ACB-3000

Redundancy Static Transfer Switch

GENERAL FEATURES:

Sine wave output voltage by-pass for dual input lines.

Switching period less than < 2 ms

Two models for $120V_{ac}$ and $230V_{ac}$, 50Hz.

High current converter up to 13A or 21 A, depending on the model.

Designed according to EN50155:2017

Fire and smoke: EN45545-2:2013 +A1:2015

Safety according to norm IEC 62368-1

CAN BUS to control status

5 YEAR WARRANTY

EN45545 fire & smoke

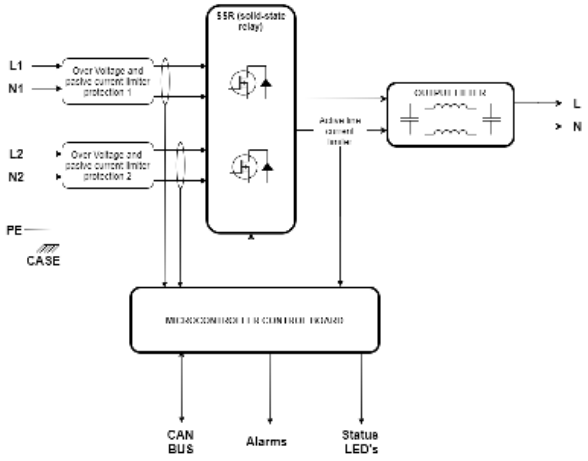
EN50155

ROHS REACH

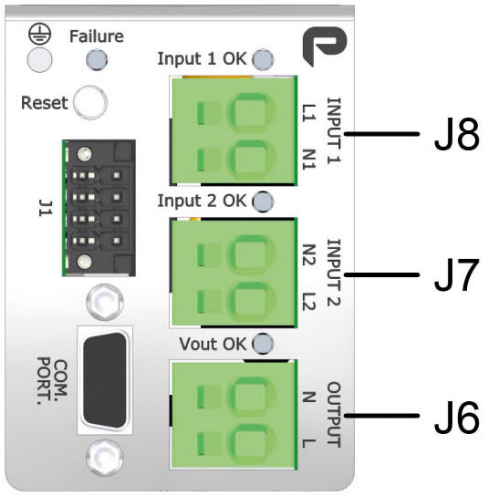
MODEL	9431			9576*		
Premium models ODS-XXXX	750-230	1500-230	3000-230	750-120	1500-120	3000-120
DUAL AC INPUTS						
Nominal AC input voltage	230 V_{ac}			120 V_{ac}		
Minimum/Maximum AC input voltage	±10% of nominal					
Efficiency	>99%					
OUTPUT						
Output voltage	230 V_{ac} (same as input)			120 V_{ac} (same as input)		
Voltage tolerance	≤ ±10 % of nominal					
Load regulation	-2 V					
Line regulation	V_{input} – 2 V					
Nominal AC output current	13 A_{rms}			21 A_{rms}		
Maximum peak input current	22 A_{pk}			32 A_{pk}		
DC AUXILIAR (not necessary)						
Nominal DC input voltage	15 – 139 V_{dc}					
ENVIRONMENTAL						
Storage temperature	-40 … 85 °C					
Operating temperature: Full load Operating temperature: 70 % load Operating temperature: 50 % load	-40 … 55 °C (EN50155 OT2) -40 … 70 °C (EN50155 OT4) -40 … 85 °C (EN50155 OT6)					
Cooling	Natural convection					
Operating altitude	2000m at full load, 2500m at 90% of load					
Maximum Relative humidity	95 % with no condensation					
Shock and vibration	EN61373:2011 Category 1 class B body mounted					
Service life	> 20 years					
MTBF	> 1000000 h @ 40 °C according to IEC61709					
EMC						
Emission	EN50121-4					
Immunity	EN50121-4					
SAFETY						
Safety according to norm	IEC 62368-1					
Dielectric strength Input-Output / Earth	1500 V_{ac} 50 Hz					
Dielectric strength DC input / Earth	1500 V_{ac} 50 Hz					
Protection Degree	IP40					
Pollution degree	PD2					
Overvoltage category	OV2					
Fire and smoke	EN45545-2:2013 +A1:2015					
MECHANICAL						
Dimensions	78,34 x 60 x 200 mm					
Weight	1,2 kg					
CONTROL						
Switching response in case of failure	< 2 ms					
Input Line 1 OK	Green					
Input line 2 OK	Green					
Output OK	Green					
Failure of the system	Red					
Status	Can Bus					
PROTECTIONS						
Against output overloads and short-circuits	Current limiting by fuse and active protection of overcurrent with push-in button for system restart after 3 overcurrent situations.					
Failure in line 1	Solid state relay 1 closed if line 1 is OK and opened if it isn`t					
Failure in line 2	Solid state relay 2 closed if line 2 is OK and opened if it isn`t					
Failure in system	Solid state relay 3 closed if all the system is OK and opened if it isn`t					

