

PSC600-series DC/DC 250-800W

Input / Output

- Optimized input voltage from 24 to 250V nominal battery voltages.
- Single outputs from 5 to 125V.
- Zero Inrush current limit.
- Reverse input voltage protection.

Features

- Conformally coating, tropic.
- Alarm relay output.
- Accesible from front panel:
 - Output voltage adjustment.
 - Output voltage measurement.
 - Output OK status green LED.

Operation

- High efficiency >90%.
- Operating temperature range -25 to +70°C with no derating.
- Fully encapsulated, meets IP30 as standard.
- Convection cooled.

EMC

- EN61000-6-3, Emission.
- EN61000-6-2, Immunity.
- EN/IEC61000-4-4, 4kV.
- EN/IEC61000-4-5 level 2&3.



Input and output ratings

Nominal inputs	Input range	Stop level	Code
24 Vd.c.	20 to 32V	<16.8Vd.c.	24
48 Vd.c.	41 to 60V	<33.6Vd.c.	48
110, 127 Vd.c.	93 to 150V	<77Vd.c.	110
220, 250 Vd.c.	187 to 300V	<154Vd.c.	220

Other input ranges on demand.

Input range, is the range we guaranty

full output performance, Uout +10% Iout +5%.

The converter works down to the stop level.

The output voltage might decrease to approx -10% of nominal output voltage at the stop level.

Output		
Voltage	Current	Power
5V	50A	250W
12V	30-60A	400-700W
15V	27-54A	400-800W
24V	16-33A	400-800W
48V	8-16.7A	400-800W
110V	5.5-7.3A	600-800W
125V	4.8-6.4A	600-800W

Output ratings and type code

Output			Input					
Voltage	Current	Power	20 - 32V	41 - 60V	93 - 150V	187 - 300V	Case	6HE
5V	50A	250W	PSC250 24/5	PSC250 48/5	PSC250 110/5	PSC250 220/5	46mm	10TE
12V	33A	400W	PSC400 24/12	PSC400 48/12	PSC400 110/12	PSC400 220/12	46mm	10TE
12V	60A	720W	--	PSC700 48/12	PSC700 110/12	PSC700 220/12	56mm	14TE
15V	27A	400W	PSC400 24/15	PSC400 48/15	PSC400 110/15	PSC400 220/15	46mm	10TE
15V	54A	800W	--	PSC800 48/15	PSC800 110/15	PSC800 220/15	56mm	14TE
24V	25A	600W	PSC600 24/24	PSC600 48/24	PSC600 110/24	PSC600 220/24	46mm	10TE
24V	33A	800W	--	PSC800 48/24	PSC800 110/24	PSC800 220/24	56mm	14TE
48V	12.5A	600W	PSC600 24/48	PSC600 48/48	PSC600 110/48	PSC600 220/48	46mm	10TE
48V	17A	800W	--	PSC800 48/48	PSC800 110/48	PSC800 220/48	56mm	14TE
110V	5.5A	600W	PSC600 24/110	PSC600 48/110	PSC600 110/110	PSC600 220/110	46mm	10TE
110V	7.3A	800W	--	PSC800 48/110	PSC800 110/110	PSC800 220/110	56mm	14TE
125V	4.8A	600W	PSC600 24/125	PSC600 48/125	PSC600 110/125	PSC600 220/125	46mm	10TE
125V	6.4A	800W	--	PSC800 48/125	PSC800 110/125	PSC800 220/125	56mm	14TE

Other input and outputs combination on demand.

How to read our product code:

Example **PSC600 110/24**

PSC600 = Family code & output power

110 = Input voltage code **24** = Output voltage

Features

Over voltage protection OVL

A second independent regulation circuits limits the output voltage to 15% over nominal output voltage, in case the normal regulation fails.

Under voltage alarm.

A built in alarm changes to alarm state if the converter output voltage drops 10% below nominal output. The DC OK LED is also controlled by the alarm circuit.

The alarm has an relay output with both [NO] and [NC] function.

The relay rating is 30V 1A (a.c. & d.c.)

Reverse input voltage protection

On input code 24 and 48 the reverse voltage protection is provided by a parallel diode. This diode is only intended to blow an external input fuse.

