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Technical Note 094

Accessing ACH550 parameters on a failed drive
Understanding the previous configuration

In this Technical Note 094 there is an outline of materials and steps to be taken to retrieve the changed parameters as well as the I/O configuration on an existing installation of a ACH550 drive that has failed and can no longer be powered to provide this data. The ability to retrieve this data will provide a more simplified approach to replacement of an existing ACH550 drive when the parameters have not been backed up to the drive panel or been previously extracted and stored for the installation.

In each method to gather the parameters from the existing installation it requires removing the existing ACH550 control board from the non-working unit. That control board has an interface board mounted to it, along with a 24-volt DC power supply to provide power to both boards. In this configuration, the Technician has the option of using an ACH550 control panel as the interface to display the parameters for recording or backup the parameters to that control panel. The Technician can also use a DB9 to RJ45 Connector, USB to 232 Connector, and computer with Drive Windows Light to view changed parameters, I/O settings, and/or create a backup of the programming on that board.
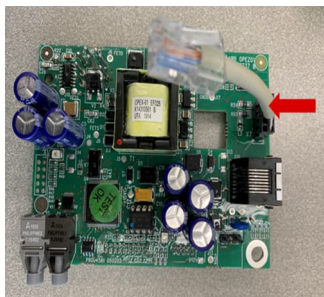
Tools needed
1. Phillips Head Screwdriver
2. Flat Head Screwdriver

Materials needed
1. 64652745 (OPEX-01 Interface Board)

2. 64738852 (Connection Cable) - mounted on 64652745 (OPEX-01 Interface Board), noted with red arrow

3. 24VDC Power Supply

4. ACH550 Control Panel (ACH-CP-B) & Ethernet Cable – For Control Panel (ACH-CP-B) Interface to control board (SMIO-01).

5. OPCA-01 (DB9 to RJ45 Connector), USB to 232 Connector, & Computer with Drive Windows Light – For Drive Windows Light interface to control board (SMIO-01). Note that this hardware is only required if using Drive Windows Light in place of the control panel.


Existing installation board recovery & interface board installation instructions

*Before you begin, ensure that the lock out tag out procedures have been completed and that there is no power to the work area or drive. Later follow proper ESD (electrostatic discharge) guidelines when working with the bare circuit boards.
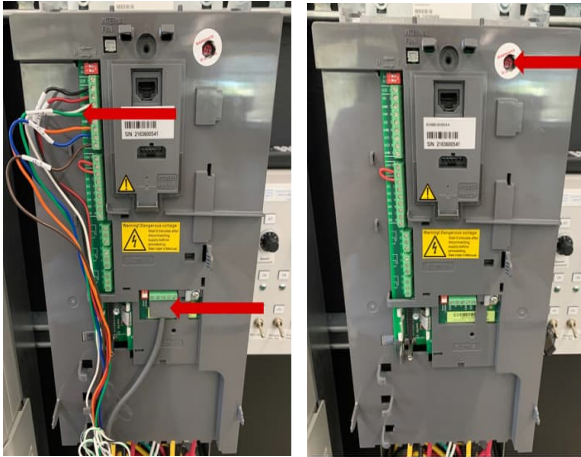
Step 1: Remove existing panel if installed.

Step 2: Remove existing mounting screw and remove cover by pushing tabs at the side of the cover and lifting and pulling forward.
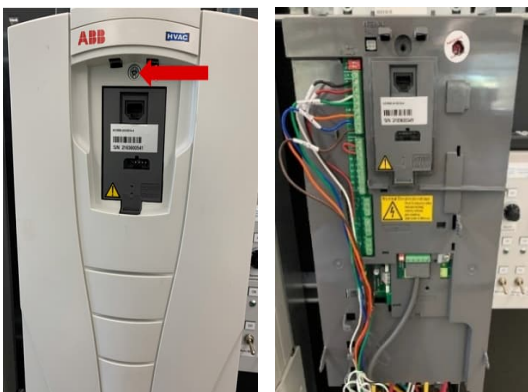
Step 3: Remove all control wire and fieldbus connection from terminals (you can leave any existing jumpers). Unscrew the board enclosure mounting screw from upper right corner.

