

ISO 9001
KOHLER
POWER SYSTEMS
NATIONALLY REGISTERED



**TS 870 400 Amp
Transfer Switch**

Standard Features:

Enclosed Contact Power Switching Units

- Fully enclosed silver alloy contacts provide high withstand rating.
- 3-cycle short circuit current withstand-tested allows use of non-series rated upstream protection devices.
- Completely separate utility and generator set side power switching units provide superior reliability through redundancy (no common parts), as well as excellent serviceability.
- Power switching units can incorporate overcurrent protection, allowing cost savings in upstream devices.
 - Molded case circuit breakers (MCCB) include thermal-magnetic or electronic trip overcurrent protection (80% rated).
 - Molded case switches (MCSW) do not include overcurrent protection (100% rated).
- Damage-protected if manually switched while in service since contacts have inherent spring over center design.

Reliable Motor-Operated Transfer Mechanism

- Heavy duty brushless gear motor and operating mechanism provide mechanical interlocking and extreme long life with minimal maintenance.
- Safe manual operation permits easy operation even under adverse conditions.

Superior Serviceability

- All mechanical and control devices are visible and readily accessible.
- All control wires and power busses are front-accessible.

Control Features

- TSC 80e microprocessor-based controller.
- Isolation plug permits disconnecting control circuits from all power sources for safety and convenience.

Product Data

- Models from 100-1200 amp
- Available 2-, 3-, or 4-pole
- All models rated 60 Hz
- Voltage range 208-480
- 3-phase, 3- or 4-wire systems

Standards

- UL 1008 Automatic Transfer Switch Equipment for use in Emergency Systems, File #E215215

Warranty

- 1-year warranty, standard

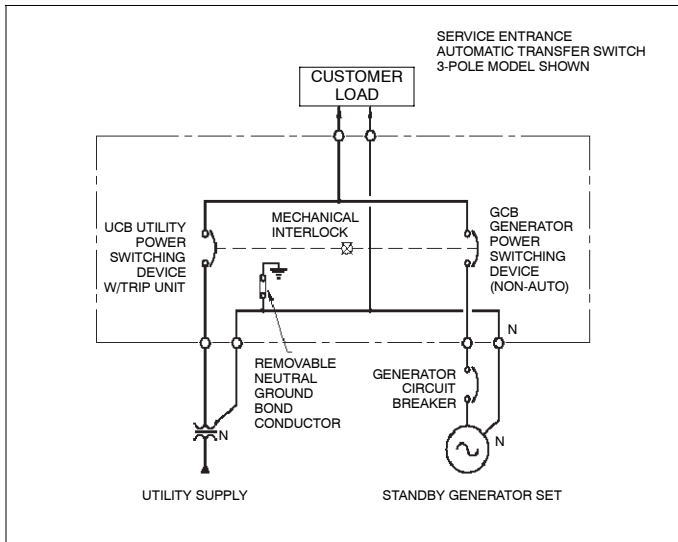
General Description

- Model TS 870 service entrance automatic transfer switches incorporate an isolating mechanism and overcurrent protection on the utility supply, eliminating the need to have an upstream circuit breaker/disconnect switch separate from the transfer switch. This unique service entrance rated automatic transfer switch design is incorporated into a standard sized automatic transfer switch enclosure providing a space saving, cost effective solution for most applications.
- Standard features of the service entrance rated automatic transfer switch include a NEMA 1 rated enclosure, padlockable service disconnect control switch and status indications.
- Service disconnect operation is very simple and ensures a high level of safety for system maintenance personnel when performed. Normal operation and performance of the automatic transfer switch is unaffected by the service entrance ATS feature.
- Automatic transfer switches are specifically designed and certified to the UL 1008 standard as well as complying with NEC and NFPA requirements.
- Automatic transfer switches are for use in emergency power system applications such as commercial, industrial, or government institutions that require automatic standby power.
- All TS 870 service entrance transfer switch models have been 3-cycle withstand current tested in accordance with UL 1008 and CSA 178, which allow high current ratings and use of non-series rated upstream protective devices. The TS 870 service entrance automatic transfer switch is rated for the system load and requires upstream overcurrent protection on the generator set supply.
- The TS 870 service entrance transfer switches use a type TSC 80e microprocessor-based controller.

