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

	12Vdc 9.5 … 15V	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

Several references are subjected to special MOQs and lead times. Please consult Premium's Sales Dept. and web site.

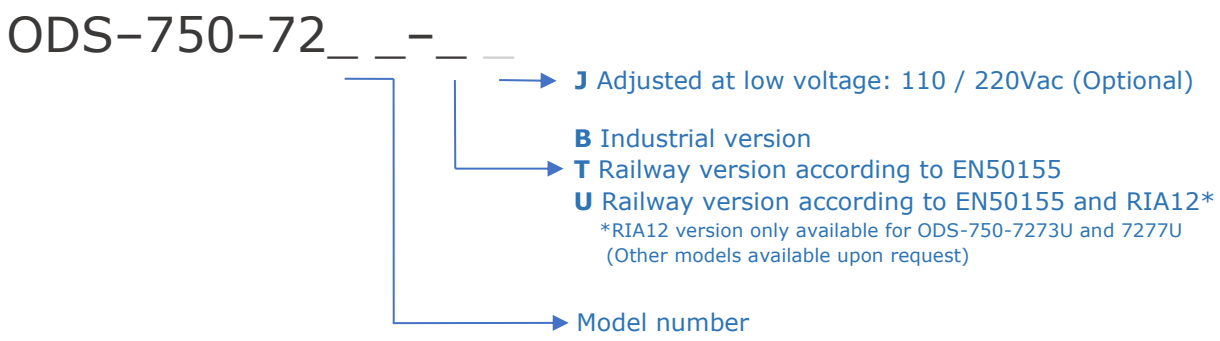
INPUT	
Input voltage range	See table
Maximum input ripple	5% Vin nom (Vrms, 100Hz)
OUTPUT	
Nominal output voltage	120 / 230Vac sinusoidal according to EN50160
Output voltage factory adjustment tolerance	+2%, -0% at no load
Output voltage adjustment range	110...120 / 220...230 Vac 120 / 230 Vac (Default) 110 / 220 Vac (Option J)
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	-40 ... 55°C
Operating temperature 62.5% load	-40 ... 70°C
Altitude	0 ... 1800m
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	EN61000-6-4 / EN50121-3-2
SAFETY	
Safety according to	IEC62368-1: 2018
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	EN45545-2 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)

ORDERING CODES

MODEL	DC Input						AC Output					
	Voltage				Current		Voltage	Current		Power		Efficiency
	Nom.	Min.	Max.	Max. RIA12	No Load	Max.	Default	Cont.	10ms	Active	Appar.	Full load
	[V]	[V]	[V]	[V]	[A]	[A]	[V]	[A]	[A]	[W]	[VA]	[%]
ODS-750-7271	12	9.5 (1)	15	-	0.80	55.7	230	2.0	10	450	750	85
ODS-750-7273	24	16.8	30	33.6	0.46	51.9	230	3.26	10	750	750	86
ODS-750-7274	36	25.0	45	50.4	0.36	34.5	230	3.26	10	750	750	87
ODS-750-7275	48	33.6	60	67.2	0.27	25.4	230	3.26	10	750	750	88
ODS-750-7276	72	50.4	90	100.8	0.17	16.9	230	3.26	10	750	750	88
ODS-750-7277	110	77.0	138	154	0.12	11.1	230	3.26	10	750	750	89
ODS-750-7281	12	9.5 (1)	15	-	0.80	56.4	120	3.75	16	450	750	84
ODS-750-7283	24	16.8	30	33.6	0.46	51.9	120	6.26	16	750	750	86
ODS-750-7284	36	25.0	45	50.4	0.36	34.5	120	6.26	16	750	750	87
ODS-750-7285	48	33.6	60	67.2	0.27	25.4	120	6.26	16	750	750	87
ODS-750-7286	72	50.4	90	100.8	0.17	16.9	120	6.26	16	750	750	87
ODS-750-7287	110	77.0	138	154	0.12	11.1	120	6.26	16	750	750	88

