

Welding camera system WVS-16

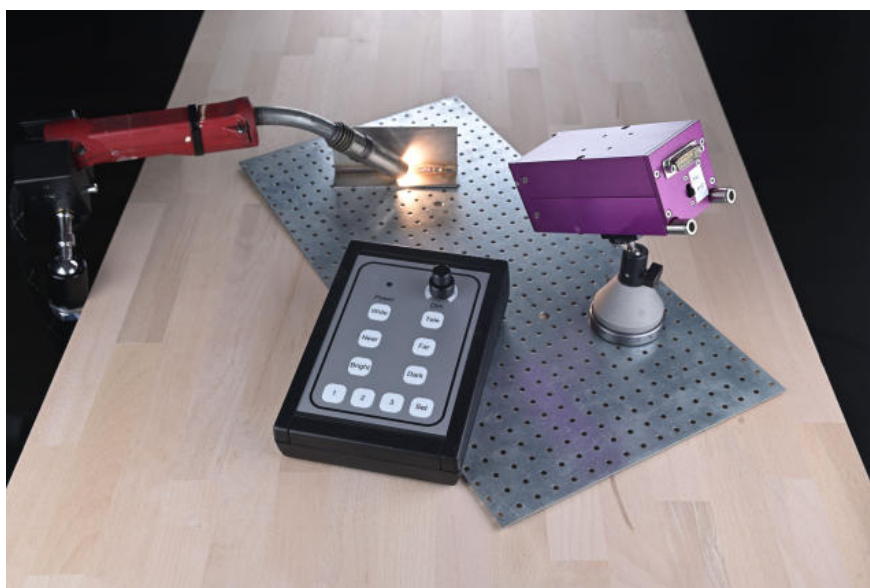
By semiautomatic or automatic welding equipment the service and control of the welding torch mostly occurs from a control station. To set the position of the welding torch and the parameters for the welding process optimally, however, a visual inspection from the control station is required.

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 recognition 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 4.1.3

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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.

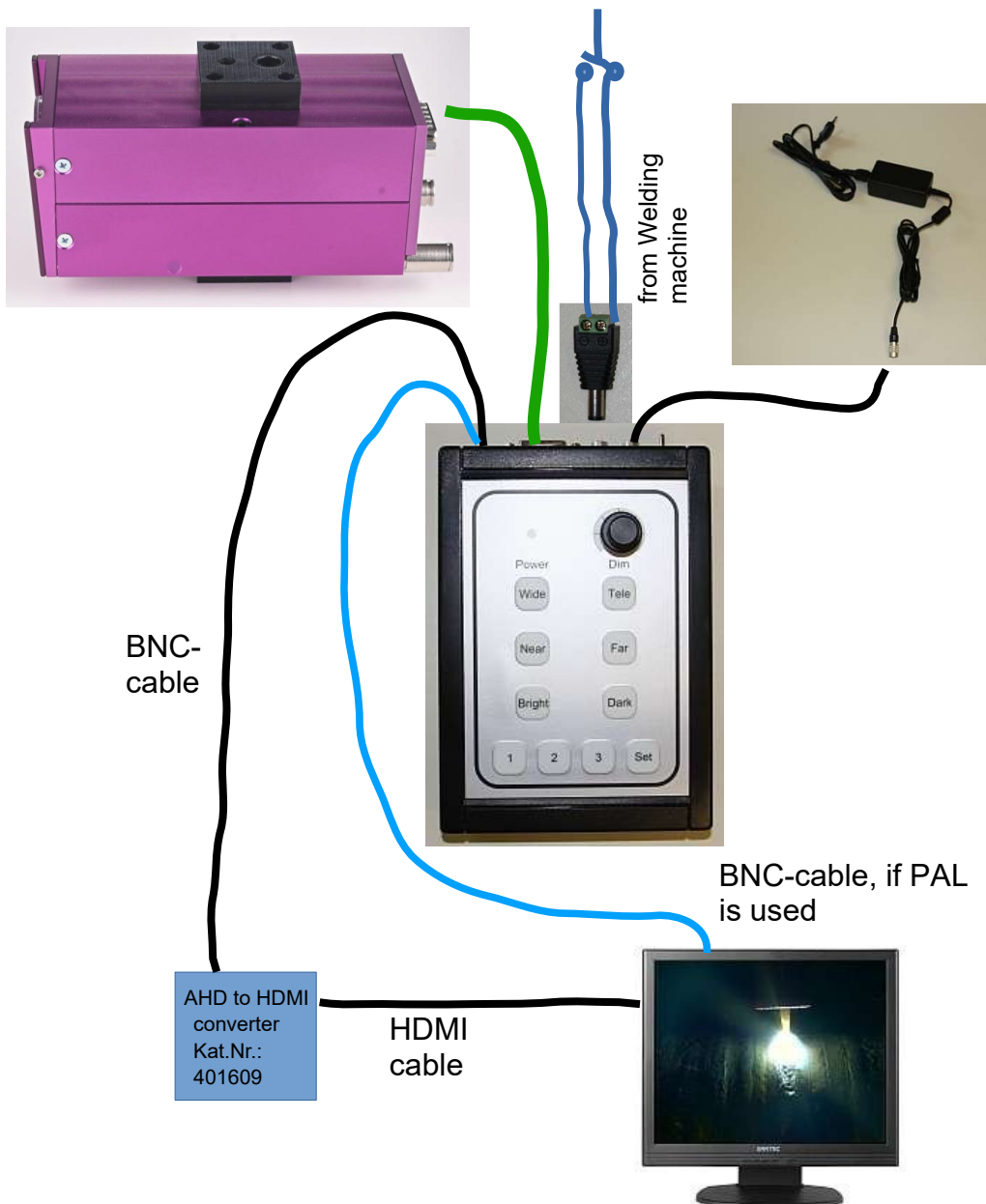
Use no sharp cleaning agents or spray cans.

