Datasheet

CONVY series V2.4

NON ISOLATED REVERSIBLE DC/DC CONVERTER

Liquid cooling

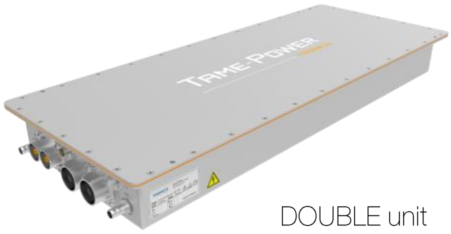
NEW VERSION

- Fully compatible with past version V2.3 (added infos on the CAN frame)
- New functionality: power map implementation
- Increase power density and ensures power optimization up to 120kW

SINGLE unit

FEATURES

- Smart DC/DC converter, programmable as current or voltage source
- Two size available single and double unit
- Optimized max power according to the Power Map
- Control according to voltage, current or power, input or output
- Operations controlled through isolated CAN 2.0B
- Parallelization of DC/DC modules for higher power delivery
- Liquid cooling



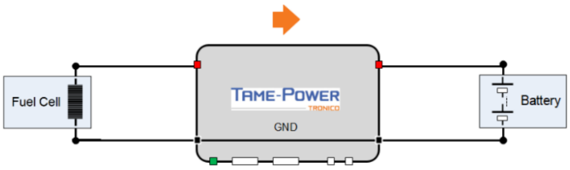
DOUBLE unit

TYPICAL APPLICATIONS

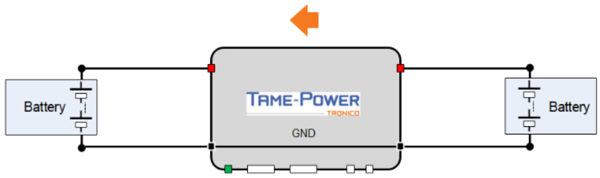
- Fuel cell power
- Battery systems
- Super capacitors
- Chargers
- Solar panel

APPLICATION EXAMPLES

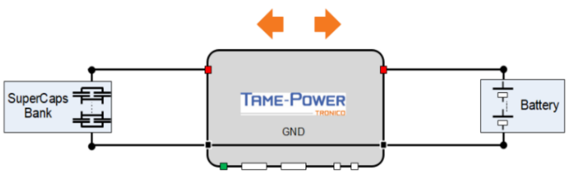
- Boost - Fuel Cell to Battery



- Buck - Battery to Battery



- Buck and Boost - Super Capacitors to Battery



PRODUCT REFERENCES

	Avg. Efficiency @P_{max}	Low Side Max. Output Current	Max. Output Power	V_{low} Min	V_{high} Max
CONVY-DCDC-800V-07-XX-00	>96%	150A / 300 A	50 kW / 100kW	35V	800V
CONVY-DCDC-800V-11-XX-00			55 kW / 110kW		
CONVY-DCDC-800V-15-XX-00			65 kW / 120kW		

Single and double unit data are given separated by “single / double”

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Datasheet
CONVY series V2.4

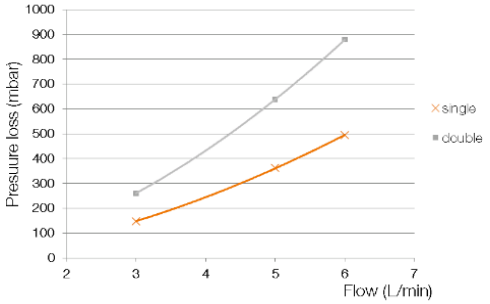
COMMUNICATION & MONITORING

	Min.	Typ.	Max.	Units
CAN 2.0B bus speed	125		500	Kb/s
CAN frames periodicity		20		ms
Measured voltages accuracy		±0.7	±2	% of full scale
Measured Low Side current accuracy		±1.9	±3	% of full scale
Measured High Side current accuracy		±1.7	±2.5	% of full scale
Measured cooling temperature accuracy		±1	±3	°C
Service Power Supply - Voltage	10,5	12	32	V
Service Power Supply - Power consumption (single / double)			7 / 15	W

COOLING PARAMETERS

	Min	Typ.	Max	Units
Flow rate	3	5	6	L/mn
Pressure			5	Bar
Inlet liquid temperature*	-20		+65	°C

*Cf. user manual



Relation between the pressure loss and the flow rate

REGULATION MODES

	Current	Voltage	Power
According to Low side	✓	✓	✓
According to High side	✓	✓	✓

Special regulation for batteries application is available. For more details, please refer to user manual or send an email.

ENVIRONMENT DATA

	Min	Typ.	Max	Units
Galvanic insulation between power circuit and chassis-control interface (1min test)			3.0	kV
Insulation resistance	100			MΩ
Ambient temperature (operating)	-20		85	°C
Ingress Protection		IP65		-

STANDARDS USED FOR DESIGN

Isolation	CEI 60664-1
EMC	R10
Control circuit supply voltage	ISO 16750-2 mode D
Mechanical loads	ISO 16750-3
Climatic loads	ISO 16750-4 code G
Chemical loads	ISO 16750-5 mounting location A
Electrical vehicle safety	R100

