Converter

CC-75-400

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 of 400 W
- No output filter required
- User definable setup for different motor parameters
- Torque- and speed-control
- Highest possible efficiency
- Integrated braking chopper
- Mountable on a DIN-rail
- Parallel connection of several converters to one DC-bus possible
- User-friendly PC control software (CelerotonPilot)

Specifications	
Input voltage U_{in} (DC)	24 – 75 V
Maximum output power	400 W
Output voltage (peak value phase-phase)	0 – 0.95 U_{in}
Maximum phase current (PAM-operation)	4.7 Arms / 6.6 Apeak[1]
Maximum frequency / speed	8.3 kHz / 500,000 rpm
Operating range	4-Quadrant
Communication interface	USB
Communication interface (optional)	RS232, RS485, CAN
PC control software	CelerotonPilot
Weight	0.5 kg
Dimensions	150 x 95 x 35 mm
Operating temperature	0 – 40 °C

[1]Fundamental of the PAM-block current

I/O connections

Connector X2 – I/O interface (6 pins)	
1 x analog input	0 – 10 V
1 x analog output	0 – 10 V
1 x temperature measurement input	Thermocouple type K
1 x temperature measurement input	PTC or NTC, resistance range according to option Tx
1 x GND	
1 x power supply	10 V, 200 mA

Connector X3 – I/O interface (6 pins)	
1 x COM	Common rail for digital outputs
2 x digital outputs	0 – 24 V (relay, normally open contacts)
1x GND	
2 x digital inputs	0 – 24 V (software adjustable thresholds 0.8 – 23 V)

Options

*CC-75-400.**SLx**.**COx**.**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 constants and minimum speeds are divided by the number of pole pairs p.

Communication interfaces *COx*

	USB	CAN	RS232/RS485
CO1 (Standard)	x		
CO2	x	x	
CO3	x		x

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-75-400

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}) 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.
The maximum output power (P_{out}) of the converter CC-75-400 depends on the ambient temperature (T_{amb}). The average power losses in the braking chopper ($P_{chopper}$) are limited by the output power and the ambient temperature. The respective relation is depicted in Figure 2.

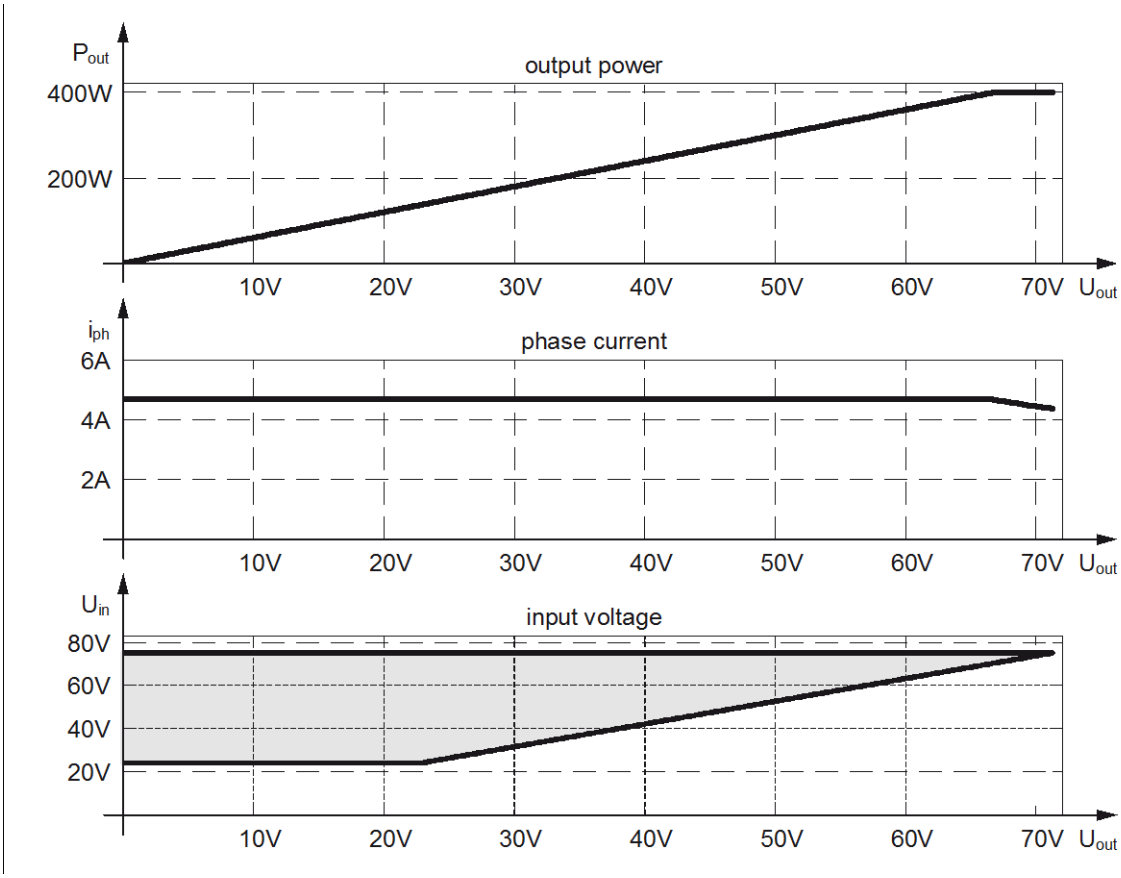


Figure 1: Output power, phase current and input voltage range of the converter CC-75-400.

