

User's Manual

Version 3.03 - May 2009

XHub⁽²⁾



XNet2 High Bandwidth Media Sharing Network Hub System



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IMPROVEMENT REQUESTS

Your comments will help us improve the quality of the user documentation. Do not hesitate to send improvement requests, or report any error or inaccuracy on this user manual by e-mail to doc@evs.tv.

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2. Introduction

XHub is a 7-port SDTI hub for the XNet. It provides information about general network status and status of individual branches of the network, automatically isolating faulty branches in case of unexpected problems, and protects the other sections of the network to guarantee continued operation.

Several XHubs can be cascaded to provide as many ports as needed (max. 1 per port). Maximum 29 devices can be connected to the same SDTI network.

3. Hardware

3.1 DIMENSION AND POWER

- 1RU 19" rackmount
- 110/220V auto-switch redundant power supply

3.2 FRONT PANEL



1 x STATUS LED

Blinking green when the XHub is in operation.

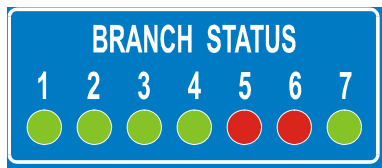
1 x SPEED LED



When all the dip switches are up (normal operation mode) :

- off: XNet operating at 270 Mbps
- green: XNet operating at 540 Mbps
- blinking green: XNet operating at 1485 Mbps (XHub[2] only)
- red: no network

7 X NETWORK BRANCH STATUS LED



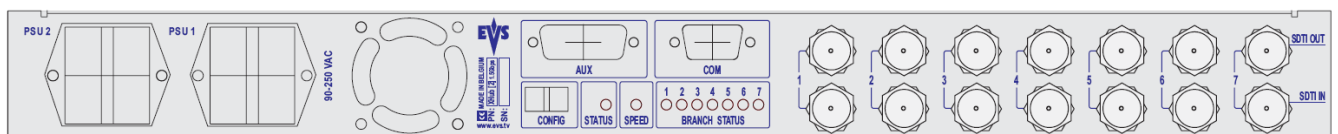
- flashing green: branch status OK, some systems are present on that branch and connected to XNet
- fast flashing green: branch status OK, the SDTI server is present on that branch and connected to XNet
- green: branch status OK, no system connected to the network on that branch
- flashing red: branch status FAULTY, with an illegal signal on the connector of that branch, or the branch is open
- red: branch status FAULTY, no signal is detected on the SDTI IN connector of that branch.

This is the case when the SDTI IN connector from a server is connected (instead of the SDTI OUT connector) to the SDTI IN connector of a XHub.

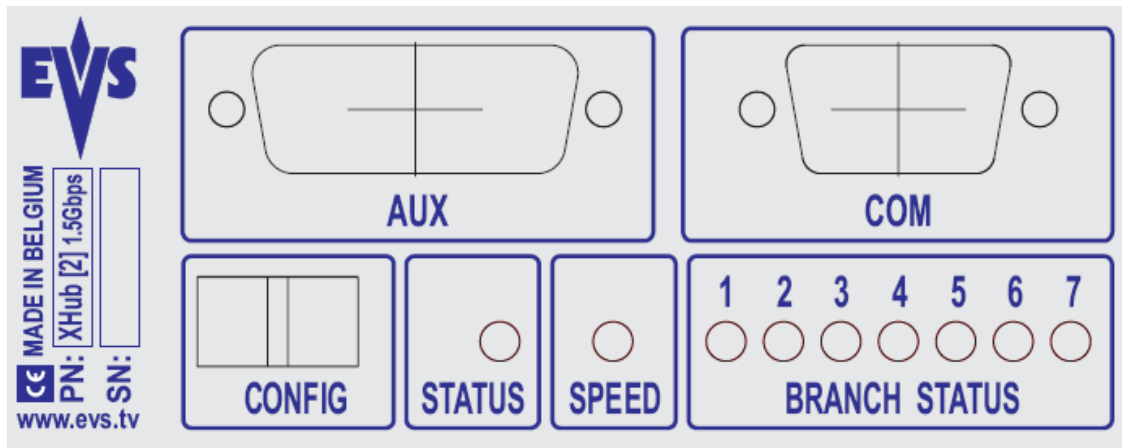
1 X MASTER/SLAVE SWITCH

Select MASTER or SLAVE mode for the switch (see section 4.4 – Interconnecting XHub's).

