The TSC 900 Transfer Switch Controller provides the most advanced integrated technology available for use in Thomson Power Systems Automatic Transfer Switches.

Superior features include:

- Integrated Controls for Open and Closed Transition Transfer Switch Applications
- Latest Technology 32 Bit Microcontroller Architecture provides fast, accurate reliable operation
- Graphical Color 7” Touch-Screen Operator Interface for easy viewing and operation
- Advanced 3 phase Voltage Sensing using symmetrical component Algorithms for True Single Phasing Protection
- Integrated 3 Phase Power Metering
- USB and Ethernet Remote Communication connectivity
- Programmable set-points and calibration via USB interface to PC
GENERAL DESCRIPTION

The Thomson Power Systems TSC 900 Transfer Switch Controller utilizes the latest advancements in microcontroller technology, surface mount printed circuit board assembly and advanced programming firmware for control of automatic transfer switches.

The TSC 900 is the fourth generation of microcontroller-based transfer switch controllers from Thomson Power Systems and reflects over 40 years of transfer switch control experience. The TSC 900 is factory configured to monitor, display and control all operational functions of the automatic transfer switch. All voltage sensing and timing functions are fully user adjustable from the door mounted color touch screen operator interface panel. The unique integrated design allows the controller to be utilized for a wide range of applications without use of external modules or optional components. The microcontroller design provides high accuracy for all voltage sensing and timing functions as well as providing many standard features.

TSC 900 TRANSFER CONTROLLER

<table>
<thead>
<tr>
<th>Applications</th>
<th>Controller Hardware Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Emergency Standby ATS</td>
<td>* Graphical 7&quot; WVGA (800x480) Color Touch Screen Display</td>
</tr>
<tr>
<td>Open or Closed Transition Transfer Control</td>
<td>* Plug-in Terminal Connectors</td>
</tr>
<tr>
<td>Closed Transition Fast Transfer or Soft-Load Transfer Capability</td>
<td>* Removable SD Memory Cards</td>
</tr>
<tr>
<td>Load Transfer Utilizing Neutral Delay or In-Phase Monitor</td>
<td>* 120-600V Direct 3 Phase Voltage Sensing (Gen/Utility/Load)</td>
</tr>
<tr>
<td>Dual Source Utility</td>
<td>* 5 Amp, 3 Phase Current Transformer Inputs for ATS Load</td>
</tr>
<tr>
<td>Dual Source Generators (Master/Slave)</td>
<td>* 120VAC/24Vdc Control Power Input (Utility/Gen)</td>
</tr>
<tr>
<td>Dual Prime Generators</td>
<td>* 16 Programmable Digital Inputs</td>
</tr>
<tr>
<td>Service Entrance</td>
<td>* 8 Programmable Relay Contact Outputs (2A, 250VAC, 30VDC)</td>
</tr>
<tr>
<td>Isolation Bypass Switches</td>
<td>* 2 Dedicated Engine Start Contacts (7A, 30VDC)</td>
</tr>
<tr>
<td>Single Phase or 3 Phase Systems, 100A-4000A ATS Mechanisms</td>
<td>* Optional Ethernet Communication Port (GHC)</td>
</tr>
<tr>
<td>120-600VAC 3 phase, 3 Wire/4 wire (Auto Config.-No PT Required)</td>
<td>* 2 RS232 Serial Communication Ports</td>
</tr>
<tr>
<td>5kV-25kV 3 phase, 3 Wire/4 wire (with External PT)</td>
<td>* 3 USB 2.0 Communication Ports</td>
</tr>
</tbody>
</table>

