EATON | Cutler-Hammer

Transfer Switch Controllers

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Contents

Introduction

Included in this document are the available standard and optional features for Cutler-Hammer® Transfer Switches. Each feature includes a specific **Feature Number** and a detailed description.

Features may be standard or optional depending on the transfer switch type and controller.

Standard and Optional Features

Note: All features or combinations of features may not be available on specific transfer switches. All features/ accessories are UL® listed unless noted.

TIMERS

1. Time Delay Normal to Emergency (TDNE)

Provides a time delay to allow for the generator to warm up before transferring the load from the Normal Source to the Emergency Source. Timing begins only after the Emergency Source becomes available and deemed good based on the programmable voltage and frequency set points in the controller.

2. Time Delay Engine Start (TDES):

Provides a time delay before initiating the generator start cycle. This is to account for momentary power outages or voltage fluctuations of the Normal Source. Provides a Form "C" contact to the generator starter circuit.

3. Time Delay Emergency to Normal (TDEN)

Provides a time delay of the re-transfer operation to permit stabilization of the Normal Source. Timing begins only after the Normal Source becomes available and deemed good based on the programmable voltage and frequency set points in the controller. This function is fail-safe protected.

4. Time Delay Engine Cooldown (TDEC)

Provides a time delay before initiating the generator stop cycle after the re-transfer operation. This allows the generator to cool down by running unloaded. Timing begins on completion of the re-transfer cycle.

7. Time Delay Emergency Fail (TDEF)

Provides a time delay that prevents a connected emergency source from being declared "Unavailable" based on the customer's set points. This is to account for momentary generator fluctuations. If the Source 2 remains in a failed state, then 0.5 second after the TDEF timer expires, the transfer switch will proceed with the programmed sequence for re-transfer if Source 1 is available. This time delay is only implemented when Source 2 is a generator.

Note: This feature is also enabled when large loads cause generator output to drop below customer set points.

ENGINE EXERCISER

23J. Plant Exerciser (PE) With Fail-safe

Provides a means for automatic testing of the engine generator set or standby power system. All programmed time delays in the controller will be performed during the plant exerciser operation.

Programmable set points for test interval, are start time, either disabled or 7 days, and engine test time.

Test may be performed with or without a load transfer. Test may be manually cancelled during the operation. This is a fail-safe operation.

23K. Plant Exerciser With Fail-safe

Provides a means for automatic testing of the engine generator set or standby power system. All programmed time delays in the controller will be performed during plant exerciser operations.

Programmable set points for test intervals are start time, either disabled, daily, 7, 14 or 28 days, engine test time.

Test may be performed with or without load transfer. Test may be manually cancelled during the operation. This function is fail-safe protected.

SOURCE 1 SENSING

26. Source 1 — Monitoring and Protection

Provides Source 1 monitoring and protection functions. If Source 1 fails, then the Automatic Transfer Controller will begin the sequence of operations necessary to transfer the load to Source 2. All **Feature 26** monitoring and protection functions are fail-safe operations.

26J. All-Phase Undervoltage/ Underfrequency Protection

Provides all-phase undervoltage/ underfrequency monitoring and protection based on programmable set points in the controller.

26K. All-Phase Overvoltage/ Overfrequency Protection

Provides all-phase overvoltage/ overfrequency monitoring and protection based on programmable set points in the controller.

26H. Three-Phase Rotation Protection

Provides three-phase reversal sensing in order to protect against transferring to an out of phase source. The controller will treat the opposite source as unavailable if the sources are out of phase, based on programmable set points in the controller.

26L. Three-Phase Voltage Unbalance/Loss

Provides phase loss detection from blown fuses on Source 1.

SOURCE 2 SENSING

5. Source 2 — Monitoring and Protection

Provides monitoring and protection based on the Source 2 voltage and/or frequency set points. All **Feature 5** monitoring and protection functions are fail-safe operations.

5J. All-Phase Undervoltage/ Underfrequency Protection

Provides undervoltage/underfrequency monitoring and protection based on programmable set points in the controller.

5K. All-Phase Overvoltage/ Overfrequency Protection

Provides overvoltage/overfrequency monitoring and protection based on programmable set points in the controller.

5H. Three-Phase Rotation Protection

Provides three-phase reversal sensing in order to protect against transferring to an out of phase source. The controller will treat the opposite source as unavailable if the sources are out of phase, based on programmable set points in the controller.

5L. Three-Phase Voltage Unbalance/Loss

Provides phase loss detection from blown fuses on the Source 2 supply circuit.

MANUAL CONTROLS

6B. Test Operators

Automatic Transfer Switches are provided with a test pushbutton that simulates a loss of the Source 1 as standard. All programmed time delays (TDNE, TDEN, etc.) will be performed as part of the test. Engine run time of the test is equal to the plant exerciser programmed set point. All tests are fail-safe protected.

