

# CC-120-1000

Converter for driving ultra-high-speed turbo compressors in fuel cells

- Sensorless speed control from 5,000 rpm up to 500,000 rpm
- Auxiliary voltage supply (8 – 32 VDC) for startup of the turbo compressor from battery, automatic switch to fuel cell voltage
- Operation of the compressor from wide output voltage range of the fuel cell (40 – 120 VDC)
- Rated output power: 1,000 W
- Protection class IP67
- 94% efficiency
- Integrated break chopper
- Connection to active and passive cooling (water or air) possible



## Specifications converter

Input voltage $U_{in}$ (DC) <sup>1</sup>	40 – 120 V
Input voltage auxiliary supply $U_{in}$ (DC)	8 – 32 V
Rated output power	1,000 W
Output voltage (peak value phase-phase)	0 – 100 V
Maximum phase current (PAM-operation)	8.5 Arms / 12 A <sub>peak</sub> <sup>2</sup>
Maximum frequency / speed (PAM-operation)	8.3 kHz / 500,000 rpm
Communication interface	CAN
Weight (incl. housing)	1.4 kg
Dimensions (L x W x H)	172 x 138 x 53 mm

<sup>1</sup> Other voltage ranges on request

<sup>2</sup> Fundamental of the PAM-block current

## User interfaces (X1, X2)

### Connector X1 – In-/output (14 Pin)

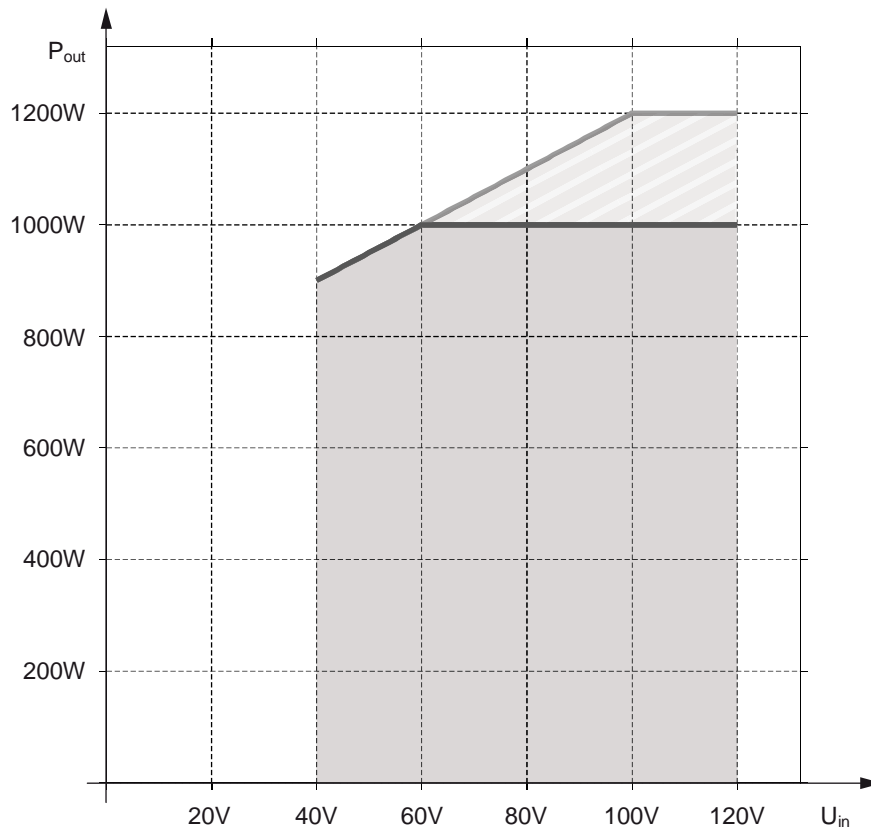
3 x CAN interface	CanH, CanL, CanGND
2 x Serial service interface	TxD, RxD
1 x Auxiliary power supply (DC)	8 – 32 V
1 x GND	Reference potential auxiliary supply
3 x Input voltage (DC)	40 – 120 V
3 x GND	Reference potential input voltage
1 x PE	Protective earth input

