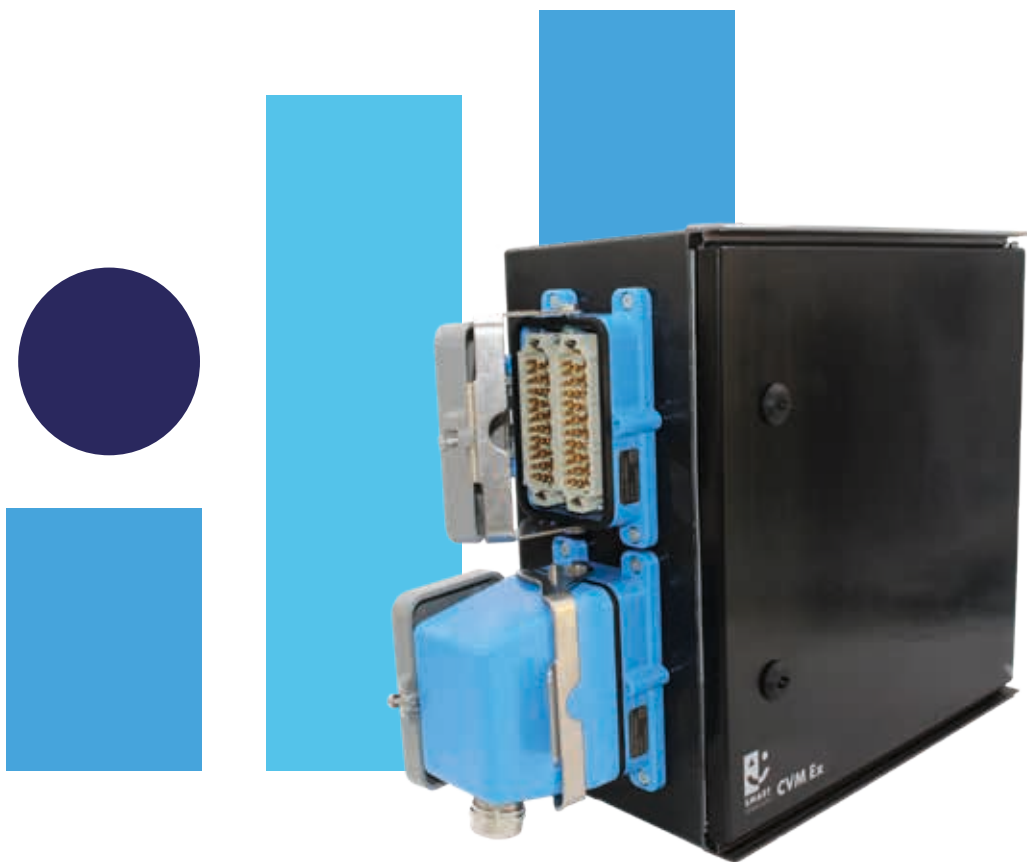


CVM Ex

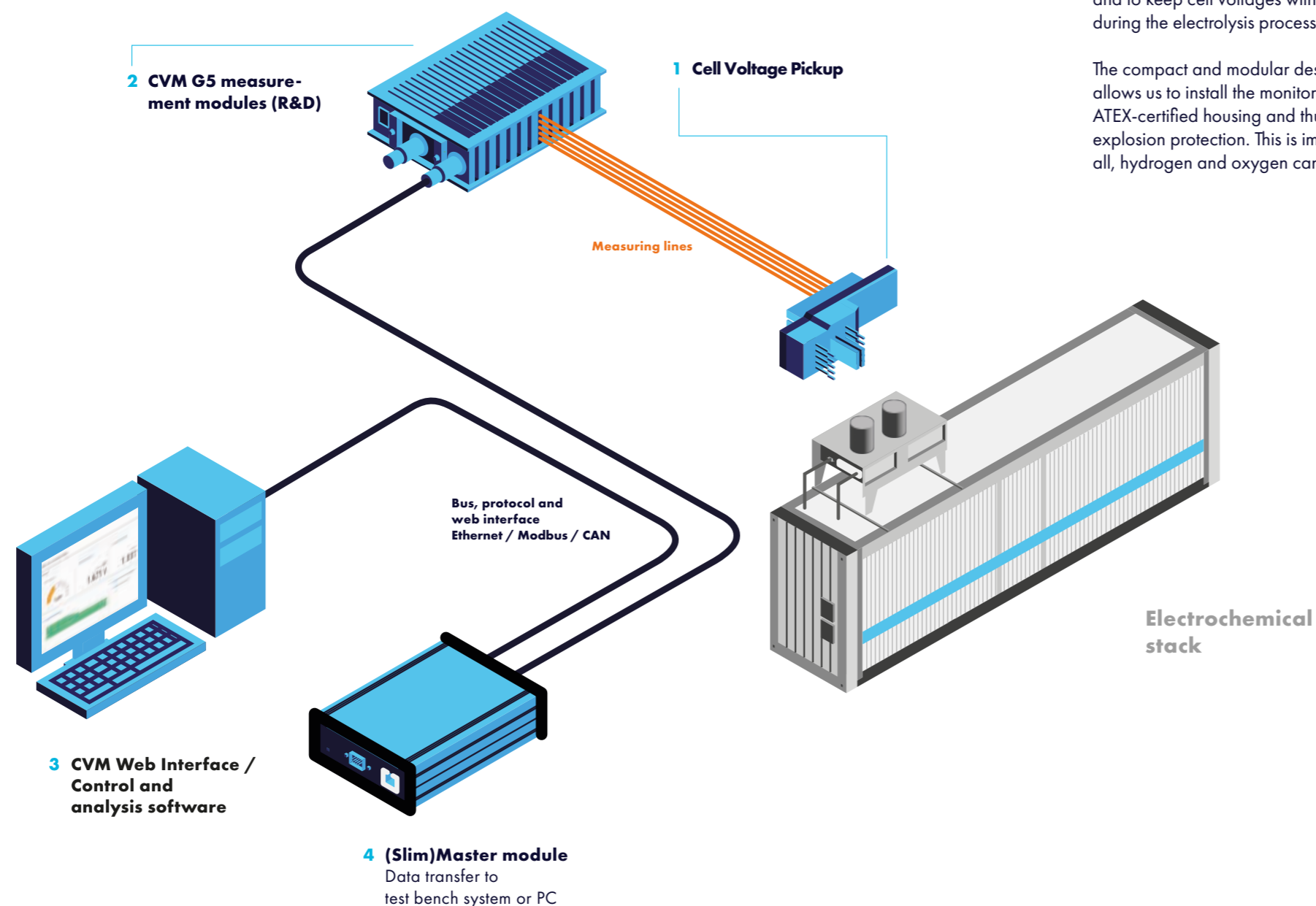
CELL VOLTAGE MONITORING
FOR STATIONARY APPLICATIONS



BE SMARTER

- ▶ Scalability because of modular design enables customized CVM systems.
- ▶ Integrated cable break detection.
- ▶ Negative voltage ranges measurable.
- ▶ Modern webbased user interface.
- ▶ High measurement accuracy and time-synchronous data acquisition.
- ▶ Designed for stationary application areas, even under harsh environmental conditions.

SMART CVM Ex Components



Application Areas

In order to operate an electrolyzer safely at all times, the voltages of the individual electrolysis cells must always be kept in view. Cell voltage monitoring in the electrolyzer serves to extend the service life of the stack and to keep cell voltages within the permissible range during the electrolysis process.

The compact and modular design of the CVM solutions allows us to install the monitoring system in an ATEX-certified housing and thus address the issue of explosion protection. This is important because, after all, hydrogen and oxygen can form explosive mixtures.

Technical Data	CVM Ex
Dimension per module (LxWxH)	100 x 10,5 x 30 mm
Resolution	14 bit, approx. 700 μ V
Measuring range per channel	-1 to +5 V, optional: -3 to +3 V
Input (self-heating)	<300 mV
Accuracy	
- industrial temp. range	\pm 3 mV (-25 to +85°C)
- automotive temp. range	\pm 6 mV (-40 to +105°C)
Galvanic isolation	1400 V _{DC} permanent
Power supply	4,5 to 32,0 V _{DC}
Communication interfaces	CAN, CAN 2.0B, ISO 11898 Ethernet max. 1000 Mbit Modbus / TCP
Start-up time	<0,5 s
Relative humidity	20 to 60 %
Integrated temp. sensor	\pm 2 °C
Time synchronisation of all measuring channels	\leq 1000 Hz (internal) \leq 100 Hz (external)
