



H-2000-DCDCC-48V

User guide

Revision history

Rev.	Date	Description	Author
1	2023-01-26	Initial release	J. Holemar

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Glossary of terms and abbreviations

Tab. 1: Table of Terms and abbreviations

Term	Explanation
DC	Direct current
EMC	Electromagnetic Compatibility
H2FC	Hydrogen fuel cell
IPC	Association Connecting Electronics Industries
RoHS	Restriction of the use of certain Hazardous Substances in electrical and electronic equipment

1. Introduction

1.1 Product overview

H-2000-DCDCC-48V is a non-isolated DC/DC converter designed mainly for hydrogen fuel cell stacks.

It provides constant output voltage in the full range of input voltage.

Maximum output power is 2 kW.

1.2 Standards

Tab. 2: Table of standards

Type	Document No.	Name
EMC	EN 61326-1: 2013	Electrical equipment for measurement, control, and laboratory use – EMC requirements
RoHS	EN 62321: 2009	Electrotechnical products - Determination of level of six regulated substances (Cd, Hg, Pb, Cr+6, PBB, PBDE)
IPC	IPC-A610-D	Acceptability of Electronic Assemblies
IPC	IPC-A600-F	Acceptability of Printed Boards

1.3 Model variants

Tab. 3: Table of product variants

Model	Description
H-2000-DCDCC-48V	DCDC converter 48 V output 2 kW



Fig. 1: H-2000-DCDCC-48V

2. Installation and maintenance

2.1 Mechanical mounting

H-2000-DCDCC-48V shall be operated free standing in horizontal position.

The device must be installed in a dry environment.

There shall always be enough free space around the device to ensure free ventilation airflow.

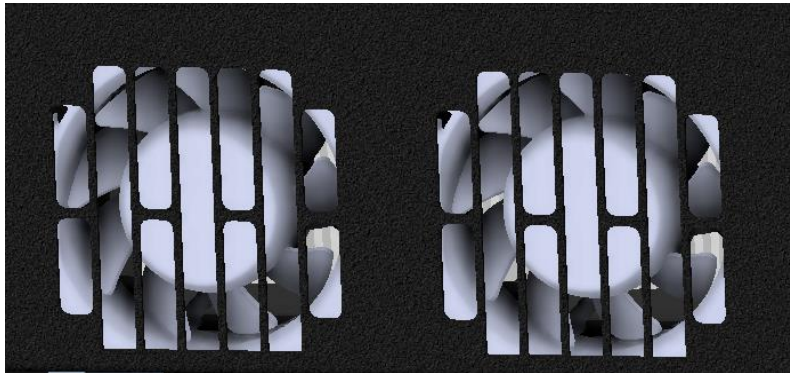


Fig. 2: Fan

2.2 Electric connection

Dangerous voltage hazard!



Electric installation shall be always performed by a person with appropriate qualification.

H-2000-DCDCC-48V shall be always grounded during operation. Connect the ground or a PE conductor using the grounding screw.

For connecting the input and output, always use appropriate conductor dimensions according to the input and output current.



Fig. 3: Grounding



Warning. Always keep the correct polarity when connecting the input and output. Reverse polarity can damage the device.

2.3 Maintenance instructions

Before each operation check if the connection wires are not damaged and the connection screws are tightened. Avoid moisture penetration inside the device.

Remove dust from the surface of the device and from ventilation grilles regularly.

3. Technical description

3.1 Technical parameters

Tab. 4: Technical parameters

INPUT	Voltage Range	15 ~ 50 V DC
	DC Current	90 A maximum
OUTPUT	DC Voltage	48 V \pm 5 % fixed (constant voltage)
	Rated Current	80 A
	Current Range	0 ~ 80 A
	Rated Power	2000 W (for $V_{in} > 25$ V)
	Ripple & Noise	100 mV p-p
	Setup; Rise Rate	2 ms; 3,1 V / ms
PROTECTION	Output Overload	> 82 A
		Protection type: Constant current limiting, shut down when short circuit or overcurrent
	Input fuse	120 A the customer cannot replace the fuse, it must be sent to the manufacturer for replacement
	Output fuse	120 A the customer cannot replace the fuse, it must be sent to the manufacturer for replacement
	Output Over Voltage	65 V
		Protection type: Shut down output voltage, re-power input voltage to recover
	Over Temperature	Shut down, recovers automatically after temperature goes down