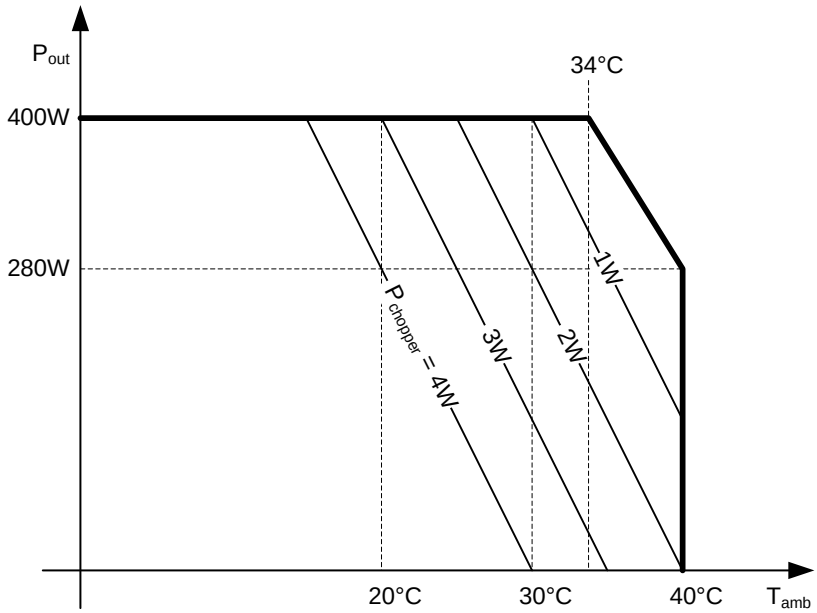
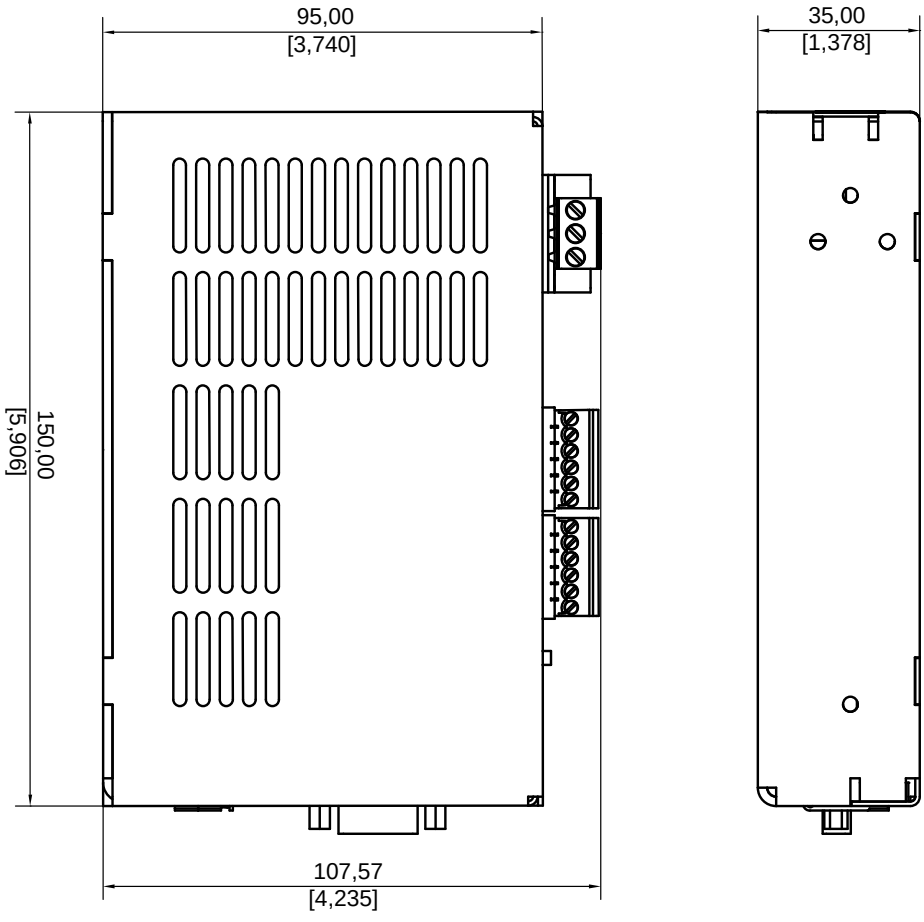


Figure 2: Safe operating area (SOA) of the converter CC-75-400 versus ambient temperature (T_{amb}) and the allowed average power losses in the braking chopper ($P_{chopper}$).

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