ODS-3000

2400...4000VA DC/AC INVERTER

GENERAL FEATURES:

Sine wave output voltage
Selectable output frequency: 50/60Hz
Adjustable output voltage
High input-output isolation 3000Vrms
Remote inhibit
Remote control via RS232
Alarm by isolated relay contacts
Remote off opto-coupled
Optional railway version EN50155
Fire and smoke: EN45545-2 approved
Efficiency up to 91%

In / Out	24Vdc 16.8 ... 30V	36Vdc 25.2 ... 45V	48Vdc 33.6 ... 60V	72Vdc 50.4 ... 90V	110Vdc 77 ... 138V	120Vdc 84 ... 150V	300Vdc 290 ... 330V
120Vac	**ODS-3000-7163** 2400 W	**ODS-3000-7164** 2500 W	**ODS-3000-7165** 2500 W	**ODS-3000-7166** 2500 W	**ODS-3000-7167** 2500 W	Available under request	Available under request
230Vac	**ODS-3000-7153** 2400 W	**ODS-3000-7154** 3000 W	**ODS-3000-7155** 3000 W	**ODS-3000-7156** 3000 W	**ODS-3000-7157** 3000 W	Available under request	Available under request
	Available under request	Available under request	Available under request	Available under request	**ODS-3000-7177** 4000 W	**ODS-3000-7178** 4000 W	**ODS-3000-7179** 4000 W

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	
Output voltage	See table
Output frequency	50 / 60Hz ± 0.25Hz
Load regulation	< 4%
Line regulation	< 2 % Vin -25% ... +25%, < 10% Vin -30% ... +30%
Output wave distortion THD	< 2% (average of 16 samples)
Output HF ripple	< 2.5%
ENVIRONMENTAL	
Storage temperature	-40 ... 80°C
Operating temperature at full load	-40 ... 55°C (EN50155 OT2)
Operating temperature at 62.5% load	-40 ... 70°C (EN50155 OT4)
Relative humidity	5 ... 95%
Cooling	Controlled internal fan
MTBF (MIL-HDBK-217-E; G_b, 25°C)	100.000 h
EMC	
Immunity according	EN61000-6-2, EN50121-3-2
Emissions according	EN61000-6-4, EN50121-3-2
SAFETY	
Dielectric strength: Input /output	3000 Vrms / 50Hz / 1min
Dielectric strength: Output / Earth	1500 Vrms / 50Hz / 1min
Dielectric strength: Input / Earth	500 Vrms / 50Hz / 1min
Safety according to	EN62368-1
Fire and smoke	EN45545-2 approved
MECHANICAL	
Weight	< 6000 g
Protection degree	IP20
PROTECTIONS	
Against overloads	Current and I^2T limited (see overload protection)
Against over-temperature	Shutdown with auto-recovery
CONTROL	
Output OK LED	Green
Alarm LED	Red
Output failure alarm	Isolated contact relay open when alarm (<0.3A at 150Vcc)
Remote signal	Inverter OFF when applying 14,4 ... 137.5Vdc, Impedance > 22k5 Ω
Status and programming	RS232 port

ORDERING CODES

Model	Input				Output						Effic.
	Voltage		Current		Voltage	Power		Current			
	Nom	Range	No load	Max	Nom	Active	Appar	Cont. rms	5s rms	10ms Iopk	
	[V]	[V]	[A]	[A]	[V]	[W]	[VA]	[A]	[A]	[A]	[%]
ODS-3000-7153	24	16.8 - 30	< 0.88	161	230	2400	2400	10.4	15	32	89
ODS-3000-7154	36	25.2 - 45	< 0.60	133	230	3000	3000	13.0	20	32	90
ODS-3000-7155	48	33.6 - 60	< 0.42	99	230	3000	3000	13.0	20	32	91
ODS-3000-7156	72	50.4 - 90	< 0.30	66	230	3000	3000	13.0	20	32	91
ODS-3000-7157	110	77 - 138	< 0.17	43	230	3000	3000	13.0	20	32	92
ODS-3000-7163	24	16.8 - 30	< 0.65	163	120	2400	2400	20.0	28	52	88
ODS-3000-7164	36	25.2 - 45	< 0.49	134	120	2500	2500	20.8	32	52	89
ODS-3000-7165	48	33.6 - 60	< 0.38	84	120	2500	2500	20.8	32	52	89
ODS-3000-7166	72	50.4 - 90	< 0.28	56	120	2500	2500	20.8	32	52	90
ODS-3000-7167	110	77 - 138	< 0.17	36	120	2500	2500	20.8	32	52	91
ODS-3000-7177	110	77 - 138	< 0.20	57	230	4000	4000	17.4	22	34	92
ODS-3000-7178	120	84 - 150		52	230	4000	4000	17.4	22	34	92
ODS-3000-7179	300	290 - 330		15	230	4000	4000	17.4	22	34	92

