

# ACI-3000

## Inrush current limiting accessory

### GENERAL FEATURES:

Suitable for the series:

ODS-1500

ODS-3000

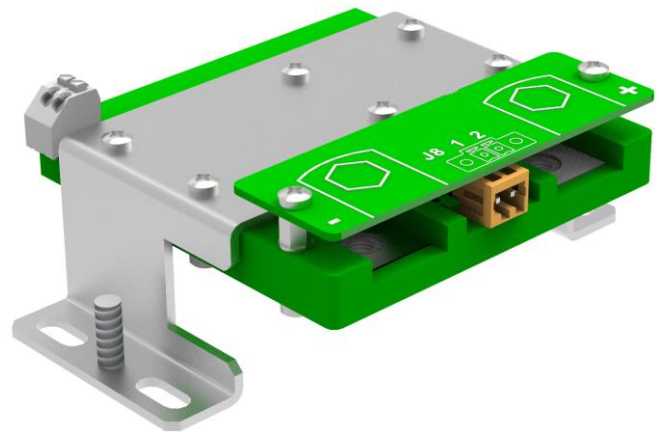
ODX-3000

Remote ON/OFF with low standby current

Active polarity reversal protection

According to EN-50155

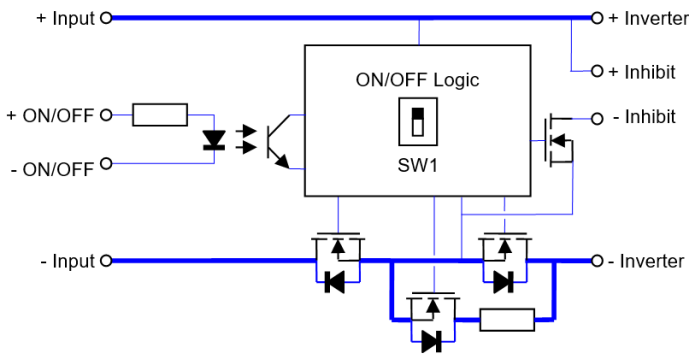
According to EN-45545



Model	Nominal Input Voltage	Input voltage range	Inrush current	Standby input current	Typical serial resistance	Remote ON/OFF input Impedance
<b>ACI-3000-9333</b>	24 Vdc	16.8 ... 30 V	< 10 A	< 1mA	0.4 mΩ	9.5kΩ
<b>ACI-3000-9334</b>	36 Vdc	25.2 ... 45 V	TBD	TBD	TBD	TBD
<b>ACI-3000-9335</b>	48 Vdc	33.6 ... 60 V	TBD	TBD	TBD	TBD
<b>ACI-3000-9336</b>	72 Vdc	50.4 ... 90 V	TBD	TBD	TBD	TBD
<b>ACI-3000-9337</b>	110 Vdc	77 ... 138 V	< 7A	< 1mA	10 mΩ	72kΩ

<b>INPUT</b>	
Input voltage range	-30, +25 % Vin nom, transients according to EN50155
Maximum input ripple	5% Vin nom (Vrms, 100 Hz)
<b>ENVIRONMENTAL</b>	
Storage temperature	-40 ... 80 °C
Operating temperature:	
Full load	-40 ... 55 °C (EN50155 OT2)
62.5 % load	-40 ... 70 °C (EN50155 OT4)
25 % load	-40 ... 85 °C (EN50155 OT6)
Relative humidity	5 ... 95 %
Maximum altitude	2500m at full load
Cooling	Natural convection
Shock and vibration	According to EN61373:2010 + Corr 1:2011 Category 1 class B body mounted
MTBF (MIL-HDBK-217-E; G <sub>b</sub> , 25 °C)	1M h
<b>EMC</b>	
Immunity according	EN61000-6-2, EN50121-3-2
Emissions according	EN61000-6-4, EN50121-3-2
<b>SAFETY</b>	
Dielectric strength: Input-Inverter-Inhibit / Earth (frame)(1)	2500 Vrms / 50 Hz / 1 min
Dielectric strength: Input-Inverter-Inhibit / ON/OFF (1)	1500 Vrms / 50 Hz / 1 min
Dielectric strength: Earth (frame) / ON/OFF (1)	2500 Vrms / 50 Hz / 1 min
Safety according to	EN60950-1, EN62368-1
Fire and smoke according to	EN45545-2
<b>MECHANICAL</b>	
Weight	< 260 g
Shock and Vibrations according to	EN61373:2010 + Corr 1:2011 Category 1 Class B
<b>PROTECTIONS</b>	
Against input reverse polarity	Active
<b>CONTROL</b>	
Remote ON/OFF input	Optocoupled Maximum rating = Input voltage range Impedance: see Model table ON: Applying a voltage within input voltage range OFF: Open circuit or < 3V

