Data sheet

VECTOPOWER VP600-28W344

Art. No. VP600-28W344-77.1.05.11.00.0

The illustration may contain optional equipment.

Typical applications

Traction Drive
To drive an electric motor in a vehicle or in a mobile working machine with regenerative braking energy.

Auxiliary drive
To drive an electric motor for vehicle superstructures, such as the winch of a mobile crane

Power generation
For generating a microgrid by means of a generator or turbine

Features

This inverter can output an effective peak current of up to 400 A_{rms} for 1 minute. (For reference values see peak current)

2 power output stages for independent operation, for example to operate 2 motors

Power and signal connections with connectors

Power connections with interlock

Supports many kinds of encoders: resolver, incremental encoder, eddy current type encoder

Supports synchronous and asynchronous motors, matched to ARADEX electric motors

Radio interference suppression capacitors in the DC link

Extremely stable construction against shocks and vibrations

Software functions

CAN bus (CANopen optional)

Freely extendable application software

Optional real-time PLC

Control modules for all motor topologies

Field weakening in PM motors with buried magnets and asynchronous motors

Boost function for standstill torque

Certifications

Device according to UN ECE R10 and UN ECE R85

SafeTorqueOff according to DIN EN 61800

Accessories

Benefit from our commissioning tools VEConfig and Analyser for commissioning, analysis and optimization of your application.

You can add individual functions to the inverter. Ask us about VECTOSTUDIO.

Mating connector, coolant nozzle, connecting cable between VECTOPOWER and notebook, adapter plate.

DC link

All data refer to one power output stage each.

Min./max. operating voltage, in V DC	30...840
DC link switch-off threshold 1 (recommended) , in V	860
DC link switch-off threshold 2, in V	880

Motor circuit

All data refer to one power output stage each.

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Thermal rated current and continuous power

Reference values for rated thermal current and continuous power with DC link 720 VDC, PWM 4 kHz, coolant flow rate 30 l/min at 35°C and ambient temperature 45°C.

Thermal rated current AC (rms), in A_{rms} 220

Continuous power, in kVA 194

Continuous power loss, in kW 4.0

Peak current AC

Reference values for peak current with DC link 720 VDC, PWM 2 kHz, coolant flow rate 30 l/min at 35°C and ambient temperature 45°C.

Peak current AC (rms), for 1 minute, in A_{rms} 340

Peak current AC (rms), for 10 minutes, in A_{rms} 300

Min./max. PWM frequency, in kHz ..... 1...8

Max. electrical rotational frequency, in Hz 599

Control component

Nominal voltage, in V DC ..... 12 / 24

Rated voltage for applications according to ECE R10, in V DC 24

Interfaces

Power connector
Manufacturer Amphenol, type PowerLok, "1 POS Product", series 300.

Connector signal part [ST1]
Manufacturer AMP, connector type AMPSEAL HDR SNAP IN W/G 23pol, protection class IP67

Connector signal part [ST2A], [ST2B], [ST3A] and [ST3B]
Manufacturer: TE, product series Intercontec, connector type A ST A 035, connector design 17 pin, type "P"

Communication interfaces

CAN, CANopen, RS-232, analog inputs

The optional CAN Matrix from ARADEX enables you to communicate actual and setpoint values cyclically. The CAN matrix can be individually customized.

Hardware interfaces

All data refer to the entire device.

Number of encoder inputs 2

Encoder inputs with digital absolute value ..... optional

External voltage measurement ..... no

Temperature measurement
Quantity PT100 inputs 4
Quantity NTC/PTC inputs 4

Operating conditions

The following ambient conditions apply to operation.

Max. Humidity acc. to EN 61800-5-1, non-condensing, in % 93

Min. ambient temperature, in °C ..... -25

Max. ambient temperature with derating, in °C ..... +75

Max. operating altitude for mains and battery operation, in m above sea level 2000
Overvoltage category II

Max. operating altitude for battery operation, no mains operation possible, in m above sea level ... 4000
Overvoltage category I

Pollution degree according to EN 61800-5-1 3

Protection class acc. to EN 60529 ..... IP66, IP67

Environmental influences validated acc. to:

Sinusoidal vibration acc. to EN 60068-2-6
from 10 - 500 Hz .....5 g / 0.7 mm

Permanent shock acc. to EN 60068-2-27 ... 40 g / 6 ms

Shock test acc. to EN 60068-2-27 ..... 50 g / 11 ms

Free fall acc. to EN 60068-2-31 ..... 250 mm

Broadband noise acc. to EN 60068-2-64 .....
ISO 16750, Test VII

Strain-relieved cable routing is necessary to achieve the specifications of EN 60068-2-64.

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Art. No. VP600-28W344-77.1.05.11.00.0

Cooling

Liquid cooling ..... yes

Coolant connection ..... G 3/4"

Flow rate, in l/min ..... 30...40

Min. temperature of the coolant, in °C ..... -25

Max. temperature of the coolant with derating, in °C ..... +75

Max. temperature of the coolant without derating, in °C ..... +65

Coolant ..... water and glycol

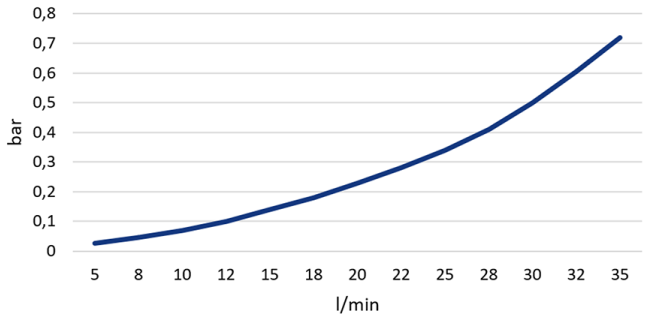

Figure 1: Pressure drop in the cooling system

Protective measures

Short circuit rating acc. to EN 62477-1 ..... 10 kA / 1 ms

Power section: switch-off threshold adjustable

Control section: switch-off thresholds for under-/over-voltage

Thermal protection of inverter and motor by peak current and temperature monitoring

Thermal monitoring of the motor by temperature inputs, freely programmable warning and error thresholds

Monitoring of overcurrent, short circuit, total current and DC link voltage

Active short circuit application-specific adjustable

More information

Reference reports can be found at www.aradex.com

Detailed technical data can be found in the installation manual in the product description chapter.

