

ZN



Series



GENERAL FEATURES

- Wide DC Input Voltage Range
- 3 and 1 Phase Sine Wave Output (Optional without Neutral)
- Adjustable Output Voltage up to %5
- Automatic Dehumidification Unit
- Advanced LCD Panel
- Audible and Visual Alarms
- Advanced Protection Systems
- Shock and Vibration Resistance
 In Military Standards

SUBMARINE STATIC CONVERTER TECHNICAL SPECIFICATIONS

Apparent Power	MODEL	ZN-INV-1030-60	ZN-INV-3025-400		
Active Power 24 kW 12 kW 8 kW 10 kW					
NPUT	Apparent Power	30 kVA	15 kVA	10 kVA	
Voltage Pange 160-360 Vdc OUTPUT Voltage 115Vac, 1 Phase 2 Wires (W/O 115Vac, 3 Phase 3 Voltage Setup Range ±5% 50 Aac Current 261 Aac 130 Aac 50 Aac Wave Form \$100 Sinusodial Voltage Tolerance ±%1 Frequency 60 Hz 400 Hz Frequency Frequency Tolerance ±%0, 1 Frequency Frequency 60 Hz 400 Hz Frequency Frequency Protection Frequency Protection Frequency Protection Frequency Protection Frequency Protection Frequency Protection Frequency Frequency Protection Frequency Protection April Protection Frequency	Active Power	24 kW	12 kW	8 kW	
Voltage Setup Range	INPUT				
Voltage Setup Range	Voltage Range	160-360 Vdc			
Voltage Setup Range ±5% Current 261 Aac 130 Aac 50 Aac Wave Form \$100 Sinusodial Voltage Tolerance ±%1 Frequency 60 Hz 400 Hz Frequency Frequency Tolerance ±%0, 1 Fefficiency@Full Load >85% Power Factor 0.8 Frequency Found -85% Power Factor 0.8 3:1 Frequency Forestor PROTECTIONS High/Low Voltage for Input and Output, Output Phase Interruption, Output Short Circuit Interruption, Output Short Circuit Output DC Protection Electronic Protection Fequency Protection Feducation Frequency for Output Temperature Protection Low/High Frequency for Output Yes Over Load Protection 1 Hour for %100 - %110; 10 Minutes for %110 - %130; 1 Min. for %130 - %150; >%150 Inverter OFF Wilso For %130 - %150; >%150 Inverter OFF Over Load Protection Internal Built in Heater GENERAL Front Panel Graphic LCD, LCD Indicators Input Voltage and Current, Output Current, Voltage and Frequency Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators					
Current 261 Aac 130 Aac 50 Aac Wave Form %100 Sinusodial Voltage Tolerance Frequency 60 Hz 400 Hz Frequency Tolerance ± %0, 1 Efficiency@Full Load Power Factor 0.8 3.1 THDV <%3	Voltage	115Vac, 1 Phase 2 Wires (W/O 115Vac, 3 Phase 3			
Current 261 Aac 130 Aac 50 Aac Wave Form %100 Sinusodial Voltage Tolerance Frequency 60 Hz 400 Hz Frequency Tolerance ± %0, 1 Efficiency@Full Load Power Factor 0.8 3.1 THDV <%3	Voltage Setup Range	,			
Voltage Tolerance		261 Aac	130 Aac	50 Aac	
Frequency Tolerance	Wave Form	%100 Sinusodial			
Frequency Tolerance	Voltage Tolerance	± %1			
Efficiency@Full Load Power Factor O.8 THDV Crest Factor PROTECTIONS Voltage Protection Output DC Protection Frequency Protection Frequency Protection Over Load Protection Over Load Protection Humidity Protection Humidity Protection LCD Indicators Frequency Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Topology FINIONMENTAL Operating Temperature Relative Humidity Protection Class Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Weight (kg) Demotions IMIL-STD-461E: CE 101,CE 102, RS 101, RS 103 Short Circuit VDE O160 Shock Resistance MIL-S-901D	Frequency	60 Hz	400) Hz	
Efficiency@Full Load Power Factor O.8 THDV Crest Factor PROTECTIONS Voltage Protection Output DC Protection Frequency Protection Frequency Protection Over Load Protection Over Load Protection Humidity Protection Humidity Protection LCD Indicators Frequency Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Topology FINIONMENTAL Operating Temperature Relative Humidity Protection Class Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Weight (kg) Demotions IMIL-STD-461E: CE 101,CE 102, RS 101, RS 103 Short Circuit VDE O160 Shock Resistance MIL-S-901D					
Power Factor THDV		·			
