**ATC-900**

**Power Series Transfer Switch**

Automatic Transfer Switch Controller

Available to 600VAC switches

50/60 Hz

Single & Three phase

UL recognized component

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**CODES AND STANDARDS:**

- UL recognized component, complies with UL1008 and UL 991
- NFPA 70, 99, 110, 37 (complies)
- Applicable for use in NEC 700, 701, 702, 708
- ISO9001, 8528, 3046, 7637, Pluses #2b, 4
- ANSI C62.41
- IEC 61000-4-2, 3, 4, 5, 6, 11 EMC Testing & Measuring (complies)
- FCC Part 15, Class A (complies)
- CISPR 11, Class A

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**DESCRIPTION:**

The ATC-900 is designed, tested, and listed for the most rigorous mission critical applications. One standard model provides extensive monitoring and control features. The ease of use, adaptability, supervisory, and programming capabilities are ideal for health care, wastewater, data center and other industrial applications. The ATC-900 controller is compatible with Generac’s Power Series Transfer Switch Product offering including; contactor, breaker, and power frame transfer switches. System parameters monitored include all of the voltage, frequency, control and timing functions. Data is displayed real-time on a color 4.3 inch screen with a separate mimic diagram providing at-a-glance indication of connection. The controller has selective, automatic load shedding for non priority loads ensuring power transfer sequences align with application needs.

The supervisory controller provides a powerful, yet simple to use interface. Operators have enhanced visibility of system details via 450 time-stamped events and remote event analysis capabilities. Sampling speed, four programmable inputs and 4 programmable outputs aid in diagnosing power anomalies quicker, saving time and money. For the most demanding applications the input and output functions are expandable to 20 parameters and metering options are available.

During installation, start-up costs are reduced with flash drive set point programming. The controller has positive feedback membrane and minimizes use of abbreviations further creating a simple, yet powerful user interface. Data from the controller easily integrates into building management systems.
Power Series ATC-900 Transfer Switch

**ATS CONTROLLER FEATURES:**

1. Source availability indication
2. Source position indication
3. Diagnostic status indication
4. Liquid crystal display (LCD)
5. Engine start pushbutton
6. Help/lamp test pushbutton
7. Step/enter pushbutton
8. Navigation pushbuttons
9. Bypass timer pushbuttons

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**LED mimic diagram**

Source 1 and Source 2 color-coded LEDs provide Available and Connected status indication.

**Status Screen**

The ATC-900 Main Menu screen provides transfer switch status at a glance. Source 1, Source 2, and load-metering data are displayed as well as any active alarms.

**Display**

The ATC-900 eliminates the use of codes and abbreviations for transfer switch functions. Data screens are grouped for ease of viewing and edits.

**Arrow key navigation**

Right and Left Arrow Keys are used to navigate menu options and Up and Down Arrow Keys are used to select and change set point values.

**Unit status light**

This LED blinks green indicating that the ATC-900 is operating and providing the transfer switch control function in keeping with programmed set points. If the LED is not lit or is on continuously, a problem may be indicated.

**Help**

Displays controller firmware version and user tips.

**Lamp test**

Pressing the Lamp Test pushbutton lights all LEDs and then displays ATC-900 controller information.

**Engine test**

Performs an engine test using the programmed engine run and cool down times. This is a password-protected feature.

**Bypass time delays**

Pressing the Enter and Help pushbuttons simultaneously reduces the active programmed time delay to zero to simplify test procedures.
Standard Control Parameters Available:

**CONTROL INPUTS (4 STANDARD):**
- Monitor Mode
- Bypass Timers
- Lockout
- Manual Retransfer On/Off
- Manual Retransfer
- Slave In
- Remote Engine Test
- Preferred Source Selection
- Go to Emergency
- Emergency Inhibit
- ATS on Bypass
- Go to Neutral

**CONTROL OUTPUTS (4 STANDARD):**
- Load sequence
- Selective Load shed
- Load bank control
- Pre/post-transfer
- Pre-transfer
- User remote control
- Source 1 available (standard)
- Source 2 available (standard)
- Source 1 connected
- Source 2 connected
- ATS not in automatic
- General alarm
- ATS in test
- Engine test aborted
- Cooldown in process
- Engine start contact status
- Generator 1 start status
- Generator 2 start status
- Emergency inhibit on
- ATS on bypass

*Up to 20 available with Expandable Input/Output Modules
Power Series ATC-900 Transfer Switch

LOAD MANAGEMENT:
The ATC-900 includes several features to enhance the user’s ability to manage load while on the alternate source.

