

# **APPLICATION NOTE:**

Establishing I/O communication between AnyBus-S EtherNet/IP and EIPScan Test Tool



**HMS Industrial Networks** 

## **Revision Notes**

| Date:      | Revision: | Notes:           | Responsible    |
|------------|-----------|------------------|----------------|
| 2003-04-18 | 0.10      | Document created | Joakim Wiberg  |
| 2003-07-30 | 0.20      | Updated layout   | Joakim Wiberg  |
| 2007-07-25 | 2.0       | Revision         | Thorbjörn Palm |

### Abbreviations

| ESTT EIPScan Test Tool |  |
|------------------------|--|
|------------------------|--|

#### 1. System configuration overview

This is an example on how to configure the Anybus-S Slave module to connect with EtherNet/IP Scan Test Tool from Pyramid Solutions. It is possible to use this document as a guide on how to set up any "generic" EtherNet/IP module from HMS under EtherNet/IP Scan Test Tool, ESTT.

This application note assumes that ESTT are installed and working correct.

The ESTT is set up to read and write 32 bytes of I/O data from and to the Anybus-S Slave module.

#### 2. Configure the ESTT

Add the Anybus-S Slave module to the configuration in the ESTT. Start by right click in the "network" area, and select "Add Device".



Now a dialogue window will appear. In this dialogue window the IP address of the Anybus-S Slave module shall be entered, here 10.10.14.225 is used.

| Add New Dev | vice         | ×      |
|-------------|--------------|--------|
| IP Address  | 10.10.14.225 | ОК     |
|             |              | Cancel |

The Anybus-S Slave module will now occur in the "network" area.

| 🖳 EIPScan Test Tool - Untitled   |   | _ 🗆 🗵    |
|--|---|----------|
| <u>File View N</u> etwork <u>R</u> equest <u>I</u> /O <u>H</u> elp   |   |          |
|  |   |          |
| Request (all fields, but IP addresses are in hex)         Send Request to:         Service (hex)       Class (hex)         Instance (hex)       Attribute (hex)         Member (hex)       Symbol Tag         Request Data. Each byte is a 2 char hex value, separated by a space (i.e. Da 26 f9). | EIPScan Test Tool<br>Host: 10.10.14.22<br>Ethernet HMS AnyBus Board<br>10.10.14.225 |          |
| Response   |   | <u> </u> |
|  |   |          |
| Timestamp Message<br>16:00:34:360 Ethernet/IP Scanner Library is online  | ne  |          |
|  |   | F        |
| Ready  |   | NUM //   |

| 🗐 EIPScan Test Tool - Untitled  |          |
|---|----------|
| <u>File View Network Request I/O H</u> elp  |          |
|   |          |
| Request (all fields, but IP addresses are in hex)   Send Request to:   Service (hex)   Class (hex)   Instance (hex)   Attribute (hex)   Member (hex)   Symbol Tag   Request Data. Each byte is a 2 char hex value, separated by a space (i.e. 0a 26 f9).  |          |
|   |          |
| Response Size (decimal)   |          |
|   |          |
| Timestamp Message   |          |
| Intestanp incessige     Incessige | <u> </u> |
| Ready   |          |

Right click on the Anybus-S Slave module and select "Add Connection".

A new dialogue window will now occur; it contains six property pages used to set up the connection. In the first page it's possible to select connection and transport type. To reduce the network load the setting for "Target -> Originator" have been changed from "Multicast" to "Point To Point", the rest are left unchanged.

| Add Connection                        |  | ×              |
|---------------------------------------|--|----------------|
| Type Data Size Rate                   | Trigger Destination Priority                                   |                |
| Connection Type<br>Class 1<br>Class 3 | Transport Type<br>Originator -> Target<br>Target -> Originator | Point To Point |
|                                       | ОК   | Cancel Apply   |

The second tile contains the data sizes; here we use 32 bytes in each direction since this is how the module was initiated.

| Add Connection           |                           | ×     |
|--------------------------|---------------------------|-------|
| Type Data Size Rate Trig | gger Destination Priority |       |
| Originator->Target       | Run/Idle Header           |       |
| Target->Originator       |                           |       |
| Data Size 32             | Run/Idle Header           |       |
|                          | OK Cancel                 | Apply |

The "Rate" tile holds the RPI (requested packet interval), this is how often data will be produced and consumed (in ms).

