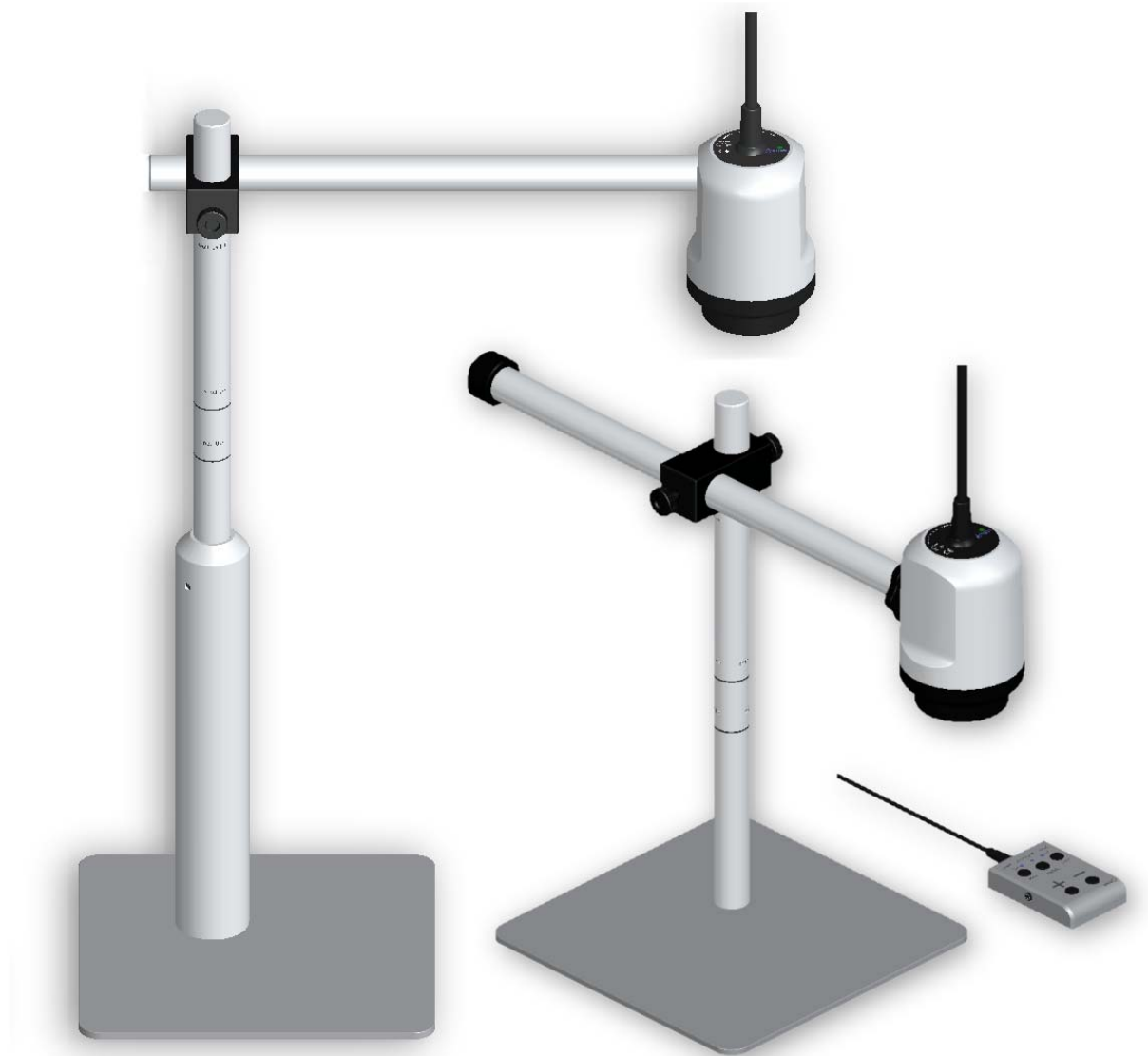# Instructions Manual

Optilia HD Inspection Systems

M20x EasyView and M20x FreeSight

This manual describes how to use M20x-HD FreeSight and EasyView Systems
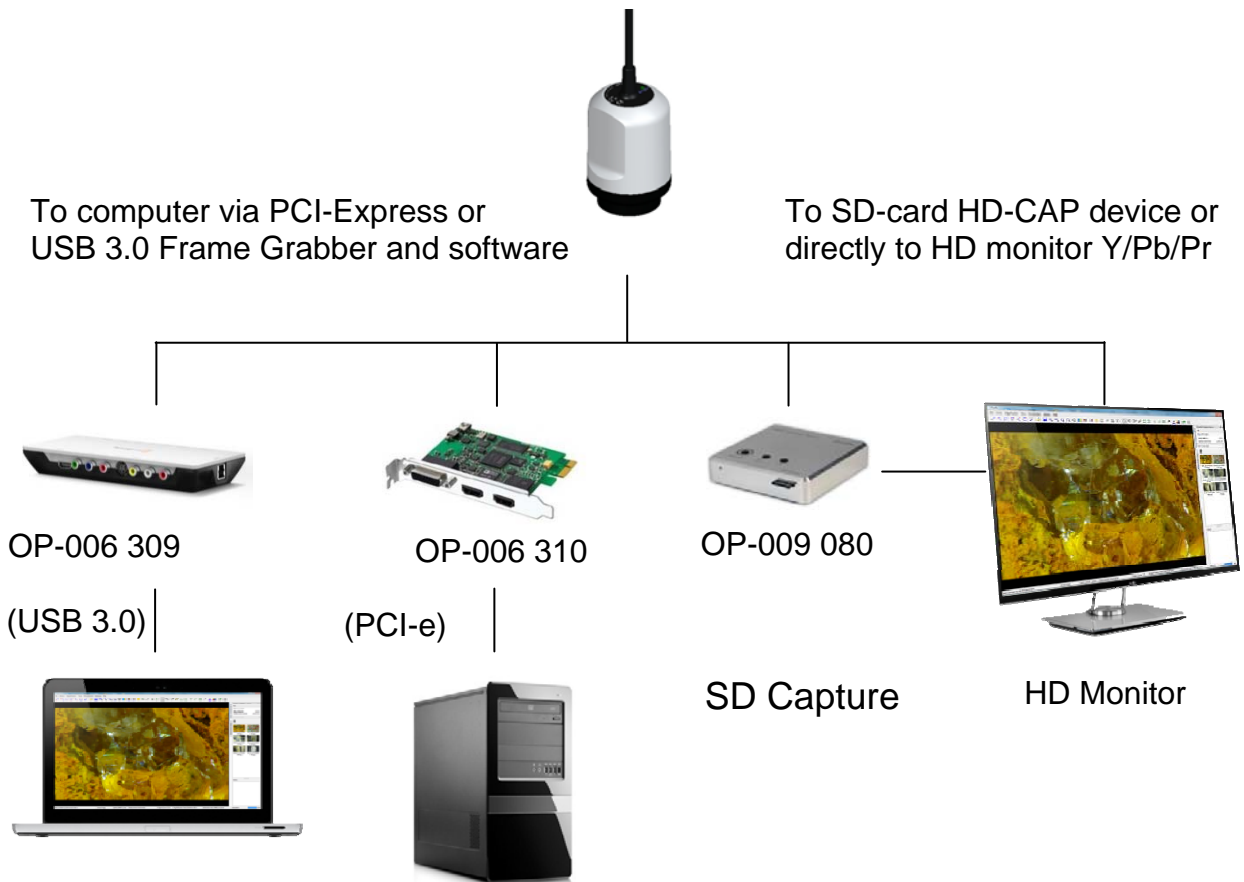
Contents

1. About M20x

M20x is a cost effective and ergonomic 720p High Definition camera system for fast and reliable optical inspection. The M20x system can be ordered in two models; EasyView and FreeSight. EasyView has a 210 mm to 240 mm working distance range while FreeSight has extended working distance of 350 mm to 500 mm. Both models utilise high resolution 20x zoom optics with fast Auto Focus.

