

## ATC-800 CONTROLLER

The ATC-800 is a programmable microprocessor-based monitoring device for use on Cat<sup>®</sup> transfer switches. Data access and programming operations are performed using the ATC-800's touch-sensitive function buttons in conjunction with an easy-to-read illuminated alphanumeric LED display. Both the function buttons and the display window are part of the device's door-mounted front panel. A built-in Help button provides user assistance in the form of message displays.

The communication option permits monitoring and control of several transfer switches, locally or remotely, from a single point. Depending on the application, the user can customize the ATC-800 to meet the particular application. The ATC-800 is equipped to display historical information either via the front panel or over mod bus communications to a personnel computer. Source 1 and Source 2 run time, available time and connect time are available, as well as load energized time, number of transfers, date, time and reason for the last 16 transfers.

## FEATURES

- True rms three-phase voltage sensing on Source 1, Source 2 and load
- Frequency sensing on Source 1 and Source 2
- Preferred source selection
- Programmable set points stored in nonvolatile memory
- Modbus communication to personal computer either on site or remote
- Viewable historical data on the most recent transfers (up to 16 events) are viewable at switch. Unlimited history storage (remote) available when used with remote software
- Load sequencing (optional)
- Engine start contacts (2 sets)
- Engine test switch with user-selectable test mode and fail-safe
- Alarm contact (multiple alarm functions available)
- Pretransfer signal (optional)
- Heartbeat monitor (flashing light signifies that the ATC-800 is operating properly)
- Instrumentation:
  - Voltmeter (accuracy  $\pm 1\%$ )
  - Reads line-to-line on Sources 1 and 2 and load
  - Frequency meter (40–80 Hz, accuracy  $\pm 0.1$  Hz)
  - Source available time (both sources)
  - Source available time (both sources)

## ATC-800 PROGRAMMING

### BUTTON FUNCTIONS

Buttons provide easy access to all commonly used ATC-800 functions. When Source 1 is connected and the ATS is operating normally, the automatic indicator light will be flashing and the display window will be blank.

Using the Display Select button, the operator can step through each of the six display families:

- Source 1
- Source 2
- Load
- History
- Time/Date
- Set Points

**Note:** Stepping through the various display modes does not alter preset values or otherwise affect operation of the ATS. Once the desired display family is selected, the user may press the Step button to cycle through specific parameters or metered values shown in the display window. Once the desired display family is selected, the user may press the Step button to cycle through specific parameters or metered values shown in the display window.

## INITIAL PROGRAMMING

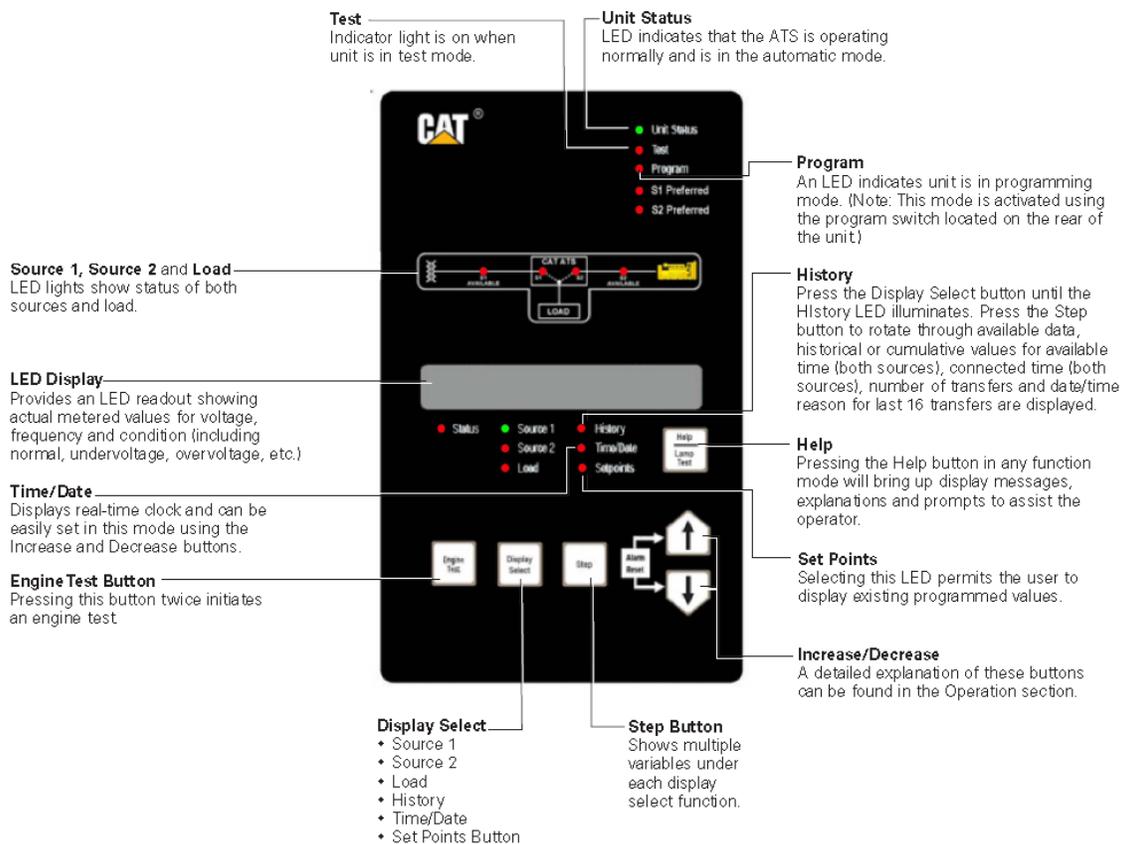
Factory programming will load all standard features and customer-specified options per the default settings.

