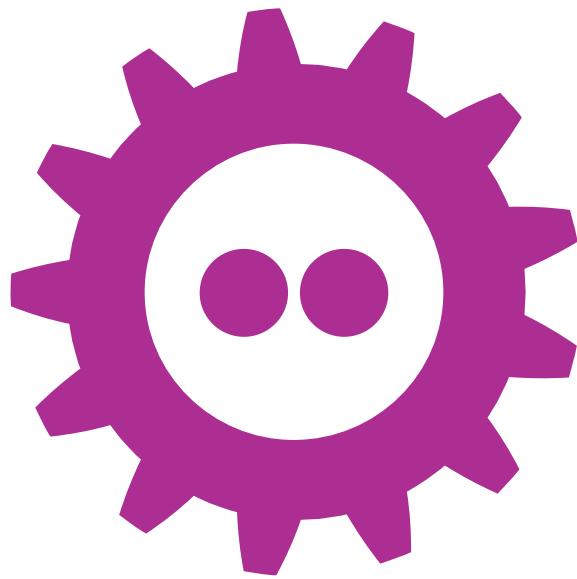


FOSDEM AV Manual  
FOSDEM Video

December 10, 2016



FOSDEM AV Manual



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## 1 People

Video is a big task, so there are many people working together to make it all happen. Here's all the teams:

### 1.1 AW, H, K, U and J teams

You should be a team of two per building: AW, H, K and U respectively. J (probably) has a dedicated knowledgeable volunteer.

Coordination with video operations control (VOC) happens through walkies and irc://irc.freenode.net#fosdem-video.

Your tasks before the conference starts:

- take the equipment to the rooms in your building
- work from the biggest to the smallest room
- do basic setup: cam, sound, plug in cables, basic audio checks with microphones, ... See below for details.
- ensure the rooms are ready before the first talk starts

During the day, you'll have a fixed spot in the building:

- AW: under the stairs
- K: at the NOC
- H: behind the info desk
- U: in the corridor near Chavanne

Your job during the conference, with the backup from the VOC team, is to do the following in your building:

- monitor video. Hint: bring at least one laptop running mpv.
- proactively fix problems with video. In some rooms, this includes preventatively replacing batteries!

At the end of the day, they retrieve the cameras for safe storage overnight.

### 1.2 Video operations control or VOC

You are in the NOC in the K building, with ssh access to all video machines: video boxes in the rooms, vocto machines near VOC, streaming backends and frontends, and the web pages showing the videos to our visitors.

Your job is to constantly monitor all the equipment and streams for problems, and to arrange fixes for any that occur. They have visual monitoring of all audio streams.

Do not run out to fix problems yourselves. Delegate to the AW, H, K and U teams. Maintaining contact between everyone is your main priority.



### 1.3 In the devroom

If you are volunteering for video inside a devroom, please:

- stay near the video equipment, keeping it safe (from people tripping over cables for example!)
- make sure the camera is aimed at the speaker
- monitor the devroom video/audio feeds (headphone!) for problems
- signal problems to VOC by irc

Please do *NOT* disconnect or turn off any equipment yourself. That is the task of the per building team only.

## 2 Rooms

We have 24 rooms: 12 small, 6 large and 6 extra large rooms. Each type of room has a different audio/video setup.