M20x can also be ordered with 1080p 60 fps Full HD image sensor.

An extensive range of lenses, illuminations, software, mounts and stand allows versatile configurations and installation in all working situations.

The systems can be directly connected to Optilia´s SD-card image Capture device and/or a HD LCD Monitor. Connection to laptop/PC is made via USB3.0 or PCIe capture devices with software provided by Optilia.

To computer via PCI-Express or USB 3.0 Frame Grabber and software

To SD-card HD-CAP device or directly to HD monitor Y/Pb/Pr

OP-006 309

OP-006 310

OP-009 080

(USB 3.0)

(PCI-e)

SD Capture

HD Monitor

2. Assembling the System

2.1 M20x FreeSight: Assemble the Single-rod Boom Stand, Extended Height for FreeSight according to the bellow instructions.

UNC ¼"-20 mounting screw

Boom

Knob

Vertical post

2x set screws

Extender
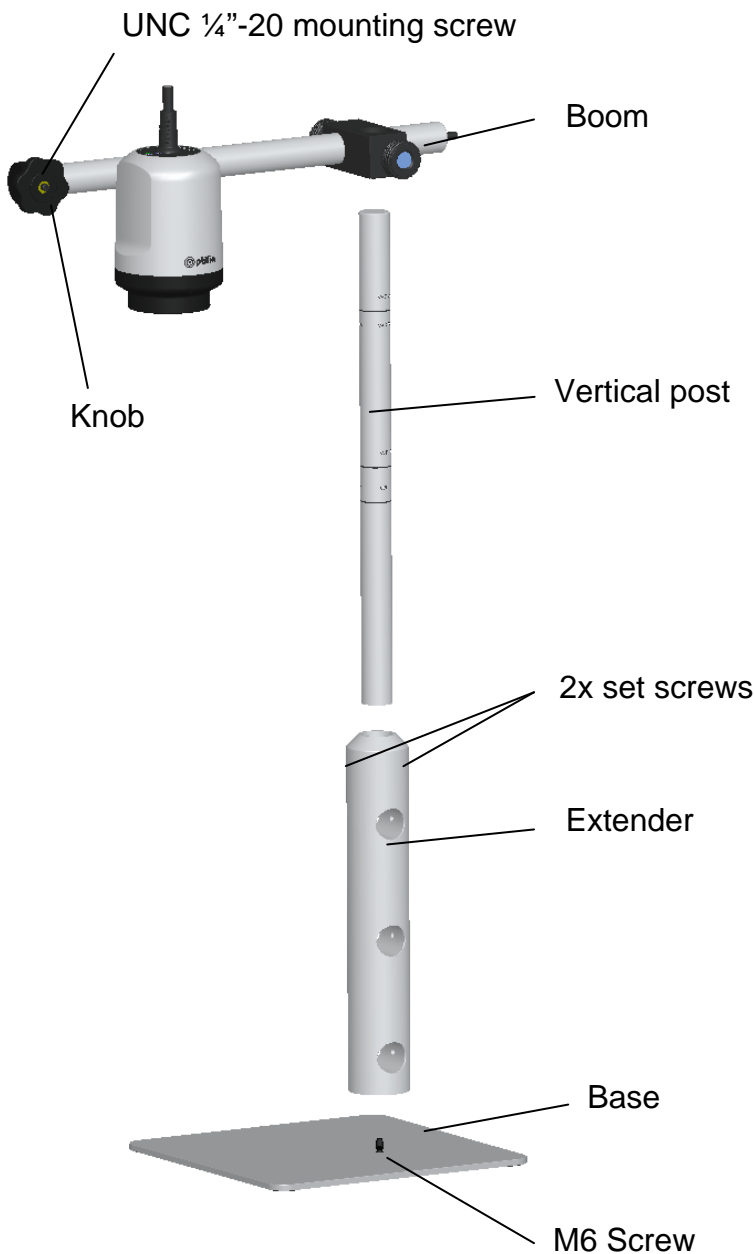
Base

M6 Screw

A. *Fasten the extender on the Base with the M6 screw.*

B. *Insert the Vertical post into the Extender and fix it by tightening the set screws.*

