Innovation in the
Multi-Screen World

User Instruction Manual

HU-S-Bus Protocol Translator

Contents

1. About this Manual

This manual describes the Hu-S-Bus Protocol Translator.

If you have any questions regarding the installation and setup of your product, please refer to the Customer Service contact details (see section 1.1).

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Customers with a support contract should call their personalized number, which can be found in their contract, and be ready to provide their contract number and details.

1.2 Copyright and Disclaimer

2. Introduction

The S-Bus Protocol Translator (NA00790) is a piece of software that allows a master router (a Sirius 600 fitted with a Nebula 2434 controller, a Pyxis fitted with a Nebula 2449 controller or a Cygnus fitted with a Nebula 2449 controller) to connect to a Sony S-BUS control system via the Ethernet port on a Sony HKSP-R80 controller.

The S-Bus Translator controls level 1 plus another level, where the other level can be configured inside the master router or can be a second router slaved from the master router.

Note: The S-Bus Protocol Translator will not work on a Halo router or on Babelfish.

NA00790 allows a router to be mapped into the S-BUS physical switching space in the same way that a Sony router is mapped. In common with Sony routers, the router is mapped to a location in the physical switching space, and all higher level functions are performed by the HKSP-R80 (virtual mapping, signal naming, inhibits etc)

There are three switching spaces described by this document:

- Snell space, i.e. the levels and sources/destinations recognized by the Snell controller card. This is the space that the Snell controller uses to control all Snell routers.
- S-BUS Physical space, i.e. the levels and sources/destinations recognized by the S-BUS physical switching space. This is the space the HKSP-R80 uses to control all routers in the S-BUS system
- S-BUS Virtual space, i.e. the levels and sources/destinations recognized by the S-BUS virtual space. This is the space that Sony control panels use to control routers via the HKSP-R80

NA00790 maps the Snell space into an area in S-BUS physical space, the HKSP-R80 can then be used to map the S-BUS virtual space to the S-BUS physical space as required.

3. System Setup

3.1 S-BUS system setup

S-BUS control systems typically consist of a number of secondary stations (routers, control panels etc) all connected by co-axial cable to a primary station, which provides overall system control. The HKSP-R80 acts as a primary station and features an Ethernet port to allow secondary stations to connect via a network, the Nebula router controller uses this Ethernet port to connect to the S-BUS control system as a secondary station. Although the Nebula router controller connects by Ethernet, it behaves the same as a secondary station router connected to the S-BUS coax, and therefore requires an SBUS ID and location settings to become part of the SBUS system.

The Ethernet connection, to the HKSP-R80, is initiated by the Nebula router controller. When the controller is powered up it will continually try and connect to the HKSP-R80, if the connection is lost the controller will attempt to reestablish the connection.When dual redundant controllers are fitted in a router, only the active controller will make a connection to the HKSP-R80.When an active-idle changeover occurs, the existing connection will be dropped and the active controller will establish a new connection.

The NA00790 section of chip.ini (including the SBUSID) should be identical for each router controller, as only one of the router controllers is connected to the HKSP-R80 at a time.

3.2 HKSP-R80 setup

The HKSP-R80 needs to have its Ethernet interface configured before it can be used with the router controller. Details of this process can be found in the HKSP-R80 manual.

3.3 Network Switch Configuration

If the Nebula controller is connected via a network switch it is important to configure the network switch so that only the network traffic for connections to the S-BUS interface are allowed.

All other traffic, especially UDP traffic that is not for the S-BUS interface must be blocked. See the network switch manual for details on switch configuration.

3.4 NA00790 Installation

To connect a Sirius, Pyxis or Cygnus router to an S-BUS system the NA00790 protocol translator needs to be installed on each router controller, and these need also to be set up with an IP address. The NA00790 protocol translator is installed using the SC12 (NA00678) configuration software.

Note:

- A PC running the Windows NT, 2000, XP or Windows 7 operating system is required to run the SC12 configuration software.

