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S.p.A.

Datasheet

ACE5 2 μ C

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DESCRIPTION

ACE5 inverter is suitable for controlling several type of motors (AC induction, BLDC and PMAC) in the range from 18 kW to 47 kW continuous power, adopted in battery-powered trucks for material handling.

The 35-poles Ampseal connector ensures an high number of I/O and accommodates a wide range of vehicle controls and sensors.

ACE5 can also easily interface with a wide range of external device via CAN bus.

APPLICATIONS

All the electric functions usually present in material-handling machines.

Typical applications are:

Counterbalanced trucks with load up to 8 tons, HLOP (VNA), GSE, tow tractors and airport ground support vehicles, aerial-access equipment (telescopic boom and scissor lift).

Also, ACE5 may be suitable for other applications not listed here.

FEATURES

- Nominal voltage from 36 V to 120 V.
- Microcontroller for main functions, 576+ kByte embedded flash memory.
- Microcontroller for safety functions, 320+ kByte embedded flash memory.
- 8 active-high digital inputs.
- 1 active-low digital input.
- 2 analog inputs (range 0 V ÷ 10 V) with 10-bit resolution.
- 1 input for analog motor thermal sensor.
- 1 incremental encoder interface.
- CAN bus interface allows communication with a wide range of devices.
- Communication standard: CAN protocol.
- Communication speed up to 500 kbit/s.
- 11-bit and 29-bit communication supported.
- 2 auxiliary supply output (+12V / +5V , up to 150 mA).
- 1 power low-side output with precise current feedback for controlling a proportional hydraulic valve (up to 1.5 A continuous).
- 2 PWM voltage-controlled low-side outputs.
- Built-in freewheeling diodes.
- Dither injection with configurable amplitude and frequency.
- Protection from overload, short circuit, open load and ESD.
- Ambient temperature
 - Operating: -30 °C ÷ +40 °C.
 - Storage: -40 °C ÷ +85 °C.
- Sealed connector (35 pins Ampseal).
- Access to status and diagnostic information.

MODEL CHART

Nominal voltage		36/48V	72/80V	96V	120V
Supply voltage [V]	Min	10	30	30	30
	Max	65	115	120	150
2-min current rating [Arms]		1000	1000	800	750
S2 60-min current rating [Arms]	finned heat sink	500	440	400	350
	base plate	450	400	360	320

TECHNICAL DATA

Microcontrollers		2
Memory	Main μ C	576+ kB Flash, 48 kB SRAM, 64kB emulated EEPROM
	Supervisor μ C	320+ kB Flash, 32 kB SRAM, 64 kB emulated EEPROM
Connector		35-pins Ampseal
Digital inputs		9
Analog inputs		2
PWM voltage-controlled outputs		2
PWM current-controlled output		1
Auxiliary supply output (+12V / +5V, 150 mA max)		2
CAN bus interface		1
Encoder interface		1
Input for motor thermal sensor		1



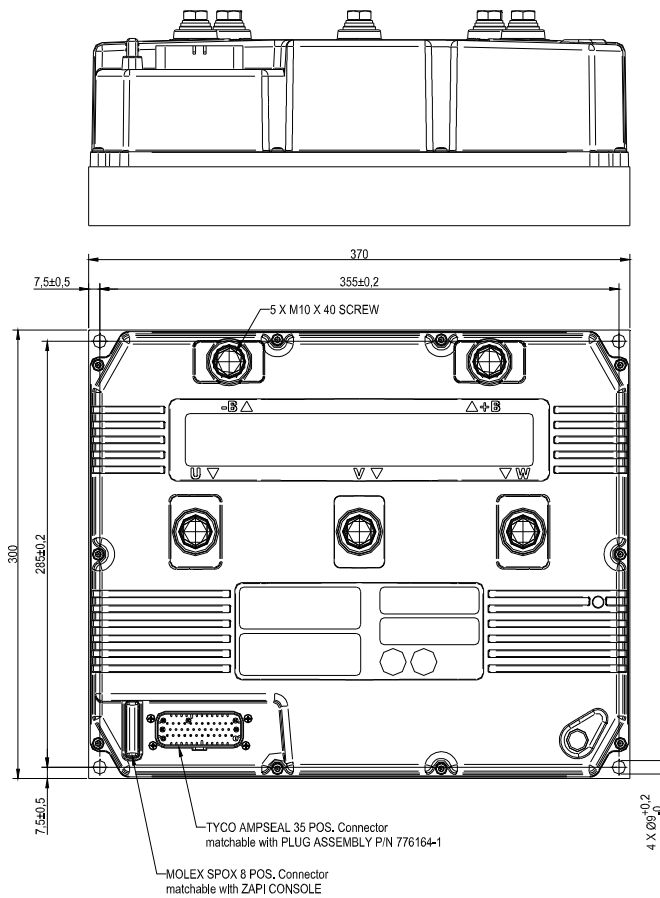
Current ratings are based on an initial heat sink temperature of 40 °C and a maximum heat sink temperature of 75 °C. No additional external heat sink is used for the 2-minute rating test.