***Design available on request and subject to MOQ.**

BLOCKS DIAGRAM



CONNECTIONS

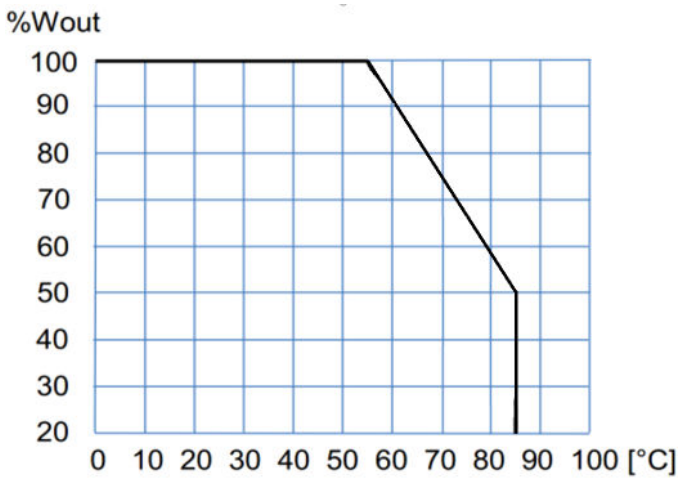


Note 1: maximum spring terminals cross section cable 6mm²

Note 2: J1 recommended male connector Phoenix Contact 1790124

Note 3: maximum nut torque in M4 earth connection 1.9 Nm

POWER DERATING vs AMBIENT TEMP.



DESCRIPTION

The ACB-3000 is a current transfer switch converter which has 2 main AC voltage input lines and is capable of switch between them and give an output in case of failure in one of their input lines.

Supplied by the Premium families ODS-750, ODS-1500 and ODS-3000 the unit is designed to give extra protection against failure in one of the input lines for mainly auxiliary loads in Railways.

In case of failure the equipment has control LEDs and solid-state relays which will change their state.

The device is protected against overload and short-circuits by means of a current limiting circuit. After a detection of overcurrent, the failure LED will be on and there will be no output. When 3 overcurrent situations have been produced, the ACB will stop supplying the output until the 'Reset' button is pressed.

In normal operation, the input that is supplying the output will have its LED blinking. If the other input is correctly supplied, its LED will be on. If the output is active, the LED will blink indicating correct function.

	Function
J8 (Pin 1)	Neutral 1 Input
J8 (Pin 2)	Line 1 input
J7 (Pin 1)	Line 2 input (priority)
J7 (Pin 2)	Neutral 2 input (priority)
J6 (Pin 1)	Line output
J6 (Pin 2)	Neutral output
Push-in button	Restart of the system in case of 3 overcurrent situation.
J1(Pin 7,8)	Relay of failure in system
J1(Pin 5,6)	Relay of failure in line 2
J1(Pin 4,3)	Relay of failure in line 1
J1(Pin 2,1)	+Vbat, -Vbat auxiliar
J4(SubD9)	CAN-BUS communications

