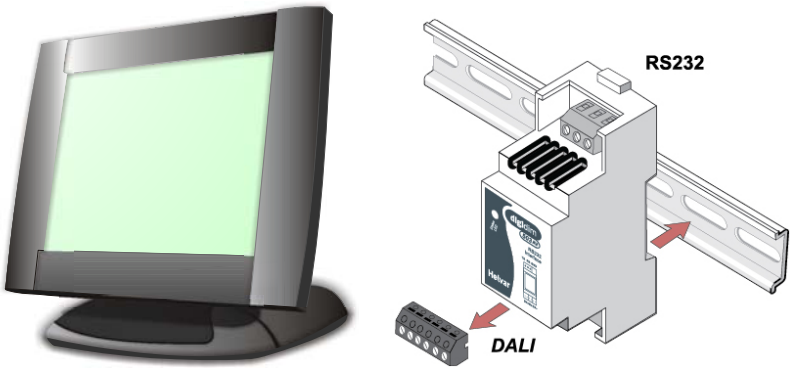
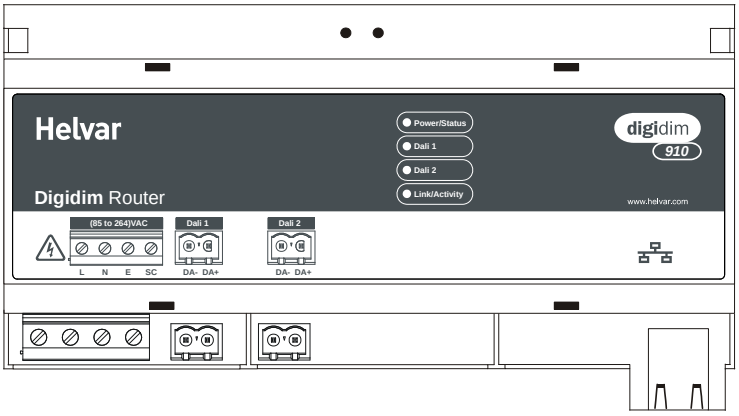
Digidim RS232 AV Interface



to 910 / 920 Router



User Guide

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1. Overview

This guide applies when a Digidim 503 RS232 AV Interface is connected to a Digidim 910 Router or an Imagine 920 Router.

It explains how to control the 910 / 920 Router System from RS232, and how to interpret RS232 messages that result from some action on the connected 910 / 920 Router.

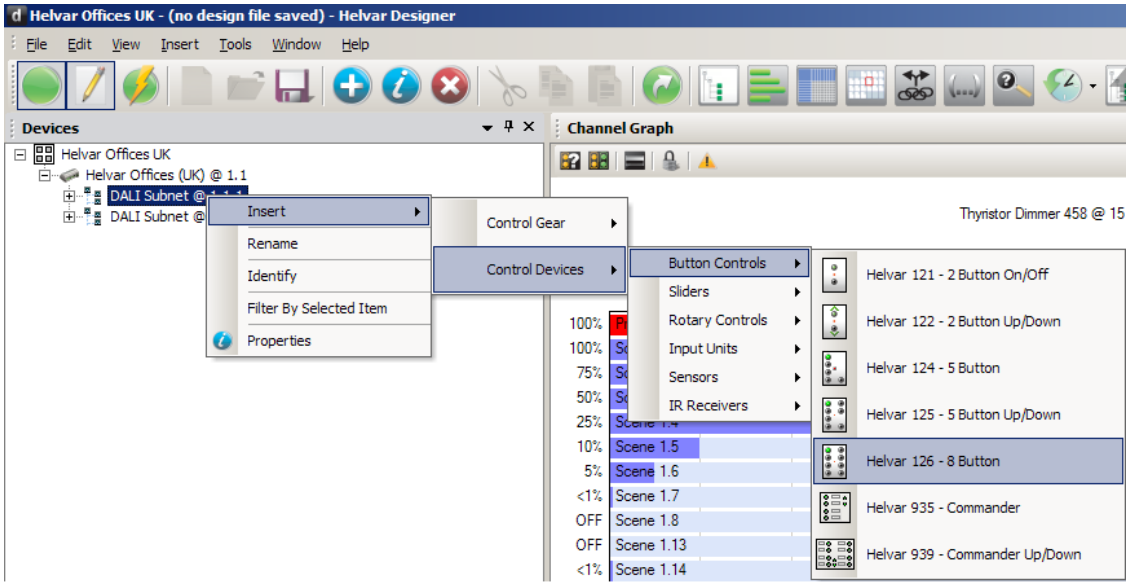
Note: You must install Helvar 'Designer' Software to configure the operation of the 910 / 920 Router system.

