



IEC - 62314  
in compliance with  
LVD Directive EMC Directive



**1 - Phase SSR**  
DC – AC / AC - AC  
LOAD : 25 - 330 VAC rms  
25 - 480 VAC rms  
10 to 40 Amps



**CAPACITOR SWITCHING MODULE**  
For Power Factor Correction  
5 to 50 KVAR  
LOAD : 25 - 660 VAC rms  
25 to 205 Amps



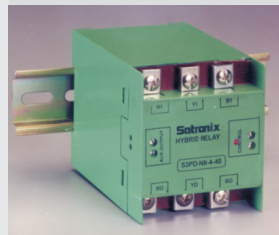
**1- Phase HIGH POWER SSR**  
DC – AC / AC - AC  
LOAD : 25 - 330 VAC rms  
25 - 480 VAC rms  
50 to 90 Amps  
\* Custom Built  
100 – 205 Amps models



**SHORT CIRCUIT PROTECTED SSR**  
LOAD: 25 – 480 VAC rms  
10 – 40 Amps



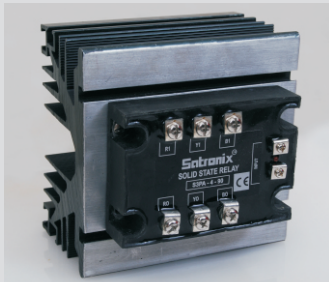
**3 - Phase SSR**  
DC – AC / AC - AC  
LOAD : 25 - 480 VAC rms  
10 to 40 Amps / per Phase



**DIN Rail Mount HYBRID Non – Heat SSR 1 & 3 Phase**

Eliminates need for Heatsink  
Switches maximum loads with minimum Power  
No arching between mechanical contacts

I/P: 24 VDC  
LOAD: 25 – 480 VAC rms /  
10 – 40 Amps



**3 - Phase HIGH POWER SSR**  
LOAD : 25 - 480 VAC rms  
50 to 90 Amps / per Phase  
\* Custom Built  
LOAD: 100 – 205 Amps models



**THREE PHASE MOTOR REVERSER**

I/P: 5 – 24 VDC  
LOAD: 48 - 530 VAC rms / 10 – 50 A

MAXIMUM FOR 3 HP MOTOR /  
IN- BUILT INTERLOCK FACILITY

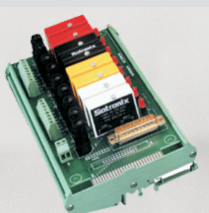


**DC – DC SSR**  
Mosfet based  
LOAD : 5 - 30 VDC  
10 to 40 Amps  
\* Custom Built  
LOAD: 5- 1000 VDC  
25 Amps models



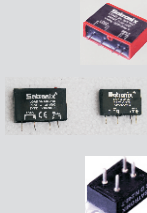
**TRANSFORMER SOFT START RELAY (µP-based THYRISTORISED)**

3- Phase & 1- Phase  
LOAD : 230V : 180VAC - 280VAC  
440V : 320VAC - 480VAC  
Current 10A – 90A



**I-O Modules**  
Available with 4,8,16,  
24,32,40 or 48 positions

Different configurations of  
DC - DC / DC - AC available



**PCB Mounting SSR**

DC – AC SSR ( in built heatsink)  
LOAD: 25 – 330 VAC / 5 Amps

DC – AC SSR  
LOAD: 25 – 330 VAC / 3 Amps

DC – DC SSR  
LOAD: 25 – 200 VDC / 3 Amps

**PCB /CHASSIS MOUNT SSR**

I/P: 3- 32 VDC  
LOAD: 25 – 330VAC / 7 Amps



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# SCR PROPORTIONAL CONTROLLER