On input code 110 and 220 the reverse voltage protection is provided by a series diode. The converter will never start.

Inrush current limit

On input code 110 and 220 the inrush limit circuit is always active thus acting at voltage dips below the stop level >10ms.

On input code 24 and 48 this function is optional.

Adjustment & measurement

Output voltage adjustment potentiometer and output voltage measurement points are accessible from the front panel.

Conformal coating

The PSC-series is conformally coated to withstand non-condensing tropical environment.

Optional Features

Built in series diode - C

Series diode on the output, which is mounted inside the case. Use this option when the output is connected in parallel with other power supply to achieve redundancy.

Remote Sense - S

The voltage sensing can be put at the load to compensate for voltage drop.

The sense circuit is a standard feature on 5V outputs.

Inrush current limit

On input code 24 and 48 the inrush limit circuit is optional. This option affects the input voltage range. The circuit is always active thus acting at voltage dips below the stop level >10ms.

2.5 kVa.c. isolation Input/case -E1

On 24 and 48 inputs.

The emission level increase to level A.

2.5 kVa.c. isolation Output/case -E2

The emission level increase to level A.

Euro panel -L, 10TE or 14TE see figure 7

Wall mounting panels -N, see figure 8 & 9

Includes H15 connector holder. Standard female connector H15-T see page 3. To mount on a DIN TS-35 rail, we can supply optional DIN rail clips

Wider input range

The PSC600 series can be supplied with wide input range to meet train or mobile application demands.

General data DC/DC Converters

Design topology	Push-Pull
Switching frequency	50 kHz
Emission / immunity	See page 7
Safety EN/IEC60950	Class I
Max accepted input ripple 50 - 400Hz	2% of nom. Voltage
Power consumption at no load	3 to 5W
Reverse input voltage protection Input code 24 & 48	Parallel diode
Input code 110 & 220	Series diode
Inrush current limit with Input Code 24, 48	No
Input Code 110, 220	Yes
Insulation	See page 7

Dimension

Output data

Source regulation	0.2%
Load regulation (0-100% load) master	0.2%
Transient recovery time for a load step of 10% to 100% voltage deviation	<2ms 3%
Output ripple (50kHz) V_p-p^2 Input ripple attenuation on output 50 to 400Hz	Typ. 20mV 150:1
Emission / Immunity	See page 7
Temperature coefficient	0.02% / °C
Min output adjustment range adjustable with a 15 turn potentiometer	90% to 110%
Current limit, rectangular.	105%
Remote sense	Option S
Soft start	Yes
Isolation output / case	See page 7
Start-up time	1s
Hold-up time, contact factory	2-25ms
Efficiency ³	80 - 93%
Operating temperature range at 100% load. Conduction cooling Single outputs >10 V	-25 to +70°C
Operating temperature range at 100% load. Conduction cooling Single outputs <10 V	-25 to +55°C
Storage temperature range	-40 to +85°C

T-input range for mobile applications

Uin 0.1s- S2	Continuous range	Code
14.4 - 33.6Vd.c.	16.8 - 30Vd.c.	24T
21.6 - 50.4Vd.c.	25.2 - 45Vd.c.	36T
28.8 - 67.2Vd.c.	33.6 - 60Vd.c.	48T
43.2 - 100.8Vd.c.	50.4 - 90Vd.c.	72T
66 - 154Vd.c.	77 - 137.5Vd.c.	110T

The total output power can be derated on a T-range compared to the above output rating table.

Input according to EN50155:2001 and IEC90571:1998

Pin-out, Single output

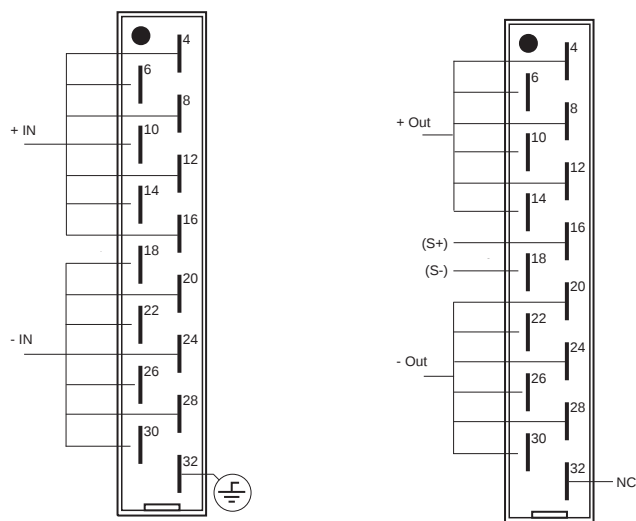
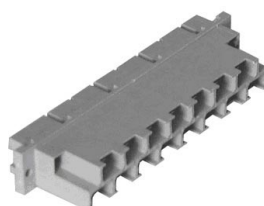


