

# HPI FREQUENCY CONVERTER 1 ÷ 3000 kVA

Intended for the following industries:



HPI systems' task is to supply AC loads with frequency and voltage differing when compared to the grid parameters (input network). The most frequently used 60 Hz and 400 Hz converters. HPI60 are dedicated to supply 60 Hz loads. HPI400 are dedicated to supply the aircraft, land-based aviation and specialized industrial equipment, where 400 Hz is a required supply frequency.

There is a possibility of using HPI converter together with the battery and rectifier. This configuration allows to obtain guaranteed voltage with a set autonomy time and output parameters differing from the input.

HPI converters dedicated for applications where high electric power quality and reliability are required.

## HPI CONVERTER CHARACTERISTICS

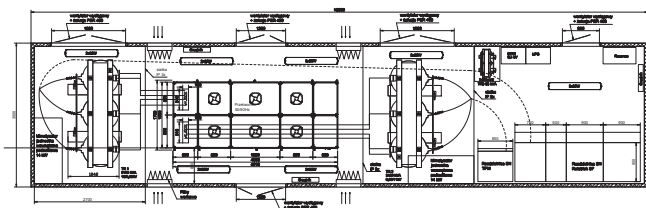
- High frequency technology with IGBT transistors and Pulse Width Modulation (PWM) and DSP microprocessor controlling;
- High output voltage stability;
- Very low output voltage THDu;
- Quiet operation, small footprint, low weight;
- Galvanic separation from the mains;
- EMI filters limiting interference to the grid and loads as well as increasing interference resistance to the distortions from the mains;
- LCD screen and LED diodes – show device operational status;
- All components, their operation continuous controlling and failures signaling.

TAB. FREQUENCY CONVERTER HPI TYPE – technical parameters

	HPI 400		HPI 60	
	1 - 60 kVA	1 - 400 kVA	0,5 - 1 MVA	2 - 3 MVA
Power	1 - 60 kVA	1 - 400 kVA	0,5 - 1 MVA	2 - 3 MVA
Main nominal supply voltage AC	3 x 400 VAC ±15%	3 x 400 VAC ±15%	3 x 400 VAC ±10%	3 x 690 VAC ±10%
Output voltage frequency (fn)	400 HZ		50/60 Hz	
Main voltage frequency			50 Hz ±5%	
Frequency stability			±0,2%	
Output voltage signal shape			sine wave	
THD(linear load)			< 2%	
Possible frequency change (synchronization)			±5%	
Overload	< 1,1In permanent		< 1,05 In permanent	
	1,1-1,25In within 10 min		1,05 - 1,5 In within 30s	
	1,25-1,5In within 3 min			
	> 1,5In within 1s		> 1,5 In within 1s	
Converter short-circuit current	3xIn (other-upon demand)			
cosφ	0 ind. to 0 cap.			
Efficiency	>90%		>92%	
crest factor	3 : 1		2 : 1	
Cooling			air	water

## SHORE TO SHIP POWER SUPPLY

High-power HPI60 MS frequency converters are used, e.g., in electrical substations for power supplying ships from the mainland. Over 50% of the world fleet is equipped with the electric ships installation with a frequency of 60 Hz. During berths, for maintaining all machine and social functions inside the ship, for economic and ecological reasons, power supplying from the mainland with the frequency converter is applied.

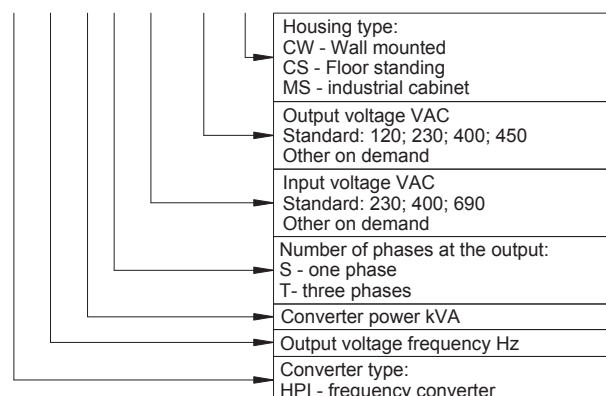


PIC. Diagram of an exemplary embodiment of the container static converter station to power supply ships from the mainland with HPI60 3000 converter made by APS Energia:

## CONVERTERS HPI TYPE MARKING

HPI60 10T 400/400 MS

HPI□□□□/□□



# HPI60 CW/CS 50/60 Hz 1÷10 kVA FREQUENCY CONVERTERS

Compact type converters (power from 1kVA to 10kVA) are used for the local power supply of 60 Hz standard equipment installed on the objects where a standard 50 Hz network is available.