6H. 4-Position Test Selector Switch (FPSS)

Provides a 4-position, maintained contact selector switch marked "Auto," "Test," "Engine Start," and "Off." The FPSS is fail-safe protected, except for the "Off Position." Transfer Switch operation is determined by the switch position. Transfer Switch operations are as follows:

"Auto" — Automatic operation mode.

"Test" — A Load test is performed until the switch is moved to another position.

"Engine Start" — A No-Load test is performed until the switch is moved to another position.

"Off" — The Automatic Transfer Controller and engine start contact are disabled. A white pilot light is provided to indicate that the FPSS is in the "Off" position.

Note: This option will force the switch to be marked as non-automatic based on UL 1008.

8. Time Delay Bypass Pushbutton

Provides a momentary contact pushbutton to bypass the TDNE (**Feature 1**) and/or TDEN (**Feature 2**) time delays. The Time Delay Bypass Pushbutton contact, when closed, will reduce any or all of the programmed time delay to zero. Must be executed when TDNE or TDEN timer is displayed on the controller.

9B. Maintenance Selector Switch (MSS)

Provides a 2-position, maintained contact selector switch marked "Operate" and "Disable." When the MSS is placed in the "Disable" position, the controller logic will be disconnected from the transfer motor circuit. The MSS is placed in the "Operate" position for normal automatic operation.

TRANSFER OPERATION MODES

Provides standard or optional transfer modes, mode selection devices and operational methods for transfer switches.

29G. Automatic/Manual Operation With Selector Switch

Provides 2-position selector switch (labeled Auto/Manual) that permits selection of the Automatic or Manual transfer. When in the "Auto" position, the transfer switch operates with fully automatic transfer, re-transfer, and generator startup and shutdown operations. When in the "Manual" position, manual operation is required to initiate the generator startup or re-transfer with generator shutdown operations.

Note: Transfer switches with **Feature 29G** must be labeled as Non-Automatic Transfer Switch equipment.

29J. Automatic Transfer or Automatic Transfer With Non-Automatic Re-Transfer Operation

Provides a field-selectable programmable set point that permits the transfer switch to operate in one of the following 2 transfer modes (A or B).

A. Fully automatic operation.

B. Automatic engine/generator startup and automatic transfer operation from Source 1 to Source 2. Manual pushbutton operation is required to initiate the re-transfer operation and engine/generator shutdown. The pushbutton for manual re-transfer operation is included. This is fail-safe protected.

10. Preferred Source Selector

Provides a means to designate either Source 1 or Source 2 as the "Preferred" Source. The "Preferred" Source is the source that the transfer switch will connect the load to if it is available.

Note: This is a programmable software feature not an actual switch.

10B. Preferred Source Selector

Provides a programmable source selector for use on systems comprised of dual utility or utility and engine/generator power sources.

10D. Preferred Source Selector

Provides a programmable source selector for use on systems comprised of dual engine/generator power sources. (Dual engine starting circuits are provided.)

INDICATIONS/AND STATUS DISPLAY

12C. Source 1 — Load Connected

Provides a green indication that indicates the load is connected to Source 1 when lit.

12D. Source 2 — Load Connected

Provides a red indication that indicates the load is connected to Source 2 when lit.

12G. Source 1 — Present

Provides a white or amber indication "Depending on the Controller" that Source 1 has power, however this does not indicate whether Source 1 is acceptable.

12H. Source 2 — Present

Provides an amber indication that Source 2 has power, however this does not indicate whether Source 2 is acceptable.

Overcurrent Trip Indication

Available only with Integral Overcurrent Protection (**Feature 16**). (Shown on Automatic Transfer Controller Display.)

12L. Source 1 Trip Indication

The Automatic Transfer Controller display will read "Lockout" if the Source 1 circuit breaker is in the "tripped" position.

12M. Source 2 Trip Indication

The Automatic Transfer Controller display will read "Lockout" if the Source 2 circuit breaker is in the "tripped" position.

CUSTOMER OUTPUTS

14. Relay Auxiliary Contacts

Provides Form "C" relay auxiliary contacts.

14C. Source 1 Present

Provides 4 Form "C" relay auxiliary contacts. The relay is energized when Source 1 is present.

14D. Source 2 Present

Provides 4 Form "C" relay auxiliary contacts. The relay is energized when Source 2 is present.

14E. Source 1 Available

Provides 1 Form "C" relay auxiliary contact. The relay is energized when Source 1 is available and within the controller's programmable set points.

14F. Source 2 Available

Provides 1 Form "C" relay auxiliary contact. The relay is energized when Source 2 is available and within the controller's programmable set points.

