



Automatic Transfer Control Package

Model ATC 451



- Factory integrated Auto Transfer Package based on the SEL-451 relay
- User friendly programming template for quick and easy setup
- SCADA and Lazer® ready
- Available on SF6 and Trident® solid dielectric switches
- Variety of transfer speeds, from 10 seconds to 10 cycles
- Quality supplier since 1905

G&W Engineered to order. Built to last.

Catalog A-atc-15

ATC 451

G&W ATC 451 automatic transfer controls are available for G&W SF6 gas or Trident® solid dielectric switchgear. Switches can be padmount style or installed in dry or wet vault environments. The two source ways can be located in one switch, or in two separate switches.

FEATURES

Uses SEL-451 relay

G&W'S ATC 451 control utilizes the field proven SEL-451 relay. G&W integrates the relay into a NEMA rated enclosure and includes a power supply, optional battery back-up with automated battery load test for AC powered units, pre-programmed Auto Transfer Logic, pre-labeled front panel pushbuttons and display and a programming template to quickly and easily program the control.

Available with Built-In Overcurrent Protection

The ATC 451 package can be used to provide overcurrent protection for up to two load side ways. For switches with more than two load side ways, additional relays can be incorporated. G&W installs and tests all the necessary logic prior to shipment. The control comes with a programming template to quickly and easily set the transfer and overcurrent settings. Overcurrent protection is available for both three-phase and single-phase loads.

SCADA ready

The ATC 451 comes standard with a DNP point map to control and monitor the switch using SCADA. Multiple protocols are available including DNP3.0 (standard), Mirrored Bits (standard), DNP IP (option) and IEC 61850 (option). Ethernet or fiber optic ports for communications are also available.

Lazer® Automation ready

The Lazer ready capability of the ATC 451 simplifies the requirements for communication to other intelligent field devices for automatic power restoration schemes. The ATC 451 is pre-engineered to work with G&W's Lazer automation systems.

Generator source capability

The Common Bus style ATC 451 can be configured for use when a generator is the alternate source of power.



▲ System parameters are laptop programmable.

Bus-tie configurations

The ATC 451 can be incorporated on a bus-tie switch permitting automatic transfer on systems where the load is normally balanced between two sources.

