Technical Data Sheet

IAC260-K RANGE
180…220W / DC/AC SINE WAVE INVERTER

FEATURES

- Sine Wave Output Voltage
- Selectable Output Frequency: 50/60Hz
- Adjustable Output Voltage
- Output Failure Alarm
- Remote Inhibit
- High Input-Output Isolation 3000Vrms
- Optional Railway Version EN50155
- Fire and Smoke: EN45545-2 Approved



APPLICATIONS



SAFETY & EMC

RoHS² compliant 10 from 10 | Reach compliant | WARRANTY 3 YEARS | WARRANTY 5 YEARS | RAILWAY CERTIFIED EN50155 for use on rolling stock

DESCRIPTION

The IAC260-K RANGE consists of sine-wave 120VAC or 230VAC output voltage DC-AC converters. The frequency can be set to 50Hz or 60Hz, and input and output are galvanically isolated.
The IAC260-K 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 units remain shutdown until an input reconnection.

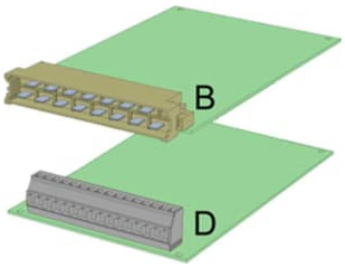
MODELS

	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	IAC260-K-7041 180W	IAC260-K-7043 200W	IAC260-K-7044 220W	IAC260-K-7045 220W	IAC260-K-7046 220W	IAC260-K-7047 220W
230VAC	IAC260-K-7031 180W	IAC260-K-7033 200W	IAC260-K-7034 220W	IAC260-K-7035 220W	IAC260-K7036 220W	IAC260-K-7037 220W

Note(1): Startup Voltage ≤10.2V. under-Voltage Shutdown ≤9.1V

IAC260-K-70_ _-_ _

- **T** Railway (Optional)
- **B** Connector DIN41612H15
  D Spring clamp terminals
- Model number



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IAC260-K RANGE

180…220W / DC/AC SINE WAVE INVERTER

BASIC CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.
Input				
Input Voltage Range	See Table			
Maximum Input Ripple	Vrms, 100Hz		5% Vin nom	
Output				
Nominal Output Voltage (Vonom)	See table			
Adjust Range	±5% of Vonom			
Output Frequency			50/60Hz ±0.25Hz	
Output Wave Distortion THD	16 Samples Average		<2%	
Output Voltage HF Ripple	For 230VAC Models		<20Vpp	
	For 120VAC Models		<10Vpp	
Line Regulation	ΔVin -20…+25%		0.4%	
	ΔVin -30…+25%		10%	
	ΔVin -10…+25% for 12V Input Models		1%	
	ΔVin -20…+25% for 12V Input Models		10%	
Load Regulation			4%	

ENVIRONMENTAL

Parameter	Conditions	Value
Operating Temperature Range (full load)		-40°C to +55°C
Storage Temperature		-40°C to +80°C
Operating Temperature (62.5% Load)		-40°C to +70°C
Cooling	Natural Convection	
Overvoltage Protection		Category II
Pollution Degree		PD2
MTBF (MIL-HDBK-217-E; Gb, 25°C)	75% load, 45°C ambient	250.000 h

SAFETY AND CERTIFICATION

Certification (Type)	Standard
Safety According	EN60950-1, EN62368-1, Class I Input/Output Isolation: Reinforced
Dielectric Strength: Input/Output	3000Vrms/50Hz/1min (routine test 2s)
Dielectric Strength: Output/Ground	1500Vrms/50Hz/1min (routine test 2s)
Dielectric Strength: Input/Ground	500Vrms/50Hz/1min(routine test 2s)
Fire and Smoke	EN45545-2

EMC

	Conditions	Value
Immunity According		EN61000-6-2; EN50121-3-2
Emission According		EN61000-6-4; EN50121-3-2

PROTECTIONS

Parameter	Type	Value
Against Input Over-Currents		Internal Fuse
Against Output Overloads < Iompk		Linear
Against Output Overloads > Iompk		Triggered

