

AUTOMATIC TRANSFER SWITCHES



**TS 870 - 250 AMP
TRANSFER SWITCH**



**TS 870 - 800 AMP
TRANSFER SWITCH**

**THOMSON TECHNOLOGY TS 870 AUTOMATIC TRANSFER SWITCHES
OFFER THE FOLLOWING OUTSTANDING FEATURES:**

Enclosed Contact Power Switching Units

- **fully enclosed** silver alloy contacts provide **high withstand** rating & **100% continuous** current rating.
- **3 cycle short circuit current withstand** tested allows use of non-series rated upstream protection devices.
- **completely separate** utility and generator side power switching units provide superior reliability through redundancy (no common parts), as well as excellent serviceability.
- power switching units can incorporate **over current protection**, allowing cost savings in upstream devices.
- **not damaged if manually switched** while in service since contacts have inherent spring over center design.

Reliable Motor-Operated Transfer Mechanism

- **heavy duty** brushless gearmotor and operating mechanism provide mechanical interlocking and extreme long life with minimal maintenance.
- **safe manual operation** with a **permanently affixed handle**, 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 80** microprocessor based controller.
- **isolation plug** permits disconnecting control circuits from all power sources for safety and convenience.

Quality Assurance

- ISO 9001:2000 Registered

Product Data

- Models from 100-1200 Amp continuous
- Available 2, 3 or 4 pole
- All models 50/60Hz rated
- Voltage range 208-600
- 3 phase, 3 or 4 wire systems

Certifications

- UL 1008 Automatic Transfer Switches for use in Emergency Systems
- CSA C22.2 No. 178 Automatic Transfer Switches



GENERAL DESCRIPTION

STANDARD ATS

Thomson Technology TS 870 Standard Automatic Transfer Switches employ two mechanically interlocked power switching units with a microprocessor based controller to automatically start a generator and transfer system load to a generator supply in the event of a utility supply failure. System load is then automatically retransferred back to the utility supply following restoration of the utility power source to within normal operating limits. All load transfer sequences are “Open Transition” (i.e. “break-before-make”) with adjustable neutral position delay to ensure adequate voltage decay to prevent out of phase transfers.

TS 870 Automatic Transfer Switches are specifically designed and certified to CSA 178 & UL 1008 Standards for use in Emergency Power System applications such as commercial, industrial, or government institutions that require automatic standby power.

All **TS 870** transfer switch models have been 3 cycle withstand current tested in accordance with UL 1008 & CSA 178 which allow high current ratings and use of non-series rated upstream protective devices.

The standard **TS 870** Automatic Transfer Switch is rated for 100% system load and requires upstream over current protection. The **TS 870** design allows optional use of integral over current trip elements within the power switching units thus eliminating the need for external, upstream over current protection.

The **TS 870** series transfer switches use a type **TSC 80** microprocessor based controller. All necessary control functions for fully automatic operation are provided by the **TSC 80** transfer controller. The **TSC 80** controller is mounted on the door of the transfer switch enclosure and operating status is shown via faceplate mounted LED lights.

SERVICE ENTRANCE ATS

Thomson Technology TS 870 Service Entrance Automatic Transfer Switches incorporate an isolating mechanism and over current protection on the utility supply thereby removing the need to have a separate, upstream circuit breaker/disconnect switch 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.

The **Service Entrance Rated ATS** feature is a standard option that can be applied to any **TS 870** model of Thomson Technology Transfer Switch.

Standard features of the **Service Entrance Rated Automatic Transfer Switch** include a NEMA 1 rated enclosure, pad-lockable Service Disconnect control switch and status indications.

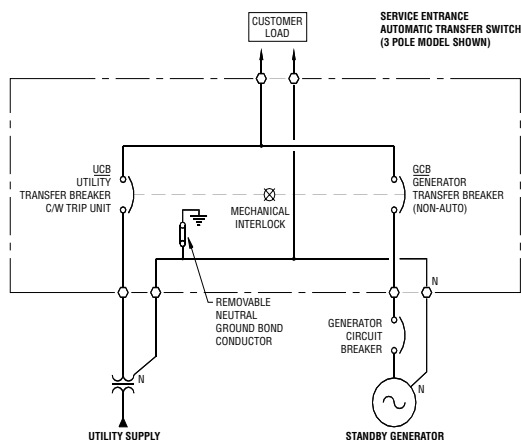
TS 870 SE Service disconnect operation is very simple and ensures a high level of safety for system maintenance personnel when performed. Normal operation and performance of the automatic transfer switch is unaffected by the Service Entrance ATS feature.

