USER MANUAL

2CH ETHERNET VIDEO ENCODER

REVISION C

REVISIONS

Published	Revision	
10.01.2024	A	Issued for release
10.09.2024	B	Added factory reset
27.11.2024	C	New layout

Content

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

This document outlines and defines the configuration and operation of the PCB 2CH Ethernet Video Encoder.
The manual is to be used by trained and competent personnel only.

1.2 ABBREVIATIONS

Abbreviation	Description
PCB	Printed Circuit Board
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
IP	Internet Protocol
EEPROM	Electric Erasable Programmable Read Only Memory

1.3 SUPPLIER CONTACT INFORMATION

Ixys AS
Langmyra 11
4344 Bryne
Norway

+47 51 52 22 22
post@ixys.no
https://ixys.no

1.4 DOCUMENT REFERENCES

Document number	Description

2 HEALTH, SAFETY AND ENVIROMENT

2.1 GENERAL

Safety Notes and General Precautions shall be presented to all personnel concerned prior to testing, operation, maintenance, and repair. The operations shall be performed by the responsible engineer/supervisor.
The personnel performing this job shall have knowledge of this type of equipment and have familiarized themselves with the applicable procedures and manuals for this product.

2.2 USER HEALTH AND SAFETY

This product is made to operate under many circumstances and specific cases for health and safety will not be described here but must be considered by the equipment manufacturer or owner.

2.3 QUALIFICATIONS AND TRAINING

It is essential that operating personnel have been given training and **education in** how to operate and maintain the software and equipment described in this manual. It is also essential that operating personnel have general operational experience.

The personnel responsible for the operation of this system must be appropriately qualified. The operating company must do the following tasks:

- Define the responsibilities and competency of all personnel handling this system.
- Provide instruction and training.
- Ensure that the contents of the operating instructions have been fully understood by the personnel.

2.4 NON-COMPLIANCE RISKS

Failure to comply with all safety precautions can result in the following conditions:

- Death or serious injury due to electrical and mechanical influences
- Product damage
- Property damage
- Loss of all claims for damages

2.5 UNACCEPTABLE MODES OF OPERATION

The operational reliability of this product is only guaranteed when it is used as designated. The operating limits given in this manual shall not be exceeded under any circumstances.

3 TECHNICAL INFORMATION AND DATA

3.1 TECHNICAL DESCRIPTION

The PCB CS 2CH Video Encoder is used to either encode or decode two composite video inputs to h264 compressed video streams.

Inbuilt network switch and two external 100Mbps ports enable daisy chaining of multiple devices.
Configuration is possible through Web interface in each of the two channels.

3.2 TECHNICAL DATA

General	
Manufacturer	Ixys AS
Ixys part number	101614
Description	PCB CS 2CH Ethernet Video Encoder
Weight	~150g
Dimensions	96 x 104 x 15 mm (PC104 compatible format)
Supply voltage	24 (9 – 30) V DC
Power consumption	~5W
Communication	Ethernet 100 Mbps
Ethernet port	RJ45
Power connector	Wago 2091-1124
Video IO connector	SMB
Channel 1 Default IP	192.168.24.53
Channel 2 Default IP	192.168.24.54
Recommended spacer between PCBs	18 mm
Latency used in pair encoding/decoding	~180 ms
Latency used with VJU Studio decoding	~110 ms

