

# TRACTION POWER

## *Short Manual*

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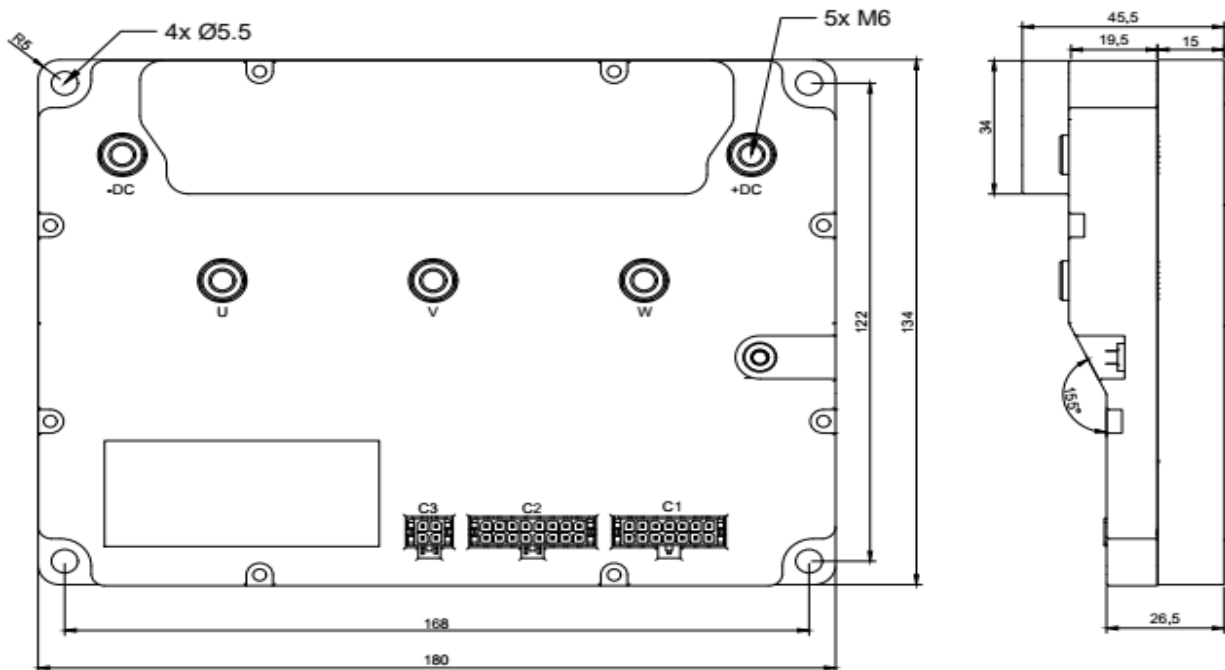
## Index

Mains technical data .....	3
Mechanical Dimensions.....	3
View connectors .....	4
Inputs and output.....	5
Control and Peripheral.....	6
Serial communication.....	6
Serial communication connection.....	6
Motor feedback .....	7
Motor feedback connection .....	8
Inputs and outputs connection .....	9
Parametrization .....	10