### Connector X2 – In-/output (8 Pin)

1 x Temperature measurement input	PT100
1 x GND	Reference potential temperature measurement
3 x Motor phase	PHA, PHB, PHC
3 x PE	Protective earth motor

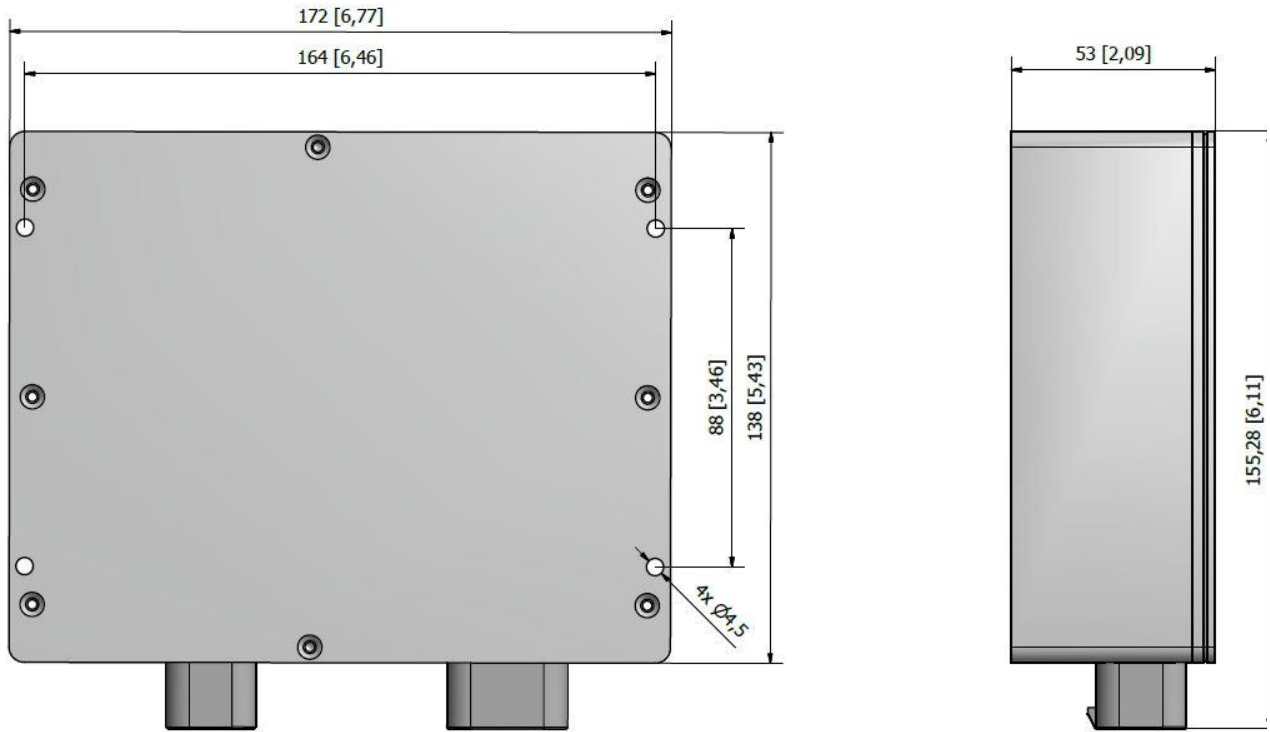
## Operating range

The operating range of the CC-120-1000 in FCO depends on the fuel cell input voltage as shown in Figure 1. The maximum continuous output power of 1,000 W can be obtained with an input voltage of 60-120 VDC. The absolute maximum power of 1,200 W can be reached during short time overload operation.



**Figure 1: CC-120-1000 operating range. The continuous output power over fuel cell input voltage is shown as solid area. The short time overload operating range is shown as hatched area.**

Drawing in mm [inch]



**Celeroton AG**  
Industriestrasse 22  
CH-8604 Volketswil

Tel.: +41 44 250 52 20  
Fax: +41 44 250 52 29

info@celeroton.com  
www.celeroton.com

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