



SERIES TS 970 • 100 - 400 AMP AUTOMATIC TRANSFER SWITCHES

COMMERCIAL & INDUSTRIAL

REGAL[®]



THOMSON POWER SYSTEMS TS 970 AUTOMATIC TRANSFER SWITCHES OFFER THE FOLLOWING:

POWER CONTACTOR SWITCHING UNITS

- 100% Continuous Current Ratings for use with all load types
- Suitable for copper and aluminum power cable connections
- High Short Circuit Withstand Ratings when used with upstream molded case circuit breakers

RELIABLE SOLENOID OPERATED TRANSFER MECHANISM

- Three Position Power Contactor provides neutral delay position
- Single Coil Power Contactor Design for reliable operation
- Jumper configurable control voltage. No need to change solenoids
- Excellent Breaking capacity utilizing large arc chambers
- Mechanical Interlocked mechanism prevents simultaneous closure between Utility and Generator sources

SUPERIOR SERVICEABILITY

- Plug-in Control Devices allow superior field serviceability
- Enclosed Power Contacts for safe operation and maintenance
- All control wires and power busses are front accessible
- Plug-in TSC 900 Transfer Switch Controller

CONTROL FEATURES

- TSC 900 microprocessor based controller with 7" color touch screen graphical display and programmable inputs/outputs
- Isolation plug permits disconnecting control circuits from all power sources

PRODUCT DATA

- Models from 100 - 400A continuous current
- Available 3 or 4 pole
- All models 50/60Hz rated
- Voltage 480VAC
- 3 phase, 3 or 4 wire systems (3 wire, 480V requires option kit)
- Fast Open Transition
- Inphase transfer
- Rust resistant, Satin-Coated enclosure (galvannealed)

QUALITY ASSURANCE

- ISO 9001 Registered

SEISMIC CERTIFICATION

TS 970 ATS is certified for installation and operation per the following requirements:

- Standards: IBC 2018, ASCE7 - 05, ICCES - AC156 - 2015
- Maximum Design Loads, $S_{DS}(g)=2.5$, $I_p=1.5$, $F_p/W_p= 1.88$

SAFETY STANDARDS

- UL 1008 Automatic Transfer Switches for use in Emergency Systems
- CSA C22.2 No. 178 Automatic Transfer Switches
- NFPA 110 Standard for Emergency and Standby Power Systems

WARRANTY

- 2 year limited warranty included

Thomson Power Systems TS 970 Automatic Transfer Switches employ a power contactor switching unit 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 re-transferred 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 in-phase transfer detection, or with adjustable neutral position delay to ensure adequate voltage decay for preventing out of phase transfers.

TS 970 Automatic Transfer Switches are certified to UL 1008 & CSA 178 Standards for use in Emergency Power System applications.

All TS 970 Transfer Switch models have been 3 cycle withstand current tested in accordance with UL 1008 & CSA 178. Additionally they can withstand 6 times overload for 10 cycles. The standard TS 970 Automatic Transfer Switch is rated for 100% system load. All TS 970 Automatic Transfer Switch uses a TSC 900 microprocessor based controller which provides all necessary control functions for fully automatic operation. The controller is equipped with 7" color touch screen graphical display which provides operating status and controls. All parameters and configurations are entered without opening the front door.



DUAL SOURCE ATS

Thomson Power Systems TS 970 Dual Source Automatic Transfer Switches employ a power contactor switching unit with a microprocessor based controller to automatically control two sources of power such as dual utility feeders or dual prime operating generator sets. Upon failure of the preferred operating source, the load will automatically be transferred to the alternate source. System load is then automatically re-transferred back to the preferred operating source following restoration of the power source to within normal operating limits. All load transfer sequences are "Open Transition" (i.e. "break-before-make") with adjustable neutral position delay.

Dual Source is available in three different configurations as follows:

- DU - Dual Utility Sources
- DSG - Dual Standby Generators (Slave ATS)
- DPG - Dual Prime Generators (Prime Power)

TS 970 DS Automatic Transfer Switches are specifically designed and certified to CSA 178 and UL 1008 Standards. All TS 970 DS Transfer Switch models have been 3 cycle withstand current tested in accordance with UL 1008 and CSA 178 which allow high current ratings.

The TS 970 DS Automatic Transfer Switches use a type TSC 900 microprocessor based controller.