Figure 1. Pin-out with Connector DIN41612, H15.

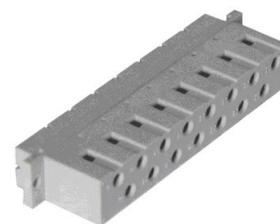
- Output ripple might increase when IEC/EN61000-4-3 10V/m test is applied to max 0.5% V_{RMS}
- Lowest efficiency measured within the whole input voltage range at 100% load.

Standard connector



FastOn 6.3mm tab
Connector H15-T

Connector Option



H15 female Screw
Connector H15-S

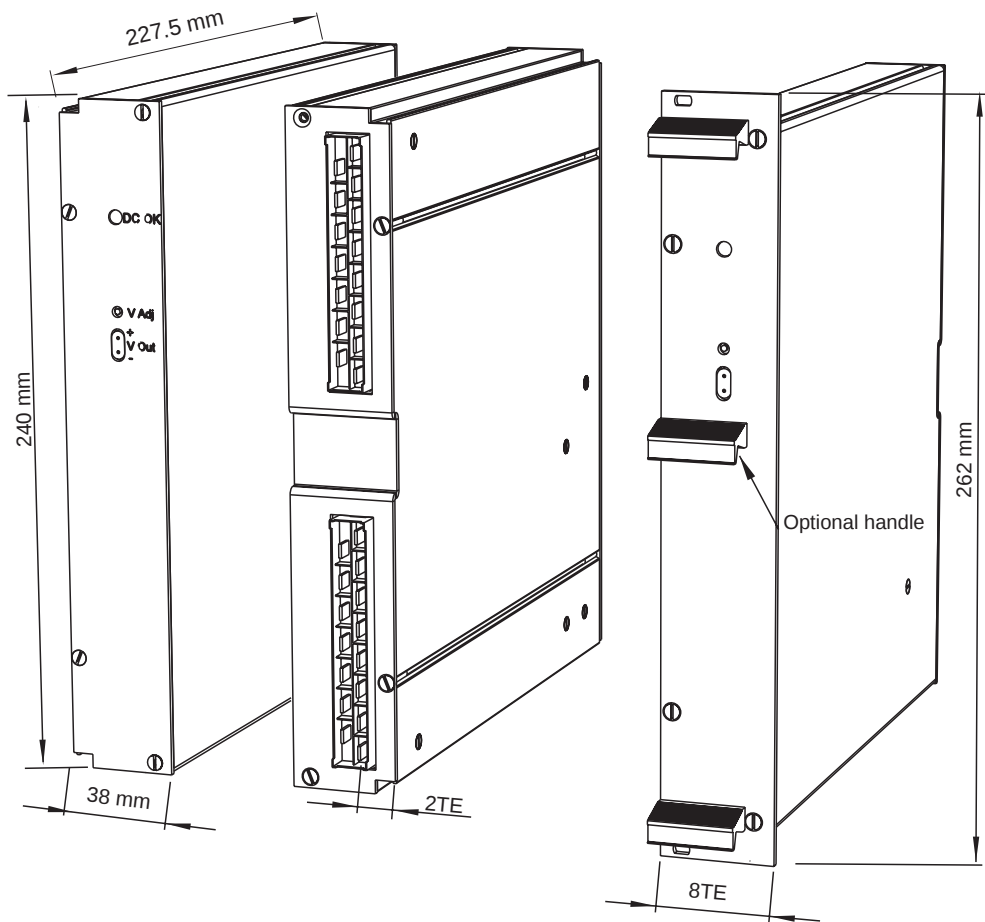


PSC600 with wall mounting option N and H15-S female screw connectors



PSC800 with wall mounting option N, front view

6HE Mechanics