CAN Communication port

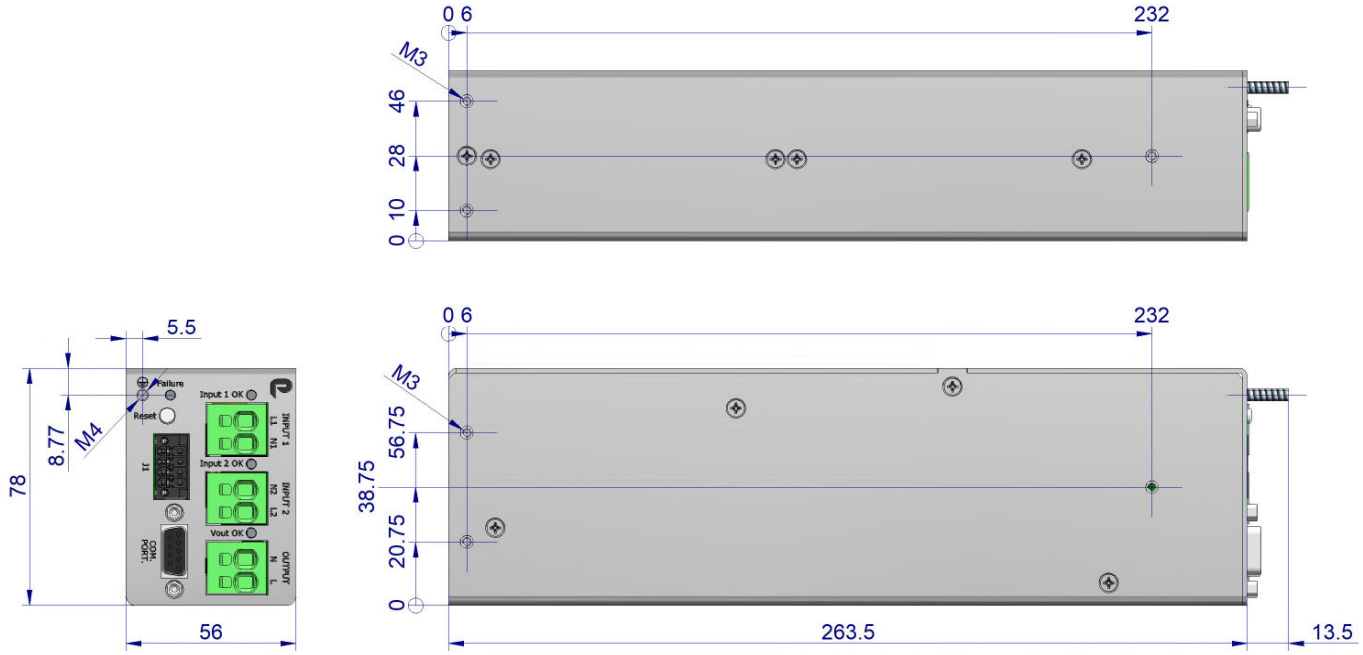
It is possible to monitor the unit via DSUB9 connector with CAN protocol.

Protocol configuration: By default, CANopen devices start without CANopen Node-ID (0xFF) and baudrate of 250 kbit. Node ID must be set to communicate with the device.

Standarized Device Profile Area					
Index	**SubIndex**	**Name**	**Type**	**Attribute**	**Notes**
6001	00	Active line	UINT8	ro	
6002	00	State	UINT8	ro	
6003	00	Number of failures	UINT8	ro	
6100	01	Input voltage RMS 1	UINT32	ro	
6100	02	Input voltage RMS	UINT32	ro	
6101	01	Input current RMS 1	UINT32	ro	
6101	02	Input current RMS	UINT32	ro	
6102	01	Input frequency 1	UINT32	ro	
6102	02	Input frequency 2	UINT32	ro	
6103	01	Input state 1	UINT8	ro	
6103	02	Input state 2	UINT8	ro	
6200	00	Output voltage RMS	UINT32	ro	
6201	00	Output current RMS	UINT32	ro	
6202	00	Output freq	UINT32	ro	
6300	00	Number of startups	UINT32	ro	
6301	00	Number of hours ON	UINT32	ro	

Communication Profile Area					
Index	**SubIndex**	**Name**	**Type**	**Attribute**	**Notes**
1001	00	Error register	UINT8	ro	
1003	00	Number of errors	DYNAMIC_TABLE	rw	
1003	01	Error messages	DYNAMIC_TABLE	ro	
1008	00	Manufacturer device name	ARRAY	ro	
100A	00	Manufacturer software version	ARRAY	ro	
1017	00	Producer Heartbeat time	UINT16	rw	
1029	00	Error behavior object	UINT8	-	
1018	01	vendor_ID	UINT32	ro	
1018	02	Product Code	UINT32	ro	
1018	03	Revision Number	UINT32	ro	
1018	04	Serial Number	UINT32	ro	

DIMENSIONS



Lateral fixing holes 6 x M3 (screw torque < 1.6 Nm). Maximum screw deep 5 mm.
Earth screw M4 (nut torque < 2.5 Nm)

ACCESSORIES (pending)

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: AC/AC bypass
Model: **ACB-3000- 9431 - 9576**

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
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

* See annexe

CE marking year: **2020**; UKCA marking year: **2021**

Notes:

For the fulfillment 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 ISO9001and ISO14001 certified company by **Bureau Veritas**

ANNEXE

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<tr><td>4.3.2</td><td>Ambient temperature</td><td>Class OT1 (-25 to 55°C): load < 100%
Class OT3 (-25 to 70°C): load <62.5%
Class OT5 (-25 to 85°C): load <25%</td></tr>
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EN50121-3-2:2015</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>
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<tr><td>1...3GHz</td><td rowspan="2">Do not apply
Internal freq. < 108MHz</td></tr>
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<tr><td>Signal</td><td>±2kV</td></tr>
<tr><td>P</td><td>±1kV</td></tr>
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<tr><td>Signal</td><td>10V</td></tr>
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P= Performance criteria, L= Line, P= PE (Protective Earth)
</td></tr>
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From 1.25 to 1.40 Un 1s without damage</td></tr>
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