1. Copy the SC12 folder and sub-folders on the supplied CD to the computer.
2. Make sure that the NA00790 package is in the SC12 Upload sub-folder on the computer.
3. Run SC12Config.exe from the SC12 folder on the computer.
4. Providing the router controllers are on the same network segment, the configuration tool will search the network and show the following:

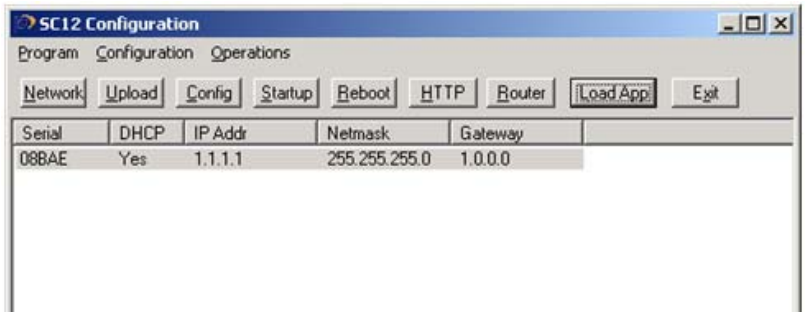

Fig 1. SC12 Configuration Screen

5. The serial number will match that printed on a barcode label on the Beck chip (Figure 1) on the router controller.
6. If the IP address is shown as 1.1.1.1 it means that no address has yes been assigned to the router controller Beck chip. Highlight the required router controller (if there is more than one), and click on the **Network** button, the following window will be displayed:

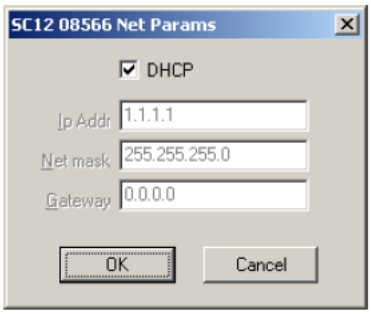

Fig 2. SC12 Network Parameter Setting Screen

7. If a DHCP Server is present on the network (recommended), leave the DHCP box checked. If not, uncheck it and assign a unique IP Address.
8. Click the **OK** button, this will force the router controller to fetch an address or take the assigned one.
9. The screen in Fig 3. will be displayed after a few seconds:

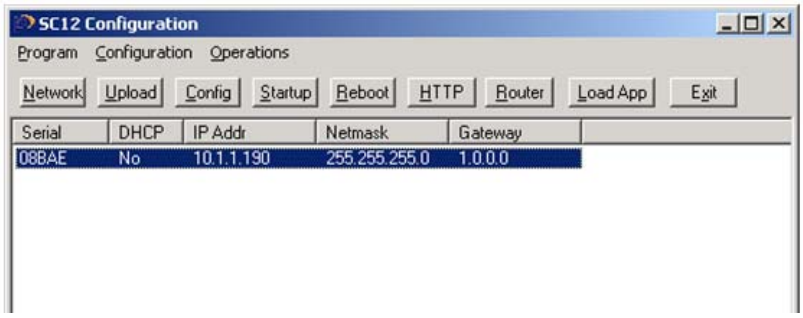

Fig 3. SC12 (Beck) Network Parameter Screen

10. Check what applications exist on the router controller by clicking on the **Load App** button. A screen similar to the one shown in Figure 4 will be displayed:

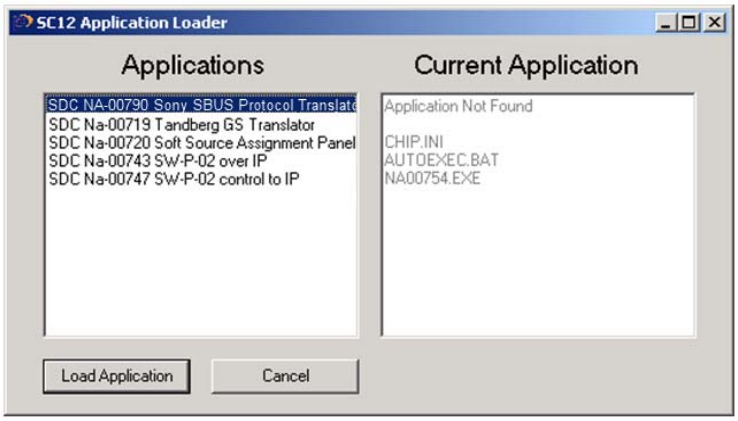

Fig 4. SC12 (Beck) Upload Screen

11. The right window displays the applications that already exist on the device and the left window displays the applications in the PC Upload directory.

