

Cell Voltage Monitor

CVM24P

Precise 5 V-range voltage monitor with CAN for fuel-cells, batteries and electrolyzers

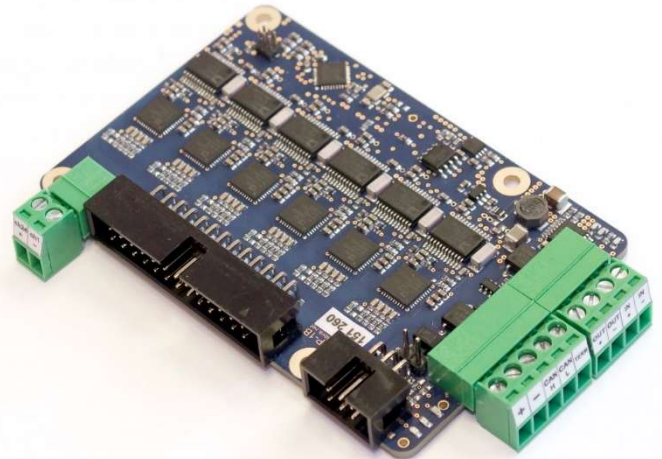
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Stackable cell voltage monitoring (CVM) system designed for H₂ fuel-cell stack research, testing and applications. CVM system can be used to prevent damage to individual cells, to monitor lifetime conditions, and to ensure optimal working conditions in applications. CVM24P module is ideal for testing and research purposes.

CVM24P module is designed as a precise automotive-ready solution with additional CAN bus for use mainly in hydrogen fuel cells and electrolyzers research, testing and applications.



For cost-effective solution for applications see **CVM32A** module and kits. For general temperature and voltage monitoring see **TEVOMET**.

Features

❖ Channel count	24
❖ Channel voltage range	± 5 V
❖ Input impedance	≥ 1 M Ω
❖ A/D converters resolution	24-bit
❖ Sample rate	up to 500 sps
❖ Board dimension	85 x 58 x 13.5 mm
❖ Cell connection	26-pin IDC connector (automotive-grade connectors on request)
❖ Communication bus	CAN bus MODBUS RTU (in development) RS-485 / XC2 (compatible with other Kolibrík.net modules)
❖ Inputs / outputs	Opto-isolated I/O with serial communication capability
❖ Accessories	Power supply module XC2/MODBUS/CAN controller USB & serial (RS232) interface Raspberry PI connection 3D-printed enclosures

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Technical Parameters

Power supply	7 ... 38 V DC / 1.5 W max
Dimensions	85 x 58 x 13.5 mm (without connector plugs)
Mounting	4x mounting holes 2.7mm, hex spacers with M2.5 thread
Channel count	24 Multiple modules can be daisy-chained to measure hundreds of channels
Channel voltage range	-5 ... +5 V *)
Input impedance	1 MΩ
Isolation	2 kV between channels and power supply + communication bus Additional isolation can be provided by isolating bus segments
Sampling	Precise 24-bit ADCs All-channel sample rate up to 500 sps
Accuracy	0.02 % of range + 0.05 % of reading
Communication	CAN bus RS-485 (XC2 protocol or MODBUS)
I/O	Optional digital optocoupler input and output, may work as additional serial line
Ambient operating temperature	-40 °C to +85 °C +85 °C to +125 °C module can be powered, measurement inactive

*) Channels are organized by groups of 4 channels. Channels in one group can measure up to ± 20 V if the sum of group channels does not exceed 20V. So, one channel can measure up to ± 20 V, if other channels in group are short-circuited. Note that adjacent channels and groups are chained together and are not independent.

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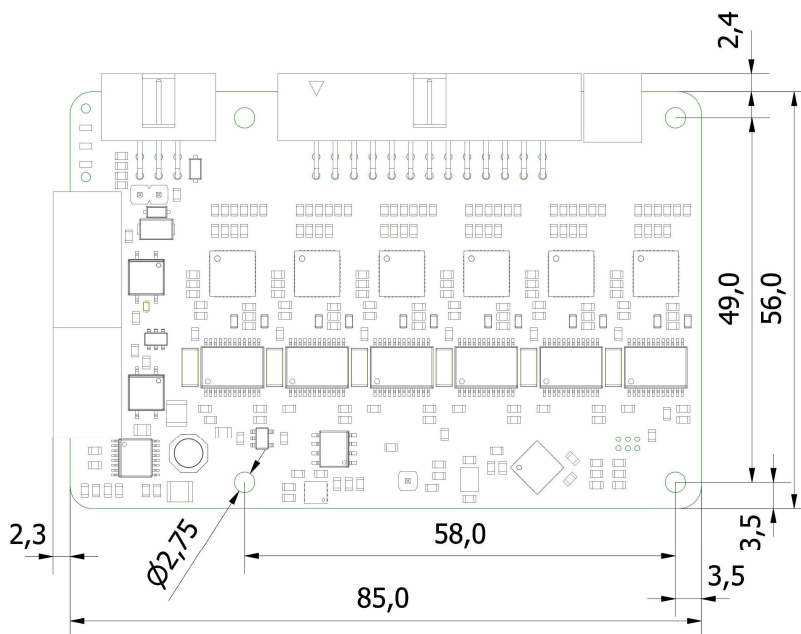


Fig. 1: Module board dimensions, mechanically compatible to Raspberry-like boards

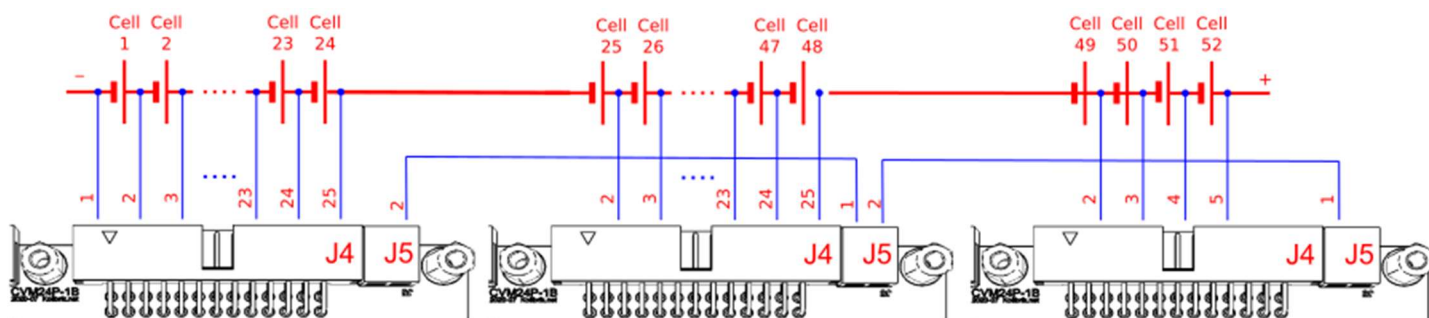


Fig. 2: Example of 52-channel connection with chaining of 3 CVM24P modules (2x24 + 1x4 cells)