14G. Source 1 Available

Provides 2 Form "C" relay auxiliary contacts. The relay is energized when Source 1 is available and within the controller's programmable set points.

14H. Source 2 Available

Provides 2 Form "C" relay auxiliary contacts. The relay is energized when Source 2 is available and within the controller's programmable set points.

15. Switch Position Indication Contact

Provides a contact that indicates if the power switching device is in the "open" or "closed" position.

15E. Source 1 Position Indication Contact

Provides 1 Form "C" contact that indicates the position of the Source 1 power switching device.

15F. Source 2 Position Indication Contact

Provides 1 Form "C" contact that indicates the position of the Source 2 power switching device.

15M. Source 2 Load Shed Contacts

Provides 4 Form "C" contacts to initiate a load circuit disconnect while on Source 2. This gives the user the capability of selectively choosing not to run certain loads while on Source 2.

35A. Pre-Transfer Signal With 1NO & 1NC Contacts

Provides a signal prior to the transferring of the load. Will not transfer until the programmable delay set point in the controller is reached. If both sources are not available, this option will ignore the time delay set in the controller.

CUSTOMER INPUTS

26D. Go to Emergency (Source 2)

Provides the capability for an external contact closure to initiate a transfer to the Source 2 power source. This includes starting the generator, performing the programmed time delays and the transfer operation. Re-transfer will occur when the external contact is opened. This is a fail-safe function.

36. Load Shed From Emergency

Provides the capability for an external NC contact to initiate a load circuit disconnection from the Source 2 power source. If the load circuit is connected to Source 2 and the contact is opened, then a re-transfer to Source 1 is completed if Source 1 is available. If Source 1 is not available, then the transfer switch will transfer to neutral. If the load circuit is connected to Source 1 and the contact is open, then a transfer Source 2 is prohibited.

16. Integral Overcurrent Protection

Provides thermal-magnetic overcurrent protection integral to the power switching device(s). All **Feature 16** options include a "Lockout" function. If the power switching breaker trips on an overcurrent condition, then "Lockout" is displayed on the Automatic Transfer Controller display and automatic operation is prevented until the appropriate source is manually reset. On non-automatic switches, a blue light is supplied to indicate the "lockout."

16B. Integral Overcurrent Protection on Both Power Source Switching Devices

Provides integral overcurrent protection on both Source 1 and Source 2 power switching devices.

16E. Integral Overcurrent Protection on the Source 2 Power Switching Device

Provides integral overcurrent protection on the Source 2 power switching device.

16N. Integral Overcurrent Protection on the Source 1 Power Switching Device

Provides integral overcurrent protection on the Source 1 power switching device.

18. Metering

The IQ family of microprocessor-based multi-function monitoring and display devices features the latest technological advances in metering and communications capabilities.

The IQ family is available with an optional communications interface for data collection, storage and printout via the Cutler-Hammer PowerNet™ system. (See **Feature 48** on communications for available communication modules.)

Feature 18 metering options include all required external devices (CTs etc.) for a fully functioning metering system.

IQ DP-4000

The IQ DP-4000 is an rms sensing, multi-function microprocessor-based monitoring and display device that provides simultaneous monitoring of current, voltage, frequency, power (real, reactive and apparent), energy (real, reactive and apparent), power factor and percent THD (current and voltage).

18R. IQ DP-4000 — Source 1 Line Side Metering

Provides an IQ DP-4000 for monitoring the Source 1 line side circuit.

18S. IQ DP-4000 — Source 2 Line Side Metering

Provides an IQ DP-4000 for monitoring the Source 2 line side circuit.

18T. IQ DP-4000 with Selector Switch for Source 1 or Source 2 Line Side Metering

Provides an IQ DP-4000 with a source selector switch for monitoring the Source 1 or Source 2 line side circuit.

18U. IQ DP-4000 — Load Side Metering

Provides an IQ DP-4000 for monitoring the load side circuit.

IQ Analyzer

The IQ Analyzer is an rms sensing, multi-function microprocessor-based monitoring and display device with waveform capture that provides simultaneous monitoring of current, voltage, frequency, power (real, reactive and apparent), energy (real, reactive and apparent), demand (forward, reverse and net), harmonics (magnitude and phase angle), power factor and percent THD (current and voltage).

18O. IQ Analyzer — Source 1 Line Side Metering

Provides an IQ Analyzer for monitoring the Source 1 line side circuit.

18P. IQ Analyzer — Source 2 Line Side Metering

Provides an IQ Analyzer for monitoring the source 2 line side circuit.

18Q. IQ Analyzer with Selector Switch for Source 1 or Source 2 Line Side Metering

Provides an IQ Analyzer with a source selector switch for monitoring the Source 1 or Source 2 line side circuit.

