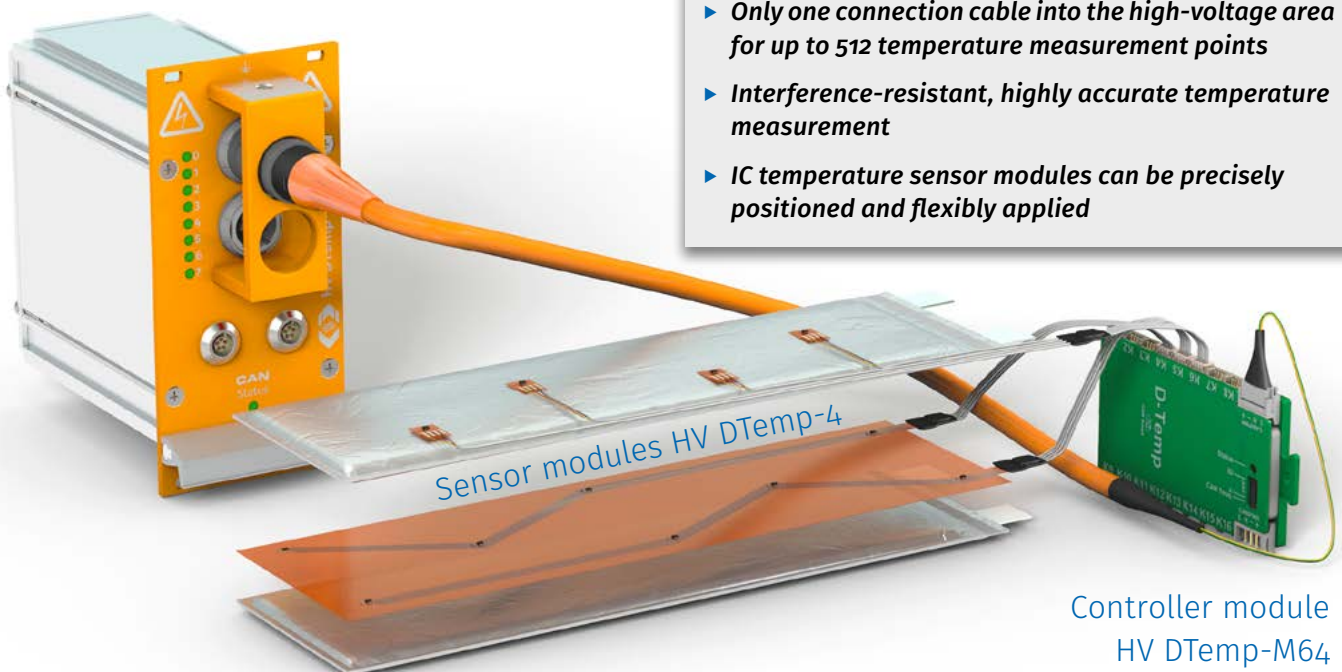




# HV DTemp

Central unit  
HV DTemp-P



## System description

The digital **HV DTemp measurement system** has been designed to meet requirements that previous **analog measurement systems** cannot meet, particularly due to space limitations and lack of interference resistance. Therefore it is ideally suited for the validation of high-voltage batteries, for example.

Up to four IC (Integrated Circuit) temperature sensors are connected via digital bus to **HV DTemp-4 sensor modules**. The sensors are arranged individually on a flex print carrier foil, or together on one foil. The flex print design and the sensor position can be determined according to the application and customer-specific requirements.

The compact **HV DTemp-M64 controller modules** are also installed in the high-voltage environment. They provide the power supply for the sensors and acquire

## Key features

CAN



- ▶ **High-voltage safe digital temperature measurement system consisting of**
  - ▶ **Miniaturized IC temperature sensor modules**
  - ▶ **Extremely compact controller modules**
  - ▶ **CAN bus central unit**
- ▶ **Only one connection cable into the high-voltage area for up to 512 temperature measurement points**
- ▶ **Interference-resistant, highly accurate temperature measurement**
- ▶ **IC temperature sensor modules can be precisely positioned and flexibly applied**

Controller module  
HV DTemp-M64

up to 64 temperature signals in parallel. Up to 8 of these modules can be operated simultaneously over the internal measurement bus. The power supply of the controller modules and the transmission of the temperature values to the central unit outside of the high-voltage environment is done via a high-voltage safe connection cable.