Efficiency	> 91 % at load current > 5 A
Isolation Resistance	Input – Output: non-isolated converter, common negative terminals Input/Output – Frame Ground: No isolation guaranteed
IP Rating	IP20
Dimensions	281 x 252 x 122 mm (length/width/depth)
Weight	4,7 kg
Environmental parametres	Temperature: 5÷50 °C / 41÷122 °F Humidity: 30÷70% Shocks and vibrations: none to moderate

3.2 Interfaces

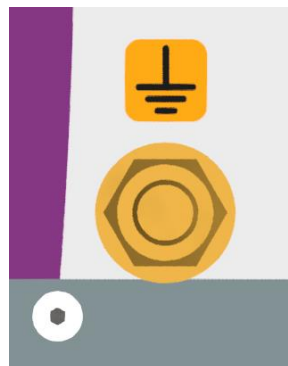
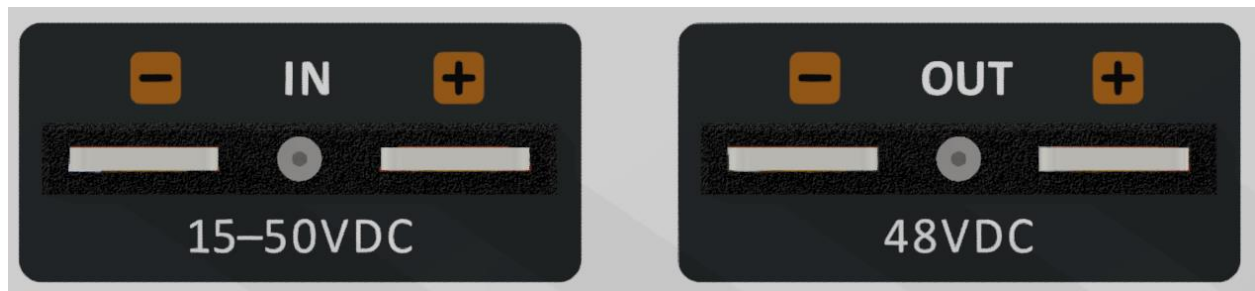