C. *Mount the camera onto the Boom using ¼"-20 UNC screw and fix it by turning back the knob. Make sure the camera is mounted straight with its optical axes parallel to the stand post!*

D. *Attach the Boom including Camera to the Vertical post and fix all.*
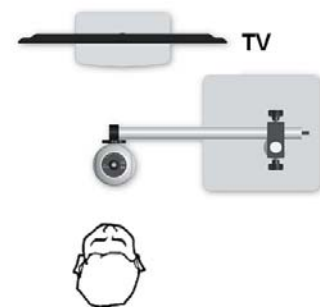
Note: M20x Camera can be either front- or side mounted on the Stand Boom! FreeSight shall be side-mounted!

![Optilia logo]

2.2 M20x EasyView: Assemble the Single-rod Boom Stand for EasyView according to the bellow instructions.

E.   Fasten the vertical rod on the base with the attached M6 Screw.

F.   Mount the camera onto the Boom using ¼"-20 UNC screw and fix it by turning back the knob. It is possible to side-mount or front mount the camera on each of the rod's ends. Make sure the camera is mounted straight with its optical axes parallel to the stand post.

G.   Attach the Boom with Camera to the Vertical post and fix all.
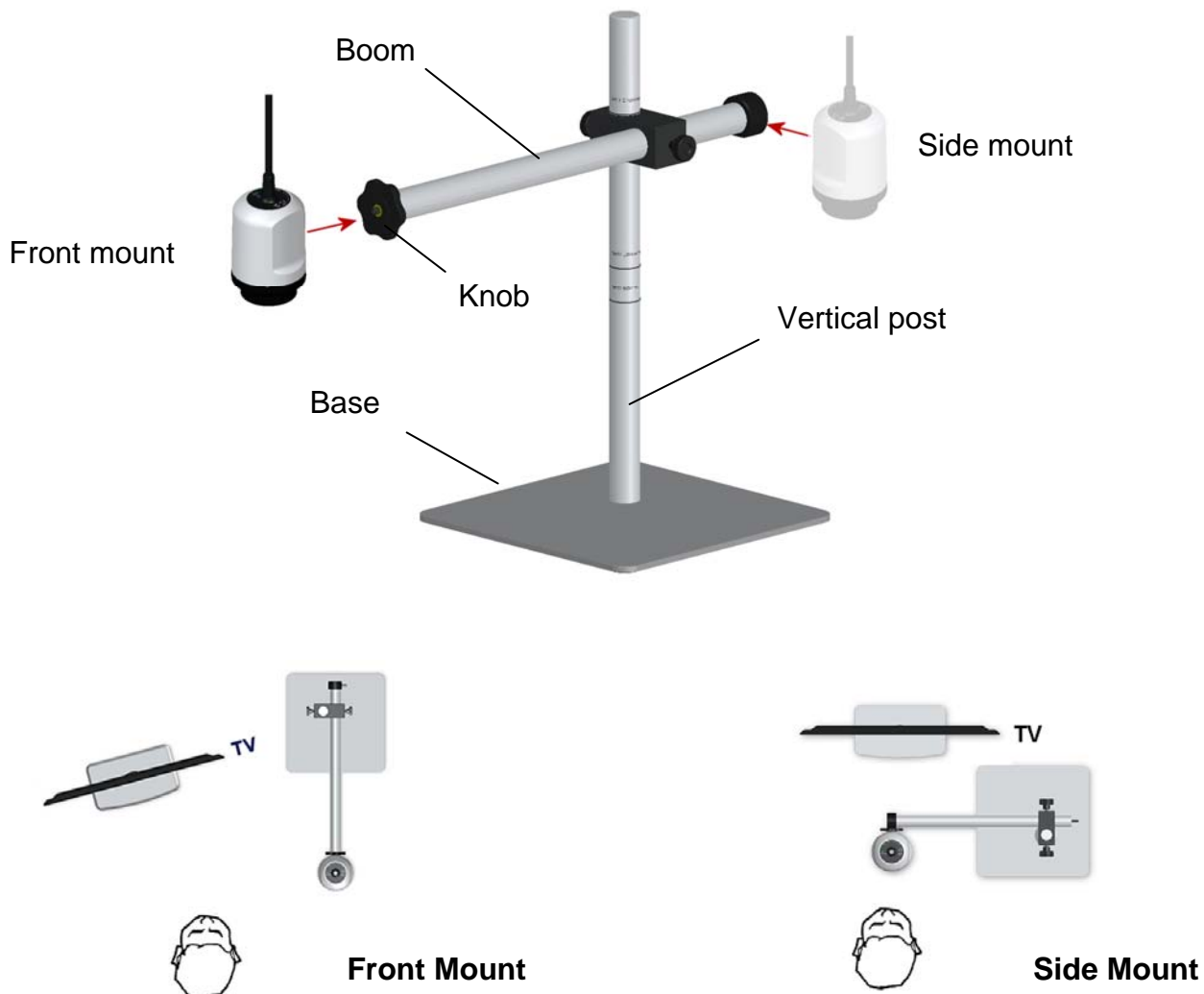
Note: M20x Camera can be either front- or side mounted on the Stand Boom!

