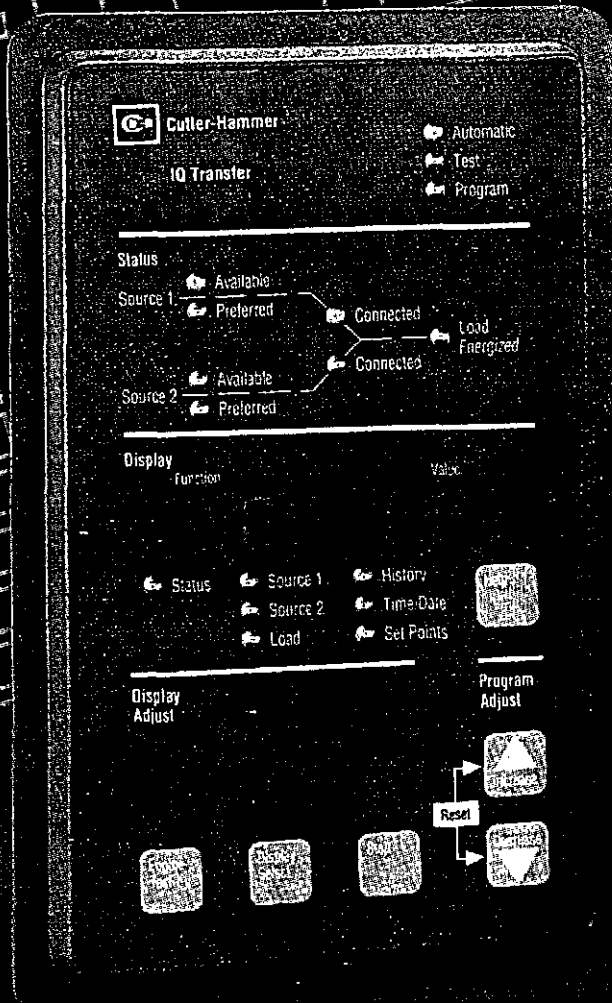


# OPEN-TRANSITION IQ TRANSFER FOR AUTOMATIC TRANSFER SWITCHES



**Cutler-Hammer**

**EATON**

## INTRODUCTION

The IQ Transfer is a programmable, microprocessor-based monitoring device designed for use in Cutler-Hammer Open Transition transfer switches (ATVI, BVI, ATHI, BIHI) where rapid, reliable restoration of power in outage situations is essential.

IQ Transfer features proprietary Cutler-Hammer designed Sure Chip microprocessor technology to provide superior precision and versatility in operation, programming and data access. In addition, the IQ Transfer's user-friendly front-panel interface simplifies routine operation, programming, data presentation and adjustment of settings.

This unique combination of features makes IQ Transfer the most complete and technologically-advanced ATS logic package available today.

## CUTLER-HAMMER OPEN TRANSITION IQ TRANSFER FEATURES

The IQ Transfer is a door-mounted, totally enclosed device that is customer-accessible from the front panel.

Data access and programming operations are performed using the IQ Transfer'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 front panel. A built-in Help button provides user assistance in the form of message displays.

The IQ Transfer is communications ready and compatible with all Cutler-Hammer IQ devices as well as the Cutler-Hammer IMPACC system-wide supervisory and control software. This permits monitoring and control of several transfer switches, locally or remotely, from a single point. IQ transfer is suitable for either new or existing Cutler-Hammer ATS applications.

## ADDITIONAL FEATURES

- Applicable for use on any Low or Medium Voltage Application through 38 kV, 50 or 60Hz.
- True RMS three-phase voltage sensing on Normal, Emergency and Load.
- Frequency sensing on Normal and Emergency.
- Programmable set points stored in non-volatile memory.
- IMPACC Communication to Personal Computer either on-site or remote.
- Historical data on most recent transfers (up to 16 events) viewable at switch. Unlimited history storage (remote) available when used with IMPACC software.
- Wide range of user-selectable option combinations.
- Load Sequencing.
- Engine Start Contacts.
- Engine Test Switch with user-selectable Test Mode and Failsafe.
- Alarm Contact.  
(Multiple alarm functions available.)
- Pre-transfer Signal.
- Heart Beat Monitor (Flashing Green Automatic Light signifies that the IQ Transfer is operating properly).
- Instrumentation
  - Voltmeter (accuracy +/- 1%)
  - Reads Line-to-Line on Sources 1 and 2 and Load
  - Frequency Meter (40-80Hz, accuracy +/- .1Hz)
  - Source Available Time (Both Sources)
  - Source Connected Time (Both Sources)
  - Source Run Time

## BUTTON FUNCTIONS

Three buttons provide easy access to all commonly used IQ Transfer functions.