Step 4: At the bottom of the plastic board enclosure there will be two plastic tabs (on bottom left, one bottom right) that should be pulled down to separate the enclosure. After they are pulled down, slowly separate the plastic board enclosure housing about 1 -2 inches to see the two ribbon cables that must be detached from the unit to free the control board (SMIO-01).
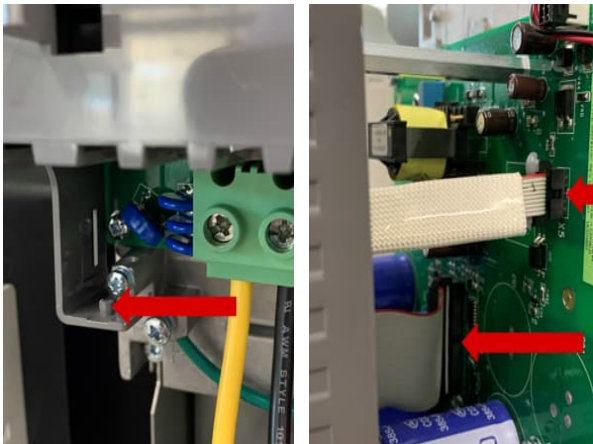
Step 5: After disconnecting the ribbon cables, remove the plastic board enclosure with the control board (SMIO-01) still mounted in it. Remove the mounting screws from the front panel to complete removing the permanent fixtures keeping the board in place in the plastic housing.
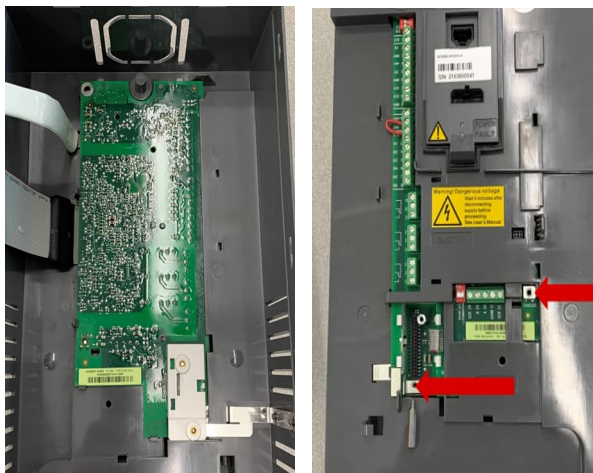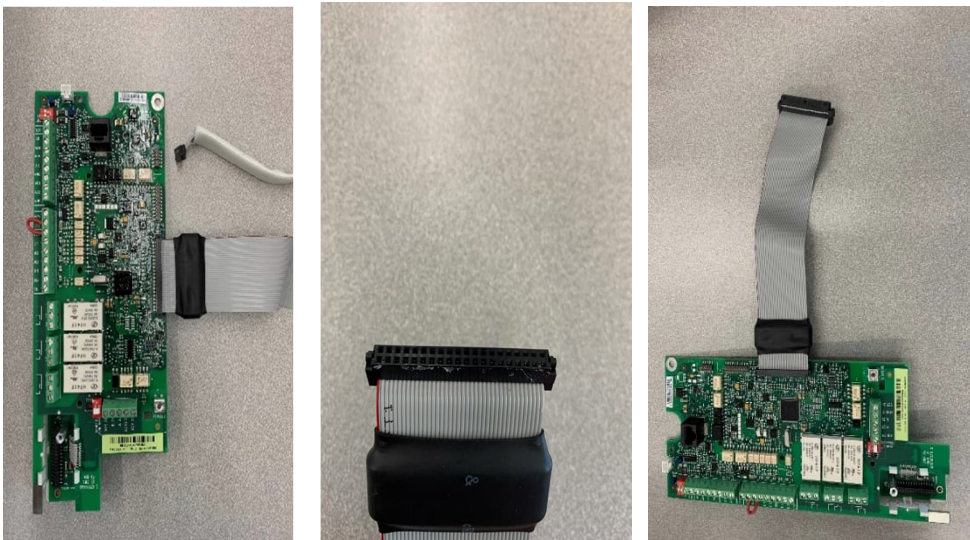
Step 6: On the back plane of the board and plastic housing push the 4 tabs that hold the board in place away from the control board (SMIO-01). Lift board and slide it out of the plastic cover of board enclosure.
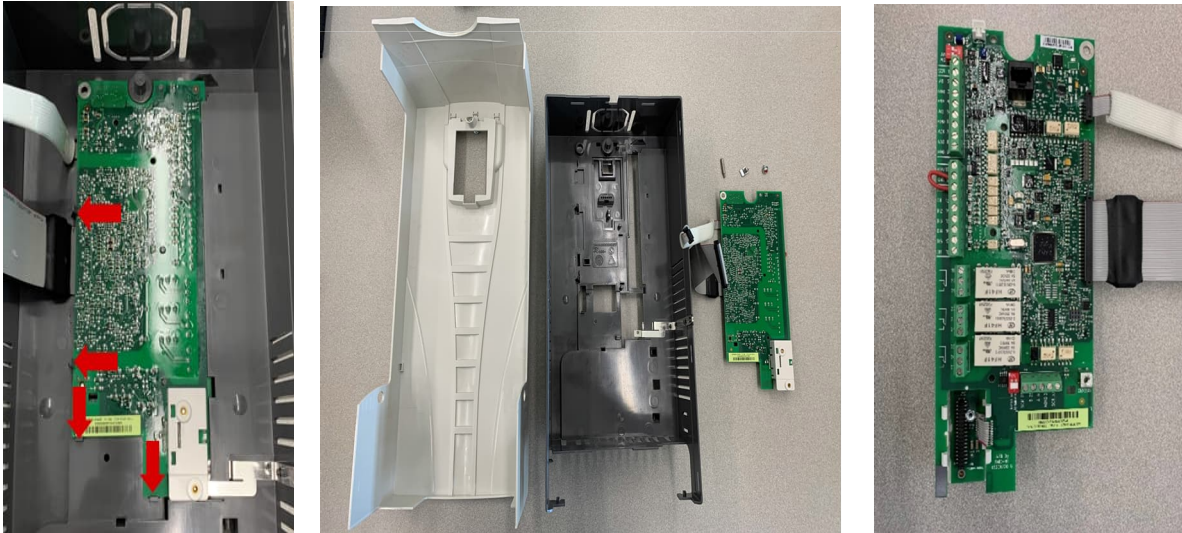

