ACH580 E-Clipse bypass with BACnet
Enabling BACnet MS/TP or IP communication

The ACH580 E-Clipse bypass can be set up to be controlled and/or monitored from an external system using standard BACnet MS/TP or BACnet/IP communication protocols. This document outlines how to configure both BACnet MS/TP and BACnet/IP through the E-Clipse control panel. Note that the configuration of communications for E-Clipse packages differs from base drive startups. The difference is that all configuration is done through the E-Clipse control panel and not the ACH580 control panel.

The ACH580 E-Clipse can be configured to:

- Have only the drive node shown on the BACnet network
- Have only the bypass node shown on the BACnet network (not common, BACnet MS/TP only)
- Have both the drive and bypass node shown on the BACnet network (BACnet MS/TP only)
- Be controlled and monitored over BACnet by the building automation system (BAS)
- Be set up for monitoring only over BACnet while control is done via hardwire inputs to the drive

BACnet MS/TP startup procedure
The following steps summarize the process of using the E-Clipse control panel for enabling and configuring BACnet MS/TP on the ACH580 E-Clipse bypass:

1. Verify wiring (X2:27-29) and correct dip switch settings on the E-Clipse per Figure 1 below.
2. Apply power to the ACH580 E-Clipse bypass.
3. 9802 - Enables the embedded fieldbus interface and selects the protocol. Select 5 = BACNET.
4. 5803 - Defines the node address (MAC ID) of the drive on the BACnet MS/TP trunk. Note, two address with the same number are not allowed on the same wire. Possible values range from 1 – 247. Select a node address.
5. 5804 - Select the baud rate of the BACnet MS/TP trunk. The default value in the E-Clipse is 38.4 kbits/s.
6. 5840 & 5899 - These two parameters set the Device object ID. This value has a settable range between 0 to 4194303. If the Device object ID is a value of less than or equal to 65535, then only parameter 5840 needs to be adjusted, and parameter 5899 equals 0. If the Device object ID is greater than 65535 then both parameters 5840 and 5899 need to be adjusted. The right 4 digits (4 least significant digits), of the Device object ID will be stored in 5840. The values in the 10 thousand place and greater are stored in parameter 5899. See example below.
   - Device object = 84365
     i. 5840 = 4365
     ii. 5899 = 8
7. Once all changes have been completed in Group 58 a power cycle is required to save all changed communication parameters.
8. Reference Table 1 below for a summary of the key parameters.

Table 1: Changed Parameters

<table>
<thead>
<tr>
<th>ACH580 E-Clipse Parameter</th>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>9802</td>
<td>COMM PROT</td>
<td>5 = BACNET</td>
</tr>
<tr>
<td>5803</td>
<td>DV MAC ID</td>
<td>1-247</td>
</tr>
<tr>
<td>5804</td>
<td>BAUD RATE</td>
<td>38.4</td>
</tr>
<tr>
<td>5840</td>
<td>DV OB ID L</td>
<td>Ex: 4365</td>
</tr>
<tr>
<td>5899</td>
<td>DV OB ID H</td>
<td>Ex: 8</td>
</tr>
</tbody>
</table>
**BACnet/IP startup procedure**

The following steps summarize the process of using the E-Clipse control panel for enabling and configuring BACnet/IP on the ACH580 E-Clipse bypass:

1. Install BACnet/IP adapter (FBIP-21) module onto E-Clipse slot 2. See Figure 2 for module information and Figure 3 for where to install on E-Clipse module.

![Figure 2: FBIP-21 module](image)

(1) Lock  
(2) Mounting screw  
(3) RJ-45 connector [X1]  
(4) RJ-45 connector [X2] for chaining another adapter module  
(5) Diagnostic LEDs  
(6) MAC ID

![Figure 3: E-Clipse bypass control unit](image)
2. Connect the network cable to the RJ-45 connector [X1] on the FBIP-21 module
3. Apply power to the ACH580 E-Clipse bypass
4. 9802 - Enables the fieldbus interface and selects the protocol. Select 4 = EXT FBA
5. 5101 - Shows Fieldbus Adapter detected by E-Clipse. BAC0h (read-only parameter)
6. 5103 - Sets the commrate of the BACnet/IP. If commrate unknown, leave defaulted value of 0 = Auto.
7. 5104 - Most applications require a static IP address. Select 0 = Static IP
8. 5105 - First part of IP address – Ex: 192
9. 5106 - Second part of IP address – Ex: 168
10. 5107 - Third part of IP address – Ex: 3
11. 5108 - Fourth part of IP address – Ex: 23
12. 5109 - Sets the subnetwork mask. The subnet that is most commonly used is 255.255.255.0. Enter a value of 24 if that is required for the application. Other subnets are available and can be found in the FBIP-21 manual.
13. 5114 & 5115 - These two parameters set the Device object ID. This value has a settable range between 0 to 4194303. If the Device object ID is a value of less than or equal to 65535, then only parameter 5840 needs to be adjusted, and parameter 5899 equals 0. If the Device object ID is greater than 65535 then both parameters 5114 and 5115 need to be adjusted. The right 4 digits (4 least significant digits), of the Device object ID will be stored in 5114. The values in the 10 thousand place and greater are stored in parameter 5115. See example below:
   - Device object = 95678
     i. 5114 = 5678
     ii. 5115 = 9
14. 5127 - This function saves the communication settings in the E-Clipse. Select 1 = Configure and then the parameter will automatically revert to 0 = Done. Note that when the parameters are being refreshed the communication card is completing a restart and will appear to go offline for a brief amount of time. A power cycle can also be used as an alternative to using 5127.
15. Reference Table 2 below for a summary of the changed parameters

### Table 2: Changed Parameters

<table>
<thead>
<tr>
<th>ACH580 E-Clipse Parameter</th>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>9802</td>
<td>COMM PROT</td>
<td>4 = EXT FBA</td>
</tr>
<tr>
<td>5101</td>
<td>FBA TYPE</td>
<td>BAC0h</td>
</tr>
<tr>
<td>5103</td>
<td>Commrate</td>
<td>0</td>
</tr>
<tr>
<td>5104</td>
<td>IP configuration</td>
<td>0 = Static IP</td>
</tr>
<tr>
<td>5105</td>
<td>IP address 1</td>
<td>Ex: 192</td>
</tr>
<tr>
<td>5106</td>
<td>IP address 2</td>
<td>Ex: 168</td>
</tr>
<tr>
<td>5107</td>
<td>IP address 3</td>
<td>Ex: 3</td>
</tr>
<tr>
<td>5108</td>
<td>IP address 4</td>
<td>Ex: 23</td>
</tr>
<tr>
<td>5109</td>
<td>Subnet CIDR</td>
<td>24</td>
</tr>
<tr>
<td>5114</td>
<td>Device obj ID lo</td>
<td>Ex: 5678</td>
</tr>
<tr>
<td>5115</td>
<td>Device obj ID hi</td>
<td>Ex: 9</td>
</tr>
<tr>
<td>5127</td>
<td>REFRESH</td>
<td>1</td>
</tr>
</tbody>
</table>

This document is intended as a guide and supplement to the following firmware manuals:
- 3AXD50000289554 Rev A – Eclipse and Packaged drives manual
- 3AXD50000028468 Rev B- FBIP-21 BACnet/IP adapter module