3. Camera Height and Working Distances

Standard working distance (WD) range of EasyView is ~ 210 to 240 mm.
Standard working distance range of FreeSight is ~ 350 to 500 mm.

Adjust height of the Boom to obtain maximum WD. Use the printed marks
on the Vertical post to set the right WD.

Attaching extra close-up lenses to the camera will alter WD according to
below table. Position of the maximum working distances with +5 and +10
lenses are also marked on the vertical post.

EasyView

Standard lens
240mm mark

With +5 lens
100mm mark

With +10 lens
60mm mark

FreeSight

Standard lens
500mm mark

With +2 lens
240mm mark
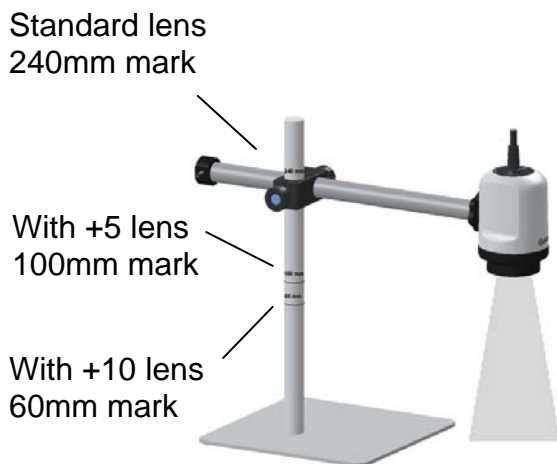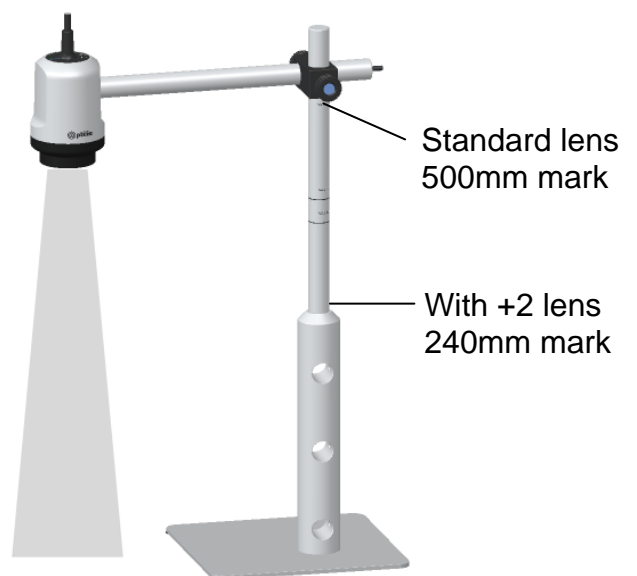
Working distance table