Note 1 See blocks diagram in next page



## DESCRIPTION

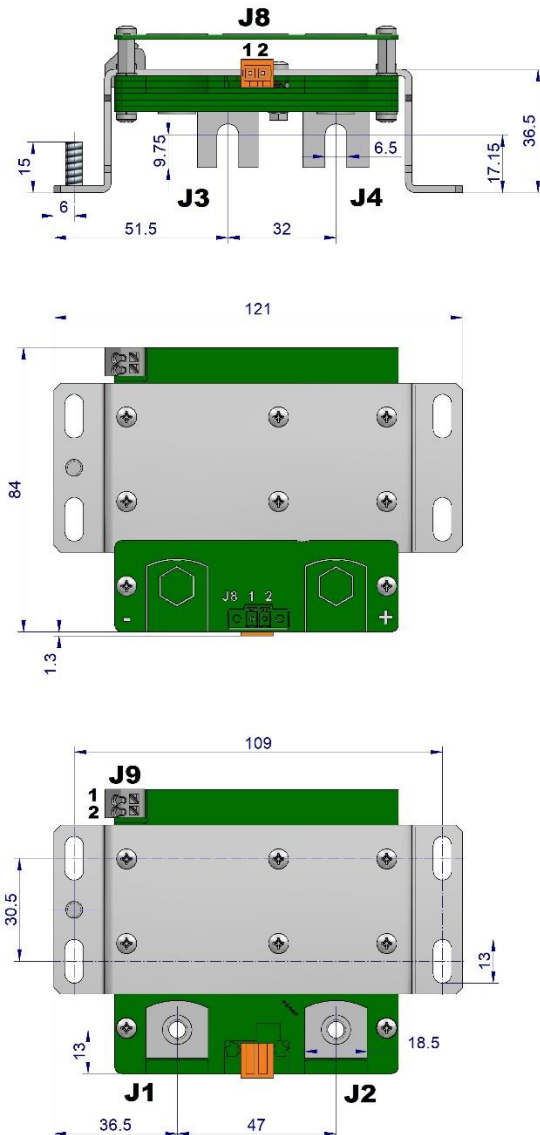
The ACI-3000 is an accessory for the following Premium series: ODS-1500, ODS-3000 and ODX-3000.

This device provides the following advantages:

1. It reduces the inrush current to the values indicated in the table.
2. It provides active protection against reverse polarity, so that the DC/AC inverter does not receive voltage or overcurrent when the voltage is reversed at the input of the ACI-3000 accessory.
3. It can completely stop the inverter via the ON/OFF input so that only a very small standby current remains.

## INSTALLATION

1. **WARNING:** The inverter (series ODS-1500, 3000 and ODX-3000) must be configured with the remote ON/OFF signal at high level when active. Thus, the inverter starts up applying voltage to remote ON/OFF input. Otherwise, the accessory may suffer irreparably damages.
2. Remove the protective cover of the input inverter terminals
3. For an easier assembly, we recommend replacing the input terminals screws of the inverter with the included Allen type ones, leaving them lose.
4. Insert terminals 3 and 4 on the input terminals of the inverter. See figure-1.
5. Mount the ACI-3000 brackets to the mounting surface with the screws lose.
6. Tighten the terminal Allen screws.
7. Tighten the bracket screws.
8. Place the inhibit cable included. See figure-2.