18V. IQ Analyzer — Load Side Metering

Provides an IQ Analyzer for monitoring the load side circuit.

18W. Ammeter Side Metering

Provides an ammeter for monitoring the load side circuit.

20A. Rear Bus Provisions

Provides Source 1, Source 2 and Load Circuit rear accessible bus stabs with provision for bus bar connection. Cutler-Hammer Transfer Switches are provided with either front or rear (dependant on switch type) connected solderless screw-type terminals for power cable connection as standard.

21A. Optional Power Cable Connection Terminals

Cutler-Hammer Transfer Switches are provided as standard with Source 1, Source 2 and Load Circuit solderless screw-type terminals for power cable connection. Alternate terminal wire sizes, and compression lug provisions may be available dependant on transfer switch type and ampere rating.

32. Delayed Transition Transfer Modes for Open Transition Transfer Switches

Provides delayed transition transfer modes for an open transition transfer switch. Often used in systems with inductive loads, a delayed transition transfer switch may prevent or reduce inrush currents due to out of phase switching of inductive loads.

32A. Time Delay Neutral

Provides a time delay in the neutral position during the transfer and re-transfer operations during which both Source 1 and Source 2 are disconnected from the load circuit. This allows inductive loads time to reach a safe voltage and eliminate back EMF. The time delay is programmable and is the same for both transfer and re-transfer operations. This is a passive feature which requires the consulting engineer/installer to determine the settings based on how the user will operate the facility. Adjustable 0 – 120 seconds.

32B. Load Voltage Decay

Provides load voltage measurement to sense back EMF that is generated when the transfer switch is in the neutral position. It provides a delay in transfer in either direction if an unacceptable level is sensed as established by a programmed set point. This is an active feature that adapts to how the facility is operating in order to minimize neutral position wait time, but ensure safety. Adjustable 2 – 30% of nominal voltage.

32C. In-Phase Transition With Default to Load Voltage Decay

Provides In-Phase transition, which is a feature that will permit a transfer or re-transfer between two available sources that have a phase angle difference near zero. The In-Phase transition feature includes permissible frequency difference and synchronization time set points. In the event Source 1 and Source 2 fail to synchronize within the permitted frequency difference and time, then the controller defaults to the Load Voltage Decay operation as described in **Feature 32B**. Adjustable Frequency Difference 0.0 – 3.0 Hz. Adjustable Synchronization Time Allowance 1 – 60 minutes.

32D. In-Phase Transition With Default to Time Delay Neutral

Provides In-Phase transition, which is a feature that will permit a transfer or re-transfer only between two available sources that have a phase angle difference near zero. The In-Phase transition feature includes permissible frequency difference and synchronization time set points. In the event Source 1 and Source 2 fail to synchronize within the permitted frequency difference and time, then the controller defaults to the Time Delay Neutral operation as described in **Feature 32A**. Adjustable Frequency Difference 0.0 – 3.0 Hz. Adjustable Synchronization Time Allowance 1 – 60 minutes.

47. Transfer Modes for Closed Transition Transfer Switches

Provides available transition transfer modes for a closed transition transfer switch. Closed Transition is a "make before break" transfer and re-transfer scheme that will parallel (a maximum of 100 ms) Source 1 and Source 2 providing a seamless transfer when both sources are available. The closed transition feature includes permissible voltage difference frequency difference and synchronization time allowance set points. The phase angle difference between the two sources must be near zero for a permitted transfer. These are all programmable set points in the controller.

47C. Closed Transition with Default to In-Phase Transition With Default to Load Voltage Decay

Provides a closed transition transfer as the primary transfer mode. In the event Source 1 and Source 2 fail to synchronize within the permitted voltage difference, frequency difference, phase angle difference and time, then the controller defaults to the In-Phase Transition With Default to Load Voltage Decay operations as described in **Features 32C** and **32B**. Adjustable Frequency Difference 0.0 – 3.0 Hz. Adjustable Voltage Difference 1 – 5 percent V. Adjustable synchronization Time Allowance 1 – 60 minutes.

47D. Closed Transition

Provides a closed transition transfer as the primary transfer mode. Only under a fail-safe condition (i.e., loss of the connected source) will the controller transfer to the alternate source using the Load Voltage Decay operation as described in **Feature 32B**. Adjustable Frequency Difference 0.0 – 3.0 Hz. Adjustable Voltage Difference 1 – 5 percent V.