4 DRAWING

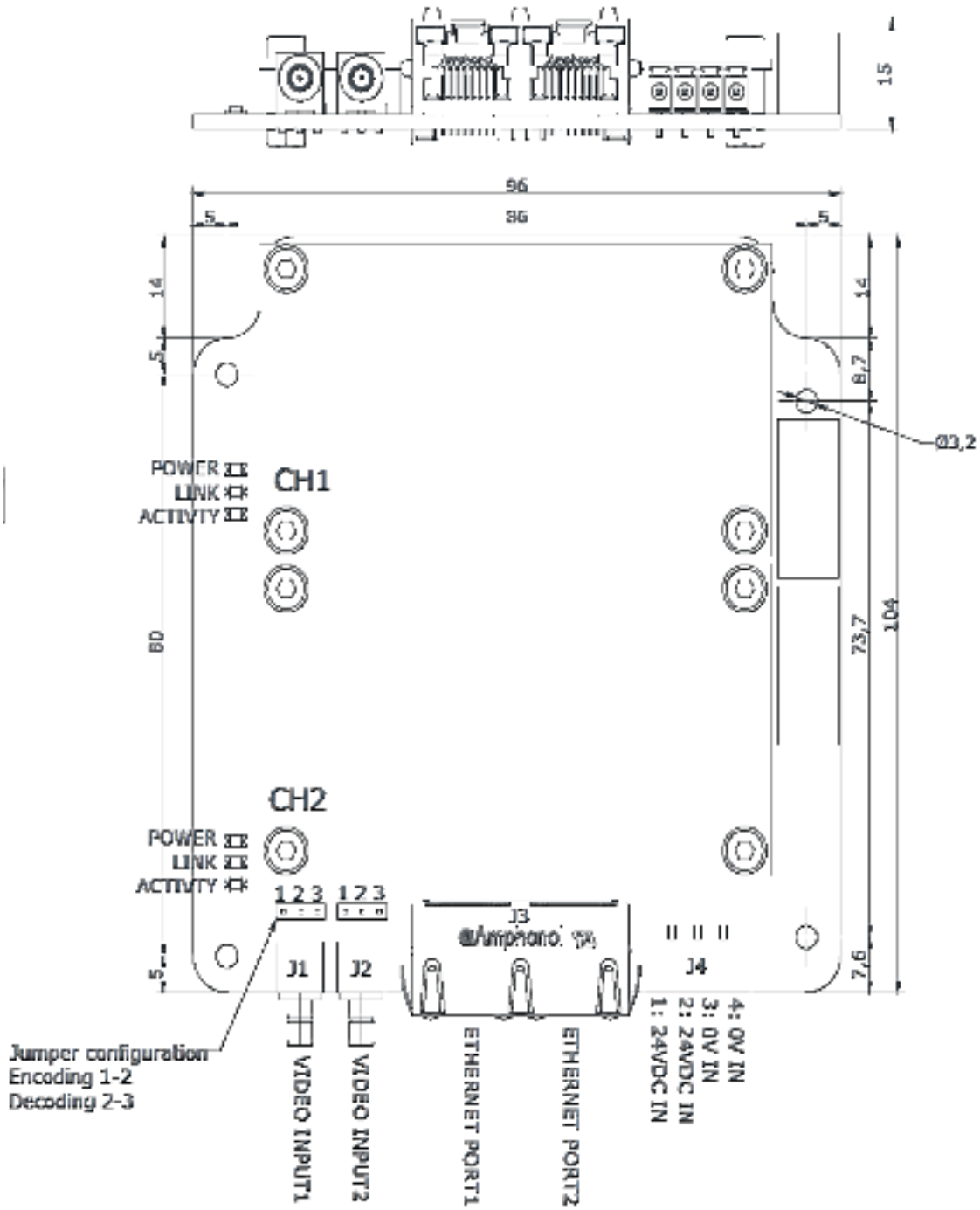


Figure 1 – Dimension and pin configuration.

5 CONFIGURATION

Inbuilt web server in each of the two channels are available by browsing to the IP address in a web browser. The following subchapters will describe the configuration pages available.

