

INPUT VOLTAGE: 293VAC TO 640VAC (3 Phases Delta without neutral) or 340VAC TO 640VAC (2 Phases)

OUTPUT VOLTAGE: 12V (WITH THERMAL BATTERY SENSOR) or 24V (WITHOUT THERMAL BATTERY SENSOR)

OUTPUT POWER: 560W WITH AIR SPEED 2.5M/S



Application : Battery Charger and Power Supply dedicated to charge 12V battery and supply electric motors for liftgate (Trailers, Light vehicles). Both variants can work without LV battery connected on their output. Both variants are supplied by a Genset system

ENVIRONMENT

Operating Temperature: -40°C to +85°C

Storage Temperature: -55°C to +105°C

Derating: For Both variants, if working with two phases instead of three phases grid, then max output power is 280W. For both variants, if air speed is 0.4m/s we have a derating of -6.7W/°C from +55°C to +85°C

Altitude operating up to 3600m (12000 feet)

No resonance frequency in the unit vibration range (1Hz to 60Hz) when product mounted on client's system

Shock : Compliant with 16750-3 S4.2.2.2

Free fall: conform to ISO/DIS 16750-3 (1m)

IP rating: IP66 when product mounted on client's system

Salt fog : 500 hours of salt fog exposure according ASTM B117

Chemical agents: Diluted acids, diluted bases, water based solvents, rainwater, polyester oil, diesel fuel, gasoline, engine diesel exhaust, engine oil, common household cleaner

Vibration: according MIL-STD-202G

Weight: <=4.4kg

STANDARDS

EMC: EN55022 Class B conducted emission on AC side performed with resistive load on output, radiated emission performed into client system.

EN 61000-4-2

EN 61000-4-3

EN 61000-4-4

EN 61000-4-5

EN 61000-4-6

EN 61000-4-6

EN 61000-4-8

EN 61000-4-11

RoHS compliance

EN60204-1 when installed in client's system.