47E. Closed Transition with Default to In-Phase Transition With Default to Time Delay Neutral

Provides a closed transition transfer as the primary transfer mode. In the event Source 1 and Source 2 fail to synchronize within the permitted voltage difference, frequency difference, phase angle difference and time, then the controller defaults to the In-Phase Transition With Default to Time Delay Neutral operation as described in **Features 32D** and **32A**. Adjustable Frequency Difference 0.0 – 3.0 Hz. Adjustable Voltage Difference 1 – 5 percent V. Adjustable synchronization Time Allowance 1 – 60 minutes.

LOGIC EXTENDER CABLE

34A. 48 Inches (1219 mm)

Provides logic extension cable with connectors.

34C. 96 Inches (2438 mm)

Provides logic extension cable with connectors.

34E. 144 Inches (3658 mm)

Provides logic extension cable with connectors.

37. Service Equipment Rated Transfer Switch

Provides the label "Suitable for use as Service Equipment" and the features necessary to meet the requirements for the label. Includes service disconnect with visible indication and neutral assembly with removable link. **Feature 16B or 16N must be selected separately.**

37A. Service Equipment Rated Transfer Switch Without Ground Fault Protection

Provides Service Equipment rating for an application that does not require ground fault protection.

37B. Service Equipment Rated Transfer Switch With Ground Fault Protection

Provides Service Equipment rating for an application that requires ground fault protection.

38. Stainless Steel Cover

Provides protection for the controller.

39. Distribution Panel

The Distribution Panel feature utilizes a panelboard design with bolt-on circuit breakers. Bolt-on breakers are designed to hold up to the changes in temperature and humidity that an industrial application calls for.

41. Space Heater With Thermostat

Provides a space heater and adjustable thermostat. External control power is not required. Availability is dependent on transfer switch type.

41A. Space Heater With Thermostat — 100 Watts

Provides 100-watt space heater with an adjustable thermostat.

41C. Space Heater With Thermostat — 400 Watts

Provides 400-watt space heater with an adjustable thermostat.

42. Seismic Certification

Provides a seismic certified Transfer Switch with certificate for application is Seismic Zone 4 under the California Building Code (CBC), the Uniform Building Code (UBC®) and BOCA®, and International Building Code (IBC).

45. Load Sequencing Capability

Provides the capability for sequential closure of up to 10 addressable relays after a transfer. Each Addressable Relay provides 1 Form "C" contact. A single adjustable time delay between each of the relay closures is provided. Operates via a sub-network. Adjustable 1 – 120 seconds.

45A. Load Sequencing Contact

Provides one addressable relay.

45B. Load Sequencing Contact

Provides two addressable relays.

45C. Load Sequencing Contact

Provides three addressable relays.

45D. Load Sequencing Contact

Provides four addressable relays.

45E. Load Sequencing Contact

Provides five addressable relays.

45F. Load Sequencing Contact

Provides six addressable relays.

45G. Load Sequencing Contact

Provides seven addressable relays.

45H. Load Sequencing Contact

Provides eight addressable relays.

45I. Load Sequencing Contact

Provides nine addressable relays.

45J. Load Sequencing Contact

Provides 10 addressable relays.

48. Communication Modules

Provides communications modules for the ATC-400, ATC-600 (IQ Transfer) and ATC-800 (Closed Transition IQ Transfer) transfer switch controllers. These controllers are PowerNet compatible devices. A separately mounted communications module will enable the automatic transfer controller to be remotely monitored controlled and programmed via the network.

48A. Communications Module — IPONI

Provides an IPONI communications module.

48B. Communications Modules — IPONI and PMCOM5

Provides IPONI and PMCOM5 communications modules.

48C. Communications Modules — IPONI, PMCOM5 and Null Modem Cable

Provides IPONI, PMCOM5 communications modules and null modem cable.

48D. Communications Module — EPONI

Provides EPONI communications module. (10Base-T only.)

48E. Communications Module — EPONI

Provides EPONI communications module. (10Base-T and 10Base-FL.)

TRANSIENT VOLTAGE SURGE PROTECTION

(Listed rating is per phase, and availability is dependent on transfer switch type.)

51D1. 50 kA — Connected to Source 1

51E1. 80 kA — Connected to Source 1

51F1. 100 kA — Connected to Source 1

51G1. 50 kA — Connected to Source 1. (240/120 Vac single-phase systems only.)

51H1. 75 kA — Connected to Source 1. (240/120 Vac single-phase systems only.)

51J4. Telephone/Modem/DSL (4 Lines Total)

51K1. Cable TV/Satellite Cable/Cable Modem (2 Lines Total)

51M4A. 12 Vdc Engine control Start Circuit Protection

51M4B. 24 Vdc Engine control Start Circuit Protection

Glossary

With respect to their use in this document and as they relate to switch operation, the following terminology is defined:

Available — A source is defined as "available" when it is within its undervoltage/overvoltage/underfrequency/overfrequency (if applicable) set point ranges for the nominal voltage and frequency setting.