User friendly controls

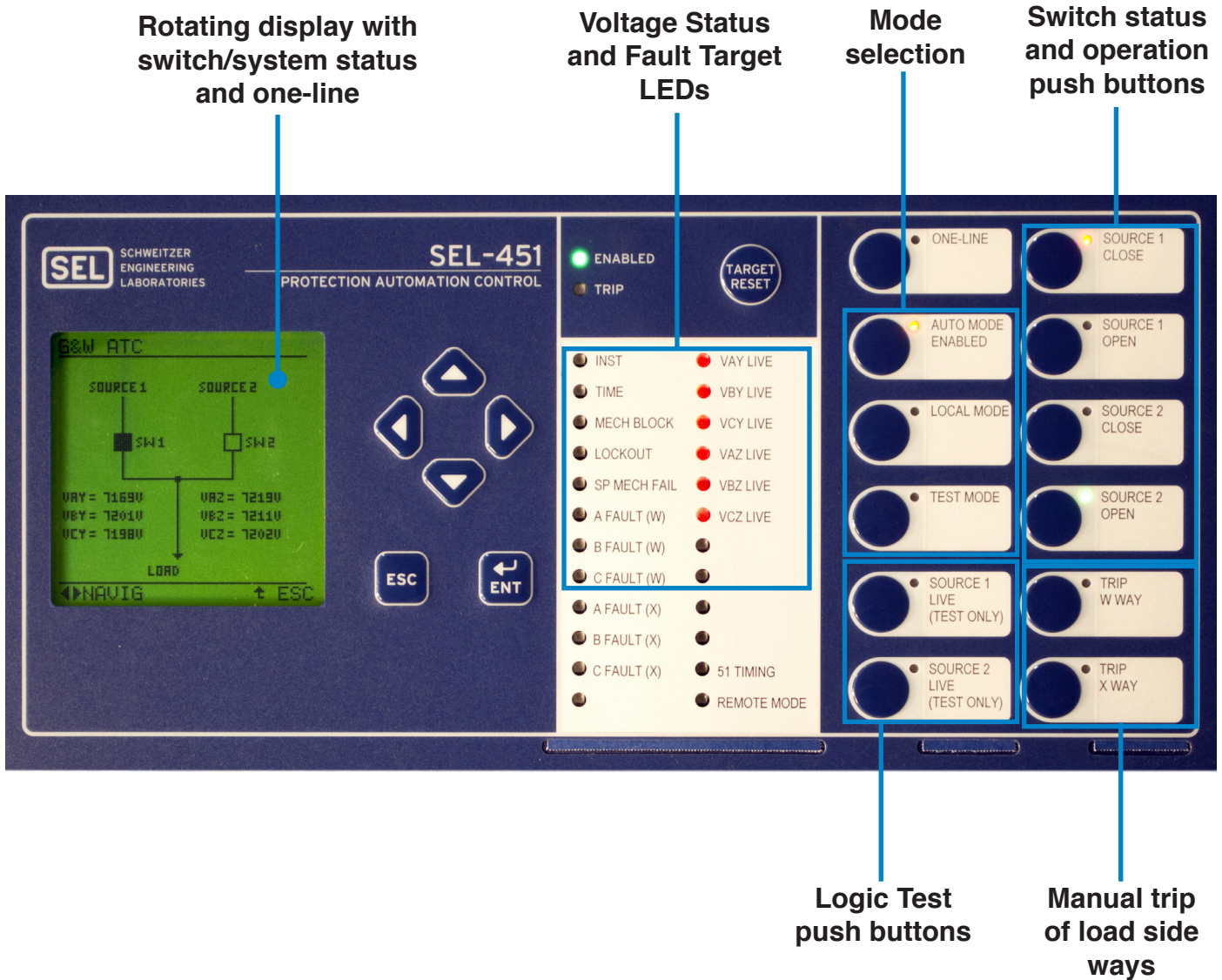
Large, easy to read, push buttons for the most commonly used functions gives quick access on the front panel of the control.

Sequence of event recorder

Each ATC 451 includes a Sequence of Events Recorder (SER) which will record the last 1,000 entries, including setting changes, powerups, and selectable logic elements.

Flexible voltage sensing options

G&W offers factory integrated capacitively coupled voltage sensors molded into the bushings of the switch for monitoring the status of each source. These sensors are sealed from the surrounding environment and are more cost effective and compact when compared to potential transformers.



Sample Screens



▲ Current system status and settings



▲ System lockout status

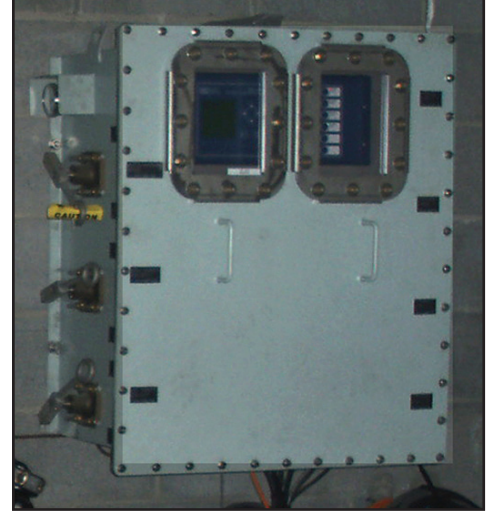


▲ Faulted circuit indicator reset

ATC 451 Options



▲ Magnetic Actuated Trident-SR multi-way in a submersible vault installation.



▲ IP68 submersible stainless steel cabinet.

TRANSFER SPEED OPTIONS

The G&W ATC 451 has three different transfer speed options. Transfer time is measured from the confirmed loss of primary source until the alternate source is feeding the load.