| Add Connection                                      | × |
|---|---|
| Type Data Size Rate Trigger Destination Priority    |   |
| Packet Rate in milliseconds<br>Originator -> Target |   |
| Target -> Originator                                |   |
|   |   |
| OK Cancel Apply                                     |   |

In the "Trigger" tile the transport trigger and the timeout multiplier are selected. The Anybus-S Slave module only supports "Cyclic" triggers. The timeout are set to the default value of 16.

| Add Connection      |                              | х |
|---------------------|------------------------------|---|
| Type Data Size Rate | Trigger Destination Priority |   |
| Transport Trigger   |                              |   |
| Timeout Multiplier  | 16 💌                         |   |
|                     |                              |   |
|                     | OK Cancel Apply              |   |

The "Destination" tile is used to set up the connection points in the Anybus-S Slave module. The ESTT is to by default display the correct connection points, make sure that the connection points are

configured as below. Adjust the connection points if they do not match what is stated in the manual for the product.

| Add Connection                      | ×                 |
|-------------------------------------|-------------------|
| Type Data Size Rate Trigger Des     | tination Priority |
| Configuration Connection Instance   | E                 |
| Originator->Target Connection Point | 150               |
| Target->Originator Connection Point | 100               |
| Connection Tag                      |                   |
|                                     |                   |
| [                                   | OK Cancel Apply   |

In the "Priority" tile it is possible to set the priority of the connection, for the moment the ABS only supports "Scheduled". Now press "OK" and the connection will be opened.

| Add Connection       |                              | ×     |
|----------------------|------------------------------|-------|
| Type Data Size Rate  | Trigger Destination Priority |       |
|                      |                              |       |
| Originator -> Target | Scheduled                    |       |
| Target -> Originator | Scheduled                    |       |
|                      | ,                            |       |
|                      |                              |       |
|                      |                              |       |
|                      | OK Cancel                    | Apply |
|                      |                              |       |

| EIPScan Test Tool - Untitled   |  |             |
|--|--|-------------|
| File View Network Request 1/0 Help   |  |             |
| Request (all fields, but IP addresses are in hex) Send Request to: Service (hex) Instance (hex) Attribute (hex) Member (hex) Symbol Tag Request Data. Each byte is a 2 char hex value, separated by a space (i.e. 0a 26 f9). | EIPScan Test Tool<br>Host: 10.10.14.22<br>Ethernet HMS AnyBus Board  |             |
| Response   | 1           2b         2b <td>2b 2b 2b 2b</td> | 2b 2b 2b 2b |
| Response Size (decimal)  | 2b 2   |             |
| ×  | 00 00 00 00 00 00 00 00 00 00 00 00 00   | 00 00 00 00 |
| Timestamp Message  |  |             |
| 16:00:34:360 Ethernet/IP Scanner Library is on<br>16:07:39:480 New connection opened with Inst   |  |             |
|  |  | <u>&gt;</u> |
| Ready  |  | NUM //      |

This is how the screen on the ESTT looks if the connection has been opened.

#### 3. Links to information about networks and products

- The latest for the ABS module can be found on the HMS homepage http://www.anybus.com.
- The Open DeviceNet Vendor Organization has a homepage, <u>http://www.odva.org/</u>, with more information about EtherNet/IP.
- To learn more about the EIPScan Test Tool refer to the Pyramid Solutions homepage <u>http://www.pyramid-</u>solutions.com/Expertise\_DataCom\_Products\_EtherNetIP\_Scanner\_Simulator.htm.

#### 4. Support

| HMS Sweden   | HMS America  |                        | HMS Japan                    |                          | HMS Germany                  |                 |
|--|--|------------------------|------------------------------|--------------------------|------------------------------|-----------------|
| Email: support@hms-networks.com<br>Phone: +46 (0)35-17 29 22 | Email: us-support@hms-<br>networks.com<br>Phone: +1.773.404.2271 | us-support@hms-        | Email:<br>networks.com       | jp-support@hms-          | Email:<br>networks.com       | ge-support@hms- |
| Fax: +46 (0)35-17 29 09                                      |  | Phone: +81 45 478 5340 |                              | Phone: +49 721 964 72157 |                              |                 |
| Online: www.hms-networks.com                                 | Fax: +1.773.404.1797   |                        | Fax: +81 45 476 0315         |                          | Fax: +49 721 964 7210        |                 |
|  | Online: www.hms-networks.com                                     |                        | Online: www.hms-networks.com |                          | Online: www.hms-networks.com |                 |