Step 7: Remove small ribbon cable connector from control board (SMIO-01). You keep the existing ribbon cable with 40 pin connector in place.

Step 8: Mount the 64652745 (OPEX-01 Interface Board) onto the control board (SMIO-01). The 64738852 – Connection Cable connects to the 8-pin connection on the 64652745 (OPEX-01 Interface Board) and the RJ45 connector of the 64738852 connects to the removed control panel (SMIO-01) through the cutout on the 64652745 (OPEX-01 Interface Board).
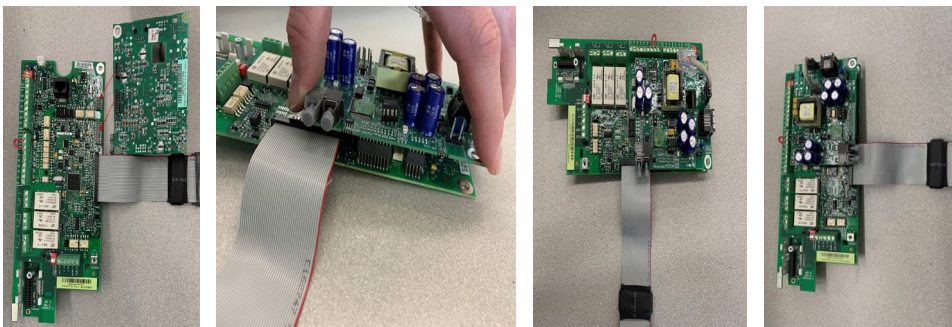
Step 9: Connect your 24VDC power to the 2 terminals on the 64652745 (OPEX-01 Interface Board)
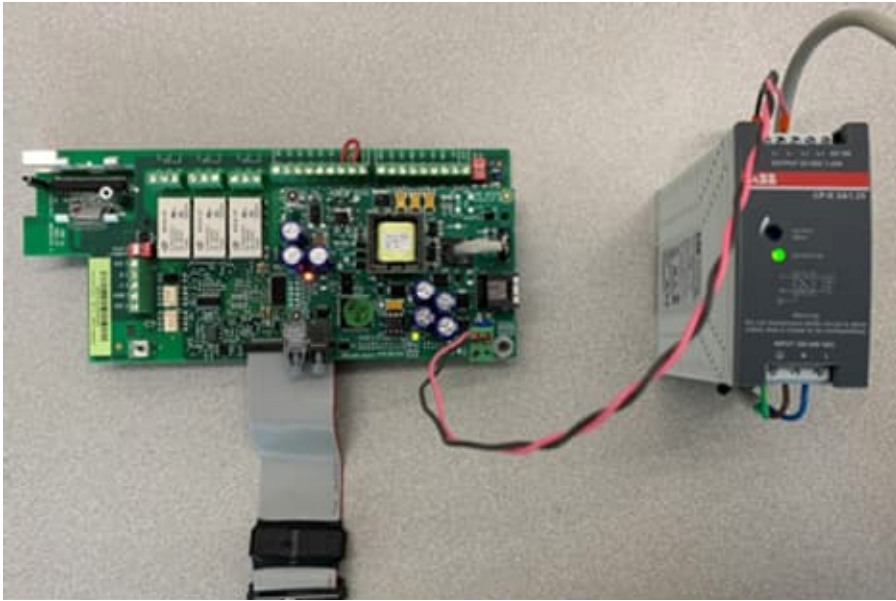
Option A: Gathering the programming data - Panel installation and considerations