- **Integrated load metering**: Provides metering data that allows the user to monitor energy utilization and manage system loading.
- **Selective load shedding**: Selectively drop non-essential loads when a user-defined kW level is reached. The transfer switch remains on generator.
- **Load shed to neutral (where ATS construction allows)**: Provides the ability to load shed to a neutral position from a generator source.
- **Pre/post transfer signals**: Provides the ability to stop select loads during the transfer process.
- **Load bank disable output**: Disengages a load bank if utility power is lost during an engine test.

SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Application Voltage</td>
<td>Up to 600 VAC RMS</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Input Control Voltage</td>
<td>65 to 160 VAC</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Voltage Measurements of Utility</td>
<td>VAB</td>
<td>Generator VAB</td>
</tr>
<tr>
<td>Voltage Measurements of Generator</td>
<td>VAB</td>
<td>Generator VBC</td>
</tr>
<tr>
<td>Voltage Measurements of Utility</td>
<td>VBC</td>
<td>Generator VCA</td>
</tr>
<tr>
<td>Voltage Measurements of Generator</td>
<td>VCA</td>
<td></td>
</tr>
<tr>
<td>Voltage Measurement Range</td>
<td>0 to 700 VAC RMS</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Voltage Measurement Accuracy</td>
<td>± 1% of Reading</td>
<td></td>
</tr>
<tr>
<td>Frequency Measurements of Utility and Generator (Source 1 and Source 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency Measurement Range</td>
<td>40 Hz to 80 Hz</td>
<td></td>
</tr>
<tr>
<td>Frequency Measurement Accuracy</td>
<td>± 0.1 Hz Over the Measurement Range</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-20 to +70°C (-4 to +158°F)</td>
<td></td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>0 to 95% Relative Humidity (Non-condensing)</td>
<td></td>
</tr>
<tr>
<td>Operating Environment</td>
<td>Resistant to Ammonia, Methane, Nitrogen, Hydrogen, and Hydrocarbons</td>
<td></td>
</tr>
<tr>
<td>Generator Start Relay</td>
<td>5 A, 1/6 HP @ 250 VAC 5 A @ 30 VDC with a 150 W Maximum Load</td>
<td></td>
</tr>
<tr>
<td>K1, K2 Relays</td>
<td>10 A, 1-3 HP @ 250 VAC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 A @ 30 VDC</td>
<td></td>
</tr>
</tbody>
</table>

PROGRAMMABLE SETPOINTS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undervoltage Dropout Range</td>
<td>50% to 97% of the Nominal System Voltage</td>
</tr>
<tr>
<td>Undervoltage Pickup Range</td>
<td>(Dropout +2%) to 99% of the Nominal System Voltage</td>
</tr>
<tr>
<td>Overvoltage Dropout Range</td>
<td>105% to 120% of the Nominal System Voltage</td>
</tr>
<tr>
<td>Overvoltage Pickup Range</td>
<td>103% to (Dropout -2%) of the Nominal System Voltage</td>
</tr>
<tr>
<td>Underfrequency Dropout Range</td>
<td>90% to 97% of the Nominal System Frequency</td>
</tr>
<tr>
<td>Underfrequency Pickup Range</td>
<td>(Dropout +1Hz) to 99% of the Nominal System Frequency</td>
</tr>
<tr>
<td>Overfrequency Dropout Range</td>
<td>103% to 110% of the Nominal System Frequency</td>
</tr>
<tr>
<td>Overfrequency Pickup Range</td>
<td>101% to (Dropout -1Hz) of the Nominal System Frequency</td>
</tr>
</tbody>
</table>
### ADDITIONAL PROGRAMMING SETTINGS