J1	- Input	Terminals M6 (Rec. torque 6 Nm)
J2	+ Input	Terminals M6 (Rec. torque 6 Nm)
J3	- Inverter	Terminals M6 (Rec. torque 6 Nm)
J4	+ Inverter	Terminals M6 (Rec. torque 6 Nm)
J9 - 1	+ To Inhibit inverter	Cables 0.25 ... 1.5 mm <sup>2</sup>
J9 - 2	- To Inhibit inverter	Included
J8 - 1	- Remote ON/OFF	Cables 0.25 ... 1.5 mm <sup>2</sup>
J8 - 2	+ Remote ON/OFF	Wago 734-262 Includes female: 734-202/037-000
	Earth bolt	M5 (Rec. torque 3.8 Nm)

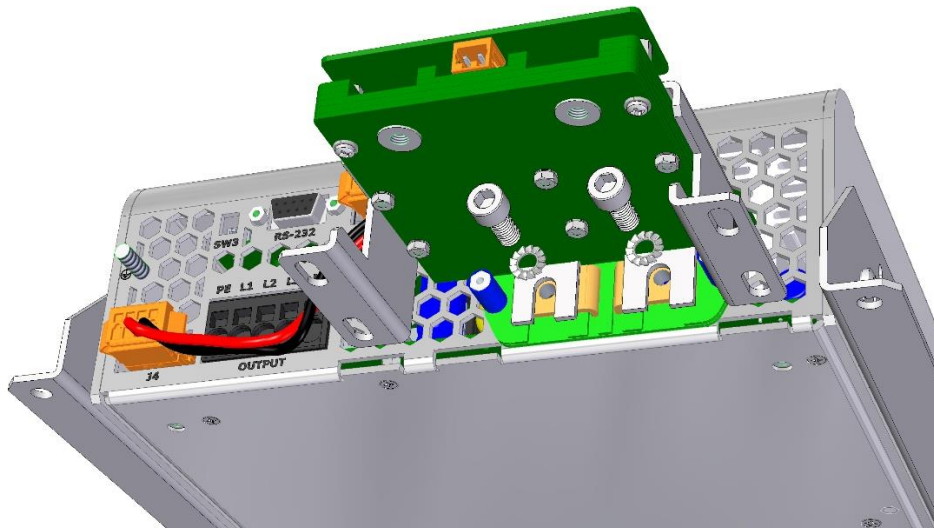


Figure-1

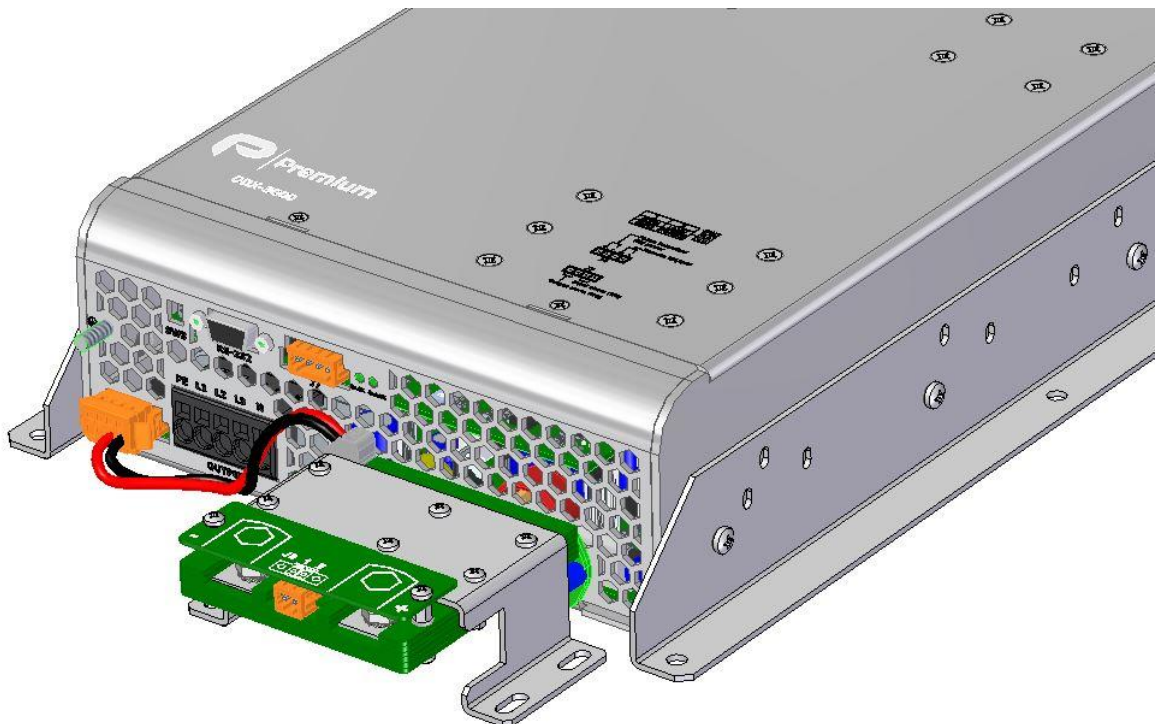
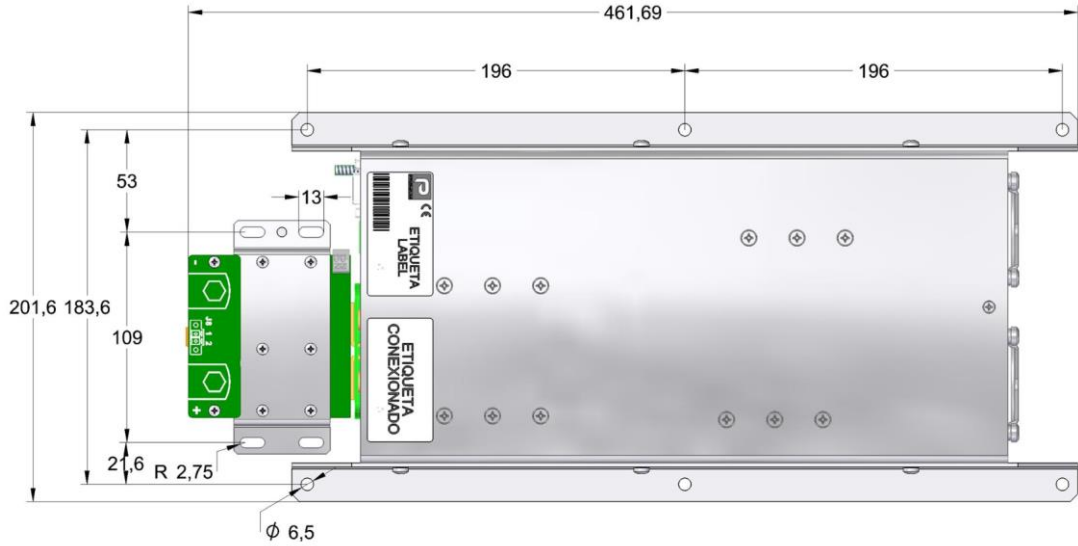
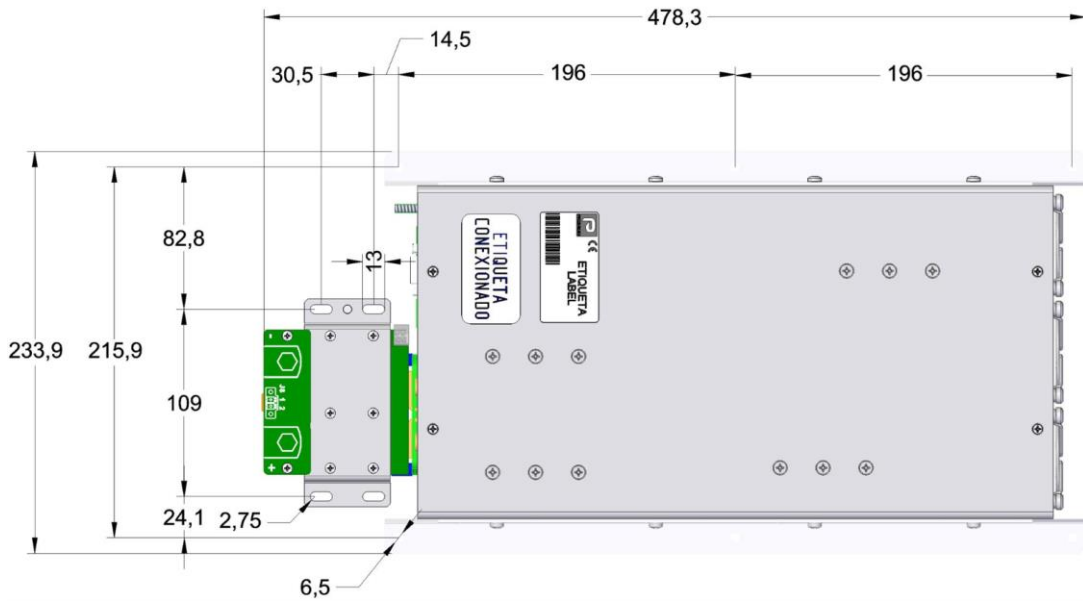