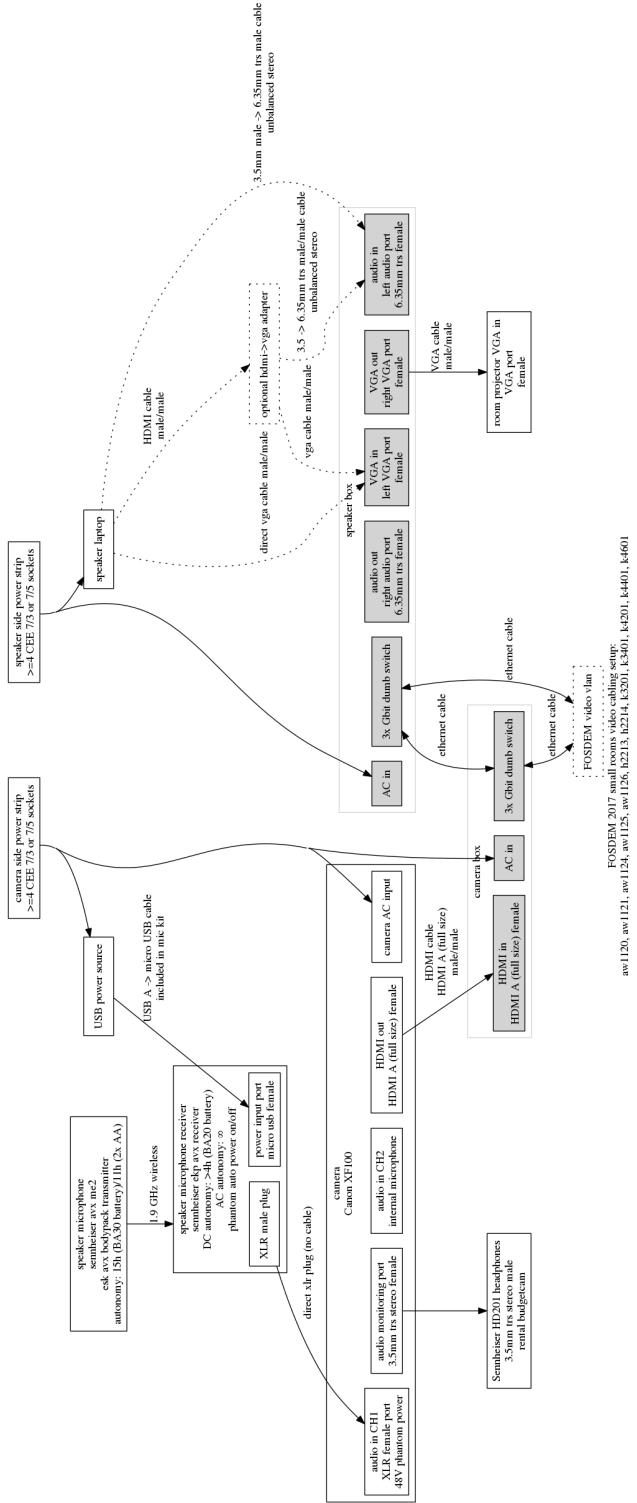
- AW: AW1120 (S), AW1121 (S), AW1124 (S), AW1125 (S), AW1126 (S)
- K: K1105 (XXL), K3201 (S), K3401 (S), K4201 (S), K4401 (S), K4601 (S)
- H: H1201 (L), H1302 (L), H1308 (L), H1309 (L), H2213 (S), H2214 (S), H2215 (XXL)
- U: UA2214 (L), UA2220 (XXL), UB2252A (XXL), UD2120 (XXL), UD2218A (L)
- J: Janson (XXL)

### 2.1 Small rooms

These have a projector and a tie pin microphone for the speaker. They use the Canon XF100 camera. Audience questions are picked up by the camera's internal microphone.