Standard Lens	~ 210 - 240 mm
+2 Close-up Lens	~ 145 - 160 mm
+5 Close-up Lens	~ 95 - 110 mm
+10 Close-up Lens	~ 60 - 70 mm

Working distance table

Standard Lens	~ 350 - 500 mm
+2 Close-up lens	~ 210 - 245 mm

*Note: Auto focus of the camera will not work properly if WD is not set
according to the instructions!*

4. Control Unit

4.1 Connections and Power on

a) Connect the camera to Y/Pb/Pr component video inputs of your HD-CAP, Frame Grabber or directly to a video monitor/TV.

b) Attach the Foot Switch to external foot switch input of the control unit (Optional)

c) In ESD protected environment, connect the ground connection point of the control unit to the earth using a M3 screw.

d) Connect the Power supply to 12 V DC-input of the camera

After connecting the power supply the indication LEDs will start flashing and camera will be turned on automatically. Control unit loads always Last saved camera setups at start-up.

Power On/Off switch

Earth Connection
M3 threaded hole

Foot Switch connection
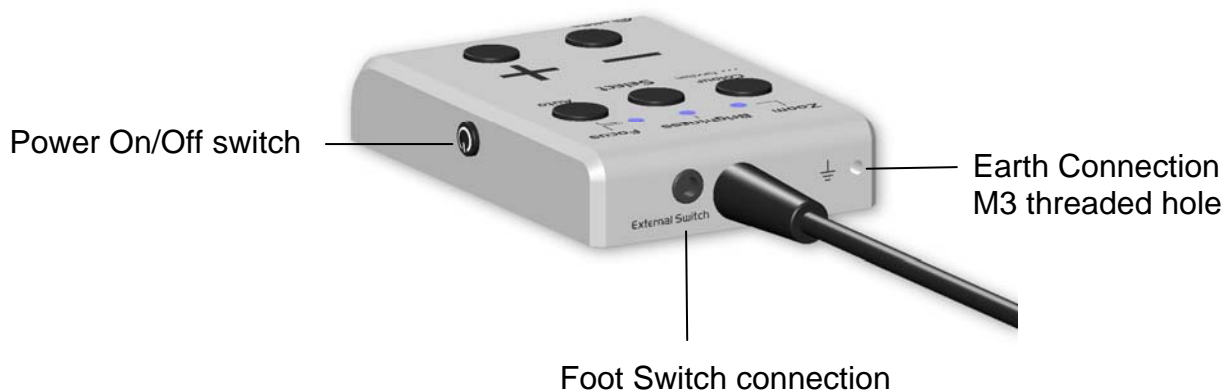
Power off: Press and hold the Power on/off button for two seconds and release. All LEDs on the control unit turns off. Camera will be switched off and the current configuration will be saved.

Power on: Press and hold the Power on/off button for two second and release. Indication LEDs will start flashing and last camera configuration will be loaded.