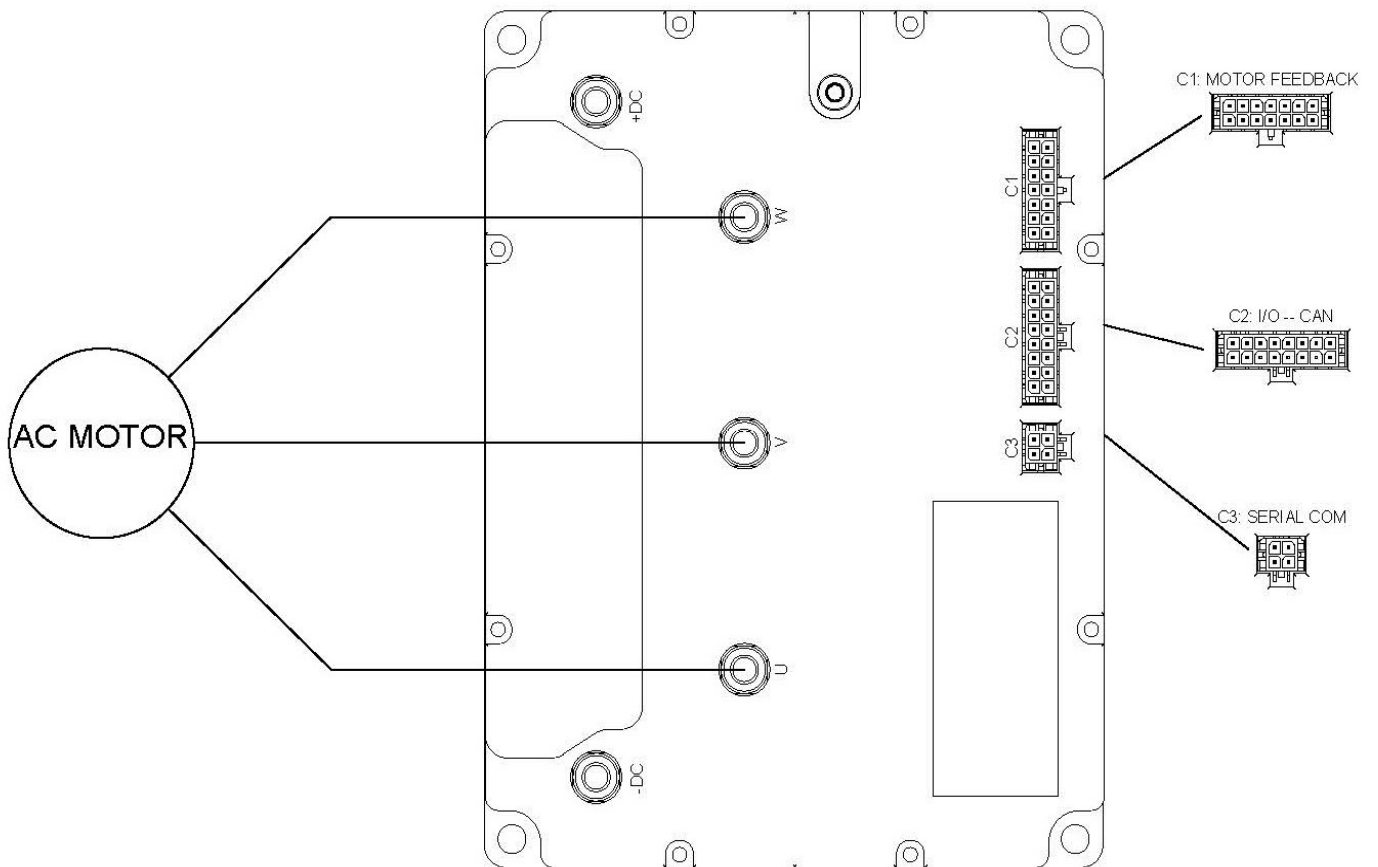
**Mains technical data**

MAINS TECHNICAL DATA				
RATED VOLTAGE	V	24	48	72
MINIMUM VOLTAGE	V	18	20	30
MAXIMUM VOLTAGE ADMITTED	V	32	70	100
BOOST CURRENT (10s)	A	250@2s	250@2s	250@2s
PEAK CURRENT (2 MIN)	A	150@2min	150@2min	150@2min
RATED CURRENT	A	100	100	100
RATED OUTPUT POWER	kW	2,7	5,4	10
DEFAULT PWM FREQUENCY	KHz	16		
TEMPERATURE	°C	-10°C +45°C		
AMBIENT		Maximum working air temperature: 45°C , with derated, 2,5%/°C Maximum working heasink temp.: 70°C Maximum elevation: 1000 m Derating. Output current: x% / 100m > 1000m		

