

Sag ride-through device for providing facility uptime



The SRT2 is the latest revision of Eaton's sag ride-through (SRT) products.

The operation of the system is designed specifically to meet the demanding requirements of industrial load protection where the following features are particularly important:

- Extremely high electrical efficiency, meaning much lower ongoing cost of ownership than traditional UPS solutions and much less needed heat dissipation from the room in which the SRT is located
- High reliability due to the three levels of redundancy offered in the SRT design
- High levels of fault clearing capacity (typically 20 times current short term) to allow for the discrimination of protection systems
- Ability to cope with industrial loads, such as motor drives, which are high in harmonic draw and also loads that may regenerate power

Industries and applications affected by sags

Key industries

- Semiconductor manufacturers
- Communications
- Steel mills
- Petroleum and chemical processing
- Healthcare
- Paper mills
- Automotives
- Textile
- Printing
- Plastics

Equipment or processes

- Manufacturing process controllers
- Variable speed drives
- Robotics
- Motor conductor
- Telephone systems
- HID lighting
- HVAC controls
- Medical equipment
- Computers

The SRT2 meets the stringent requirements of the SEMI-F47 standard, a key requirement for sag correction in the semiconductor industry.

Continuous sag regulation

The sag ride-through is an active voltage conditioner. This means it will constantly respond to voltage sags and swells in the $\pm 10\%$ range with a regulated output in the $\pm 1\%$ range. The SRT2 can be applied to the main service entrance, at branch locations or in front of critical loads. Eaton's SRT2 provides an outstanding return on investment. It delivers operational productivity that is just not possible with traditional tap switching or ferroresonant technologies.

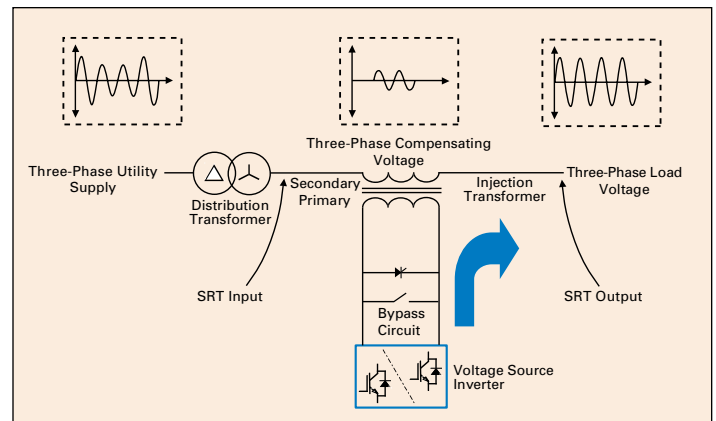
The SRT2 consists of a voltage source inverter, a bypass circuit and an injection transformer connected in series between the incoming utility supply and the load (see diagram below).

Sag correction using the sag ride-through

The SRT2 power conditioner prevents expensive electrical downtime. It is a state-of-the-art solution to today's power conditioning challenges.



Powering Business Worldwide



Block diagram of the SRT2 active voltage conditioner

SRT2 features and specifications

Features	Specifications
Load Capacity	
Capacity	150–1800 kVA (consult factory for custom design; up to 36 kVA available)
Displacement power factor of connected load	0 lagging to 0.9 leading
Crest factor for rated kVA	3 at 100% of rated load
Overload capacity (>90% supply voltage)	150%, 30 seconds, once per 500 s
Input Supply	
Nominal supply voltage (according to model)	480 V Voltages up to 36 kV available as custom applications ❶
Power system type	Three-phase, center ground referenced
Supply voltage category	Level III transient voltage capability
Fault capacity	Refer to model tables
Operating Voltage Range for Regulation	
Supply voltage for regulation	90–110% of nominal input voltage unit rating
Output Supply	
Nominal voltage (V)	Set to match nominal supply voltage
Three-phase V regulation range	±10% continuous
Three-phase V regulation accuracy	±1%
Three-phase balanced sag/swell correction ability: 40% model	+40% / –10% at least 30 s at full load
Sag correction accuracy (within specified range)	±2.5%
Sag correction response: Initial Complete	<250 μs <0.25 cycle
Single-phase sag correction ability: 40% model (15% retained voltage / 85% sag)	90% nominal
Equivalent series impedance (operating)	<4% typical
Efficiency of system	0.98 to 0.99 (refer to model tables)
Bypass	
Capacity	100% model rating (kVA)
Maximum overload capacity (in bypass): For 10 minutes For 1 minute For 1 second For 200 milliseconds	125% 150% 500% 2000%
Transfer time: Inverter to bypass	<0.5 ms
Equivalent series impedance (in bypass)	<2.5% typical
Interface	
Access protocol	Ethernet connectivity; Modbus® TCP, dry contacts
Environmental	
Enclosure rating	NEMA® 1, IP20
Pollution degree rating	2
Minimum operating temperature	0 °C
Maximum operating temperature	40 °C
Temperature derating	Above 40 °C derate at 2% per °C to a maximum of 50 °C
Capacity elevation derating	–2% every 100 m above 1000 m
Cooling: Inverter Transformer	Forced ventilation Fan assisted ventilation
Humidity	<95%, noncondensing
EMC emissions	CISPR 22 level G
Noise	65 dBA
Warranty	1 year

❶ 480 V is standard. If additional voltage is needed, consult factory.

