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ELECTRONIC

Innovative Power Solutions & Voltage Stabilizers

ELC Catalog

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ELC

Voltage Optimization and Energy Saving Unit (Line Conditioner & Saver)

Key Features

- Voltage Optimization and protection function
- Energy Saving Feature
- Special management software for energy saving
- Maintenance-free Thyristor Technology
- Production in the power range of 10kVA – 1000kVA
- It can be produced as 1 Phase and 3 Phase Input
- Suitable for all industrial voltages
- Voltage reduction up to 30%
- Voltage boost up to 15%
- Response time: 20 msec
- Voltage correction time: 100 msec -200 msec
- 100% Unbalanced Voltage and Load Capacity
- Continuous protection against voltage fluctations
- Efficiency > 98%
- Operator Panel with 4x20 LCD display
- Electronic Overload, Over-Temperature Protection
- Low Voltage / High Voltage Protection
- Suitable design for industrial environment
- TS EN ISO 9001: 2015 Quality Certified

Optional Features

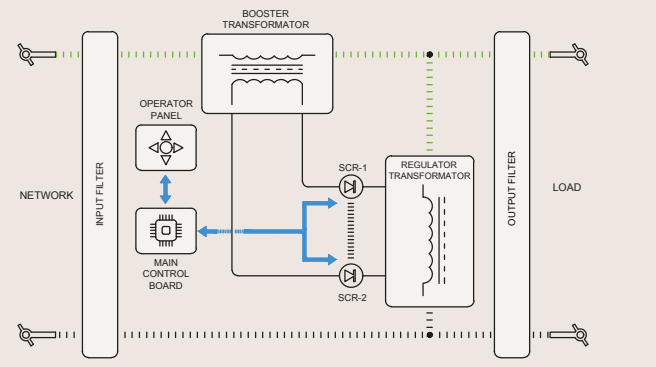
- Input EMC Filter
- Output EMC Filter
- Harmonic Filter
- Reactive Power Compensation
- Internal Automatic By-Pass Function
- Maintenance By-Pass Switch
- Lightning Protection, Surge-Spike Protection
- Ethernet Web Server and Mod-Bus RTU

What is ELC Line Conditioner&Saver?

ELC Line Conditioner&Saver is a voltage optimization and protection device that adjusts the network voltage to the optimum value, corrects the phase imbalance, and protects expensive equipment by filtering electrical noises so that electrical devices and machines can operate at the highest efficiency for the longest time.

It is mostly used in networks with high voltage, phase asymmetry, electrical noise and harmonic distortion problems. It is designed to provide energy savings between 5% and 20% depending on voltage and load characteristics.

How Does It Work?



ELC Line Conditioner&Saver works on the principle of injecting voltage to the load supply voltage by the help of transformer connected in series between the network and load.

The sensitive measuring circuits on the microprocessor-based management board measure voltage drops and fluctuations, calculate the voltage to be increased or decreased, and perform voltage injection with Thyristor switches.

The software algorithm specially developed for the ELC Line Conditioner&Saver allows the most accurate voltage value to be set for the machines and equipment to operate at the highest efficiency. ELC Line Conditioner&Saver's special software measures and records the actual energy saving rate. This information is interpreted by the engineers and the output voltage parameters are optimized for higher savings.

In order to ensure the highest efficiency and longevity of electrical machines and equipments, harmonic filter and EMC filter units that filter electrical noises and harmonic distortions in the network voltage can be added optionally.

Optimization filtering and protection solutions for highest efficiency

Design Features

ELC Line Conditioner&Saver is customizable. They are produced on order by adding options according to the network voltage characteristics, installation features, load characteristics and special requests of the customer. Following are the performance features and protection functions that can be selected while keeping the basic production technology the same.

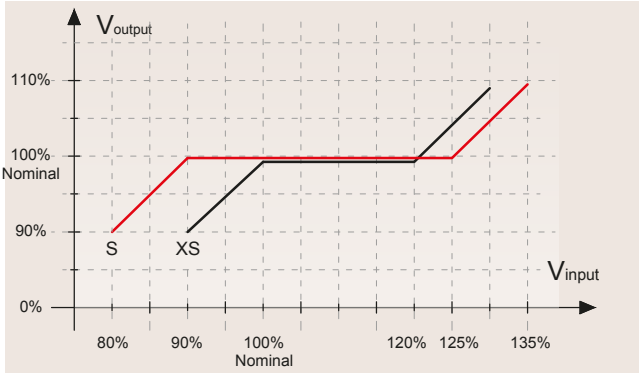
Input Voltage Range - Output Voltage Tolerance

The input voltage range of the ELC Line Conditioner&Saver is determined at the order and cannot be changed later.

There are 2 models as standard.

