OPS-260

IP66 180…220W 260VA DC/AC SINE WAVE INVERTER

GENERAL FEATURES:

Sine wave output voltage
Selectable output frequency: 50/60Hz
Convection cooling
IP66 protection
Output failure alarm
Remote inhibit
High input-output isolation 3000Vrms
Optional railway version EN50155
Fire and smoke: EN45545-2 approved
OCS-260 inside

	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	**OPS-260-7741*** 180W	**OPS-260-7743*** 200W	**OPS-260-7744*** 220W	**OPS-260-7745*** 220W	**OPS-260-7746** 220W	**OPS-260-7747*** 220W
230Vac	**OPS-260-7731*** 180W	**OPS-260-7733*** 200W	**OPS-260-7734*** 220W	**OPS-260-7735*** 220W	**OPS-260-7736*** 220W	**OPS-260-7737*** 220W

*References subject to special MOQs and lead times

Note (1): Startup voltage ≤10.2V. Under-voltage shutdown ≤ 9.1V

INPUT

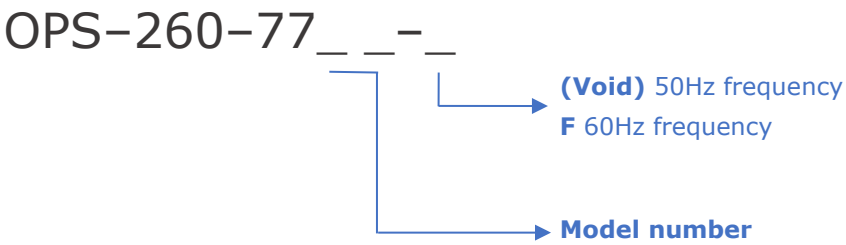
Specifications are subject to change without notice. These products are not intended for use as critical components in life support or nuclear systems.

Input voltage range	See table
Maximum input ripple	5% Vin nom (Vrms, 100Hz)
OUTPUT	
Nominal output voltage (Vonom)	See table
Adjust range	± 5% of Vonom
Load regulation	4%
Line regulation	0.4% @ ΔVin -20…+25% 10% @ ΔVin -30…+25% 1% @ ΔVin -10…+25% for 12V input models 10% @ ΔVin -20…+25% for 12V input models
Output frequency	50 / 60Hz ± 0.25Hz (factory set)
Output wave distortion THD	< 2% (16 samples average)
Output voltage HF ripple	< 20Vpp for 230Vac models < 10Vpp for 120Vac models
ENVIRONMENTAL	
Storage temperature	-40 ... 80°C
Operating temperature (full load)	-40 ... 55°C
Operating temperature (62.5% load)	-40 ... 70°C
Cooling	Natural convection
MTBF (MIL-HDBK-217-E; G_b, 25°C)	250.000 h
EMC	
Immunity according	EN61000-6-2 EN50121-3-2
Emissions according	EN61000-6-3 EN50121-3-2
SAFETY	
Safety according to	EN60950-1, EN62368-1 Class I OV category II, Pollution degree 2 Input / output isolation: reinforced
Dielectric strength: Input /output	3000 Vrms / 50Hz / 1min (routine test 2s)
Dielectric strength: Output / ground	1500 Vrms / 50Hz / 1min (routine test 2s)
Dielectric strength: Input / ground	500 Vrms / 50Hz / 1min (routine test 2s)
Fire and smoke	EN45545-2
IP Grade	IP66
MECHANICAL	
Weight	1.74 Kg
Dimensions	67 x 249 x 135mm
PROTECTIONS	
Against input over-currents	Internal fuse
Against output overloads < Iompk	linear
Against output overloads > Iompk	Triggered
CONTROL	
Remote inhibit input	4 ... 24 Vdc
Output failure alarm	Solid state relay, open when alarm. Max: 60V, 0.3A

