VARIOVISION

# Welding camera system WVS-16

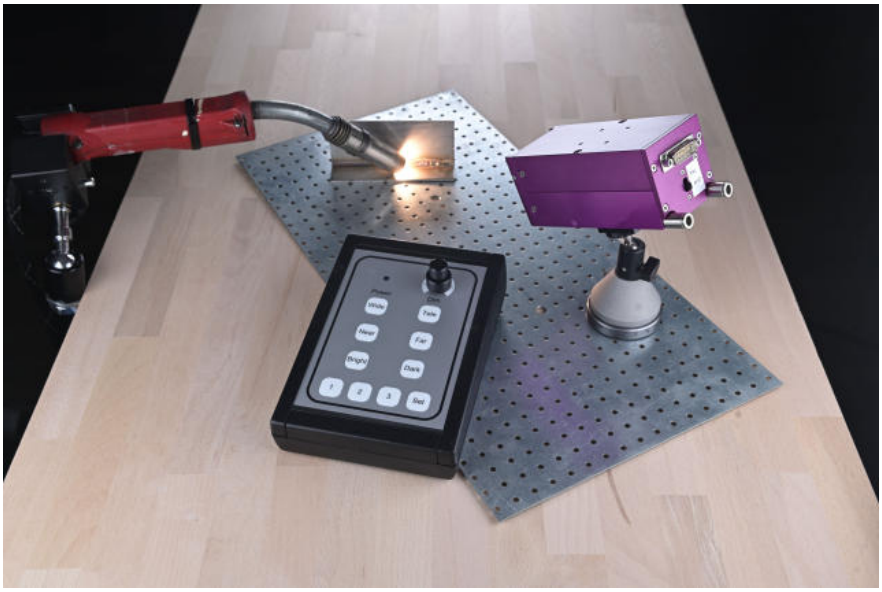
By semiautomatic or automatic welding equipment the service and control of the welding torch mostly occurs from a control station. To set the position of the welding torch and the parameters for the welding process optimally, however, a visual inspection from the control station is required.

The welding camera WVS-16 provides a sharp colour picture and allows therefore an optimal observation of welding torch, filler wire and work piece as well as welding arc and melting area. Zoom, sharpness and brightness can be fast and simply adjusted via a small operating panel - **before**, **during** and **after** the welding process. This can help you e.g., to shorten the setup time substantially or faster recogniton of possible welding mistakes.

Two storage buttons can be overwritten with new settings by the user at any time.

The camera is in a protective case (60x60x130mm) and thereby can be inserted also in cramped arrangements with heat and dust load. A protective glass on the front side protects the optics of the camera and can be changed easily.

The drag chain suitable camera cable can be ordered up to 50 m length. With it, e.g., the camera can be controlled by a remote control station or a complex cable transfer in the machine can be carried out.



Version 4.1.2

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# Safety instructions:

Please read this manual carefully and check for the instruction before operating the WVS-16 welding vision system.

Keep these instructions at a safe place.

Use the system only in the specified temperature and air humidity area.

Use only original power supplies for operating the system.

Do not open the case of the camera. Parts inside can be damaged or de-adjusted.

Get sure, that the power supply is disconnected, when system will be installed and cables will be connected.

Connection cables should be moved in such a way that no one can step on it or that they can be damaged by falling down objects.

Never pour liquids about the camera or the operating device.

Never put objects by openings of the machine. You can touch voltage-carrying shares and receive an electric blow.

Before cleaning the system has to go is switched off and is separated from the operating voltage. Use to the cleaning a humid cloth.