12. To install NA00790 select “SDC NA-00790 Sony SBUS Protocol Translator” from the left window and click the **Load Application** button. The NA00790 protocol translator will be uploaded to the router controller.

13. If there are two router controllers in the frame repeat this process for the second controller. When all controllers have been configured, reset the controllers for the new software to start running.

3.4.1 CHIP.INI File

1. The protocol translator (NA00790) is configured by editing the Chip.ini file.

2. The NA00790 default Chip.ini file is copied to the router controller when the NA00790 application is copied to the controller.

3. See section 5. for details on the parameters that can be modified on the Chip.ini file.

Note: If two router controllers are fitted in the router they must both be loaded with identical Chip.ini files.

3.4.2 AUTOEXEC.BAT File

The “WAIT” entry in the Autoexec.bat file is used to apply a configurable startup delay. It is recommended that this is left at the default value of 20 Seconds.

Note: If two router controllers are fitted in the router they must both be loaded with identical Autoexec.bat files.

4. Level Mapping

4.1 Snell Space

A small router such as a Pyxis or Cygnus will typically only consist of one Snell switching level. It may be necessary to configure a larger router such as a Sirius into a number of levels. It is recommended that the router is configured as a single level in the Snell space, and that any level splitting is done within the HKSP-R80. This keeps the overall system setup consistent with routing systems using Sony routers. The router can be split at the Snell level if required, but NA00790 only supports two Snell levels.

The Nebula database must be configured and the Chip.ini file settings must be set to match (see section 5.). The router manual explains how to configure Snell switching space levels and how to configure the Nebula database.

4.2 S-BUS Physical Space

An S-BUS control system consists of a 1024 x 1024 x 8 level physical switching space, into which all physical routers must be mapped. The Sirius controller maps all connected Snell levels into one switching block. This switching block is mapped into the S-BUS physical switching space in the same way as a Sony router is mapped into the S-BUS physical switching space. This mapping is configured by editing the chip.ini file.

4.3 S-BUS virtual space

With the Snell routers assigned within S-BUS physical space, the HKSP-R80 may be used to apply a virtual mapping between the S-BUS control panels and the physical switching space. The HKSP-R80 manual gives details on this.

It may be necessary to use the virtual mapping function of the HKSP-R80 to split each of the three Snell levels into separate areas of the S-BUS virtual space.

5. NA00790 Configuration

NA00790 is configured by editing the [NA00790] section of the chip.ini file that is present on the SC12. To change the configuration, highlight the relevant SC12 in SC12Config.exe and click “config”. When two controllers are fitted, each controller should be configured with the same settings, as only the active controller has a connection to the HKSP-R80. The entries should be set as follows.

5.1 R80_TCP_IP_ADDRESS

This is the IP address of the HKSP-R80 primary station. NA00790 will continually try to connect to the HKSP-R80 at this address when the controller is active.

5.2 R80_TCP_IP_PORT

This is the TCP/IP port of the HKSP-R80 that NA00790 makes a connection to. This should always be set to 8004 (the Sony default)

5.3 BAUDRATE

This is the baud rate used for internal communications on the Sirius controller card, this should always be set to 38400

5.4 SBUSID

This is the S-BUS ID assigned to the master router, which is acting as an S-BUS secondary station. The S-BUS ID should be unique to the S-BUS system, do not use 1 or 255 as these are reserved values.

5.5 TOP_SOURCE & END_SOURCE

This is used to define the mapping of the switching block into S-BUS physical switching space. Set these entries to the top (highest) and end (lowest) source of the switching block when mapped into the S-BUS physical switching space.

For example, the “SET UNIT LOCATION” menu of a Sony router may display the following entry:

SOURCE: 65 – 128

This corresponds to an NA00790 setting of:

TOP_SOURCE = 128

END_SOURCE = 65

5.6 TOP_DEST & END_DEST

This is used to define the mapping of the switching block into S-BUS physical switching space. Set these entries to the top (highest) and end (lowest) destination of the switching block when mapped into the S-BUS physical switching space.