ORDERING CODES

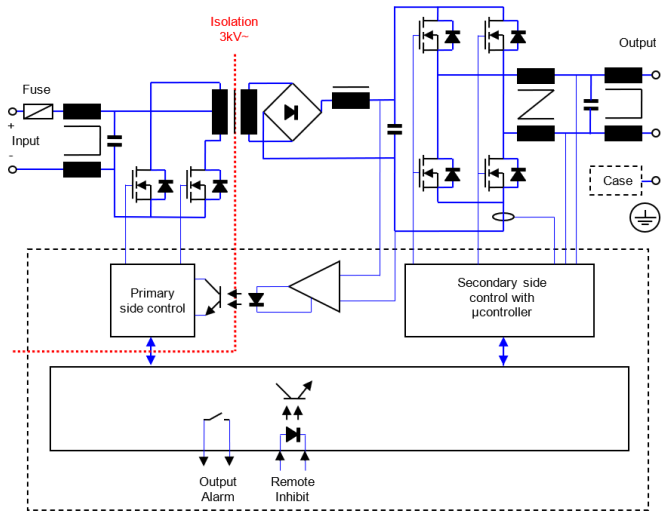
Model	Input Voltage DC [V]	Input voltage range [V]	Max. Input Current [A]	Output voltage AC [V]	Output current [A]	Active output power [W]	Appar. output power [VA]	Output Peak curr. 10ms [A]	Efficiency [%]	No load input current [A]
OPS-260-7731*	12	9.50 - 15	22.1	230	0.78	180	260	4.0	86	0.50
OPS-260-7733*	24	16.8 - 30	13.7	230	0.87	200	260	4.0	87	0.26
OPS-260-7734*	36	25.0 - 45	10.0	230	0.96	220	260	4.0	88	0.21
OPS-260-7735*	48	33.6 - 60	7.36	230	0.96	220	260	4.0	89	0.15
OPS-260-7736*	72	50.4 - 90	4.91	230	0.96	220	260	4.0	89	0.11
OPS-260-7737*	110	77 - 138	3.17	230	0.96	220	260	4.0	90	0.08
OPS-260-7741*	12	9.50 - 15	22.3	120	1.50	180	260	7.6	85	0.50
OPS-260-7743*	24	16,8 - 30	13.7	120	1.67	200	260	7.6	87	0.26
OPS-260-7744*	36	25.0 - 45	10.0	120	1,83	220	260	7.6	88	0.21
OPS-260-7745*	48	33.6 - 60	7.45	120	1,83	220	260	7.6	88	0.15
OPS-260-7746	72	50.4 - 90	4.97	120	1,83	220	260	7.6	88	0.11
OPS-260-7747*	110	77 - 138	3.22	120	1,83	220	260	7.6	89	0.08

***** References subject to special MOQs and lead times



Specify in/out combination to confirm part number.

BLOCKS DIAGRAM



DESCRIPTION

The OPS-260 consists of sine-wave 120Vac or 230Vac output voltage DC-AC converters. The frequency can be factory selected to 50Hz or 60 Hz, and input and output are galvanically isolated.

The OPS-260 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.

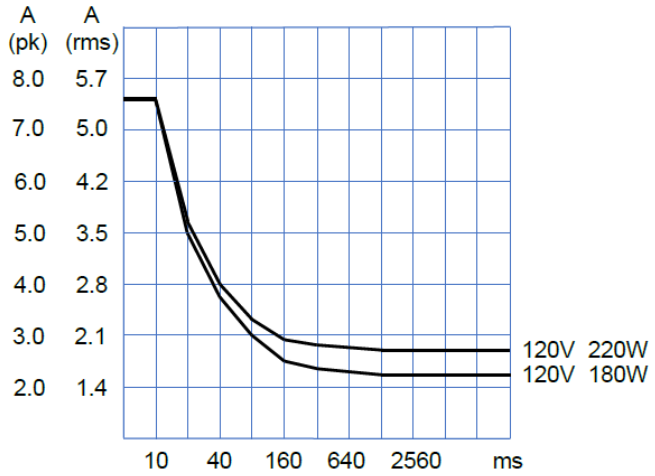
CONNECTIONS

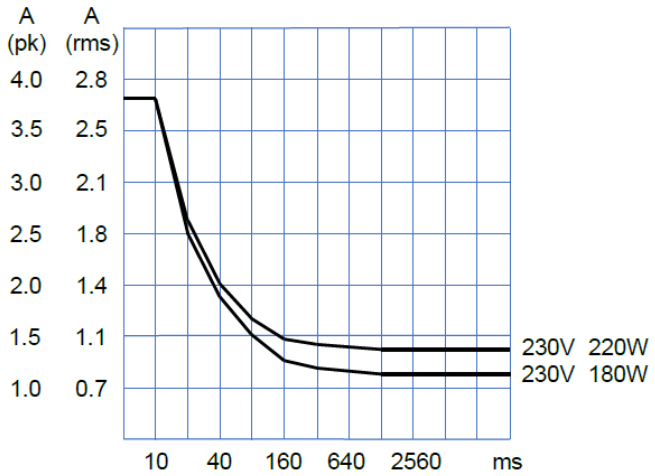
IP67 rated connector:

Connector	Manufacturer / Model	PIN	Reference
J1	MOLEX  MX150 L Series 194270017	1	N Output
		2	+ Alarm
		3	+ Inhibit
		4	+ V Input
		5	L Output
		6	- Alarm
		7	- Inhibit
		8	- V Input

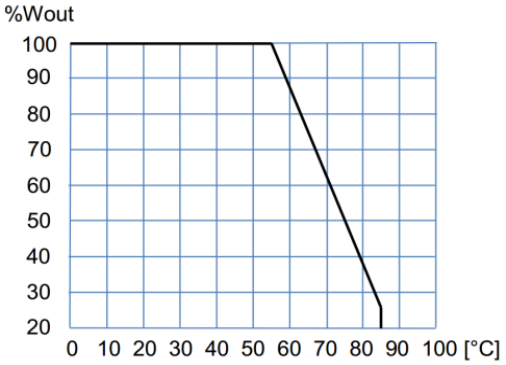
Remark: the product is supplied without the mating connectors.