5.1 LIVE VIEW - STREAM

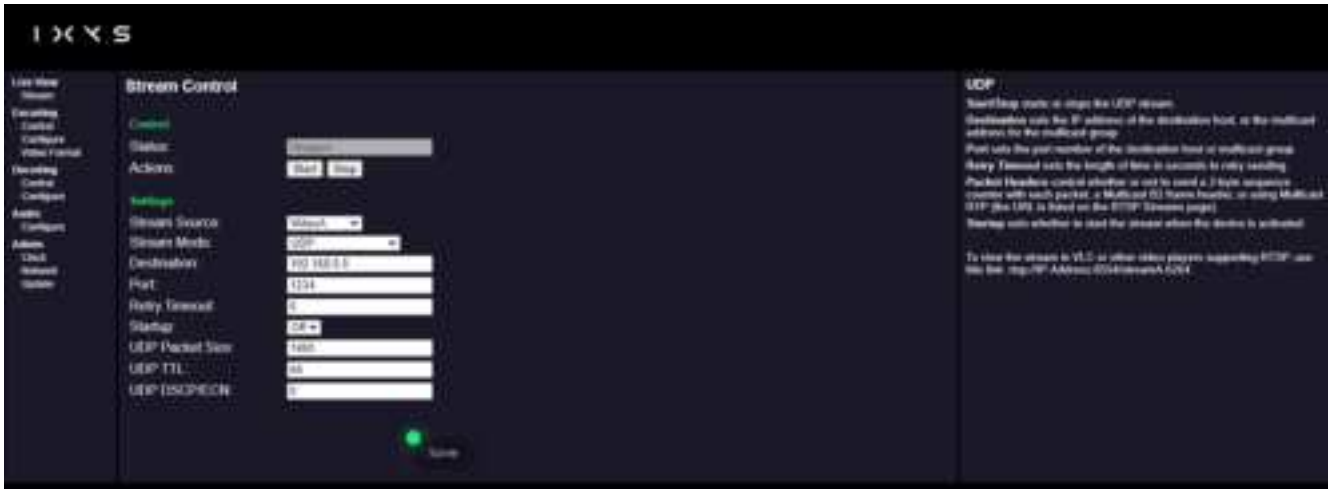
The live view stream page will show live video from the channel, this is meant for troubleshooting and other video decoding software is recommend for low latency display for real operation.

For the live view to work, the encoding stream must be stopped under the Encoding Control page.

5.2 ENCODING - CONTROL

The encoding control page is used to select the outgoing stream type and destination.

Note: for multicast streaming, DNS and gateway must be set correct under network configuration.

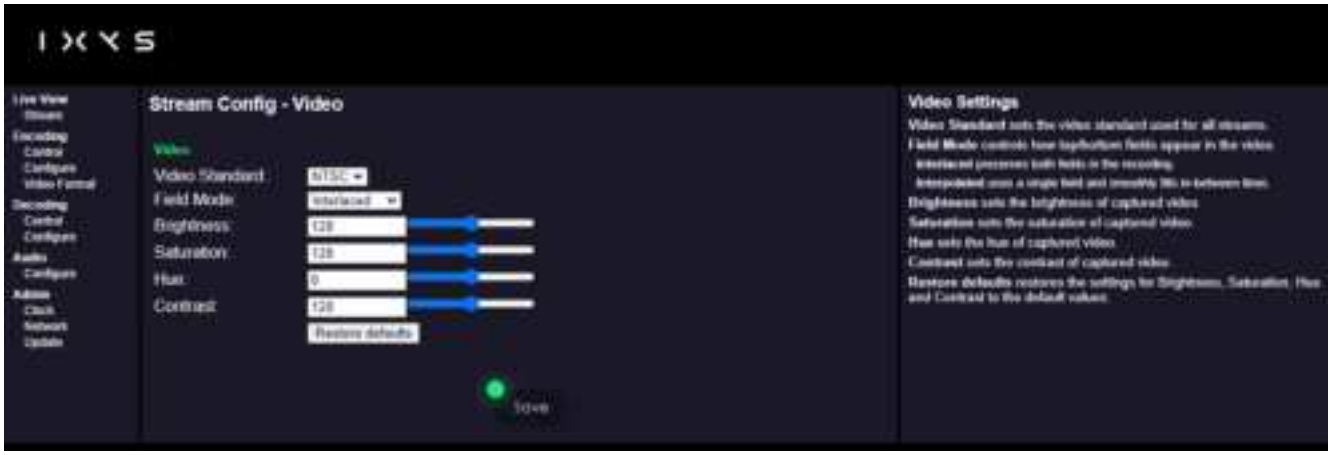


5.3 ENCODING - CONFIGURATION

The encoding configuration page is used to select the encoding parameters in addition to an on-screen display feature. The bitrate can be adjusted to reduce the bandwidth usage for low bandwidth transmission formats.

5.4 ENCODING – VIDEO FORMAT

The encoding video format page is used to configure the composite video parameters for the video input.