When the preferred source 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 Point

(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.

## INITIAL PROGRAMMING

Factory programming will load all customer specified functions and presets. At the customer's request, Cutler-Hammer will add, delete or adjust optional features.

## 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 or Decrease buttons. Once a parameter has been reset, the user advances to the next set point by pressing the Step button.

While the IQ Transfer is in the Program mode, the device continues to operate in accordance with the previously programmed set points and parameters. The unit is never off-line, 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 IQ's non-volatile memory, and the unit returns to Automatic mode.

# IQ Transfer Front Panel Display and Button Functions

## PROGRAM

LED indicates unit is in programming mode. (NOTE: This mode is activated using the "Program" switch located on the rear of the unit.)

## TEST

Indicator light is on when unit is in test mode.

## AUTOMATIC

LED indicates that the ATS is operating normally and is in the automatic mode.

## SOURCE 1, SOURCE 2, AND LOAD

Standard LED lights show status of both Sources and Load.

## LED DISPLAY

Unit will provide LED readout showing actual metered values for Voltage, Frequency and Condition (including Normal, Undervoltage, Overvoltage, etc.).

## TEST BUTTON

Pressing this button twice initiates an engine test.

## DISPLAY SELECT

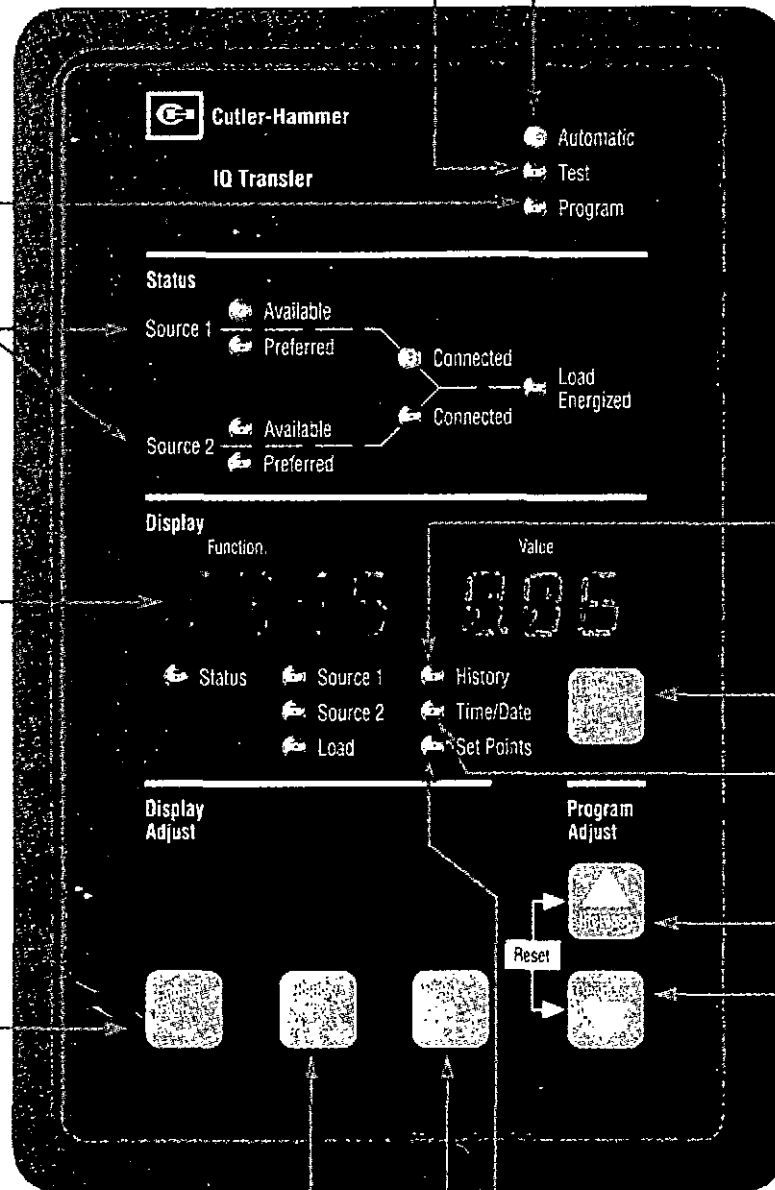
- Source 1
  - Source 2
  - Load
  - History
  - Time/Date
  - Set Points
- Button is discussed in Operation section.

