

AnyBus IC EVB Quick Start

Introduction

The evaluation board has 4 onboard shift registers connected to the SSC interface in the following way:

Operating Modes

The AnyBus-IC supports three modes of operation:

Automatic Initialisation / Stand Alone mode

In this mode, the SCI interface is disabled, and the module does not require any parameters to be set in order to start up. It is however it is still possible to alter parameters and monitor fieldbus activity through the Monitor Interface (MIF) interface. The module will automatically detect the number of attached shift registers and map them to the fieldbus.

Try this mode before trying the advanced functionality of the mode described below.

Normal Initialisation (Normal Mode)

In this mode, the SCI is enabled and available for I/O data exchange and / or parameter configuration. This mode requires parameters to be set in order for the module to start up properly.

This mode is a bit trickier than the one above, but offer greater flexibility and advanced functionality, as well as an additional serial communications interface (SCI)

For more information on how to initialise the module in this mode, check out the initialisation examples in the AnyBus-IC Design Guide.

Fieldbus Specific Initialisation

This mode is not covered in this document, consult the AnyBus-IC Design Guide for more information.

Monitor Interface (MIF) Basic Navigation

The Monitor Interface (MIF) features a simple text-based user interface:

To enter a sub menu or parameter, type the corresponding number and press <Enter>

To enter a parameter value, enter the new value and press <Enter>

To return to a previous menu, or cancel a parameter input, press <Esc>

To redraw the current menu, press <Enter>

Automatic Initialisation

To start the module in this mode, perform the following steps:

Make sure the power is not connected to the evaluation board

Insert the AnyBus-IC module in the socket. Make sure the markings on the module corresponds to the markings on the socket.

Configure the jumpers on the evaluation board like this:

(JP7 = 2-4, JP6 = OFF, JP5 = ON, JP4 = ON)

This setting will instruct the module to disable the SCI interface and configure the SSC settings automatically. The onboard switches and LEDs will be mapped to the fieldbus.

Connect the supplied serial cable between the Monitor Interface (MIF) connector of the evaluation board and a free COM port on a PC.

Start a terminal emulation program on the PC, configure it to use the COM port connected to the evaluation board. The communication settings of the terminal emulator should be set to 38.4kbaud, no parity and 1 stop bit.

Apply power to the evaluation board.

In this mode, the module will automatically detect the number of attached shift registers and configure the fieldbus interface accordingly. Please note that Input Register 0 / Fieldbus Specific IN (Node Address) and Output Register 0 / Fieldbus Specific OUT (Fieldbus Status) will not be allocated as I/O data over the fieldbus network.

The example above will result in a node with 1 byte of Input Data and 1 byte Output Data. A fieldbus master can now start to communicate with the AnyBus-IC module.

Note: The module must have a correct “Node Address” setting. A change of this setting is valid only after a power cycling. Some fieldbus masters will also require a device description file (such as .GSD (Profibus) or .EDS (DeviceNet) to commission the node on the network. Visit the HMS website (www.hms-networks.com) to download the latest version.

If the Monitor Interface (MIF) is connected to a terminal, the following screen will appear:

```
-----  
AnyBus-IC - Main Menu  
Profibus-DP  
-----  
1 - Module Information  
2 - Parameters  
3 - Monitor  
4 - Firmware Upgrade  
-----  
>
```

Select ‘3 - Monitor’ and press <Enter>. A selection of monitoring options will be displayed. Select any of the functions to display data to/from the fieldbus or in/out of the SSC interface.

Normal Initialisation (Normal Mode)

To be able to use the SCI interface and the advanced I/O data mapping functionality provided by the module, it has to be started in Normal Mode.

To restart the module in this mode, perform the following steps:

Disconnect the power from the evaluation board

Configure the jumpers on the evaluation board like this:

(JP7 = Off, JP6 = OFF, JP5 = ON, JP4 = ON)

This setting will enable the SCI interface, and requires certain parameters to be configured during initialisation.

Connect one of the supplied null modem cables between the SCI Interface connector of the evaluation board and a free COM port on a PC.

Use a Modbus scanner simulator on the PC (Such as the ModScan utility by Modicon) to alter parameters and exchange data via the SCI interface.

Apply power to the evaluation board.

Parameters can now be set both via the SCI interface using the Modbus protocol, and via the Monitor Interface (MIF).

Example

This section provides an example on how to get the module up and running in Normal Mode. The module will have the following settings:

SSC Interface

1 byte I/O

SCI Interface

2 bytes I/O

Fieldbus Interface

3 bytes I/O

The module will be initialised with 1 byte Input/output data on the SSC interface, and the fieldbus specific input/output bytes will be used. For the SCI channel the module will use 2 bytes Input/output. This equals 3 bytes Input/Output on the fieldbus. (2 bytes SCI + 1 byte SSC)

Step 1

```
-----  
AnyBus-IC - Main Menu  
Profibus-DP  
-----  
  1 - Module Information  
  2 - Parameters  
  3 - Monitor  
  4 - Firmware Upgrade  
-----  
>
```

Select menu entry “2 - Parameters” to be able to setup parameter values in the module. The following menu will appear:

```
-----  
AnyBus-IC - Parameters  
-----  
  1 - AnyBus-IC  
  2 - FB I/O Settings  
  3 - SSC I/O Settings  
  4 - SCI I/O Settings  
  5 - Fieldbus Specific  
-----  
>
```

Step 2

Select parameter #2 (FB I/O Settings) to configure the FB I/O settings.

```
-----  
AnyBus-IC - Parameters  
-----  
40 - FB Byte Order          0  
41 - FB Out Cfg             3 Byte  
42 - FB Out Actual          0 Byte  
43 - FB In Actual           0 Byte
```

```

44 - FB In SSC Offs          0 Byte
45 - FB In SSC Size          1 Byte
46 - FB In SCI Offs          0 Byte
47 - FB In SCI Size          2 Byte
-----