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Delay Nml to Emr</td>
<td>0 to 9999 seconds</td>
</tr>
<tr>
<td>Time Delay Emr to Nml</td>
<td>0 to 9999 seconds</td>
</tr>
<tr>
<td>Time Delay Engine Cool</td>
<td>0 to 9999 seconds</td>
</tr>
<tr>
<td>Time Delay Engine Start</td>
<td>0 to 120 seconds</td>
</tr>
<tr>
<td>Time Delay Neutral(^1)</td>
<td>0 to 120 seconds</td>
</tr>
<tr>
<td>Time Delay Source 2 Fail</td>
<td>0 to 6 seconds</td>
</tr>
<tr>
<td>Time Delay Volt Unbal</td>
<td>10 to 30 seconds</td>
</tr>
<tr>
<td>Volt Unbal 3-Phase</td>
<td>0 or 1 (1 = Enable)</td>
</tr>
<tr>
<td>% of Unbal Volt Dropout (Source 1 &amp; 2)</td>
<td>5% to 20% (DO) or 2% to 3% (PU)</td>
</tr>
<tr>
<td>Nominal Voltage</td>
<td>120 to 600 Volts</td>
</tr>
<tr>
<td>Nominal Frequency</td>
<td>50 or 60 Hz</td>
</tr>
<tr>
<td>Baud Rate</td>
<td>9600</td>
</tr>
<tr>
<td>Phase Reversal 3-Phase</td>
<td>OFF, ABC, or CBA</td>
</tr>
<tr>
<td>In-Phase(^2)</td>
<td>0 or 1 (1 = Enable)</td>
</tr>
<tr>
<td>Pre-Transfer Signal</td>
<td>1 to 120 seconds</td>
</tr>
<tr>
<td>Manual/Retransfer</td>
<td>0 or 1 (1 = Enable)</td>
</tr>
<tr>
<td>Plant Exerciser</td>
<td>Off, Daily, 7-Day, 14-Day, 28-Day, Calendar date (up to 12 user-specified dates) No Load or Load, with runtime 0-600 minutes</td>
</tr>
<tr>
<td>Daylight Svgs Time Adj</td>
<td>0 or 1 (1 = Enable)</td>
</tr>
<tr>
<td>System Selection</td>
<td>Utility/Generator Dual Utility, or Generator/Generator</td>
</tr>
</tbody>
</table>

#### Communications
- Modbus® RTU
- Ethernet and/or Remote Annunciator (Optional)

#### Applicable Testing
- UL Recognized Component
- UL 1008, UL 991 Environmental
- IEC 61000-4-2, 61000-4-3, 61000-4-4, 61000-4-5, 61000-4-6, 61000-4-11
- CISPR 11, Class A
- FCC Part 15, Class A

#### Enclosure Compatibility
- NEMA 1, NEMA 3R, NEMA 4X, and 12
- UV Resistant ATC-900 Faceplate

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1. Not available on open transition with inphase only switches
2. Not available on molded case type switches
Diagnostics and troubleshooting

In a mission-critical application, a failure to transfer to the backup power system requires quick and decisive action. The ATC-900 controller provides users with the data required to quickly identify the root cause of a backup power system failure and minimize system downtime. This data allows the user to identify a specific event and obtain the detailed event information including a step by step breakdown of the transfer sequence.

Historical data

The historical data display indicates historical and cumulative counter values as follows:

- Source 1 available
- Source 1 connected
- Source 1 engine run
- Source 2 available
- Source 2 connected
- Source 2 engine run
- Tier IV timer
- Load energized
- Number of transfers

Historical counter resets are date and time stamped events that are captured in the event log.

Event summary

The ATC-900 controller stores 100 transfer summaries, 350 transfer details, 100 alarms, and 20 time adjustments.

Events include:

- Actions of the transfer sequence
- Alarms
- Changes to the set points
- Changes to the time/date
- Resetting a historical counter
- Engine run test

Time-stamping resolution of 1 second.

Event details

Each transfer event can be exploded to view a step by step, time stamped, sequence of operation for a transfer event. All metered values are also logged for each event and can be viewed on the event data screen.

Time-stamping resolution of 0.1 seconds.

Hi-speed capture

The ATC-900 stores metered data updated on a continuous 20 millisecond basis for specific events. The data is captured 2 seconds before and 2 seconds after the event (except for a power failure, which is 4 seconds before). Oscillographic data for 10 events is stored in the controller and may be downloaded over USB or displayed graphically.

Events include:

1. Source unavailability actions that initiate a transfer sequence (undervoltage, overvoltage, etc.)
2. Successful transfers (at the point of breaker/contactor closure)
3. Unsuccessful transfers (at the point of breaker/contactor failure to close or open)