Fail-safe — If for any reason Source 2 becomes unavailable when connected to the load, and Source 1 is available, the controller will detect this and automatically transfer the load to Source 1.

Re-Transfer — "Re-Transfer" is defined as a change of the load connection from the secondary to primary source.

Source 1 — Is the primary source or Normal Source or Normal Power Source or Normal. (Except when Source 2 has been designated the "Preferred Source.")

Source 2 — Is the secondary source or Emergency Source or Emergency Power Source or Emergency or Standby or Backup source. (Except when Source 2 has been designated the "Preferred Source.")

Source 1 — Failed or Fails — Source 1 is defined as "failed" when it is outside of its undervoltage or overvoltage or underfrequency or overfrequency (if applicable) set point ranges for the nominal voltage and frequency setting

Source 2 — Failed or Fails — Source 2 is defined as "failed" when it is outside of its undervoltage or overvoltage or underfrequency or overfrequency (if applicable) set point ranges for the nominal voltage and frequency setting for a time exceeding 0.5 seconds after the Time Delay Emergency Fail (TDEF) time delay expires.

Transfer — "Transfer" is defined as a change of the load connection from the primary to secondary source except when specifically used as "Transfer to Neutral."

Transfer to Neutral — "Transfer to Neutral" is defined as when the load circuits are disconnected from both Source 1 and Source 2.

Controller Family Features & Specifications

TABLE 1. FEATURE GUIDE

Feature Description	ATC-100	ATC-300	ATC-600	ATC-800
				
Timers				
Time Delay Normal to Emergency (TDNE)	●	●	●	●
Time Delay Engine Start (TDES)	●	●	●	●
Time Delay Emergency to Normal (TDEN)	●	●	●	●
Time Delay Engine Cooldown (TDEC)	●	●	●	●
Time Delay Emergency Fail (TDEF)	●	●	●	●
Engine/Generator Exerciser				
Plant Exerciser (PE) with Fail-safe	Selectable — OFF, 7, 14, 28-Day Interval Selectable Run Time 0 – 600 Minutes No Load/Load w/Fail-safe	Programmable — OFF, Daily, 7, 14, 28-Day Interval Selectable Run Time 0 – 600 Minutes No Load/Load w/Fail-safe	Programmable Set Points, for test interval, are Start Time, either disabled or 7 days, and engine test time.	Programmable Set Points, for test interval, are Start Time, either disabled or 7 days, and engine test time.
Source 1 Sensing				
All-Phase Undervoltage and Underfrequency Protection	●	●	●	●
All-Phase Overvoltage and Overfrequency Protection	●	●	●	●
Three-Phase Rotation Sensing	—	●	●	●
Three-Phase Voltage Unbalance/Loss	—	●	Optional	Optional
Source 2 Sensing				
All-Phase Undervoltage and Underfrequency Protection	●	●	●	●
All-Phase Overvoltage and Overfrequency Protection	●	●	●	●
Three-Phase Rotation Sensing	—	●	●	●
Three-Phase Voltage Unbalance/Loss	—	●	Optional	Optional
Manual Controls				
Test Operators	●	●	●	●
4-Position Test Selector Switch (FPSS)	—	Optional	Optional	Optional
Time Delay Bypass Pushbutton	●	●	●	●
Maintenance Selector Switch (MSS)	—	Optional	Optional	Optional
Automatic/Manual Operation Selector Switch	—	Optional	Optional	Optional
Automatic Transfer or Automatic Transfer With Non-Automatic Re-Transfer Operation	—	Optional	Optional	Optional
Indications and Status Display				
Source 1 Connected/Source 2 Connected	●	●	●	●
Source 1 Present/Source 2 Present	●	●	●	●
Source 1 Tripped/Source 2 Tripped	●	●	●	●
Customer Outputs				
Source 1/Source 2 Present Contacts	—	Optional 2NO & 2NC	Optional 2NO & 2NC	Optional 2NO & 2NC
Source 1 Available/Source 2 Available Contacts	Optional 2NO & 2NC	Optional 2NO & 2NC	Optional 2NO & 2NC	Optional 2NO & 2NC
Switch Position Indication Contact				
Source 1/Source 2 Position Indication Contact	Optional	2NO & 2NC	2NO & 2NC	2NO & 2NC
Pre-transfer Signal Contacts	—	Standard 1NO & 1NC	Standard 1NO & 1NC	Standard 1NO & 1NC
Customer Inputs				
Go to Emergency (Source 2)	—	●	●	●
Load Shed	—	—	Optional	Optional

TABLE 1. FEATURE GUIDE (CONTINUED)