OPERATION CURVE LIMITS





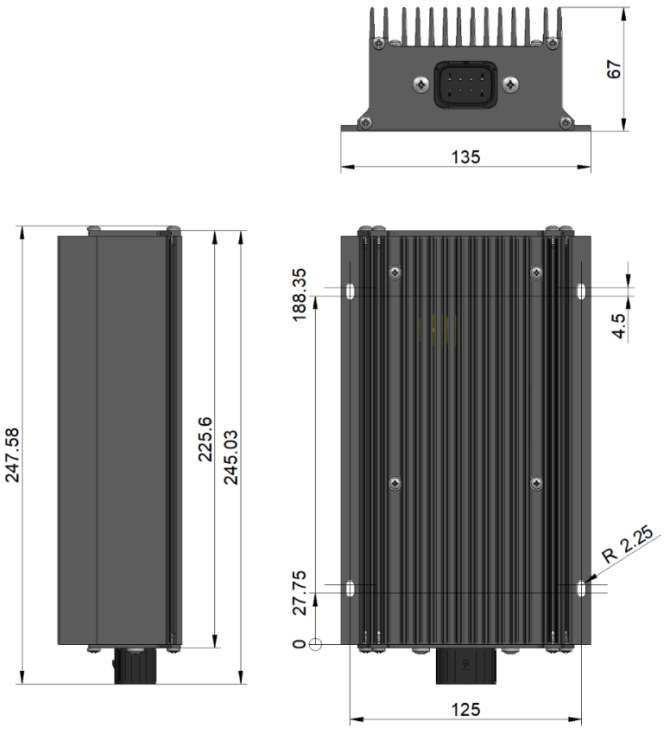
POWER DERATING vs AMBIENT TEMPERATURE



RECOMMENDED WIRING

	Input 12V	Input 24V	Input 36V	Input 48V	Input 72V	Input 110V	Output 120Vca	Output 230Vca
Max. Current [A]	23	14	10	7.4	5.0	3.2	2.2	1.2
Cable Section [mm²]	**2.5**	**1.5**	**1.5**	**1**	**0.75**	**0.75**	**0.75**	**0.75**

DIMENSIONS



INSTALLATION

The product can be mounted in several ways:

- On a chassis by means of the 4 corner holes.

Make connections as shown in the CONNECTIONS table.

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.

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.
- 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 cables used for each power connection.

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/AC Inverter
Models: **OPS-260-7731 ... 7747**

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
2011/65/EU Annex II and its amendment 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: 2005	Safety (Information technology equipment)
EN 62368-1: 2014	Safety. Audio/video information and communication technology equipment
EN 61000-6-4: 2019	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

* Optional, see annexe

CE marking year: **2021**; 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

Albert Sole
Technical Director

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

ANNEXE

<table>
<tr><th colspan="3">Applicable values for the different sections of the norm EN50155: 2017</th></tr>
<tr><td>4.3.1</td><td>Working altitude</td><td>Up to 1800m</td></tr>
<tr><td>4.3.2</td><td>Ambient temperature</td><td>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>ST1</td></tr>
<tr><td>4.3.4</td><td>Rapid temperature variations</td><td>H1</td></tr>
<tr><td>4.3.5</td><td>Shocks and vibrations</td><td>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>
<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>Do not apply</td></tr>
<tr><td>3…6GHz</td><td>Internal freq. < 108MHz</td></tr>
<tr><td>Conducted emissions</td><td>IEC55016</td><td>Input</td><td>150kHz…500kHz</td><td>79dB(µV) Qpk, 66dB(µV) Av</td></tr>
<tr><td></td><td></td><td></td><td>500kHz…30MHz</td><td>73dB(µV) Qpk, 60dB(µV) Av</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>Up to 95%</td></tr>
<tr><td>5.1.1.2</td><td>DC power supply range</td><td>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>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>Class S1 (without interruptions)</td></tr>
<tr><td>5.1.1.6</td><td>Input ripple factor</td><td>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>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>By fuse</td></tr>
<tr><td>10.7</td><td>Protective coating for PCB assemblies</td><td>Class PC2</td></tr>
<tr><td>13.3</td><td>Tests list</td><td>
<table>
<tr><td>1 Visual Inspection</td><td>Routine</td></tr>
<tr><td>2 Performance test</td><td>Routine</td></tr>
<tr><td>3 Power supply test</td><td>Routine</td></tr>
<tr><td>4 Insulation test</td><td>Routine</td></tr>
<tr><td>5 Low temperature storage test</td><td>-</td></tr>
<tr><td>6 Low temperature start-up test</td><td>Type</td></tr>
<tr><td>7 Dry heat test</td><td>Type</td></tr>
<tr><td>8 Cyclic damp heat test</td><td>Type</td></tr>
<tr><td>9 Salt mist test</td><td>-</td></tr>
<tr><td>10 Enclosure protection test (IP code)</td><td>-</td></tr>
<tr><td>11 EMC test</td><td>Type</td></tr>
<tr><td>12 Shocks and vibrations test</td><td>Type</td></tr>
<tr><td>13 Equipment stress screening test</td><td>Routine: 24h at 40°C and load 100%</td></tr>
<tr><td>14 Rapid Temperature variation test</td><td>Type</td></tr>
</table>
</td></tr>
</table>