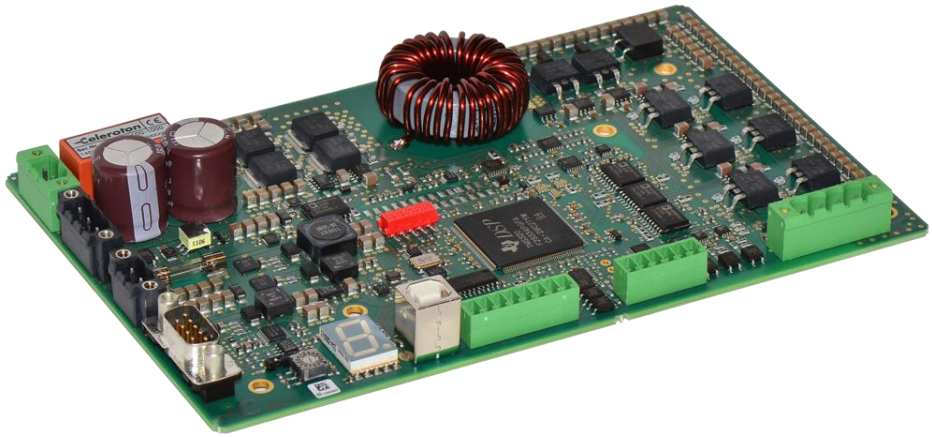
Converter

CC-100-1000



Summary

- Converter for driving permanent-magnet synchronous motors (PMSM) and brushless DC motors (BLDC)
- Sensorless speed control from 5,000 rpm up to 500,000 rpm
- Maximum output power: 1,000 W
- Separate supply for power and digital part
- No output filter required
- User definable setup for different motor parameters
- Torque and speed control
- Highest possible efficiency
- Integrated break chopper up to 2 W
- Optional external break chopper up to 420 W
- Parallel connection of several converters to one DC-bus possible
- User-friendly PC control software (CelerotonPilot)

Specifications	
Input voltage power part U_{in} (DC)	24 – 100 V
Input voltage digital part U_{in} (DC)	24 V
Maximum output power (with respective cooling)	1,000 W
Output voltage (peak value phase-phase)	0 – 0.93 U_{in}
Maximum phase current (PAM-operation)	8.7 Arms / 12.3 Apeak[1]
Maximum frequency / speed (PAM-operation)	8.3 kHz / 500,000 rpm
Operating range motor	4-Quadrant
Communication interface	USB
Communication interfaces (switchable)	RS232, CAN
PC control software	CelerotonPilot
Weight	0.28 kg
Dimensions (L x W x H)	195 x 125 x 24 mm
Operating temperature	0 – 40 °C

[1]Fundamental of the PAM-block current

Interfaces

Connector X8 – in-/output (6 Pin)	
1 x Analog input	0 – 10 V
1 x Analog output	0 – 10 V
1 x Temperature measurement input	PTC or NTC, resistance range according to option Tx
2 x GND	
1 x Auxiliary power supply	10 V, 100 mA

Connector X7 – in-/output (8 Pin)		
1 x COM	Common rail for digital outputs	
3 x Digital outputs	0 – 24 V (Relay, normally open contacts)	
2 x GND		
2 x Digital inputs	0 – 4 V 10 – 24 V	Low level High level

Options

*CC-100-1000.**SLx**.**Tx***

Sensorless *SLx*

- **SL1 (Standard):**
  - Speed constants between 550 and 18,250 rpm/V
  - Sensorless speed control from 7,000 rpm
- SL2:
  - Speed constants between 400 and 7,900 rpm/V
  - Sensorless speed control from 5,000 rpm

The stated values are valid for number of pole pairs p=1. For higher number of pole pairs the speed constant and minimum speed are divided by the number of pole pairs p.

PTC/NTC *Tx*

- **T1 (Standard)**: Measurement range 6-150 Ω, e.g. PT100
- T2: Measurement range 0.26-86 kΩ, e.g. KTY84, NTC10k

Accessories

- Connector set CC-100-1000

Operating range

The operating range of the converter is dependent on the output voltage (U_{out}) (peak value phase-phase) in Figure 1. The output power (P_{out}) increases with the output voltage as the phase current (i_{ph}) (rms) is constant until the power limit is reached. Above that point i_{ph} decreases with increasing output voltage. The input voltage (U_{in}) (grey area) must be higher than the maximum required output voltage.
Operating with full output power of 1,000 W requires cooling with heat sink with thermal resistance $R_{th} \leq 1$ K/W. Without heat sink a maximum phase current of 2.3 A and maximum output power of 280 W is available.