Crest Factor PROTECTIONS Voltage Protection High/Low Voltage for Input and Output, Output Phase Interruption, Output Short Circuit Output DC Protection Electronic Protection Frequency Protection Ves 1 Hour for %100 - %110 ; 10 Minutes for %110 - %130; 1 Min. for %130 - %150; >%150 inverter OFF Over Current Protection Electronic Protection and Fuse Humidity Protection Internal Built in Heater GENERAL Front Panel Graphic LCD, LCD Indicators Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators General Failure, Humidifier ON Operating Class S1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature 0 ~ 45 °C Relative Humidity %10 - %95 Protection Class IP23 -Audible Noise (from 1 m) 460 dBA PHYSICAL Dimensions (WXDXH) mm. 550x520x1100 Weight (kg) 284 204 Operating Gradient 50°C Gradient, ± 45°C Trim Color RAL7032 STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101, CE 102, CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D		0.8			
PROTECTIONS Voltage Protection High/Low Voltage for Input and Output, Output Phase Interruption, Output Short Circuit Output DC Protection Frequency Protection Temperature Protection Over Load Protection Over Load Protection High/Low Voltage for Input and Output, Output Phase Interruption, Output Short Circuit Over Load Protection Over Load Protection Over Current Protection Humidity Protection Flectronic Protection and Fuse Humidity Protection Flectronic Protection and Fuse High/Low Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Topology Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class S1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature O ~ 45 °C Relative Humidity Frotection Class IP23 Audible Noise (from 1 m) Ac60 dBA PHYSICAL Dimensions (WxDxH) mm. Weight (kg) 284 Que Operating Gradient Color RAL7032 STANDARDS Earthing MIL-STD-461E: CE 101, CE 102, CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0.160 MIL-S-901D	THDv	<%3			
Voltage Protection High/Low Voltage for Input and Output, Output Phase Interruption, Output Short Circuit Output DC Protection Frequency Protection Frequency Protection Temperature Protection Over Load Protection Over Current Protection Humidity Protection CEBECTRONIC Protection and Fuse Humidity Protection Internal Built in Heater GENERAL Front Panel CI Graphic LCD, Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature Relative Humidity Protection Class Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Sox520x1100 Weight (kg) Operating Gradient Color RAL7032 STANDARDS EMC/EMI MIL-STD-461E: CE 101, CE 102, CS 101, CS 114, CS116, RE MIL-S-901D MIL-S-901D	Crest Factor	3:1			
Notrage Protection Interruption, Output Short Circuit Output DC Protection Frequency Protection Frequency Protection Frequency Protection Dowr Load Protection Over Load Protection Over Current Protection Humidity Protection Electronic Protection and Fuse Humidity Protection Internal Built in Heater GENERAL Front Panel CD Indicators Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class S1 (Continious Operating) Topology ENVIRONMENTAL Operating Temperature O ~ 45 °C Relative Humidity Protection Class IP23 Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. S50x520x1100 Weight (kg) Operating Gradient Color RAL7032 STANDARDS EMC/EMI MIL-STD-461E: CE 101, CE 102, CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 MIL-S-901D	PROTECTIONS				
Interruption, Output Short Circuit Output DC Protection Frequency Protection Frequency Protection Frequency Protection Temperature Protection Over Load Protection Over Current Protection Humidity Protection Electronic Protection and Fuse Humidity Protection LCD Indicators Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature Relative Humidity Protection Class Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Weight (kg) Operating Gradient Color STANDARDS EMC/EMI MIL-STD-461E: CE 101, CE 102, CS 101, CS 114, CS116, RE EMC/EMI Shock Resistance MIL-S-901D	Voltage Protection	High/Low Voltage for Input and Output, Output Phase			
Output DC Protection Electronic Protection Frequency Protection Low/High Frequency for Output Temperature Protection Yes Over Load Protection 1 Hour for %100 - %110; 10 Minutes for %110 - %130; 1 Min. for %130 - %150; >%150 Inverter OFF Over Current Protection Electronic Protection and Fuse Humidity Protection Internal Built in Heater GENERAL Graphic LCD, Front Panel Graphic LCD, LCD Indicators Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators General Failure, Humidifier ON Operating Class \$1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL 0 ~ 45 °C Operating Temperature 0 ~ 45 °C Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) <60 dBA					