## STEP BUTTON

Shows multiple variables under each display select function.

## SET POINTS

Selecting this LED permits the user to display existing programmed values.



## HISTORY

By pressing the Display Select button to light the History LED and the Step button to rotate thru available data, historical or cumulative values for Available Time (Both Sources), Connected Time (Both Sources), Number of Transfers and Date/Time Reason for last 16 Transfers are displayed.

## HELP

Pressing the Help button in any function mode will bring up display messages, explanations and prompts to assist the operator.

## TIME/DATE

Displays real-time clock. Clock can be easily set in this mode using the Increase and Decrease buttons.

## INCREASE/DECREASE

A detailed explanation of these buttons can be found in the Operation Section.

## Operation

### DEFINITIONS

#### Open Transition/Time Delay Neutral:

Time Delay Neutral is a feature that will provide a pre-set time delay in the neutral position allowing the voltage on the load to decay. This is an open transition that prevents in-rush currents from exceeding normal starting currents when transferring motor loads.  
(Option 32A)

#### Open Transition/Delayed with Load Voltage Decay:

Load voltage decay transfer is a feature that, after opening the switch from the original source, holds in the neutral position until the voltage on the load is less than 30% of rated voltage. This is an open transition that prevents in-rush currents from exceeding normal starting currents in the case where motor loads are being transferred.  
(Option 32B)

#### 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.  
(Option 32C and 32D)

### SWITCH OPERATION

In the event of a power failure, the IQ Transfer will automatically become active. Once the alternate source becomes available, the IQ Transfer will display the status of timers, and initiate a transfer.

## Programming and Options

### IN-PHASE OPEN TRANSITION OPERATION MODES

#### OPTION 32C

##### In-Phase Monitor/Load Voltage Decay

IQ Transfer controllers equipped with Option 32C execute the following sequence of operations upon receipt of a request for transfer:

*The controller waits (for a pre-selected time frame) for synchronization of voltage and frequency. If achieved, an open transition in-phase transfer occurs. Failure to synchronize results in the controller automatically defaulting to an open transition Load Voltage Decay mode of operation, resulting in an assured transfer. If the back-up default mode is not desired, it may be effectively deactivated via a field programming change to the IQ Transfer controller.*

STANDARD FEATURES	CUSTOMER ADJUSTMENTS
In-Phase Transition Frequency Difference (hertz)	0.0 to 3.0 Hz
In-Phase Transition Synchronization Timer	1 to 60 minutes
Load Voltage Decay Threshold	0.0 to 30% of nominal voltage

#### OPTION 32D

##### In-Phase Monitor/Time Delay Neutral

IQ Transfer controllers equipped with Option 32C execute the following sequence of operations upon receipt of a request for transfer:

*The controller waits (for a pre-selected time frame) for synchronization of voltage and frequency. If achieved, an open transition in-phase transfer occurs. Failure to synchronize results in the controller automatically defaulting to an open transition Time Delay Neutral mode of operation, resulting in an assured transfer. If the back-up default mode is not desired it may be effectively deactivated via a programming change to the IQ Transfer controller.*

STANDARD FEATURES	CUSTOMER ADJUSTMENTS
In-Phase Transition Frequency Difference (hertz)	0.0 to 3.0 Hz
In-Phase Transition Synchronization Timer	1 to 60 minutes
Time Delay Neutral Timer	0.0 to 2 minutes