System capacities

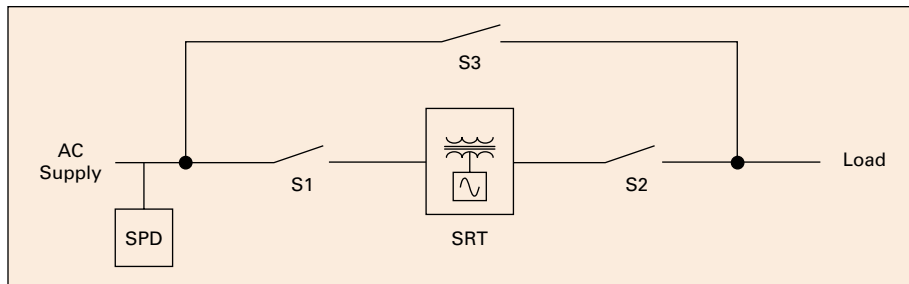
Catalog number ①②③	Load capacity at nominal voltage 480 V (kVA) ④	Terminal cabinet	Fault capacity (kVA)	System efficiency (%)	System dissipation (worst case) (kW)	Airflow (m ³ /min)	Cabinet dimensions H x W x D in inches (mm)
SRT20150480AA	150	No	40	97.5	3.8	18	85.00 x 32.00 x 32.00 (2159.0 x 812.8 x 812.8)
SRT20150480AA-TC	150	Yes	40	97.5	3.8	18	85.00 x 32.00 x 32.00 (2159.0 x 812.8 x 812.8)
SRT20225480AA	225	No	40	97.7	5.2	18	85.00 x 32.00 x 32.00 (2159.0 x 812.8 x 812.8)
SRT20225480AA-TC	225	Yes	40	97.7	5.2	18	85.00 x 32.00 x 32.00 (2159.0 x 812.8 x 812.8)
SRT20300480AA	300	No	40	98.0	6.1	18	85.00 x 40.00 x 32.00 (2159.0 x 1016 x 812.8)
SRT20300480AA-TC	300	Yes	40	98.0	6.1	18	85.00 x 40.00 x 32.00 (2159.0 x 1016 x 812.8)
SRT20450480AA	450	No	40	98.2	8.0	36	85.00 x 40.00 x 32.00 (2159.0 x 1016 x 812.8)
SRT20450480AA-TC	450	Yes	40	98.2	8.0	36	85.00 x 40.00 x 32.00 (2159.0 x 1016 x 812.8)
SRT20600480AA	600	No	40	98.4	9.8	36	85.00 x 40.00 x 32.00 (2159.0 x 1016 x 812.8)
SRT20600480AA-TC	600	Yes	40	98.4	9.8	36	85.00 x 40.00 x 32.00 (2159.0 x 1016 x 812.8)
SRT20750480AA	750	No	40	98.4	12.2	54	85.00 x 96.00 x 48.00 (2159.0 x 2438.4 x 1219.2)
SRT20750480AA-TC	750	Yes	40	98.4	12.2	54	85.00 x 96.00 x 48.00 (2159.0 x 2438.4 x 1219.2)
SRT20900480AA	900	No	40	98.5	13.2	54	85.00 x 96.00 x 48.00 (2159.0 x 2438.4 x 1219.2)
SRT21200480AA	1200	No	40	98.5	18.1	72	85.00 x 126.00 x 96.00 (2159.0 x 3200.4 x 2438.4)
SRT21500480AA	1500	No	50	98.7	20.2	90	85.00 x 126.00 x 96.00 (2159.0 x 3200.4 x 2438.4)
SRT21800480AA	1800	No	50	98.8	22.1	108	85.00 x 126.00 x 96.00 (2159.0 x 3200.4 x 2438.4)

① For 50 Hz international applications, consult factory.

② Eaton external three-breaker maintenance bypass is recommended. If a bypass is not used, a terminal cabinet may be required. Contact factory.

③ TC in the model number denotes terminal cabinet, which is not required for units of 900 kVA and larger.

④ 480 V is standard. If additional voltage is needed, consult factory.



SRT2 with external maintenance bypass block diagram

Note: A terminal cabinet may be needed if a bypass cabinet is not used. SRT2 units 900 kVA and larger do not require a terminal cabinet; however, an external three-breaker mechanical bypass with integrated surge protection is recommended.

At Eaton, we're energized by the challenge of powering a world that demands more. With over 100 years experience in electrical power management, we have the expertise to see beyond today. From ground-breaking products to turnkey design and engineering services, critical industries around the globe count on Eaton.

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Printed in USA
Publication No. PA01002003E / Z17239
September 2015

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