

Static Transfer Switch

Rackmount STS system 1P+N/2 P

Standalone STS systems 3P+N/4P

E-Box STS system for switchgear integration 3P+N/4P

Make before break static transfer switch for redundant power supply and datacenter application.



STATIC TRANSFER SWITCH (STS)

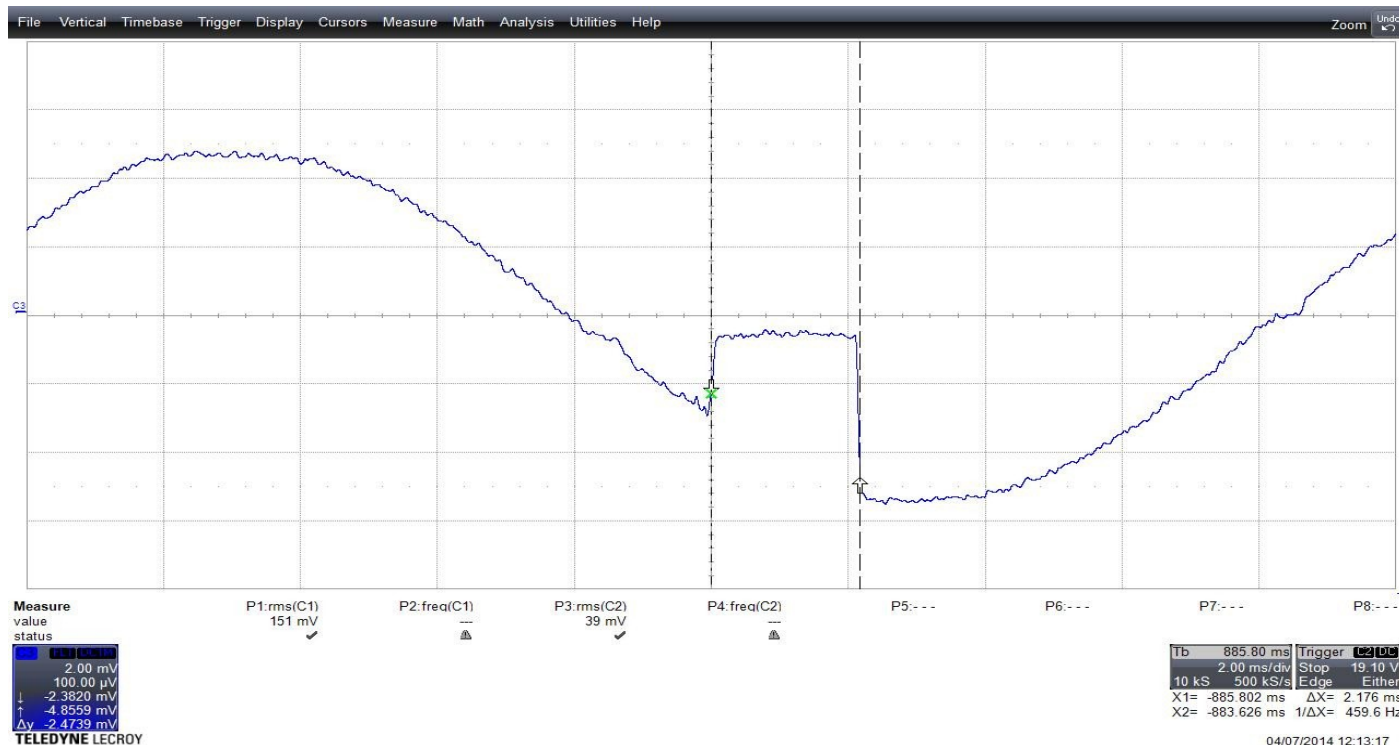
The STS product line of static switch devices from AEC is the right solution for power protection against upstream power supply fault and load fault to ensure the protection of critical loads and industrial process .

AEC offers a full range of STS equipment , based on reliable thyristor technology, available as standard standalone frame and also customized frame , according to any Customer's need .