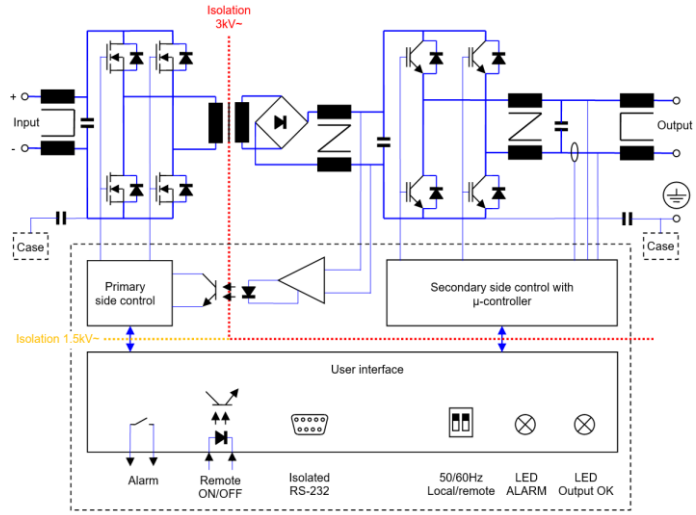
Several references are subjected to special MOQs and lead times. Please consult Premium's Sales Dept. and web site.

ODS–3000–71_ _–_ _

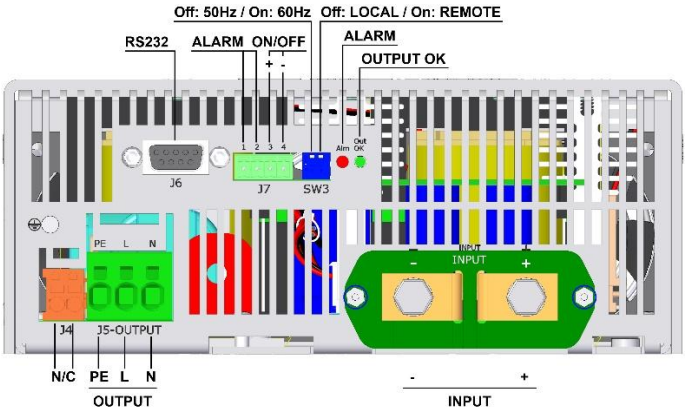
- **I** Remote reversed (Inverter ON when applying 14.4… 137.5V)
- **B** Industrial version
- **T** Railway version according to EN50155
- Model number

Accessories must be ordered in a separated order line

BLOCKS DIAGRAM

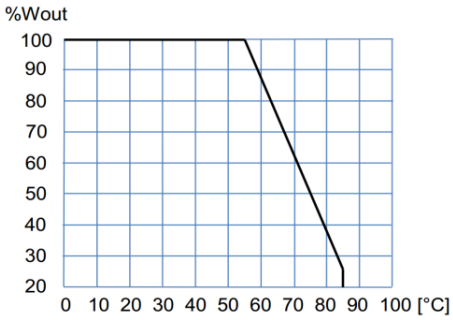


CONNECTIONS



Input	Terminals M6 (Rec. torque 6 Nm)
Output	Cable up to 4 mm^2
Alarm	Phoenix Contact MC1.5/4-G-3.81 (See accessories)
ON/OFF	
RS232	DB9
N/C	Do not use

POWER DERATING vs AMBIENT TEMP.