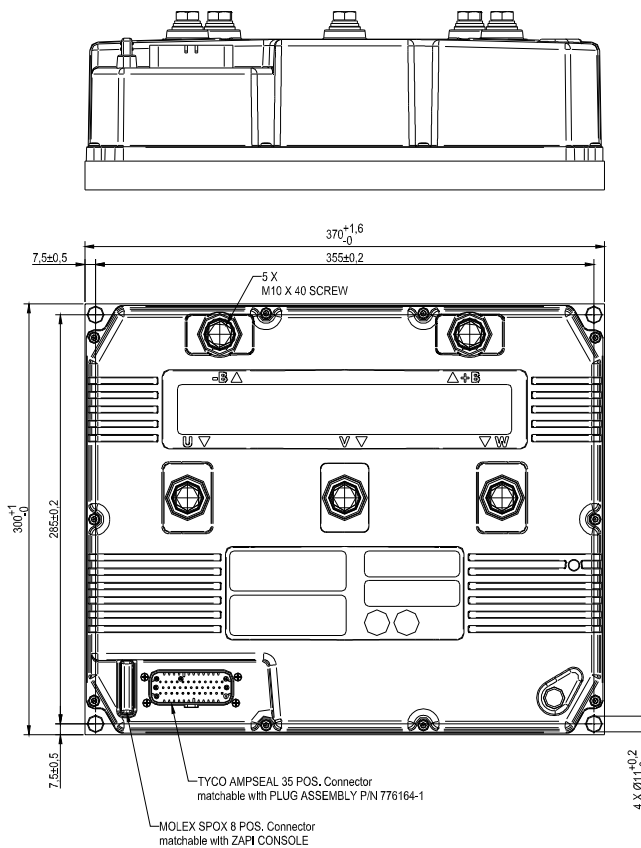
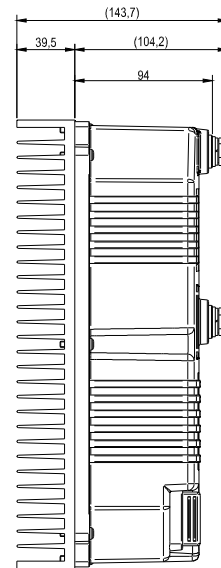
Inverter can continuously deliver the rated RMS current only if it is adequately cooled. When it is equipped with its own finned heat sink, a proper dissipation is obtained by applying a 200 m³/h airflow. In case the inverter is provided with the base plate, it is customer's duty to design an adequate cooling system that can dissipate the heat produced by the inverter, keeping its temperature below 75 °C.

REGULATIONS

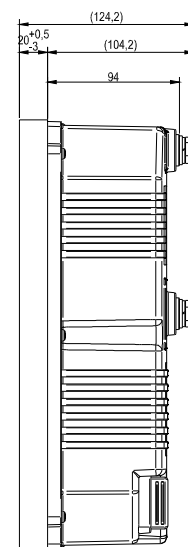
Functional safety	Applicable requirements of EN 1175-1:2010, Compliant to upcoming revision of EN1175.
EMC	Applicable requirements of EN 12895.
IP code	IP65.