For Heating Applications

Input : Linear Control 4-20 mA or 0-10 VDC  
Average O/P power 0 – 100 %

## DIGITAL SCR PROPORTIONAL CONTROLLER

2 & 3 Phase



Load: upto 480 VAC / 90- to 205 amps per phase



Load: upto 480 VAC  
10- to 75 amps per phase



Load: upto 330 VAC  
10 to 90 amps per phase

## SCR ANALOG CONTROLLER

1 - Phase



Load: 25 – 330 VAC rms  
48 – 480 VAC rms/  
10 – 90 Amps

### Applications for SCR Proportional Controller

#### Heater Controls

Textile Industry  
Plastics Industry (extrusion / thermoforming)  
Plastics Industry (drying)  
Packaging Industry  
Heat Tracing  
Solder Wave / Reflow Systems

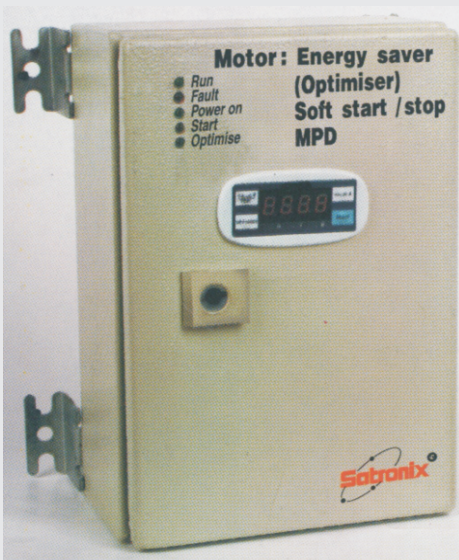
### General switching SSR Applications

Industrial Lighting  
Medical Equipment  
Traffic Signal Systems  
Motorway Information Systems  
Lifts & Escalators  
Automatic Door Operation  
Heater Control

## ENERGY SAVER /

### Microcontroller Based Power Optimizer /

### Soft Start- Soft stop for Three Phase Induction Motors



#### Features

Power range up to 710 KW 440 V	Power Optimizer
Compact and Efficient	Thyristorised microcontroller Design
Choice of startup functions; breakaway pulse, voltage ramp, voltage or current limiting	System Run, fault, Power, start and Optimize
Adjustable Ramp up Start time	Microcontroller Motor protection Device (Optional)
	Adjustable Torque i.e. Pedestal voltage

#### Applications

- Injection Molding** - (Pharmaceutical, Automotive, Industrial, Agricultural)
- Air Compressors** - (Industrial, Hospitals, Food Processing, Agricultural Feed Manufacturing)
- Air Conditioning** - (Offices, Malls, Hotels and Catering)
- Refrigeration Systems** - (Retail, Hotel and Catering, Hospitals, Industrial, Food Storage)
- Fluid Pumps** - (Industrial, Hotel and Leisure, Hospitals, Offices Blocks)
- Grinders, Crushers and Mills** - (Quarries, Mining, Flour Mills, Agricultural Feed Supply, Abattoirs)
- Air Handling** - (Offices, Industrial, Malls, Hotels and Catering, Chemical Manufacturing, Hospitals)
- General Industrial Drives** - (Conveyors, Mixers, Band and Strip Saws, Metal Rolling Mills, Presses)
- Escalators** - (Malls, Hotels, Transport Hubs, Offices Complexes)

**Satronix Energy saver** is a field - proven thyristorised micro controller based unit. Energy saver is able to instantly detect by microprocessor control any change in load variation & automatically adjust the output voltage by matching output to load. The losses (iron/magnetizing & copper loss) inherent in all AC induction motors are thereby considerably reduced dramatically. Thus improving the motor efficiency and reducing electricity bills. The soft start facility is incorporated in all 3 Phases of the Energy saver. It provides a gradual and controlled increase (soft start)/ (decrease in case of soft stop) in the voltage applied to the motor terminals, thus eliminating the high peak current created during the starting cycle of induction Motors.