Fig. 4: device terminals

Tab. 5: DC Input terminal




Name	Description
IN +	DC input from H2FC stack
IN -	
\equiv	Grounding screw

Tab. 6: DC Output terminal

Name	Description
OUT +	DC Output
OUT -	

3.3 Indicators and controls

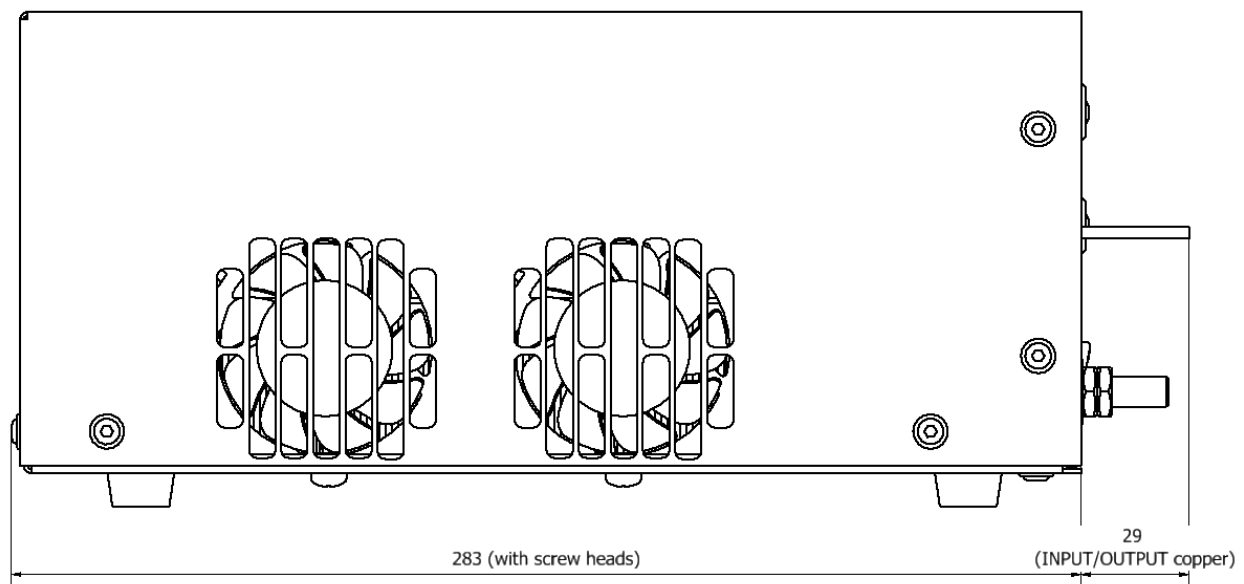
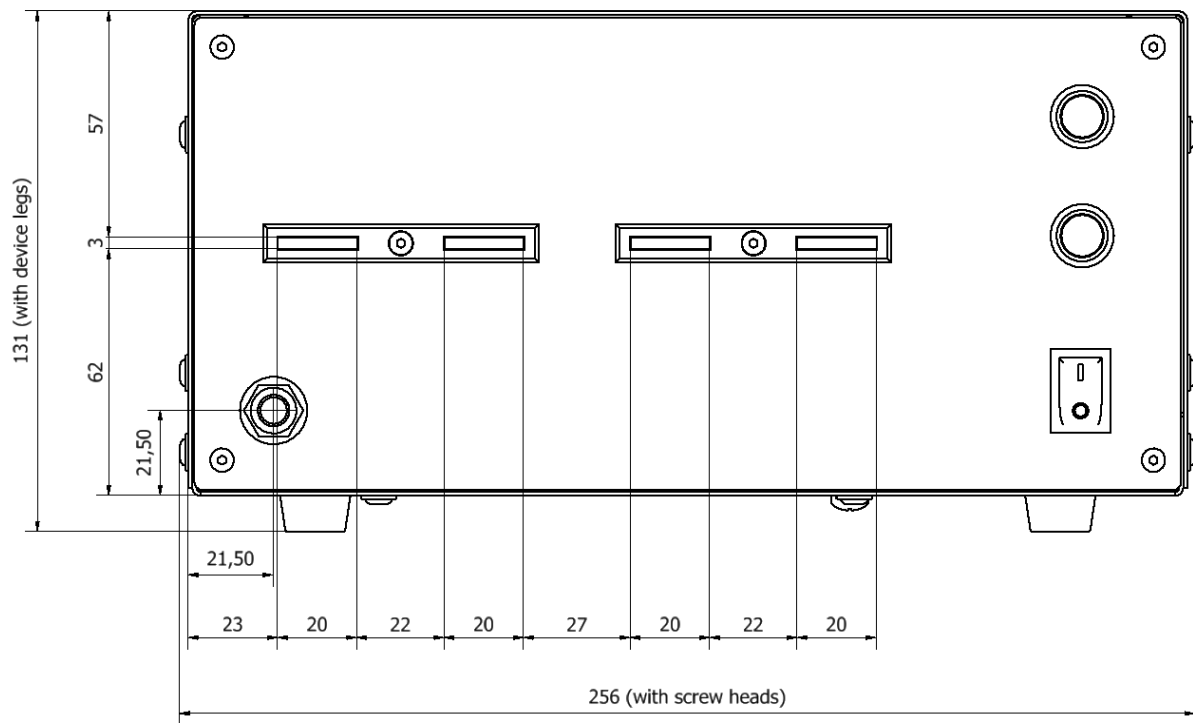
Tab. 7: Indicators on device

Indicator / control	Physical appearance	Meaning
IN	White LED 	Input voltage present
OUT	Green LED 	Output voltage OK
ON/OFF		Power supply