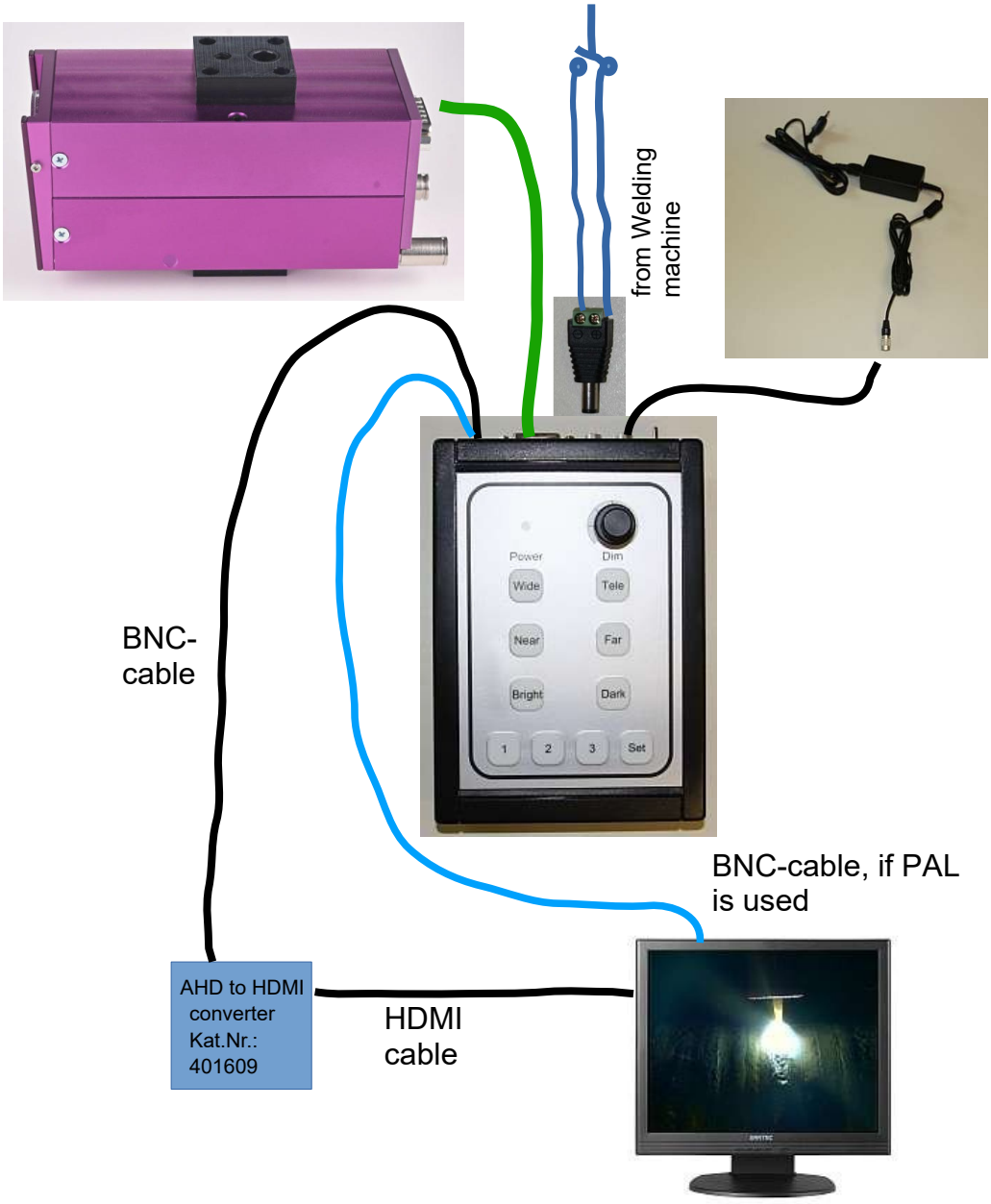
Use no sharp cleaning agents or spray cans.

With operational disturbances switch off the system and separate it from the main power. To leave servicing works or repair work exclusively to the manufacturer.

The installation of the system may be carried out only by certified staff and must correspond to the local regulations.

