SOLID STATE FREQUENCY CONVERTER
FOR SHIPBOARD OPERATION


SEA Static Frequency Converters are designed to feed the optimum electrical power system to vessel's equipment.

SEA is available in two configuration: at the harbour (DOCK series) and on board (NAVY series). The first one, DOCK series, has a fixed input voltage (the harbour's voltage) and a settable output voltage in order to supply power to vessels that are not compatible with the locally available dockside power; the second type, NAVY series, has an input settable voltage and a fixed output voltage to feed and clean on board power from a dockside connection, anywhere in the world.

Static frequency converters, SEA series, are outcome of a long experience static frequency converter both civil and military field (receiving the NATO code for the quality of his supplies), of UPS and of static Constant Current Regulators for series lighting.
All of our equipments distinguish themselves by the employment of advanced technological components, excellent reliability and easy maintenance.

The simplicity of working is the main feature of all of our products.

## PRINCIPLES OF WORKING

Static Frequency Converter DOCK series:
Fixed input voltage (the harbour's voltage) and a settable output voltage and frequency.
A diode rectifier transforms the AC voltage into a continuous stabilized DC link voltage, to power the IGBT inverter that transforms the continuous voltage into an alternating sinusoidal stabilized voltage with a PWM modulation. The output inverter voltage feeds a transformer which on its output have the filter capacitors.
The output voltage is sinusoidal with a distortion of 3%. The output has an electronic stabilization both in voltage and in frequency.

Static Frequency Converter NAVY series:
Input voltage and frequency settable, fixed output voltage.
Dockside connected it is a device that in automatic way allows to perform the conversion stage. The principle of working of the conversion stage is the same of Dock version.
It is possible to count the delivered energy.

## FEATURES

- High efficiency > 93%
- Filtered, stabilized and regulated sine wave supply;
- High input power factor;
- Automatic working;
- Superior overload capability;
- LCD display;
- Trasformatore di isolamento;
- Remote control as option;
- Drop line compensation as option;
- Battery version (UPS) as option;
- IP55 as option;
- Mobile or horizontal version as option;
- Low audible noise;
- Dry contact interface standard , RS232, USB, RS485 and SNMP as option;
- Emergency Power Off.

| ELIT CONVSEA - DOCK SERIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Model** | **DOCK 7.5** | **DOCK 10** | **DOCK 15** | **DOCK 20** | **DOCK 30** | **DOCK 40** | **DOCK 60** | **DOCK 80** |
| Rated power kVA/kW | 7.5/6 | 10/8 | 15/12 | 20/16 | 30/24 | 40/32 | 60/48 | 80/64 |

| **INPUT** | |
|---|---|
| Nominal voltage | 400Vac ±20%, 3F<br>(as option 110V, 208V, 220V, 440V & 480V 50-60Hz) |
| Nominal Frequency | 50Hz or 60Hz |
| Power factor | >0.95 |
| Cycle wise | Any |
| Inrush current | Absent |

| **OUTPUT** | |
|---|---|
| Load power factor | 0.8 lagging |
| Working | Continuous |
| Voltage | 190 ~ 520Vac (Standard)<br>100 ~ 600Vac (Extended range) |
| Frequency | 39 ÷70Hz |
| Frequency stability | ±0.5% |
| User power factor | Ind./cap. |
| Waveform | Sinusoidal |
| Static stability | ±1% |
| Dynamic stability | ±8% |
| Recovery time | 20 msec. |
| Overload | 125% for 10 minutes, 150% for 1 minute |
| Crest factor | 1.41 |
| Phase voltage symmetry with balanced load | ±1% |
| Phase voltage symmetry with unbalanced load (Ir; 0.3Ir; 0.3Ir) | ±2% |

| **MISCELLANEOUS** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Relative humidity | < 95% without condensing | | | | | | | |
| Operating temperature | -15°C ÷ +50°C | | | | | | | |
| Storage temperature | -25°C ÷ +60°C | | | | | | | |
| Audible noise | 65dBA | | | | | | | |
| Protection degree | IP 20 standard (as option up to IP55) | | | | | | | |
| Colour | RAL 7035 | | | | | | | |
| Dimensions (mm) | 600x800x1200 | | | | | | 800x600x1800 | |
| Weight (kgs) | 110 | 120 | 180 | 250 | 300 | 400 | 550 | 650 |

| **STANDARDS** | |
|---|---|
| Safety | EN 62040-1-1, EN 60950-1 |
| EMC | EN 61000-6-4, EN62040-2, EN 61000-6-2, EN 61000-4-3/4/5 |
| Performance | EN 62040-3 |

MARINE STATIC FREQUENCY CONVERTERER Rev. 0 Serie CONV-SEA

| ELIT CONVSEA - NAVY SERIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Model** | **NAVY 7.5** | **NAVY 10** | **NAVY 15** | **NAVY 20** | **NAVY 30** | **NAVY 40** | **NAVY 60** | **NAVY 80** |
| Rated power kVA/kW | 7.5/6 | 10/8 | 15/12 | 20/16 | 30/24 | 40/32 | 60/48 | 80/64 |

| **INPUT** | |
|---|---|
| Nominal voltage | 190 ~ 520 Vca (Standard)<br>100 ~ 600 Vca (Extended range) |
| Nominal frequency | 39 ÷70Hz |
| Power factor | >0.95 |
| Cycle wise | Any |
| Inrush current | Absent |

| **OUTPUT** | |
|---|---|
| Load power factor | 0.8 lagging |
| Working | Continuous |
| Voltage | 400Vca, 3F or 230V 1F<br>(as option 110V, 208V, 220V, 440V & 480V 50-60Hz) |
| Frequency | 50Hz or 60Hz |
| Frequency stability | ±0.5% |
| User power factor | Ind./cap. |
| Waveform | Sinusoidal |
| Static stability | ±1% |
| Dynamic stability | ±8% |
| Recovery time | 20 msec. |
| Overload | 125% for 10 minutes, 150% for 1 minute |
| Crest factor | 1.41 |
| Phase voltage symmetry with balance load | ±1% |
| Phase voltage symmetry with unbalanced load (Ir; 0.3Ir; 0.3Ir) | ±2% |

| **MISCELLANEOUS** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Relative humidity | < 95% without condensing | | | | | | | |
| Operating temperature | -15°C ÷ +50°C | | | | | | | |
| Storage temperature | -25°C ÷ +60°C | | | | | | | |
| Audibile noise | 65dBA | | | | | | | |
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| **STANDARDS** | |
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| Safety | EN 62040-1-1, EN 60950-1 |
| EMC | EN 61000-6-4, EN62040-2, EN 61000-6-2, EN 61000-4-3/4/5 |
| Performance | EN 62040-3 |

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