XS Model : -0% , +20%

S Model : -10% , +25%



There are 2 options for output voltage tolerance in ELC Line Conditioner&Saver as +/- 1% and +/- 2%. The output voltage tolerance is related to the thyristor configuration used and affects the manufacturing cost.

Standard type three phase ELC Line Conditioner&Savers can operate in 3 Phase + Neutral (4 wire) installations. Neutral connection is required for safe operation. However, for special needs, it can also be produced in accordance with 3-Phase 3-Wired Delta connection installations.

Please contact with sales representative for special production requests and the right solutions.

Operating Performance at Low-High Voltage

ELC Line Conditioner&Savers are designed to operate continuously at full load at the lowest and highest value of the network voltage.

Input fuse, power transformers and thyristors of ELC Line Conditioner&Savers are selected to operate at full load.

Optional Filters

1 EMC Filter

EMC filters can be added at the input and output of the ELC Line Conditioner&Saver. High electrical noises in the network voltage may adversely affect the safe operation and performance of sensitive electronic devices and machines. Electrical noise is reduced to levels that do not damage sensitive electronic equipment by adding EMC filters at the input and output of the ELC Line Conditioner&Saver. Filter needs and features are evaluated separately for each project.

2 Harmonic Filter

Harmonic filters can be added at the input and output of the ELC Line Conditioner &Saver. High harmonic distortions in the network voltage may adversely affect the safe operation and performance of sensitive electronic devices and machines.

Harmonic filters specially designed for the project to eliminate the negative effects of harmonic distortions and increase efficiency connect to the input or output of the ELC. For the design of harmonic filters, it is necessary to measure the harmonic distortions in the network. Filter needs and features are evaluated separately for each project.

Full Protection with Fast and Durable Thyristor Technology

In ELC Line Conditioner&Savervoltage increasing and voltage decreasing are done using THYRISTOR switches. There are no moving mechanical parts such as motors or brushes inside the device and no maintenance is required.

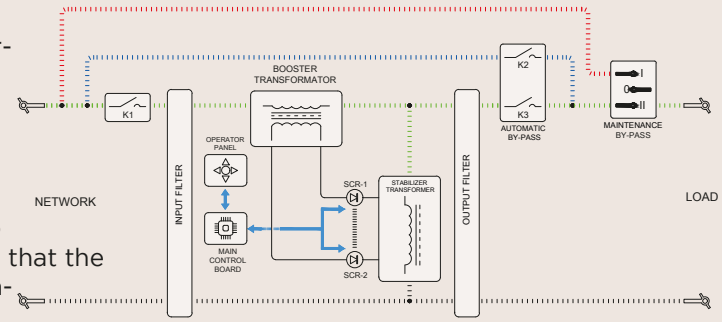
Voltage regulation is done from AC to AC directly. It doesn't create harmonic distortion on network or load voltage.

ELC Line Conditioner&Saver is equipped with protection systems of Low Voltage, High Voltage, Overload and Over Temperature for safe operation of critical industrial devices.

Internal Automatic By-pass (Optional)

An internal bypass can be added to the ELC Line Conditioner &Saver, which ensures uninterrupted transfer of loads to the network in case of overload or internal fault.

In case of overload or failure, the circuit of internal bypass short-circuits the secondary side of booster transformer, provides a direct connection from the network to output.



Maintenance By-Pass Switch (optional)

A Maintenance By-Pass switch can be added to the ELC Line Conditioner&Saver, which ensures that the loads are transferred to the grid in case of maintenance or failure. Maintenance By-Pass switch is an I-0-II position changeover switch and is manually controlled. During the Maintenance By-Pass operation, the power to the loads is cut for a short time.

Advantages

- ✓ It can be produced as 3 Phase and 1 Phase
- ✓ It can be customized according to customer demands.
- ✓ Cabin design, dimensions and electrical connection features can be re-designed according to the project needs.
- ✓ It is small in size and compact structure.
- ✓ It has filter options
- ✓ It has measuring and monitoring software
- ✓ It Saves Energy

Remote Monitoring and Management

Ethernet Web Server (Optional):

It is designed for remote monitoring via network. The whole system can be monitored and managed with an Ethernet cable. The remote management interface is designed as browser-based. It can be connected from any computer with a web browser. No additional software is required.

With remote management interface; all parameters of ELC Line Conditioner&Saver can be monitored and some parameters can be changed.

There is two-step password protection for accessing the remote monitoring interface.

MOD-BUS RTU (Optional):

It is designed for monitoring and management via Mod-Bus. The whole system can be monitored and managed by connecting with a cable. All parameters of ELC Line Conditioner&Saver can be monitored and some parameters can be changed.