AEC STS key features are summarized as follow :

- Each source is controlled by three independent electronic sensors to ensure the maximum reliability on mains monitoring and control
- Continuous monitor of the switching device in order to ensure a safe "Make Before Break" operation and avoid any cross conduction during transfers
- Sophisticated control and monitoring of the ON and OFF status of thyristors BEFORE any transfer
- Redundancy of the internal critical parts (fans , triple aux power supply , sensors)
- Extremely high noise immunity of the system control boards , capable to stand up to 90V/mT electromagnetic field strength without any sequence anomaly
- Neutral wire/busbar size of the switch oversized to 1,8 In
- Hi Rate fault current upto 65 Ka without any upgrade
- Reduced size footprint to save space
- Front access for maintenance and service
- Fully customized IP/OP connection , available on top cable entry , bottom cable entry or flanged busbar connection

All the STS range from AEC meets the requirements of the IEC 62310-3 and the requirements of TierIV datacenter architecture about switching time , all the GPE STS range can operate a switchover within 5 mSec (average)



SINGLE PHASE STS RANGE



rackmount single phase units are available on the following range of products :

SIZE	110 (127) Vac	220 (208-230-240)Vac	265 (277) Vac
16A 1P 2U Rack 19"	X	X	X
32A 1P 2U Rack 19"	X	X	X
50A 1P 3U Rack 19"	X	X	X
63A 1P 3U Rack 19" *	X	X	X
16A 2P 3U Rack 19"	X	X	X
32A 2P 3U Rack 19"	X	X	X
50A 2P 3U Rack 19"	X	X	X
63A 2P 3U Rack 19" *	X	X	X

*Internal fan provided

Tech. spec. 1P – 2P STS rackmount units

Nominal Current:	16A	32A	50A	63A
Load current form factor :	3:1	3:1	3:1	3:1
Configuration:	1Ph –common neutral 2P	1Ph –common neutral 2P	1Ph –common neutral 2P	1Ph –common neutral – 2P
Input Voltage :	As Above	As Above	As Above	As Above
Tolerance on IP voltage:	+/-15% (adj)	+/-15% (adj)	+/-15% (adj)	+/-15%(adj)
Frequency :	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Sync. Tolerance :	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.
Short circuit capability:	3In	3In	3In	3In
Overload :	110%-60min 125%-10min 150%-2min 200%-5sec	110%-60min 125%-10min 150%-2min 200%-5sec	110%-60min 125%-10min 150%-2min 200%-5sec	110%-60min 125%-10min 150%-2min 200%-5sec
Fuse (kA):	25kA	25kA	25kA	25kA
Efficiency :	>98,5 %	>98,5%	>98,8%	>98,8%
Transfer time (sync)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)
Transfer time (no sync)	selectable 11 o 21 mSec	selectable 11 o 21 mSec	selectable 11 o 21 mSec	selectable 11 o 21 mSec

Priority source selection	YES	YES	YES	YES
Short circuit lock-up	YES	YES	YES	YES
Degree of protection :	IP21	IP21	IP21	IP21
Working temperature:	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C
Humidity :	0-90% without cond.	0-90% without cond.	90% without cond.	0-90% without cond.
Acoustic Noise :	<40 db	<40 db	<40 db	<48 db
Size (lpxa):	19"- 2U(1p)3U(2p)- D=400mm	19"- 2U(1p)3U(2p)- p400mm	19"- 3U-p400mm	19"- 3U-p400mm
Weight (kg) :	9(2U)- 12(3U)	9(2U)-12(3U)	14(3U)	16(3U)
Visible on mimic alarms for:	Overtemperature	Overtemperature	Overtemperature	Overtemperature
	Overload> 3In	Overload> 3In	Overload> 3In	Overload> 3In
	Sources out of sync	Sources out of sync	Sources out of sync	Sources out of sync
	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance
Contacts for :	Load on source A/B	Load on source A/B	Load on source A/B	Load on source A/B
	General fault	General fault	General fault	General fault
MTBF	>700Kh	>700Kh	>700Kh	>700Kh
MTTR	<2 min	<2 min	<2 min	<2 min

STANDARD THREE PHASE STS RANGE

GPE three phase 3-4 POLE STANDARD units are available on the following range of products :

MODEL	CONFIGURATION	TYPE	SIZE
GPE-SA-ST3 3-63 A	3P+ N	FREE STANDING CUBICLE	650X780X1.400 (LxWxH)
GPE-SA-ST3 4-63 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-100 A	3P+ N	FREE STANDING CUBICLE	
GPE-SA-ST3 4-100 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-125 A	3P+ N	FREE STANDING CUBICLE	
GPE-SA-ST3 4-125 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-160 A	3P+ N	FREE STANDING CUBICLE	
GPE-SA-ST3 4-160 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-200 A	3P+ N	FREE STANDING CUBICLE	860X860X2.000(LxWxH)
GPE-SA-ST3 4-200 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-250 A	3P+ N	FREE STANDING CUBICLE	
GPE-SA-ST3 4-250 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-400 A	3P+ N	FREE STANDING CUBICLE	
GPE-SA-ST3 4-400 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-630 A	3P+ N	FREE STANDING CUBICLE	1.060X660X2.000(LxWxH)
GPE-SA-ST3 4-630 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-800 A	3P+ N	FREE STANDING CUBICLE	
GPE-SA-ST3 4-800 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-1000 A	3P+ N	FREE STANDING CUBICLE	1.860X860X2.000(LxWxH)
GPE-SA-ST3 4-1000 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-1250 A	3P+ N	FREE STANDING CUBICLE	2.060X860X2.000(LXWXH)
GPE-SA-ST3 4-1250 A	4P	FREE STANDING CUBICLE	
GPE-SA-ST3 3-1600 A	3P+ N	FREE STANDING CUBICLE	2.060X860X2.000(LXWXH)
GPE-SA-ST3 4-1600 A	4P	FREE STANDING CUBICLE	
UNIT BIGGER THAN 1.600A ARE DESIGNED ON CUSTOMER SPECIFICATION			

