



# **SERIES TS 970 • 100 - 1200 AMP AUTOMATIC TRANSFER SWITCH**

COMMERCIAL, INDUSTRIAL



## TS 970 AUTOMATIC TRANSFER SWITCHES OFFER:

### POWER CONTACTOR SWITCHING UNITS

- 100% Continuous Current Ratings for use with all load types
- High Short Circuit Withstand Ratings
- Three Position Power Contactor with programmable neutral delay
- Single Coil Power Contactor Design for reliable operation
- Jumper configurable control voltage. No need to change solenoids
- Electrically and Mechanically Interlocked mechanism prevents simultaneous closure between Utility and Generator sources

### SUPERIOR SERVICEABILITY

- Plug-in Control Devices allow field serviceability
- Enclosed Power Contacts for safe operation and maintenance
- All control wires and cable connections are front accessible
- Plug-in TSC 7320 Transfer Switch Controller

### CONTROL FEATURES

- TSC 7320 Advanced ATS Controller with 2.3" back-lit LCD display and programmable inputs/outputs
- Isolation plug permits disconnecting control circuits from all power sources
- Fast Open Transition with In-Phase Transfer

### PRODUCT DATA

- Models from 100 - 1200A continuous current
- 3 or 4 pole
- All models 50/60Hz rated
- Voltage 208 - 480VAC
- 3 phase, 3 or 4 wire systems (3 wire, 480V requires option kit)
- Mechanically interlocked Open Transition
- Rust resistant, Satin-Coated enclosure (galvannealed)

### SEISMIC CERTIFICATION

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

- Standards: IBC 2018, ASCE7 - 16, 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

**TS 970** Automatic Transfer Switches employ a power contactor switching unit and the TSC 7320 controller to automatically start a generator and transfer system load 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 delay 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 Switches utilize the TSC 7320 Advanced ATS Controller which provides all necessary control functions for fully automatic operations. The controller is equipped with 2.3" back-lit LCD display which provides operating status and controls. All parameters and configurations are entered without opening the front door.

## STANDARD FEATURES

- 2.3" back-lit LCD text display for monitoring 3 Phase Utility/Generator voltage, system frequency, operation status and alarms
- Five key menu navigation
- Front panel editing with PIN protection
- Customizable status screens
- 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 50 - 95%<sup>1</sup>
- Generator under voltage control setpoint 50 - 95%<sup>1</sup>
- Generator under frequency control setpoint 70 - 90%<sup>1</sup>
- Engine warmup timer 0-60 min.<sup>1</sup>
- Utility return timer 0-60 min.<sup>1</sup>
- Engine start (Mains transient) delay timer 0-30 sec.<sup>1</sup>
- Engine cooldown timer 0-60 min.<sup>1</sup>
- Neutral position delay timer 0-300 sec.<sup>1</sup>
- Load Disconnect Contact (LDC) for pre/post transfer control to signal external building systems such as elevators during transfer operations
- Up to 16 different date and time schedules for On-load or Off-load Generator exercising
- Real-time clock provides accurate event logging
- Data logging
- Ten outputs total. Two user programmable outputs are rated at 2A, 24VDC resistive, and two user programmable outputs rated 15A, 24VDC resistive. Remaining contacts are for ATS functionality. The user programmable outputs can be changed 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, ATS Not in Auto, and ATS in Auto.
- The Transfer Switch controller is pre-programmed with the following outputs enabled:
  - Load on Utility (15A)
  - Load on Gen (15A)
  - Load Disconnect Contact (LDC) (8A)
  - Fail to Transfer (FTT) (2A)
  - ATS Not in Auto (2A)

<sup>1</sup> Settings are adjustable

<sup>2</sup> Power Metering requires Current Transformer Option Kit.

\* See last page for attribution.



- Local and Remote utility power fail simulation test
- Engine start contact (8A, 120/250VAC resistive max.)
- Automatic force transfer to alternate supply should load voltage become de-energized
- 24VDC control power
- Remote Load Test/Peak Shave Input
- Solid Neutral on 4 Wire Systems
- Configurable System Voltage Type (3 wire delta or 4 wire Wye capable without additional sensing transformers)
- ATS Load Bus Power Metering Capability (Amp, Volt, Freq, kW, kVA, PF)<sup>2</sup>
- 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
- Fourteen Inputs Total (Quantity 5 User Programmable Inputs)
- Optional Remote Input module DSE2130 (Quantity 8 Digital inputs)
- Optional Remote Output module DSE2157 (Quantity 8 relay contacts)
- RS485 Modbus<sup>®</sup>\* Remote Communication Port (Modbus Serial RTU)
- Optional Ethernet Modbus TCP/IP<sup>®</sup> Remote Communication Module (Modbus TCP/IP)
- Optional Remote Annunciator DSE2548
- Support up to Three Remote Display Units DSE2520
- Serviceable Plug-in Connectors

