

Smart
connections.

Data sheet

DC/DC converter

Technical data

	Operating mode	Single module	Synchronized parallel operation (e.g. installed in a KOSTAL rack)			
	Converter number	1	2	3	4	5
Electrical data	Maximum fuel cell power [kW]	2.1	4.2	6.3	8.4	10.5
	Fuel cell voltage range [V DC] ¹⁾	10 - 30				
	Fuel cell current range [A]	0 - 70	0 - 140	0 - 210	0 - 280	0 - 350
	Battery voltage range [V] ²⁾	18 - 60				
	Peak efficiency level (FC 30 V, 48 V bat) [%]	97.5				
Functions	Protective function	Fuel cell undervoltage, battery overvoltage/undervoltage, fuel cell overcurrent, battery overcurrent, reverse current detection, power limitation, thermal monitoring and power regulation, battery connection protection, battery reverse polarity protection (if battery voltage + stack voltage < 80 V)				
	Functions	Fuel cell current ramp, synchronised parallel operation, automatic master/slave detection, update capability via the boot loader, autonomous operation via digital I/O, complete configurability by means of parameterization tool				
Mech. data	Dimensions L x W x H [mm]	290 x 150 x 45	400 x 435 x 178			
	Weight including cold plate [kg]	2	11	13	15	17
	Protection class [IPxy]	IP 00	IP 21			
Environmental conditions	Ambient temperature [°C]	-20 to +60 (without condensation)				
	Storage temperature [°C]	-40 to +80				
	EMC	Prepared for DIN EN 61000-6-1, DIN EN 61000-6-2, DIN EN 61000-6-3, and DIN EN 61000-6-4 Observe the dependency on the customer application				
	Altitude of the installation location	Up to 5,000 m				
	Relative air humidity	≤ 95%, condensation not permitted				