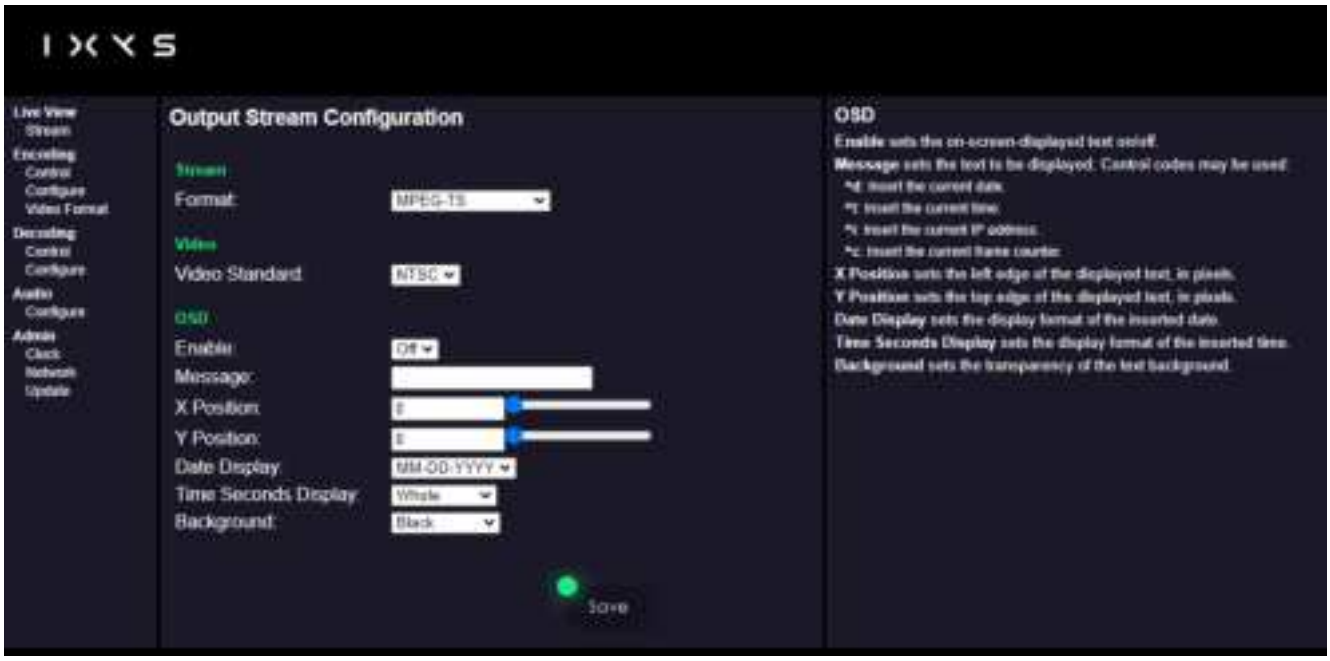


5.5 DECODING – CONTROL

The decoding control page is used to select the incoming stream type and source.