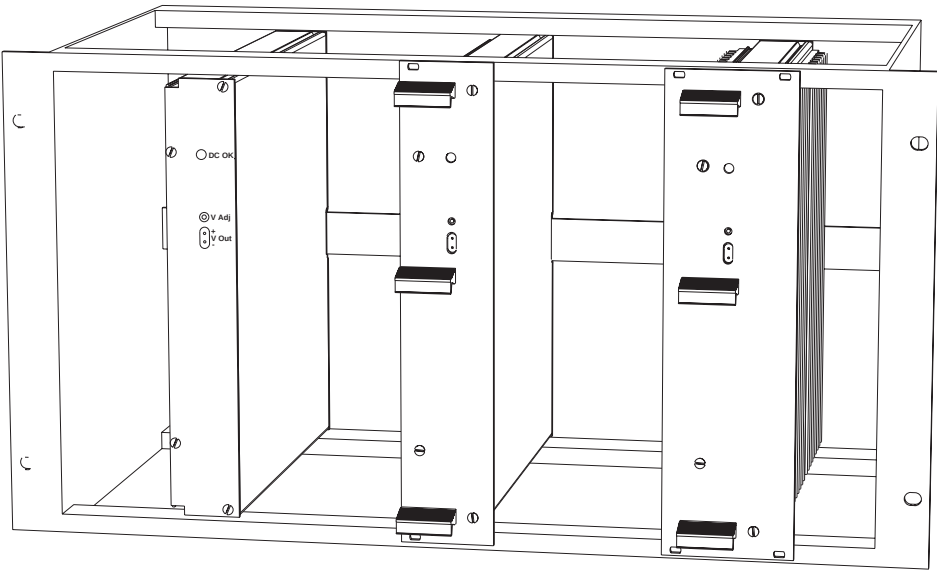
Front view

Back view

Front panel 8-14TE 6 HE Option L

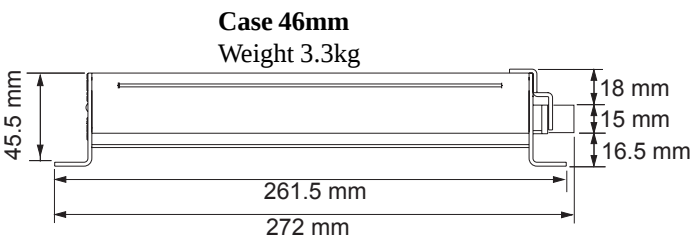
The 6HE Version has no alarm connector. The alarm is optional on this version. When the alarm option is selected the relay output signal NC is transfered to the sense pins see figure 1 page 3.

Weight PSC600 3.3kg
Weight PSC800 4.7kg

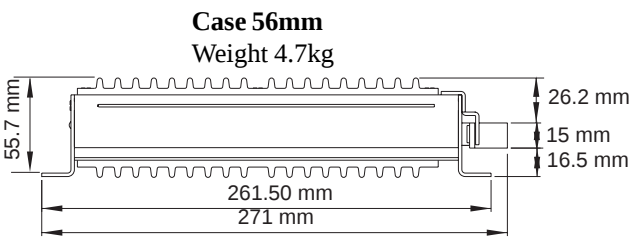


PSC600 mounted in a 6U 19"-subrack

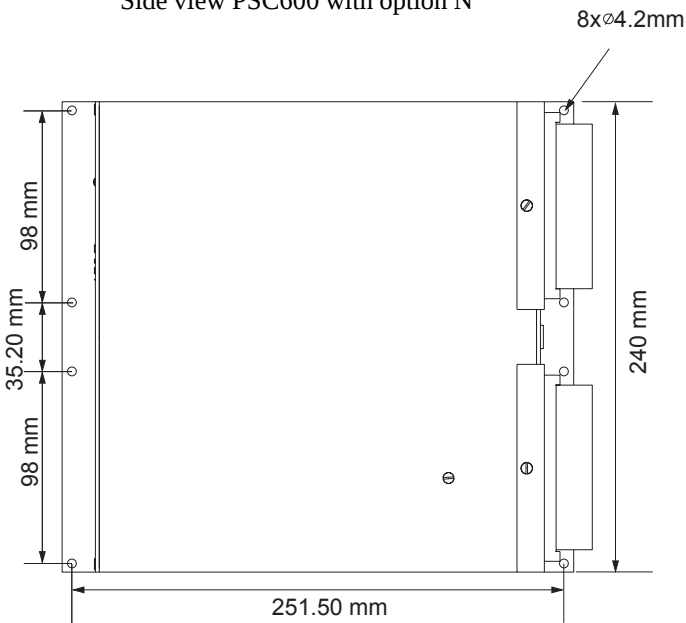
Wall & chassis mounting with H15 connector