Quick start guide, installation manual, safety manual, VEConfig operating manual and VE operating manual can be requested by mail via sales@aradex.com.

The VEConfig software is available as a download from the Microsoft Store: https://www.microsoft.com/store/productId/9N1P7CFQT04S.

Location, dimensions and designation of the connections

L x W x H with sockets on the device, in mm ..... 529 x 470 x 136

Weight, in kg 35

All dimensions in the drawings are in millimeters. The drawings may show optional accessories.

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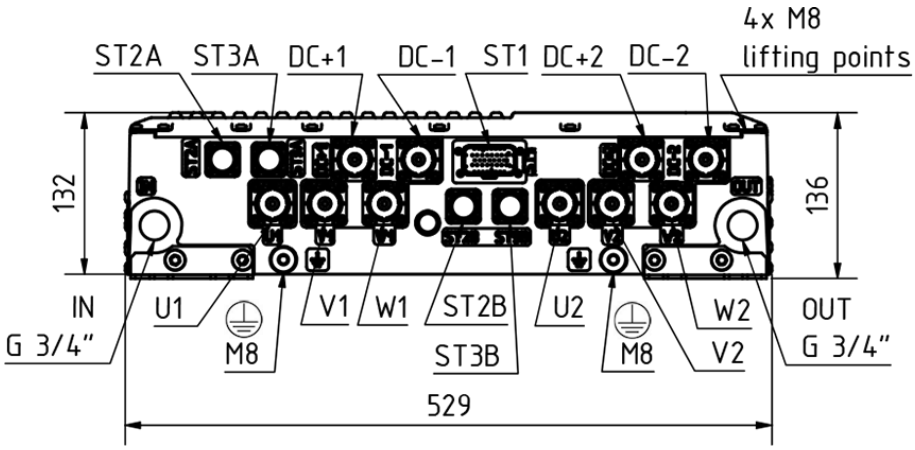

Figure 2: Front view, position of the connections

- [DC+1], [DC-1]: Power connections for DC link, power stage 1
- [DC+2], [DC-2]: Power connections for DC link, power stage 2
- [U1], [V1], [W1]: Power connections for motor circuit, power stage 1
- [U2], [V2], [W2]: Power connections for motor circuit, power stage 2
- ⏚: Protective conductor
- [ST1]: Signal connection for CAN, RS-232, STO, Interlock, supply voltage
- [ST2A]: Signal connection for resolver, eddy current type encoder for power stage 1
- [ST2B]: Signal connection for resolver, eddy current type encoder for power stage 2
- [ST3A]: Signal connection for incremental encoder with/without absolute track for power stage 1
- [ST3B]: Signal connection for incremental encoder with/without absolute track for power stage 2
- [IN]: Cooling flow
- [OUT]: Cooling return

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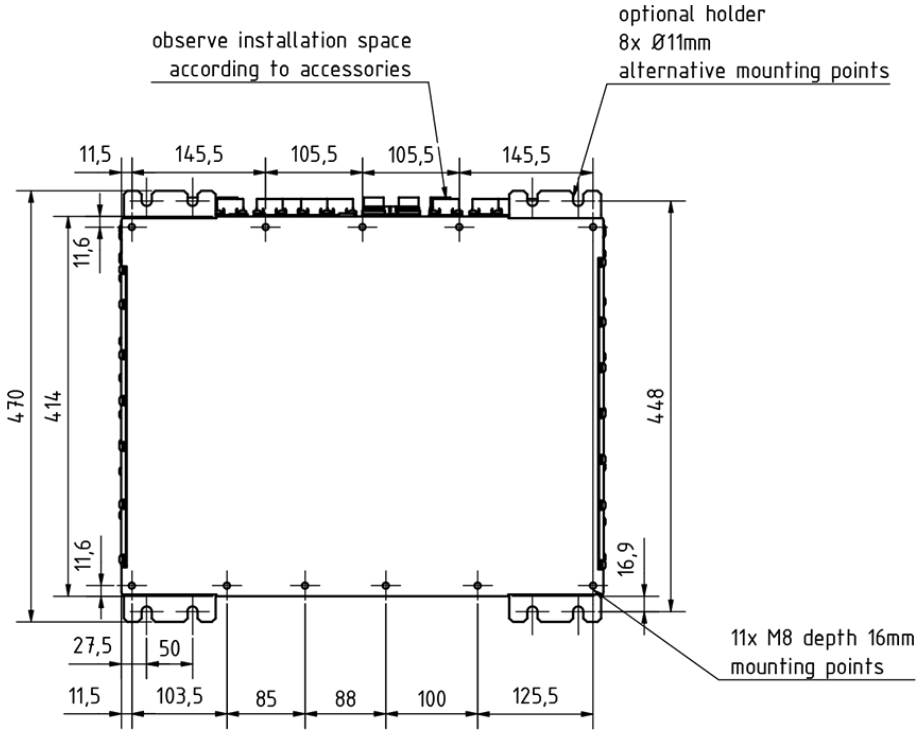

Figure 3: View from below with hole pattern