**TAB. SINGLE-PHASE FREQUENCY CONVERTERS, TYPE HPI 60, 60 HZ, 1 ÷ 10 kVA**  
(CS-standing version, CW-wall-mounted version)

Power	Nominal input voltage	Nominal output voltage	Type	Dimensions (W x H x D)*
1 kVA	3xXXX AC/50Hz	XXX VAC/60Hz	HPI60 1S xxx/xxx CW	CW6
2,5 kVA	3xXXX AC/50Hz	XXX VAC/60Hz	HPI60 2.5S xxx/xxx CW	
5 kVA	3xXXX AC/50Hz	XXX VAC/60Hz	HPI60 5S xxx/xxx CW	
7,5 kVA	3xXXX AC/50Hz	XXX VAC/60Hz	HPI60 7,5S xxx/xxx CW	C1
10 kVA	3xXXX AC/50Hz	XXX VAC/60Hz	HPI60 10S xxx/xxx CW	

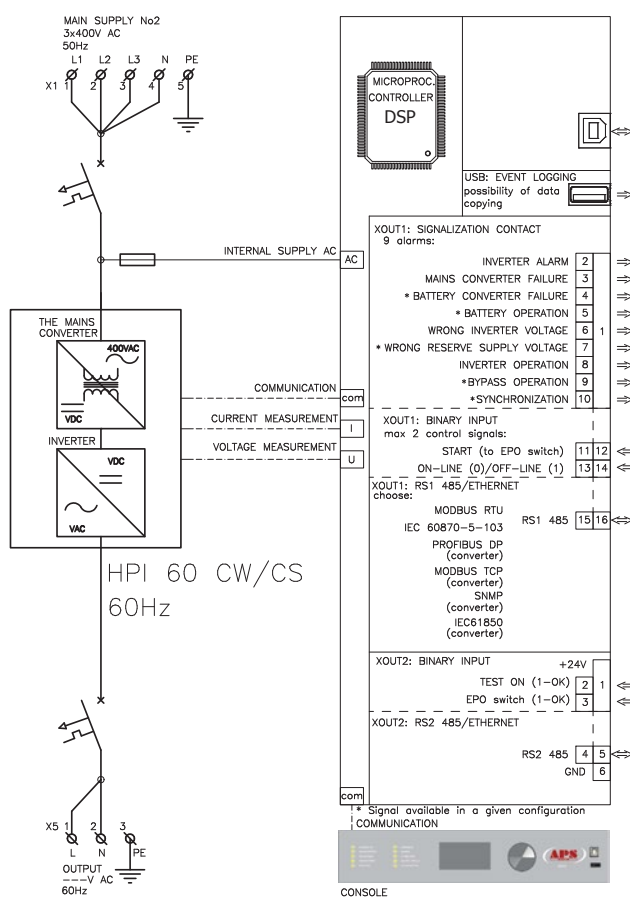
Catalog No.: HPI 40-110

**TAB. THREE-PHASE FREQUENCY CONVERTERS, TYPE HPI 60, 60 HZ, 1 ÷ 5 kVA**  
(CS-standing version, CW-wall-mounted version)

