

Cell Voltage Monitor

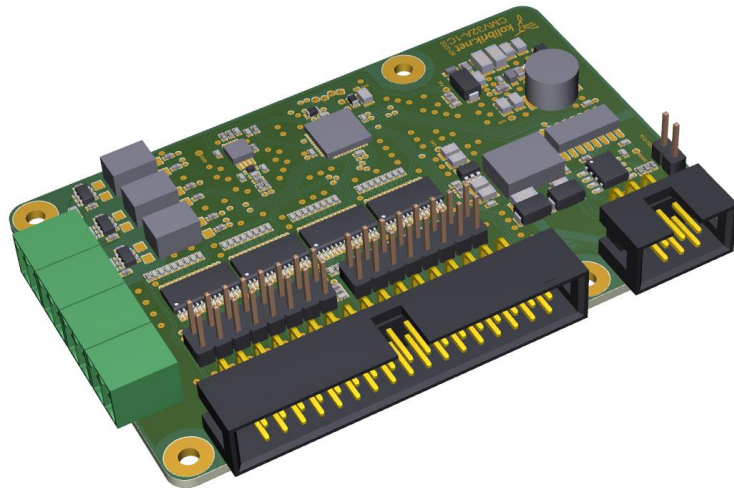
CVM32A

32-channel cell voltage monitor
for H₂ fuel-cell stacks

Datasheet
Document version 1.3
2020-08-25



kolibrík.net



Stackable CVM system designed for H₂ fuel-cell stack research 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.

CVM32A module is designed as a cost-effective solution mainly for applications. For research, automotive, testing and precision application see CVM24P or TEVOMET.

Features

- ❖ 32 channel per board
- ❖ Basic channel voltage range ± 1.5 V
- ❖ Maximum voltage span of all channels is 34 V
- ❖ Multiple boards can be chained for > 32 cell stack, connector for easy adjacent cell chaining
- ❖ Resolution 1 mV (12-bit)
- ❖ Input impedance > 100 M Ω
- ❖ Sample rate 100 sps
- ❖ Cell connection via 34-pin IDC connector
- ❖ Compatible with all other Kolibrík.net modules (KMS, DIN-rail I/O modules, Tevomet, ...), communication bus XC2/RS485
- ❖ IO (1x digital output, 1x digital input)
- ❖ Available customizations: up to 3x opto-isolated inputs or outputs; additional opto-isolated UART; different channel voltage range; customized communication protocol; higher sample rate up to 1 ksp/s
- ❖ Available accessories: power supply module for 12/24V DC; USB & serial (RS232) interface; Raspberry PI connection
- ❖ Application examples: H₂ fuel-cell tests stands, H₂ fuel-cell application monitoring, Control systems

Cell Voltage Monitor

CVM32A

32-channel cell voltage monitor
for H₂ fuel-cell stacks

Datasheet
Document version 1.3
2020-08-25



kolibrík.net

Technical Parameters

Power supply	5 V DC / <100 mA from XC2 bus 8...30 V DC with Power supply module	
Dimensions	85 x 58 x 13.5 mm (without connector plugs)	
Mounting	4x mounting hole 2.7 mm, hex spacers with M2.5 thread	
Channel count	18 – 32 (user configurable)	
Channel voltage range	±1.5 V	
Input voltage span	Max. 34 V	
Average usable symmetrical voltage range	32 channels	±1.06 V
	30 channels	±1.13 V
	28 channels	±1.21 V
	25 channels	±1.36 V
	22 channels	±1.50 V
	18 channels	±1.50 V
Input impedance	> 100 MΩ	
Isolation	< 500 V between channels and XC2 bus Additional up to 2 kV isolation can be provided by adding of a controller module	
Sampling	Channel multiplexing in selected range of used channels 12-bit ADC with up to 1 Msps internal sampling All-channel sample rate up to 100 sps	
Measurement resolution	1 mV (for channel voltage range of ±1.5 V)	
Accuracy	0.1 % of range + 0.1 % of reading (at 25°C)	
Connection	XC2 bus (5 V power + RS485 communication)	
Isolated IOs	Input	Voltage range: 0...30 V (5 V...0.85 mA; 24 V...4.90 mA) Max. low-level threshold: < 3 V Min. high-level threshold: > 4 V
	Output	Nominal output voltage: 24 V Max. output current: 3 mA
	Isolation	Min. 500 V