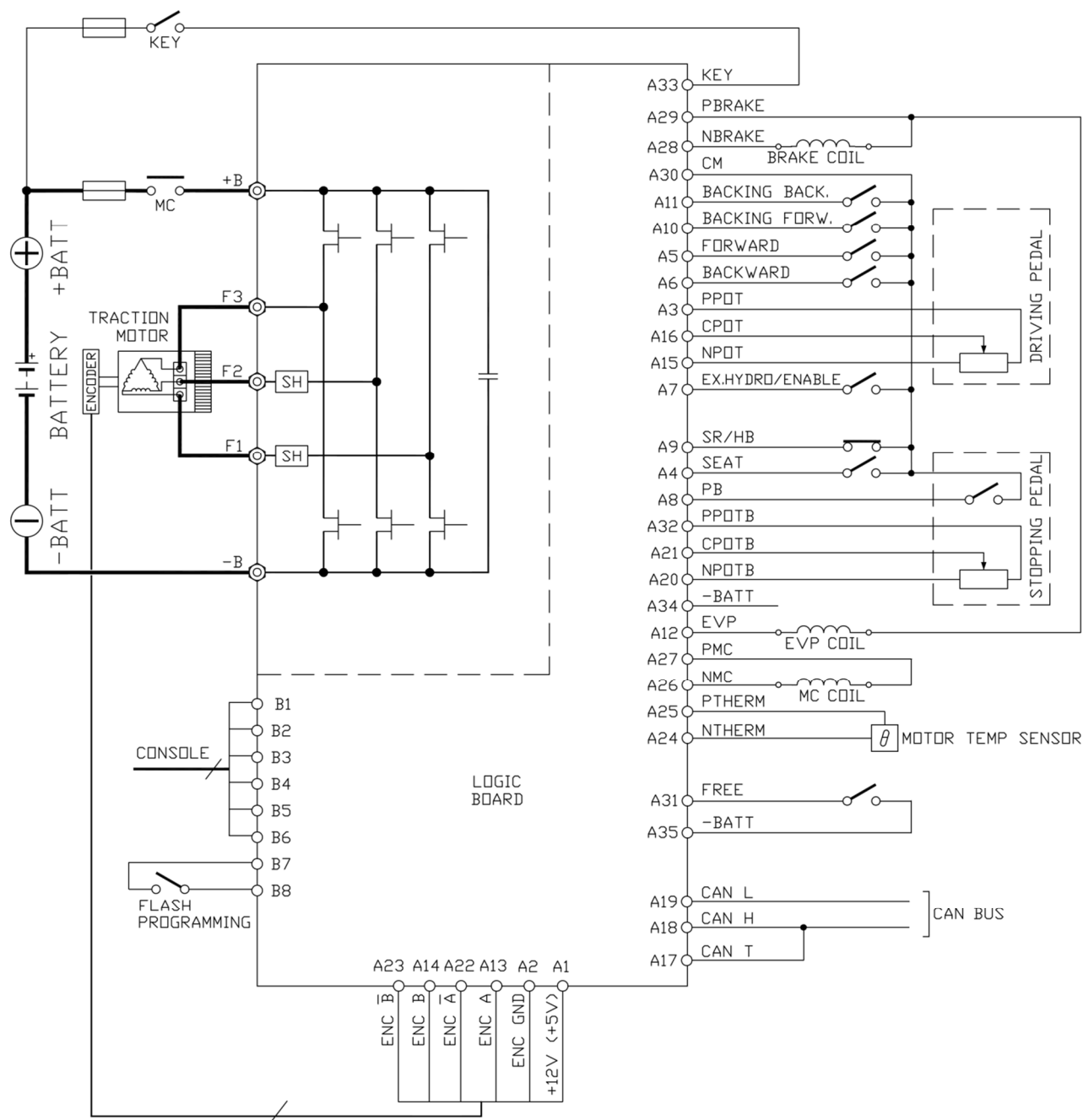
Inverter mounted on
finned heat sink



Inverter mounted on
base plate



TYPICAL WIRING DIAGRAM – TRACTION CONFIGURATION



ACE5 is suitable for other standard configurations, such as:

- Pump + encoder
- CAN open + encoder
- CAN open + encoder + sin/cos sensor
- Traction + encoder + sin/cos sensor

For custom configurations, contact our sales department at sales@zapispa.it.