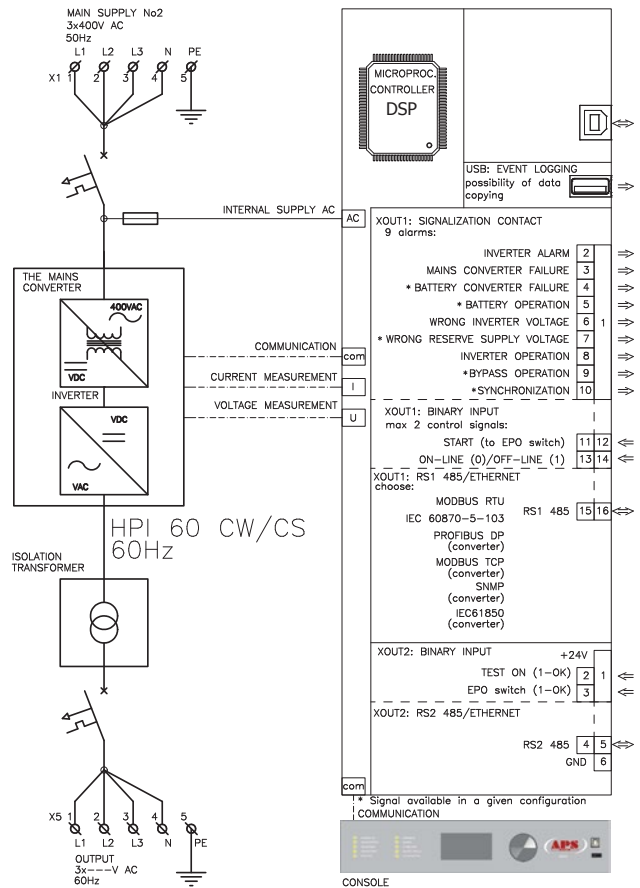
Power	Nominal input voltage	Nominal output voltage	Type	Dimensions (W x H x D)*
1 kVA	3xXXX AC/50Hz	3xXXX VAC/60Hz	HPI60 1T xxx/xxx CS	CS6
2,5 kVA	3xXXX AC/50Hz	3xXXX VAC/60Hz	HPI60 2.5T xxx/xxx CS	
5 kVA	3xXXX AC/50Hz	3xXXX VAC/60Hz	HPI60 5T xxx/xxx CS	

\*) CW6: 500 x 700 x 250; CS6: 500 x 1400 x 250; C1: 800x1000x300 (WxHxD).

**PIC. SINGLE-PHASE FREQUENCY CONVERTER HPI60 CS**



**PIC. THREE-PHASE FREQUENCY CONVERTER HPI60 CS**



Inverters

Static Switch

Converter Hz/Hz

Rectifiers

Converter DC/DC

Control Systems

Special Systems

# HPI60 50/60 Hz 1÷300 kVA FREQUENCY CONVERTERS

HPI60 converters are applied to power the entire systems or objects designed in 60 Hz standard, e.g. military objects, technological lines, vessels in ports etc.

Due to its long service life, high reliability and endurance these systems are dedicated to work in harsh environmental conditions and ensure stable output signal parameters regardless the grid parameters.

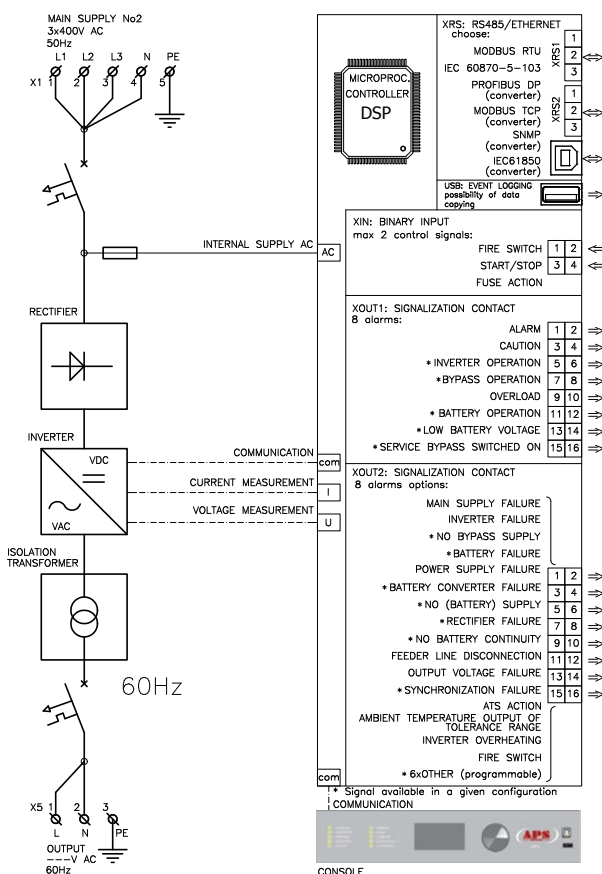
TAB. FREQUENCY CONVERTERS, TYPE HPI 60 MS, 60 HZ, 1 ÷ 3000 kVA (for mounting in the industrial cabinets)