### 2.1.1 Cabling diagram



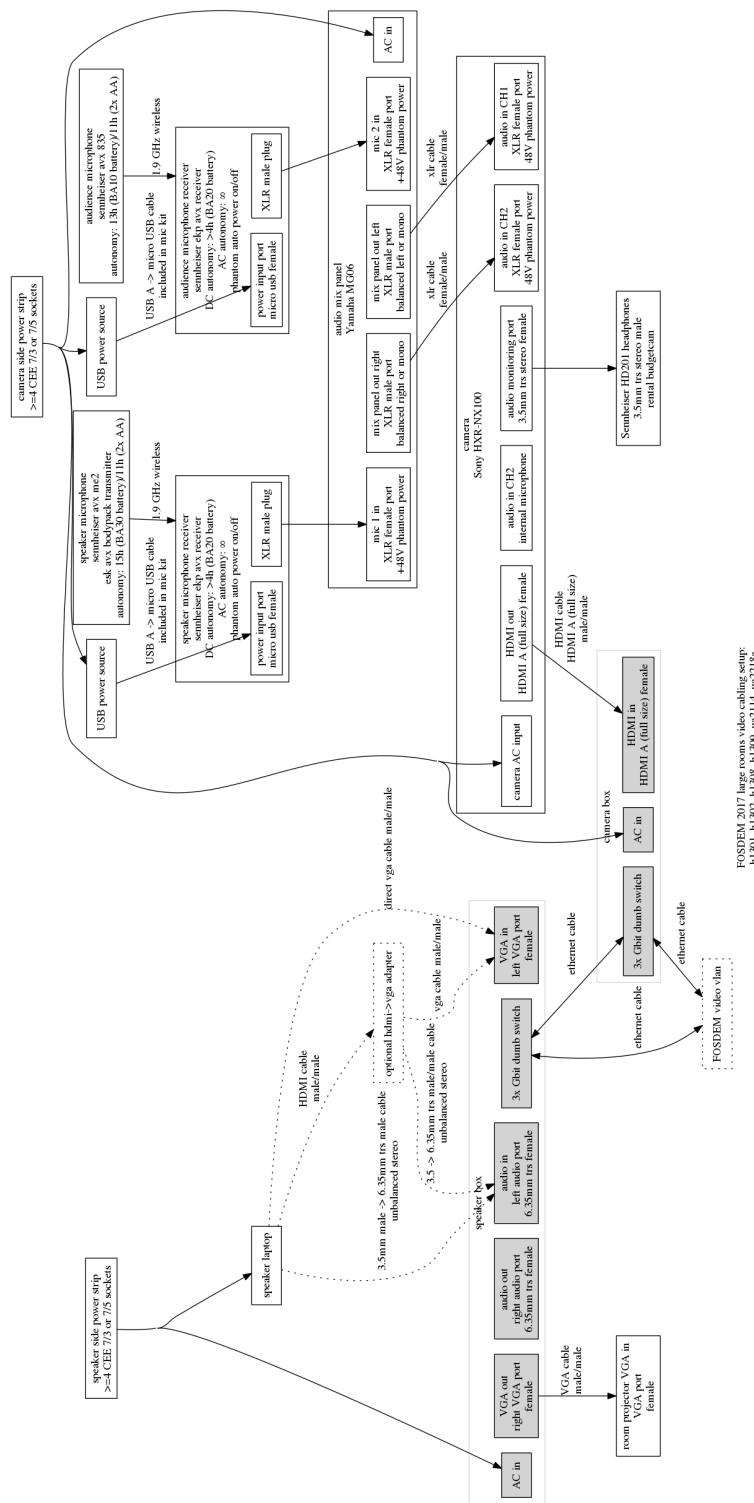


## 2.2 Large rooms

These have a projector, a tie pin mic for the speaker and an audience microphone. They use the Sony HXR-NX100 camera.