8 – 10 Seconds

Motor Operated Auto Transfer Packages are available on all G&W SF6 and spring-assisted Trident® solid dielectric switches. Once the source health has been confirmed as dead, the total transfer time for these switches is approximately 8-10 seconds.

18 – 20 Cycles

G&W stored energy mechanism auto transfer packages are available on G&W SF6 stored energy mechanism switches that use a solenoid to change switch position. Once the source health has been confirmed as dead, the total transfer time for these switches is approximately 18-20 cycles. There is a 6 second delay before another transfer can happen so that the motors can charge the springs used to operate the solenoid.

8 – 10 Cycles

G&W Trident®-SR solid dielectric switches are equipped with magnetic actuators providing extremely fast switching. The magnetic actuator is completely sealed within a stainless steel housing, eliminating the need for an external linkage or motors. It is charged and ready to operate immediately upon a control command. The ATC 451 can open the primary switch and close the alternate switch in less than 10 cycles.

ENCLOSURE OPTIONS

There are a wide variety of ATC applications. For this reason G&W offers five standard control enclosure options. For padmount and dry vault applications, the control can be supplied in either a mild steel NEMA 4 cabinet or a stainless steel NEMA 4X cabinet. Both of these enclosures can be supplied in a compact size (24" tall by 24" wide) or in a larger size (30" tall by 24" wide) to accommodate additional equipment such as communication devices.

The NEMA 4 and NEMA 4X cabinets have several options including a padlocking handle, convenience outlet, and a document holder.

For submersible applications, the control can be supplied in an IP68 stainless steel cabinet. This cabinet design has been tested to successfully withstand 20 days beneath a 20 foot head of water. The IP68 cabinet can be supplied with several options including

1. Windows to see the front of the relay and any system status points
2. External handles for manual operation via hotstick or rope
3. A submersible DNP3.0 port for communications, and battery back-up in a NEMA 6P enclosure.



▲ Padlockable handle



▲ Document holder



▲ Convenience outlet

Test Switch Option

ATC 451 controls that include load side overcurrent protection can be supplied with a variety of optional test switches, including ABB FT1-F. The test switch provides the user with the ability to:

- Block tripping by opening the trip circuit
- Short the current transformer leads when working inside of the control cabinet
- Test the relay using a secondary current injection method

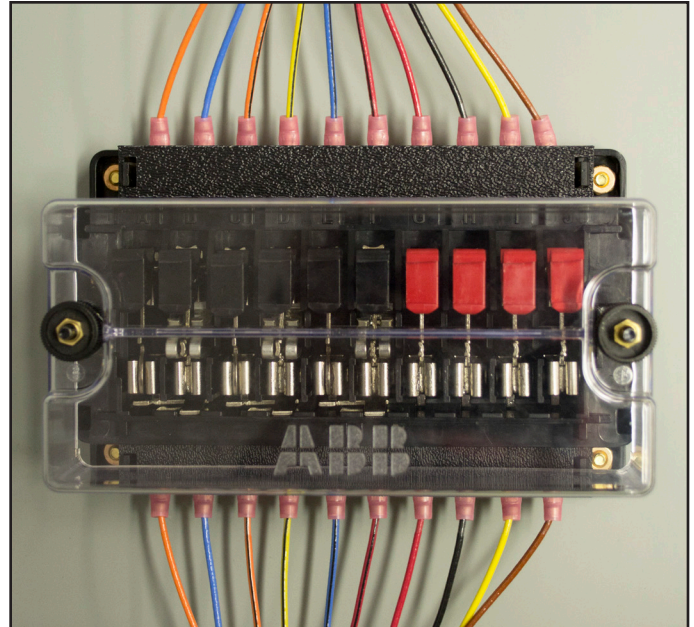
SCADA Options

The ATC 451 can be supplied with a number of SCADA communication options:

1. Connection to RS-232 Port using serial DNP3.0. The user may select either standard copper or fiber-optic cable connections. The map includes commonly used status and command functions such as: Source Health, Source Closed/Open Status, Mode Enabled, Lockout Condition, Overcurrent Trip and Cause, Power Status, Other switch/control status, Enable Automatic Mode, Enable Remote operations, Open/Close the Sources, and Trip Load Ways.
2. Provisions for a user selected and installed radio or cellular modem. Provisions would include appropriate power supply and connections, serial or Ethernet data cable between relay and radio, internal antenna cable, and antenna surge protector with enclosure feedthru. The ATC 451 can be supplied with the Sensus Telemetric DNP-RTMII-GSM cellular modem factory installed.

Optional Live System Test Mode

The ATC 451 includes a system test option which will allow the user to turn a key and cause the control to operate as if the preferred source has been lost. It's designed to fully test the automatic transfer logic and switch under live conditions.



▲ ABB FT1-F test switch



▲ Live system test mode



▲ ATC 451 in freestanding enclosure



▲ SF6 Bus Tie Switch

ATC 451 Options

Setting Options

Each ATC 451 comes with multiple setting options including source preference, timing, transition sequences, operational oversight, and overcurrent protection.

Source Settings:

- The Common Bus version of the ATC 451 allows the user to select between two utility sources or one utility source and a standby generator. When utilizing a generator, the control offers the ability to customize the duration of the generator cool down and stop contact closure.
- The Common Bus version of the ATC 451 also provides the user complete flexibility for source preference. Each ATC 451 can be set for either source 1 or source 2 to be preferred, in which case the control will always attempt to feed the load from the preferred source. In some cases, neither utility source is preferred, so the control should not automatically return the load to the original source once power is restored. In this case, the ATC 451 can be set in a non-preferred mode ensuring that transitions between the sources will only take place when a source is lost.
- Regardless of source preference, each ATC 451 is designed for customer selection of the style of transition:
 - Open Before Close/ Break Before Make
 - Close Before Open/ Make Before Break
 - Manual return (no automatic return to normal)

In addition, the presence and absence of voltage timers can be set from 0 seconds to 10 hours.

Operational Oversight

The ATC 451 program also allows for oversight of operational commands to match the user's standard operating procedures.

- The user may elect to Block Source Paralleling which will prevent Close Before Open/ Make Before Break Transitions and manual or SCADA based Close commands if one of the sources is already closed.
- Each ATC 451 comes with multiple testing options which can be limited within the logic, or hardware, including Logic Only (no switch operations); Live System Test (full system operations including generator start-up if applicable); and Logic with Switch Operations for incoming and maintenance requirements.
- For controls supplied with battery back-up, the ATC 451 can be programmed to automatically test the load capability of the battery on a user defined schedule of every 4, 8, 12, or 24 hours.

Overcurrent Protection

If factory ordered, each control can provide overcurrent protection for up to two load side tap ways. This includes the ability to select protection settings for Time Overcurrent (51P and 51G), Instantaneous (50P and 50G) in two settings groups – Protection and Maintenance. The maintenance group allows for lower settings when personnel are working around the switch.

In addition, each ATC 451 is equipped with two Digital Fault Circuit Indicator inputs which will block all operations when either indicator has been activated. The user may select to manually reset the control once the indicator has been reset or to use the Automatic Reset function built into the program.