Operating temperature	-40 to +105 °C
IP protection class	IP65 (EN60529)
Common mode suppression	\geq 80 dB
Explosion protection	Zone 2 with housing, according to IEC 60079-7

1 Cell voltage pickup (CVP) solutions

In the past few years we have developed various CVP solutions. All are multichannel voltage taps for electrochemical stacks that can be individually adopted to the corresponding target application. Also they are characterized by their low space requirement, easy-to-install design and reliable contacting properties, especially in mobile applications.

2 CVM G5 measurement modules (R&D)

The measurement modules of the MCM-IntelliProbe system feature a compact design and a high degree of modularity. Each module has ten channels. Measurement can be taken in the ranges from -1 to +5 V or from -3 to +3 V. A measurement system is made up of a communication module, a termination measurement module and up to 59 measurement modules.

3 CVM Web Interface

The webbased user interface integrated in the MASTER and the SlimMASTER module enables convenient, real-time monitoring of CVM data logging. The software is thus a valuable helper during the operation of electrochemical stacks. Precondition for the access is just an internet-enabled browser. The display can be wireless via WLAN.

4 Process module

The MCM-IntelliProbe process modules expand considerably the cell voltage monitoring functionality. They provide alert processing, synchronous data rates of up to 400 x 1 kHz per channel via LVDS bus and a high-speed data link to the PC via Ethernet. The Lua-scripting engine of the modules makes it easy to apply the integrated local data processing.

BE SMARTER

And call us.

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