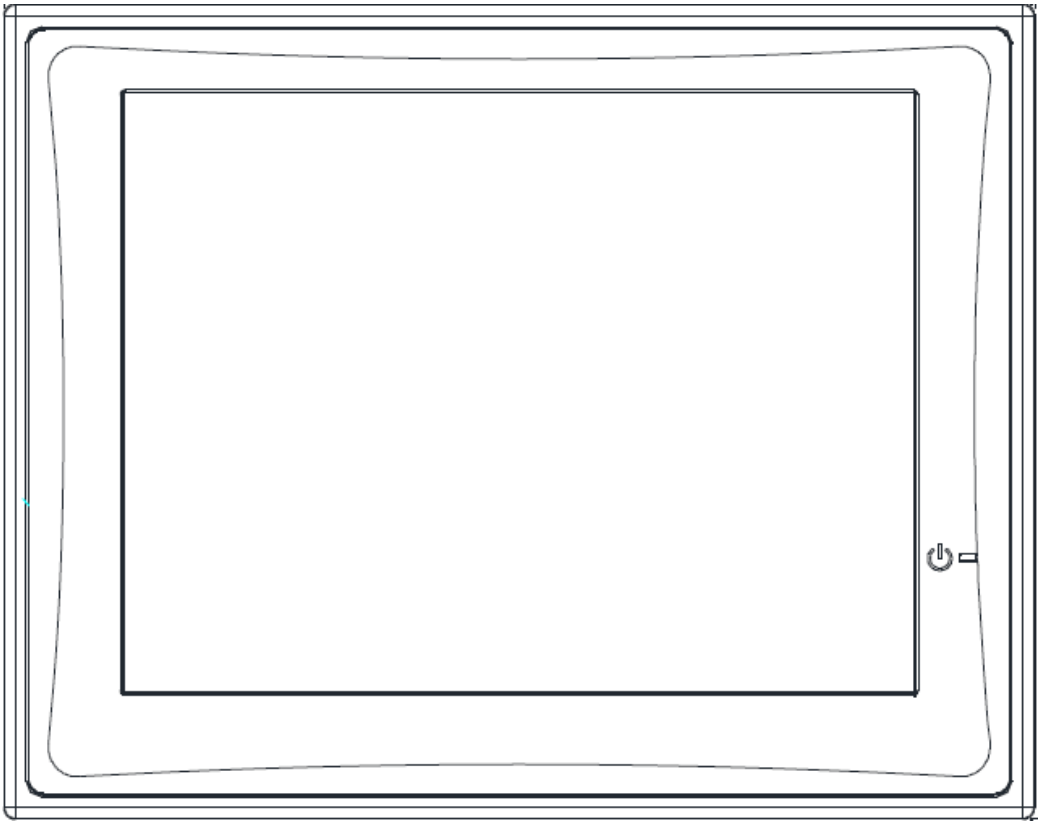
Remote Annunciator Controller (RAC) Instruction Sheet for Automatic Transfer Switches (4 x ATS)

Revision: 01
IB01602086E

1.1 Remote Annunciator Controller (RAC) using up to 4 ATC-300+ connected via RS-485 network.

The 7” RAC is a color touch-screen display with easy-to-use functions that provide a powerful interface with up to 4 Automatic Transfer Switches. It not only displays the status of the switch, it also provides several popular control functions.



The 7” Ethernet RAC Kit contains the following:

HMIVU07CUNBE (7” Color HMI Display)
IL04801003E (HMI Instruction Leaflet)
ELC-PS01 or 02 (Optional 24VDC power supply)
IB10602086E (This Instruction Sheet)
66A8448H02 (MDB9-TB10+ Interconnect Module)
66A8395 RS-485 HMI Wiring Drawing for the ATC-300+

1.2 Features

There are two types of features incorporated into the RAC: Status and Control. Below are lists of each:

Status Type

- **S1 & S2 Available**
- **S1 & S2 Connected**
- **S2 Connected Alarm**
- **Source 1 Data Information**
- **Source 2 Data Information**
- **Non-Auto Status**
- **Engine Test Status**
- **History of Alarm**