Power	Processing	Single-phase		Three-phase	
		Type	Dimensions (W x H x D)	Type	Dimensions (W x H x D)
1 kVA	50 Hz/60 Hz	HPI60 1 S xxx/xxx MS	800x2000x800	HPI60 1 T xxx/xxx MS	600x2000x800
2.5 kVA		HPI60 2.5 S xxx/xxx MS		HPI60 2.5 T xxx/xxx MS	600x2000x800
5 kVA		HPI60 5 S xxx/xxx MS		HPI60 5 T xxx/xxx MS	600x2000x800
10 kVA		HPI60 10 S xxx/xxx MS		HPI60 10 T xxx/xxx MS	600x2000x800
15 kVA		HPI60 15 S xxx/xxx MS		HPI60 15 T xxx/xxx MS	600x2000x800
20 kVA		HPI60 20 S xxx/xxx MS		HPI60 20 T xxx/xxx MS	600x2000x800
25 kVA		HPI60 25 S xxx/xxx MS		HPI60 25 T xxx/xxx MS	600x2000x800
30 kVA		HPI60 30 S xxx/xxx MS		HPI60 30 T xxx/xxx MS	600x2000x800
40 kVA		HPI60 40 S xxx/xxx MS		HPI60 40 T xxx/xxx MS	800x2000x 800
50 kVA		HPI60 50 S xxx/xxx MS		HPI60 50 T xxx/xxx MS	800x2000x 800
60 kVA		HPI60 60 S xxx/xxx MS		HPI60 60 T xxx/xxx MS	800x2000x 800
75 kVA		x		x	HPI60 75 T xxx/xxx MS
100 kVA		x	x	HPI60 100 T xxx/xxx MS	1200x2000x800
150 kVA		x	x	HPI60 150 T xxx/xxx MS	1400x2000x800
200 kVA		x	x	HPI60 200 T xxx/xxx MS	1600x2000x800
250 kVA		x	x	HPI60 250 T xxx/xxx MS	2200x2000x800
300 kVA		x	x	HPI60 300 T xxx/xxx MS	2400x800x2000
400 kVA		x	x	HPI60 400 T xxx/xxx MS	3200x2000x800
500 kVA		x	x	HPI60 500 T xxx/xxx MS	3600x2000x800
600 kVA		x	x	HPI60 600 T xxx/xxx MS	3600x2000x800
750 kVA	x	x	HPI60 750 T xxx/xxx MS	3000x2000x1 600	
1000 kVA	x	x	HPI60 1MW T xxx/xxx MS	3000x2000x1 600	
2000 kVA	x	x	HPI60 2MW T xxx/xxx MS	3000x2000x1 600	
3000 kVA	x	x	HPI60 3MW T xxx/xxx MS	4000x2000x1 600	

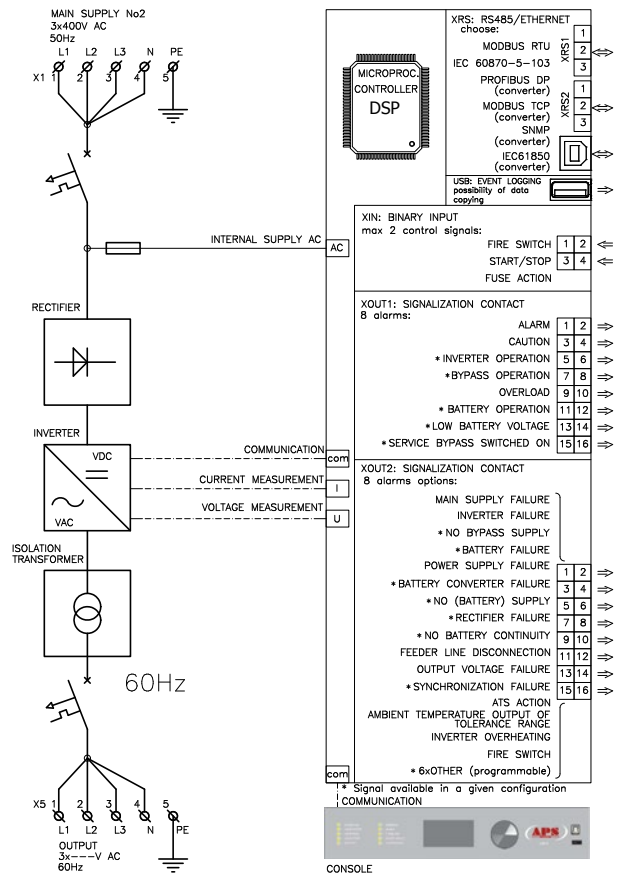
Catalog No: HPI 40-120

xxx/xxx input/output voltage

PIC. SINGLE-PHASE FREQUENCY CONVERTER HPI60 MS



PIC. THREE-PHASE FREQUENCY CONVERTER HPI60 MS



# HPI400 1÷60 kVA FREQUENCY CONVERTERS

HPI400 type frequency converter is designed to power supply receivers with alternating voltage with a frequency of 400 Hz. The converter converts three-phase power supply voltage with a frequency of 50 Hz into another three-phase voltage with a frequency of 400 Hz.