Side view PSC600 with option N



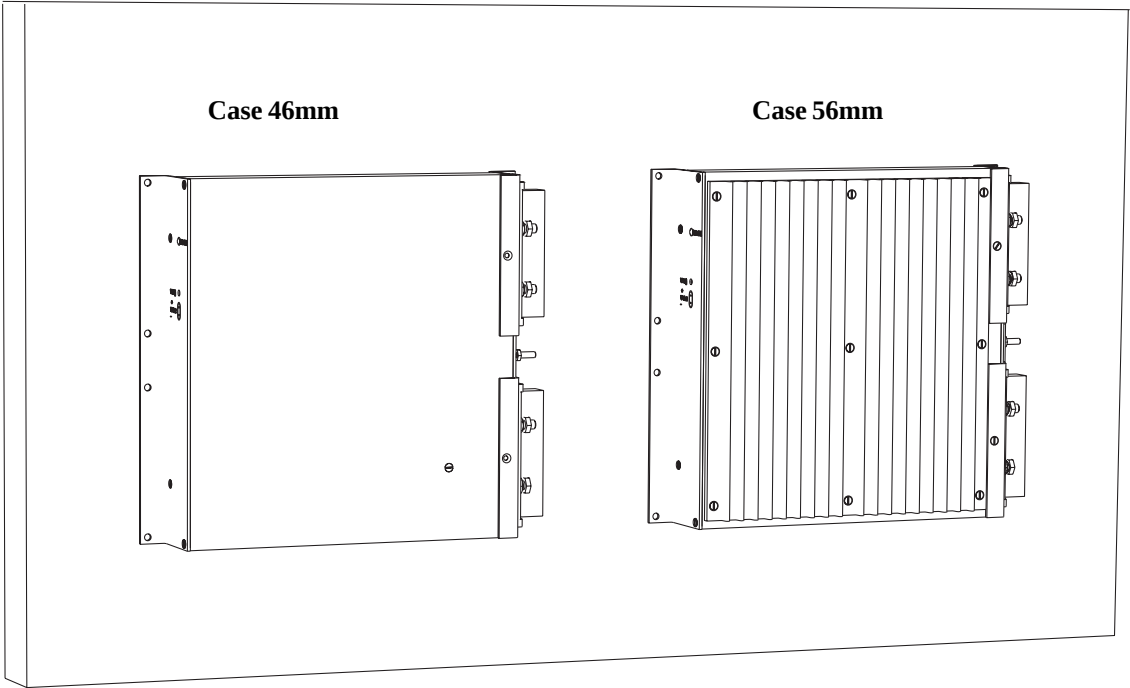
Side view PSC800 with option N



Top view on wall mounting option N

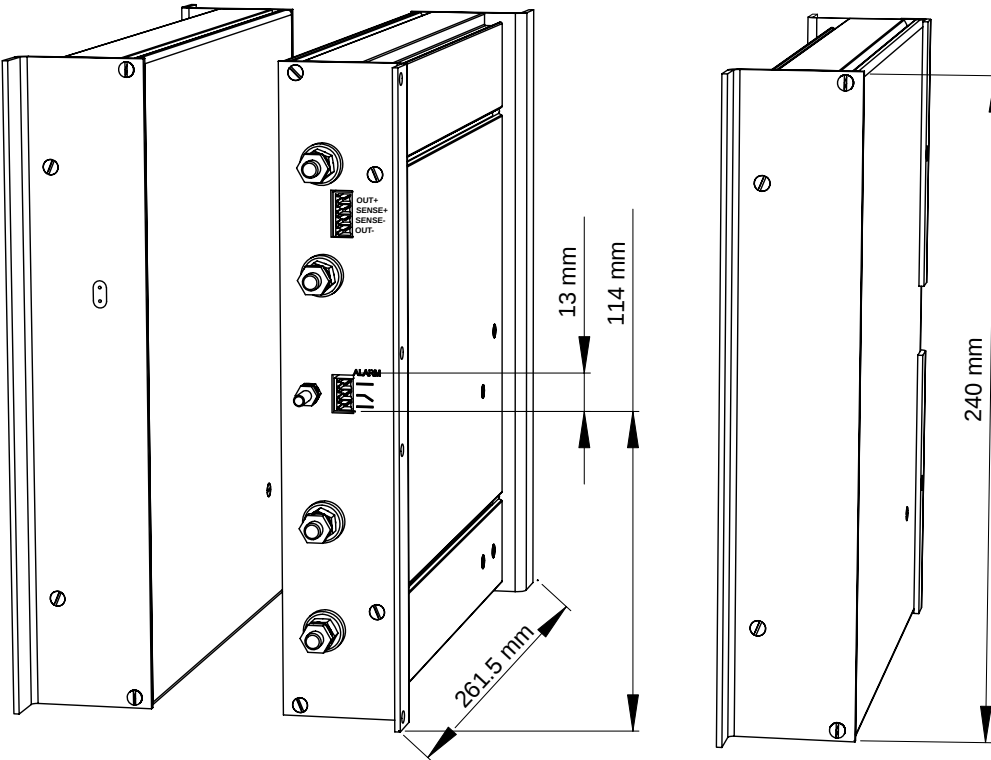
The PSC600-family are built in a tubular aluminium extrusion, with high thermal conductance which also work as a good EMC shield. The mechanical design permits use in vehicles and heavy industrial environments. The IP class is IP30. On special demand up to IP54 can be supplied using special connectors.