DIELECTRIC STRENGTH

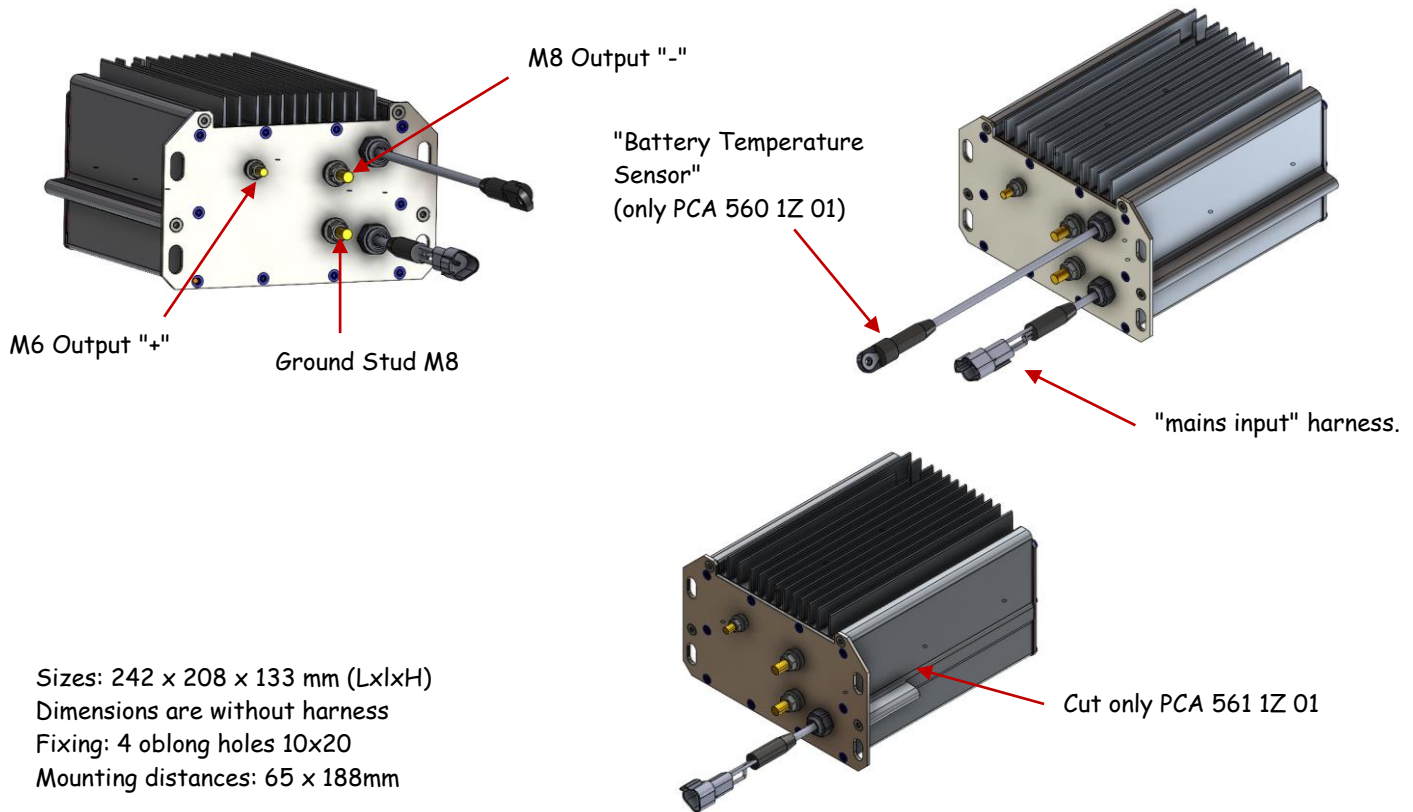
Input/ Output + Chassis: 3000VAC

0V Output = Chassis

4200VDC for the serial test and 3000VAC for qualification test.

MECHANICAL DRAWING

PCA 560 1Z 01, PCA 561 1Z 01



CONNECTORS

Input connector for serial product

For mains input: connector Amphenol 3 points AT04-3P-SR01BLK or equivalent. No ground Pin in connector.

Pins: 3 contacts AT60-16-0122

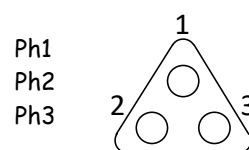
Cable length: 36cm

Battery temperature Sensor:

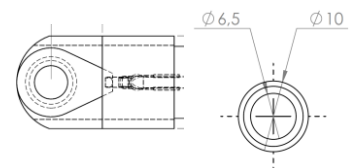
Cable length: 71.5cm

Ground Stud M8. Client will connect a ground wire connected between the ground stud and client mechanical chassis

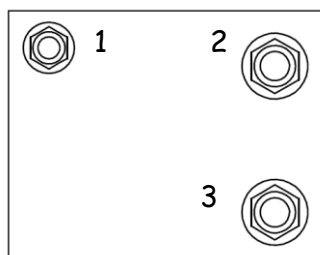
Serial Product



Battery Temperature Sensor



Output Power Connection



1: M6 OUTPUT "+"
2: M8 OUTPUT "-"
3: M8 GROUND STUD

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ELECTRICAL CHARACTERISTICS

Parameter	Min.	Typ.	Max.	Units	Notes & Conditions
INPUT CHARACTERISTICS three phase Delta connection without neutral					
Operating Input Voltage	293	400	640	Vac	Product can withstand temporary voltage increase from 640Vac to 690Vac during 2 minutes and no load on output, it shall not cause failure. With two phases only, the AC voltage range is between 340Vac to 640Vac with derating power 280W
Frequency range	45	50	68	Hz	
Inrush current limitation			<15	A	at nominal 640Vac
Hold up time		0		ms	
Earth leakage current		<3,5		mA	
Over current protection	Time Delay Fuse caliber 4Amps				No internal input fuse, external protection shall be implemented by customer on client's system

OUTPUT CHARACTERISTICS PCA 560 1Z 01 (12V battery charger with battery temperature sensor)					
Output Voltage Set Point	14,3		14,65	V	These values are for ambient temperature 25°C. Battery charger has a curve of output voltage varying with ambient temperature (see pages after)
Output Voltage Regulation Line + Load	-2,5		+2,5	%	
Output Voltage Ripple and Noise		<200		mV	Fundamental peak to peak with nominal resistive load (40A) , 20MHz BW in thermal boundaries conditions
Operating Output Current	0		40	A	If Air speed of 2.5m/s, cannot be achieved inside client's system, with an air speed of 0.4m/s we can deliver 20A and not 40A
Output DC Current-Limit			<55	A	
Output Over-Voltage Protection			<22	V	After OVP, AC input voltage of the converter must be disconnected before to recover normal operation
Efficiency		88		%	