PRODUCT MATURITY

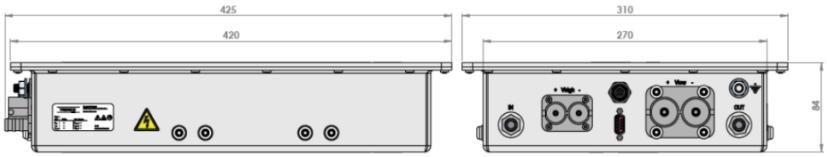
- Currently: B sample

MECHANICAL DATA

Connectors	Supplier	Single unit	Double unit
V_{Low} side	Amphenol	PL082X-300	PL00X-500 & PL00Y-500
V_{High} side	Amphenol	PL082X-120	PL082X-300
CAN + Service voltage	Phoenix Contact	1441655 - A Coded - 5 positions	
Cooling connectors	Legris	0931 10 13	
Casing grounding	-	M8 x 17 mm Threaded rod	
HVIL	-	DB9 female	

Datasheet
CONVY series V2.4

- Single unit - dry weight: 14 kg



- Double unit – dry weight: 22 kg

POWER MAP

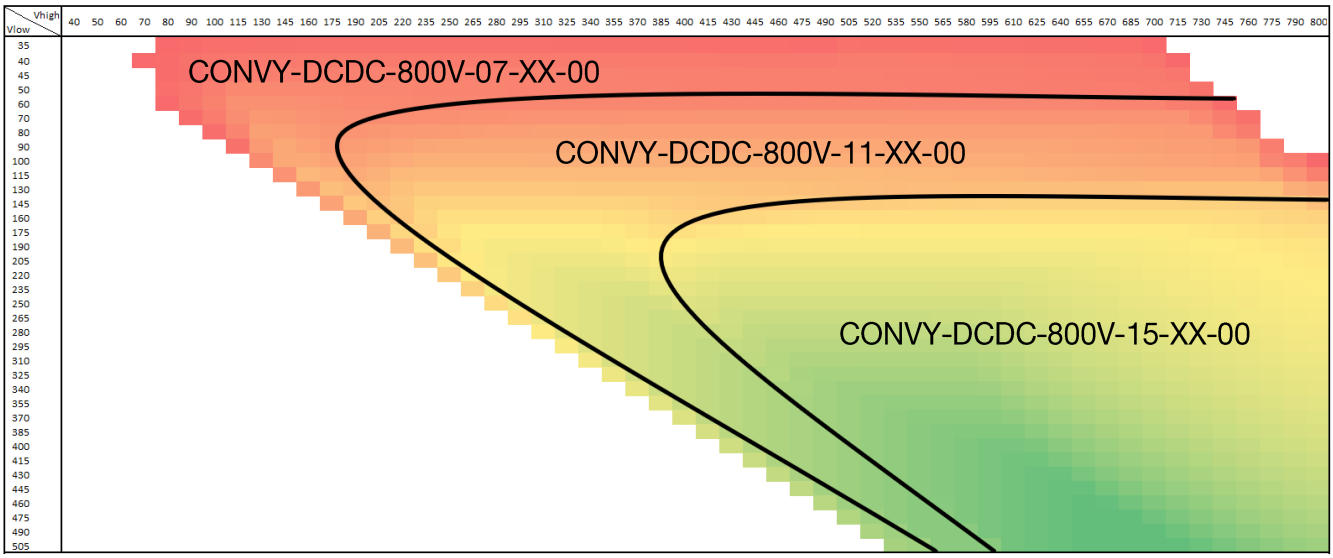
Map power capability according to low side and high side voltage

- Tame-Power DCDC converters embed a powerful software that permanently calculates the maximum power the device can transfer.
- The calculation is done in real-time, according to the values of low side voltage and high side voltage.
- The Power Maps aim to bring you a clear overview of how the features change according to the operating point.
- This allows you to optimize the overall performance of your whole system by selecting the best voltage ranges to operate.

Max output power (kW) when the DCDC converter operates at Vlow side = 110V, Vhigh side =180V

Vlow side \ Vhigh side	100	120	140	160	180	200	220
85	2	4	6	7	7	8	9
90	2	4	6	8	8	8	10
95	1	3	6	8	8	9	11
100		2	5	8	8	10	12
110			4	8	10	12	12
120				8	10	12	14
130				8	10	12	14
140				6	8	12	14
150				6	8	12	16
160					4	10	14

Maximum output power according to V_{low} side and V_{high} side



Power Map and optimal power area

Each product reference has its own Power Map. For any detailed information please contact our sales team: contact@tame-power.com

Datasheet
CONVY series V2.4

OTHER PRODUCTS AND ACCESSORIES

Below you can find the other product families created by Tame-Power. Each product can be fully customized to meet specific requirements.

STARTER KIT

- This kit for liquid or air cooled DCDC converters allows controlling a DCDC converter unit by direct connection to a power supply and a PC or a laptop.
- Include CAN communication probe and service power cables.
- The provided HMI software propose a user-friendly access to the main functions of the converter.

POWER CABLES

- High side and low side power connection cables to transfer energy between the converter and your systems.
- The choice of cables will depend on the type of converter - single or double.
- Cables have open end on one side to allow custom connectors application.

CISO : HVLV isolated converter

- Isolated Buck DC/DC converter in a liquid cooled version.
- Allow regulation according to input voltage.
- Applicable to battery systems and electric vehicles.

COMET AIR : HVHV air cooled converter

- Non-isolated reversible DC/DC converter in air cooled version.
- Allows regulation according to voltage, current or power, input or output.
- Applicable to fuel cell power, battery systems, super capacitors, chargers, loads and motors.