DESCRIPTION

The ODS-3000 consists of single-phase sine-wave DC/AC inverters with galvanic isolation between input and output

The unit allows:

- Select 50 / 60Hz by means of DIP-switch.
- Select local / remote (RS-232) by means of DIP-switch
- Shutdown applying voltage on pins 3 and 4 of signal connector
- Local signalization of Output OK by means of green LED
- Local alarm. Red LED ON when:
  - Output voltage is not OK
  - Output current > OUTPUT CURRENT ALARM
  - Input voltage out of margins
  - Unit shutdowns by over-current or remote OFF
  - Internal temperature > Internal warning temp.
- Alarm. Open contacts when output voltage is not OK
- Set and monitor parameters via RS-232.

The ODS-3000 are equipped with a maximum average power protection as well as maximum output peak current protection. This protects the unit even when an output short-circuit occurs. It also features a disabled function for input under-voltage, which allows protecting the batteries from harmful discharges.

START-UP

- The unit has 6 threaded holes for the fixation on a mounting surface.
- The unit has internal fans. For an appropriate cooling, the air input and output should be free of elements that cause and an air flow reduction (minimum recommended distance to other objects 50mm).
- Make connections as shown in the figure.
- The default output frequency is 50Hz. For 60Hz simply actuate the dip-switch as indicated in the figure.

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.
- Include a time lag input fuse o current breaker curve D with a rating immediately higher than the maximum input current.
- As per the input and output currents indicated in the table on page 3, choose the appropriate cable cross-section according to the maximum rated current indicated in the following table:

Max. Current [A]	16	25	32	40	63	80	100	125	160	190
section [mm^2]	**1.5**	**2.5**	**4**	**6**	**10**	**16**	**25**	**35**	**50**	**70**

	Monitor	**Set**
RS232 Functions	Input voltage	Input under-voltage lockout
	Output voltage	Input under-voltage alarm
	Output current	ON / OFF
	Internal temperature	Output frequency
	Output frequency	Maximum output current
	Output power	Output voltage

RS232 communication port

It is possible to control and monitor de unit via RS232 by means a terminal emulator like "Tera Term" or "Putty".
Check our guide: https://premiumpsu.com/wp-content/uploads/2025/09/Serial-Connection-Guide.pdf

Also it is possible to control and monitor de unit directly using the protocol showed in table:

Protocol configuration: ASCII code, 19200 bauds, parity none, 8 bits, 1bit stop

Header		Function	Parameter		Returns	Explanation
P	R	L	V		PTV■■■.■	Input voltage in Volts
			U		PTU■■■.■	Output voltage in Volts RMS
			I		PTI■■■.■	Output current in Amps RMS
			T		PTT■■■.■	Internal temperature in ºC
			F		PTF■■■.■	Output frequency in Hz
			W		PTW■■■■	Output power in W
			S		PTS■■■.■	Inverter state **999.9**→ Inverter enabled **000.0**→ Inverter disabled **222.2**→ Inverter blocked by overload **111.1**→ Inverter blocked by overload or short-circuit
			M		PTM■■■■	Model number
			R		PTR■■■■	Firmware version
			Other character		PTE	Command not supported
		G	1	■■■.■	OK	Set the minimum input working voltage in Volts
					ERR	Value NO VALID for this parameter
			2	■■■.■	OK	Set the minimum alarm input voltage in Volts (it should be higher than PRG1)
					ERR	Value NO VALID for this parameter
			3	■■■.■	OK	Changes the status bit (after start-up enabled with SW3 =LOCAL and disabled with SW3 =REMOTE) **999.9**→ Inverter enabled **000.0**→ Inverter disabled
					ERR	Value NO VALID for this parameter
			4	■■■.■	OK	Set the output voltage in Volts RMS 80% V_{nom} ≤ ■■■.■≤ 105% V_{nom}
					ERR	Value NO VALID for this parameter
			5	■■■.■	OK	Set the maximum output current in Amps 20% I_{nom} ≤ ■■■.■≤ 100% I_{nom}
					ERR	Value NO VALID for this parameter
			6	■■■.■	OK	Changes the output frequency (it's not stored for the next start-up) **050.0**→ 50Hz **060.0**→ 60Hz
					ERR	Value NO VALID for this parameter
			7	■■■.■	OK	Set the OUTPUT CURRENT ALARM 0 ≤ ■■■.■≤ 100% $I_{max\_warning}$
					ERR	Value NO VALID for this parameter
			8	■■■.■	OK	**111.1**→ Reset the inverter
					ERR	Value NO VALID for this parameter
			A	■■■.■	OR	Set the start-up voltage in volts (it should be higher than PRG1)
					ERR	Value NO VALID for this parameter

