

SIEMENS



SIRIUS
Hybrid

SIRIUS 3RW SOFT STARTERS

As versatile
as your application

[siemens.com/softstarter](https://www.siemens.com/softstarter)

Soft starters help make your processes more reliable for the future

Electric motors are significant in most industries; without them, your applications wouldn't work. Motors pump liquids, transport heavy materials, move air masses and support the processing of raw materials. Since motors are the leading unit in your facility, they should be durable and reliable with no chances of failure. SIRIUS soft starters do just this! They help limit the starting current and torque to best fit your application.

This prevents mechanical load and voltage dips. The motor is adjusted to the load of the driven machine by means of stepless control of the voltage supply. Mechanical equipment is accelerated softly, which highly influences operating characteristics, and extends service life. The comprehensive range offers the appropriate soft alternative for almost every application, whether for simple or demanding motor requirements. Optimized and reliable machine concepts can be implemented simply and economically thanks to the jerk-free start of three-phase motors.

Strong portfolio

Comprehensive, coordinated soft starter portfolio for simple to demanding starting applications:
Basic, General, High Performance

Efficient switching

Energy-efficient switching and mechanical protection of the drive train thanks to soft starters with hybrid switching technology

Intelligent operation

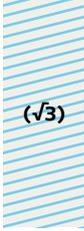
Concentrated application-specific functionality thanks to intelligent features such as automatic parameterization, pump cleaning and condition monitoring

Ready for a digital future

Support of digital engineering processes with tools and data as well as data provision for local visualization or cloud-based analysis



SIRIUS 3RW – A strong, versatile portfolio with many application opportunities

Automatic parameterization	High Performance	3RW55 5.5 ... 710/1200 kW ($\sqrt{3}$)			3-phase control
Condition Monitoring					
Torque control					
Soft Torque	General Performance	3RW52 5.5 ... 315/560 kW ($\sqrt{3}$)			3-phase control
HMI and communication modules as accessories					
Analog output 0 ... 10 V or 4 ... 20 mA					
Current limiting	Basic Performance	3RW40 5.5 ... 55 kW		3RW40 75 ... 250 kW	2-phase control
Electronic/thermal motor protection					
Voltage ramp		3RW30 1.5 ... 55 kW			

Basic Performance

SIRIUS 3RW30/40 soft starters are one of the world's most compact two-phase controlled soft starters in the power range from 1.5 kW (at 400 V) to 250 kW (at 400 V) thanks to their innovative control principle. Their compact design helps you save space in the control panel configurations. SIRIUS 3RW30/40 soft starters are the ideal solution for simple applications of all kinds.

General Performance

SIRIUS 3RW52 soft starters are an ideal solution for standard applications. With 3-phase motor control, they cover the power range from 5.5 kW (at 400 V) to 315 kW in standard circuits or up to 560 kW (at 400 V) in inside-delta circuits. With optional HMI modules, communication options (PROFINET, PROFIBUS, Modbus RTU/TCP, EtherNet IP) and the choice between an analog output or thermistor motor protection, they offer maximum flexibility.

High Performance

Equipped with maximum functionality, the SIRIUS 3RW55 all-rounder masters even difficult starting and stopping operations. Thanks to its innovative torque control, it can be used for drives in a performance class up to 710 kW (at 400 V) in inline circuits or 1,200 kW (at 400 V) in inside-delta circuits. The optional communication module for PROFINET High Feature with 2 ports, which facilitates media redundancy in a ring topology, means even greater reliability for the user. The functionality designed for easy handling ensures maximum operating convenience.

Typische Anwendungen

für SIRIUS Sanfstarter 3RW



Pumping



Conveying



Ventilating



Processing



Compressing



reddot design award

Design Awards 2018

The SIRIUS 3RW5 soft starter received both the RedDot Design and the iF Design awards in 2018. Among other things, the iF design institute recognized the slim, coordinated, uniform design across all sizes:



Despite their size and materials, the devices look harmonious due to the consistent design throughout the entire family. The most important elements for the user, such as LEDs and safety locking, have been placed on the first level in a user-oriented manner.

Your application in mind



Pump cleaning and pump stopping mode

The pump cleaning function prevents pumps from blocking, therefore, increasing your productivity and system availability. The pump stopping mode avoids mechanical loading in the piping system and extends the service life of the equipment.



Condition monitoring

The condition monitoring function supports optimal planning of maintenance work on bearings or seals, therefore maximizing availability.



Integrated braking functions

Intelligent functions such as soft starter braking ensure a fast and reliable stop without engineering and configuration work.



