Premium
Powering Your Challenge

ODS-750

450...750W DC/AC SINE WAVE INVERTER

GENERAL FEATURES:

Sine wave output voltage
Selectable output frequency: 50/60Hz
High input-output isolation 3000Vrms
Remote inhibit
Input and output alarm
Railway version EN50155, RIA12 (optional)
Fire and smoke: EN45545-2 approved

3 YEAR WARRANTY INDUSTRY
5 YEAR WARRANTY RAILWAY
EN45545 fire & smoke
EN50155
ROHS REACH

	12Vdc 9.5 ... 15V[1]	24Vdc 16.8 ... 30V	36Vdc 25.2 ... 45V	48Vdc 33.6 ... 60V	72Vdc 50.4 ... 90V	110Vdc 77 ... 138V
120Vac	**ODS-750-7281** 450W	**ODS-750-7283** 750W	**ODS-750-7284** 750W	**ODS-750-7285** 750W	**ODS-750-7286** 750W	**ODS-750-7287** 750W
230Vac	**ODS-750-7271** 450W	**ODS-750-7273** 750W	**ODS-750-7274** 750W	**ODS-750-7275** 750W	**ODS-750-7276** 750W	**ODS-750-7277** 750W

NOTE [1]: Startup voltage ≤ 10.2V. Undervoltage shutdown < 9.5V

INPUT	
Input voltage range	See table
Maximum input ripple	5% Vin nom (Vrms, 100Hz)
OUTPUT	
Output voltage	120 / 230Vac sinusoidal
Output voltage adjustment range	110…120 / 220…230 Vac (Factory setting)
Load regulation	4%
Line regulation	0.4% @ ΔVin -20…+25% 10% @ ΔVin -30…+25% 1% @ ΔVin -10…+25% for 12Vin models 10% @ ΔVin -20…+25% for 12Vin models
Output frequency	50 / 60Hz ± 0.25Hz
Output wave distortion THD	< 2% (16 samples average)
Output voltage HF ripple	< 20Vpp
ENVIRONMENTAL	
Storage temperature	-40 … 85°C
Operating temperature full load	-25 … 55°C (-40 … 55°C) (2)
Operating temperature 50% load	-25 … 70°C (-40 … 70°C) (2)
Cooling	Variable speed internal fan
MTBF (MIL-HDBK-217-E; G_b, 25°C)	160.000 h
EMC	
Immunity according to	EN61000-6-2 / EN50121-3-2
Emissions according to	EN61000-6-3 / EN50121-3-2
SAFETY	
Safety according to	EN60950
Dielectric strength: Input /output	3000 Vrms / 50Hz / 1min
Dielectric strength: Output / Earth	1500 Vrms / 50Hz / 1min
Dielectric strength: Input / Earth	1500 Vrms / 50Hz / 1min
Fire and smoke	EN45545 approved
MECHANICAL	
Weight	1950 g
Dimensions	130 x 270 x 50mm
PROTECTIONS	
Against input over-currents	Internal fuse for 36, 48, 72, and 110V input models
Against output overloads < 10A	Linear
Against output overloads > 10A	Triggered
Against over-temperature	Shutdown with automatic recovery
CONTROL	
Remote inhibit input	OFF: applying 4...24 Vdc, Impedance >3k3Ω
Input and output alarm	Isolated contact relay open when alarm (< 0.1A at 150Vcc)

Note (2): The unit can start up and work at an ambient temperature of -40°C with the following restriction: Do not actuate over the connectors below -25°C.