TS 870 SE Automatic Transfer Switches are specifically designed and certified to the UL 1008 Standard as well as complying with NEC and NFPA requirements. **TS 870 SE** 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 SE** transfer switch models have been 3 cycle withstand current tested in accordance with UL 1008 & CSA 178 which allow high current ratings and use of non-series rated upstream protective devices. The **TS 870 SE** Automatic Transfer Switch is rated for the system load and requires upstream over current protection on the generator supply.

The **TS 870 SE** series transfer switches use a type **TSC 80** microprocessor based controller.

TYPICAL SINGLE LINE DIAGRAM



OPERATION MODE

| Service Entrance Automatic Transfer Switch | Utility Transfer Breaker | Generator Transfer Breaker | ATS Load |
|---|---|---|--------------|
| Operation Mode | Position | Position | |
| Normal Conditions (Utility Power Supplying Load) | Closed | Open | Energized |
| Utility Power Failure (Generator Supplying Load) | Open | Closed | Energized |
| Service Disconnect Mode | Open (Mechanically & electrically interlocked) | Open (Mechanically & electrically interlocked) | De-Energized |

WITHSTAND CURRENT RATINGS (ALL MODELS)

| BASIC MODEL | MAXIMUM VOLTAGE | RATED CURRENT (AMPS) | WITHSTAND CURRENT RATING AMPS (RMS) | | | | |
|----------------|-----------------|----------------------|--|--------|--------|-------------------------------|-----------------|
| | | | With Upstream Circuit Breaker Protection | | | With Upstream Fuse Protection | |
| | | | @240V | @480V | @600V | @ up to 600V | FUSE TYPE |
| TS 87xA - 0100 | 600 | 100 | 65,000 | 25,000 | 18,000 | 100,000 | T,J |
| TS 87xA - 0150 | 600 | 150 | 65,000 | 25,000 | 18,000 | 100,000 | T,J |
| TS 87xA - 0200 | 240 | 200 | 65,000 | N/A | N/A | N/A | T,J |
| TS 87xA - 0250 | 600 | 250 | 65,000 | 35,000 | 25,000 | 100,000 | T,J |
| TS 87xA - 0400 | 600 | 400 | 65,000 | 50,000 | 35,000 | 100,000 | T,J |
| TS 87xA - 0600 | 600 | 600 | 65,000 | 50,000 | 35,000 | 100,000 | T,J |
| TS 87xA - 0800 | 600 | 800 | 65,000 | 50,000 | 35,000 | 100,000 | Consult Factory |
| TS 87xA - 1000 | 600 | 1000 | 65,000 | 50,000 | 42,000 | 100,000 | Consult Factory |
| TS 87xA - 1200 | 600 | 1200 | 65,000 | 50,000 | 42,000 | 100,000 | Consult Factory |

ENCLOSURE DIMENSIONS/CABLE TERMINALS

(NEMA 1, ASA 61 GRAY)

| BASIC MODEL | DIMENSIONS (Inches) ¹ | | | SHIPPING WEIGHT (lbs) | TERMINAL RATING ² | |
|-----------------------|----------------------------------|-------|-------|-----------------------|------------------------------|--------------------|
| | HEIGHT | WIDTH | DEPTH | | QTY PER PHASE | RANGE ³ |
| TS 87xA - 0100 / 0150 | 31 | 22 | 13 | 160 | 1 | #2 - 4/0 |
| TS 87xA - 0200 | 31 | 22 | 13 | 160 | 1 | #6 - 350 MCM |
| TS 87xA - 0250 | 35 | 27 | 13 | 165 | 1 | #6 - 350 MCM |
| TS 87xA - 0400 | 64 | 30 | 13 | 387 | 2 | 2/0 - 500 MCM |
| TS 87xA - 0600 | 70 | 34 | 13 | 414 | 2 | 2/0 - 500 MCM |
| TS 87xA - 0800 | 70 | 34 | 13 | 414 | 3 | 2/0 - 500 MCM |
| TS 87xA - 1000/1200 | 76 | 34 | 13 | 550 | 4 | 4/0 - 500 MCM |

Optional NEMA 2, 3R & 4X class enclosures available — consult Thomson Technology.

¹ Enclosure dimensions are for reference. (DO NOT USE FOR CONSTRUCTION).

² Optional Terminal Ratings are available in some models - Consult Thomson Technology.

³ All cable connections suitable for copper or aluminum.

