Introduction

With years of experience in designing and manufacturing UPS and frequency converter system, we had completed our frequency converter series by static frequency converter using for industrial application. LISA SFC static frequency converter series are outcome of combination between state of the air technology and our excellent experiences. We had created distinguish products by employment of advanced technological components, and take the simplicity of working for main feature.

LISA SFC provides maximum protection and power quality for mission critical loads with maximum reliability. SFC is designed with a transformer isolated inverter, so it provide completed protection for your load.

A rectifier transforms the AC voltage into a continuous stabilized DC link voltage, to power the IGBT inverter that transforms the continuous voltage into a 50Hz or 60Hz alternating sinusoidal stabilized voltage with a PWM modulation. The output inverter voltage feeds a transformer which on its output has the filter capacitors. The output voltage is sinusoidal with a distortion of 2%. The output has an electronic stabilization both in voltage and in frequency.

Main Features

- High efficiency up to 95%
- High frequency IGBT technology
- Sinusoidal input current (low THDi <1.5%)
- Easy Installation
- Online Double Converter with sine-wave output
- Galvanic Isolation of Inverter via Inv. Transformer
- Power Factor Correction (PF =1)
- Monitoring and Display controlled by Microprocessor
- Robust design for industrial application
- Single or Dual Output
- Mobile: castor with shock absorbers and stainless
  Steel Cable Tray
- IP54 enclosure for fixed and mobile units
- CE MARK

High efficiency

LISA SFC has no moving parts, except for the fans to cool the systems down, and is highly efficient units (up to 95% efficiency). Our High frequency IGBT Technology (Rectifier and inverter) guarantees a perfect sine-wave input with low THDi (THDi <1.5%) and unitary power factor (PF=1), perfect for all sorts of extreme electrical conditions (compatible with Genset output). The advantages of this technology are:

- Fast response to load changes
- Quiet operation
- Reduction in size and weight
- High efficiency – low heat losses
- Short circuit protection

Parallel

LISA SFC can be Paralleled or connected in Hot Standby in a redundant mode to increase reliability. The units to be paralleled must be of the same rating and no more than 4 in number

When two or more units are connected in Parallel Redundant mode their outputs are connected to a common point via a current equalizing saturable choke. They also interface with each other via a CAN Field Bus so that the instructions and controls are synchronized.

In Hot Standby Operation, both SFC will be ON but only one will be connected to the Load at any one time. If SFC 1 fails SFC 2 will supply the Load via SFC 1 Static Bypass. If both SFC fail the load will be supplied by the Mains via both SFC Static Bypass.

Control Panel

The control panel consists of a mimic panel that displays the flow of power from the input to the output and a liquid crystal display - LCD (two rows of 40 characters). The display shows the event history log up to 120; the measurements and associated alarms are recorded for each event

Custom version

We realize custom apparatus according to customer's technical data employing the standard series sets and therefore with experimented feature:

- Fixed or variable input voltage
- Fixed or variable output voltage
- Stainless steel enclosure and IP54 protection
- Drop line compensation
- Additional 28VDC module output
- Parallel version
- UPS version
- Trolley version

Application

Application for marine:

LISA static frequency converter is designed to feed the optimum electrical power system to vessel's equipment. LISA SFC is available in two configurations: 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.

LISA SFC series, are outcome of a long experience static frequency converter both civil and military field, of UPS and of static Constant Current Regulators for series lighting. All of our equipment 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.