For example, the “SET UNIT LOCATION” menu of a Sony router may display the following entry:

DESTINATION: 193 – 256

This corresponds to an NA00790 setting of:

TOP_DEST = 256

END_DEST = 193

5.7 SOURCE_OFFSET & DEST_OFFSET

These define the source and destination offsets that are applied when the Snell space is mapped into the Sony space.switching space. Set these entries as follows:

SOURCE_OFFSET = XXXX – 1
where XXXX is the required offset for the source

DEST_OFFSET = XXXX – 1
where XXXX is the required offset for the destination

Example:

If the sources are mapped into Sony space sources 1-64, there is no offset (Source Offset = 0), and TOP_SOURCE=64 and END_SOURCE=1

If the sources are mapped into Sony space sources 65-128 then there is an offset (Source Offset = 64) and TOP SOURCE=128 and END_SOURCE=65

5.8 LEVEL

This defines the level of the S-BUS physical switching space that the switching block is mapped to. Valid values are 1 – 8.

5.9 STACK_SOURCES

If the Snell router is configured as a single level this should be set to “FALSE”. In this case the Snell router is mapped directly into the S-BUS switching space using the parameters described in this handbook.

If the Snell router is configured as multiple levels this should be set to “TRUE”. In this case the first and one other level of the Snell router are mapped into one area of the S-BUS switching space. The area of S-BUS switching space into which the levels are mapped is defined using the parameters already described in this handbook. The following four parameters are used to define how the two levels of the Snell router are mapped into the defined S-BUS space.

Note: A maximum of two levels of control is supported in a Snell router.

5.10 NO_LEVEL1_SOURCES

For a Snell router configured to be controlled as two levels this should be set to the number of sources configured in level 1 of the Nebula database. For a Snell router configured as one level this should be set to 0.

5.11 NO_LEVEL1_DESTS

For a Snell router configured to be controlled as two levels this should be set to the number of destinations configured in level 1 of the Nebula database. For a Snell router configured as one level this should be set to 0.

5.12 ROUTER_SOURCE_OFFSET

For a Snell router configured to be controlled as two levels this should be set to the number of the first source in second controlled level of the Nebula database. For a Snell router configured as one level this should be set to 0.

5.13 ROUTER_DEST_OFFSET

For a Snell router configured to be controlled as two levels this parameter should be set according to the configured level type of level 1 of the Snell router in the Nebula (as defined in the following table). For a Snell router configured as one level this should be set to 0.

Level 1 Type	ROUTER_DEST_OFFSET
Sirius 128 (4U/7U)	128
Sirius 256 (16U)	256
Sirius gold	512
Pyxis	272
Cygnus	576

Table 1. ROUTER_DEST_OFFSET

Note:

- The offsets shown in Table 1. are correct when Nebula Level Operation Type is set to Normal.
- If Nebula Level Operation Type is set to; Dual Split, Triple Split, Quad Split or Dual Output contact Snell Customer Support for offset details.

5.14 Example Chip.Ini File

The following shows an example of a chip.ini file. This is for a Sirius 256 split into two 128^2 levels. A 256^2 switching space is presented to the S-BUS, Sirius level 1 is controlled using S-BUS sources/destinations 1-128 and Sirius level 2 is controlled using S-BUS sources/destinations 129-256.

```
[STDIO]
STDIN=TELNET
STDOUT=TELNET

[IP]
GATEWAY=192.168.0.254
NETMASK=255.255.255.0
ADDRESS=192.168.0.130
DHCP=0

[NA00790]
R80_TCP_IP_ADDRESS=192.168.0.135
R80_TCP_IP_PORT=8004
BAUDRATE=38400
SBUSID=4
TOP_SOURCE=256
END_SOURCE=1
TOP_DEST=256
END_DEST=1
SOURCE_OFFSET=0
DEST_OFFSET=0
LEVEL=1
STACK_SOURCES=TRUE
FORCE_ARP_UPDATE=TRUE
ROUTER_SOURCE_OFFSET=0
ROUTER_DEST_OFFSET=256
NO_LEVEL1_SOURCES=128
NO_LEVEL1_DESTS=128
```