ORDERING CODES

Model	Input Voltage DC [V]	Input voltage range [V]	Output voltage AC [V]	Output current [A]	Active output power [W]	Appar. output power [VA]	Output peak curr. 10ms [A]	Efficiency [%]	No load input current [A]
ODS-750-7271	12	9.50 - 15	230	2.0	450	750	10	85	0.80
ODS-750-7273	24	16.8 - 30	230	3.26	750	750	10	86	0.46
ODS-750-7274	36	25.0 - 45	230	3.26	750	750	10	87	0.36
ODS-750-7275	48	33.6 - 60	230	3.26	750	750	10	88	0.27
ODS-750-7276	72	50.4 - 90	230	3.26	750	750	10	88	0.17
ODS-750-7277	110	77 - 138	230	3.26	750	750	10	89	0.12
ODS-750-7281	12	9.50 - 15	120	3.75	450	750	16	84	0.80
ODS-750-7283	24	16,8 - 30	120	6.26	750	750	16	86	0.46
ODS-750-7284	36	25.0 - 45	120	6.26	750	750	16	87	0.36
ODS-750-7285	48	33.6 - 60	120	6.26	750	750	16	87	0.27
ODS-750-7286	72	50.4 - 90	120	6.26	750	750	16	87	0.17
ODS-750-7287	110	77 - 138	120	6.26	750	750	16	88	0.12

ODS–750–72_ _–_

B Industrial version

T Railway version according to EN50155

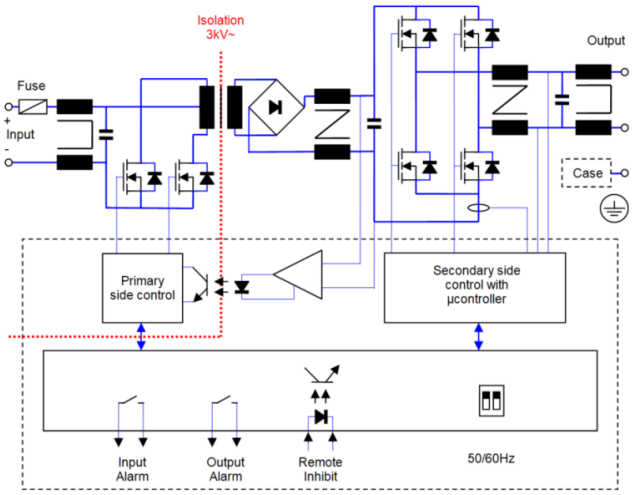
U Railway version according to EN50155 and RIA12*

*RIA12 version only available for ODS-750-7273U and 7277U
(rest available upon request)

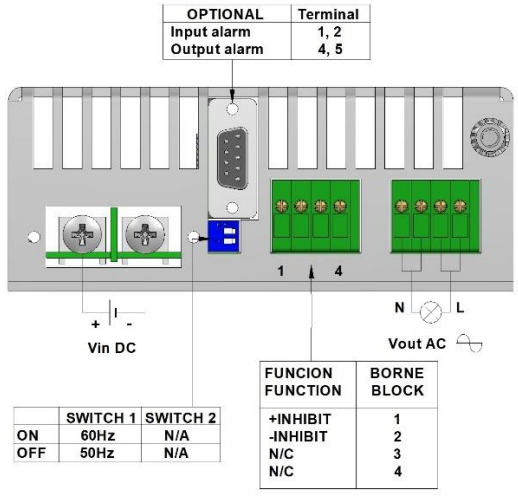
Model number

Accessories must be ordered in a separated order line

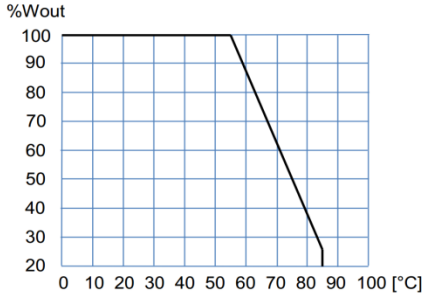
BLOCKS DIAGRAM



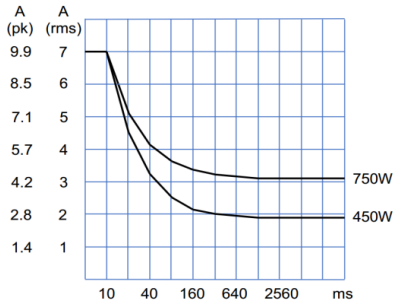
CONNECTIONS



POWER DERATING vs AMBIENT TEMPERATURE



OPERATION CURVE LIMIT



DESCRIPTION

The ODS-750 consists of sine-wave 120Vac or 230Vac output voltage DC-AC converters. The frequency can be set to 50Hz or 60 Hz, and input and output are galvanically isolated.