Ref Doc:	PCA5601Z01 PCA5611Z01	Index:	A	Date:	28th March 2024	Folios:	3/9
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PCA 560 1Z 01, PCA 561 1Z 01

APPLICATION: ROAD REFRIGERATION SYSTEM

OUTPUT CHARACTERISTICS PCA 561 1Z 01(24V battery charger without battery temperature sensor)

Output Voltage Set Point	28.2	30	V	Product presents a positive slope output voltage versus output current in order to compensate dropout voltage due to trailer harness length (see pages after)
Output Voltage Regulation Line + Load	-2.5	+2.5	%	
Output Voltage Ripple and Noise	<3		V	Fundamental peak to peak with nominal resistive load (20A) 20MHz BW in thermal boundaries conditions with 16 meters harness Length (trailer length)
Operating Output Current	0	20	A	
Output DC Current-Limit		<28	A	
Output Over-Voltage Protection		<44	V	After OVP, AC input voltage of the converter must be disconnected before to recover normal operation
Efficiency	88		%	

PCA 560 1Z 01, PCA 561 1Z 01

APPLICATION: ROAD REFRIGERATION SYSTEM

ISOLATION CHARACTERISTICS

Isolation Voltage (dielectric strength)

Input / Output +(GND=chassis)	3000	Vac	0V Output connected to the GND=chassis
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RELIABILITY CHARACTERISTICS

First year failure rate	1 st year reliability: 1600ppm 2 nd year reliability: 1000ppm 3 rd year reliability: 660ppm		
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Design life	10	years	
MTBF	274040	Hours	at 50°C according UTE C 80810 270 days/year, 12 hours/day, 48 startup/day