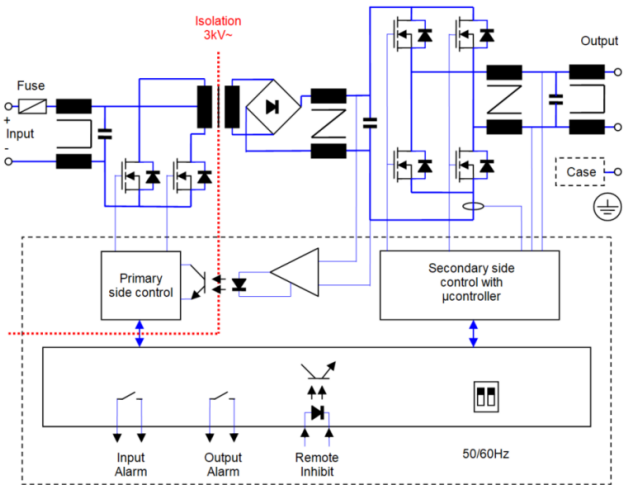
Several references are subjected to special MOQs and lead times. Please consult Premium's Sales Dept. and web site.

NOTE (1): Start up voltage ≤ 10.2V. Undervoltage shutdown < 9.5V

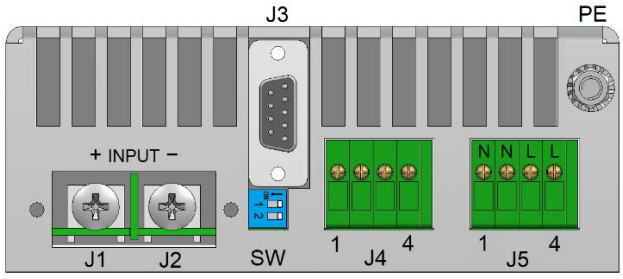


Accessories must be ordered in a separated order line

BLOCKS DIAGRAM

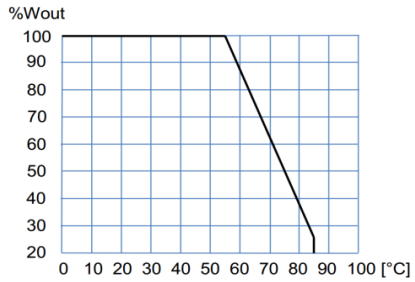


CONNECTIONS



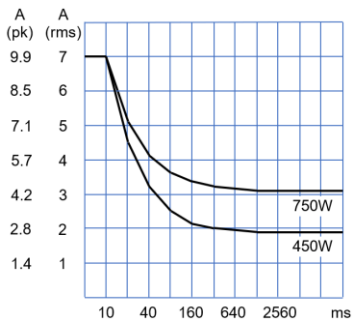
J1	+Vin	Terminals M5 Rec. torque 4 Nm	J3 - 1	Input Alarm	DB9
J2	-Vin		J3 - 2	Input Alarm	
J5 - 1, 2	N Output	Cables up to 2.5mm²	J3 - 4	Output Alarm	
J5 - 3, 4	L Output		J3 - 5	Output Alarm	
J4 - 1	+ Inhibit		SW - 1	On 60Hz, Off 50Hz	
J4 - 2	- Inhibit		SW - 2	N/A	
J4 - 3, 4	N/C		PE	Stud M5 Rec. torque 3.8 Nm	

POWER DERATING vs AMBIENT TEMPERATURE

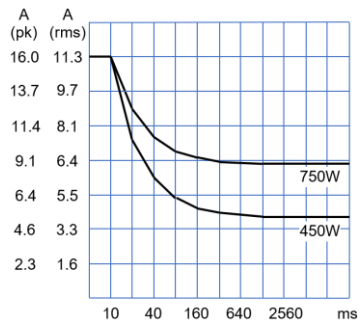


OPERATION CURVE LIMIT

Models of 230V output



Models of 120V output



DESCRIPTION

The ODS 750 is a single phase pure sinewave DC-AC inverter with galvanic isolation between input and output.

The following items can be set on the unit:

- The output frequency can be set through the dip-switch 1.
- The unit can be remotely activated or deactivated through the remote inhibit input.