Control Type

- **Go to Source 2 (Emergency)**
- **Go to Source 2 Abort**
- **Engine Test**
- **Engine Test Abort**
- **Silence Alarm**
- **Bypass TDNE/TDEN**
- **Manual Retransfer**

1.3 Set-up and Wiring

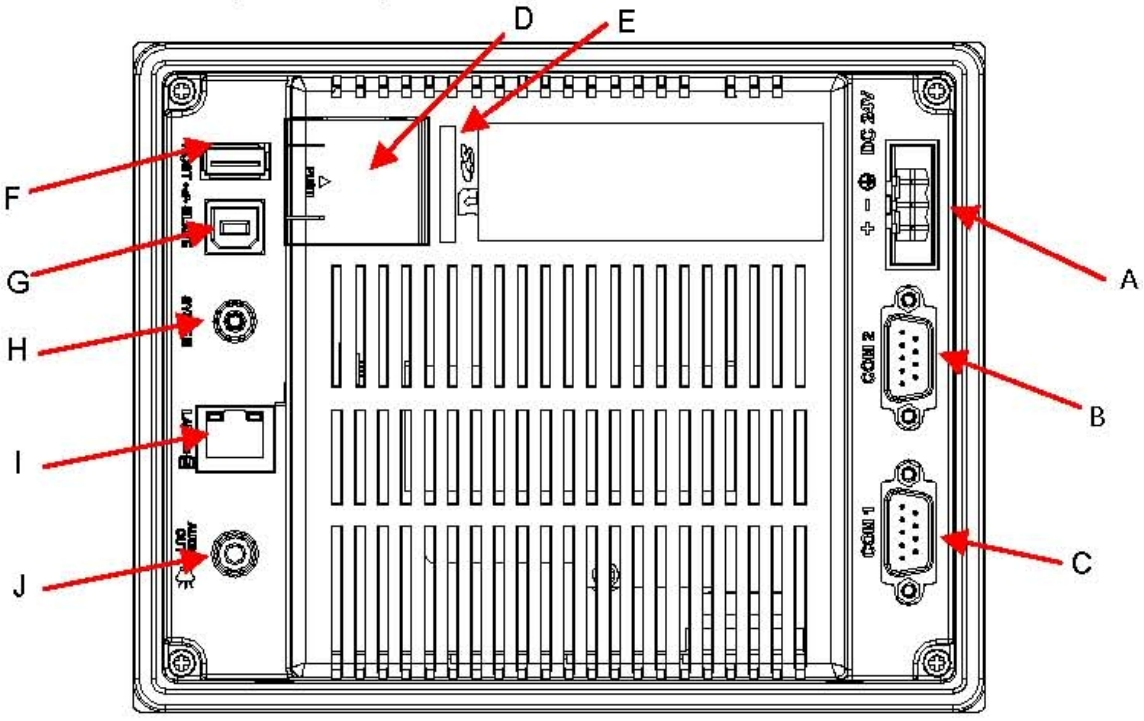
The RAC requires 24VDC power with a maximum current of 125 mA (See “A” below). There is a terminal block connector on the back of the unit to install wires for the power. The software comes preloaded onto the unit, and should require no user programming.

Communication with the ATS controller is accomplished via Modbus RS-485. Drawing 66A8395 shows the wiring of the unit, which includes the power connection and the communication connector module. The cable used should have two insulated wires and one ground connected to the shield of the cable (see drawing 66A8395). The recommended cable is a CAT5E type but there are many similar shielded cables that can be used. The drawing also shows the connection between the RAC and the ATC-300+. There is a green LED on the back of the ATC-300+ that blinks when the unit is communicating.

The communication connector inserts into the female side of the HMI COM2 port (see “B” below). The module has screw type terminal blocks to install the communication cable wiring. After the wires are installed, simply plug the adapter into COM2, and screw in both sides of the connector to the device. A picture of the adapter and a rear view of the unit are shown below.