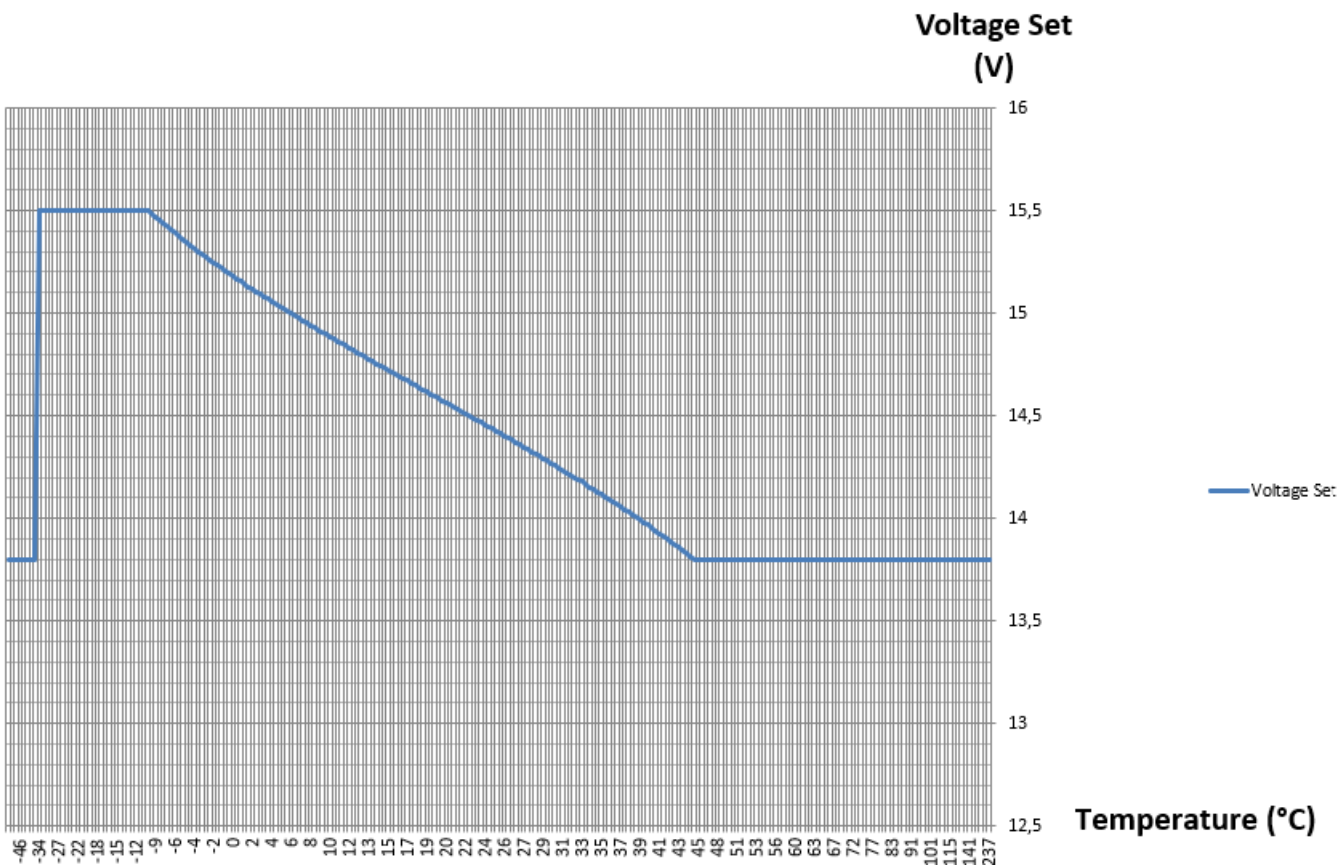
PRODUCT CODIFICATION

PCA 560 1 Z 01 (with battery temperature sensor)	Output 14V/40A product
PCA 561 1 Z 01 (without battery temperature sensor and with dropout voltage compensation due to harness trailer's ohmic resistance)	Output 28V/20A product