The ODS-750 inverters consist of two cascaded converters,one DC-DC generating an intermediate output voltage from the input voltage. That intermediate voltage is inverted to supply the output voltage and frequency by means of a second DC/AC converter.

The input is protected against reverse polarity by means of fuse and against under-voltage by unit shutdown.

The output has protection of maximum average power and maximum peak current. The unit shutdowns when the operation curve limit is exceeded for more than one second. Every 2 seconds after shutdown, the unit tries to restart up to 3 times. If the overload persists, the unit remains shutdown until an input reconnection.

INSTALLATION

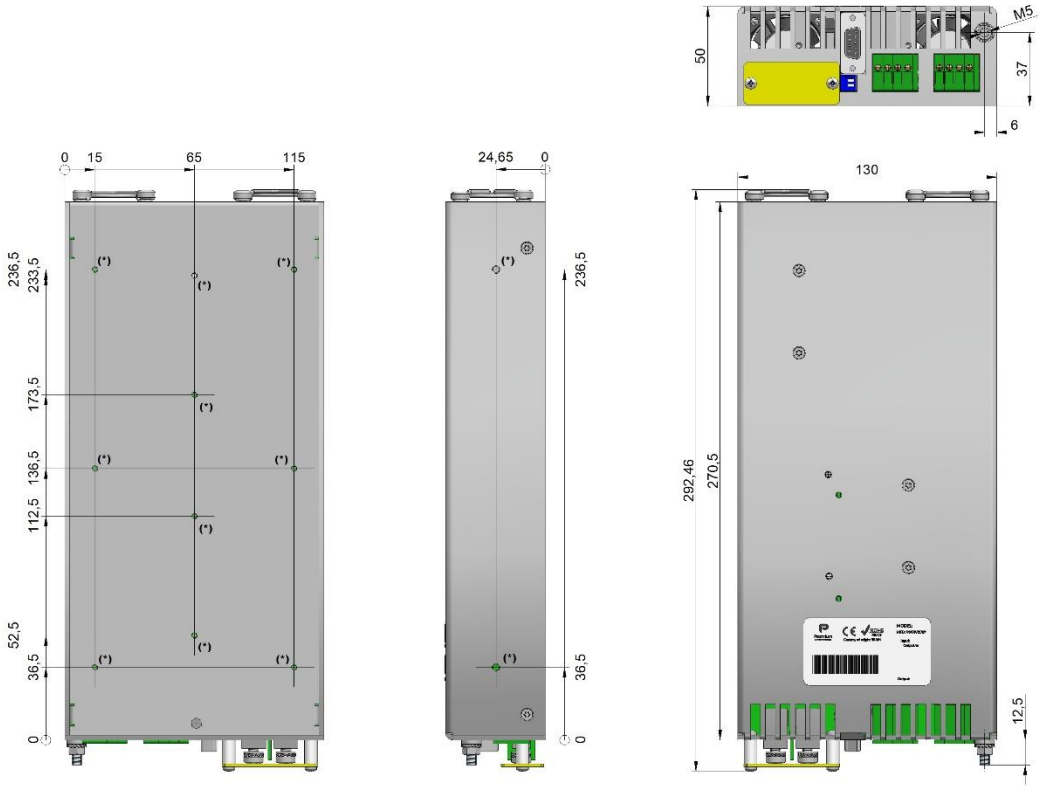
- The device includes 10 M3 threaded holes that allows different mounting positions. For other mounting solutions see the accessories.
- Make connections as shown in the table.
- The default output frequency is 50Hz. For 60Hz simply actuate the dip-switch as indicated in the figure.
- The inverter includes active overload protection but does not provide protection against prolonged reactive overload conditions. Therefore, the maximum power output (VA) should not be exceeded.
- The EMC output filter is connected to the case, which causes a leakage current lower than 1mA. In order to prevent any touch current, connect the case to earth by means of any mounting hole.