## WITHSTAND CURRENT RATINGS (ALL MODELS)

MODEL	RATED CURRENT (AMPS)	MAX VOLTAGE (VAC)	WITHSTAND CURRENT RATING AMPS (RMS) <sup>1</sup>			
			WCR 50mS (RMS SYM)	WCR 17mS (RMS SYM)	SPECIFIC BREAKER (RMS SYM)	WCR HRC FUSE (RMS SYM)
TS 973A0100A	100A	480	5,000	5,000	35,000	200,000
TS 973A0150A	150A	480	14,000	14,000	65,000	200,000
TS 973A0200A	200A	480	14,000	14,000	65,000	200,000
TS 973A0250A	250A	480	14,000	14,000	65,000	200,000
TS 973A0400A	400A	480	14,000	14,000	65,000	200,000
TS 973A0600A	600A	480	35,000	85,000	200,000	200,000
TS 973A0800A	800A	480	42,000	100,000	100,000	200,000
TS 973A1000A	1000A	480	42,000	100,000	100,000	200,000
TS 973A1200A	1200A	480	50,000	100,000	100,000	200,000

<sup>1</sup> Refer to product O&M Manual for complete list of circuit breakers.

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

AMPER-AGE	# OF POLES	NEMA DIMENSIONS <sup>1</sup>			SHIPPING WEIGHT lbs (kg)	TERMINAL RATING <sup>2</sup>	
		HEIGHT INCHES (mm)	WIDTH INCHES (mm)	DEPTH INCHES (mm)		QTY (PER PHASE)	RANGE
100A	3	31.15" (800)	22.15" (572)	12.0" (305)	114 lbs (52)	1	#6 - 300 MCM
100A	4	31.15" (800)	22.15" (572)	12.0" (305)	124 lbs (56)	1	#6 - 300 MCM
150A	3	31.15" (800)	22.15" (572)	12.0" (305)	140 lbs (64)	1	#6 - 300 MCM
150A	4	39.2" (996)	26.15" (664)	12.5" (318)	148 lbs (67)	1	#6 - 300 MCM
200A	3	31.15" (800)	22.15" (572)	12.0" (305)	140 lbs (64)	1	#6 - 300 MCM
200A	4	39.2" (996)	26.15" (664)	12.5" (318)	148 lbs (67)	1	#6 - 300 MCM
250A	3	39.2" (996)	24.15" (613)	12.5" (318)	170 lbs (77)	1	#6 - 300 MCM
250A	4	39.2" (996)	26.15" (664)	12.5" (318)	175 lbs (80)	1	#6 - 300 MCM
400A	3	39.2" (996)	24.15" (613)	12.5" (318)	170 lbs (77)	2	4/0 - 500 MCM
400A	4	39.2" (996)	26.15" (664)	12.5" (318)	175 lbs (80)	2	4/0 - 500 MCM
600A	3	73.58" (1869)	29.2" (742)	28.08" (713)	638 lbs (289)	4	#4 - 600 MCM
600A	4	73.58" (1869)	29.2" (739)	28.08" (713)	657 lbs (298)	4	#4 - 600 MCM
800A	3	73.58" (1869)	29.2" (742)	28.08" (713)	638 lbs (289)	4	#4 - 600 MCM
800A	4	73.58" (1869)	29.2" (739)	28.08" (713)	657 lbs (298)	4	#4 - 600 MCM
1000A	3	73.58" (1869)	29.2" (742)	28.08" (713)	638 lbs (289)	4	#4 - 600 MCM
1000A	4	73.58" (1869)	29.2" (739)	28.08" (713)	657 lbs (298)	4	#4 - 600 MCM
1200A	3	73.58" (1869)	29.2" (742)	28.08" (713)	673 lbs (305)	4	#4 - 600 MCM
1200A	4	73.58" (1869)	29.2" (739)	28.08" (713)	697 lbs (316)	4	#4 - 600 MCM