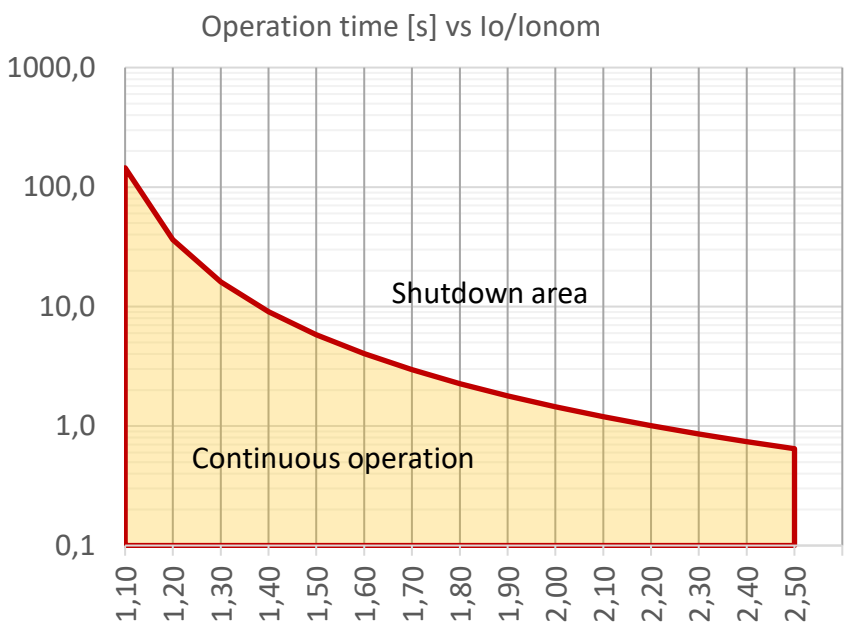
A null modem F-M is required:

WORKING PARAMETERS

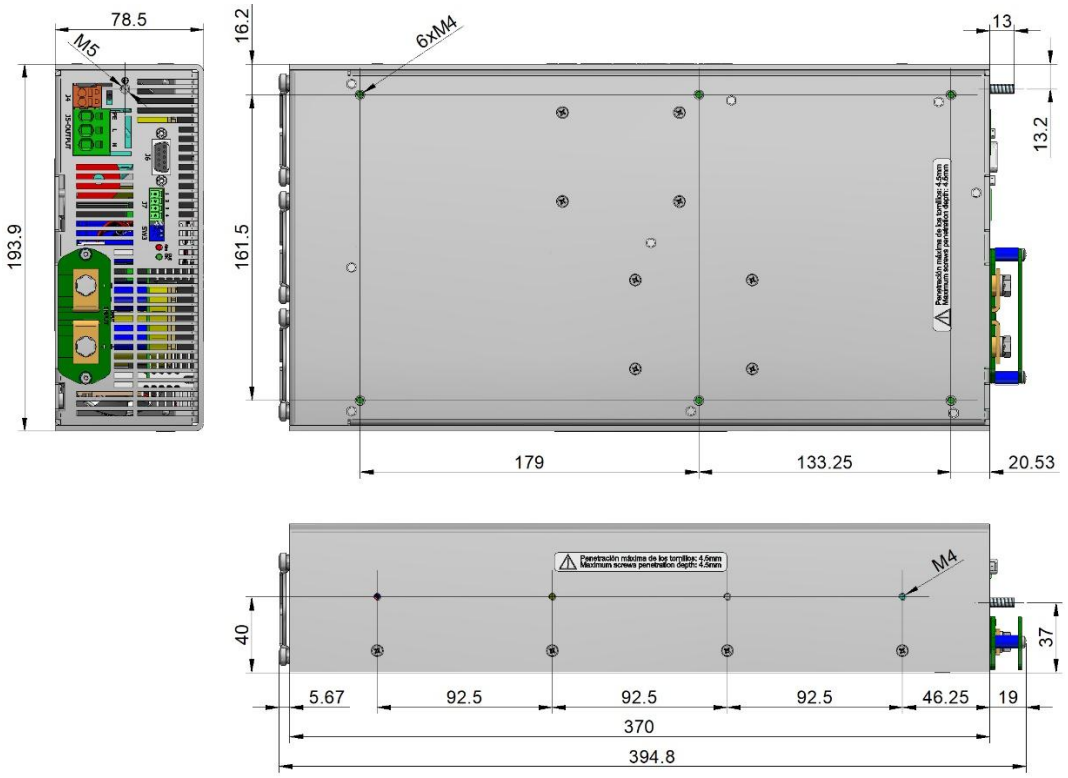
Thermal protection	**71XX**							
Internal warning temperature	88							ºC
Internal shutdown temperature	92							ºC
Internal restart temperature after over-temperature shutdown	75							ºC
Input voltage parameters	**71X3**	**71X4**	**71X5**	**71X6**	**71X7**	**7178**	**7179**	
Max. input voltage shutdown instantaneous	33.7	50.6	67.3	100.9	154.1	156.0	368.5	Vdc
Max. input voltage shutdown timed 0.1s	30.1	45.2	60.1	90.1	138.6	152.0	331.4	Vdc
Maximum star-up voltage	29.9	44.9	59.8	89.7	137.4	149.0	328.6	Vdc
Minimum star-up voltage	17.9	26.9	35.9	53.9	82.4	92.0	310.3	Vdc
Min. input voltage shutdown timed 0.1s	16.7	25.1	33.5	50.3	76.9	84.0	289.6	Vdc
Min. input voltage shutdown instantaneous	14.4	21.6	28.7	43.1	65.9	72.0	248.2	Vdc
Output voltage parameters	**715X**		**716X**		**717X**			
Output voltage of short circuit or deep overload	< 164		< 86		< 214			Vac
Time of short-circuit	1000							ms
Time of start-up after shutdown by short-circuit	2000							ms
Number of start-up attempts after a short circuit	5							
Output current parameters	**715X**		**716X**		**717X**			
Maximum continuous output current	13.2		21.1		17.7			A
Warning current	13		20.8		17.4			A
Start-up time after shutdown by overload	1500		2000		1000			ms
Maximum overload I^2t	See figure below							
Number of attempts of consecutive overload	5							
Start-up and working errors	**71XX**							
Maximum time for overload or internal failure	unlimited							
Minimum time required between disconnection and next connection	2							min
Thermal protection	**71XX**							
Internal warning temperature	88							ºC
Internal shutdown temperature	92							ºC
Internal restart temperature after over-temperature shutdown	75							ºC

OVERLOAD PROTECTION

Protection against overloads and short-circuits	By **current** limiting at Iopk By **I²t**. The unit shutdowns when the current-time is over the continuous operation curve

Overload protection recovery	Every 2 seconds after shutdown, the unit tries to restart up to 5 times. If the overload persists, the unit reminds shutdown until an **input reconnection**.	

DIMENSIONS



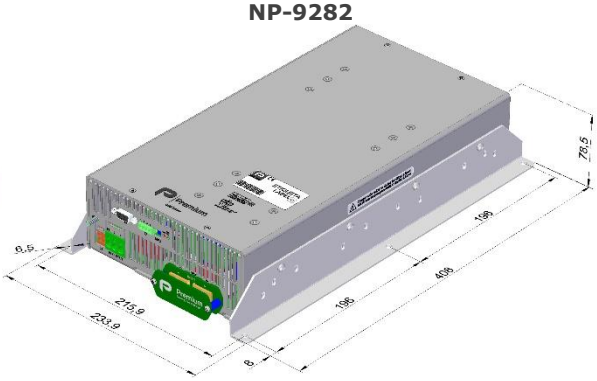
Maximum depth for the screws M4: 4.5mm

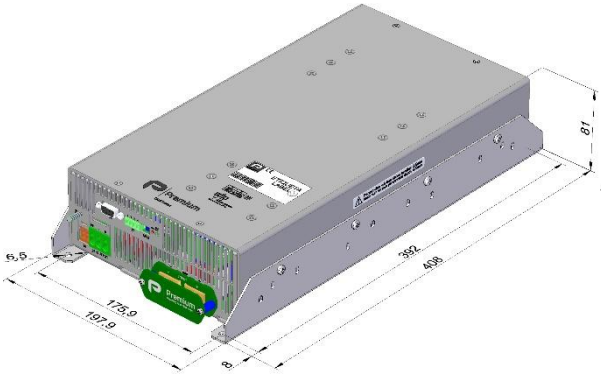
ACCESSORIES

Description	Notes	CODE
Signals female connector		2601-409
Mounting brackets kit	Contains two brackets and screws	NP-9282
2U 19" rack mounting tray kit.	Allows to install one or two units	NP-9353