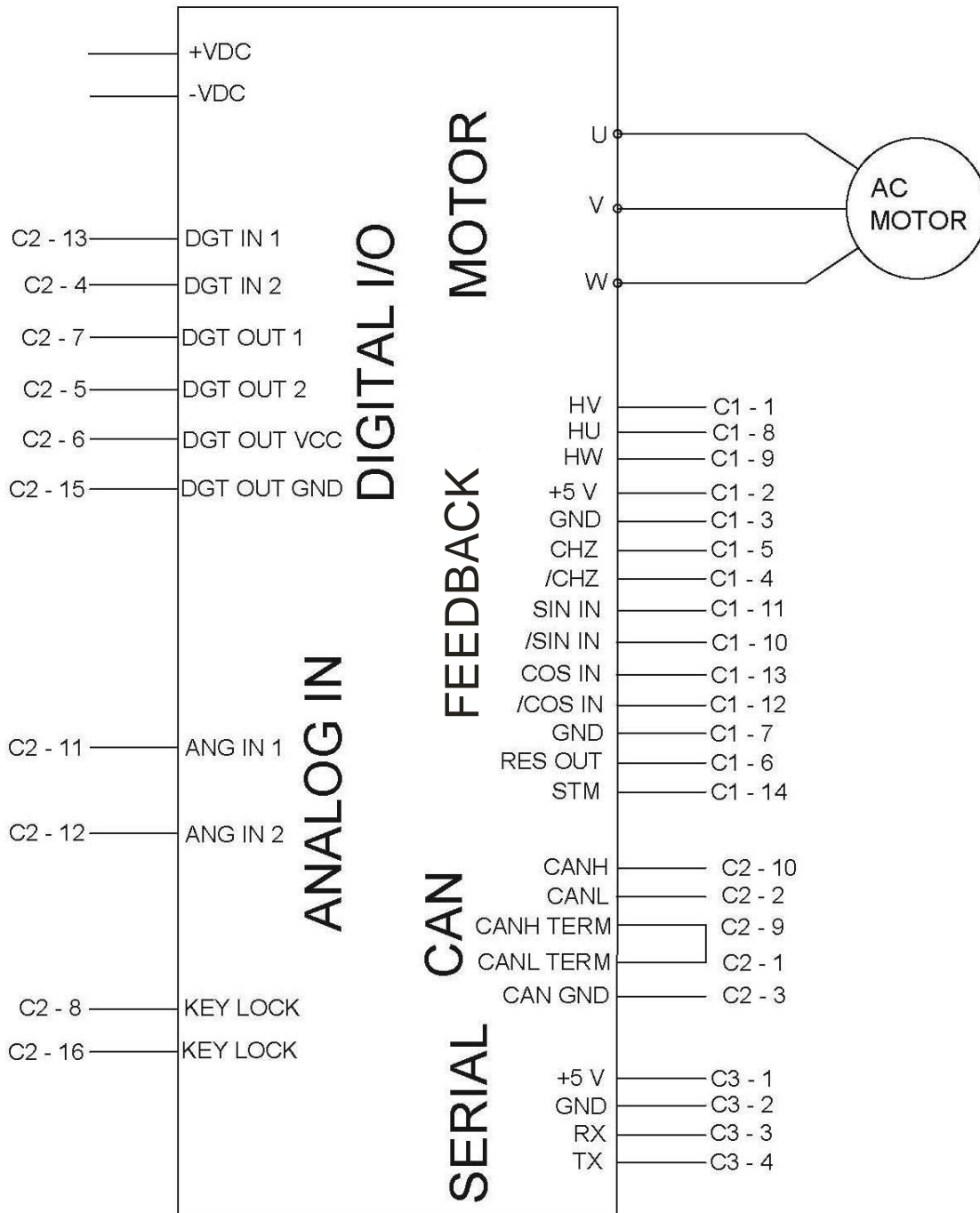
**Mechanical Dimensions**



**View connectors**



**Inputs and output**



## Control and Peripheral

This device is full digitally controlled. It can be run in different modes, with or without feedback sensor.

It can be drive DC Brushless motor, AC Brushless motor and Asynchronous motors.

Peripherals:

- 2 digital inputs
- 2 analog inputs
- 1 CAN bus interface
- 2 RS232 for setup and debugging
- 3 temperature sensor
- 1 motor temperature input
- 1 inclinometer (for safe control of dangerous behavior of vehicle)

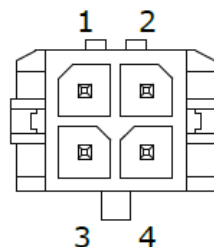
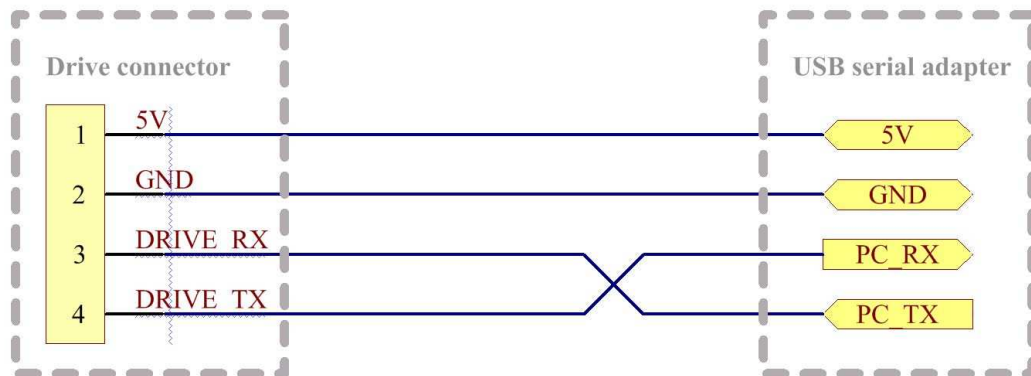
**Serial communication**