Feature Description	ATC-100	ATC-300	ATC-600	ATC-800
				
Integral Overcurrent Protection				
Source 1, Source 2 or Both	Optional	Optional	Optional	Optional
Metering				
DP-4000 Monitoring Voltage, Amps, Frequency, Power Factor, Harmonic Distortion on Source 1 and Source 2	—	Optional	Optional	Optional
IQ Analyzer Monitoring Voltage, Amps, Frequency, Power Factor, Harmonic Distortion on Source 1 and Source 2 With Waveform Capture	—	Optional	Optional	Optional
Ammeter — Load Side (Digital, All Phases Metered)	—	Optional	Optional	Optional
Rear Bus Connections	—	Optional	Optional	Optional
Optional Terminals	Optional	Optional	Optional	Optional
Transfer Mode Open Transition				
Time Delay Neutral	Optional	Optional	Optional	Optional
In-Phase Monitoring	●	Optional	Optional	Optional
Load Voltage Decay	—	Optional	Optional	Optional
Transfer Mode Closed Transition				
Time Delay Neutral	—	—	—	Optional
In-Phase Monitoring	—	—	—	Optional
Load Voltage Decay	—	—	—	Optional
Service Entrance Rating				
Source 1, Source 2 or Both & With and Without Ground Fault Protection	Optional	Optional	Optional	Optional
Stainless Steel Cover				
Stainless Steel Lockable Cover for Controller	—	Optional	Optional	Optional
Integral Distribution Panel	—	Optional	—	—
Space Heater with Thermostat				
100 Watts	—	Optional	Optional	Optional
400 Watts	—	Optional	Optional	Optional
Building Codes				
Seismic Zone 4 Certified (BOCA, CBC, IBC, UBC)	●	●	●	●
Communications	—	—	Optional	Optional
Transient Voltage Surge Protection				
Single-Phase	Optional	Optional	Optional	Optional
Three-Phase	Optional	Optional	Optional	Optional
Password Protection	—	●	●	●

TABLE 2. SPECIFICATION GUIDE

Description	ATC-100 	Factory Default Settings	ATC-300 	Factory Default Settings	ATC-600 	Factory Default Settings	ATC-800 	Factory Default Settings
Programming Selections								
Time Delay Normal to Emergency	3 Seconds (Fixed)		0 – 1800 Seconds	0:00	0 – 1800 Seconds	0:00	0 – 1800 Seconds	0:00
Time Delay Emergency to Normal	7 Minutes (Fixed)		0 – 1800 Seconds	5:00	0 – 1800 Seconds	5:00	0 – 1800 Seconds	5:00
Time Delay Engine Cooldown	5 Minutes (Fixed)		0 – 1800 Seconds	5:00	0 – 1800 Seconds	5:00	0 – 1800 Seconds	5:00
Time Delay Engine Start	10 Seconds (Fixed)		0 – 120 Seconds	0:03	0 – 120 Seconds	0:03	0 – 120 Seconds	0:03
Time Delay Neutral	N/A		0 – 120 Seconds	0:00	0 – 120 Seconds or Based on Load Voltage Decay of 2% – 30% of Nominal	0:00	0 – 120 Seconds or Based on Load Voltage Decay of 2% – 30% of Nominal	0:00
Time Delay Source 2 Fail	N/A		0 – 6 Seconds	0:06	0 – 6 Seconds	0:06	0 – 6 Seconds	0:06
Time Delay Voltage Unbalance	N/A		10 – 30 Seconds	20	N/A	20	N/A	20
Voltage Unbalance Three-Phase	N/A		0 or 1 (1 = Enabled)	1		1		1
% of Unbalanced Voltage Dropout	N/A		5% to 20% (DO) Dropout -2% to 3% (PU)	20%	N/A	20%	N/A	20%
Phase Reversal Three-Phase	N/A		OFF, ABC, CBA	Off	N/A	Off	N/A	Off
In-Phase	N/A		0 or 1 (1 = Enabled)	0	Enabled or Disabled	0	Enabled or Disabled	0
Load Sequencing	N/A		N/A		Up to 10 Devices (via Sub-Network)		Up to 10 Devices (via Sub-Network)	
Pre-Transfer Signal	N/A		1 – 120 Seconds (Form "C" Contact)	0:00	0 – 120 Seconds (Up to 10 Devices via Sub-Network)	0:00	0 – 120 Seconds (Up to 10 Devices via Sub-Network)	0:00
Plant Exerciser	Selectable Day, Off, 7, 14, 28-Day Interval, 15 Minutes Run Time, No Load	Off	Selectable — Off, Daily or 7, 14, 28-Day Intervals, 0 – 600 Minutes, Load or No Load	Off	Selectable — Disabled or 7-Day Interval, 0 – 600 Minutes, Load or No Load	Off	Selectable — Disabled or 7-Day Interval, 0 – 600 Minutes, Load or No Load	Off
Preferred Source Selection	N/A		N/A		Source 1 or 2 or None		Source 1 or 2 or None	
Commitment to Transfer in TDNE	N/A		N/A		Enabled or Disabled		Enabled or Disabled	
Re-Transfer Mode	N/A		N/A		Automatic or Manual		Automatic or Manual	
Auto Daylight Savings Time Adjustment	N/A		0 or 1 (1 = Enabled)	1		1		1
System Selection	Utility/Generator or Dual Utility		Utility/Generator or Dual Utility		Utility/Generator or Dual Utility or Dual Generator		Utility/Generator or Dual Utility or Dual Generator	
Additional Information	PA01600002E		TD01602006E		TD.15A.05.T.E.		TD.15A.05.T.E.	