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CONTROL

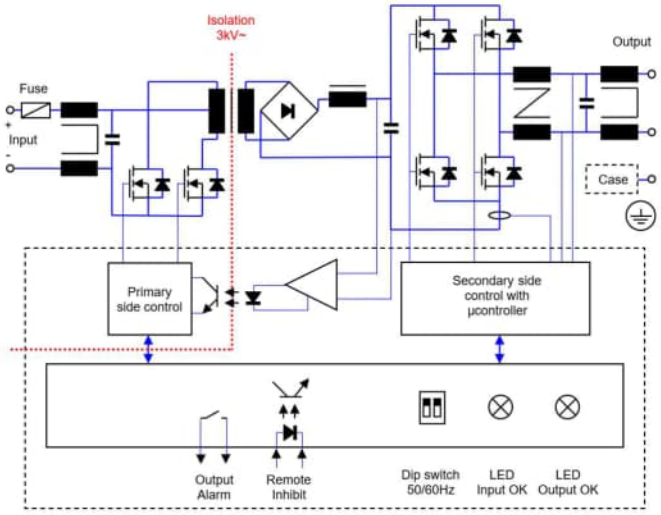
Type	Description
Remote Inhibit Input	4…24VDC
Output Failure Alarm	Solid State Relay, Open when Alarm. Max: 60V, 0.3A

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]*
IAC260-K-7031	12	9.50-15	22.1	230	0.78	180	260	4.0	86	0.65
IAC260-K-7033	24	16.8-30	13.7	230	0.87	200	260	4.0	87	0.37
IAC260-K-7034	36	25-45	10.0	230	0.96	220	260	4.0	88	0.21
IAC260-K-7035	48	33.6-60	7.36	230	0.96	220	260	4.0	89	0.17
IAC260-K-7036	72	50.4-90	4.91	230	0.96	220	260	4.0	89	0.12
IAC260-K-7037	110	77-138	3.17	230	0.96	220	260	4.0	90	0.08
IAC260-K-7041	12	9.50-15	22.3	120	1.50	180	260	7.6	85	0.65
IAC260-K-7043	24	16.8-30	13.7	120	1.67	200	260	7.6	87	0.35
IAC260-K-7044	36	25-45	10.0	120	1.83	220	260	7.6	88	0.21
IAC260-K-7045	48	33.6-60	7.45	120	1.83	220	260	7.6	88	0.15
IAC260-K-7046	72	50.4-90	4.97	120	1.83	220	260	7.6	88	0.12
IAC260-K-7047	110	77-138	3.22	120	1.83	220	260	7.6	89	0.08

*Typical Value

BLOCK DIAGRAM



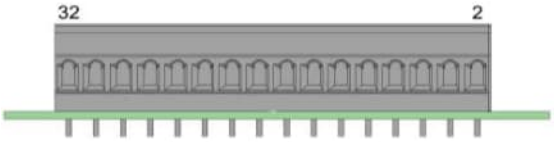
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CONNECTIONS

- Connector DIN41612H15 (Max. 12A / terminal)



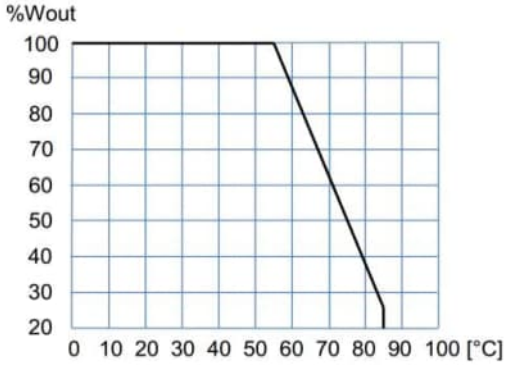
- Sping Clamp Terminals (Max. 12A / terminal)