Cell Voltage Monitor

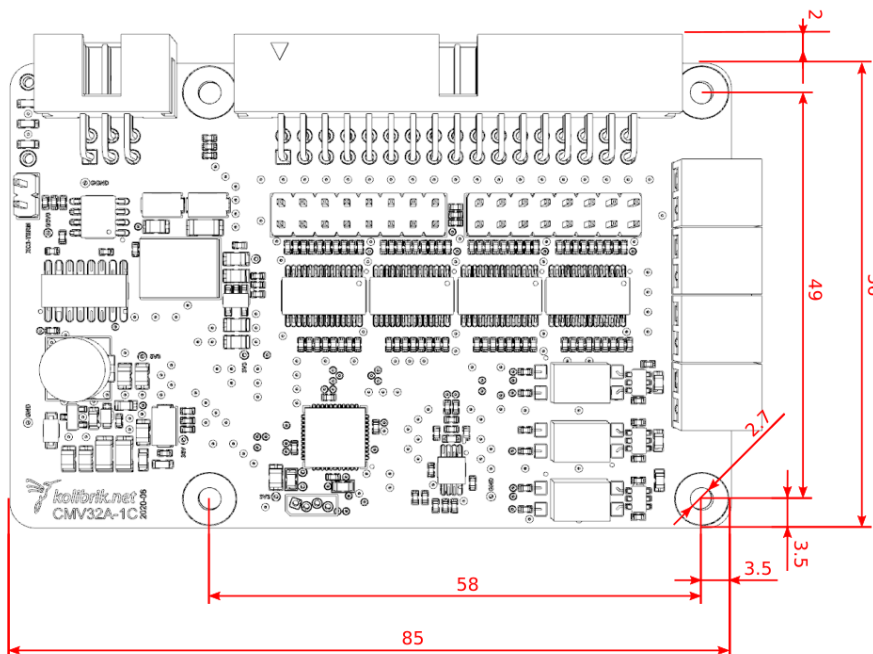
CVM32A

32-channel cell voltage monitor
for H₂ fuel-cell stacks

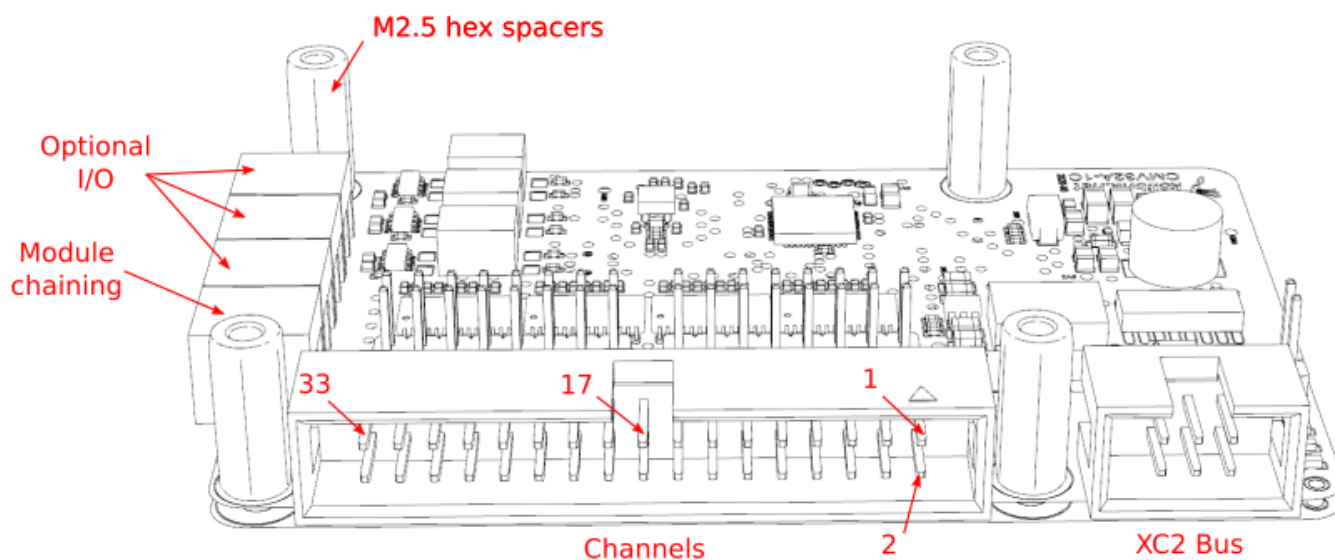
Datasheet
Document version 1.3
2020-08-25