STANDARD FEATURES (With TSC 900 Controller)

- 7" color touch screen graphical display for monitoring 3 Phase Utility/Generator voltage, system frequency and timer countdown operation
- Front Panel Programming using touch screen graphical display with password security
- Load on Utility & Load on Generator indication
- Utility & Generator Source available indication
- 3 Phase Voltage sensing on Utility & Generator Sources
- Generator AC frequency sensing
- Utility under voltage control setpoint 70 - 95% (adjustable)
- Generator under voltage control setpoint 70 - 95% (adjustable)
- Generator under frequency control setpoint 70 - 90% (adjustable)
- Engine warmup timer 0-60 min. (adjustable)
- Utility return timer 0-60 min. (adjustable)
- Engine start timer 0-60 sec. (adjustable)
- Engine cooldown timer 0-60 min. (adjustable)
- Neutral position delay timer 0-120 sec. (adjustable)
- Load Disconnect Contact (LDC) for pre/post transfer control to signal external building systems such as elevators during transfer operations
- Programmable Generator Exercise Timer (EXT) with easy to use event, Calendar Based, On-load or Off-load Programmability
- Real-time clock c/w battery backup & daylight savings programming
- 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
- Eight user Programmable Output Contacts rated 2A, 120/240V resistive, Form C. Each output contact is user programmable to 20 different functions including: Load on Utility, Load on Gen, 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, and ATS in Auto.

The Transfer Switch is pre-programmed with the following outputs enabled:

- Load on Utility
- Load on Gen
- Load Disconnect Contact (LDC)
- Fail to Transfer (FTT)
- ATS Not in Auto

- Local utility power fail simulation test
- Remote utility power fail simulation test pushbutton input
- Local plant exercise initiate pushbutton control
- Engine start contact (7A, 120/240VAC resistive max.)
- Transfer fail/forced transfer logic
- Automatic force transfer to alternate supply should load voltage become de-energized
- 50 or 60Hz capable (115V control power)
- Remote Load Test/Peak Shave Input
- NEMA 1 Enclosure
- Solid Neutral on 4 Wire Systems
- Under/Over Frequency Protection - Utility and Generator Sources
- 3 Phase Over Voltage Protection - Utility and Generator Sources
- Phase Sequence and Phase Rotation Protection between Utility and Generator Sources
- Voltage Phase Loss/Unbalance Protection
- Programmable Inputs (Quantity 16 Digital Input-voltage free input)
- RS232 Modbus™ Remote Communication Port (Modbus™ Serial RTU) via GHC
- Optional Ethernet Modbus Remote Communication Port (Modbus™ TCP) via GHC
- USB Communication Port (Quantity 3 via GHC)
- Serviceable Plug-in Connectors
- Event Logging (Time/Date Stamping)

WITHSTAND CURRENT RATINGS (ALL MODELS)

MODEL	SYSTEM VOLTAGE VOLTS (MAX)	WITHSTAND CURRENT RATING (SPECIFIC BREAKER) ¹	WITHSTAND CURRENT RATING (ANY BREAKER)	WITHSTAND CURRENT RATING (HRC FUSE)
		AMPS (RMS SYM) @ 480V	AMPS (RMS SYM) 50 msec @ 480V	TYPE J FUSE AMPS (RMS SYM) @ 480V
TS 97xA0100A	480	18kA - 35kA	5kA	100kA
TS 97xA0150A	480	25kA - 65kA	14kA	100kA
TS 97xA0200A	480	25kA - 65kA	14kA	100kA
TS 97xA0250A	480	25kA - 65kA	14kA	100kA
TS 97xA0400A	480	25kA - 65kA	14kA	100kA

¹ Refer to separate literature for breaker types.

ENCLOSURE DIMENSIONS/CABLE TERMINALS (ATS ONLY) (NEMA 1, ASA #61 GRAY)

AMPERAGE	# OF POLES	DIMENSIONS INCHES (mm) ¹			SHIPPING WEIGHT lbs (kg)	TERMINAL RATING ³	
		HEIGHT INCHES (MM)	WIDTH INCHES (MM)	DEPTH INCHES (MM)		QTY (PER PHASE)	RANGE
100A	3	34.0" (864)	22.0" (559)	12.0" (305)	152 lbs (69)	1	#6 - 300 mcm
100A	4	34.0" (864)	22.0" (559)	12.0" (305)	152 lbs (69)	1	#6 - 300 mcm
150A	3	34.0" (864)	22.0" (559)	12.0" (305)	170 lbs (77)	1	#6 - 300 mcm
150A	4	42.0" (1067)	26.0" (660)	12.5" (318)	180 lbs (82)	1	#6 - 300 mcm
200A	3	32.5" (826)	22.0" (559)	12.0" (305)	147 lbs (67)	1	#6 - 300 mcm
200A	4	39.0" (991)	26.0" (660)	12.5" (318)	184 lbs (83)	1	#6 - 300 mcm
250A	3	42.0" (1067)	24.0" (610)	12.5" (318)	192 lbs (87)	1	#6 - 350 mcm
250A	4	39.0" (991)	26.0" (660)	12.5" (318)	184 lbs (83)	1	#6 - 350 mcm
400A	3	42.0" (1067)	24.0" (610)	12.5" (318)	207 lbs (94)	2	2/0 - 500 mcm
400A	4	42.0" (1067)	26.0" (660)	12.5" (318)	210 lbs (95)	2	2/0 - 500 mcm

Optional NEMA 3R class enclosures available — consult Thomson Power Systems.