## The welding vision system consists of:

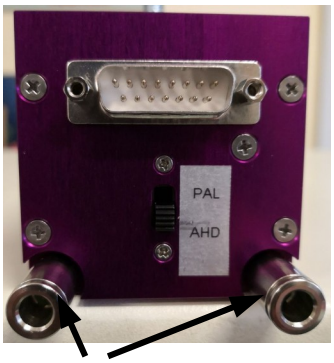
- CCD-color video camera with zoom lens, special filters and a water-cooled case
- control panel for the camera functions
- camera cable, depending on the order, up to 50 m long
- video cable, depending on the order, up to 50 m long
- power supply




When using an AHD monitor, e.g. our No. 401367, the AHD/HDMI converter and the HDMI cable are not required

# Connectors at front- and backside:

At the back of the camera is the 15 pole Sub-D plug for the camera cable, the BNC socket for the AHD video cable.




connector camera cable

Switch for PAL or AHD output

Connector for cooling Tube 6mm o.d.

In the front of the camera a protective glass is inserted which is easy to change after turn of the small screw.

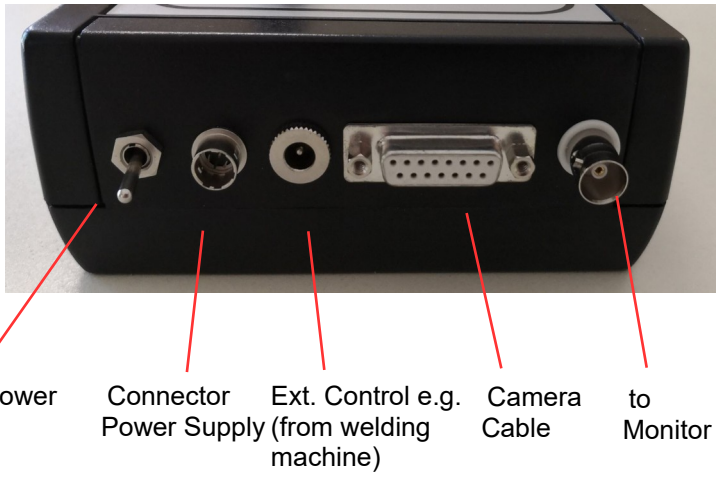
Screw for fixing protection glass

When using the AHD-output, either a monitor with an AHD-input or our converter, item no. 401609 should be used.

On the bottom and upper side of the camera are 4 x M3 thread for mounting an adaptor with a M8 grub screw and 1/4 " tripod thread. This assembly adaptor can be mounted, when required, on lower or upper side of the camera.

**ATTENTION:**
The used screws must not longer then 2 mm fit into housing.

# Operation Panel Connectors:




At the back of the operating device are the connection of the power supply, the 15 pin Sub D socket for the connection of the camera cable, a connection for external control of the special filter and a connector to the Monitor.

A close contact (free of potential in Ext. Control), e.g., from a welding machine, enables automatic switching from file 1 to file 2 which saves normally camera parameters during welding, i.e. zoom, sharpness and brightness.

**After switch ON the camera first uses an internal memory.**
**To select saved adjustments of memory 1 or 2 press button to select.**