The ELC Line Conditioner &Saver has an ergonomic and user-friendly Operator Panel designed for management and monitoring.

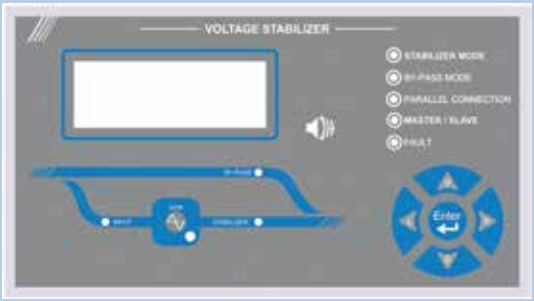
All operating parameters of the ELC Line Conditioner&Saver can be monitored from this panel and some operating parameters can be adjusted. There is two-step password protection for parameter changing.

Monitorable parameters: Input Voltages, Output Voltages, Load Percentages, Energy Save Rates, Operating Frequency, Date-Time, Device status information, Fault and error codes.

Changeable Parameters: Output Voltage Set Value (limited), Date-Time information.

1. LCD Display Operator Panel (Standard)

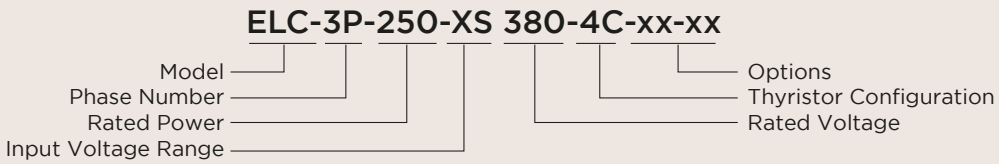
- **4 lines 20 characters LCD display**
- **Mimic Diagram**
- **Light indicators**
- **5 pcs selection and application buttons**
- **Three Language Options (On Order)**
- **Economical and long-lasting**



Technical specifications

ELC Voltage Optimization and Energy Saving Unit		
General Features		
Model	ELC	
Power (kVA)	In the power range of 10KVA - 1000KVA	
Technology	Thyristor Technology, High-speed Voltage Regulation, Maintenance-free Design	
Input		
Rated Input Voltage	3 Phase Model: 400VAC 3Phase+Neutral+Ground	1 Phase Model: 230VAC 1Phase+Neutral+Ground
Voltage Tolerance	XS Model +%20 S Model -%10 , +%25	
Frequency	50 Hz. +/-%5 (60 Hz. Optional)	
Output		
Rated Output Voltage	3 Phase Model: 400VAC 3Phase+Neutral+Ground	1 Phase Model: 230VAC 1Phase+Neutral+Ground
Voltage Tolerance	+/-%2	
Frequency	50 Hz. +/-%5	
Overload Capacity	125% 1 minute, 150% 10 seconds, 151% and above 0.2 seconds	
Response Time	20 msec	
Correction Time	100 msec - 200 msec	
Efficiency	> 97% typical	
Network Filtering and Energy Saving Options		
Energy Savings calculation and monitoring software	Special software developed to measure and monitor the Actual Saving rate	
Harmonic Filter Unit	Passive Harmonic Filter specially designed for the project (designed according to the measurement report)	
EMC Filter Unit	EMC filter for protection and high performance of sensitive electronic equipments	
Automatic By-Pass	Automatic by-pass system to work in ECO mode in case of Low Voltage and Low load.	
Management Monitoring and Communication Interfaces		
Operator panel with LCD Display	Input Voltage, Output Voltage, Load Percentage, Frequency, Status Information, Fault Information, Parameter settings	
Remote Management Interface (optional)	Browser-based remote management with Ethernet connection MOD-BUS RTU with RS485 connection	
Protection Functions		
Voltage Protection	Electronic protection for Low Voltage and High Voltage	
Current Protection	Input Circuit Breaker (Output Circuit Breaker optional)	
Overload Protection	1 minute at 125% overload, 10 seconds at 150% overload, at >151% overload the power to the load is cut off after 0.2 seconds.	
Over-Temperature Protection	Fan cooling works at 50°C. At 80°C, the power to the load is cut off.	
Surge Arrester	Surge Arrester Class-I or Class-II (optional)	
Environmental Conditions		
Operating temperature	-10 °C ~ +40 °C	
Altitude Operating Height	1.500m	
Humidity	90% none condensed	
Acoustic Noise	< 65dB (at 1m distance and doors closed)	
Cabinet Specifications		
Type – Protection Class	Free Standing Modular Cabinet, IP21 Indoor type	
Paint – Color	Epoxy-Polyester Powder Paint - RAL 7032	
Cooling	Air cooling with thermostat controlled fan.	

ORDER CODE



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You may visit our Website for more detailed information and solutions.