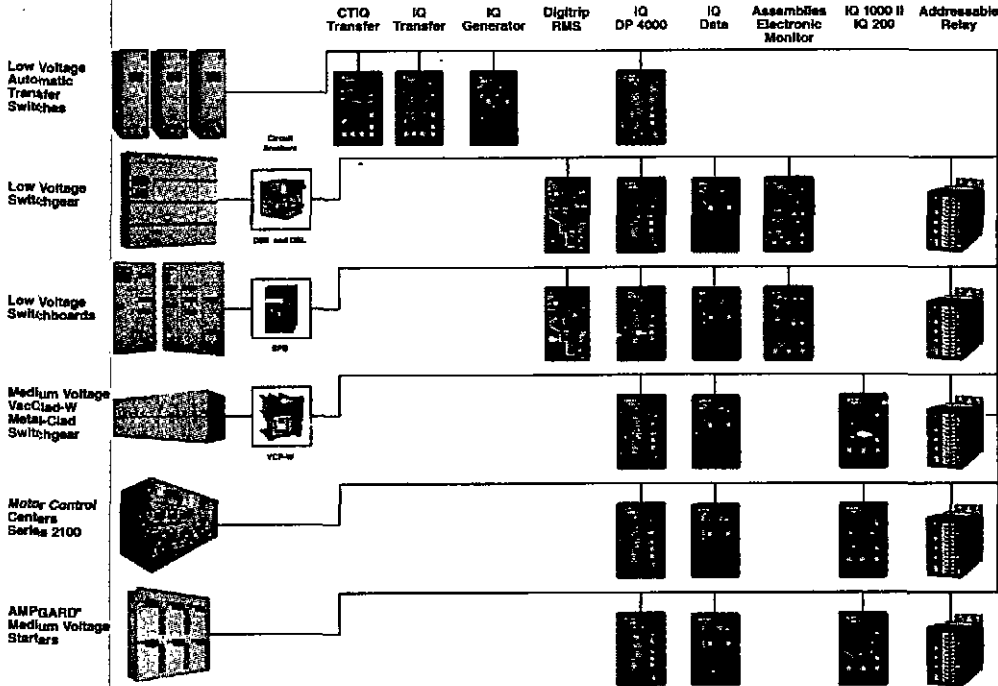
# Using IMPACC, You Can Communicate With Your ATS and Other Electrical Distribution Assemblies

## ASSEMBLIES

## COMPATIBLE DEVICES

For Local and Remote Monitoring Protection and Control

## COMMUNICATIONS

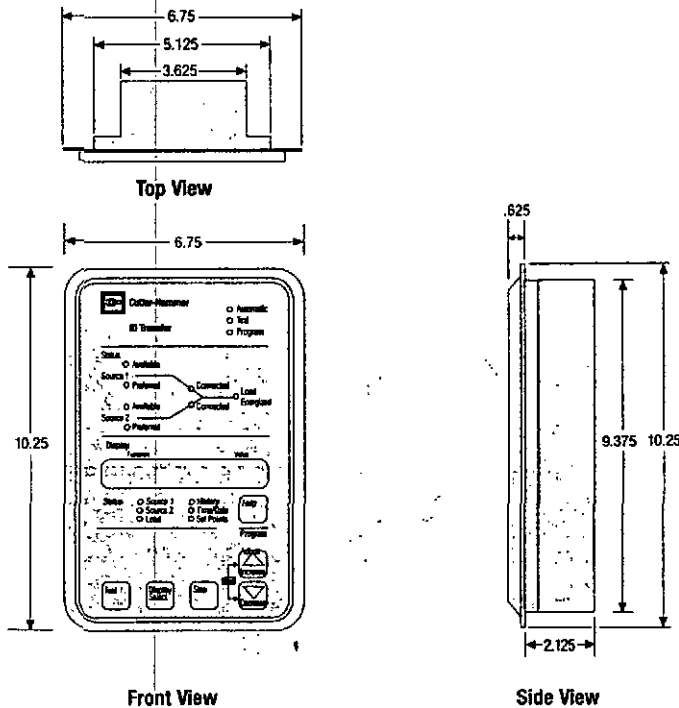


Remote Monitoring and Control  
Two Levels of Communication

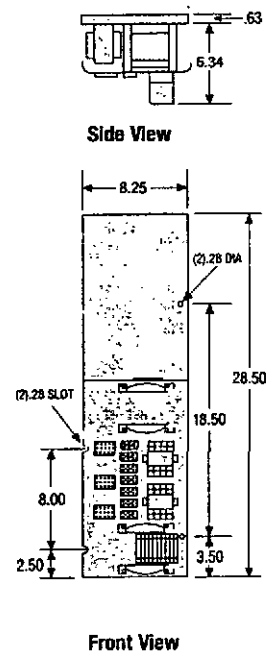


Series III Software  
Enhanced Graphics

## IQ Transfer Dimensions



IQ Transfer Dimensions



Typical Transformer Panel

Dimensions are approximate and should not be used for construction purposes.

Cutler-Hammer, a part of Eaton Corporation, is a leader in the development and manufacturing of power distribution equipment, electrical control products, and advanced industrial automation solutions.

For more information on Cutler-Hammer products and services, call 1-800-525-2000 or 1-732-417-5660 or visit our web site at [www.cutlerhammer.eaton.com](http://www.cutlerhammer.eaton.com)



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**Cutler-Hammer**

Pittsburgh, Pennsylvania U.S.A.

Publication No. B.15A 02.S.E.  
August 1998  
Printed in U.S.A. / TSG 2519

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