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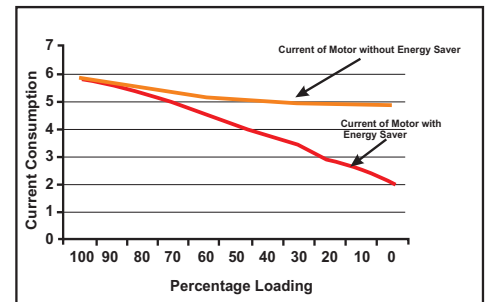
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# ENERGY SAVER

## Range 7.5 - 800 HP

### Microcontroller Based Power Optimizer / Soft Start- Soft stop for Three Phase Induction Motors



### Features

- Power Optimizer
- Thyristorised microcontroller Design
- Compact and Efficient
- System Run, Fault, Power, Start and Optimize
- Choice of startup functions; breakaway
- Microcontroller Motor protection Device (Optional)
- Pulse, voltage ramp, voltage or current limiting
- Adjustable Torque i.e. Pedestal voltage
- Adjustable Ramp up Start time
- Easy to install and virtually maintenance free
- 80 % Depreciation
- Built-in / Optional Microprocessor based Motor Protection device
- Breakdown and maintenance of Electrical equipment greatly reduced.
- Savings upto 40%

By giving you control over your energy consumption, Energy Saver will save between 15% to 40% of your electricity costs without any loss of power and without being detrimental to your motor. Instead it will decrease motor wear and tear. Saving costs both ways: Electricity and Life of the motor

### The Problem

Much of industry is driven by AC induction motors, which are the world's most common form of electromechanical engineering, consuming typically 70% of all electricity generated. This high energy consumption has a high financial cost to you and a high cost to the planet in terms of depleted resources and global warming.

Induction motors have distinct inefficiencies in that they cannot effectively adjust the amount of electricity they consume for the work they do. When they operate under less than full load, substantial power is wasted.

### The Solution

Energy Saver corrects this inefficiency. The units, designed to be simply fitted to single or three phase motors, will give soft start, energy control, soft stop, improved reliability and increased productivity.

Motors can consume electricity at more than ten times their capital cost each year. By controlling your efficiently, **Energy Saver can save between 15% and 40% of your electricity costs; without reducing speed, without any loss of power and without being detriment to your motor or load.**

**Note:** The Energy Saver is not required for applications where the motor runs at full load conditions at all given times.

In all applications **ENERGY SAVER** accommodates and manages the high starting torque demands of certain systems ensuring reliable starting and control of power at all times.

## Applications

Heat in the motor is also reduced by use of **ENERGY SAVER** thereby diminishing waste and improving pull-down times in all applications.

### Injection Moulding

On injection moulding systems Energy Saver controls the start and power management of the primary hydraulic pump or pumps. It readily accommodates the very rapid load transitions typical of Injection Moulding and smoothes peak current excursions to reduce potential kVA impact on supplies.

Typical system savings on the majority of installations are between 12 and 20% providing paybacks of between 12 and 15 months.



### Air Compressors

Air compressors typically spend over 40% of their operating life with the drive motor off-load. In these periods **ENERGY SAVER** provides dramatic savings reducing overall consumption by up to 25% providing paybacks in certain cases of less than 12 months.

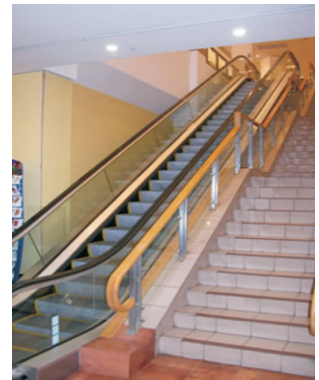
In screw compressors **ENERGY SAVER** additionally manages the rapid load transition and reduces the impact on seals, reducing wear and increasing life between service providing additional cost savings to the User.



### Escalators

Escalator drive motors provide a distinct opportunity for **ENERGY SAVER** where they have proven themselves to provide effective management over prolonged periods of time with savings of typically 17 – 20% and payback periods of less than 15 months even when operating for only 14 hours a day.

**ENERGY SAVER** can also be effectively integrated into moving walkways and baggage conveyor systems with equally good savings.