Figure-2

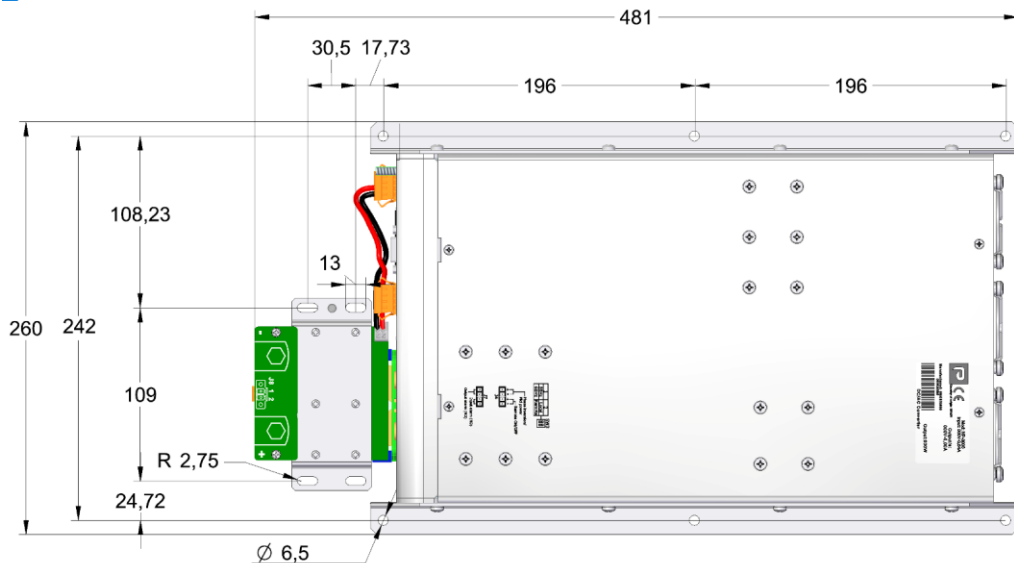
**ACI-3000 + ODS-1500**



**ACI-3000 + ODS-3000**



**ACI-3000 + ODX-3000**





## EU, UKCA DECLARATION OF CONFORMITY

The undersigned, representing the following:

Manufacturer: PREMIUM, S. A.,  
Address: C/ Dolors Aleu 19-21, 08908 L'Hospitalet de Llobregat, SPAIN

herewith declares that the product:

Type: DC/DC converter  
Models: **ACI-3000-9333 ... 9337**

is in conformity with the provisions of the following EU directive(s):

2014/35/EU SI 2016 No 1101	Low voltage / The electrical equipment (safety) regulations
2014/30/EU SI 2016 No 1091	EMC / Electromagnetic compatibility regulations
2015/863/EU SI 2012 No. 3032	RoHS / Restriction of the use of certain hazardous substances in electrical and electronic equipment

and that standards and/or technical specifications referenced below have been applied:

EN 60950-1: 2005	Safety. Information technology equipment
EN 62368-1: 2014	Safety. Audio/video, information and communication technology equipment
IEC 61000-6-4: 2018	Generic emission standard
IEC 61000-6-2: 2019	Generic immunity standard
EN 50155: 2017*	Railway applications. Electronic equipment used on rolling stock material
EN 50121-3-2: 2016*	Railway applications. EMC Rolling stock equipment

\* Optional, See annexe

CE marking year: **2016**; UKCA marking year: **2021**

### Notes:

For the fulfilment of this declaration the product must be used only for the aim that has been conceived, considering the limitations established in the instructions manual or datasheet.

L'Hospitalet de Llobregat, 31-05-2021

Miguel Angel Fernandez  
Chief Research & Development Officer

**PREMIUM S.A.** is an ISO9001 and ISO14001  
certified company by **Bureau Veritas**

**ANNEXE**

Applicable values for the different sections of the norm EN50155: 2017																																																																			
4.3.1	Working altitude	Up to 2500 m																																																																	
4.3.2	Ambient temperature	Class OT2 (-40 to 55 °C): load < 100 % Class OT4 (-40 to 70 °C): load < 62.5 % Class OT6 (-40 to 85 °C): load < 25 %																																																																	
4.3.3	Switch-on extended operating temp.	ST1																																																																	
4.3.4	Rapid temperature variations	H1																																																																	
4.3.5	Shocks and vibrations	According EN61373:2010 + Corr 1:2011 Category 1 class B																																																																	
4.3.6	EMC Electromagnetic Compatibility EN50121-3-2:2016	<table border="1"> <thead> <tr> <th>Test</th> <th>Norm</th> <th>Port</th> <th>Frequency</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Radiated emissions</td> <td rowspan="4">IEC55016</td> <td rowspan="4">Case</td> <td>30 MHz...230 MHz</td> <td>40 dB(μV/m) Qpk at 10 m</td> </tr> <tr> <td>230 MHz...1 GHz</td> <td>47 dB(μV/m) Qpk at 10 m</td> </tr> <tr> <td>1...3 GHz</td> <td>Do not apply</td> </tr> <tr> <td>3...6 GHz</td> <td>Internal freq. &lt; 108 MHz</td> </tr> <tr> <td rowspan="2">Conducted emissions</td> <td rowspan="2">IEC55016</td> <td rowspan="2">Input</td> <td>150 kHz...500 kHz</td> <td>99 dB(μV) Qpk</td> </tr> <tr> <td>500 kHz...30 MHz</td> <td>93 dB(μV) Qpk</td> </tr> </tbody> </table>	Test	Norm	Port	Frequency	Limits	Radiated emissions	IEC55016	Case	30 MHz...230 MHz	40 dB(μV/m) Qpk at 10 m	230 MHz...1 GHz	47 dB(μV/m) Qpk at 10 m	1...3 GHz	Do not apply	3...6 GHz	Internal freq. < 108 MHz	Conducted emissions	IEC55016	Input	150 kHz...500 kHz	99 dB(μV) Qpk	500 kHz...30 MHz	93 dB(μV) Qpk																																										
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4.3.7	Relative humidity	Up to 95%																																																																	
5.1.1.2	DC power supply range	From 0.70 to 1.25 Un continuous																																																																	
5.1.1.3	Temporary DC power supply fluctuation	From 0.60 to 1.40 Un 0.1 s From 1.25 to 1.40 Un 1 s without damage																																																																	
5.1.1.4	Interruptions of voltage supply	Class S1 (without interruptions)																																																																	
5.1.1.6	Input ripple factor	10 % peak to peak with a DC Ripple Factor of 5 %																																																																	
5.1.3	Supply change-over	0.6 Un duration 100 ms (without interruptions). Performance criterion A																																																																	
7.2.7	Input reverse polarity protection	Yes, active protection																																																																	
10.7	Protective coating for PCB assemblies	Class PC2																																																																	
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