E-BOX THREE PHASE STS RANGE

three phase 3-4 POLE

E-BOX units are available on the following range of products

MODEL	CONFIGURATION	TYPE	SIZE
GPE-EB-ST3 3-63 A	3P+ N	OPEN FRAME UNITS	600X630X1.400 (LxWxH)
GPE-EB-ST3 4-63 A	4P	OPEN FRAME UNITS	
GPE-EB-ST3 3-100 A	3P+ N	OPEN FRAME UNITS	
GPE-EB-ST3 4-100 A	4P	OPEN FRAME UNITS	
GPE-EB-ST3 3-125 A	3P+ N	OPEN FRAME UNITS	
GPE-EB-ST3 4-125 A	4P	OPEN FRAME UNITS	
GPE-EB-ST3 3-160 A	3P+ N	OPEN FRAME UNITS	
GPE-EB-ST3 4-160 A	4P	OPEN FRAME UNITS	
GPE-EB-ST3 3-200 A	3P+ N	OPEN FRAME UNITS	800X830X1.800(LxWxH)
GPE-EB-ST3 4-200 A	4P	OPEN FRAME UNITS	
GPE-EB-ST3 3-250 A	3P+ N	OPEN FRAME UNITS	
GPE-EB-ST3 4-250 A	4P	OPEN FRAME UNITS	
GPE-EB-ST3 3-400 A	3P+ N	OPEN FRAME UNITS	
GPE-EB-ST3 4-400 A	4P	OPEN FRAME UNITS	
GPE-EB-ST3 3-630 A	3P+ N	OPEN FRAME UNITS	1.000X630X2.000(LxWxH)
GPE-EB-ST3 4-630 A	4P	OPEN FRAME UNITS	
GPE-EB-ST3 3-800 A	3P+ N	OPEN FRAME UNITS	
GPE-EB-ST3 4-800 A	4P	OPEN FRAME UNITS	

UNIT BIGGER THAN 800A ARE DESIGNED ON CUSTOMER SPECIFICATION



STS 4P - 250 A



STS 4P - 4000 A

Nominal Current:	63A	100A	125A	160A	200A	250A
Load current form factor :	3:1	3:1	3:1	3:1	3:1	3:1
Configuration:	3Ph-3-4W+PE	3Ph-3-4W+PE	3Ph-3-4W+PE	3Ph-3-4W+PE	3Ph-3-4W+PE	3Ph-3-4W+PE
Input Voltage :	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V
Tolerance on IP voltage:	+/-15% (adj)	+/-15% (adj)	+/-15% (adj)	+/-15%(adj)	+/-15% (adj)	+/-15% (adj)
Frequency :	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Sync. Tolerance :	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.
Short circuit capability:	3In	3In	3In	3In	3In	3In
Overload :	110%-60min	110%-60min	110%-60min	110%-60min	110%-60min	110%-60min
	125%-10min	125%-10min	125%-10min	125%-10min	125%-10min	125%-10min
	150%-2min	150%-2min	150%-2min	150%-2min	150%-2min	150%-2min
	200%-5sec	200%-5sec	200%-5sec	200%-5sec	200%-5sec	200%-5sec
Fuse (kA):	65kA	65kA	65kA	65kA	65kA	65kA
Efficiency :	>98,5 %	>98,5%	>98,8%	>98,8%	>98,8 %	>98,8 %
Transfer time (sync)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)
Transfer time (no sync)	11 or 21 mSec	11 or 21 mSec	11 or 21 mSec	11 or 21 mSec	11 or 21 mSec	11 or 21 mSec
Priority source selection	YES	YES	YES	YES	YES	YES
Short circuit lock-up	YES	YES	YES	YES	YES	YES
Degree of protection :	IP21	IP21	IP21	IP21	IP21	IP21
Working temperature:	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C
Humidity :	0-90%	0-90%	0-90%	0-90%	0-90%	0-90%
Acoustic Noise :	<58 db	<58 db	<58 db	<60 db	<62 db	<62 db
Size (lpxa):	As above	As above	As above	As above	As above	As above
Weight (kg) :	170	170	170	220	220	240
Visible on mimic alarms for:	Overtemp.	Overtemp.	Overtemp.	Overtemp.	Overtemp.	Overtemp.
	Overload> 3In	Overload> 3In	Overload> 3In	Overload> 3In	Overload> 3In	Overload> 3In
	Sources out of sync	Sources out of sync	Sources out of sync	Sources out of sync	Sources out of sync	Sources out of sync
	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance
Contacts for :	Load on source A/B	Load on source A/B	Load on source A/B	Load on source A/B	Load on source A/B	Load on source A/B
	General fault	General fault	General fault	General fault	General fault	General fault
MTBF	>700Kh	>700Kh	>700Kh	>700Kh	>700Kh	>700Kh
MTTR	<20 min	<20 min	<20 min	<20 min	<20 min	<20 min