4.2 Functions
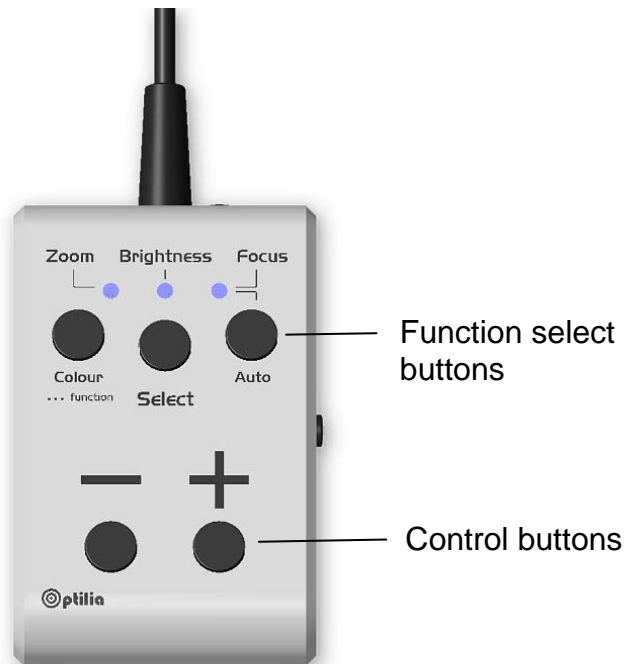
Auto: Switches between automatic focus and manual focus modes.

- When **Auto** is activated, Focus indication LED will light constantly and camera will adjust the focus automatically.
- When **Auto** is disabled, Focus indication LED will flash periodically and focus can be adjusted manually by **+/-** control buttons.

Select: Selects **Zoom**, **Brightness** or **Focus** for being adjusted by Control buttons.

*Note: Object illumination and image brightness needs to be adequate for smooth function of **Auto Focus**.*

Colour: Sets white balance of the camera to 4 different colour settings. Press **Colour** button to toggle between Automatic, Warm, Cold and One Push white balance settings.

… function: Activate Zoom Display and Cross-Line on live image (optional, see next page OP-009 032 upgrade)

– +   Increase/Decrease value of the selected function.

5. Cross-line, Zoom Display and 2 Save/Recall

Optional OP-009 032 Upgrade

This optional software enables M20x EasyView and FreeSight cameras to display Zoom factor of the camera and overlays a thin crosshair on the centre of the live image. Furthermore, it allows you to save and recall 2 camera presets, A and B.

5.1   Selecting… function mode

Press and hold the **… function** button for 2 seconds and look at the monitor until you see the overlays.

1. **Zoom Display**
   Current zoom factor is displayed on up-right corner and current preset is displayed on down right corner. 2 presets can be saved and recalled.

2. **Zoom Display and Cross Line**
   A cross line is displayed on the centre of the screen. The zoom factor is displayed on up-right corner and current preset is displayed on down right corner. 2 presets can be saved and recalled.

3. **Standard**
   Display is off. Control box will function as standard. Save/recall function is not available in this mode.

6. Save and Recall presets

Two independently camera setups i. e. Zoom position, White balance and Brightness level can be saved into the memory of Control unit and be Recalled at any time.

Saving preset A: Press and hold the **… function** and ▬ **button** simultaneously for 5 seconds until the LEDs start flashing. Current camera setup is recorded and **A** is displayed on down-right corner of the screen.

Saving preset B: Adjust the camera with new parameters and hold the **… function** and **+ button** simultaneously for 5 seconds until the LEDs start flashing. The new camera setup is recorded and **B** is displayed on down-right corner of the screen.

Press and hold for saving preset **A**

Press and hold for saving preset **B**

Recalling Presets: Press **… function** button to recall preset **A** and once more to toggle between presets **A** and **B**.

Note: If camera settings are changed after selecting a preset, pressing **… function** button will recall the last used preset.

*Note: If you change any camera setting, **A** or **B** will disappear from screen.*

*Note: Save/Recall functions is only available if the **… function** mode is selected.*

8. Notes

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