Environmental Specifications

- Storage temperature: -20°C to 70°C (-4°F to 158°F)
- Operating temperature: -15°C to 50°C (5°F to 122°F)
- Humidity: 5%-95% non-condensing, maximum

Typical Single-Line Diagram



Standard TSC 80e Controller Features

- LCD display for monitoring three-phase utility/generator voltage
- Front panel programming using faceplate-mounted pushbuttons and LCD display with password security
- Load on utility and load on generator lights
- Utility and generator source available lights
- Three-phase voltage sensing on utility and generator sources
- Generator AC frequency sensing
- Utility undervoltage control setpoint 70%-95% (adjustable)
- Generator undervoltage control setpoint 70%-95% (adjustable)
- Generator underfrequency control setpoint 70%-90% (adjustable)
- Engine start timer 0-60 sec. (adjustable)
- Engine cooldown timer 0-30 min. (adjustable)
- Engine warm-up timer 0-60 sec. (adjustable)
- Utility return timer 0-30 min. (adjustable)
- Neutral position delay timer 0-60 sec. (adjustable)
- Load disconnect contact (LDC) for pre/post transfer control to signal external building systems such as elevators during transfer operations
- Real-time clock with battery backup and daylight saving time programming
- Programmable generator exercise timer (EXT) with easy to use four event, 7/14/21/28 day, on-load or off-load programmability
- Data logging including total transfers to generator, total utility power failures, load on utility hours, load on generator hours, and utility or generator voltage/frequency data at time of fault
- Five user-programmable output contacts prewired to customer terminal blocks rated 10 A, 120/240 V resistive, form C. Each output contact is programmable to 10 different functions, including:
 - Load on utility *
 - Load on generator *
 - Load disconnect contact (LDC) *
 - Fail to transfer (FTT) *
 - Utility power available (UPA)
 - Generator power available (GPA)
 - Utility power fail
 - Engine start
 - ATS not in auto *
 - ATS in auto

* Transfer switch is preprogrammed with these outputs enabled.

- Engine start contact (10A, 120/240 VAC resistive, max.)
- Local plant exercise initiate pushbutton and LED
- Local utility power fail simulation test pushbutton and LED
- Remote utility power fail simulation test input via terminal block
- Transfer fail/forced transfer logic
- Automatic force transfer to alternate supply should load voltage become deenergized
- Remote load test/peak shave input
- NEMA 1 enclosure
- Solid neutral on 4-wire systems

Operation Mode

Operation Mode	Power Switching Device Position		ATS Load
	Utility	Generator	
Normal Conditions *	Closed	Open	Energized
Utility Power Failure †	Open	Closed	Energized
Service Disconnect Mode	Open (Mechanically and electrically interlocked)	Open (Mechanically and electrically interlocked)	Deenergized

* Utility power supplying load
† Generator supplying load

Ratings

Basic Model	Voltage, Max.	Rated Current, Amps	Withstand Current Rating, Amps RMS			
			240 V	480 V	With Upstream Fuse Protection	
					Up to 600 V	Fuse Type
TS 87xA-0100	600	100	65,000	25,000	100,000	T, J
TS 87xA-0150	600	150	65,000	25,000	100,000	T, J
TS 87xA-0200	240	200	65,000	N/A	N/A	T, J
TS 87xA-0250	600	250	65,000	35,000	100,000	T, J
TS 87xA-0400	600	400	65,000	50,000	100,000	T, J
TS 87xA-0600	600	600	65,000	50,000	100,000	T, J
TS 87xA-0800	600	800	65,000	50,000	100,000	Contact Factory
TS 87xA-1000	600	1000	65,000	50,000	100,000	Contact Factory
TS 87xA-1200	600	1200	65,000	50,000	100,000	Contact Factory

Weights and Dimensions/Cable Sizes

Basic Model	Dimensions, mm (in.) *			Shipping Weight, kg (lb.)	Terminal Rating	
	Height †	Width	Depth		Qty. per Phase	Range, Cu or Al
TS 87xA-0100	790 (31.1)	566 (22.3)	356 (14)	65 (143)	1	#14-1/0
TS 87xA-0150	790 (31.1)	566 (22.3)	356 (14)	65 (143)	1	#2-4/0
TS 87xA-0200	790 (31.1)	566 (22.3)	356 (14)	65 (143)	1	#6-350MCM
TS 87xA-0250	892 (35.1)	693 (27.3)	356 (14)	78 (172)	1	#6-350MCM
TS 87xA-0400 2-3 pole	1095 (43.1)	871 (34.3)	330 (13)	103 (227)	2	2/0-500 MCM
TS 87xA-0400 4 pole	1222 (48.1)	960 (37.8)	368 (14.5)	116 (256)	2	2/0-500 MCM
TS 87xA-0600 2-3 pole	1171 (46.1)	922 (36.3)	368 (14.5)	113 (248)	2	2/0-500 MCM
TS 87xA-0600 4 pole	1222 (48.1)	960 (37.8)	368 (14.5)	116 (256)	2	2/0-500 MCM
TS 87xA-0800 2-3 pole	1222 (48.1)	960 (37.8)	368 (14.5)	140 (309)	3	2/0-500 MCM
TS 87xA-0800 4 pole	1603 (63.1)	1041 (41)	368 (14.5)	167 (367)	3	2/0-500 MCM
TS 87xA-1000/1200	1930 (76)	871 (34.3)	356 (14)	250 (550)	4	4/0-500 MCM