Electrical ruggedness

Due to the wide control voltage range from 110–250 V AC, soft starters have a high degree of electrical ruggedness. This guarantees reliable operation even in the event of falling voltages.



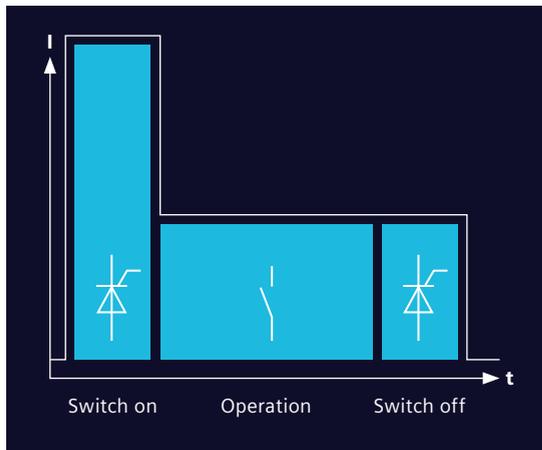
Automatic parameterization

Automatic parameterization simplifies the commissioning and operation of critical applications, even in the case of highly dynamic load characteristics.

The best of both worlds with **hybrid switching technology**

Benefits of hybrid switching technology

- Lower power losses in the operating phase
- Lower energy costs and heat rise in the control cabinet
- Avoidance of current peaks
- No network voltage dips
- Less flicker
- Particularly economical for increased switching cycle counts
- Low-wear switching thanks to hybrid switching technology



Hybrid switching technology combines the advantages of electronic control with power semiconductors and the low conducting losses of switching contacts. The strengths of each technology are exploited during the appropriate operating phase. As the motor starts, the soft starter is operated via the power semiconductors, which enable precise and targeted control of the starting current. After the motor has been softly started using semiconductors, the low-loss switching contacts take over the current until the motor is switched off.

The hybrid switching technology ensures a longer service life for switchgear due to the reduced wear when switching on. Conventional industrial controls result in wear to the switching contacts every time a system is switched on or off, albeit in very small increments. The result, however, is a limited electrical life. This typical hybrid switching process reduces the starting current of the semiconductor components, thus minimizing the load on the switching contacts to such an extent that the mechanical components in the hybrid switchgear can achieve a significantly longer switching life.

**Pump cleaning and pump stopping –
Example: Wastewater**

Pumps are used in a wide variety of applications for pumping liquids. Especially when used in wastewater applications, dirt and particles can cause deposits to build up on the impellers of the pump and reduce flow rates and productivity. This can be avoided with the pump cleaning function of the soft starters 3RW55: Integrated measuring systems detect contamination and then change the direction of rotation of the pump as soon as specified.



When pumps in public water supply systems such as for buildings or pumping stations are working with large volumes of water, switching them off is a challenge. Due to their design, these pumps stop immediately, which can lead to water hammer on pipes, couplings, valves and seals due to the kinetic energy of the mass of water in the pipe system. To avoid damage, the SIRIUS 3RW52 and 3RW55 soft starters have a pump stopping mode that allows pumps to come to a standstill in a controlled manner.



Electrical ruggedness – Example: Fans

Fans for air conditioning systems, buildings, tunnels or car parks are typically very large and heavy, which can mean startup times of several minutes. This can result in temporary drops in the supply voltage. The soft starters themselves require a control supply voltage of 230 V and a main voltage of 400 V. The SIRIUS soft starters have wide-range voltage versions, e.g. 110 to 250 V AC for the SIRIUS 3RW52/55 soft starters. This means that even in the case of a voltage drop, the continued operation of the soft starter, and the motor and its application are secure. The level of electrical ruggedness that our soft starters provide, keeps your operation stable and secure in power supply networks with sporadic voltage drops.



Condition Monitoring – Example: Compressors

The evaluation of the current data and effective motor power of our soft starters SIRIUS 3RW55 enables condition monitoring, which leads to a new level of transparency regarding the status of equipment. Based on the measured data, it is possible, for example, to determine whether a pump is running dry, whether the oil or lubricating film on an impeller or compressor is being lost or whether a ball bearing is showing signs of imminent damage.

Integrated brake function – Example: Sawmills

The heavy, slow-moving blades in industrial sawing systems require a soft start function to protect the electrical and mechanical systems. Saw blades must also be able to be stopped quickly, for example, to save time when switching blades. The 3RW55 soft starters support, for example, DC braking or reverse braking. The soft starter handles both of these independently, including activation of additional components needed, such as brake or reversing contactors. This gives the user braking functionality with no engineering or planning work.