## CUSTOMER PROGRAMMING

Customers may reprogram set points and other parameters to match their application using the Program switch located on the rear of the unit. Once the programming mode has been activated and the Program light is flashing, the user may access Set Point settings by pressing the Display Select button until the Set Points LED is illuminated.

Values for individual set points may then be altered by pressing the Increase (arrow up) or

Decrease (arrow down) buttons. Once a parameter has been reset, the user advances to the next set point by pressing the Step button. While the ATC-800 is in the Program mode, the device continues to operate in accordance with the previously programmed set points and parameters. The unit is never offline and preset values do not change until programming has been completed. Once reprogramming is complete, the user may return the Program switch to the Run position. At this point, all new values are stored in the ATC-800 nonvolatile memory and the unit returns to Automatic mode.



ATC-800 Controller Front Panel Display and Button Functions

## ATC-800 OPEN TRANSITION CONTROLLER DEFINITIONS

**OPEN TRANSITION/IN-PHASE MONITOR:** In-phase monitor is a feature that will allow a transfer between two sources only when the phase difference between the two sources is near zero. This is an open transition transfer that prevents in-rush currents from exceeding normal starting currents in the case where motor loads are being transferred.

**OPEN TRANSITION/DELAYED WITH LOAD VOLTAGE:** Load voltage decay transfer is a feature that, after opening the switch for the original source, holds in the neutral position until the voltage on the load is less than 30% of rated voltage. This operation is an open transition that prevents in-rush currents from exceeding normal starting currents in the case where motor loads are being transferred.

### OPERATION

The Cat ATC-800 transfer operates in the following modes:

- Loss of normal power
- Open transition to alternate source
- Normal power restored
- Open transition back to normal source
- Test (user selectable)
- Load transfer—open transition to and from alternate source
- No-load transfer—starts alternate power source and allows to run unloaded; no transfer takes place

## ATC-800 CONTROLLER SPECIFICATIONS

Description	Specification
Control Power:	120Vac (50/60 Hz) (operating range 65 to 160 Vac)
Power Consumption:	18VA
Environmental Conditions:	
Operating Temperature	-20° to 70°C
Operating Humidity	up to 90% Relative Humidity (non-condensing)
Enclosure Compatibility:	<ul style="list-style-type: none"> <li>• NEMA 12 (standard mounting)</li> <li>• NEMA 4/4X (mounted with gasket between panel and device faceplate)</li> <li>• NEMA 3R (outdoor)</li> <li>• UV Resistant ATC-800 Faceplate</li> </ul>
System Voltage Application:	120 to 600 Vac (50/60 Hz) (single or three phase)
Voltage Measurements:	Source 1, Source 2 and Load (VAB, VBC, VCA for Three Phase System)
Voltage Measurement Range:	0 to 700 Vac
Voltage Measurement Accuracy:	±1% of Full Scale
Frequency Measurements:	Source 1 and Source 2
Frequency Measurement Range:	40 to 80 Hz
Frequency Measurement Accuracy:	±0.1 Hz
Undervoltage Dropout Range (Volts)	
Breaker Switch Style ATS	50 to 97% of Nominal System Voltage
Contactor Style ATS	78 to 97% of Nominal System Voltage
Undervoltage Pickup Range (Volts)	
Breaker Switch Style ATS	(Dropout +2%) to 99% of Nominal System Voltage
Contactor Style ATS	(Dropout +2%) to 99% of Nominal System Voltage
Overvoltage Dropout Range (Volts)	
Breaker Switch Style ATS	105 to 120% Nominal System Voltage
Contactor Style ATS	105 to 110% Nominal System Voltage
Overvoltage Pickup (Volts)	
Breaker Switch Style ATS	103% to (Dropout-2%) of Nominal System Voltage
Contactor Style ATS	103% to (Dropout-2%) of Nominal System Voltage
Underfrequency Dropout (Hertz)	
Breaker Switch Style ATS	90 to 97% of Nominal System Frequency
Contactor Style ATS	90 to 97% of Nominal System Frequency
Underfrequency Pickup (Hertz)	
Breaker Switch Style ATS	(Dropout +1 Hz) to 99% of Nominal System Frequency
Contactor Style ATS	(Dropout +1 Hz) to 99% of Nominal System Frequency
Overfrequency Dropout (Hertz)	
Breaker Switch Style ATS	103 to 110% of Nominal System Frequency
Contactor Style ATS	103 to 110% of Nominal System Frequency
Overfrequency Pickup (Hertz)	
Breaker Switch Style ATS	101% to (Dropout -1 Hz) of Nominal System Frequency
Contactor Style ATS	101% to (Dropout -1 Hz) of Nominal System Frequency
Applicable Testing:	<ul style="list-style-type: none"> <li>• UL Recognized Component</li> <li>• Meets Seismic Requirements of Uniform and CBC 2007 and IBC 2006 (exceeding requirements of worst case Zone 4 levels)</li> <li>• Complies with UL 991 environmental tests</li> <li>• Complies with IEC 61000-4-2, 61000-4-3, 61000-4-4, and 61000-4-5</li> <li>• Complies with CISPR 11, Class A</li> <li>• Complies with CSA 22.2-178</li> <li>• Complies with FCC Part 15, Subpart B, Class A</li> </ul>

