

Hardware for Meteroastronomie – UPDATE March 2016

Stefano Sposetti

1. LENSES

The lower the f/ratio, the better: use for example f/1.2 or f/1.0 or f/0.75.

Choose lenses for 1/2" sensors, but in some circumstances lenses for 1/3" sensors are also good.

A **fish-eye lens** is good when you have only one videocamera and you will image the whole sky. In this case I suggest the Computar HG2610AFCS-HSP. It has a focal length of 2.6 mm and f/1.0.

<http://computar.com/file?id=136>

With this lens and a WAT902H2 Ultimate camera I can reach +1 mag meteors under dark skies. At the borders the quality is not so good. A careful focusing must be done. From time to time it is useful to do the focusing again.

A **focal length between 6 and 8 mm** is a good compromise for imaging faint meteors and for better spatial resolution. I would suggest the Computar TG3Z2910FCS. It has a focal length 2.9-8.2mm and f/1.0 and is suited for 1/3" sensors.

<http://computar.com/file?id=205>

If used at its highest focal length (8.2 mm) it shows no vignetting for a 1/2" sensor like the one used in the Watec 902H2 Ultimate. It shows also pinpoint stars. In Locarno I use 6 such lenses covering a good portion of sky. The stars are pointlike across the entire field of view.

I bought also the **Tamron 12VG412ASIR** (good for 1/2" sensors)

https://www.tamron.co.jp/en/data/cctv_ir/12vg412asir.html

It is a good lens, is f/1.2 and is somewhat expensive. This lens detects less meteors compared to the Computar TG3Z2910FCS.

The **Panasonic WV-LA608E** has a focal length of 6 mm and a fast ratio of f/0.75.

http://www.broadcaststore.com/pdf/model/648415/panasonic_wv-la608_.pdf

This lens is not manufactured anymore and maybe you can find it by some ebay dealers as bargain. The image of the stars is not sharp, but more faint meteors can be detected. Normally I reach +2.5 mag meteors under dark skies.

All the suggested lenses have an automatic iris (DC powered). Pay attention that the lens must have a metallic or a neutral-density filter for iris. Pointing directly to the sun without iris can damage the sensor of the videocamera. If the lens is not DC powered, the iris is closed, and no damage is done.

2. VIDEOCAMERA

I would suggest the analog **Watec 902H2 Ultimate**. Not the Watec 902H2 Supreme.

The sensor is 1/2" wide.

There are several sellers.

I bought here:

<http://www.modernastronomy.com/camerasAstroVideo.html#watec902h2%20ultimate>

The settings I use are: AGC = LO ; Gamma = OFF.

3. GRABBER

The **Logilink VG0001A** is a low cost USB grabber.

http://www.logilink.eu/Produkte_LogiLink/Eingabegeraete_Multimedia/Video_Grabber/USB_20_Audio_und_Video_Grabber.htm

Pay attention that some grabbers do not work with Win7 or Win8 or Win10 OS.

If you want to use an internal grabber (PCIe card), I bought the **Imaging Source DFG/SV1 PCI**, but is expensive.

http://www.theimagingsource.com/en_US/products/grabbers/dfgsv1/

I have also the **EMS Imaging VC006AUSB**.

<http://www.ems-imaging.com/index.php/usb-3-0-video-capture/6-ch-a-v-video-capture>

It has 6 inputs and is a very good item.

4. CABLES AND ADAPTERS

The watec camera has a BNC out-connector.

One should buy **BNC cables** (for example from Conrad).

<http://www.conrad.ch/ce/de/product/101432/BNC-Messleitung-BNC-Stecker-BNC-Stecker-2-m-Blau-Testec-81033?ref=list>

and also **BNC-to-CINCH adapters** and/or **CINCH-to-BNC** adapters, because the grabber has only cinch-input.

<http://www.conrad.ch/ce/de/product/730556/BNC-Adapter-BNC-Stecker-Cinch-Buchse-1-St?queryFromSuggest=true>

<http://www.conrad.ch/ce/de/product/741108/BNC-Adapter-BNC-Buchse-Cinch-Stecker-1-St?queryFromSuggest=true>

5. RESISTORS for WARMING

I bought this one and is very effective:

<http://www.conrad.ch/ce/de/product/532878/Heizfolie-selbstklebend-Thermo-L-x-B-110-mm-x-77-mm-Betriebsspannung-12-V-Leistung-12-W>

6. 12V POWER for WATEC

I bought this one from Conrad.

<http://www.conrad.ch/ce/de/product/510819/Stecker-Netzteil-Festspannung-Dehner-Elektronik-SYS-1421-0612-W2E-EURO-12-VDC-500-mA>

7. 12V POWER for RESISTANCE

A 12V trafo with at least 1A current output is suitable.

8. DOMES

I bought the dome from Project Plastics.

<http://www.projectplastics.co.uk/>

9. PRINTSCREENS

Two printscreens showing my UFOCAPTURE-settings with the Panasonic 6 mm lens.
Of course these settings depend also from the brightness and contrast level of the video signal (and on the type of grabber).

Brightness: I try to set it just above the skybackground on dark moonless nights.

Contrast: I try to set it to obtain a “good to see” image. The stars should not to be “too” crisp.