For safety reasons, the following requirements must be met:

- Provide the equipment with some kind of protective enclosure that complies with the electrical safety directives in effect within the country where the equipment is installed.
- Add an external fuse of 60A and 50A for the models of input voltage 12V and 24V respectively.
- Use cables of adequate cross-section to connect inputs and outputs. The following table lists the maximum currents and the minimum cross-sections for the cablesused for each power connection.

	Input 12Vcc	Input 24Vcc	Input 36Vcc	Input 48Vcc	Input 72Vcc	Input 110Vcc	Output 120Vca	Output 230Vca
Max. current	60 A	50 A	33A	25 A	17A	12 A	6.7 A	3.5 A
Cable section	**10 mm²**	**10 mm²**	**6 mm²**	**2.5 mm²**	**2.5 mm²**	**1.5 mm²**	**1 mm²**	**0.75 mm²**

DIMENSIONS



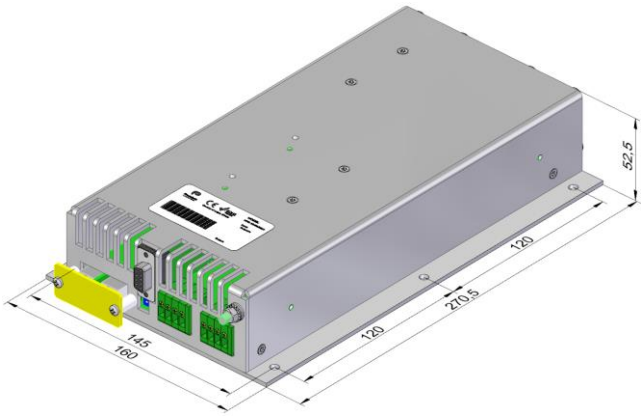
(*) M3 threaded hole. Maximum screw depth: 3mm

ACCESSORIES

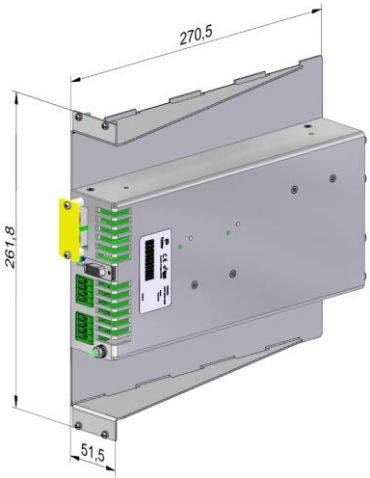
ACCESSORIES	NOTES	CODE
DIN RAIL CLIP	Screws included. Order 2 units per inverter	**NP-9135**
Mounting base	Screws included	**NP-9265**
Mechanical Interface for subrackof 6U 11Te	Screws included	**NP-9366**

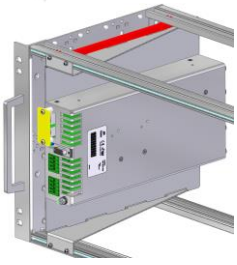
NP-9135

NP-9265



NP- 9366





EU 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/AC Inverter
Models: **ODS-750-7071...7087 – ODS-750-7271 ... 7287**

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

2014/35/EU	Low voltage
2014/30/EU	Electromagnetic compatibility
2011/65/EU	Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

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

EN 60950: 2005	Safety (Information technology equipment)
EN 62368-1: 2014	Safety. Audio/video, information and communication technology equipment
EN 61000-6-3: 2007	Generic emission standard
EN 61000-6-2: 2005	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
EN 50121-4: 2016*	Railway applications. EMC of the signalling and telecommunications apparatus
RIA-12*	Protection of electronic equipment from transients & surges in DC Control Systems