Communication Cable Adapter (connect to “B” below)

HMIVU07CUNBE (Rear View)



A	Power Input Terminal	F	USB Host
B	COM2 and COM3 (Note1)	G	USB Slave
C	COM1	H	System Button
D	Battery Cover	I	Ethernet Port
E	Memory Card Slot	J	Audio Output Port

NOTE

1. Refer to the Pin Definition for Communications section for simultaneous use of COM2 and COM3.

The setpoints on each ATC-300+ needs to be set as follows:

Baud Rate: 9600
Address: 01, 02, 03, and 04 (different address for each ATC-300+)
Terminated: On (termination micro-switch on back side of the last ATC-300+)

There is a system menu on the HMI that allows the operator to change items like touch screen force, touch screen calibration, time & date, brightness & contrast, alarm and touch volume, and others. The HMI should be set up so the user will not have to adjust anything in the field. If a change is desired, there are two ways of accomplishing this:

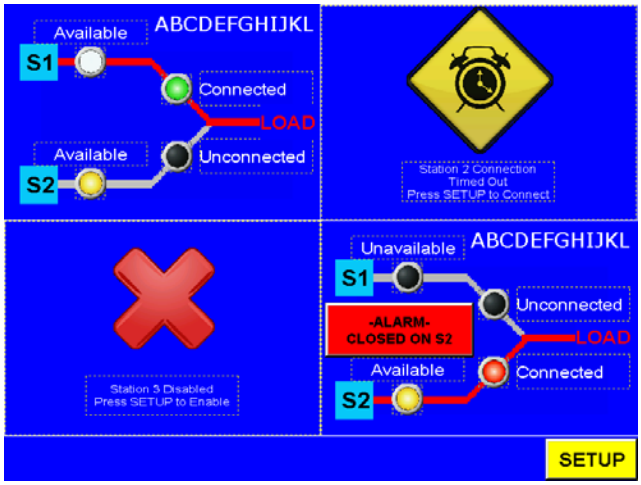
The first is to simply press the small SYSTEM button on the back of the unit for two seconds. The system menu will now be displayed on the screen. The menus are self-explanatory but if help is required, one can download the manual from the Eaton website under “HMiSoft User Manual” effective February 2011. After the adjustments have been made, simply push the SYS button again for two seconds. Also see the instruction leaflet IL04801003E that came with the display.

The second option is to push the “SETUP” button and the new screen that appears will have a “SYSTEM SETUP” button. This is useful if the back of the unit is not easily accessible. This button will get the user in the same area as the SYSTEM button on the back of the unit.

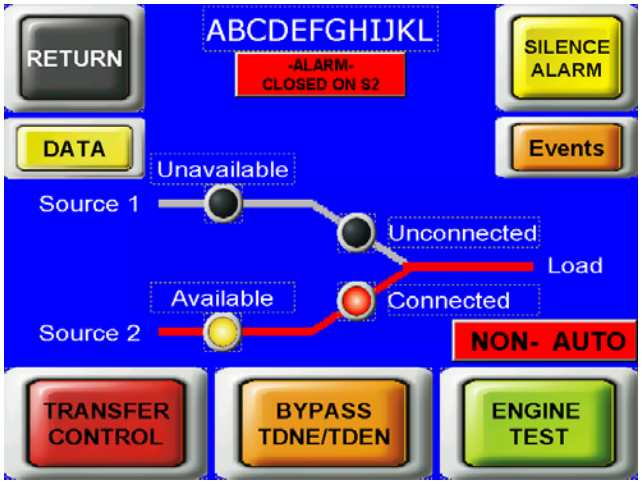
1.4 Screens

There are six screens that are displayed for the ATS functionality. Each screen has a return button to return to previous screen. Each of the screens and the associated buttons are described below.