HPI 400 is designed to power supply airport and on-board installations in aviation. Thanks to its long service life, reliability and strength it is designed for operation in harsh environmental conditions and provides

for power supply with stable parameters regardless the power source quality.

HPI is also used to power specialized industrial and laboratory equipment, thanks to the use of advanced EMI filters at input and output of the converter, significant reduction of interference emitted to the power supply network and loads was ensured, and resistance to interference coming from the power supply network was increased.

**TAB. THREE-PHASE FREQUENCY CONVERTER, 400 Hz, HPI400 TYPE, 1÷5 kVA**  
(Compact type for floor mounting)

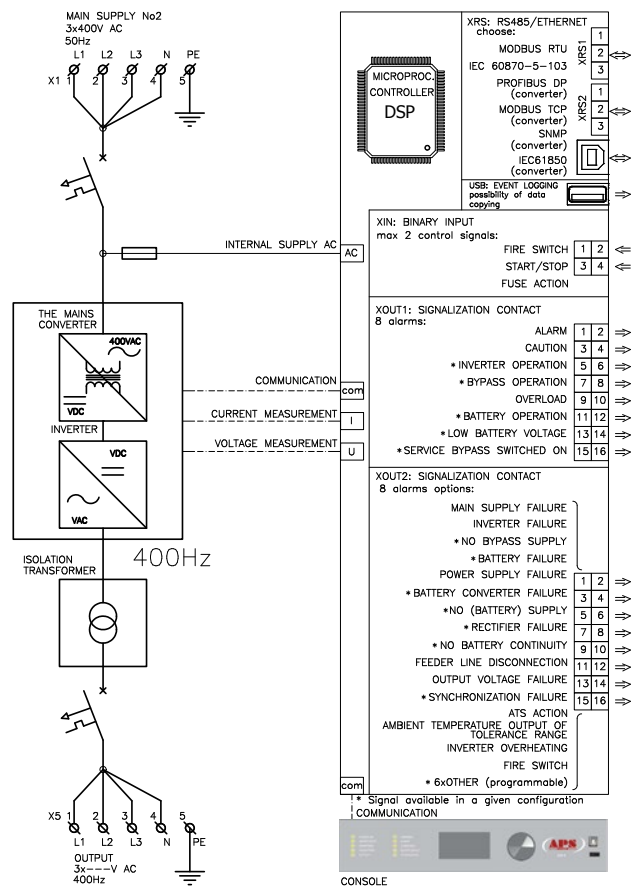
Power	Nominal input voltage	Nominal output voltage	Type	Dimensions (W x H x D)*
1 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 1 T xxx/xxx CS	CS6
2,5 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 2.5 T xxx/xxx CS	
5 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 5 T xxx/xxx CS	

**TAB. THREE-PHASE FREQUENCY CONVERTER, 400 Hz, HPI400 MS TYPE 1÷60 kVA**  
(for mounting in the industrial cabinets)

Power	Nominal input voltage	Nominal output voltage	Type	Dimensions (W x H x D)*
1 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 1 T xxx/xxx MS	600x2000x800
2,5 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 2.5 T xxx/xxx MS	
5 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 5 T xxx/xxx MS	
10 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 10 T xxx/xxx MS	
15 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 15 T xxx/xxx MS	
20 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 20 T xxx/xxx MS	
25 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 25 T xxx/xxx MS	
30 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 30 T xxx/xxx MS	
40 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 40 T xxx/xxx MS	
50 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 50 T xxx/xxx MS	
60 kVA	3xXXX AC/50Hz	3xXXX VAC/400Hz	HPI400 60 T xxx/xxx MS	

xxx/xxx input/output voltage \*) CS6: 500 x 1400 x 250 (WxHxD).

**PIC. THREE-PHASE FREQUENCY CONVERTER HPI400 CS**



**PIC. THREE-PHASE FREQUENCY CONVERTER HPI400 MS**