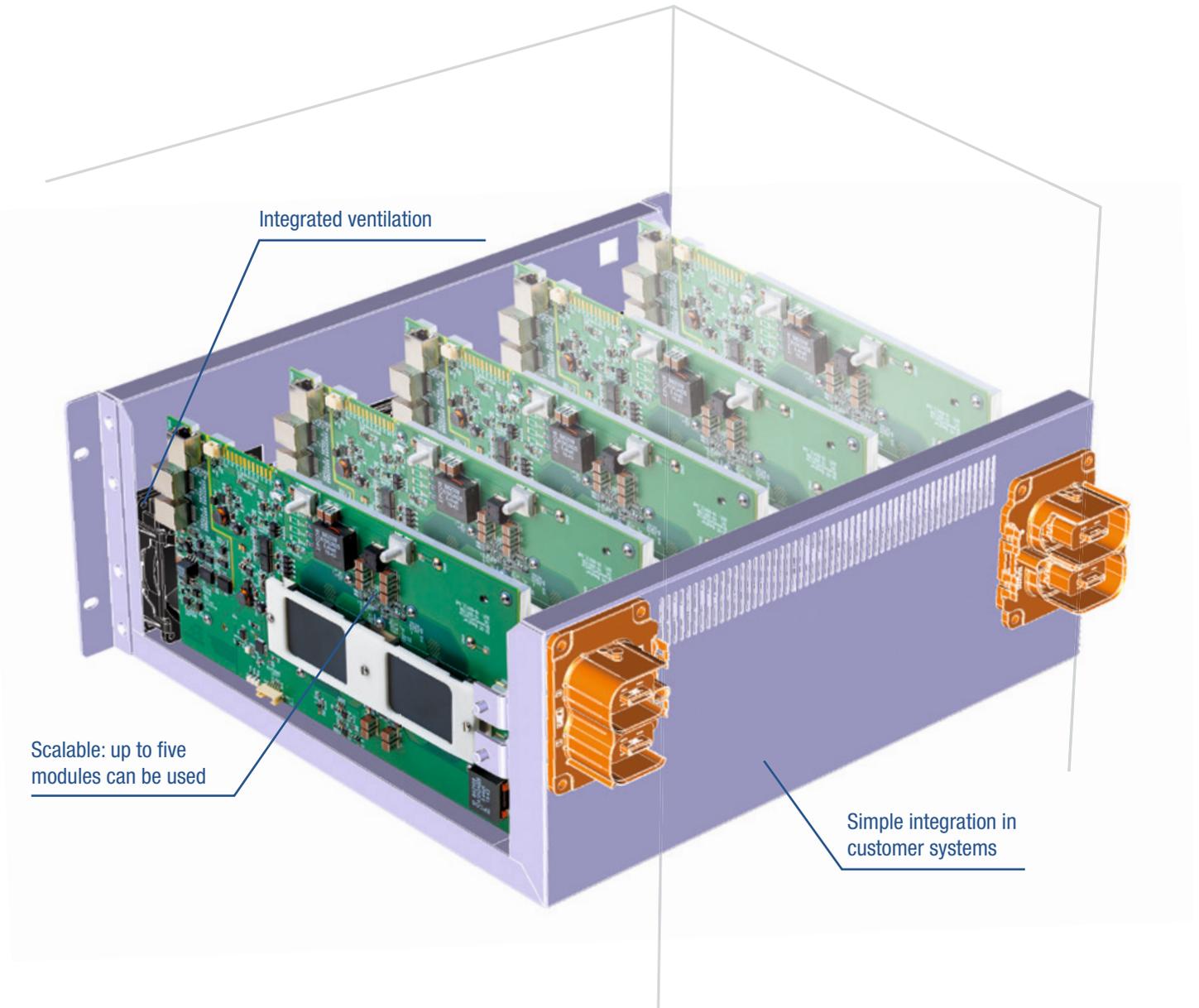
	RS-485	(CAN) ³⁾	Hardware-Enable Hardware-Deep-Sleep	
Interfaces	Bit rate [kBit/s] (default setting, others possible)	115.2	100	-
	Voltage level communication lines	TTL (0-5 V)	TTL (0-5 V)	(proprietary)
	Communication protocol	Proprietary	Proprietary	High/low
	Insulation strength [V DC]	1500	1500	1500
	Software tools	EEPROM parameterization, RS-485 target value, boot loader host SW	EEPROM parameterization, RS-485 target value, boot loader host SW	-

¹⁾ Fuel cell idling voltage up to 60 V DC

²⁾ Fuel cell voltage in operation < battery voltage

³⁾ Optional CAN-interface

Flexibility and scalability with the KOSTAL rack



Independent power supply with the KOSTAL DC/DC converter



KOSTAL competence – Smart connections.



Four generations of a family-owned company: KOSTAL

As an independent, family-owned company, the KOSTAL Group has specialised for over 100 years in the development of high-quality electronic and mechatronic solutions for a wide range of automotive and industrial applications.

The KOSTAL Group has four divisions: Automotive Electrical Systems, Industrial Electronics, Connectors and SOMA (Test Technology), which together achieve a turnover of €2.3 billion. Today, the Group employs over 17,000 staff at 46 sites spread across 21 countries on four continents.

KOSTAL Industrie Elektrik, located in Hagen, Germany, offers their customers innovative solutions in the three business units Electronics, Drives and Photovoltaics. Particularly in the area of Electronics, we can combine our comprehensive experience from numerous projects in the automotive sector with our extensive expertise in the industrial environment, and thus devise solutions with real added value for our customers. Consequently, our brand promise “Smart connections.” is not only manifested in a true partnership with our customers, but also in the philosophy which underlies the development and production of the KOSTAL DC/DC converter.