## Rear side remote panel – Panel version:

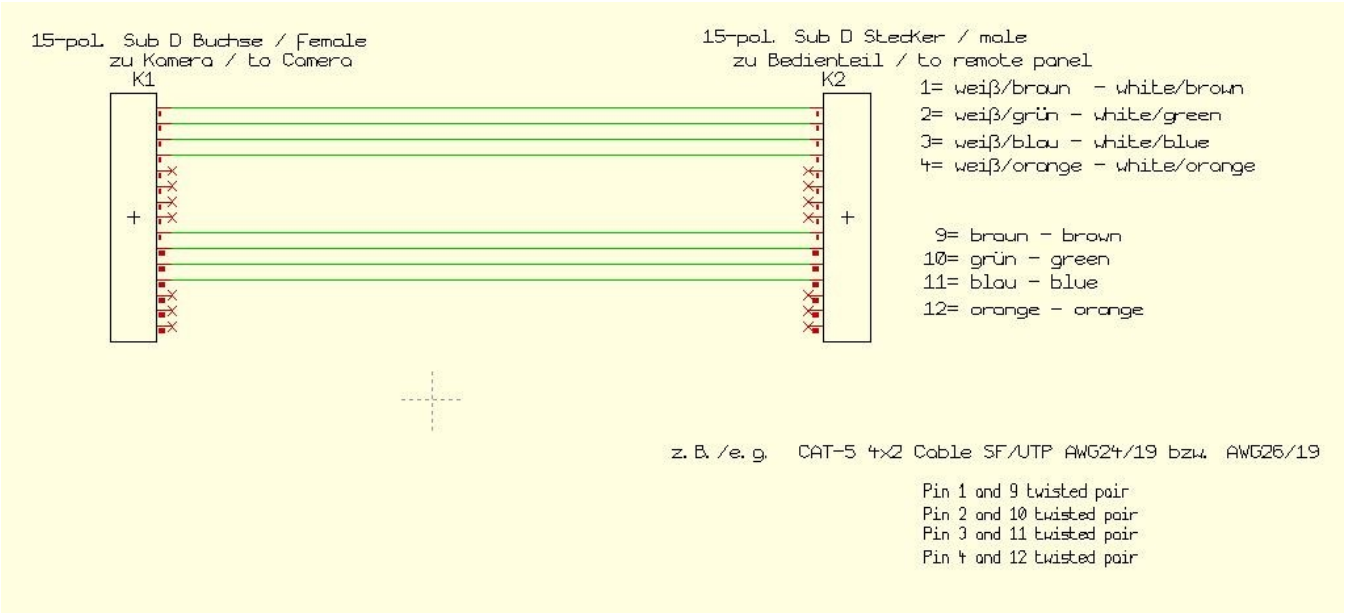

On rear side are following connectors:

4-pin connector for power supply
2-pin connector for external control
15-pin for camera cable
BNC socket for Video (PAL or AHD)