## 2.2.1 Cabling diagram



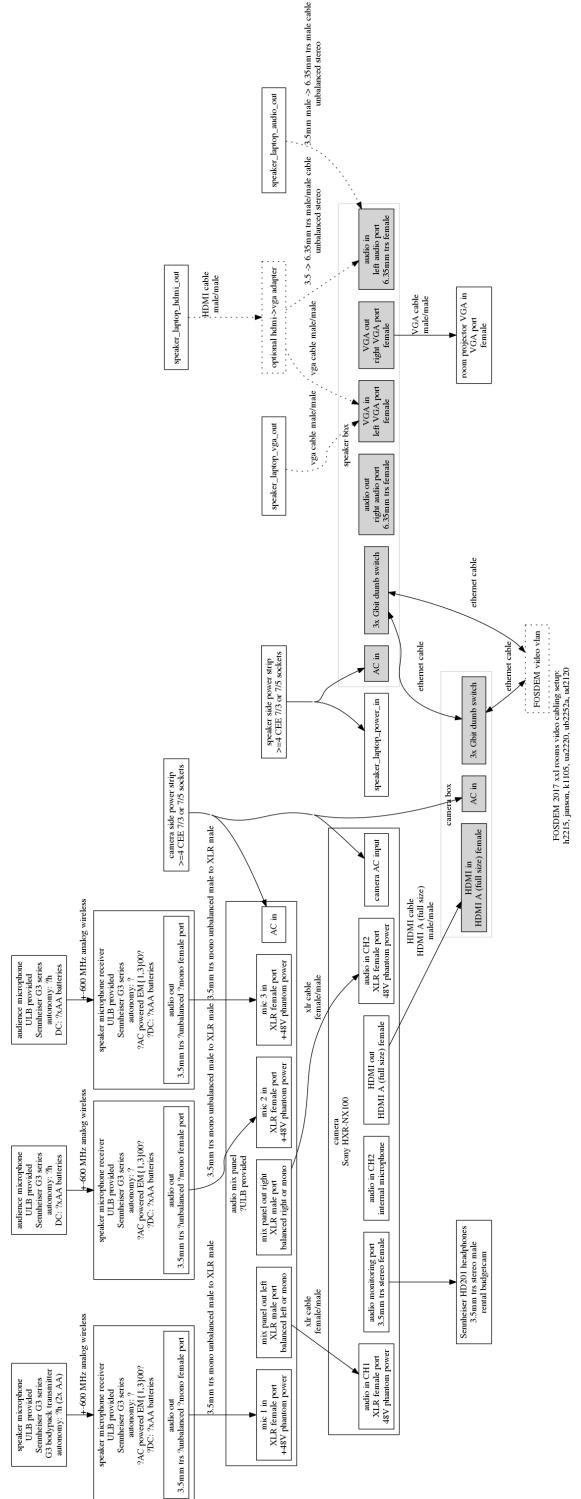


## 2.3 Extra large rooms

These have a projector, a tie pin mic for the speaker and one or two audience microphones. They use the Sony HXR-NX100 camera.



### 2.3.1 Cabling diagram





### 3 FOSDEM video boxes

The FOSDEM video box will take care of the streaming and recording. There is no need to operate the controls on the camera (once on and in the correct video mode, which the setup team will have done). The setup team should also have connected the following:

- at least one network cable
- a power cable, connected to mains, with the box already turned on
- slides boxes only:
  - the right jack connection should be connected to the room audio system
  - The right VGA connection should be connected to the projector
  - The left jack connection should have a loose mini-jack cable, for connecting to the presenter laptop
  - The left VGA connection should have a loose VGA cable, for connecting to the presenter laptop
- Cam boxes only:
  - An HDMI cable to the (powered on) camera (the SDI connection is for backup and normally not in use)

The power switch is at the back, on a standard power supply:



Order of connections and powering on does not matter, each order will work. There is no need to reboot the box after connections have changed, and there is no physical mechanism to safely power down the box. Fully powering on the box takes about half a minute, and it will take approximately 10 seconds before anything can be seen on the LCD display. This is normal. Boot up is about twice as slow after an unexpected power loss.



*Do not attempt to power off the box unassisted, as this may damage the integrity of the system.* In the event of power loss or accidental unplugging, the system should fully auto-recover by itself. If you suspect it may be malfunctioning, first try to open the live stream yourself on any device. When problems persist, contact the control and monitoring team (see chapter “During the event” for full details). They may already be aware of the problem, but quick reporting helps cut down on reaction times.

While the box contains a network switch (all three ports are connected), *do not connect your own equipment* to the box. The boxes are on a special subnet with reserved bandwidth for the video streaming, and any other equipment may compromise the quality of the broadcast.

*The slides boxes are VGA-only.* The internals are HDMI-compatible, but the ULB campus projection system only supports VGA. Sourcing your own HDMI (and/or DP) to VGA converters is advisable, though all speakers will be informed of the VGA requirement beforehand. The VGA signal is automatically scaled to 720p (1280x720) at 50Hz. Matching this on the presenter laptop is a good idea, but not a requirement.