STANDARD FEATURES

Load on Utility & Load on Generator Lights
 Utility & Generator Source Available Lights
 Three Phase Voltage Sensing on Utility & Generator Sources
 Under Frequency Sensor on Generator Source
 Engine Start Delay Timer 0-60 sec.
 Engine Cooldown Delay Timer 0-30 min.
 Engine Warm-up Timer 0-60 sec.
 Neutral Position Delay 0-60 sec.
 Utility Return Timer 0-30 min.
 Engine Start Contact (10A, 120/240VAC res. Form C)
 Exercise Timer (On Load, Fixed 20 min.)
 Auxiliary Contact - Utility side (10A, 120/240VAC res. Qty 1, Form C)
 Auxiliary Contact - Generator side (10A, 120/240VAC res. Qty 1, Form C)
 Local Utility Power Fail Simulation Test Pushbutton
 Provision for Remote Load Test/Peak Shave Switch Input
 NEMA 1 Enclosure
 Solid Neutral



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ORDERING INFORMATION

ATS MODEL CODE

Specify the following 21 digit ATS MODEL CODE as per the features and applications described below.

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| T | S | | 8 | 7 | | | | | | | | | | | | | | | | |

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
X – SPECIAL

8-11. AMPERAGE

0100
0150
0200
0250
0400
0600
0800
1000
1200

12. APPLICATION

A – STANDARD
B – SERVICE ENTRANCE
X – SPECIAL

13. OPERATION TYPE

1 – OPEN TRANSITION
2 – MANUAL ELEC. OP.
X – SPECIAL

14. CERTIFICATION

A – UL 1008
B – CSA C22.2. No. 178
X – NOT APPLICABLE

15. VOLTAGE

1Ø 3 WIRE
D – 120/240
3Ø 4 WIRE (GROUNDED NEUTRAL)
(*=MULTI-VOLTAGE CAPABLE)
E – 120/208*
F – 127/220
G – 120/240*(DELTA)
H – 220/380**
J – 240/416
K – 254/440
M – 277/480*
N – 347/600*

3Ø 3 WIRE

P – 208
Q – 220
R – 240
S – 380**
U – 416
V – 480
W – 600
X – SPECIAL
** FOR 50HZ APPLICATION

16. CONTROLLER

1 – TSC 80
7 – NONE (MANUAL)

17. ENCLOSURE TYPE

A – NEMA 1, ASA #61 GREY
B – NEMA 2, 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 4X, STAINLESS STEEL
G – NONE (OPEN STYLE)
X – SPECIAL

18. UTILITY SWITCHING DEVICE

K – MOLDED CASE SWITCH 100-1200A
M – MOLDED CASE SWITCH C/W
THER-MAG TRIP 100-200A
N – MOLDED CASE SWITCH C/W
ELECTRONIC TRIP 250-1200A
P – MOLDED CASE SWITCH C/W
ELECTRONIC & GF TRIP 250-1200A

19. GENERATOR SWITCHING DEVICE

K – MOLDED CASE SWITCH 100-1200A
M – MOLDED CASE SWITCH C/W
THER-MAG TRIP 100-200A
N – MOLDED CASE SWITCH C/W
ELECTRONIC TRIP 250-1200A
P – MOLDED CASE SWITCH C/W
ELECTRONIC & GF TRIP 250-1200A

20. POWER CONNECTIONS

A – STANDARD
X – SPECIAL

21. CONNECTION CONFIGURATION

(SEE DRAWING M-007450-00051)
A – STANDARD
B – ALTERNATE B (400-1200A)
C – ALTERNATE C (400-1200A)
D – ALTERNATE D (400-1200A)

OPTIONAL FEATURES

(Specify separately from ATS MODEL CODE when ordering)

| CODE | DESCRIPTIONS |
|---------|---|
| AUX-G | Auxiliary Contact - Generator side (up to qty. 3) |
| AUX-U | Auxiliary Contact - Utility side (up to qty. 3) |
| CED | Custom Engineered Drawings - Project Specific |
| EAP1601 | Transfer to Emergency Annunciator, Alarm Horn & Silence Pushbutton |
| EXT | Programmable Exercise Clock |
| FTS-4 | 4 Function Test Switch (Auto/Off/Engine Start/Test) |
| GPA | Generator Power Available Contact |
| LCK | Enclosure Lockable Door |
| LDC | Generator Pre/Post & Utility Pre/Post Timer Contacts (adjustable) for Load Disconnect prior to Transfer |

| CODE | DESCRIPTIONS |
|--------|--|
| SDM | LCD Service Display Module - Displays TSC 80 Controller Settings and Timer Adjustments - Plug in Connector and Cable |
| TS-H1 | Enclosure Strip Heater c/w Thermostat (120VAC External Power Source Required) |
| TS-H2 | Enclosure Strip Heater c/w Thermostat (internally powered from ATS load) |
| TS-O&M | Additional ATS O & M Manuals (Specify qty.) (Alternatively Download from Web) |
| TS-STG | Shunt Trip Generator Switch |
| TS-STU | Shunt Trip Utility Switch |
| UPA | Utility Power Available Contact |

NOTE: Specifications subject to change without notice.

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