## ATC-800 CONTROLLER SETPOINTS

Programmable Feature Display	Display Explanation	Set Point Range	Factory Default Value
TDES	Time delay engine start timer	0 to 120 seconds	0.03
TDNE	Time delay normal to emergency timer	0 to 1800 seconds	0.0
TDEN	Time delay emergency to normal timer	0 to 1800 seconds	5.0
TDEC	Time delay engine cool down timer	0 to 1800 seconds	5.0
NOMF	System nominal frequency (hertz)	50 or 60 Hz <sup>3</sup>	60
NOMV	System nominal voltage (volts)	120 to 600V <sup>3</sup>	120
TDN	Time delay neutral timer	0 to 120 seconds	0:00
TDNLD	Time delay neutral load decay	0–Disabled 1–Enabled	1
LDCY	Load decay voltage	2 to 30% of nominal voltage	30
PRF SRC	Preferred source	None 1–Source 1 2–Source 2	1
EXER	Plant exerciser enabled or disabled	1–Enabled 0–Disabled	1
EXLD	Load transfer with plant exerciser	1–Enabled 0–Disabled	1
PEDAY	Plant exerciser day of week	1 to 7 (1–Sunday)	1
PEH	Plant exerciser hour	1 a.m. to 11 p.m.	1 a.m.
PREMIN	Plant exercise minute	0 to 59 minutes	0
MANTR	Retransfer mode	0–Automatic 1–PB return	0

Programmable Feature Display	Display Explanation	Set Point Range	Factory Default Value
CTDNE	Commitment to transfer in TDNE	0–Not committed 1–Committed	0
TMODE	Engine test with/without load transfer	0–No load transfer 1–Load transfer 2–Disable test pushbutton	1
TER	Engine test/plant exerciser run time	0 to 600 minutes	0.30
TPRE	Pretransfer subnetwork time delay	1 to 300 seconds	0.01
GENNO	Number of generators (single generator must be on Source 2)	0 to 2	1
PHASE	Number of system phases	1 or 3 <sup>3</sup>	3
TSEQ	Time delay load sequencing	1 to 120 seconds	0.10
PT	PT ratio	2:1 to 500:1	2.1
CLOSED	Close transition enabled or disabled	1–Enabled 0–Disabled	1
CTFD	Close transition frequency difference (hertz)	0.0 to 0.3 Hz	0.3
CTVD	Close transition voltage difference (volts)	1 to 5%	6
IPHASE	In-phase transition enabled or disabled	1–Enabled 0–Disabled	0
IPFD	In-phase transition frequency difference (hertz)	0.03 to 3.0 Hz	1.0
SYNC	Closed/in-phase transition synchronization timer	1 to 60 minutes	5
TDEF	Time delay engine failure	0 to 60 seconds	6

Information contained in this publication may be considered confidential. Discretion is recommended when distributing.

Materials and specifications are subject to change without notice.

CAT, CATERPILLAR, their respective logos, "Caterpillar Yellow," the "Power Edge" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

[www.Cat-ElectricPower.com](http://www.Cat-ElectricPower.com)