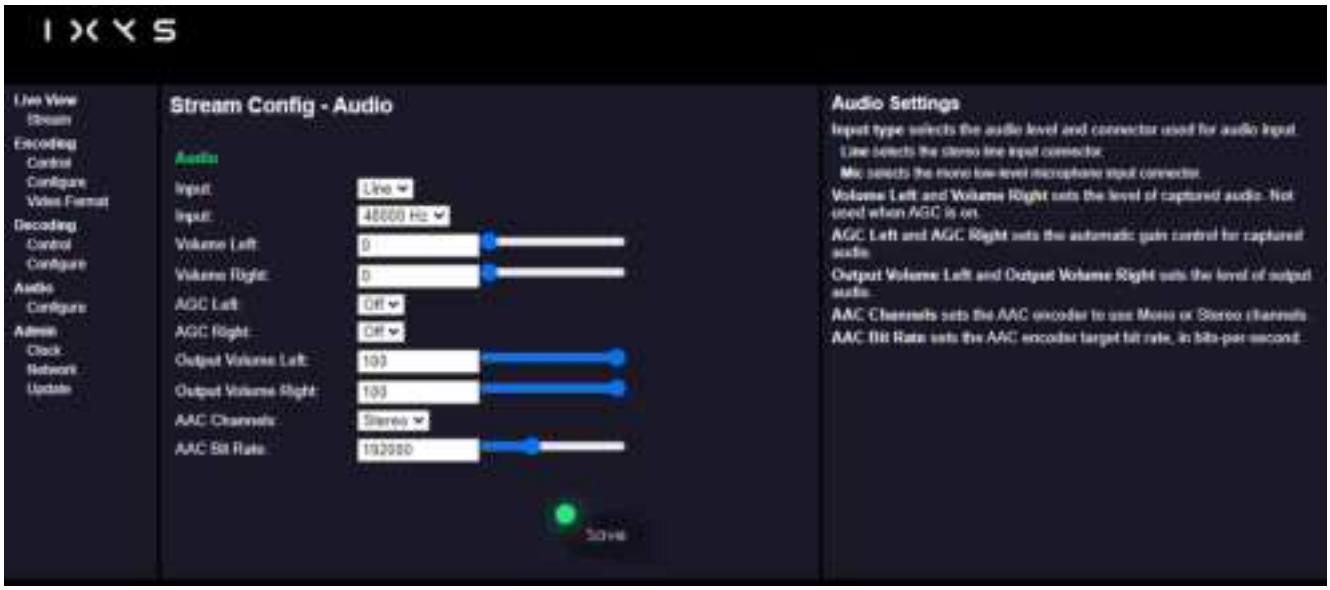
5.6 DECODING – CONFIGURE

The decoding configure page is used to set both the decoding parameters and the image standard as well as the on-screen display feature.



5.7 AUDIO – CONFIGURE

The audio configure page is used to set both the audio input and the output parameters.

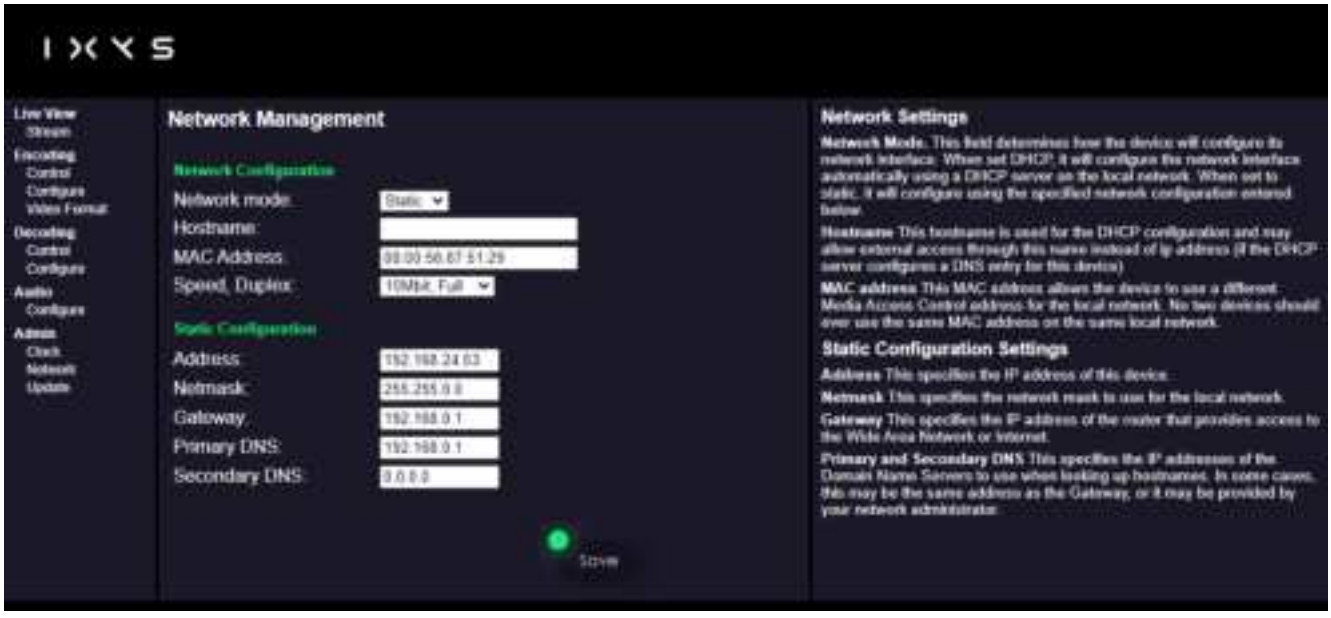


5.8 ADMIN – CLOCK

The admin clock page is used to adjust the internal clock. There is no internal backup battery, and the clock setting will be lost when power is turned off.

5.9 ADMIN – NETWORK

The admin network page is used to set the network configuration.