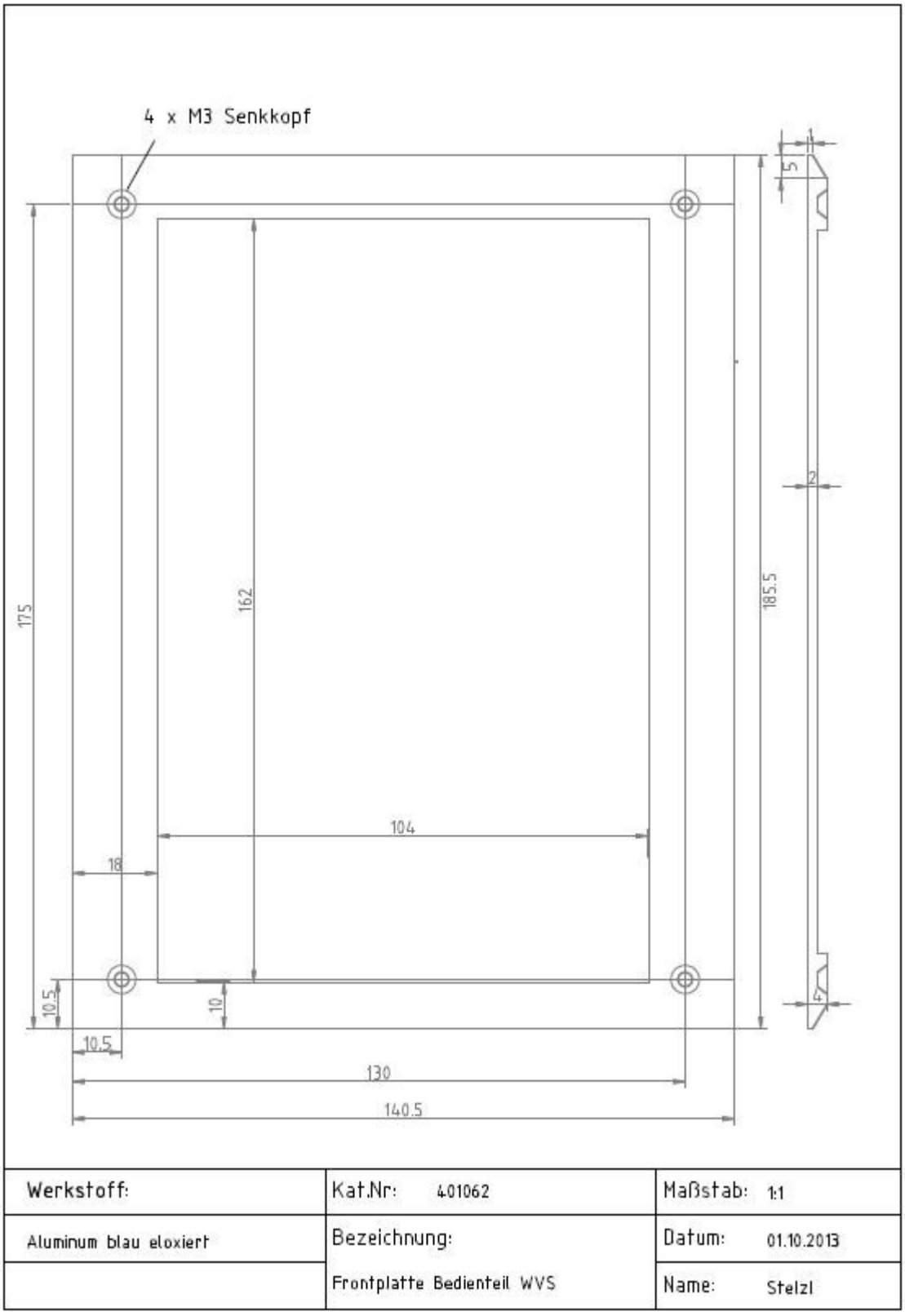
A close contact (free of potential in Ext. Control), e.g., from a welding machine, enables automatic switching from memory 1 to memory 2 which saves normally camera parameters during welding, i.e. zoom, sharpness and brightness.
Contact is open = Memory 1 → set-up, Potentiometers without functional
Contact is closed = Memory 2 → welding, Potentiometers active

**After switch ON the camera first uses an internal memory.**
**To select saved adjustments of memory 1 or 2 press button to select.**

## Camera cable:



# Dimension  Panel mount version:




| | | |
|---|---|---|
| Werkstoff: | Kat.Nr: 401062 | Maßstab: 1:1 |
| Aluminum blau eloxiert | Bezeichnung: | Datum: 01.10.2013 |
| | Frontplatte Bedienteil WVS | Name: Stelzl |

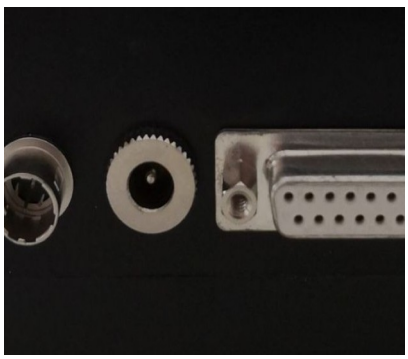
# Installation:

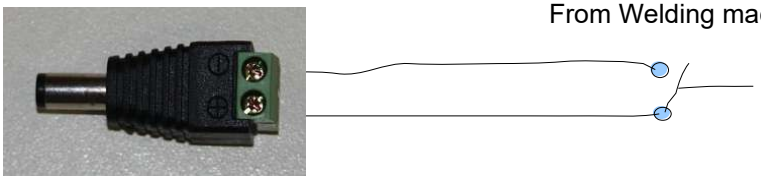
- Connection all cables before connecting the main power supply
- The assembly adaptor with a M8 grub screw and 1/4 " tripod thread is screwed on either on upper or bottom side of the camera case. Take care that only delivered screws are used.
- Due to high tempertures near camera please take care for proper cooling.
  If needed please use the optional cooling device.
  Tubes with 6 mm of outer diameter can be mounted to the water cooling. For an effective cooling the water flow should have a min. amount of approx. 6-8 l/h.
- At the assembly (mounting) of the camera is to be noted that the camera is set in correct distance according to used close lens. This distance is to be kept - otherwise a sharp position adjustment of the object is not guaranteed.

  | with close up lens | distance to front of camera | |
  |---|---|---|
  | +1 | 45...75 cm | |
  | +2 | 30...45 cm | (Standard) |
  | +3 | 22...30 cm | (= combining +1 and +2) |
  | +4 | 16...22 cm | |

- The camera cable is drag chain suitable. The length may be to maximum 50 m. The 15pin Sub D socket is camera-sided, while on operating panel side is a 15pin Sub D plug. The pinning is one to one. The copper-shield is connected with the sockets and plug case. The system can therefore from the camera up to the operating panel connect to ground/earthing by the yellow/green earthing connection..

# Automatic Ext. Control






**Please note:**

***DIM-Function is only active if the contact on ext. control is closed***

# Operation:

The  desk-shaped operating device is easy to use by the arrangement of the functional keys and the dimmer. The dirty-insensible foil keyboard can be easily cleaned with a humid cloth.

LED power indicator

WIDE causes a wide corner view, i.e. the object becomes smaller

NEAR shortens the sharpness level forwards

BRIGHT opens the aperture and makes a brighter picture


The potentiometer DIM has 2 controls to adjust the 2 grey filters so that the light amount to the camera is adjustable any time. The lower control steers the light amount of the whole picture, the top control steers only the upper half of the picture (see drawing 2 zone filter)

TELE causes zoom in, the object appears bigger

FAR extends the sharpness level to the back

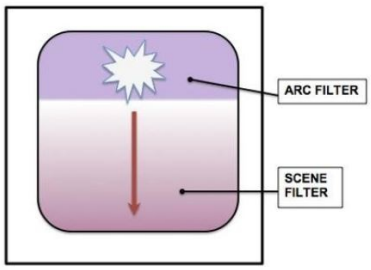
DARK closes the aperture and makes with a darker picture

The button SET activates the camera memory, by  holding of SET button and a memory key, e.g., 2 the instantaneous camera setting is written in the memory 2 and is there as long as retrievable to this memory 2 is new headlined.

The buttons 1 and 2 are memory buttons, 2 different camera settings can be stored and recalled.

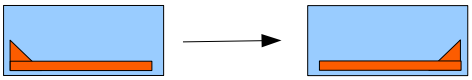
**Function button 3 see Table "Function of buttons"**

Drawing: 2 zone filter




**only at WVS-16 with 2 filter system included**

# Function of buttons

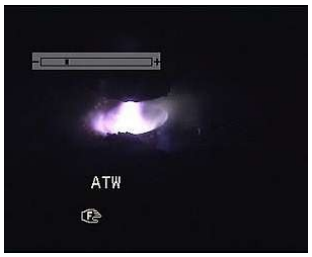
| | |
|---|---|
| **Wide** | Increase field of view |
| **Tele** | Decrease field of view |
| **Near** | Set focus more near |
| **Far** | Set focus more far |
| **Bright** | Open Iris |
| **Dark** | Close Iris |
| **1** | Recall parameter (e.g. set-up of welding) |
| **2** | Recall parameter (e.g. during welding) |
| **3** | Image left/right reverse  |
| **Set + 1** | Set current parameter |
| **Set + 2** | Set current parameter |
| **Set + 3** | turn Image by 180°  |
| **Set + Wide** | Switch to manual White Balance |
| **Set + Tele** | Switch to automatic White Balance |
| **Set + Near** | Increase Red part of Image (only at manual Whitebalance) |
| **Set + Far** | Decrease Red part of Image (only at manual Whitebalance) |
| **Set + Bright** | Increase Blue part of Image (only at manual Whitebalance) |
| **Set + Dark** | Decrease Blue part of Image (only at manual Whitebalance) |