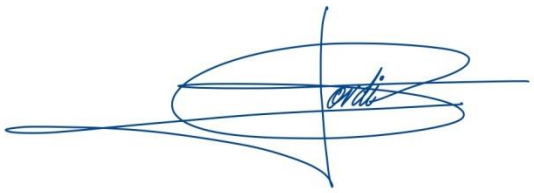
* Optional, see annexe

CE marking year: **2006**

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, 28-08-2019



Jordi Gazo
Chief Executive Officer

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

ANNEXE

<table>
<tr><th colspan="4">Applicable values for the different sections of the norm EN50155: 2017</th></tr>
<tr><td>4.3.1</td><td>Working altitude</td><td colspan="2">Up to 1800m</td></tr>
<tr><td>4.3.2</td><td>Ambient temperature</td><td colspan="2">Class OT1 (-25 to 55°C): load < 100%
Class OT2 (-40 to 55°C): load < 100% (Without connectors handling)
Class OT3 (-25 to 70°C): load <50%
Class OT4 (-40 to 70°C): load <50% (Without Connectors handling)</td></tr>
<tr><td>4.3.3</td><td>Switch-on extended operating temp.</td><td colspan="2">ST1</td></tr>
<tr><td>4.3.4</td><td>Rapid temperature variations</td><td colspan="2">H1</td></tr>
<tr><td>4.3.5</td><td>Shocks and vibrations</td><td colspan="2">According EN61373:2010 Category 1 class B</td></tr>
<tr><td>4.3.6</td><td>EMC Electromagnetic Compatibility

