

DCC3

DC/DC converter

The DCC3 converts a high input voltage to a stable low-output voltage for use in your electric or hybrid vehicle's auxiliary system. The DCC3 model range operates with a battery voltage of 250 to 900 V as input. You can use the adjustable output voltage in 12 and 24 V systems.

The rugged, compact design of the DCC3 adds to its flexibility and scope. Galvanic isolation between high and low voltage improves system reliability and safety.

Our Zapi group software platform offers you a highly customizable collection of standard vehicle functions that meet demanding functional safety requirements.



Inmotion is a long-term, global supplier of electric motors, motor controllers, inverters and auxiliary equipment for commercial vehicles. High quality design and assembly in Sweden, Europe. We work in close cooperation with you to integrate and configure our products to your specific needs. Realize your vehicles for emission-free transport solutions.

DCC3 is a flexible platform

- High **efficiency** (up to **97 %**) using Silicon Carbide (SiC) technology
- **Documentation** in accordance with **AIAG PPAP** standard
- **Liquid** (WEG) **cooling** for minimized physical size
- **Adjustable output voltage** and **current output limitation** for use in different applications
- **Boost mode** up 10 kW output power
- Pre-charge from low voltage allows high voltage **circuit simplification**
- Possible to **parallel multiple units** to achieve higher output power
- CAN communication, **J1939** and/or **CANopen**, with support for diagnostics and software download through UDS and calibration using XCP

- Extensive and powerful **event handling** and **data logging** simplify troubleshooting and **minimize vehicle down time**
- Assured **software quality** through development and review processes in compliance with **Automotive SPICE®**

Safety and security

- **Cyber security** features with dedicated hardware security module, developed according to **ISO 21434** and prepared for **R155** and **R156**
- Designed to meet ISO 13849 and ISO 26262 FuSA requirements
- Hazardous Voltage Interlock Loop (HVIL) for **personal safety**
- **Galvanic isolation** between primary and secondary voltage for **personal safety**
- Automatic **protection** against **overheating** and **over-voltage**
- **Short-circuit protected** at low voltage output
- State of the art **lockstep safety MCU**

Maximize operating time by minimizing service time

- **Field proven control software** platform used for both industrial and on-road vehicles
- Best in class **quality** and **reliability**, achieved through superior design, world class manufacturing processes and field experience
- Rugged **IP6K9K design** suitable for the demanding environment of electric vehicles

GENERAL

Communication	CAN (J1939, UDS)
Control mode	Voltage or current
Environmental	ISO 16750
Electrical safety	ISO 6469-3
Logic supply	8-32 V
Wake up source	UNIT_ENABLE and/or CAN

CONNECTIONS

I/O logic connector	TE HDSCS
Low side connection (power out)	Cable lugs
High side connection (power in)	TE HVA HD400

I/O SUMMARY

I/O type	Interface [Number]
UNIT_ENABLE	1
HVIL loop	1
Address pins	3 selectable inputs
CAN	1
Logic supply	1
Battery voltage sensor analog input	1

TEMPERATURE AND COOLING

Nominal coolant flow	5-20 l/min
Coolant temperature	-40 °C to +70 °C
Ambient operating temperature (with WEG cooling active according to the product manual)	-40 °C to +85 °C
Maximum operating altitude above sea level (ISO 5474, ISO 6469, ISO 14990)	5 000 m
Recommendations for short-term storage/transportation	
Temperature	- 40 °C to + 85 °C
Relative humidity	< 60 % (non-condensing)
Recommendations for long-term storage	
Temperature	+ 10 °C to + 30 °C
Relative humidity	< 60 % (non-condensing)

SAFETY AND PROTECTION

Protection class	IP6K9K (increased pressure to 140 bar) IP67 IP2X (connector cover) Test ISO 20653 (with mating connectors installed)
Safety feature	Hazardous Voltage Interlock Loop (HVIL) Active and passive discharge of high voltage side
EMC	UN ECE R10
FuSA	Designed to meet ISO 13849 and ISO 26262 requirements
Cyber Security	Designed to meet ISO 21434 and prepared for R155 and R156

RATINGS

Model	Input Voltage range [V]	Nominal output voltage ¹ [V]	Max output current ² [A]	Boost output current ³ [A]	Output power [kW]	Boost Output power ³ [kW]
DCC40M24	250-500	14.1	135	175	1.90	2.5
		28.3			3.75	5.0
DCC80M24	270-900	14.1	270	360	3.75	5.0
	550-900	28.3			7.50	10.0

¹ Output voltage is adjustable via CAN or parameter. Typical output voltage for 12/24V battery shown in table

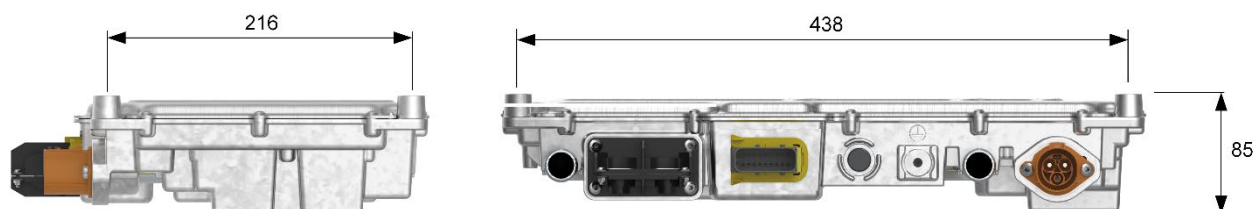
² Continuous rating

³ Boost functionality limited to 5% of service life

WEIGHT AND DIMENSIONS

Weight 9 kg

Dimensions [mm]



NOTES

TOGETHER WE ELECTRIFY THE VEHICLE INDUSTRY –
FOR A SUSTAINABLE FUTURE