kolibrík.net



CVM module dimensions



CVM module connectors

Cell Voltage Monitor

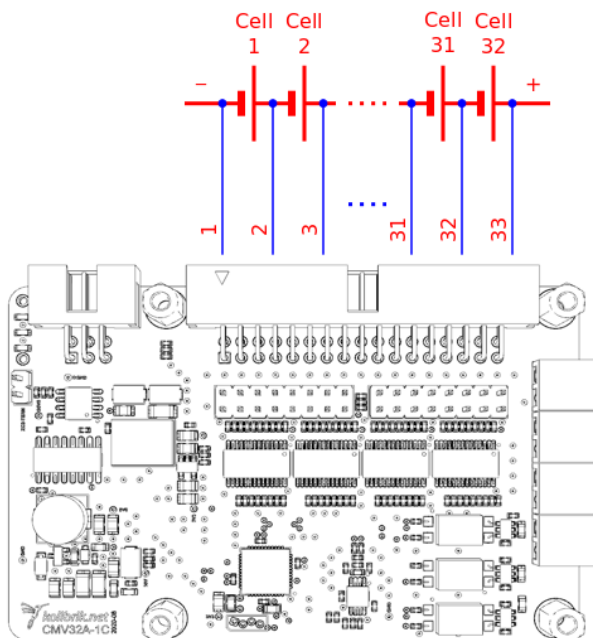
CVM32A

32-channel cell voltage monitor
for H₂ fuel-cell stacks

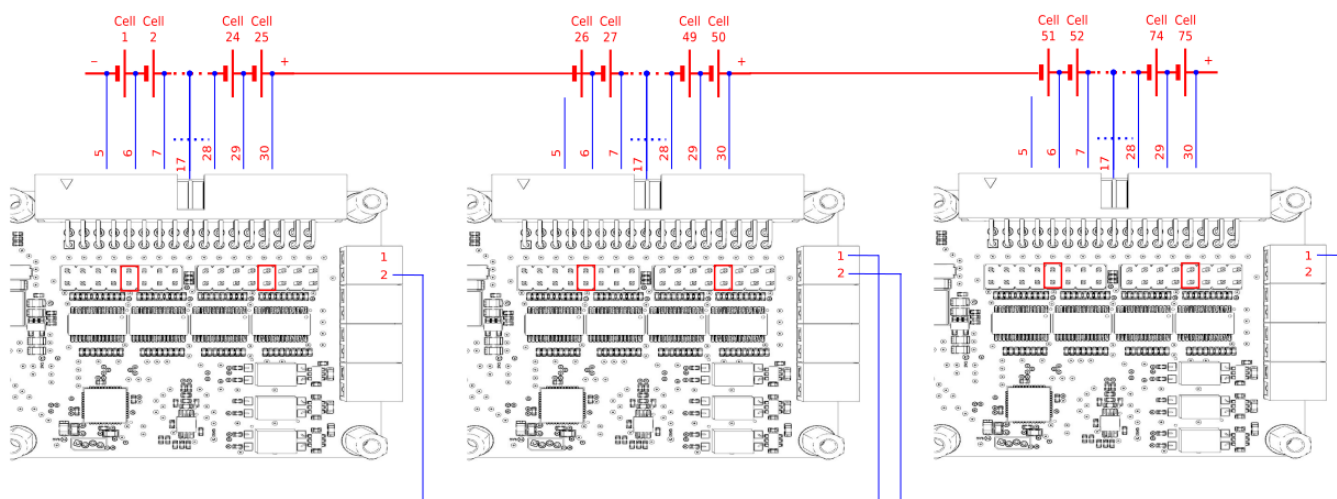
Datasheet
Document version 1.3
2020-08-25



kolibrík.net



Full 32-channel cell connection



Example of 75-channel cell connection with 3 CVM devices (3x25 cell)