Vibration and shock resistance is high in standard DIN431605: 6g 10ms (5000 times in 3 directions) Higher as 30g 50ms or 60g 10ms can also be provided on demand.



Recomended mounting direction

Wall & Chassis mounting with M6 studs connectors

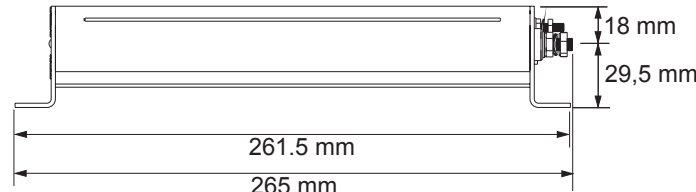


Frontpanel

In/out panel with M6 bolts/studs

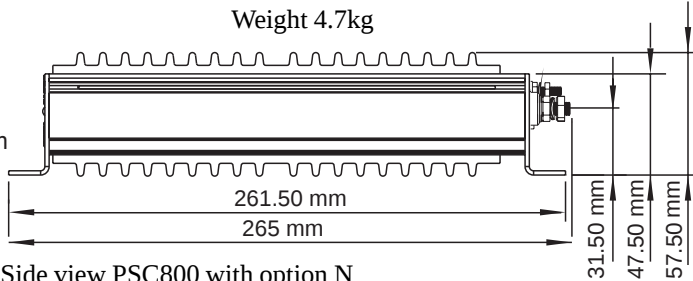
Optional sealed panel for higher IP grade up to IP54.