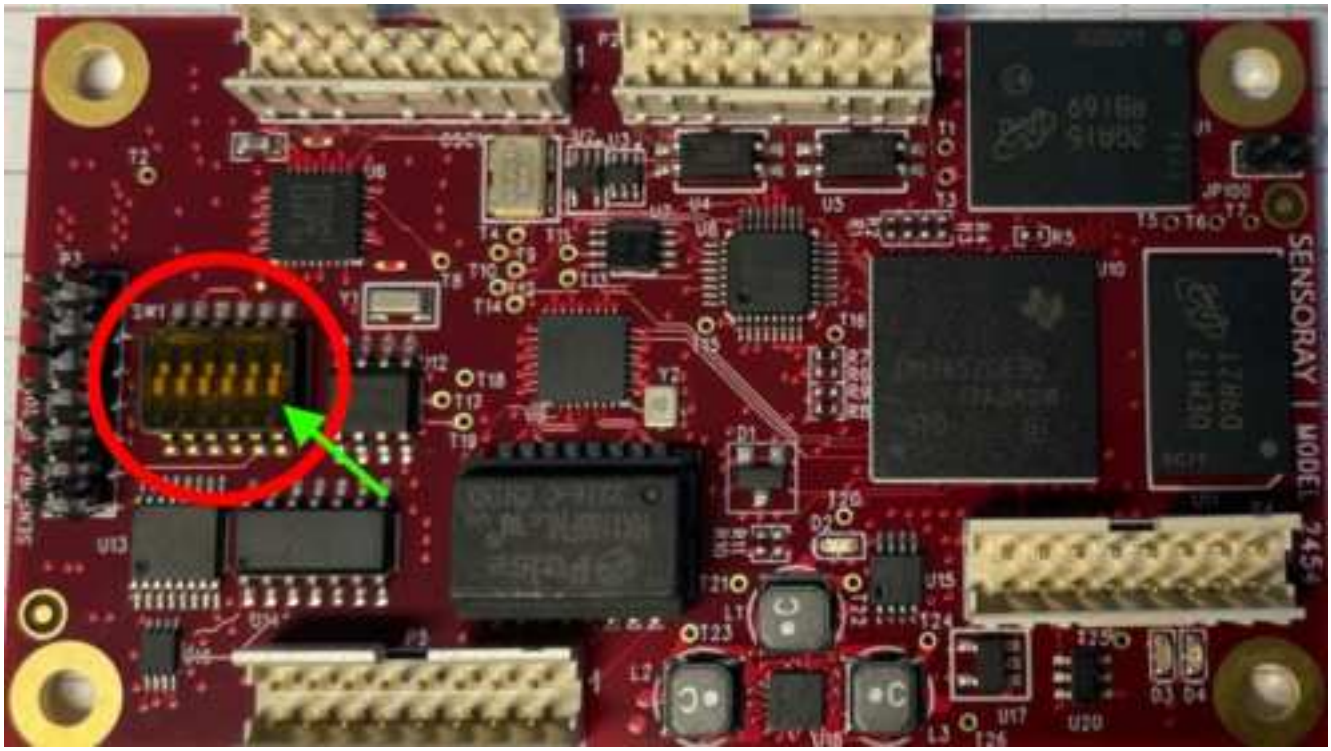
5.10 ADMIN – UPDATE

The admin update page is used to read device information, perform factory reset and to update the firmware.

5.11 RESET TO FACTORY DEFAULT SETTINGS

Switch #6 can be used to reset all settings to factory default values in case there is no Ethernet access to the unit. Set switch #6 to On, power the board on. Turn the power off after approximately 10 seconds. Set switch #6 back to Off. All settings will be reset to the factory defaults.

After factory reset, go to the “Network” page, and set “Speed, Duplex” to “10Mbit, Full”. This is the speed used between the module and the inbuilt Ethernet switch on the mother board. For the external network ports, the speed is fixed to 100Mbps Full Duplex.