Step 1: Connect Ethernet cord to RJ45 connector in control panel (ACH-CP-B) and on 64652745 (OPEX-01 Interface Board)

*Note: All of the control wiring has been removed, you will encounter alarms and faults when power is applied to the board. What you can expect are motor related faults such as Fault 9 (Motor Over Temp), Fault 18 (Thermal Failure), Alarm 2010 (Motor Over Temp), Alarm 2021 (Missing start enable). The drive is expecting to see a motor based on the programming. If you reset or bypass these faults and navigate through parameters, you will be able to gather the data needed. If you make changes to the existing configuration to avoid these faults and alarms, the data you retrieve may not be accurate.
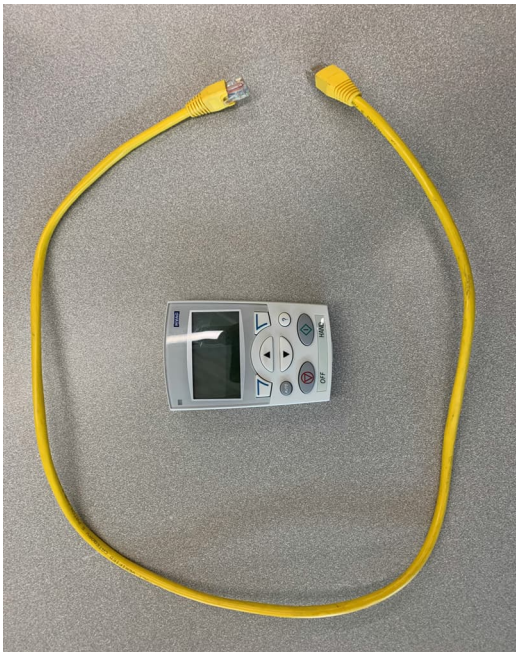
Step 2: Navigate to parameters on the control panel (ACH-CP-B), changed parameters and record all changed parameters.

Step 3: If there is a fieldbus adapter, such as Lon communications, navigate to group 51 and record all settings in this group.

Step 4: If there were embedded fieldbus communications, such as BACnet, navigate to group 53 and record all settings in this group.

Step 5: Navigate to parameter 99.02 to record macro setting in the drive programming.

*Note that the base programming for the drive will depend on the macro loaded, so the changed parameters will not reflect a parameter that is part of the default of the macro. Reference the ACH550 manual for macro parameter defaults.

Option B: Gathering the programming data – Drive Windows Light

Step 1: Connect Ethernet cord to RJ45 connector in 64652745 (OPEX-01 Interface Board) and serial to USB converter to your computer. Ensure that drivers are configured and open Drive Windows Light on your computer.
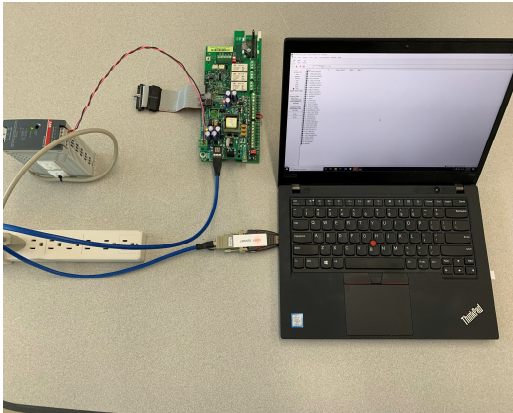
Step 2: In Drive Windows Light you can actively navigate to parameters or create a backup of the drive programming on your computer.

Step 3: Ensure that you have the changed parameters, Group 51 settings, Group 53 settings, as well as parameter 99.02 for to identify the macro setting in the drive programming.

*Note that the base programming for the drive will depend on the macro loaded, so the changed parameters will not reflect a parameter that is part of the default of the macro. Reference the ACH550 manual for macro parameter defaults

This solution will support frame sizes 1 through 6. For frame sizes 7 and 8 the 64652745 (OPEX-01 Interface Board) and 64738852 (Connection Cable) is already installed on the control board (SMIO-01) board and will be able to be removed with the control board (SMIO-01).

Through the removal of the control board (SMIO-01) there are two options in interfacing with the previous programming for the drive. The information that is gathered from the changed parameters list, the communications settings in group 51 group and 53, as well as understanding which macro is being used provides the Technician with all the critical data to be confident that they have the information needed to program the replacement ACH580 drive correctly. By backing these up to a panel or to a computer file using Drive Windows Light it provides a fast way to support the programming of the replacement ACH550.