*The LCD display will inform you of all vital information about the current status of the box.* It shows a preview of the stream image (auto-refreshing screenshot, not live video), the current input resolution and refresh rate (should be 720p at 50Hz), its network status (connected/disconnected), the recording status (yes/no), the streaming status (yes/no) and audio volume level (average over the last few seconds).

The boxes report all this information to control while their network status is good, where the control and monitoring team keeps an eye on all rooms. If something is wrong, they may send somebody your way to correct it. Please follow the instructions (if any) of video team members. Keeping an eye on the box vitals and correcting any problems you notice is encouraged.

## 4 Tripod

More details coming soon.

## 5 Camera

FOSDEM2017 will use 2 different camera models: the Sony HXR-NX100 and the Canon XF100E.

### 5.1 Standard settings for both cameras and quick check list

Resolution	1280x720
Refresh rate	50p
MIC-CHANNEL1(left)	Speaker and audience microphone
MIC-CHANNEL2(right)	Internal microphone
Power source	Cable AND Battery
Lens cover	Remove!
Camera/Tripod	Cam must be attached to tripod plate

### 5.2 Setup for Sony HXR-NX100 (large and extra large rooms)

#### 5.2.1 Screw camera on mount

Screw the camera onto the tripod. Every camera has a screw hole at the bottom that can be used for this. The plate has a distinct “point camera in this direction”-arrow, pay attention to this. The screw can be tightened by a coin or similar object.

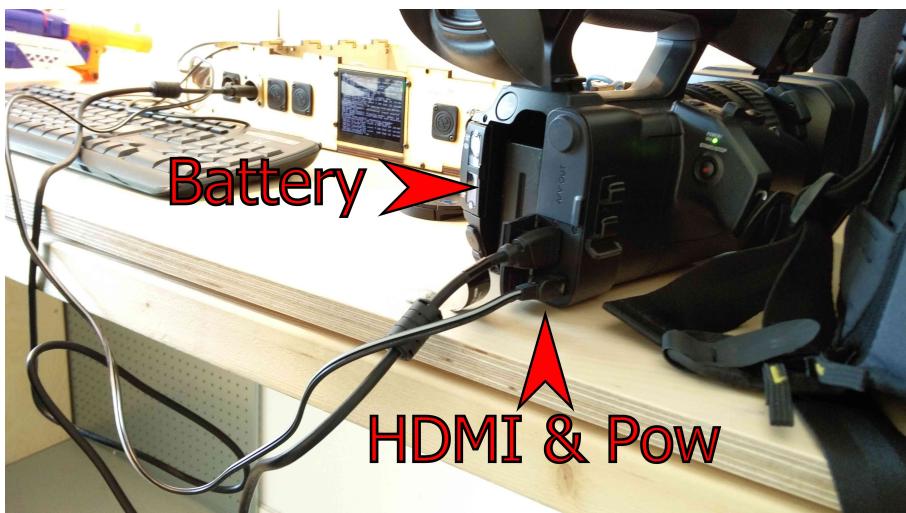


### 5.2.2 Power and HDMI connectors

First plug in the battery at the back, then plug in both the HDMI and the power cable.

Both connectors can be found next to each other to the right of the battery slot at the back. Look at the picture if you're unsure.

Do not forget to hook up the other end of the HDMI cable to the FOSDEM Video Box, and the power cable into the mains.



### 5.2.3 Microphone

Plug the XLR cable of the audio system into Input2.



#### 5.2.4 Power on

You can find the power button on the left side of the camera (looking from behind). Look in the bottom right corner.



#### 5.2.5 Audio settings

The audio settings can only be done through the hardware switches on the camera. Make sure to set the switches to the correct positions, as these directly affect the availability of audio on the recordings and live streams. Wrong settings means no audio! The position of the dials does not matter (those are for manual volume, we use automatic volume). If unsure, verify with the image below.