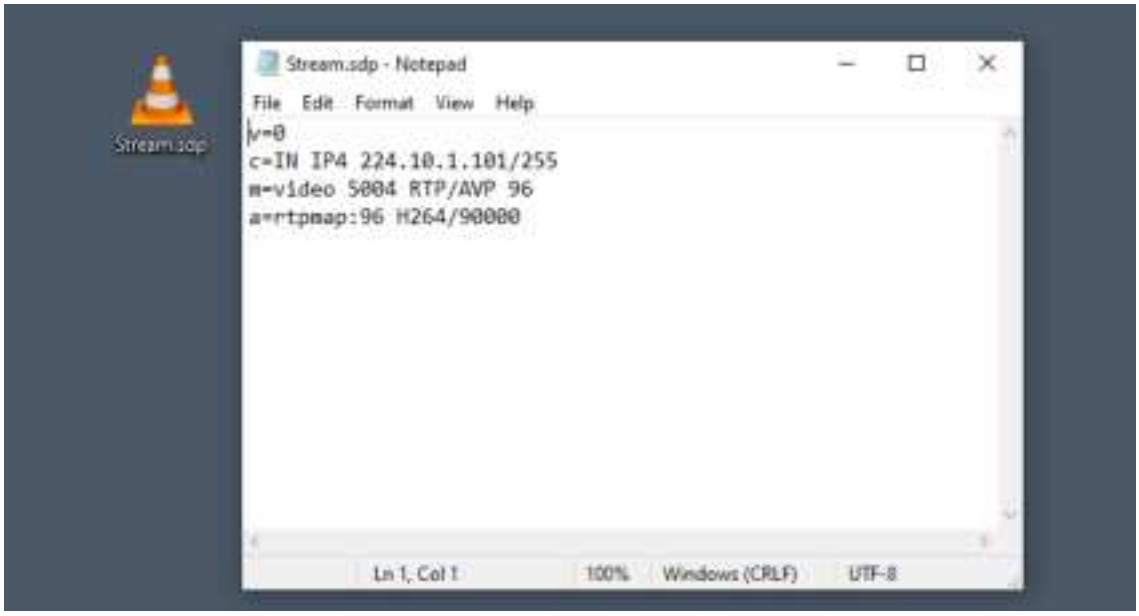


6 OPERATION

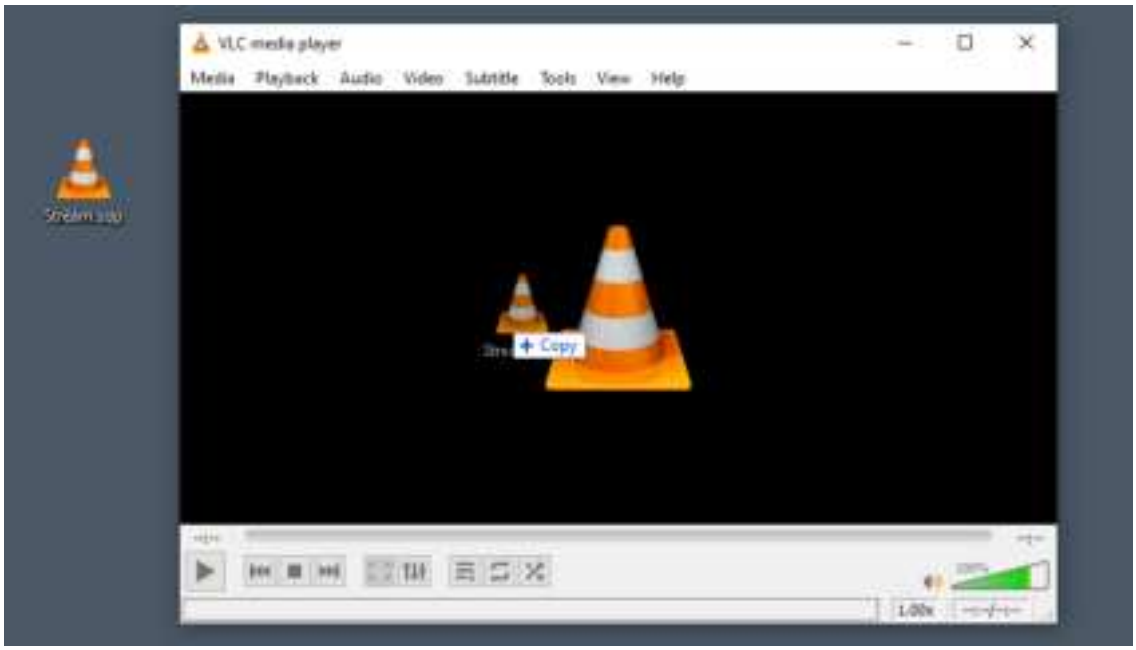
6.1 VIEW RTP UDP STREAM IN VLC PLAYER

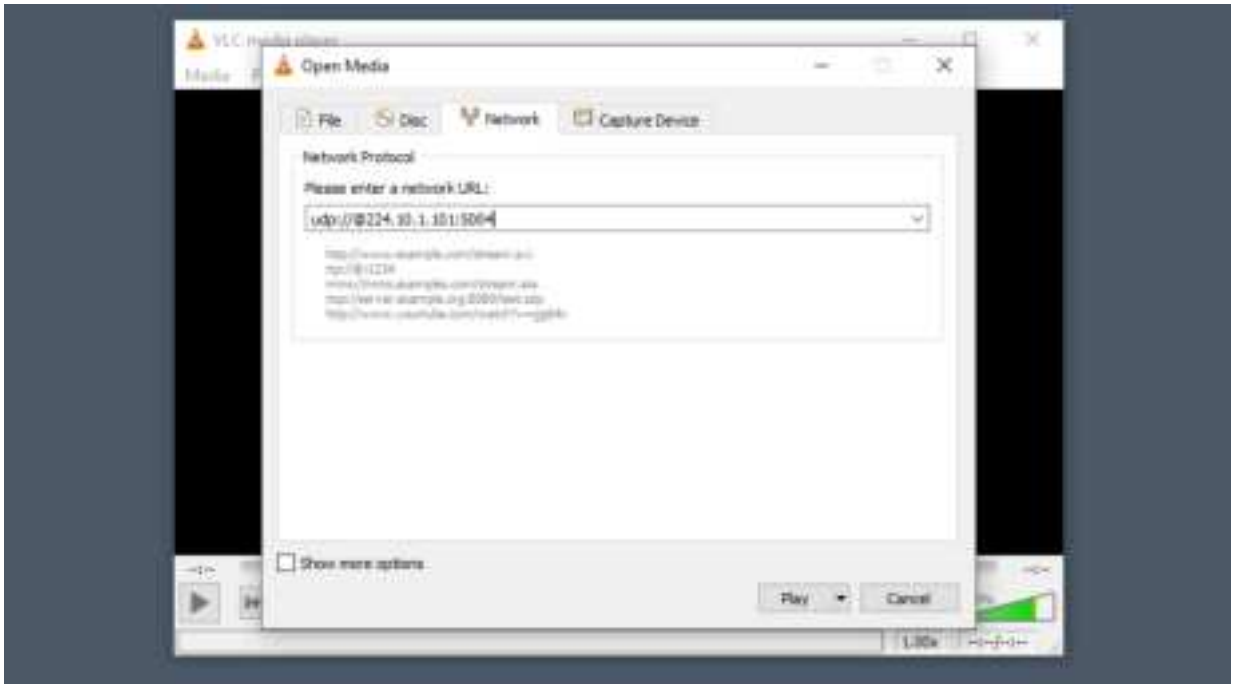
Be aware that VLC does not provide a low latency decoding but is fine for testing purposes.

To view RTP UDP stream in VLC Player with default settings, make a .sdp file with the following content:



Open the file with VLC Player.




Open Media
File
Disc
Network
Capture Device
Network Protocol
Please enter a network URL:
udp://@224.10.1.101:5004
Show more options
Play
Cancel

7 TROUBLESHOOTING / FAULTFINDING

The list below is meant to provide some hints for troubleshooting but does not guarantee that the issue is covered by the list. Operational feedback will be used to extend the list in future revisions.

Troubleshooting		
Symptom	Possible causes	Remedy
No communication with web interface	Lack of power	Check that supply power is within limits
	Incorrect ethernet connection	Check wiring of ethernet connection
	Wrong network settings	Reset to factory default, see section 5.11
	Wrong IP address being used	Verify correct IP address being used.
No video or black picture	Jumpers set to the wrong configuration	Set jumpers to encode or decode depending on the need
Image is unstable	Half duplex somewhere along the network	Check each section of the network lines to verify full duplex link on all segments
Delay in video presentation	Software with video buffer used to decode video	Use low latency decoding software. VJU Studio is an example of that.