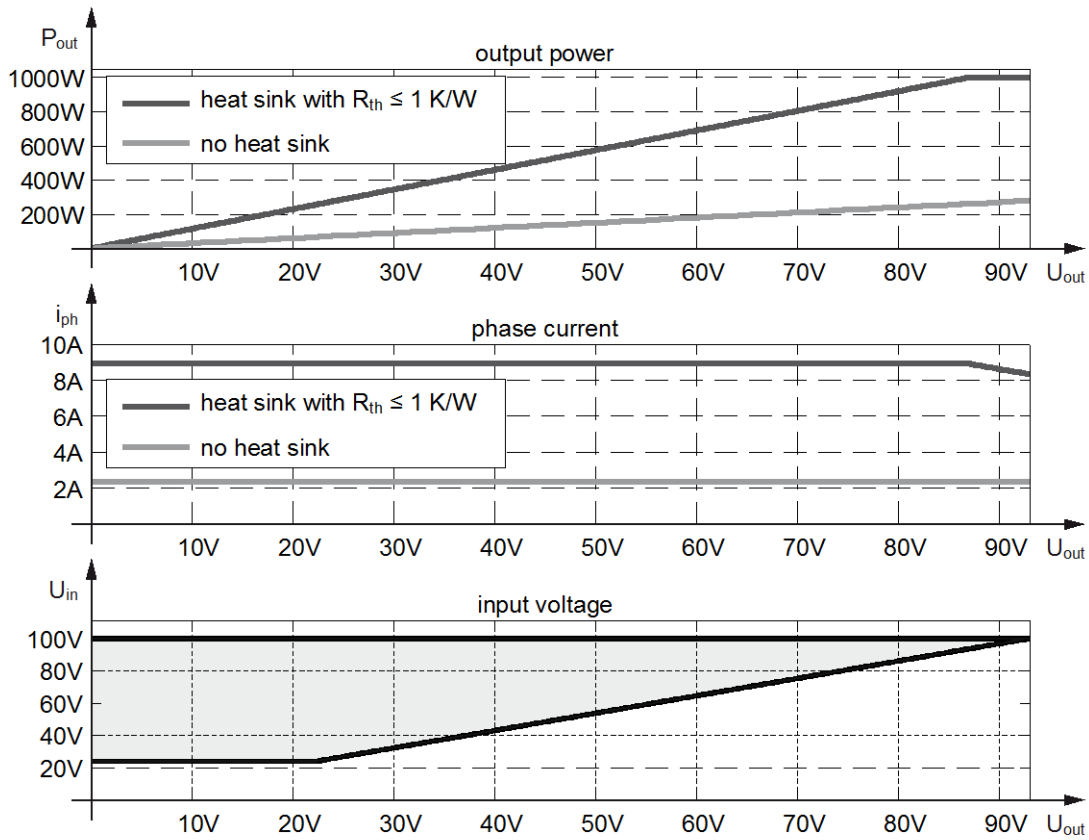
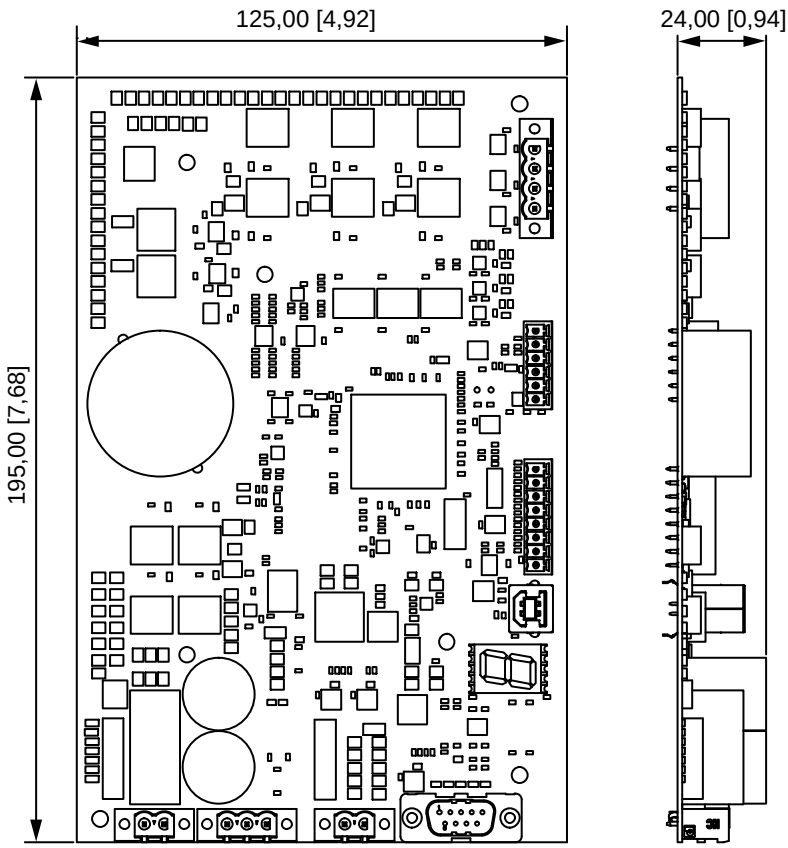


Figure 1: Output power, phase current and input voltage range of the converter CC-100-1000.

Dimensions in mm [inch]



Contact

Celeroton AG
Industriestrasse 22
8604 Volketswil
Switzerland

Tel.: +41 44 250 52 20
Fax: +41 44 250 52 29
info@celeroton.com
www.celeroton.com