Challenge us – we look forward to the smart connection with you!

www.kostal-industrie-elektrik.com

KOSTAL fuel cells DC/DC converter

1 The KOSTAL DC/DC converter

- Scalability of 1-5 devices / 2.1 kW - 10.5 kW
- Compatible with all battery systems < 60 V
- 19" standard for control cabinet operation
- Wide input voltage range from 10 V to 30 V
- Start-up function for high idling voltage up to 60 V (depending on the fuel cell)
- Efficiency of up to 97.5 %

4 Operation and observation

- User-friendly software tool
- Preset default parameters
- Simple, individual parameterization
- Rapid commissioning

2 Communication

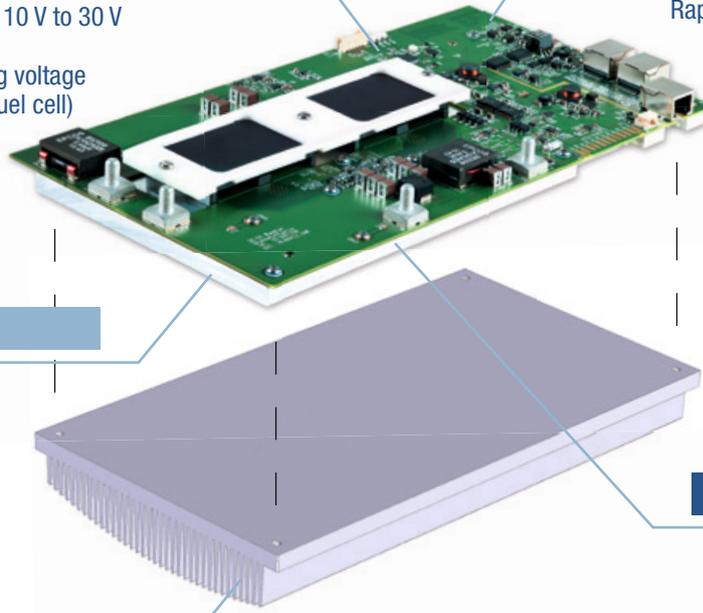
- RS-485
- (CAN) optional

5 Functions

- Battery reverse polarity protection and battery connection protection
- Thermal monitoring and power regulation
- Synchronized parallel operation of multiple converters

3 System integration

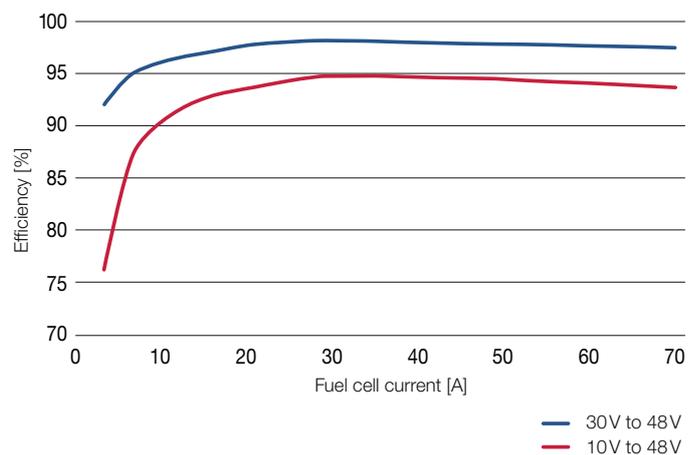
- Standardised cold plate
- Simple integration in customer system
- Use of existing thermal sinks



Requirements of the customer's cooling element for the single module

Converter power	2.1 kW
R _{th}	< 0.75 kW
Smoothness of contact surface	0.1 mm
Max. roughness of contact surface	RZ 6
Max. temperature of heat plate	80°C

Efficiency characteristics at 25°C ambient temperature (preliminary)



KOSTAL

Contact

KOSTAL Industrie Elektrik GmbH
Holger Hasselmann
Lange Eck 11
58099 Hagen
Germany

Telephone: +49 2331 8040-230
E-mail: h.hasselmann@kostal.com

www.kostal-industrie-elektrik.com