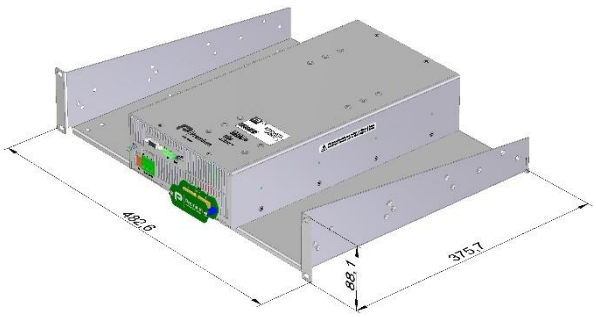
2601-409

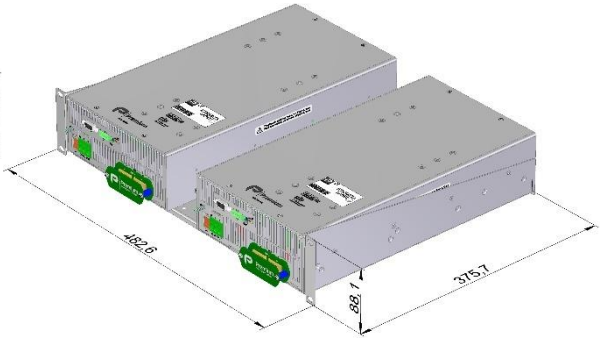
NP-9282





NP-9353





CE 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-3000-7153 ... 7179**

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 IEC62368-1:2024 A11:2024	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: 2021*	Railway applications. Electronic equipment used on rolling stock material
EN50121-3-2: 2016* A1:2019	Railway applications. EMC Rolling stock equipment

* Optional, see annexe

CE marking year: **2011**

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, 24-04-2023

Manuel Camacho
Technical Director

PREMIUM S.A. is an ISO9001and 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 product:

Type: DC/AC Inverter
Models: **ODS-3000-7153 … 7179**

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

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EN50121-3-2: 2016*	Railway applications. EMC Rolling stock equipment
EN50121-4: 2016* +A1:2019	Railway applications. EMC of the signalling and telecommunications apparatus

* 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 instructions manual or datasheet.

L'Hospitalet de Llobregat, 24-04-2023

Manuel Camacho
Technical Director

PREMIUM S.A. is an ISO9001and ISO14001 certified company by **Bureau Veritas**

ANNEXE

<table>
<tr><th colspan="3">Applicable values for the different sections of the norm EN50155: 2021</th></tr>
<tr><td>4.4.1</td><td>Working altitude</td><td>Up to 2000m at full load
Up to 2500m at 95% of load</td></tr>
<tr><td>4.2.2</td><td>Ambient temperature</td><td>Class OT2 (-40 to 55 °C): load < 100 %
Class OT4 (-40 to 70 °C): load <62.5 %</td></tr>
<tr><td>4.4.3</td><td>Switch-on extended operating temp.</td><td>ST1: OTx + 15 ºC, test cycle B</td></tr>
<tr><td>4.4.4</td><td>Rapid temperature variations</td><td>H1</td></tr>
<tr><td>4.4.5</td><td>Shocks and vibrations</td><td>According EN61373:2010 + Corr 1:2011 Category 1 class B</td></tr>
<tr><td>4.4.6</td><td>EMC Electromagnetic Compatibility