Case 46mm
Weight 3.3kg

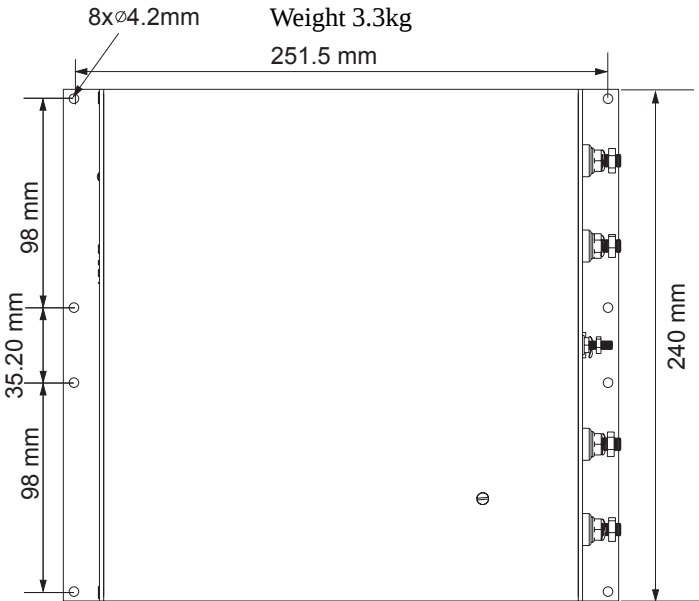


Side view PSC600 with option N

Case 56mm
Weight 4.7kg

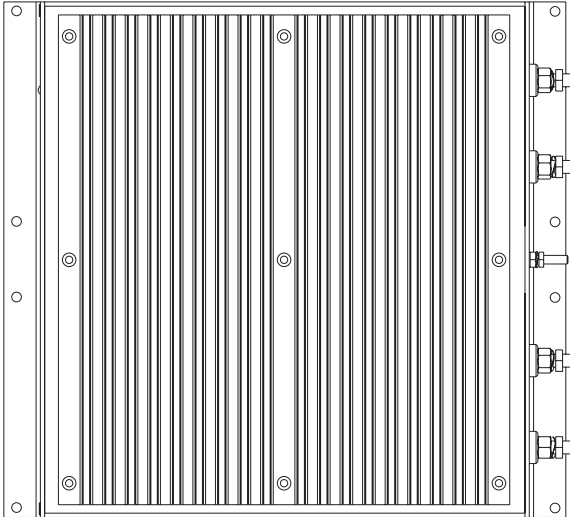


Side view PSC800 with option N



Top view PSC600 with option N

Weight 4.7kg



Top view PSC800 with option N

PSC-Series meets the requirements defined by CE mark as apparatus.

PSC-Series meets requirements of EMC directive

and low voltage directive (LVD).

Thus a PSC-Series can be used as free standing unit or in installations as well as systems designed according to "The modular approach".

PSC-Series can be used in installation without further EMC tests, if our installation instructions are followed.

Please note that product standards can demand different levels or other basic standard tests. We test according to levels below. For higher levels or other tests, contact factory.

Isolation testable levels	Test voltage
Input / output:	2.5kVa.c. / 4kVd.c.
Input / Case	2.5kVa.c. / 4kVd.c.
Output / Case all outputs	2kVd.c.
Isolation, not testable level	Safety Isolation
Transformer isolation In/Out:	4 kVa.c./8mm

We use the product standard Low voltage power supplies, DC outputs EN/IEC61204-3 and the generic EMC standards:
EN/IEC61000-6-2 (Immunity)
EN/IEC61000-6-3 (Emission)

EMC

EMC-standards	EMC-performance		
Emission standards	Input	Output	Remarks
EN55011/EN55022 (0.15-30MHz)	Level B	Level B	
EN55011/EN55022 (30-1000MHz)	Level B		Enclosure test
Immunity standards	IEC/EN61000-6-2		
EN/IEC61000-4-2	8 kV/15 kV		Contact / air, Enclosure test
EN/IEC61000-4-3	10 V/m AM-Modulated		Output ripple can increase to 0.5% of Vout Enclosure test
EN/IEC61000-4-4	4 kV		4 kV
EN/IEC61000-4-5, Input code 24, 48	0.5kV / 1 kV	0.5kV / 1 kV	Line-line 2Ω / Line-case 12Ω
EN/IEC61000-4-5, Input code 110 ¹ , 220 ¹	1kV / 2 kV	0.5kV / 1 kV	
EN50155 Figure 4, 1.8kV 1.5/50μs	Yes		Line-line 100 Ω
EN/IEC61000-4-6	10 V _{RMS}	10 V _{RMS}	AM-Modulated
EN/IEC61000-4-8	30 A/m		Enclosure test
EN/IEC61000-4-10	Not sensitive		Enclosure test

¹ Higher level 2kV / 4kV with external filters, contact factory.