3.3 REAR PANEL



- 2 x Mains input (IEC connector)
- 7 x BRANCH BNC connectors for the SDTI Network
- 1 x RS232 (COM) for upgrades
- 1 x RS422 (AUX) DB9 connectors (EVS internal use)



1 x CONFIG DIP SWITCH MATRIX

- All 4 switches must be up for normal operations.
- All 4 switches must be down for upgrade.

LEDs THAT MATCH THE FRONT LEDs

- STATUS
- SPEED
- BRANCH STATUS

3.4 INTERCONNECTING XHUBS



Important

When more than 7 XNet branches are required, it is possible to cascade several XHub's together to obtain the required number of branches. In this case please make sure the rules specified below are followed.

- One and only one XHub must be configured as MASTER XHub. All other hubs must be configured as SLAVE XHub's.
- The 1st branch of a SLAVE XHub must be used as the uplink branch to the MASTER XHub.
- All SLAVE XHub's must connect directly back to the MASTER XHub ; a SLAVE XHub can NOT be connected to another SLAVE XHub. Maximum configuration is therefore 1 MASTER XHub connected to up to 7 SLAVE XHub's.
- The XT Server designated as the Network Server (in the EVS Configuration Menu) must be connected to the MASTER XHUB !

3.5 MAXIMUM CABLE LENGTHS

Cable type	@ 1485 Mbps	@ 540 Mbps	@ 270 Mbps
RG59	45m / 148ft	100m / 328ft	200m / 656ft
RG6	90m / 484ft	180m / 590ft	300m / 984ft
RG11	120m / 393ft	250m / 820ft	400m / 1312ft
Super HiQ	150m / 492ft	350m / 1148ft	550m / 1804ft
Fiber	80km(*)	200km(*)	400km(*)

(*) 80km/200km/400km is the total length of the return path, i.e. the actual distances between the 2 servers connected via the fiber link is half of this value, i.e. 100 km @ 540Mbps or 200km @ 270Mbps.



Note

When using reclockers, the total delay induced by these reclockers between 2 active servers on the network must not exceed 15µs.

4. Software

4.1 IDENTIFYING THE XHUB SOFTWARE VERSION

To identify the current version of XHub, proceed as follows:

1. Turn off the XHub.
2. Move down all 4 dip switches located on the left side of the BNC connectors.
3. Turn on the XHub.
4. The branch status LEDs show the software version in a binary pattern:

Branch LED #	1	2	3	4	5	6	7
--------------	---	---	---	---	---	---	---

v. 1.06		green	red		green	green	
---------	--	-------	-----	--	-------	-------	--

v. 1.07		green	red		green	green	green
---------	--	-------	-----	--	-------	-------	-------

v. 2.03	green		red			green	green
---------	-------	--	-----	--	--	-------	-------

v. 2.04	green		red		green		
---------	-------	--	-----	--	-------	--	--

v. 2.05	green		red		green		green
---------	-------	--	-----	--	-------	--	-------

v. 2.06	green		red		green	green	
---------	-------	--	-----	--	-------	-------	--

v. 3.01	green	green	red				green
---------	-------	-------	-----	--	--	--	-------

v. 3.03	green	green	red			green	green
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5. To return the XHub to its normal operational mode: turn it off, move the 4 dip switches up, turn on the XHub.