Screens:



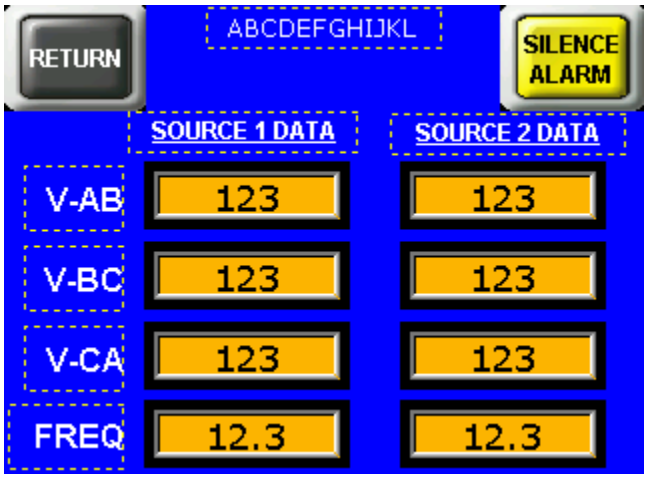
Top Level with ATS Select and System Setup



Second Level with S2 Connected, Alarm, and Non-Auto

The top level screen shows the current status of up to 4 ATS controllers. In the example above, Station 1 is communicating and shows power connected through S1. Station 2 was enabled, but has lost communication to the controller. Station 3 is disabled entirely, as it may not exist, or it is down for maintenance. Station 4 is communicating and shows power connected through S2. To enable/disable any controller, press the setup button (password protected – level 3).

To continue to the second level for any working controller, simply press on its corresponding quadrant. If the system switches to emergency (S2), an audible alarm will sound from the HMI. To silence the alarm, simply press the Silence Alarm button. The alarm flag will still be present, but the audio will be off. The volume of this alarm can be controlled in HMI system setup. To determine when S2 was connected and other alarms, press the Alarm Data button to display the next screen shown below.



Data Screen

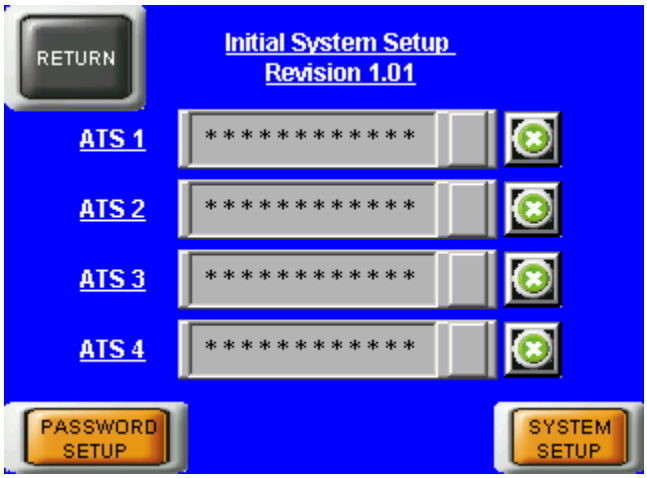
The Data Screen shows the voltages and the frequency for each of the three phases.

Alarm Data (Messages)

The Alarm Data screen displays the S2 alarm history as well as other alarms shown below. The Alarm history displays an O or an X at the beginning to display when the unit was true or false; S2 connected (O) or S2 back to S1 (X). To clear the information, simply push the Clear History button.

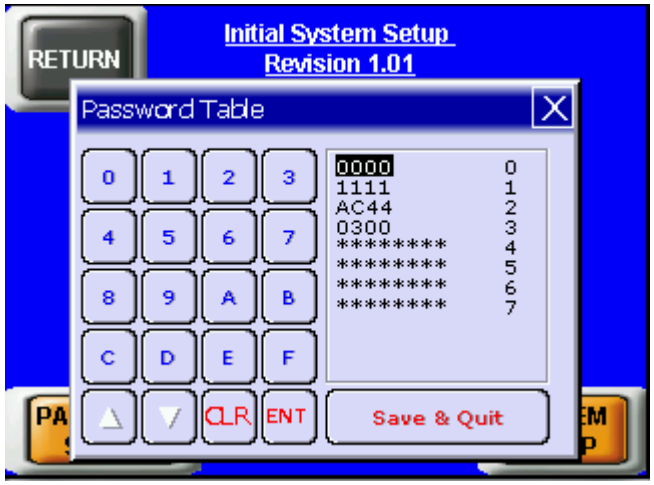
ALARM Messages

1. Overvoltage
2. Undervoltage
3. Over Frequency
4. Under Frequency
5. Plant Exerciser
6. Engine Test
7. Remote Engine Test
8. Voltage Unbalance
9. Phase Reversal
10. Go to Emergency
11. Lockout
12. Failed to Sync (phase angle)
13. Failed to Sync (frequency difference)
14. Engine Test or Plant Exercise
15. Source 1 Error
16. Source 2 Error