Technical data sheet the LISA SFC50/60 10-80kVA Dock Series								
MODELS	**50SFC 10**	**50SFC 15**	**50SFC 20**	**50SFC 30**	**50SFC 40**	**50SFC 50**	**50SFC 60**	**50SFC 80**
INPUT								
Nominal voltage	3Phase 200VAC/400VAC/480VAC							
Voltage tolerance	± 15%							
Nominal frequency	45Hz to 65Hz ±5%							
Input current harmonics	< 3% at full load (sinusoidal)							
OUTPUT								
Nominal power (kVA)	10	15	20	30	40	50	60	80
Active power (kW)	10	15	20	30	40	50	60	80
Voltage	190 – 520Vac as standard (other range as option)							
Static regulation 0 -100% load	±1%							
Dynamic regulation 100%	±5%, recovering to 1% within 40 millisecond							
Frequency	50 or 60Hz (selectable)							
Frequency stability	±0.01% Crystal controlled							
Overall Efficiency	Up to 95 %							
Max Crest Factor	3 : 1							
RECTIFIER								
AC Voltage Range	-25% +10%							
Efficiency	93% - 97%							
Input Frequency Deviation	± 5%							
Overload capacity	150% continuous							
Current walk in	5 seconds to maximum							
Overall current limits	120% continuous							
INVERTER								
Total harmonic distortion	< 2% linear load							
Overload	120% for 60s, 150% for 5s, 200% for 2s							
Waveform	Sinusoidal							
Load power factor	0.7 - 1							

Efficiency	93% - 98%			
INFO FOR INSTALLATION				
DIMENSION (WxDxH) mm	450x500x700	550x500x750	700x715x1250	700x780x1575
Remote signal	Dry contact			
Ethernet connection	Standard with NetAgent			
CAN (with Remote Panel)	Optional			
Temperature range at sea level	-40^{0}C to +55^{0}C (full load) 30^{0}C at 2000m (full load)			
Relative humidity	10%-100%			
Noise level	< 65dbA at 1meter			
IP rating	IP20 (IP42, IP54 optional)			
Altitude	Up to 2500m			
Standard	CE MARK; EN62040-1-1; EN61558-2-6; EN61000-6-4; EN61000-6-2			

Technical data sheet the LISA SFC50/60 100-400kVA Dock series							
MODELS	**50SFC 100**	**50SFC 120**	**50SFC 150**	**50SFC 200**	**50SFC 250**	**50SFC 300**	**50SFC 400**
INPUT							
Nominal voltage	3Phase 200VAC/400VAC/480VAC						
Voltage tolerance	± 15%						
Nominal frequency	45Hz to 65Hz ±5%						
Input current harmonics	< 3% at full load (sinusoidal)						
OUTPUT							
Nominal power (kVA)	100	120	150	200	250	300	400
Active power (kW)	100	120	150	200	250	300	400
Voltage	190-520Vac as standard (other range as option)						
Static regulation 0 -100% load	±1%						
Dynamic regulation 100%	±5%, recovering to 1% within 40 millisecond						
Frequency	50 or 60Hz (selectable)						
Frequency stability	±0.01% Crystal controlled						
Overall Efficiency	Up to 95 %						
Max Crest Factor	3 : 1						
RECTIFIER							
AC Voltage Range	-25% +10%						
Efficiency	93% - 97%						
Input Frequency Deviation	± 5%						
Overload capacity	150% continuous						
Current walk in	5 seconds to maximum						
Overall current limits	120% continuous						
INVERTER							
Total harmonic distortion	< 2% linear load						
Overload	120% for 60s, 150% for 5s, 200% for 2s						
Waveform	Sinusoidal						
Load power factor	0.7 - 1						
Efficiency	93% - 98%						

INFO FOR INSTALLATION		
DIMENSION (WxDxH) mm	1000x810x1955	1600x1000x2000
Remote signal	Dry contact	
Ethernet connection	Standard with NetAgent	
CAN (with Remote Panel)	Optional	
Temperature range at sea level	-40^{0}C to +55^{0}C (full load) 30^{0}C at 2000m (full load)	
Relative humidity	10%-100%	
Noise level	< 68dbA at 1meter	
IP rating	IP20 (IP42, IP54 optional)	
Altitude	Up to 2500m	
Standard	CE MARK; EN62040-1-1; EN61558-2-6; EN61000-6-4; EN61000-6-2	