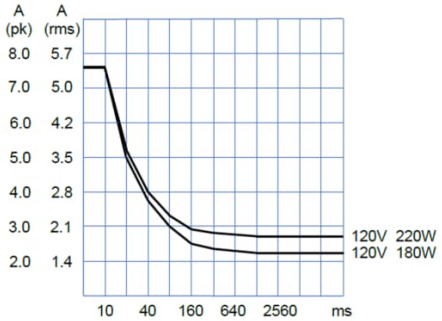
CONNECTIONS

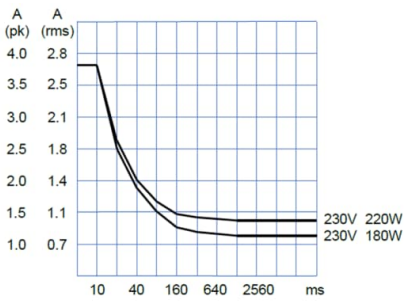
Connection	Terminal
-Vin	2, 4, 6
+Vin	8, 10
-Inhibit	12
+Inhibit	14
-Alarm	16
+Alarm	18
N	22, 24
L	28, 30
PE	32

POWER DERATING vs AMBIENT TEMP.



OPERATION CURVE LIMITS





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IAC260-K RANGE
180…220W / DC/AC SINE WAVE INVERTER

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

INSTALLATION

There are two connecting options: spiring clamp terminal strip and DIN-41612-H15 connector.
The product can be mounted in several ways:

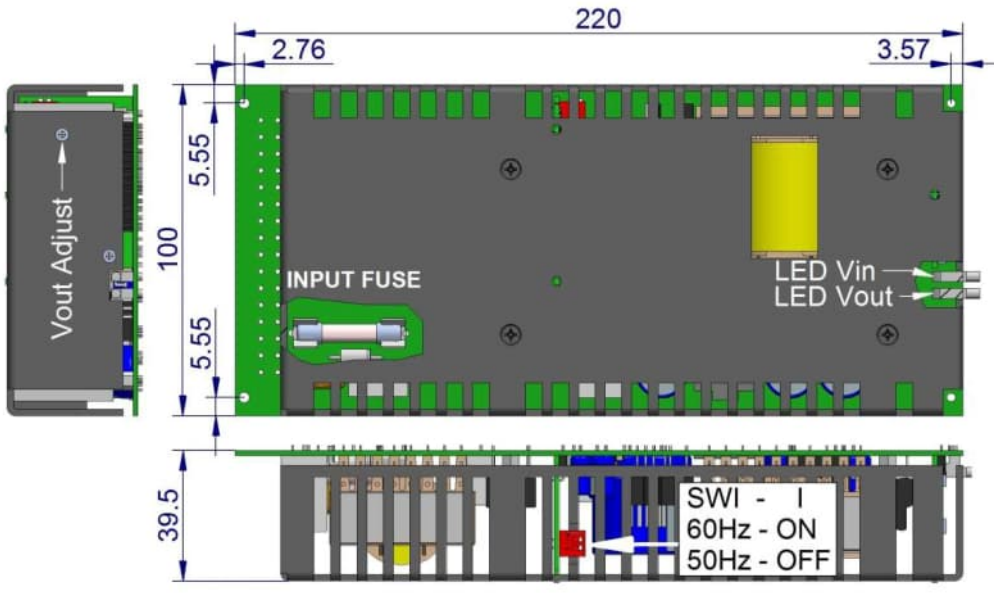
- On chassis by means of the 4 corner holes
- In EUROCARD racks. For this application there is a standard 10Te front plate accessory NP-9289
- With the mounting base NP-9125. This accessory can be mounted on a chassis or in DIN rail adding the clip accessory NP-9135

Make connections as shown in the CONNECTIONS 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.
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.

DIMENSION & PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Weight		900g
Dimensions		100x220x40mm



INPUT FUSE (Size 6.3x32mm)

Models		Input	Rating
7031	7041	12V	T 30A
7033	7043	24V	T 15A
7034	7044	36V	T 12A
7035	7045	48V	T 8.0A
7036	7046	72V	T 6.3A
7037	7047	110V	T 4.0A

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ACCESSORIES

Accessories	Notes	Code
Front Plate 19" Subrack (3U 10TE)	Screws and LED Light Guide Included	NP-9289
Mounting Base	Screws Included	NP-9125
DIN Rail Clip	Screws Included	NP-9135

NP-9289



NP-9125



NP- 9135



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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 Variation</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 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>
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<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>
</table>
P= Performance criteria, L= Line, PE= Protective Earth
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<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 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>
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<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>

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