Note: Features are order specific. Not all features are supplied as standard.

TABLE 2. SPECIFICATION GUIDE (CONTINUED)

Description	ATC-100 	Factory Default Settings	ATC-300 	Factory Default Settings	ATC-600 	Factory Default Settings	ATC-800 	Factory Default Settings
System Application Voltage	120/240 V, 208 V ①		Up to 600 Vac	600 Vac	Up to 600 Vac	600 Vac	Up to 600 Vac	600 Vac
Voltage Specifications								
Voltage Measurements of:	Source 1 and 2		Source 1 and 2 — V_{AB}, V_{BC} and V_{CA}		Source 1, 2 and Load — V_{AB}, V_{BC} and V_{CA}		Source 1, 2 and Load — V_{AB}, V_{BC} and V_{CA}	
Voltage Measurement Range	120 – 240 Vac		0 – 790 Vac rms		0 – 790 Vac rms		0 – 790 Vac rms	
Operating Power	95 – 145 Vac		65 – 145 Vac		65 – 145 Vac		65 – 145 Vac	
Frequency Specifications								
Frequency Measurements of:	Source 2		Source 1 and 2		Source 1 and 2		Source 1 and 2	
Frequency Measurement Range	50 – 60 Hz		40 – 70 Hz		40 – 70 Hz		40 – 70 Hz	
Environmental Specifications								
Operating Temperature Range	-20° to +70°C		-20° to +70°C		-20° to +70°C		-20° to +70°C	
Storage Temperature Range	-30° to +85°C		-30° to +85°C		-30° to +85°C		-30° to +85°C	
Operating Humidity	0 to 95% Relative Humidity (Non-condensing)		0 to 95% Relative Humidity (Non-condensing)		0 to 95% Relative Humidity (Non-condensing)		0 to 95% Relative Humidity (Non-condensing)	
Operating Environment	Resistant to Ammonia, Methane, Nitrogen, Hydrogen and Hydrocarbons		Resistant to Ammonia, Methane, Nitrogen, Hydrogen and Hydrocarbons		Resistant to Ammonia, Methane, Nitrogen, Hydrogen and Hydrocarbons		Resistant to Ammonia, Methane, Nitrogen, Hydrogen and Hydrocarbons	
Front Panel Indication								
Mimic Diagram With LED Indication	Unit Status. Source 1 and 2 Available and Connected (5 Total)		Unit Status. Source 1 and 2 Available and Connected (5 Total)		Automatic, Test and Program Mode. Source 1 and 2 Available, Connected and Preferred. Load Energized (10 Total)		Automatic, Test and Program Mode. Source 1 and 2 Available, Connected and Preferred. Load Energized (10 Total)	
Main Display	N/A		LCD-based Display		LED Display		LED Display	
Display Language	N/A		English, French	English	English	English	English	English
Communications Capable	N/A		N/A	②	PONI/INCOM	②	PONI/INCOM	②
Enclosure Compatibility	NEMA® 1 and 3R		NEMA 1, 12 and 3R, UV Resistant Faceplate	③	NEMA 1, 12, 3R and 4X UV Resistant Faceplate	③	NEMA 1, 12, 3R and 4X UV Resistant Faceplate	③
Operating Environmental Range	Operation -20°C to +70°C, Storage -30°C to +85°C, Humidity 0% to 95% Relative (Noncondensing)		Operation -20°C to +70°C, Storage -30°C to +85°C, Humidity 0% to 95% Relative (Noncondensing)		Operation -20°C to +70°C, Storage -30°C to +85°C, Humidity 0% to 95% Relative (Noncondensing)		Operation -20°C to +70°C, Storage -30°C to +85°C, Humidity 0% to 95% Relative (Noncondensing)	

① Single-phase.
② Transfer on customer input.
③ As ordered.

Note: Features are order specific. Not all features are supplied as standard.

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