The screenshot displays a settings interface for the ATC 451. It includes the following sections and parameters:

- S1_IT (Seconds)**: 5.00. Range = 0..36000[0.10]. (Source 1 Initial Transfer Timer - Time after S1 is lost before a transfer to S2)
- S1_RT (Seconds)**: 5.00. Range = 0..36000[0.10]. (Source 1 Return Transfer Timer - Time after S1 returns before returning to S1 as preferred)
- S2_IT (Seconds)**: 5.00. Range = 0..36000[0.10]. (Source 2 Initial Transfer Timer - Time after S2 is lost before a transfer to S1)
- S2_RT (Seconds)**: 5.00. Range = 0..36000[0.10]. (Source 2 Return Transfer Timer - Time after S2 returns before returning to S2 as preferred)
- RTID (Only valid in Automatic Mode) (Seconds)**: 5.00. Range = 0..36000[0.10]. (Return Transfer Interruption Delay - Time between operations (i.e. Open 1, wait for RTID, Close 2))
- PREFERRED SOURCE**: 1. Range = 1, 2, N (1 = Source 1 preferred, 2 = Source 2 preferred, N = non-preferred)
- SOURCE PARALLELING**: N. Range = Y, N (Y = Allow close before open, N = do not allow close before open (including manual close pushbuttons))
- ITS TRANSFER SEQUENCE**: OPEN. Range = OPEN, CLOSE (OPEN = Open before close, CLOSE = Close before open)
- RTS TRANSFER SEQUENCE**: OPEN. Range = OPEN, CLOSE, NONE (OPEN = Open before close, CLOSE = Close before open, NONE = No Return Sequence)

Settings template ►
simplifies programming
of the ATC.

ATC 451 Selection Guide:

- Switch Style: Common (Tied) Bus Bus-Tie
- Transfer Speed: 8 – 10 Seconds 18 – 20 Cycles 8 – 10 Cycles
- Voltage Sensing: Digital Elbow Mounted Sensors PTs or Integral Voltage Sensing Bushings
- System Type: 4 Wire Grounded Wye 3 Wire Wye or Delta

ENCLOSURE OPTIONS:

- Type: Mild Steel (NEMA 4) Stainless Steel (NEMA 4X)
- IP68 (Without batteries) IP68 (With NEMA 6P Battery Option)

NEMA 4/4X Enclosure Options:

- Document Holder Padlockable Handle Laptop Power Outlet

IP68 Enclosure Options:

- Viewing Windows Submersible Serial DNP Port Manual Operating Handles

ADDITIONAL OPTIONS:

- Power: 120VAC without battery backup 120VAC with battery backup
- 240VAC without battery backup 240VAC with battery backup
- 24VDC 125VDC

Other:

- Wire Labeling
- System Test Key (For Common Tied Bus Applications only)
- Fiber Optic Communication Accessories
- Single Mode Fiber Multi Mode Fiber
- If cabinet entrances are to be provided, select from the following options*
- 0.138 – 0.315" Cable Diameter 0.197 – 0.472" Cable Diameter
- 0.512 – 0.709" Cable Diameter 0.748 – 1.0" Cable Diameter
- Provisions for Radio Radio Manufacturer and Part Number _____
- Provisions for Sensus RTM II
- Sensus RTM II

Faulted Circuit Indicators:

- None One Two Customer Supplied

Overcurrent Load Protection:

- One Load Way Two Load Ways (Select One)
- Single Phase Tripping* Three Phase Tripping (Select One)

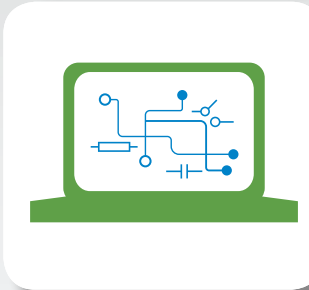
*Single Phase Tripping is available for Common Bus applications if the switch is similarly equipped.

G&W offers Technical Support and Services:



Custom Engineering

Our engineers can tailor our products to meet the needs of any application.



Custom Programming

Our automation engineers can provide tailored relay programs to meet any specified needs.



Factory Acceptance Testing

G&W's Factory Acceptance Testing ensures customers' automation solutions are certified to operate properly and meet all requirements prior to being installed in the field.



Training Services

G&W offers a range of training solutions at both G&W facilities and on site.



24 Hour Technical Support

Technical support for G&W products is available 24 hours a day, 7 days a week.



Engineered to order. Built to last.

For more information: gwelec.com
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