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

³ All cable connections suitable for copper or aluminum.



ORDERING INFORMATION

When placing an order, specify the following 21 digit ATS MODEL CODE as per the features and applications described below.

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

1-3. SERIES

TS - TRANSFER SWITCH

4 & 5. MODEL

97 - 970 SWITCH

6. POLES

3 - 3 POLE
4 - 4 POLE

7. CONFIGURATION TYPE

A - ATS

8 - 11. AMPERAGE

0100
0150
0200
0250
0400

12. APPLICATION

A - STANDARD

13. OPERATION TYPE

1 - OPEN TRANSITION

14. SAFETY STANDARDS

C - UL 1008 / CSA 178

15. VOLTAGE

3Ø 4 WIRE (GROUNDED NEUTRAL)

E - 120/208¹
F - 127/220¹
G - 120/240¹ (DELTA)
H - 220/380^{1,2}
S - 230/400^{1,2}
J - 240/416¹
K - 254/440¹
M - 277/480¹
Z - MULTIVOLTAGE (STOCK SWITCHES ONLY)¹

3Ø3 WIRE

P - 208
Q - 220
R - 240
V - 480³

16. CONTROLLER

5 - TSC 900 c/w GHC Graphic Display

17. ENCLOSURE TYPE

A - NEMA1, ASA #61 GRAY
D - NEMA3R SD, ASA #61 GRAY

18. UTILITY SWITCHING DEVICE

J - POWER CONTACTOR

19. GENERATOR SWITCHING DEVICE

J - POWER CONTACTOR

20. POWER CONNECTIONS

A - STANDARD

21. ATS CONNECTION CONFIGURATION

A - STANDARD

NOTES

¹ MULTI-VOLTAGE CAPABLE (208 - 480V)

² FOR 50 Hz APPLICATION

³ REQUIRES OPTION KIT

AVAILABLE IN STOCK

The following standard ATS models are available from stock:

AMPERAGE	3 POLE	SOLID NEUTRAL	TSC 900 CONTROLLER	NEMA 1 ENCLOSURE	NEMA 3R ENCLOSURE OPTION	8 PROGRAMMABLE OUTPUT CONTACTS (2A,240VAC)	MODBUS™ RTU REMOTE COMM. PORT (SERIAL RS 232)
100A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
150A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
200A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
250A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
400A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Standard

Available Option in Stock

OPTIONAL FEATURES (Specify separately from ATS MODEL CODE when ordering)

CODE

DESCRIPTION

AUXILIARIES:

KOTS	Key Operated Test Switch - Auto/Off/Engine Start/Test
PPR-10	Programmable Power Relay Includes 10A Form C Contact Wired to Terminal Block (Up to Qty 3). Requires 24Vdc External Control Power

COMMUNICATION:

EMB-TCP/IP	Ethernet Modbus™ Remote Communication Port (Modbus™ TCP) via GHC
RS485A	RS 232 to RS 485 Remote Communication Adapter
THS 900	Remote Communication Application - Windows Based * Requires EMB-TCP/IP Option
RA 900	Remote Annunciator (refer to separate literature)

ENCLOSURE:

GHC-SS	Sunshade for GHC Screen
LCK	Enclosure Lockable Door (Single point T-Handle lock)
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)

FUNCTION:

480VDELTA	Control Transformers for 480V Delta Systems without Neutral Connection (3 Phase, 3 Wire)
DSG	Dual Standby Generator Control Package (Slave ATS). Requires 24DCC Option to Power TSC 900
DPG	Dual Prime Generator Control Package

METERING:

LPM	Transfer Switch Load Power Metering CT Kit (Amp, Volt, Freq, kW, kVA, PF) **Requires CT Kit
CTKxxxx	Current Transformer Kit for LPM (xxxx -Specify CT Size 0100, 0150, 0250, 0400)

POWER:

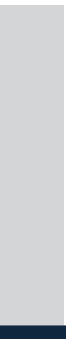
24DCC	24 Volt DC-DC Converter, Regulated
SPD	Surge Protection Device

OTHER:

3YR	Additional 12 Month Parts & Labour Warranty
5YR	Additional 48 Month Parts & Labour Warranty



NOTES:





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THOMSON
POWER SYSTEMS

ISO 9001

NOTE: Specifications subject to change without notice.

APPLICATION CONSIDERATIONS

The proper selection and application of power generation products and components, including the related area of product safety, is the responsibility of the customer. Operating and performance requirements and potential associated issues will vary appreciably depending upon the use and application of such products and components. The scope of the technical and application information included in this publication is necessarily limited. Unusual operating environments and conditions, and other factors can materially affect the application and operating results of the products and components and the customer should carefully review its requirements. Any technical advice or review furnished by Regal Beloit America, Inc. and its affiliates with respect to the use of products and components is given in good faith and without charge, and Regal assumes no obligation or liability for the advice given, or results obtained, all such advice and review being given and accepted at customer's risk.

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