4.2 COMPATIBILITY BETWEEN XHUB AND MULTICAM VERSIONS

You will find below a table showing the compatibility between XHub and Multicam versions:

Multicam Version	XHub Version
Multicam 7, 8 & 9	Upgrade XHub[2] to version 2.06
Multicam 9	Upgrade XHub[2] to version 3.01
Multicam 10	Upgrade XHub[2] to version 3.03

The main difference between version 2.06 and 3.01 lies in the way the various XT[2] servers and XFile units are logically connected to the XHub and organized in the SDTI network:

When this hardware unit comes to be disconnected and then reconnected to the SDTI network, the following occurs:

In v.2.06, the logical connection between an XT[2]/XFile and an XHub branch is lost.

In v.3.01, the logical connection between an XT[2]/XFile and an XHub branch is restored as originally defined.

4.3 IDENTIFYING THE XHUB TYPE

The SPEED led helps identifying the XHub Type:

- If the SPEED led is OFF then the XHub Type is 540 Mbps
- If the SPEED led is ON then the XHub Type is 1.5 Gbps

4.4 UPGRADING THE XHUB SOFTWARE

It is recommended to upgrade the software version of a XHub via the Multicam installation menu, which includes a step for upgrading the XHub software. This step can be also run independently from the Multicam upgrade.

To have more information about the XHub software upgrade, refer to the technical note.



Important

If during an upgrade of the XHub, a communication problem occurs, the XHub can become unusable. It is then required to use the full reset procedure explained in the next chapter to reload the necessary software on the XHub to make it operational again.

4.5 RESETTING THE XHUB SOFTWARE

4.5.1 INTRODUCTION

This section describes how to totally reset an XHub. It is used for the production of the XHubs.



Important

If during an upgrade of the XHub, a communication problem occurs, the XHub can become unusable. This full reset procedure reloads the necessary software on the XHub to make it operational again.

Identify the XHub software version and type as explained in the sections 4.1 'Identifying the XHub Software Version' and 4.3 'Identifying the XHub Type', on page 10.

4.5.2 VERSION 2.03 AND HIGHER

If you are running v.2.03 or later, apply the following steps to reset the XHub software:

1. Insert the XHub upgrade disk into the floppy drive of the XT server
2. Use a null-modem cable to connect the COM1 port (RS232 #1 "Tablet") of the XT to the RS232 port of the XHub.
3. Exit all applications on the XT server until you reach the DOS prompt.
4. Power down XHub.
5. Set dip switches on the front panel as follow:

	1	2	3	4
Up				
Down				

6. Power up and wait 2 seconds (LEDs must stay off).
7. Type reset [ENTER]
8. Power down and wait 1 second
9. Power up (LEDs must stay off).
10. To flash a 540 Mbps XHub to version 1.07, type flash107 [ENTER]
To flash a 540 Mbps XHub to version 2.05, type flash_sd [ENTER]
To flash a 1.5 Gbps XHub to version 2.06, type flash_hd [ENTER]
11. Power down.
12. Power up and check that the LEDs show the right version.

4.5.3 VERSIONS OLDER THAN v.2.03

If you are NOT running v.2.03 or later, follow this procedure.

1. Power down XHub
2. Move down all 4 dip switches located on the left side of the BNCs connectors.
3. Remove the top cover of the XHub and close the ST1 jumper on the circuit board.
4. Turn on XHub. Be carefull not to touch anything inside the chassis while it is powered ! High voltage !
5. Insert the XHub upgrade disk into the floppy drive of the XT server
6. Use a null-modem cable to connect the COM1 port (RS232 #1 "Tablet") of the XT to the RS232 port of the XHub.
7. Exit all applications on the XT server until you reach the DOS prompt
8. To flash a 540 Mbps XHub to version 1.07, type flash107 [ENTER]
To flash a 540 Mbps XHub to version 2.05, type flash_sd [ENTER]
To flash a 1.5 Gbps XHub to version 2.06, type flash_hd [ENTER]
9. Power down.
10. Put switches in debug position (all down).
11. Power up and check that the LEDs show the right version.

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