* Enclosure dimensions are for reference only. Do not use for construction. NEMA 1 enclosure dimensions are shown; other enclosures are available.

† Height does not include top and bottom mounting flanges. See the dimension drawings.

Product Code

Interpret the product code for your transfer switch configuration as indicated below. Accessories are specified separately.

T	S		8	7	3	A	0	6	0	0	B	1	A	E	3	D	N	N	A	A
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

1-3. Series

TS: Transfer switch

4-5. Model

87: 870 switch

6. Poles

2: 2 pole
 3: 3 pole
 4: 4 pole

7. Configuration Type

A: ATS

8-11. Current Rating

in amperes:

0100	0600
0150	0800
0200	1000
0250	1200
0400	

12. Application

B: Service entrance

13. Operation Type

1: Open transition

14. Certification

A: UL 1008

15. Voltage

1-phase 3-wire:

D: 120/240

3-phase 4-wire (grounded neutral):

E: 120/208 *

G: 120/240 (delta) *

M: 277/480 *

* Multi-voltage capable

3-phase 3-wire:

P: 208

R: 240

V: 480

16. Controller:

3: TSC 80e

17. Enclosure Type

A: NEMA 1 ASA #61 GREY

C: NEMA 12 ASA #61 GREY

D: NEMA 3R SD ASA #61 GREY

E: NEMA 3R DD ASA #61 GREY

F: NEMA 3RX/4X, STAINLESS STEEL †

† Standard enclosure rating is NEMA 4 at 600 A and below and NEMA 3R at 800 A and above.

18. Utility Switching Device

M: Molded case circuit breaker w/ther-mag trip (100-200A)

N: Molded case circuit breaker w/electronic trip (250-1200A)

P: Molded case circuit breaker w/electronic and GF trip (250-1200A)

19. Generator Switching Device

K: Molded case switch (100-1200A)

M: Molded case circuit breaker w/ther-mag trip (100-200A)

N: Molded case circuit breaker w/electronic trip (250-1200A)

20. Power Connections

A: Standard

21. Connection Configuration

A: Standard

Accessories

- | | | | |
|---|---|--|---|
| <input type="checkbox"/> AUX-G | Auxiliary Contact, Emergency | <input type="checkbox"/> TS-H1 | Strip Heater, Ext. Source |
| <input type="checkbox"/> AUX-U | Auxiliary Contact, Normal | <input type="checkbox"/> TS-H2 | Strip Heater, Internal Source |
| <input type="checkbox"/> EAP1601 | Emergency Position Annunciator | <input type="checkbox"/> TS-ST-G | Shunt Trip, Generator
(24 VDC external power required) |
| <input type="checkbox"/> FTL | Fail to Transfer Light | <input type="checkbox"/> TS-ST-U | Shunt Trip, Utility |
| <input type="checkbox"/> FTS-4 | Four Position Test Switch | <input type="checkbox"/> UPA | Utility Power Available Contact |
| <input type="checkbox"/> FTS-C | Four Position Switch Contacts | <input type="checkbox"/> UPF | Utility Power Failure Contact |
| <input type="checkbox"/> GPA | Emergency Available Contact | <input type="checkbox"/> Warranty | Extended Warranties: 2 or 5 years |
| <input type="checkbox"/> RLDC | Load Dump Contact | | |
| <input type="checkbox"/> RPRNS | Remote Permissive Retransfer to Normal | | |
| <input type="checkbox"/> RPTES | Remote Permissive Transfer to Emergency | | |
| <input type="checkbox"/> RRIS | Remote Retransfer Inhibit Signal | | |
| <input type="checkbox"/> RTIS | Remote Transfer Inhibit Signal | | |
| <input type="checkbox"/> TS-DM | Digital Meter (Load Side) | | |

DISTRIBUTED BY:

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