EN50121-3-2:2016
A1:2019</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>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 rowspan="2">Do not apply
Internal freq. < 108 MHz</td></tr>
<tr><td>3…6 GHz</td></tr>
<tr><td>Conducted emissions</td><td>IEC55016</td><td>Input & output</td><td>150 kHz…500 kHz</td><td>99 dB(µV) Qpk</td></tr>
<tr><td></td><td></td><td></td><td>500 kHz…30 MHz</td><td>93 dB(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>±8 kV</td><td>Air (isolated parts)</td><td rowspan="2">B</td></tr>
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<tr><td rowspan="4">Radiated high-frequency</td><td rowspan="4">IEC61000-4-3</td><td rowspan="4">X/Y/Z Axis</td><td>20 V/m</td><td>0.08…1.0 GHz M. 80% 1 kHz</td><td rowspan="4">A</td></tr>
<tr><td>10 V/m</td><td>1.4…2.1 GHz M. 80% 1 kHz</td></tr>
<tr><td>5 V/m</td><td>2.1…2.5 GHz M. 80% 1 kHz</td></tr>
<tr><td>3 V/m</td><td>5.1…6 Ghz M. 80% 1 kHz</td></tr>
<tr><td rowspan="4">Fast transients</td><td rowspan="4">IEC61000-4-4</td><td>Input</td><td rowspan="3">±2 kV</td><td rowspan="4">Tr/Th: 5/50 ns</td><td rowspan="4">A</td></tr>
<tr><td>Output</td></tr>
<tr><td>Signal</td></tr>
<tr><td>PE</td><td>±1 kV</td></tr>
<tr><td rowspan="2">Surge</td><td rowspan="2">IEC61000-4-5</td><td>Input L to L</td><td>±1 kV</td><td rowspan="2">Tr/Th: 1.2/50 µs</td><td rowspan="2">B</td></tr>
<tr><td>Input L to PE</td><td>±2 kV</td></tr>
<tr><td rowspan="4">Conducted RF</td><td rowspan="4">IEC61000-4-6</td><td>Input</td><td rowspan="4">10 V</td><td rowspan="4">0.15...80 MHz M. 80% 1 kHz</td><td rowspan="4">A</td></tr>
<tr><td>Output</td></tr>
<tr><td>Signal</td></tr>
<tr><td>PE</td></tr>
</table>
P= Performance criteria, L= Line, PE= Protective Earth
</td></tr>
<tr><td>4.4.7</td><td>Relative humidity</td><td>Up to 95%</td></tr>
<tr><td>5.2.2</td><td>DC power supply range</td><td>
<table>
<tr><td>From 0.60 to 0.70 Un 0.1s</td><td>Performance criteria A</td></tr>
<tr><td>From 0.70 to 1.25 Un continuous</td><td>Performance criteria A</td></tr>
<tr><td>From 1.25 to 1.40 Un 0.1s</td><td>Performance criteria A</td></tr>
<tr><td>From 1.25 to 1.40 Un 1s</td><td>Performance criteria C</td></tr>
</table>
</td></tr>
<tr><td>5.2.4</td><td>Interruptions of voltage supply</td><td>Class S2</td></tr>
<tr><td>5.2.5</td><td>Supply change-over</td><td>Class C1 (0.6 Un duration 100ms without interruptions. Performance criterion A)</td></tr>
<tr><td>5.2.7</td><td>Input ripple factor</td><td>10% peak to peak with a DC Ripple Factor of 5 %</td></tr>
<tr><td>7.2.7</td><td>Input reverse polarity protection</td><td>By fuse</td></tr>
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<tr><td>13.3</td><td>Tests list</td><td>
<table>
<tr><td>1</td><td>Visual Inspection</td><td>Routine</td></tr>
<tr><td>2</td><td>Performance test</td><td>Routine</td></tr>
<tr><td>3</td><td>Power supply test</td><td>Type</td></tr>
<tr><td>4</td><td>Low temperature start-up test</td><td>Type</td></tr>
<tr><td>5</td><td>Dry heat test</td><td>Type</td></tr>
<tr><td>6</td><td>Low temperature storage test</td><td>-</td></tr>
<tr><td>7</td><td>Insulation test</td><td>Routine</td></tr>
<tr><td>8</td><td>Cyclic damp heat test</td><td>Type</td></tr>
<tr><td>9</td><td>EMC test</td><td>Type</td></tr>
<tr><td>10</td><td>Shocks and vibrations test</td><td>Type</td></tr>
<tr><td>11</td><td>Enclosure protection test (IP code)</td><td>-</td></tr>
<tr><td>12</td><td>Equipment stress screening test</td><td>Routine: 40°C and load 100%</td></tr>
<tr><td>13</td><td>Rapid Temperature variation test</td><td>-</td></tr>
<tr><td>14</td><td>Salt mist test</td><td>-</td></tr>
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