Frequency Protection Temperature Protection Over Load Protection Over Load Protection Over Current Protection Final Protection Over Current Protection Over Current Protection Over Current Protection Over Current Protection Final Protection Final Protection Final Protection Final Protection Final Protection Internal Built in Heater Graphic LCD, Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Front Panel Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature Protection Class Final Protection Class Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Weight (kg) Operating Gradient Color FAL7032 STANDARDS Earthing MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 MIL-S-901D	Output DC Protection				
Temperature Protection Over Load Protection Over Load Protection Over Load Protection Over Load Protection Over Current Protection Humidity Protection Electronic Protection and Fuse Humidity Protection GENERAL Front Panel LCD Indicators LED/Illuminated Indicators Operating Class Topology High Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature Relative Humidity Protection Class Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Weight (kg) Operating Gradient Color STANDARDS Earthing MIL-STD-461E: CE 101, CE 102, CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit NVE 0160 MIL-S-901D					
Over Load Protection Over Load Protection Diver Current Protection Humidity Protection Humidity Protection Electronic Protection and Fuse Humidity Protection Electronic Protection and Fuse Humidity Protection GENERAL Front Panel LCD Indicators Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators Operating Class Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature Relative Humidity Operating Temperature Relative Humidity PHYSICAL Dimensions (WXDXH) mm. Weight (kg) Operating Gradient Color STANDARDS Earthing MIL-STD-1310-G MIL-STD-1310-G MIL-STD-1461E: CE 101, CE 102, CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Shock Resistance MIL-S-901D	_ ' /				
Over Load Protection Min. for %130 - %150; >%150 Inverter OFF Over Current Protection Electronic Protection and Fuse Humidity Protection Internal Built in Heater GENERAL Front Panel Graphic LCD, LCD Indicators Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators General Failure, Humidifier ON Operating Class \$1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature 0 ~ 45 °C Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) <60 dBA	•				
Over Current Protection Electronic Protection and Fuse Humidity Protection Internal Built in Heater GENERAL Front Panel LCD Indicators Graphic LCD, Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators General Failure, Humidifier ON Operating Class \$1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature 0 ~ 45 °C Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) <60 dBA PHYSICAL Dimensions (WxDxH) mm. \$50x520x1100 Weight (kg) 284 204 Operating Gradient ± 60°C Gradient, ± 45°C Trim Color RAL7032 STANDARDS Earthing MIL-STD-1310-G MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	Over Load Protection				
Humidity Protection GENERAL Front Panel LCD Indicators Departing Class Topology	Over Current Protection				
GENERAL Front Panel Graphic LCD, LCD Indicators Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators General Failure, Humidifier ON Operating Class \$1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature 0 ~ 45 °C Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) <60 dBA	Humidity Protection				
Input Voltage and Current, Output Current, Voltage and Frequency, Cabinet Inner Temperature, Operating Time					
Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators General Failure, Humidifier ON Operating Class S1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature 0 ~ 45 °C Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Weight (kg) 284 204 Operating Gradient Color RAL7032 STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101, CE 102, CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	Front Panel	Graphic LCD,			