## 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

### 13. OPERATION TYPE

1 - OPEN TRANSITION

### 16. CONTROLLER

6 - TSC 7320 c/w LCD Text Display

### 4 & 5. MODEL

97 - 970 SWITCH

### 14. SAFETY STANDARD

C - UL 1008 / CSA 178

### 17. ENCLOSURE TYPE

A - NEMA®1, ASA #61 GRAY

D - NEMA®3R SD, ASA #61 GRAY

### 6. POLES

3 - 3 POLE

4 - 4 POLE

### 15. VOLTAGE

1Ø 3 WIRE

D - 120/240

### 18. UTILITY SWITCHING DEVICE

J - POWER CONTACTOR

### 7. CONFIGURATION TYPE

A - ATS

### 3Ø 4 WIRE (GROUNDED NEUTRAL)

E - 120/208<sup>1</sup>

F - 127/220

G - 120/240<sup>1</sup> (DELTA)

H - 220/380<sup>1,2</sup>

S - 230/400<sup>1,2</sup>

J - 240/416<sup>1</sup>

K - 254/440<sup>1</sup>

M - 277/480<sup>1</sup>

Z - MULTIVOLTAGE (STOCK SWITCHES ONLY)

### 19. GENERATOR SWITCHING DEVICE

J - POWER CONTACTOR

### 8 - 11. AMPERAGE

0100

0150

0200

0250

0400

0600

0800

1000

1200

### 20. POWER CONNECTIONS

A - STANDARD

### 21. ATS CONNECTION CONFIGURATION<sup>3</sup>

A - STANDARD

### 12. APPLICATION

A - STANDARD

### 3Ø 3 WIRE

P - 208

Q - 220

R - 240

V - 480<sup>3</sup> (DELTA OPTION)

### 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 7320 CONTROLLER	NEMA® 1 ENCLOSURE	NEMA® 3R ENCLOSURE OPTION	8 PROGRAMMABLE OUTPUT CONTACTS (2A, 240VAC)	MODBUS™ RTU REMOTE COMM. PORT (SERIAL RS 485)
100A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard
150A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard
200A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard
250A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard
400A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard
600A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard
800A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard
1000A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard
1200A	Standard	Standard	Standard	Standard	Available Options In Stock	Standard	Standard

Standard

Available Options In Stock

\* See last page for attribution.



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

CODE	DESCRIPTION
<b><u>AUXILIARIES:</u></b>	
KOTS-DSE	Key Operated Test Switch - Auto/Off/Engine Start/Test - includes the DSE2130 module
RO2157	Programmable Relay Output Expansion Module - Includes QTY 8, 2A Resistive 30VDC rated relays - 4 NO and 4 Form C Contacts.
PPR-10-DSE	Programmable Power Relay includes 10A Form C Contact wired to terminal block (Up to Qty 3)
<b><u>COMMUNICATION:</u></b>	
EMB-TCP/IP-DSE-MOXA	Ethernet Modbus®* Remote Communication (Modbus TCP)
RA7320 (DSE2548)	Remote Annunciator with eight configurable LEDs. Works up to 0.6 miles from the TSC7320. Up to 10 modules can be daisy-chain (Refer to the DSE2548 Datasheet)
RD7320 (DSE2520)	Remote Display. Up to three display modules can be connected to TSC7320 (Refer to the DSE2510-20 Datasheet)
<b><u>ENCLOSURE:</u></b>	
LCK	Pad Lockable Door
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)
<b><u>FUNCTION:</u></b>	
LSC	Load Shed, 5 Stage - Requires CTK Option
480VDELTA-DEEPSEA	Control Transformers for 100-400A, 480V Delta Systems without Neutral Connection (3 Phase, 3 Wire)
480VDELTA-DEEPSEA PH2	Control Transformers for 600-1200A, 480V Delta Systems without Neutral (3 Phase, 3 Wire)
<b><u>METERING:</u></b>	
LPM-DSE	Transfer Switch Generator Power Metering CT Kit(Amp, Volt, Freq, kW, kVA, PF) - Requires CT Kit
CTKxxxx-DSE	Current Transformer Kit (xxxx -Specify CT Size 0100, 0150, 0250, 0400) - Requires LPM option
<b><u>POWER:</u></b>	
SPD	Surge Protection Device
<b><u>OTHER:</u></b>	
3YR	Additional 12 Month Warranty ***
5YR	Additional 48 Month Warranty ***

\* ModBus is believed to be the trademark and/or trade name of Schneider Electric USA, Inc., and is not owned or controlled by Regal Rexnord Corporation or any of its affiliates.

\*\*\* Refer to TPS Warranty for additional details



NOTES:





## Regal Rexnord

Customer Service: 1-888-888-0110

Sales: [Thomsonps\\_sales@regalrexnord.com](mailto:Thomsonps_sales@regalrexnord.com)

Support: [Thomsonps.support@regalrexnord.com](mailto:Thomsonps.support@regalrexnord.com)

[Regalrexnord.com/thomson](http://Regalrexnord.com/thomson)

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