Input	Left switch	Middle switch	Right switch	dial
Input1	BOTTOM (Mic 48V)	TOP (INT MIC)	TOP (AUTO)	anything
Input2	TOP (Line)	MIDDLE (EXT)	TOP (AUTO)	anything

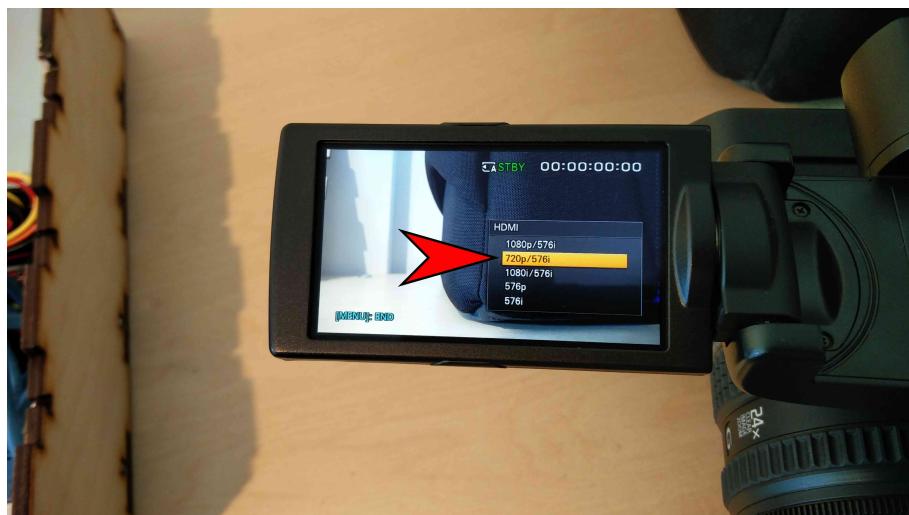


### 5.2.6 Video output configuration

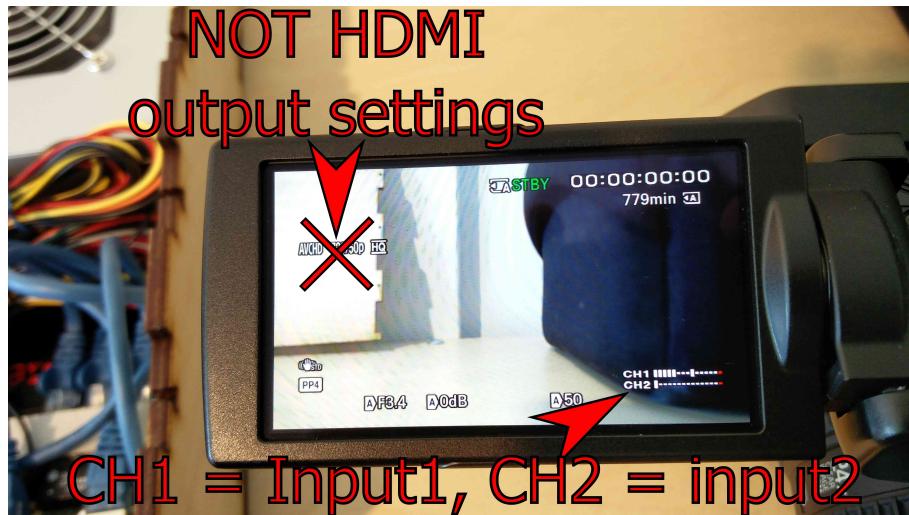
The video configuration will be done through the on-screen display.

Set up like this:

Menu → 2nd icon (two arrows) → Video out → HDMI → 720p.



The information displayed on the OSD relates to recording to the SD card, which we do not use. *Ignore this text*, as the video output config is completely separate from the recording setting on this model.



#### 5.2.7 Remove the lens cover

Do not forget to remove the lens cover. Store it in the camera bag for safe keeping.



#### 5.2.8 Checklist

Please check the following before leaving:

- Does CH1 on the camera display spike when you tap the (powered on) wireless speaker microphone?
- Does CH2 on the camera display spike when you tap the camera itself with your fingers?
- Turn off the wireless speaker microphone before leaving to conserve battery power for during the day.
- Do both video boxes say mode 720p50 on the LCD display?
- Does the camera video box display the camera image on the LCD display?

If any of these do not work, re-check your connections and settings. Still no luck? Contract VOC!