```

>

Set parameters #41 (FB Out Cfg) and #45 (FB In SSC Size) to 1 byte, and parameter #47 (FB In SCI Size) to 2 bytes. The SCC data will now have offset 0 and the SCI data will have offset 1. Press <Esc> to return to the main parameter menu.

```

-----
AnyBus-IC - Parameters
-----

```

```

1 - AnyBus-IC
2 - FB I/O Settings
3 - SSC I/O Settings
4 - SCI I/O Settings
5 - Fieldbus Specific
-----

```

>

Step 3

Select menu entry “3 - SSC I/O Settings” and press enter.

```

-----
AnyBus-IC - Parameters
-----

```

```

50 - SSC Byte Order          0
51 - SSC In Cfg              0 Byte
52 - SSC In Auto              1 Byte
53 - SSC In Actual            0 Byte
54 - SSC Out Cfg              0 Byte
55 - SSC Out Auto             1 Byte
56 - SSC Out Actual           0 Byte
57 - SSC Out FB Offs          0 Byte
58 - SSC Out FB Size          1 Byte
59 - SSC Out SCI Offs         0 Byte
60 - SSC Out SCI Size         0 Byte
-----

```

>

Set parameter #58 (SSC Out FB Size) to 1 byte. Press <Esc> to return to the main parameter menu.

```

-----
AnyBus-IC - Parameters
-----

```

```

1 - AnyBus-IC
2 - FB I/O Settings
3 - SSC I/O Settings
4 - SCI I/O Settings
5 - Fieldbus Specific
-----

```

>

Step 4

Select “4” (SCI I/O Settings).

```

-----
AnyBus-IC - Parameters
-----

```

```

63 - SCI Byte Order          0
64 - SCI In Cfg              2 Byte
65 - SCI In Actual           0 Byte
66 - SCI Out Actual           0 Byte
67 - SCI Out FB Offs         1 Byte
68 - SCI Out FB Size         2 Byte
69 - SCI Out SSC Offs        0 Byte
70 - SCI Out SSC Size        0 Byte
-----
>

```

Change parameter #64 (SCI In Cfg) to 2 byte, #67 (SCI Out FB Offs) to 1 byte and #68 (SCI Out FB Size) to 2 byte.

Press <Esc> to return to the main parameter menu.

```

-----
AnyBus-IC - Parameters
-----
1 - AnyBus-IC
2 - FB I/O Settings
3 - SSC I/O Settings
4 - SCI I/O Settings
5 - Fieldbus Specific
-----
>

```

Step 5

Select menu entry “1 - AnyBus-IC” and press enter.

```

-----
AnyBus-IC - Parameters
-----
1 - Module Mode              0
2 - Module Status            0x0002
3 - Module Type              0x0301
4 - Fieldbus Type            0x0001
7 - LED State                0x0000
8 - Config Bits              0x0000
9 - BCD/HEX Switches        0
10 - Offline Action          0
11 - Idle Action             0
12 - Interrupt Cfg           0x0001
13 - Interrupt Cause         0x0000
14 - SCI Rate Cfg            0
15 - SCI Rate Act            4
16 - SCI Settings Cfg        0x00
17 - SCI Settings Act        0x00
18 - MIF Bit Rate Cfg        4
19 - MIF Bit Rate Act        4
20 - MIF Settings Cfg        0x00
21 - MIF Settings Act        0x00
22 - Modbus RTU Addr         1
27 - FB Fault Values
-----
>

```

Set parameter “1 - Module Mode” to 1 and see what happens:

```

-----
AnyBus-IC - Parameters
-----
1 - Module Mode              1
2 - Module Status            0x0003
3 - Module Type              0x0301
4 - Fieldbus Type            0x0001

```

```

7 - LED State          0x0001
8 - Config Bits        0x0000
9 - BCD/HEX Switches   0
10 - Offline Action     0
11 - Idle Action        0
12 - Interrupt Cfg      0x0001
13 - Interrupt Cause    0x0000
14 - SCI Rate Cfg       0
15 - SCI Rate Act       4
16 - SCI Settings Cfg   0x00
17 - SCI Settings Act   0x03
18 - MIF Bit Rate Cfg   4
19 - MIF Bit Rate Act   4
20 - MIF Settings Cfg   0x00
21 - MIF Settings Act   0x00
22 - Modbus RTU Addr    1
27 - FB Fault Values
-----
>

```

The Module Mode parameter should now be 1. This indicates that the module is up and running and ready for data exchange.

I/O Data Monitoring

All data exchange areas can be monitored using the Monitor Interface (MIF).

```

-----
AnyBus-IC - Main Menu
Profibus-DP
-----
1 - Module Information
2 - Parameters
3 - Monitor
4 - Firmware Upgrade
-----
> 3

```

Select “3 - Monitor” to access the monitor functionality provided by the module.

```

-----
AnyBus-IC - I/O Areas
-----
1 - Fieldbus Out
2 - SSC In
3 - SCI In
4 - Fieldbus In
5 - SSC Out
6 - SCI Out
-----
> 1

```

To view data coming from the fieldbus master, select “1 - Fieldbus Out”.

```

-----
AnyBus-IC - Fieldbus Out
-----
Byte #
0      1010 1010   0xaa
1      0000 0010   0x02
2      0000 0100   0x04
-----

```

Note: The monitor functionality is not updated automatically. Press <Enter> to update the display.

To monitor another data exchange area, press <Esc> to return to the Monitor menu and select the area to monitor.