The communication connector consist in a 4 pin connector with a serial UART, this connector must be connected with a proprietary board that has the following functions:

- grant a communication with a PC by USB
- gateway from drive to Wi-Fi
- upgrade drive firmware by pen drive

**Serial communication connections**

SERIAL COM CONNECTOR		
PIN	PIN	DESCRIZIONE
1	5V	Output supply 5V@200mA
2	GND	Ground
3	RX	Rx signal of communication
4	TX	Tx signal of communication (from MCU)



C3  
Serial com

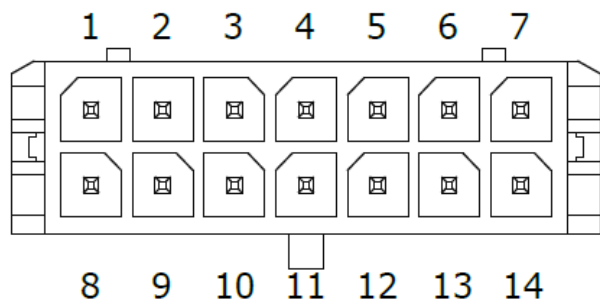
**Motor feedback**

The TRACTION POWER converter can manage some kind of feedback:

- Hall sensors UVW
- Incremental encoder + Hall sensors
- Sinus cosinus, single and differential Encoder
- Resolver and variable reluctance resolver (under request)

**Motor feedback connection**

I/O CONNECTOR		
PIN	NOME	DESCRIZIONE
1	HV	Hall sensor V input
2	5V	Output supply 5V@300mA
3	GND	GND-5V
4	/CHZ	Inverted Z channel encoder input
5	CHZ	Z channel encoder input
6	RES OUT	Resolver sinusoidal output
7	GND	GND-5V
8	HU	Hall sensor U input
9	HW	Hall sensor W input
10	/CHA-/SIN_IN-/RES_SIN	Inverted A channel encoder input or inv. Sinus input or inv. Resolver sinus input
11	CHA-SIN_IN-RES_SIN	A channel encoder input or Sinus input or Resolver sinus input
12	/CHB-/COS_IN-/RES_COS	Inverted B channel encoder input or inv. Cosinus input or inv. Resolver cosinus input
13	CHB-COS_IN-RES_COS	B channel encoder input or Cosinus input or Resolver cosinus input
14	STM	Motor thermal sensor

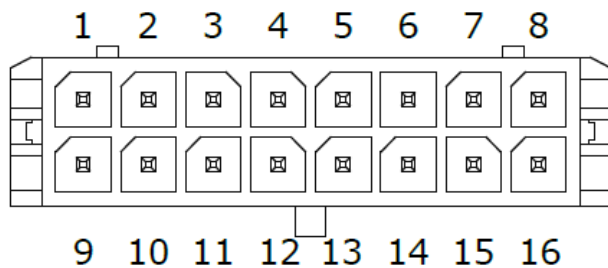


**C1**  
Motor Feedback

**Inputs and outputs connection**

In TRACTION POWER are available 2 programmable digital input, 2 analog input. Can open for communication and an interlock safety input.

I/O CONNECTOR		
PIN	NOME	DESCRIZIONE
1	CAN-TERM	CAN L termination resistance 120 Ohm
2	CANL	CAN-Low
3	CAN_GND	CAN-GND
4	DGT-IN2	Digital input 2, 24V - PROGRAMMABLE
5	DGT_OUT_2	Digital output 2
6	DGT_OUT_VCC	Digital output Vcc
7	DGT_OUT_1	Digital output 1
8	KEY-LOCK	Safety lock function, connect with PIN 16 to unlock.
9	CAN-TERM	CAN H termination resistance 120 Ohm
10	CANH	CAN-High
11	AGND-IN1	Analog input 1, 0-10V - PROGRAMMABLE
12	AGND-IN2	Analog input 2, 0-10V - PROGRAMMABLE
13	DGT-IN1	Digital input 1, 24V - PROGRAMMABLE
14	5V	Otput supply 5V@200mA
15	DGT-OUT-GND	Digital output GND
16	KEY-LOCK	Safety lock function, connect with PIN 8 to unlock.



C2  
I/O - Can

### Parametrization

ByInterface PC software allows to communicate with the TRACTION DRIVE converter via ModBus RTU protocol or via RS232 / CANopen gateway. The converter can be completely configured through the interface, as well as can be loaded and saved a parameters configuration for a motor or applied and updated the converter's firmware .

ByInterface programming software is also useful in debugging the device and can be used as a data logger.