EN50121-3-2:2016</td><td colspan="2">
<table>
<tr><th>Test</th><th>Norm</th><th>Port</th><th>Frequency</th><th>Limits</th></tr>
<tr><td rowspan="4">Radiated emissions</td><td rowspan="4">IEC55016</td><td rowspan="4">Case</td><td>30MHz...230MHz</td><td>40dB(µV/m) Qpk at 10m</td></tr>
<tr><td>230MHz...1GHz</td><td>47dB(µV/m) Qpk at 10m</td></tr>
<tr><td>1...3GHz</td><td rowspan="2">Do not apply
Internal freq. < 108MHz</td></tr>
<tr><td>3...6GHz</td></tr>
<tr><td rowspan="2">Conducted emissions</td><td rowspan="2">IEC55016</td><td rowspan="2">Input</td><td>150kHz...500kHz</td><td>99dB(µV) Qpk</td></tr>
<tr><td>500kHz...30MHz</td><td>93dB(µV) Qpk</td></tr>
</table>
<table>
<tr><th>Test</th><th>Norm</th><th>Port</th><th>Severity</th><th>Conditions</th><th>P</th></tr>
<tr><td rowspan="2">Electrostatic discharge</td><td rowspan="2">IEC61000-4-2</td><td rowspan="2">Case</td><td>±8kV</td><td>Air (isolated parts)</td><td rowspan="2">B</td></tr>
<tr><td>±8kV</td><td>Contact (conductive parts)</td></tr>
<tr><td rowspan="4">Radiated high-frequency</td><td rowspan="4">IEC61000-4-3</td><td rowspan="4">X/Y/Z Axis</td><td>20V/m</td><td>0.08...1.0GHz M. 80% 1kHz</td><td rowspan="4">A</td></tr>
<tr><td>10V/m</td><td>1.4...2.1GHz M. 80% 1kHz</td></tr>
<tr><td>5V/m</td><td>2.1...2.5GHz M. 80% 1kHz</td></tr>
<tr><td>3V/m</td><td>5.1...6Ghz M. 80% 1kHz</td></tr>
<tr><td rowspan="4">Fast transients</td><td rowspan="4">IEC61000-4-4</td><td>Input</td><td>±2kV</td><td rowspan="4">Tr/Th: 5/50 ns</td><td rowspan="4">A</td></tr>
<tr><td>Output</td><td>±2kV</td></tr>
<tr><td>Signal</td><td>±2kV</td></tr>
<tr><td>PE</td><td>±1kV</td></tr>
<tr><td rowspan="2">Surge</td><td rowspan="2">IEC61000-4-5</td><td>Input L to L</td><td>±1kV</td><td rowspan="2">Tr/Th: 1.2/50µs</td><td rowspan="2">B</td></tr>
<tr><td>Input L to PE</td><td>±2kV</td></tr>
<tr><td rowspan="4">Conducted RF</td><td rowspan="4">IEC61000-4-6</td><td>Input</td><td>10V</td><td rowspan="4">0.15...80MHz M. 80% 1kHz</td><td rowspan="4">A</td></tr>
<tr><td>Output</td><td>10V</td></tr>
<tr><td>Signal</td><td>10V</td></tr>
<tr><td>PE</td><td>10V</td></tr>
<tr><td>Magnetic field</td><td>IEC61000-4-8</td><td>X/Y/Z Axis</td><td>300A/m</td><td>0Hz, 16.7Hz, 50/60Hz</td><td>A</td></tr>
<tr><td>Pulse magnetic field</td><td>IEC61000-4-9</td><td>X/Y/Z Axis</td><td>300A/m</td><td>Tr/Th: 6.4/16µs</td><td>B</td></tr>
</table>
P= Performance criteria, L= Line, PE= Protective Earth
</td></tr>
<tr><td>4.3.7</td><td>Relative humidity</td><td colspan="2">Up to 95%</td></tr>
<tr><td>5.1.1.2</td><td>DC power supply range</td><td colspan="2">From 0.70 to 1.25 Un continuous</td></tr>
<tr><td>5.1.1.3</td><td>Temporary DC power supply fluctuation</td><td colspan="2">From 0.60 to 1.40 Un 0.1s
From 1.25 to 1.40 Un 1s without damage</td></tr>
<tr><td>5.1.1.4</td><td>Interruptions of voltage supply</td><td colspan="2">Class S1 (without interruptions)</td></tr>
<tr><td>5.1.1.6</td><td>Input ripple factor</td><td colspan="2">10% peak to peak with a DC Ripple Factor of 5 %</td></tr>
<tr><td>5.1.3</td><td>Supply change-over</td><td colspan="2">0,6 Un duration 100 ms (without interruptions). Performance criterion A</td></tr>
<tr><td>7.2.7</td><td>Input reverse polarity protection</td><td colspan="2">By serial diode in the input</td></tr>
<tr><td>10.7</td><td>Protective coating for PCB assemblies</td><td colspan="2">Class PC2</td></tr>
<tr><td>13.3</td><td>Tests list</td><td>1 Visual Inspection
2 Performance test
3 Power supply test
4 Insulation test
5 Low temperature storage test
6 Low temperature start-up test
7 Dry heat test
8 Cyclic damp heat test
9 Salt mist test
10 Enclosure protection test (IP code)
11 EMC test
12 Shocks and vibrations test
13 Equipment stress screening test
14 Rapid Temperature variation test</td><td>Routine
Routine
Routine
Routine
-
Type
Type
Type
-
-
Type
Type
Routine: 24h at 40°C and load 100%
Type</td></tr>
</table>

Applicable values for the different sections of the norm RIA12				
	Type of disturbance	**Voltage level**	**Duration**	**Source impedance**
5.2	Supply related surge	3.5 x Vin nom 1.5 x Vin nom	20 ms 1 s	0.2 Ω 0.2 Ω
5.3	Direct transient	800 V 1500 V 3000 V 4000 V 7000 V	100 µs 50 µs 5 µs 1 µs 0.1 µs	5 Ω 5 Ω 100 Ω 100 Ω 100 Ω
5.4	Indirect coupled transient	1500 V 3000 V 4000 V 7000 V	50 µs 5 µs 1 µs 0.1 µs	100 Ω 100 Ω 100 Ω 100 Ω