### 5.2.9 Contact control

When you have finished setup of the room, please report to VOC for a full test. They will let you know what rooms still need attention.

## 5.3 Setup for Canon XF100E (small rooms)

### 5.3.1 Screw camera on mount

Screw the camera onto the tripod. Every camera has a screw hole at the bottom that can be used for this. The plate has a distinct “point camera in this direction”-arrow, pay attention to this. The screw can be tightened by a coin or similar object.



### 5.3.2 Power and HDMI connectors

First plug in the battery at the back, then plug in both the HDMI and the power cable.

The HDMI connector is hidden behind a cover on the bottom of the right side. Power is on the back, to the left of the battery slot. Look at the picture if you're unsure.

Do not forget to hook up the other end of the HDMI cable to the FOSDEM Video Box, and the power cable into the mains.



### 5.3.3 Microphone

Plug the AVX receiver into CH1. Plug the USB charger cable into the AVX receiver, and the USB charger into the power strip.



### 5.3.4 Headphones

Plug the headphone into the headphone port.



### 5.3.5 Power on

Now please boot the camera. You can find the power button on the top of the left side of the camera (looking from behind).



After booting the camera, please check if:

- the avx microphone receiver should power on (signaling through 48V phantom power)
- the transmitter auto pairs with the receiver. It should show "AVX" plus the latest four digits of the receiver serial on its lcd
- the transmitter battery status. Fully charged, it should indicate approximately 15 hours on the lcd



### 5.3.6 Audio settings

The audio settings can only be done through the hardware switches on the camera. Make sure to set the switches to the correct positions, as these directly affect the availability of audio on the recordings and live streams. Wrong settings means no audio! The position of the dials does not matter (those are for manual volume, we use automatic volume). If unsure, verify with the image below.

Input	Top switch	Middle switch	Bottom switch	dial at top
CH1	LEFT (A)	RIGHT (MIC 48V)	RIGHT (EXT)	anything
CH2	LEFT (A)	LEFT (MIC)	LEFT (INT)	anything



### 5.3.7 Video settings

The video settings will be done through the on-screen display.

Set up like this:

Menu → Last pictogram (wrench) → Bit Rate/Resolution → 1280x720 50Mbps

Menu → Last pictogram (wrench) → Frame Rate → 50P



With this camera model, the on-screen display will show the configuration that is active during normal operation.



### 5.3.8 Remove the lens cover

Do not forget to remove the lens cover. Store it in the camera bag for safe keeping.



### 5.3.9 Checklist

Please check the following before leaving:

- Does CH1 on the camera display spike when you tap the (powered on) wireless speaker microphone?
- Does CH2 on the camera display spike when you tap the camera itself with your fingers?
- Turn off the wireless speaker microphone before leaving to conserve battery power for during the day.
- Do both video boxes say mode 720p50 on the LCD display?
- Does the camera video box display the camera image on the LCD display?



If any of these do not work, re-check your connections and settings. Still no luck? Contract control!

#### 5.3.10 Warn VOC

When you've finished setting up the room, please report this to VOC by walkie and on irc://irc.freenode.net#fosdem-video.

## 6 During the event

It is expected of the devroom video volunteers that they keep an eye on the following, in order of importance:

- The wireless speaker mic is on during talks
- The wireless speaker mic is worn correctly
- The audio volume is not too low or too high (clipping is bad!)
- The camera is aimed at the speaker, *not* the projection screen (the projection screen is captured separately!)
- None of the video equipment is stolen or tampered with
- The video box is turned on and has OK network status.

The main task is ensuring audio quality. Video quality, while important, is only a secondary concern. A recording without video is still usable, but a recording without audio is completely useless.

Video team members will be both monitoring remotely as well as visiting rooms with problems. If you have questions, concerns or problems and there is no video team member nearby, contact them through the #fosdem-video channel on the Freenode IRC service. If your video box shows issues on the LCD, most likely somebody is already on their way to you. When communicating with video team members, please mention the *room number* as opposed to the devroom name. Devrooms move around, room numbers stay constant.