Tech. spec. 3P – 4P STS units and E-BOX units from 400A up to 1600 A

Nominal Current:	400A	630A	800A	1000A	1250A	1600A
Load current form factor :	3:1	3:1	3:1	3:1	3:1	3:1
Configuration:	3Ph-3-4W+PE	3Ph-3-4W+PE	3Ph-3-4W+PE	3Ph-3-4W+PE	3Ph-3-4W+PE	3Ph-3-4W+PE
Input Voltage :	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V	208-220-230-380-400-415-460-480 V
Tolerance on IP voltage:	+/-15% (adj)	+/-15% (adj)	+/-15% (adj)	+/-15% (adj)	+/-15% (adj)	+/-15% (adj)
Frequency :	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Sync. Tolerance :	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.	7°to 15° adj.
Short circuit capability:	3In	3In	3In	3In	3In	3In
Overload :	110%-60min	110%-60min	110%-60min	110%-60min	110%-60min	110%-60min
	125%-10min	125%-10min	125%-10min	125%-10min	125%-10min	125%-10min
	150%-2min	150%-2min	150%-2min	150%-2min	150%-2min	150%-2min
	200%-5sec	200%-5sec	200%-5sec	200%-5sec	200%-5sec	200%-5sec
Fuse (kA):	65kA	65kA	65kA	65kA	65kA	65kA
Efficiency :	>98,9 %	>98,9%	>98,9%	>98,9%	>99,0 %	>99,0 %
Transfer time (sync)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)	5 mSec (Avg)
Transfer time (no sync)	11 or 21 mSec	11 or 21 mSec	11 or 21 mSec	11 or 21 mSec	11 or 21 mSec	11 or 21 mSec
Priority source selection	YES	YES	YES	YES	YES	YES
Short circuit lock-up	YES	YES	YES	YES	YES	YES
Degree of protection :	IP21	IP21	IP21	IP21	IP21	IP21
Working temperature:	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C
Humidity :	0-90%	0-90%	0-90%	0-90%	0-90%	0-90%
Acoustic Noise :	62 db	<63 db	<63 db	<64 db	64 db	<64 db
Size (lpxa):	As above	As above	As above	As above	As above	As above
Weight (kg) :	280	350	350	500	620	680
Visible on mimic alarms for:	Overtemp.	Overtemp.	Overtemp.	Overtemp.	Overtemp.	Overtemp.
	Overload> 3In	Overload> 3In	Overload> 3In	Overload> 3In	Overload> 3In	Overload> 3In
	Sources out of sync	Sources out of sync	Sources out of sync	Sources out of sync	Sources out of sync	Sources out of sync
	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance	Sources out of tolerance
Contacts for :	Load on source A/B	Load on source A/B	Load on source A/B	Load on source A/B	Load on source A/B	Load on source A/B
	General fault	General fault	General fault	General fault	General fault	General fault
MTBF	>700Kh	>700Kh	>700Kh	>700Kh	>700Kh	>700Kh
MTRR	<20 min	<20 min	<30 min	<30 min	<30 min	<30 min

Reference Rules and Regulation

IEC EN60950 Safety

IEC EN 61000-6-2, EMC

IEC EN 61000-6-4, EMC;

IEC EN 60947-3 Switches .

IEC EN 62310-1 static transfer switch - safety

IEC EN 62310-2 static transfer switch – EMC requirements

IEC EN 62310-3 static transfer switch – measure and performances

ISO9001:2008- certified quality system



STS 4P - 2500 A