Protections of the ODS-750:

- Reverse polarity protection of the input by fuse.
- Input under voltage: The unit shutdown when the input voltage is below its limit (see the limits on the models table)
- Overloads protection: 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

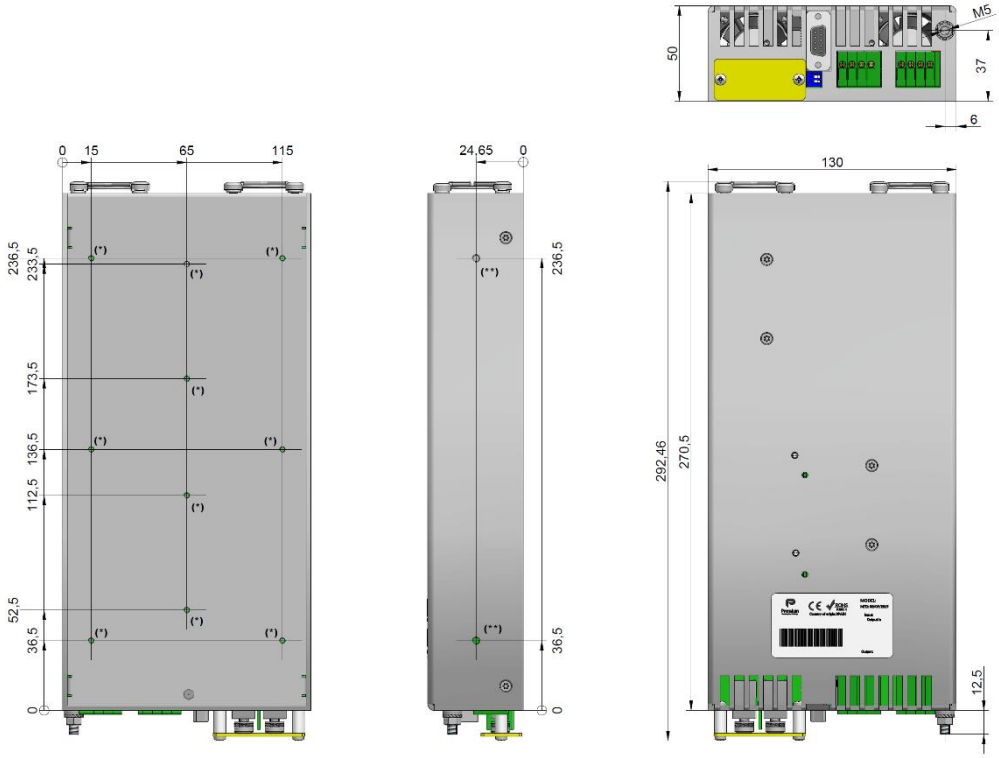
- The device includes 10 M3 threaded holes that allows different mounting positions. For other mounting solutions see the accessories.
- Make connections as shown in the table.
- The default output frequency is 50Hz. For 60Hz simply actuate the dip-switch as indicated in the figure.
- The inverter includes 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 cables used for each power connection.

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

DIMENSIONS



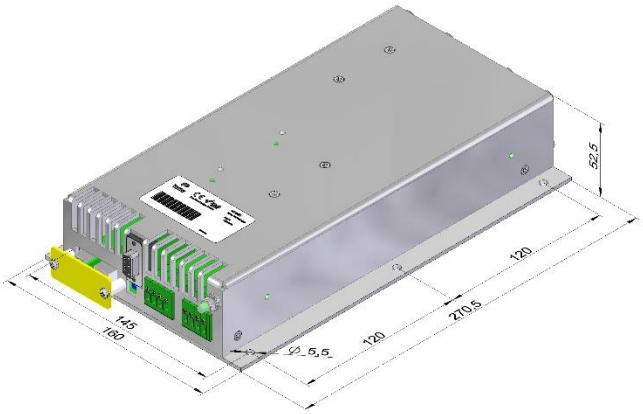
(*) M3 threaded hole. Maximum screw depth: 3mm (For DIN rail clips)
(**) M4 threaded hole. Maximum screw depth: 4.5mm (For fixing)

ACCESSORIES

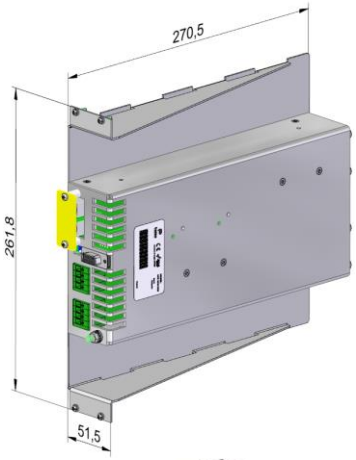
ACCESSORIES	NOTES	CODE
DIN RAIL CLIP	Screws included. Order 2 units per inverter	**NP-9135**
Mounting base	Screws included	**NP-9265**
Mechanical Interface for subrack of 6U 11Te	Screws included	**NP-9366**