Automatic parameterization – Example: Conveyor belts

Soft starting conveyor belts require constant adjustments to different starting load conditions. SIRIUS 3RW55 soft starters simplify this task with their automatic parameterization function. By analyzing start-up operations, the soft starter is able to recognize the load conditions and set the corresponding values for an optimal belt start.

Ready for a **digital future**



Data whenever and wherever needed

The digital transformation of industry is in full swing and our latest generation of soft starters supports companies in fully embracing the potential of digitization. This is particularly beneficial when it comes to economic efficiency, making it faster and easier to achieve optimum results, with permanently high availability thanks to shorter downtimes.

Digitalization requires far simpler processes and time savings in the planning and configuration phases. The wide digital availability of product data considerably simplifies the process of putting together the required devices; and parameterization can be completed a lot quicker. This also shortens on-site commissioning times.

Machine and plant data is readily available at all times, delivering greater transparency. This means you can avoid plant downtimes and increase cost-effectiveness. The soft starters can transfer data to the cloud, enabling flexible use both directly at the switchgear as well as at the management level. Analyses and benchmarking allow you to determine the energy consumption of your equipment and use the findings to optimize your processes.



Planning and engineering

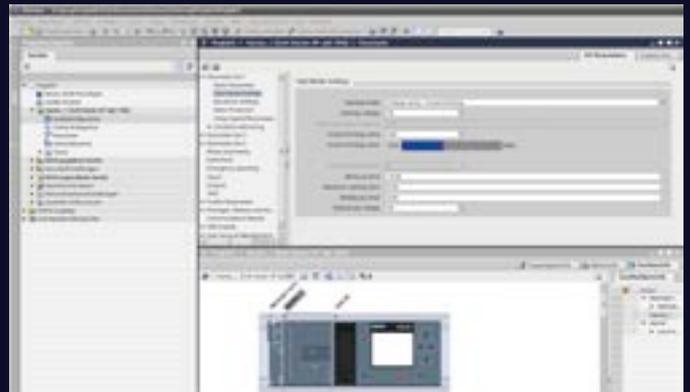
All product data is available digitally and can be integrated into common engineering tools. You can gather the products you need for your project by using the TIA Selection Tool as the configurator, either on a Windows PC or on mobile devices with the browser-based cloud variant. The Simulation Tool for Soft Starters (STS) lets you chose the right soft starter for your specific application. The soft starter application can also be simulated based on information such as ambient conditions, motor, or load. STS is available as a desktop application or optimized for your mobile device. You can automatically transfer your selection via a link to the Siemens Industry Mall, where you can place your order.



STS tool: Easy input of motor and load data

Commissioning

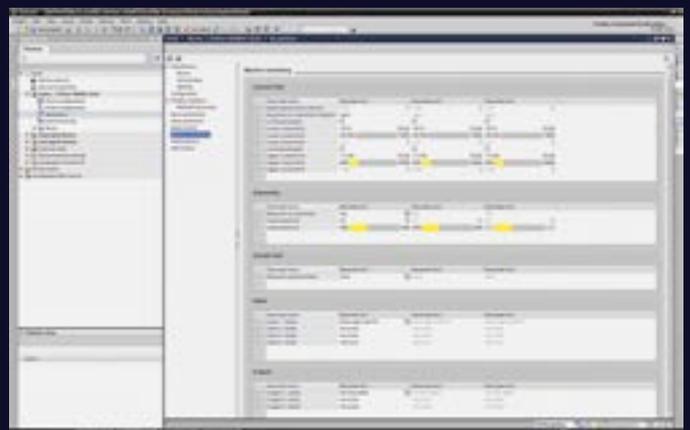
The SIRIUS Soft Starter ES software in the Totally Integrated Automation Portal (TIA Portal) enables you to quickly and easily perform parameterization (3RW55) and monitoring as well as diagnostics in the event of servicing SIRIUS General and High Performance soft starters. The SIRIUS 3RW55 device parameters can be set directly on the PC and transferred to the soft starter via an Ethernet cable or a PROFIBUS/PROFINET connection.



SIRIUS Soft Starter ES (TIA Portal)

Operation and service

The soft starters can be easily and securely connected to cloud-based solutions, such as the cloud-based, open IoT operating system, MindSphere. This gives you access to the operating data across all systems and allows you to analyze it. The results are protected against manipulation and can be used for predictive maintenance, energy data management and resource optimization.



Parameterization in the TIA Portal

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