Control and Monitoring Features

<table>
<thead>
<tr>
<th>Applications</th>
<th>Controller Hardware Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated 3 Phase Power Metering</td>
<td>* Integrated In-Phase Monitor (For fast transfer type ATS only)</td>
</tr>
<tr>
<td>Voltage Sensing, True RMS, 3 Phase (Utility/Gen/Load)</td>
<td>* Modbus® RTU (Serial) or TCP Communication Protocol</td>
</tr>
<tr>
<td>Under Voltage/Over Voltage Protection Set Points (Utility and Gen)</td>
<td>* Multi-Voltage programmability</td>
</tr>
<tr>
<td>Single Phasing Voltage Protection</td>
<td>* User Configurable System 3 phase 4 wire or 3 wire, 50/60 Hz</td>
</tr>
<tr>
<td>System Phase Sequence/Phase Rotation Detection</td>
<td>* Remote Load Test/Peak Shave Input</td>
</tr>
<tr>
<td>Under/Over Frequency Protection Set Points (Utility and Gen)</td>
<td>* Load Shed Programmable Output</td>
</tr>
<tr>
<td>Engine warm-up timer 0-60 sec. (adjustable)</td>
<td>* Pre/Post Transfer Load Disconnect Control Output</td>
</tr>
<tr>
<td>Utility return timer 0-30 min. (adjustable)</td>
<td>* On Board Real-Time clock c/w battery back-up &amp; daylight-savings</td>
</tr>
<tr>
<td>Neutral position delay timer 0-60 sec. (adjustable)</td>
<td>* Event Logging (Time/date stamped)</td>
</tr>
<tr>
<td>Engine cooldown timer 0-30 min. (adjustable)</td>
<td>* Data Export via Removable SD Memory Card for PC</td>
</tr>
<tr>
<td>Engine start timer 0-60 sec. (adjustable)</td>
<td>* Fail to Transfer Alarm/Forced Transfer Detection Logic</td>
</tr>
<tr>
<td>Plant Exerciser Timer (Calendar Based)</td>
<td>* Security Password Enabled Programming Access</td>
</tr>
<tr>
<td>3 Phase Metering of Utility/Gen/Load Voltage and Frequency</td>
<td>* Front Panel Programming –All Parameters</td>
</tr>
<tr>
<td>Test &amp; Exercise Operation Modes</td>
<td>* Source Available/Source Connected Status Mimic Bus</td>
</tr>
</tbody>
</table>
SPECIFICATIONS:

### Performance
- Operating Temperature: -20°C to +55°C (-4°F-131°F)
- Storage Temperature: -30°C to +75°C (-22°F-167°F)
- Voltage Sensing Accuracy: ±0.5% Full Scale
- Current Sensing Accuracy: ±1.0% Full Scale
- Power Input: 120VAC Nominal +10%, -30%, 50/60Hz /24 Vdc

### Certifications/Compliance
- UL 1008/CSA 178 Emergency Rated Automatic Transfer Switches
- UL 508/CSA 14 Industrial Control Equipment
- FCC CFR 47 Part 15 Class A, ICES-001 Issue 4, Class A
- Output Contacts (Subpart B) 2A, 250VAC, 30VDC Resistive (max)
- EN 61000 Series Electromagnetic Noise Immunity/Emissions

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**TSC900 TRANSFER CONTROL UNIT (SCU)**

**Outputs**
- Utility 120VAC
- Utility 60VAC
- Utility 120V
- Utility 24V
- Utility 5V
- Utility 12V

**Inputs**
- Generator 120V
- Generator 24V
- Generator 24V
- Generator 5V
- Generator 12V

**Digital Inputs**
- Remote Test
- Remote Reset
- Programmable Inputs #1-16 (5VDC to Common)

**Communications/Power**
- SD Card Memory
- AUX Power 24VDC
- Programming RS232 Port
- USB 2.0

**Communications**
- USB A B C
- USB2
- USB3
- USB4
- RS232-1
- RS232-2

**Utility**
- Utility Control Power
- Utility Voltage Sencing
- Utility Position
- Utility Trip
- Utility Close

**Load**
- Load Power Metering
- Load Voltage Sensing
- Load Current Sensing

**Engine**
- Engine Start
- Engine Off

**Controls**
- ATS Mode: Auto
- Load

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