

# Cell Voltage Monitor

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

CVM-24P





## Product description

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. CVM-24P module is ideal for testing and research purposes.

**CVM-24P** module are 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 precise 2.5 V-range solution see **CVM-64H** module and sets. For cost-effective solution for applications see **CVM-32A** module and kits. For general temperature and voltage monitoring see **TEVOMET**.

## Features

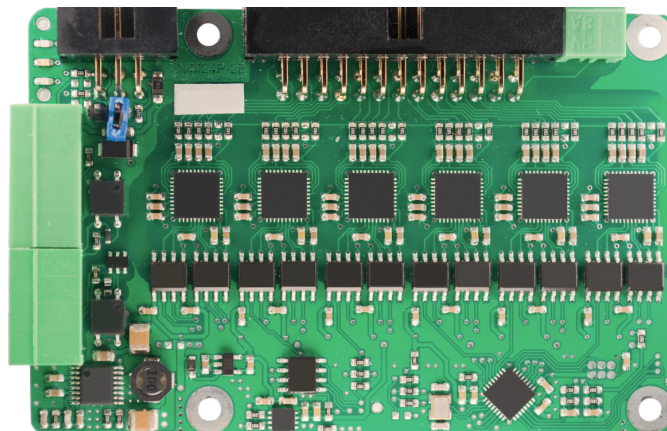
Channel count	24
Channel voltage range	± 5 V
Input impedance	≥ 1 MΩ
A/D converters resolution	24-bit
Sample rate	up to 500 sps
Board dimension	85 x 58 x 13.5 mm
Cell connection	26-pin IDC connector (automotive-grade connectors on request)
Communication bus	CAN bus MODBUS RTU RS-485 / XC2 Compatible with other kolibrík.net modules
Inputs / outputs	Opto-isolated I/O with serial communication capability
Accessories	Power supply module USB to RS-485 interface Raspberry PI connection
	3D-printed enclosures DIN-rail and wall-mount holders Custom cables and cell voltage pickup



# Technical Parameters

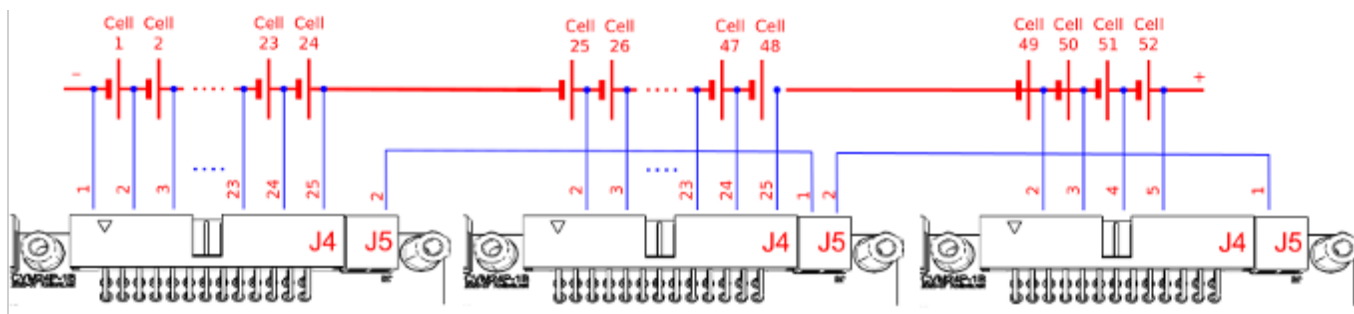
Power supply	7 ... 33 V DC / 2.2 W max
Dimensions	85 x 58 x 13.5 mm (without connector plugs)
Mounting	4x mounting holes 2.7mm, hex spacers with M2.5 thread
Channel count	24 Multiple modules can be daisy-chained to measure hundreds of channels
Channel voltage range	-5 ... +5 V *)
Input impedance	1 MΩ
Isolation	1 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

\*) 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 20 V. 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.



CVM24P module

## Examples



Example of 52-channel connection with chaining of 3 **CVM-24P** modules (2x24 + 1x4 cells)

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