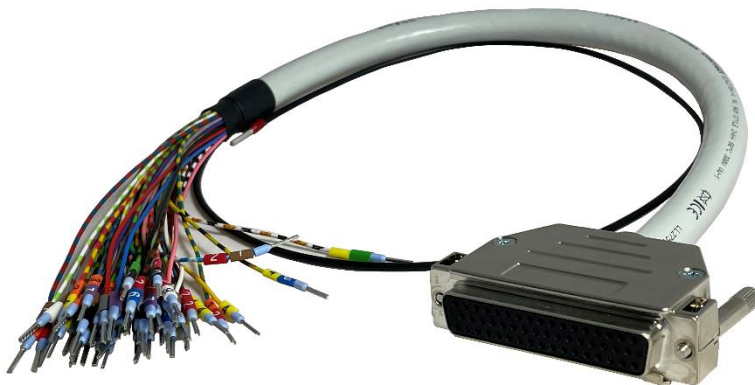
- DiLiCo cell voltage 48 or 96
- External 24 VDC power supply with DC voltage supply connector (right-angled)
- User manual
- (optional) 50-pin D-SUB (female connector) connection cable with separated cable ends and wire end ferrules
- (optional) software
- (optional) PCAN USB adapter

3. Optional accessories

Measuring cable

D-SUB connection cable with separated cable ends and wire end ferrules for connecting the individual cells to the measuring device. Connection between DiLiCo cell voltage and galvanic cell by the user.

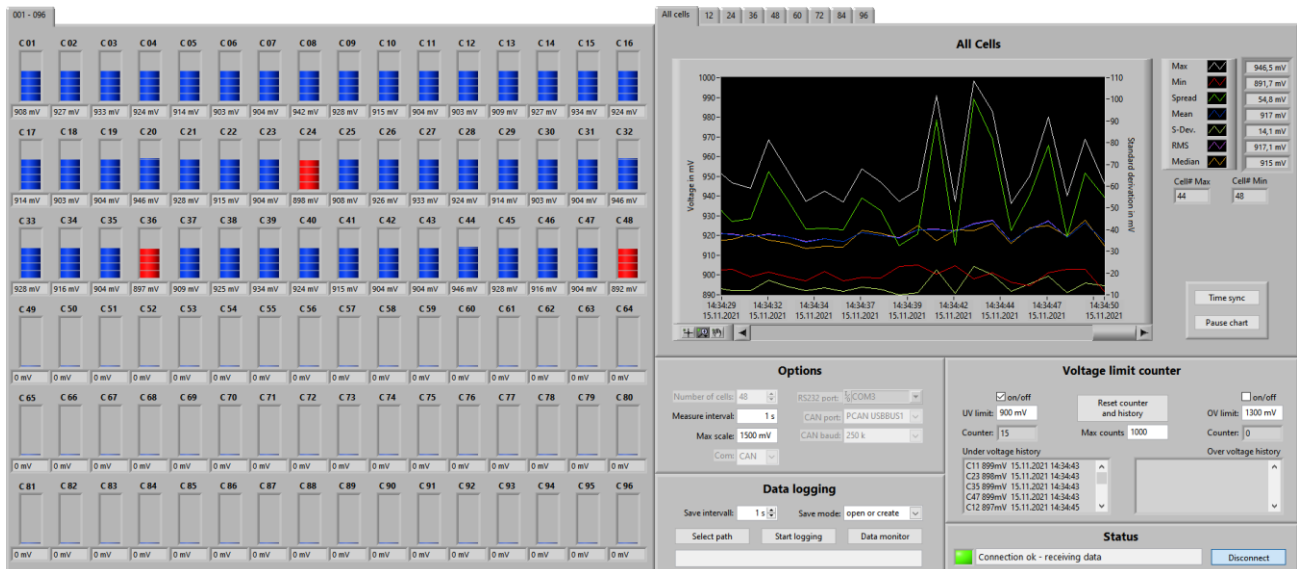
- 1 Cable required for DiLiCo cell voltage 48
- 2 cables required for DiLiCo cell voltage 96
- Single wires 0.25mm²/ shield 1mm²



Available lengths: 0.5 and 2 metres. Other lengths on request.

DiLiCo cell voltage data monitor" software

Software for evaluation of 48 or 96 measured values provided by DiLiCo cell voltage. Software for the evaluation of cell values greater than 96 are optionally available. Executable file (LabView exe) for visualisation and storage of cell voltages. To use the software, only the optionally available CAN-USB adapter is required to connect the measuring device to the measuring computer.



CAN-USB adapter

For connecting the DiLiCo cell voltage measuring device to the measuring computer via USB.

Required for the use of the DiLiCo cell voltage data monitor.

Length of connection cable: approx. 75 cm.