PCA 560 1Z 01, PCA 561 1Z 01

APPLICATION: ROAD REFRIGERATION SYSTEM

PCA 560 1Z 01 Battery Charger, Curve output voltage versus ambient temperature

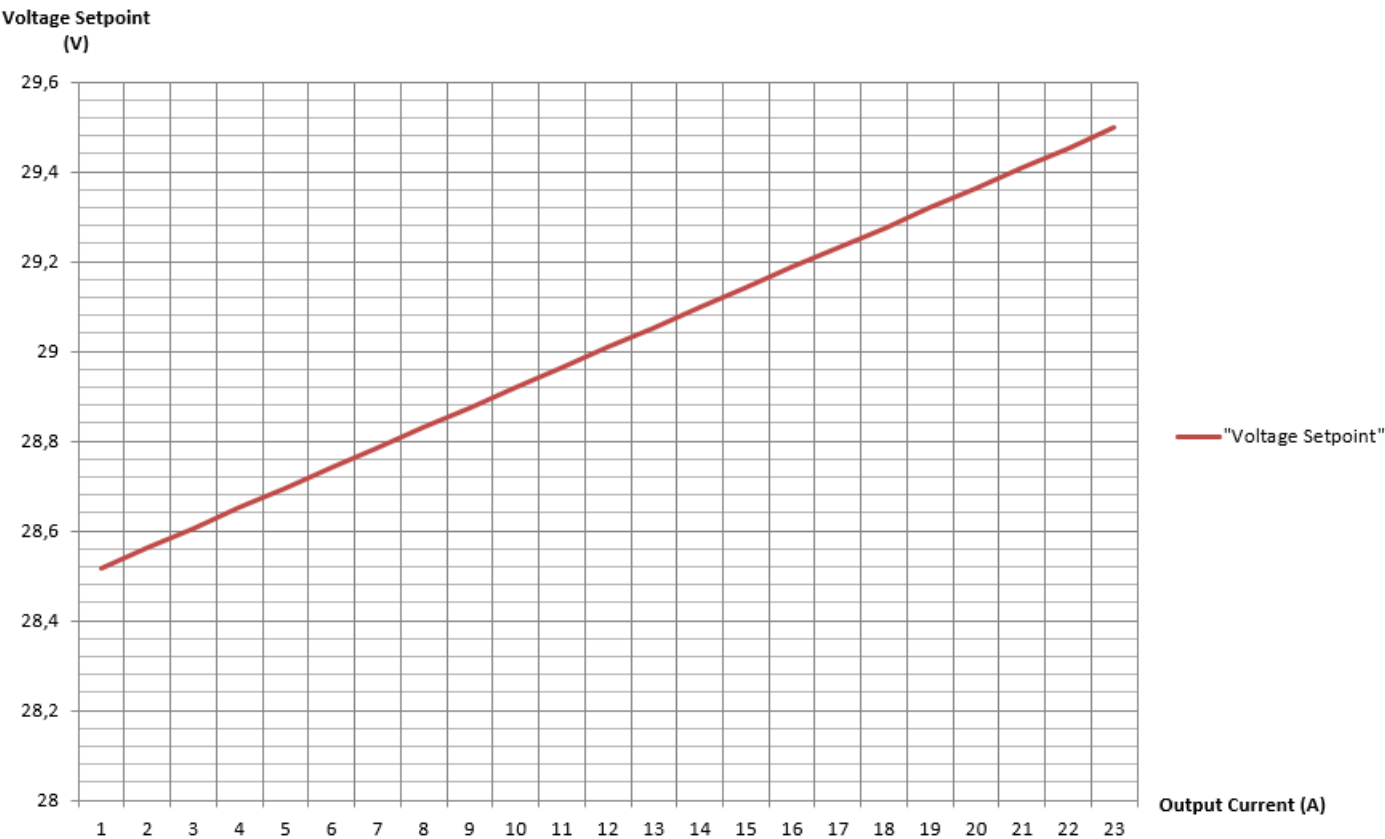


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PCA 560 1Z 01, PCA 561 1Z 01

APPLICATION: ROAD REFRIGERATION SYSTEM

PCA 561 1Z 01 Battery Charger, Curve output voltage versus output current, with harness length of 18 meters and gauge AWG5 (16,8 mm²)