Initial Setup Screen

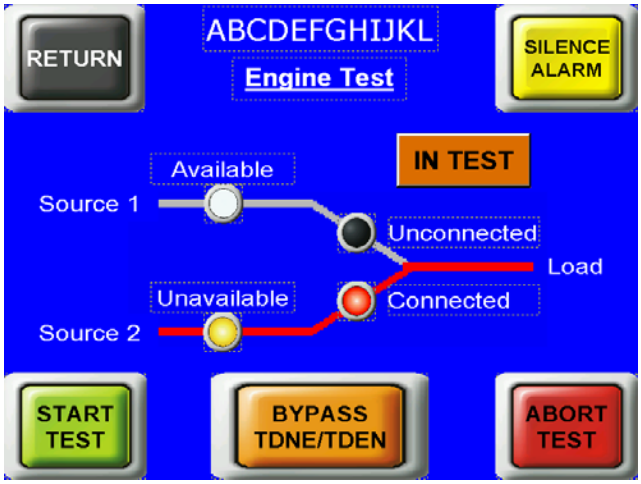
The initial setup screen allows the user to type in a name for the ATS controller. This name will be displayed throughout the HMI status screens, and is for aesthetic purposes only. The user can also disable the com link by pressing on the green circle.



Password Table Pop-up

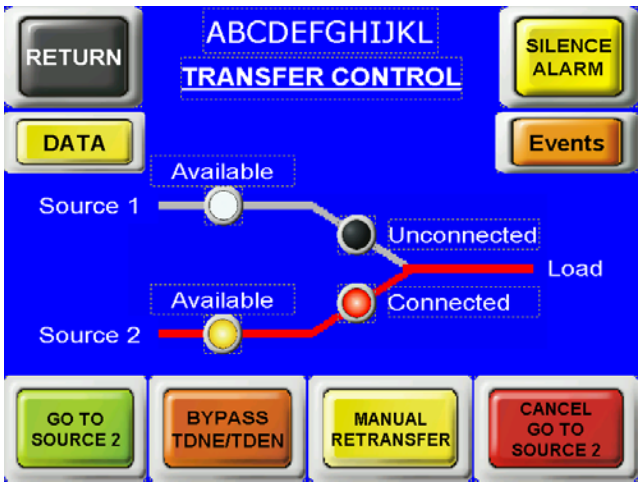
Passwords are needed to get to the Engine Test and Go to Emergency (To S2) screens. These two screens are at security level two which is factory set to **AC44**. If you would like to change any of the passwords, navigate to the password table in the SETUP screen (you must input **0300** which is the level 3 password). **If you change it, do not forget the level 3 password or you will be unable to edit passwords in the future.**

To enter the password table: **0300**
To run an engine test: **AC44**
To transfer To S2: **AC44**



Engine Test

By pressing Start Test, the controller will start the generator and then run the engine test when S2 is available. (Push the Silence Alarm button to remove the audio). To abort the test before the time is up, push the Abort Test button. One can use the Bypass TDNE/TDEN if desired.



Transfer Control

By pressing the Go To S2 button, the switch will transfer to source 2 if there is available power on S2. To go back to S1, push the Return to S1 button. One can use the Bypass TDNE/TDEN if desired. The Manual Retransfer button will appear if the controller has manual retransferring enabled. Pressing it will send the command to the ATC-300+ controller, but only if it is enabled.

CAUTION

This is a remote control device. Caution should be applied to make sure that appropriate procedures are in place for Engine Tests and To S2. Appropriate

procedures include, but are not limited to, switch doors being closed and latched, personnel knowledgeable of transfers, and other site safety recommended procedures.