A is displayed on Monitor when automatic White Balance is active
M is displayed on Monitor when manual White Balance is active
R and B show values for each ( 0….20)

# How to set camera parameter and brightness:

Switch the welding vision system on. After the self test a video picture should appear on the videomonitor.
Set your field of view with TELE and WIDE. Adjust focus with NEAR and FAR. Set brightness by pressing DARK and BRIGHT

**Save this information by pressing SET and 1 simultaneous.**




Now press DARK until picture is much darker

Repeat saving by pressing SET and 2.

After starting the welding process, the close contact from the welding machine switches internal from file 1 to file 2 and parameters from file 2 are used. The fine regulation for the brightness can now done with the DIM potentiometer.
If picture is still to bright press DARK again until brightness is acceptable.
Repeat saving by pressing SET and 2.

After finishing the welding (i.e. If the contact on ext. Control is open) an automatic change back to file 1 happens. Potentiometer DIM is now without function.

**Please note:**

***DIM-Function is only active if the contact on ext. control is closed***

## Changing of close up lenses:

Building up the camera please note, that the camera is mounted in the right distance to the work peace according various close up lens. The distance has to be kept; otherwise it could be that the object cannot be focused correctly.

Distance close up lens to front-side of the camera

+1 ➔ 45...75 cm
+2 ➔ 30...45 cm
+3 ➔ 22...30 cm (= +1 and +2 together)
+4 ➔ 16...22 cm

To change the close up lenses please follow the following instructions

Open the camera, according the following pictures

Remove this screws, also on opposite side
Remove the front plate with the LED ring light
*For reassembling please check the polarity of the connector*

*Now you can adjust the distance by using the various close up lenses.*
*Please chose the close up lenses according the table above*
The reassembly occurs in reverse order.

# Specification:

| | |
|---|---|
| Sensor: | 1/3“ CMOS, 2,12 MPixel, 700 TV Lines,<br>752 x 582 Pixel |
| Lens : | 10-fold optical zoom,<br>f= 5,1mm, 54°, Wide<br>f= 52mm, 4,9°, Tele |
| Shutter: | fixed at 1/50 sec. |
| Aperture: | F=1,8 to F=20 |
| Video output: | FBAS, 1 V p_p (Sync. Negativ) on remote panel |

Automatic white balance ATW

Manuell focus for optimal adjustment

2 memory spaces for user parameter

Camera cable up to 50m

| | | |
|---|---|---|
| Power: | | 12 VDC, 250 mA |
| Operating temperature: | | 0...50 ° C |
| Size: | Camera | 60 x 60 x 140 mm, |
| | Panel | 135 x 190 x 55 mm (W x D x H) |
| Weight: | Camera only | appr. 750 gr. |

**Power Supply:**

| Description | Art.-No.: | |
|---|---|---|
| Power Supply | 402501 | 100 – 240 VAC to 12VDC |
| Power Supply | 402502 | 100 – 240 VAC to 12VDC, if cable length > 40m |
| Connection Cable | 402468-H | for remote control panel mount with existing 12 Volt DC-Power Supply |

**WVS-16 Connection Cable:**

| Description | Art.-No.: | |
|---|---|---|
| WVS-16 Cable | 401543-xx | xx =depending on the required cable length |

**Spare parts:**

| Description: | Art.-No. |
|---|---|
| Protective Glas | 402461 |
| LED-Ring Light | 401083-B |

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