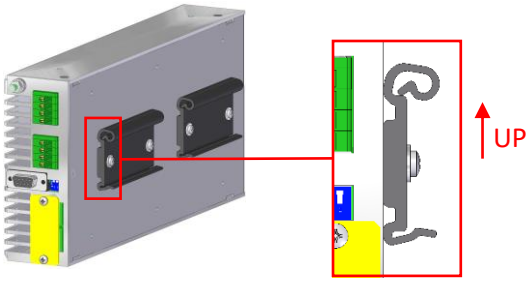
NP-9135

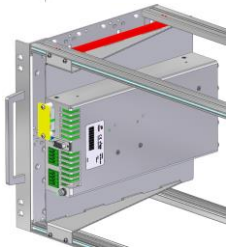
NP-9265



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 products:

Type:	**DC/AC Inverter**
Brand:	**Premium**
Models:	**ODS-750-7281, ODS-750-7283, ODS-750-7284, ODS-750-7285, ODS-750-7286, ODS-750-7287, ODS-750-7271, ODS-750-7273, ODS-750-7274, ODS-750-7275, ODS-750-7276, ODS-750-7277** with any of the suffixes **B**, **T**, **U** or **J**

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

2014/35/EU	Low voltage / The electrical equipment (safety) regulations
2014/30/EU	EMC / Electromagnetic compatibility regulations
2011/65/EU Annex II and its amendment 2015/863/EU	RoHS / Restriction of the use of certain hazardous substances in electrical and electronic equipment

This declaration applies to all specimens manufactured identical to the samples submitted for testing/evaluation.

Assessment of compliance of the product with the requirements relating to aforementioned directives, was performed by Premium S.A. and is based on the following standards:

EN IEC62368-1:2020 A11:2020	Safety. Audio/video information and communication technology equipment
EN IEC61000-6-4:2019	Generic emission standard
EN IEC61000-6-2:2019	Generic Immunity standard
EN IEC63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN50155: 2017*	Railway applications. Electronic equipment used on rolling stock material
EN50121-3-2: 2016*	Railway applications. EMC Rolling stock equipment
EN50121-4: 2016*	Railway applications. EMC of the signalling and telecommunications apparatus

* 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 instruction manual or datasheet.

L'Hospitalet de Llobregat, 28-06-2024

Albert Sole
Technical Director

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

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 products:

Type:	**DC/AC Inverter**
Brand:	**Premium**
Models:	**ODS-750-7281, ODS-750-7283, ODS-750-7284, ODS-750-7285, ODS-750-7286, ODS-750-7287, ODS-750-7271, ODS-750-7273, ODS-750-7274, ODS-750-7275, ODS-750-7276, ODS-750-7277** with any of the suffixes **B**, **T**, **U** or **J**

Complies with the essential protection requirements of the following regulations:

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

This declaration applies to all specimens manufactured identical to the samples submitted for testing/evaluation.

Assessment of compliance of the product with the requirements relating to aforementioned regulations, was performed by Premium S.A. and is based on the following standards:

EN IEC62368-1:2020 A11:2020	Safety. Audio/video information and communication technology equipment
EN IEC61000-6-4:2019	Generic emission standard
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EN IEC63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN50155: 2017*	Railway applications. Electronic equipment used on rolling stock material
EN50121-3-2: 2016*	Railway applications. EMC Rolling stock equipment
EN50121-4: 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

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 instruction manual or datasheet.

L'Hospitalet de Llobregat, 28-06-2024

Albert Sole
Technical Director

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

ANNEXE-1

<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 OT2 (-40 to 55°C): load < 100%
Class OT4 (-40 to 70°C): load < 62.5%</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 100ms (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: 40°C and load 100%
Type</td></tr>
</table>

ANNEXE-2

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

ANNEXE-3

Applicable values for the different sections of the norm EN50160: 2022			
		EN50160 limit	**Product**
4.2.1	Power frequency for systems with no synchronous connection to an interconnected system	< ±2%	< ± 0.5% (50 ±0.25Hz)
4.2.2	Supply voltage variations	< ± 10%	+2%, -5%
4.2.5	Harmonic voltage	< 8% THD	< 2% THD