2. Key Command Messages

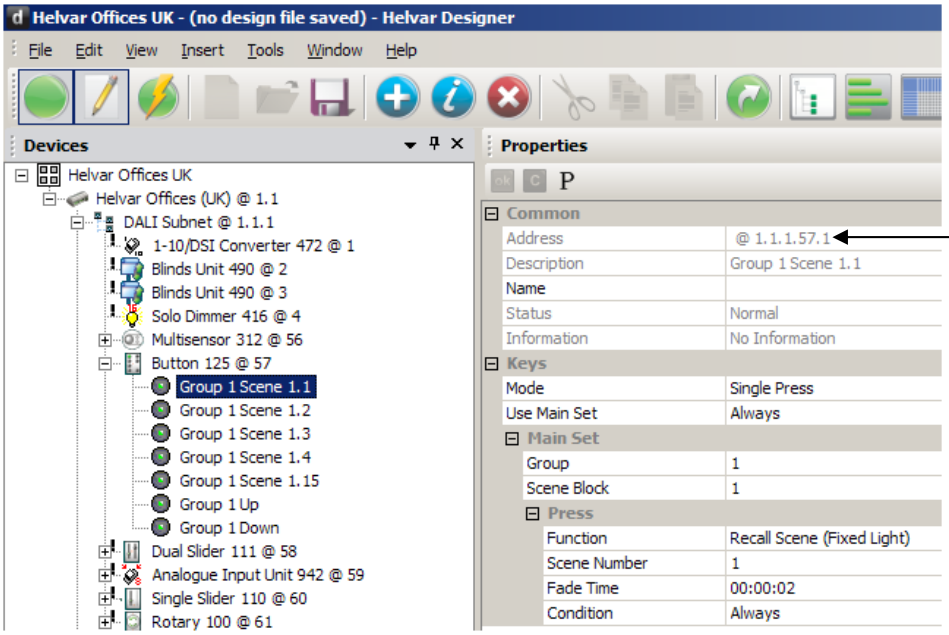
To configure an application to emulate key presses, you must first use the 'Designer' Software to add a virtual button panel, and then to find the full address of the key.

In 'Designer':

1. Insert the control device (e.g. button panel) you wish to emulate onto the subnet of the router that the 503 AV Interface is connected to.



2. Expand the control device to reveal the keys (also known as buttons or subdevices).
3. Click on the desired key which you wish to emulate.



Last two digits of full address give the device address and key address

The full five digits of the **Address** field for a key are as follows:

First Digit	Router Cluster
Second Digit	Router Member
Third Digit	Subnet
Fourth Digit	**Device**
Fifth Digit	**Key**

You are only concerned with the fourth and fifth digits of the full key address. These digits are used to calculate the third and fourth bytes of the key message (*see table over page*).

2.1. Key Message Format

Key messages are 4 bytes in size. The first two bytes are the same for every message, but the third and fourth bytes must be calculated using the fourth (device address) and fifth (key address) digits of the full key address (*see the formulas below*).

Byte no.	**1**	**2**	**3**	**4**
Byte name	Size	Interface Command	Device Address	Key Address
Hexadecimal message format	0x03	0x59	((**Device** – 1) * 2) + 1	**Key** + 0x3F
Decimal message format	3	89	((**Device** – 1) * 2) + 1	**Key** + 63

2.2. Sending Key Messages

To send a key message you need to send 4 bytes on the serial port.

1. The first is the size byte and is always **0x03** (hex) / **3** (dec).
2. The second byte is a command to the interface and is always **0x59** (hex) / **89** (dec).

The next two bytes are calculated from the **device** and **key** addresses.

3. To find the key command to send, click on the key node in the 'Designer' Software and note the last two digits in the **Address** field.
4. The third byte is calculated using the formula: (**Device** * 2) - 1.
5. The fourth byte is calculated using the formula: **Key** + 0x3F (hex) / 63 (dec).

   This gives the whole message as follows:

   Hexadecimal: 0x03, 0x59, (**Device** * 2) - 1, **Key** + 0x3F

   Decimal: 3, 89, (**Device** * 2) - 1, **Key** + 63
6. Send the message from your RS232 connected device to the 503 AV Interface.

   The interface will reply with four bytes: 0x03 (3), 0x6A (106), cc, dd (where cc and dd are the third and fourth bytes of the transmitted message respectively).

IMPORTANT: *The interface does not support the sending of more than one message at a time. When you send a message to the interface, you must wait for the reply before sending any further messages.*

Key Message Format Example

A key with the full address of 1.1.1.**1**.**4** has the following message format:

Hexadecimal: 0x03, 0x59, **0x1**, **0x43**

Decimal: 3, 89, **1**, **67**

3. LED Messages

For buttons with LEDs, the router will send messages to control the LEDs on those buttons. The 503 AV interface will show the LED messages as follows:

Hexadecimal: 0x03, 0x78, dd, pp

Decimal: 3, 120, dd, pp

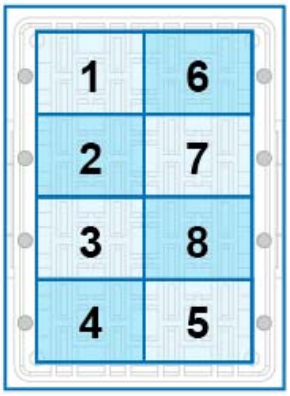
Where dd is the address of the control the message is related to, as follows:

dd = (Device address – 1) * 2

Therefore, Device address = (dd/2) + 1

And pp is the binary pattern on the LEDs, where the LSB controls the Key 1 LED and the MSB controls the Key 8 LED ('1' = Lit LED; '0' = Unlit LED).

Key signals for Helvar 12x and 13x modular controls:



Key number	Assigned bit (bit pattern)
1	0x01
2	0x02
3	0x04
4	0x08
5	0x10
6	0x20
7	0x40
8	0x80

Not all control panels support all LEDs being lit at the same time (due to power supply restrictions).

If you are using control devices other than the Helvar 12x and 13x range, contact your Helvar representative for advice.

Note: This information only applies to AV mode. This is the default mode for the 503 AV interface. Please refer to 'RS232 to DALI User Guide' (doc. no 7860076) for information on operating modes.