The **HV DTemp-P central unit** is the head of the measurement system. It assigns a separate ID to each of the up to 512 measurement points and sends the measurement data via CAN bus "free running" to the data acquisition software. The configuration of the temperature sensors can be clearly identified and is described in a DBC file.



## Technical data

### Sensor module HV DTemp-4


<b>Function</b>	temperature acquisition
<b>Dimensions (w × h × d)</b>	approx. 1.5 mm × 0.5 mm × 1 mm (single sensor)
Geometry	project-specific geometric layout of up to four sensors, arranged individually on a flex print carrier foil, or together on one foil, cable lengths to the controller module freely selectable
<b>Measurement range</b>	-40 °C to +125 °C
Internal resolution	16 bit
<b>Measurement uncertainty</b>	max. ±0.1 °C (operating temperature -20 °C to +50 °C) max. ±0.15 °C (operating temperature -40 °C to +70 °C) max. ±0.2 °C (operating temperature -40 °C to +100 °C)
Calibration	calibrated by the manufacturer; metrological traceability according to NIST
<b>Operating temperature range</b>	-40 °C to +125 °C

### Controller module HV DTemp-M64

<b>Function</b>	control and bundling of up to 64 temperature measurement points
<b>Dimensions (w × h × d)</b>	approx. 45 mm × 75 mm × 10 mm
<b>Inputs</b>	16 digital inputs for one sensor module each
Measurement data rate / sending rate	1, 2, 5, 10, 20 Hz
<b>Operating temperature range</b>	-40 °C to +105 °C

### Central unit HV DTemp-P

<b>Function</b>	control of the entire system, CAN bus user interface
<b>Inputs</b>	2 digital inputs for a maximum of 8 controller modules (512 measurement points)
<b>Fields of application <sup>1)</sup></b>	measurements in HV environment <sup>2)</sup>
Working voltages	up to 1,000V RMS
<b>Routine test</b>	test voltage <sup>2)</sup> 3,100 V DC isolation test is to be performed at least every 12 months
<b>Reinforced insulation <sup>2)</sup></b>	
Input / input	1,000V RMS
Input / CAN	1,000V RMS
Input / power supply	1,000V RMS
<b>Functional insulation</b>	
CAN / power supply	designed for supply voltages 12 V and 24 V
<b>CAN interface</b>	CAN 2.0B (active), High Speed (ISO 11898-2:2016) 125 kbit/s to 1 Mbit/s, up to 2 Mbit/s with CSMcan interface, data transfer free running
Configuration	predefined via the supplied configuration document (DBC), or configurable via the optional CSMdtemp configuration software, settings and configurations stored in the device

<b>LED indicator</b>	
CAN	power / status
Measurement channels	status of the connected controller modules
<b>Power supply</b>	
Minimum	6V DC (-10 %)
Maximum	30V DC (+10 %)
Power consumption	950 mW
<b>Housing</b>	aluminium with HV designation on the front-side (RAL 2003)
Protection class	IP65
Ground connection	M6 threaded hole
Mounting	19 inch
Weight	approx. 500 g
Dimensions (w × h × d)	12 HP (approx. 61 mm) 3U (approx. 129 mm) 100 mm (+ 25 mm protective bracket)
<b>Connectors</b>	
CAN / power supply	LEMO 0B, 5-pole, code G
Signal inputs	LEMO Redel 2P, 8-pole, code C (blue)
<b>Operating and storage conditions</b>	
Operating temperature range	-40 °C to +125 °C
Relative humidity	5 % to 95 % (non-condensing)
Operating altitude	max. 5,000 m above sea level
Pollution degree	3
Storage temperature	-40 °C to +125 °C
<b>Conformity</b>	 (in preparation)
<b>Device safety</b>	EN 61010-1:2010

<sup>1</sup> Please also read the CSM document "Safety Instructions HV DTemp"!

<sup>2</sup> According to EN 61010-1:2010

## Shipping content

- ▶ Measurement system HV DTemp
- ▶ Configuration document (DBC)
- ▶ Documentation
- ▶ HV isolation test certificate for HV DTemp-P

## Maintenance

- ▶ HV isolation test at least every 12 months, see EN 61010 for scope of testing

## Accessories

- ▶ See "CAN Accessories" datasheet



**CSM GmbH**  
**Computer-Systeme-Messtechnik**

Raiffeisenstr. 36, 70794 Filderstadt, Germany

☎ +49 711-779640 ✉ info@csm.de

www.csm.de

Our company is certified.