Frequency, Cabinet Inner Temperature, Operating Time LED/Illuminated Indicators General Failure, Humidifier ON Operating Class S1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature 0 ~ 45 °C Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) Hysical Dimensions (WxDxH) mm. \$550x520x1100 Weight (kg) 284 Qoerating Gradient Color RAL7032 STANDARDS Earthing MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	LCD Indicators	Input Voltage and Current, Output Current, Voltage and			
LED/Illuminated Indicators Operating Class S1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature Relative Humidity Protection Class Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Weight (kg) Operating Gradient Color STANDARDS Earthing EMC/EMI Short Circuit Shock Resistance S1 (Continious Operating) High Frequency PWM, IGBT 81 (0 - 45 °C) (
Operating Class S1 (Continious Operating) Topology High Frequency PWM, IGBT ENVIRONMENTAL O ~ 45 °C Operating Temperature 0 ~ 45 °C Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) <60 dBA PHYSICAL Dimensions (WxDxH) mm. 550x520x1100 Weight (kg) 284 204 Operating Gradient ± 60°C Gradient, ± 45°C Trim Color RAL7032 STANDARDS Earthing MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	LED/Illuminated Indicators				
Topology High Frequency PWM, IGBT ENVIRONMENTAL Operating Temperature Relative Humidity Protection Class Audible Noise (from 1 m) PHYSICAL Dimensions (WxDxH) mm. Weight (kg) Operating Gradient Color STANDARDS Earthing EMC/EMI Short Circuit Shock Resistance High Frequency PWM, IGBT 0 ~ 45 °C 410 ~ 45 °C 810 ~ 60 dBA 810 ~ 60	-				
## Departing Temperature Operating Temperature		High Frequency PWM, IGBT			
Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) <60 dBA					
Relative Humidity %10 - %95 Protection Class IP23 Audible Noise (from 1 m) <60 dBA	Operating Temperature	0 ~ 45 °C			
Audible Noise (from 1 m) <60 dBA PHYSICAL Dimensions (WxDxH) mm. 550x520x1100 Weight (kg) 284 204 Operating Gradient ±60°C Gradient, ±45°C Trim Color RAL7032 STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D		%10 <i>-</i> %95			
PHYSICAL Dimensions (WxDxH) mm. 550x520x1100 Weight (kg) 284 204 Operating Gradient ± 60°C Gradient, ± 45°C Trim Color RAL7032 STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	Protection Class	IP23			
PHYSICAL Dimensions (WxDxH) mm. 550x520x1100 Weight (kg) 284 204 Operating Gradient ± 60°C Gradient, ± 45°C Trim Color RAL7032 STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	Audible Noise (from 1 m)	<60 dBA			
Weight (kg) 284 204 Operating Gradient ± 60°C Gradient, ± 45°C Trim Color RAL7032 STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D					
Operating Gradient ± 60°C Gradient, ± 45°C Trim Color RAL7032 STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	Dimensions (WxDxH) mm.	550x520x1100			
Color RAL7032 STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	Weight (kg)	284 204			
STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	Operating Gradient	± 60°C Gradient, ± 45°C Trim			
STANDARDS Earthing MIL-STD-1310-G EMC/EMI MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D					
MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D		·			
MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D	Earthing				
EMIC/EMI 101, RE 102, RS 101, RS 103 Short Circuit VDE 0160 Shock Resistance MIL-S-901D		MIL-STD-461E: CE	MIL-STD-461E: CE 101,CE 102,CS 101, CS 114, CS116, RE		
Short Circuit VDE 0160 Shock Resistance MIL-S-901D	EIVIC/EIVII	101, RE 102, RS 101, RS 103			
	Short Circuit				
Vibration Resistance MIL-STD-167-1	Shock Resistance		MIL-S-901D		
	Vibration Resistance	MIL-STD-167-1			

SUBMARINE STATIC CONVERTER

This converter is produced according to the Military standards and provides different AC Output Voltages at different frequencies in only one cabinet. Converter can resist against to the very high shock and vibration values which are usual for Navy due to very rugged and strong chassis