Self-powered detector of the critical voltage of any hydrogen fuel-cell cell, with isolated contact

(threshold adjustable from 0.50V to 2V; stable up to 100°C)

ELECDAN Converter

5063
18/02/21
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Self-powered, from cell voltage ≥ 0.49V

Self-powered by the voltage (0.49V up to 2V) of the monitored cell, this threshold detector, adjustable from 0.50V to 2V, is a quadrupole which:

- Provides a "proper functioning" output contact, isolated from its input, itself connected to the cell
- Eliminates the usual individual auxiliary power supply
- Frees itself from the variable potential of the electrical ground of each cell, which depends on their number and on the current output.

Accuracy of the control threshold chosen between 0.50V & 2V

- Equipped with an inbuilt adjustment axis ("10 turns" trimmer / ∅ 2.5mm), this mini detector delivers a contact isolated from its input, as long as the monitored voltage exceeds, by at least 5mV, the value of the chosen threshold
- Factory setting of the threshold, if desired, and better than 1%; this excludes the use of the inbuilt potentiometer

On request: external linear adjustment, as per function ΔV = 100mV / kΩ

- Hysteresis of the selected threshold value: less than 10mV
- Temperature drift ≤ 0.02% / °C, up to 100°C

Protections and security

- Protection against accidental reversal of input voltage
- Protection against shock, vibration and humidity: IP67 moulding
- No malfunctions: neither thermal nor at extreme stresses
- Isolation between the detector input and output: 5000V
- Increased reliability:
  - no electromagnetic relay
  - no external auxiliary power supply
  - negligible power consumption

Characteristics of the bipolar contact in inbuilt solid-state relay

- *Maximum* transmissible current: ± 100mA
- *Maximum* applicable voltage: ± 350V (open contact)
- Transmissible power: ± 35W
- Contact resistance:
  - > 100 Mega-ohms (open contact)
  - < 40 Ω (closed contact)
- Power dissipation: 1W
- Isolation from input: 5000V
- Response time: < 5ms
- Mountable in series, for grouped information

Power consumption depending on cell voltage

- < 60mW, for a voltage ≤ 1,25V
- < 125mW, for a voltage up to 2V

Environment

- Storage temperature: -40°C to +105°C
- Operating temperature: up to 100°C, easing close implantation of cells
- Temperature coefficient: 2.10^{-4} / °C

Standards

EN55022/B; EN60950; CE marking; RoHS

Four presentations, in molded cases

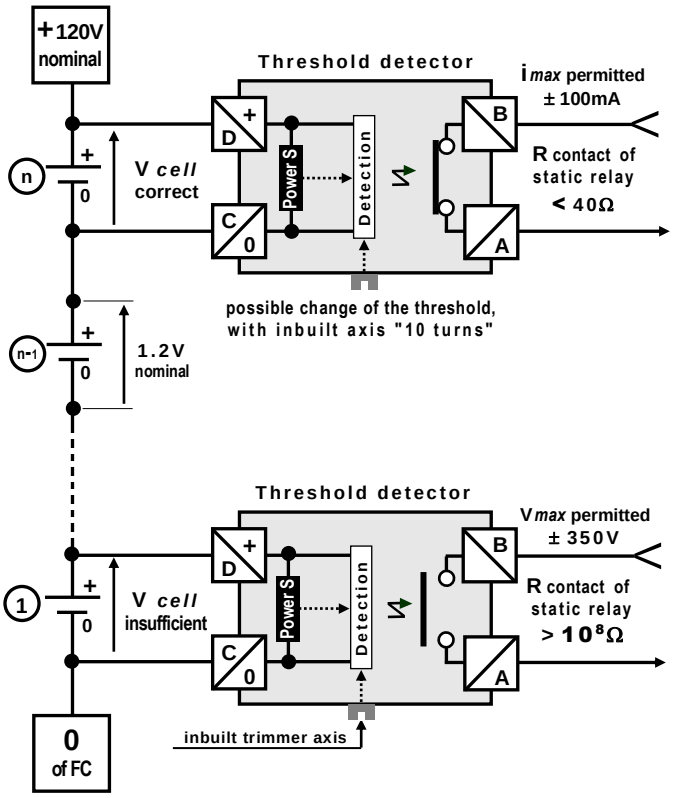
This threshold detection system is available as a single detector or with two completely separate detectors, and in cases:

- Clipable on DIN rail
- Screwable on wall

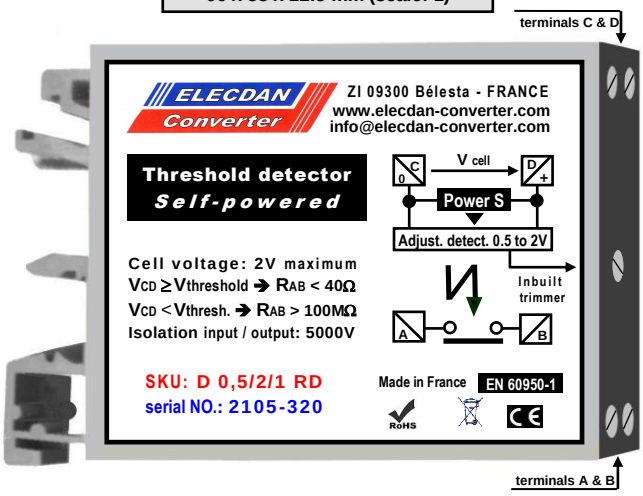
On request: miniaturization and other variants are possible

Example of application with a hydrogen full cell having 100 cells

Individual monitoring of two critical cells, to optimize overall battery efficiency by automatic load shedding



Single detector DIN rail case
66 x 53 x 12.5 mm (scale: 1)



Number of detectors *(number of connections)*	DIN rail case Screw connectors inbuilt in the case	Case screwable on wall Screw connectors attached to case Fastening: 2 M3; ctc distance 25.4mm
1 *(4 connections)*	66 x 53 x 12.5 mm Weight: 70g SKU: **D 0.5/2/1RD** Unit price excl. tax: **€110**	70 x 50 x 12.5 mm Weight: 90g SKU: **D 0.5/2/1P** Unit price excl. tax: **€115**
2 *(8 connections)*	66 x 53 x 22,5 mm Weight: 130g SKU: **D 0.5/2/2RD** Unit price excl. tax: **€230**	70 x 50 x 21 mm Weight: 150g SKU: **D 0.5/2/2P** Unit price excl. tax: **€240**