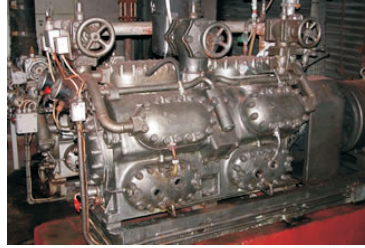
### Fluid Pumps

Industrial applications are wide and varied, incorporating many, if not all of the other applications. High pressure, high volume water pumps such as those shown are suitable applications for **ENERGY SAVER**, additionally providing soft-stop control to overcome water-hammer whilst also providing savings. Savings greater than 14% can be achieved, giving a payback of less than 18 months.

## Refrigeration

Refrigeration Compressors are commonly used for AC induction motors. The Energy Saver provides energy management solutions from commercial kitchen fridges & freezers up to industrial refrigeration systems.

Savings range from typically 12 – 20% for the three phase systems giving pay back periods of 12 – 18 months. Savings of up to 45% on single phase systems, such as Bottle Coolers, have been achieved giving paybacks of less than 20 months.



## Air Conditioning

Air conditioning systems are in effect refrigeration systems with air movement. Single-phase units predominate, ENERGY SAVER can provide significant savings of up to 30% on the main compressor motors giving pay back periods of typically less than 24 months.

Three phase systems can be found in many "central air conditioned" environments such as office blocks, restaurants and hotels. These units can be of significant size, (many up to 500kW). Savings are excellent in these areas yielding 12 - 17% with paybacks in many cases less than twelve months.



## Air Handling

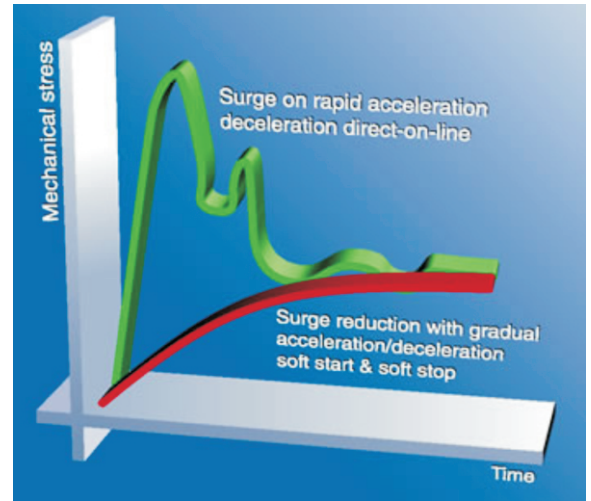
Air handling systems vary considerably, single phase or three phase, ENERGY SAVER provides controlled start and energy management where required. Though constant load, savings of 12 – 15% can be achieved and paybacks of less than 24 months are typical. Many air handling systems use high slip motors where DVR's can be used to provide cost effective speed control without the complications or cost penalty typical with variable speed drives.

## Grinders, Crushers and Mills

Grinders and crushers are many and varied with applications from quarries and mining through flour mills and cereal manufacturers to animal feed producers. ENERGY SAVER has been used to effectively control the start and stop of abattoir bone grinders, reducing loading and damage to the drive train as well as giving savings of 15% and a pay back of less than 18 months.

## Soft Starter

**The Problem** During start-up, all AC induction motors develop substantially more torque than they require. Up to ten times full motor load current is drawn during uncontrolled rapid motor acceleration. At this time voltage dips, brownouts, overheating, contactor wear and system failure can result. Due to which there is excessive wear creating failure of the related equipment which can result in production losses and tons of grief over maintenance to put it right. Many sites use Star-Delta starters but this only provides a partial solution to the problem as high peak currents are still experienced during the transition period when the motor briefly slows down when switching from Star to Delta.



**The Solution** :By providing a controlled release of power, (torque), to the motor during start up, Soft Starter provides smooth, stepless acceleration and, (if required), deceleration, (soft stop). It delivers an economical and extremely reliable solution to all starting problems and is fully configurable for all applications. Increasing life of motors and peripherals and reduces high-shock load, backlash, Vee-belt stress, noise and vibration; thereby reducing damage to motor and load bearings and motor windings.

## Applications

- Injection Molding** - (Pharmaceutical, Automotive, Industrial, Agricultural)
- Air Compressors** - (Industrial, Hospitals, Food Processing, Agricultural Feed Manufacturing)
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