3.4 Mechanical dimensions



Fig. 5: Outer dimensions



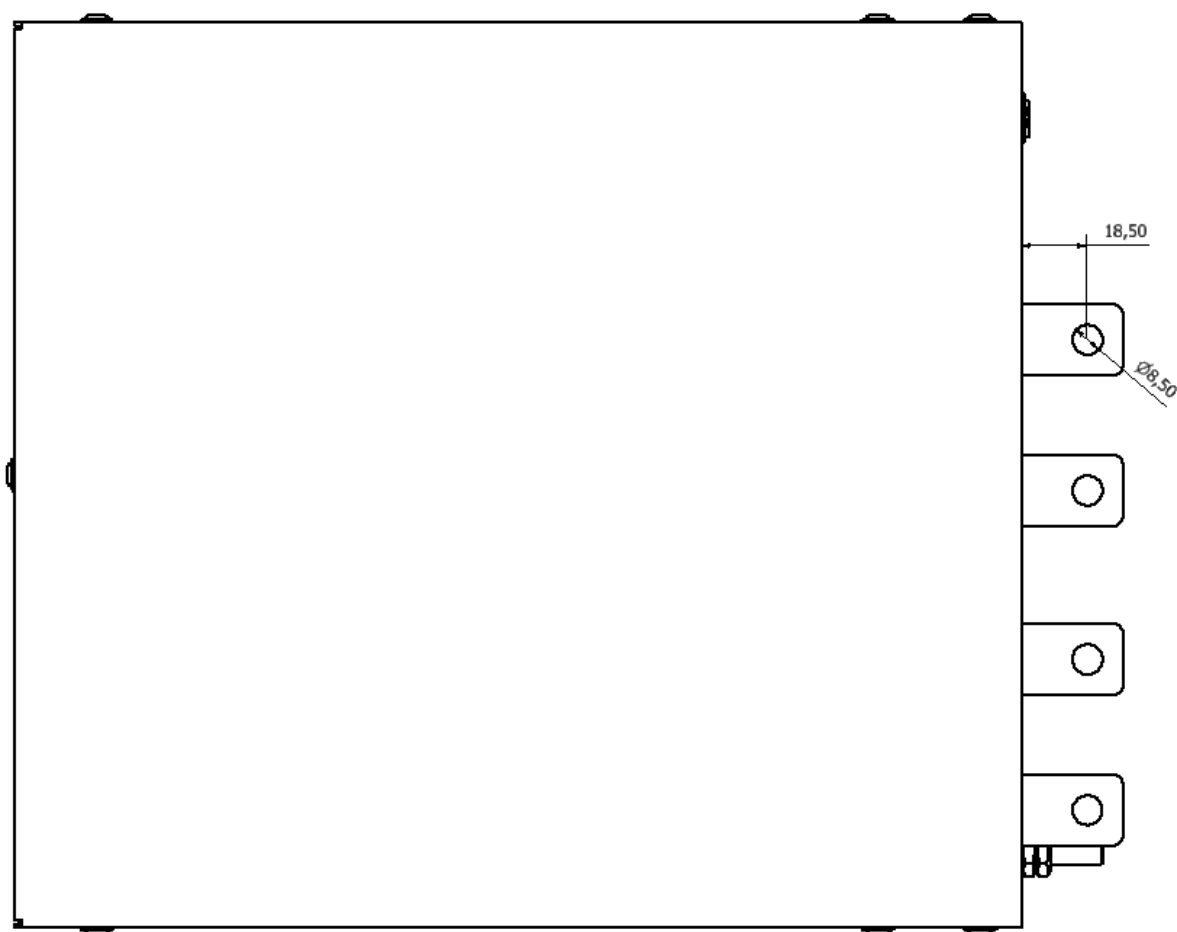


Fig. 6: Mechanical drawings

4. Instructions for safe disposal of the Product

Packaging and waste equipment must be disposed of in accordance with Directive 2002/96/EC and relevant national laws.

Tab. 8: Waste categories

Waste type	Category
Packaging waste	Non-hazardous
Electrical and electronic equipment waste	Hazardous waste