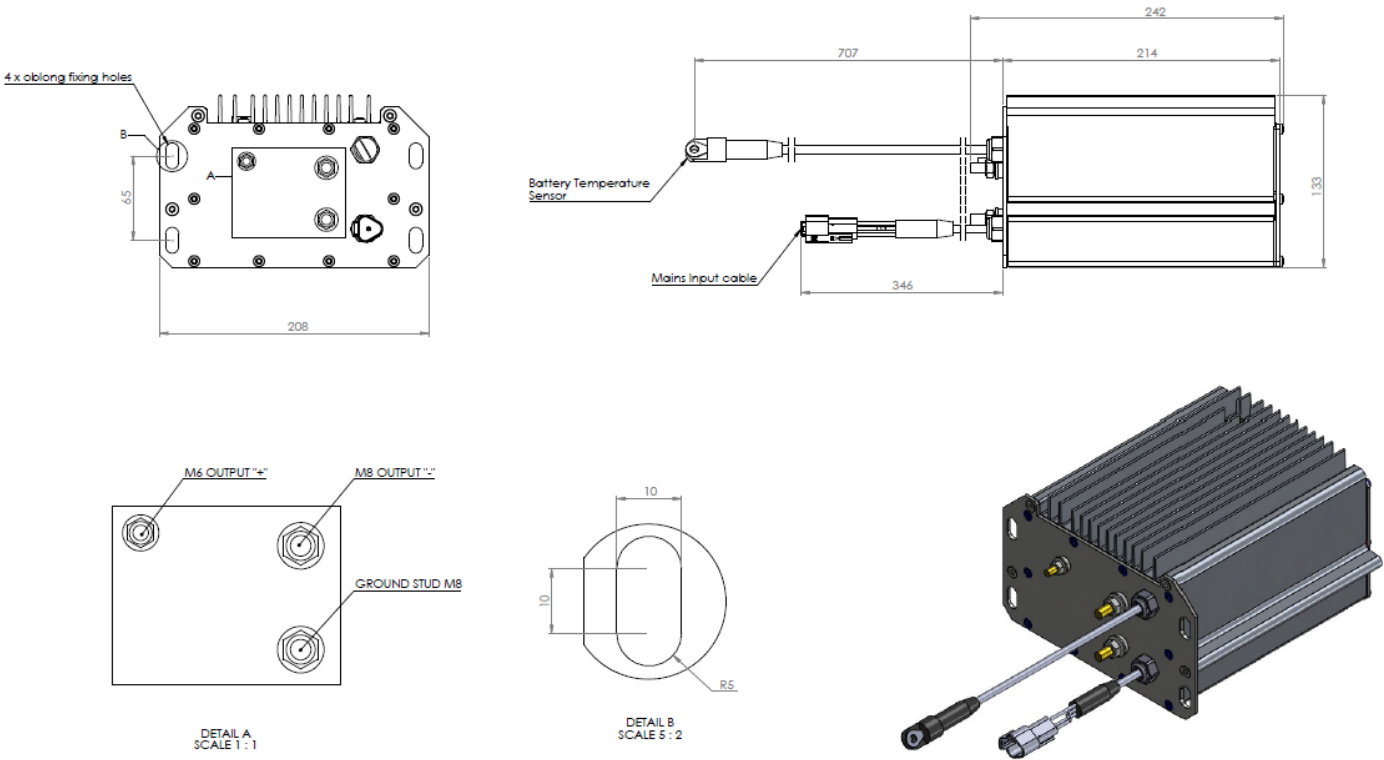


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PCA 560 1Z 01, PCA 561 1Z 01

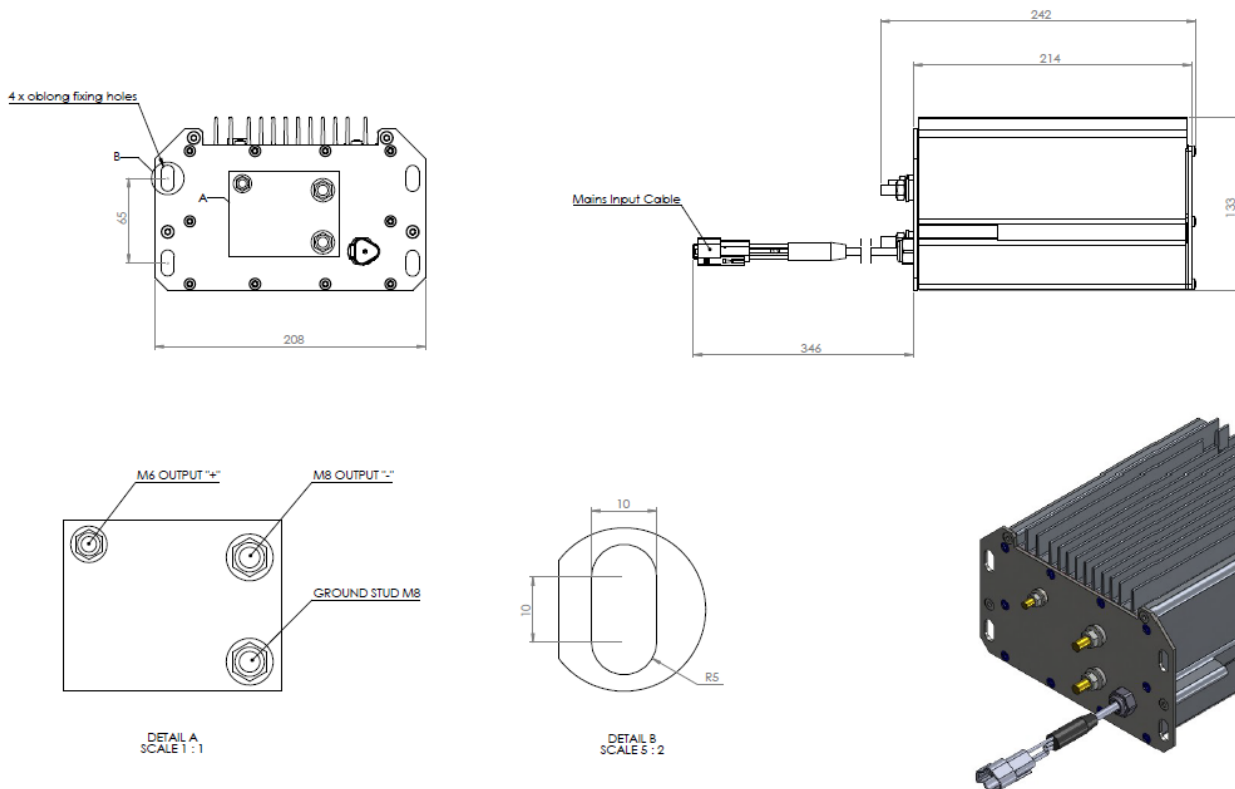
APPLICATION: ROAD REFRIGERATION SYSTEM

PCA 560 1Z 01



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PCA 561 1Z 01



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