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:

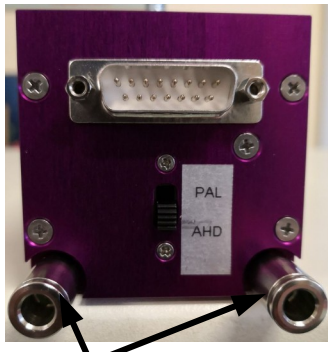
- CCD-color video camera with zoom lens, special filters and a water-cooled case
- control panel for the camera functions
- camera cable, depending on the order, up to 50 m long
- video cable, depending on the order, up to 50 m long
- power supply



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.

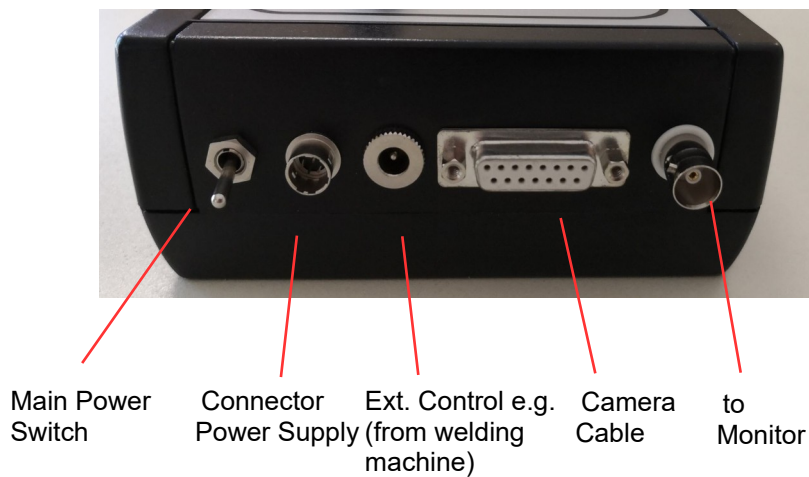
Close the unused mounting holes with the supplied screws.

ATTENTION:

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



Operation Panel Connectors:

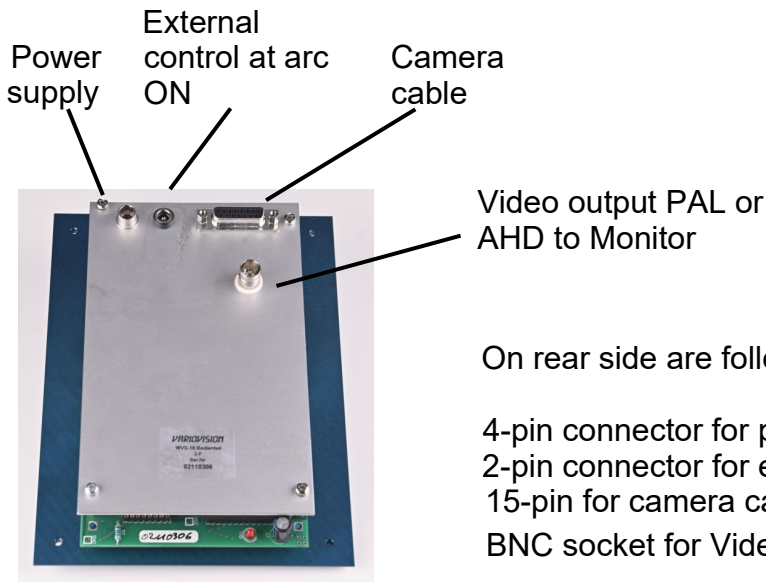


At the back of the operating device are the connection of the power supply, the 15 pin Sub D socket for the connection of the camera cable, a connection for external control of the special filter and a connector to the Monitor.

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.

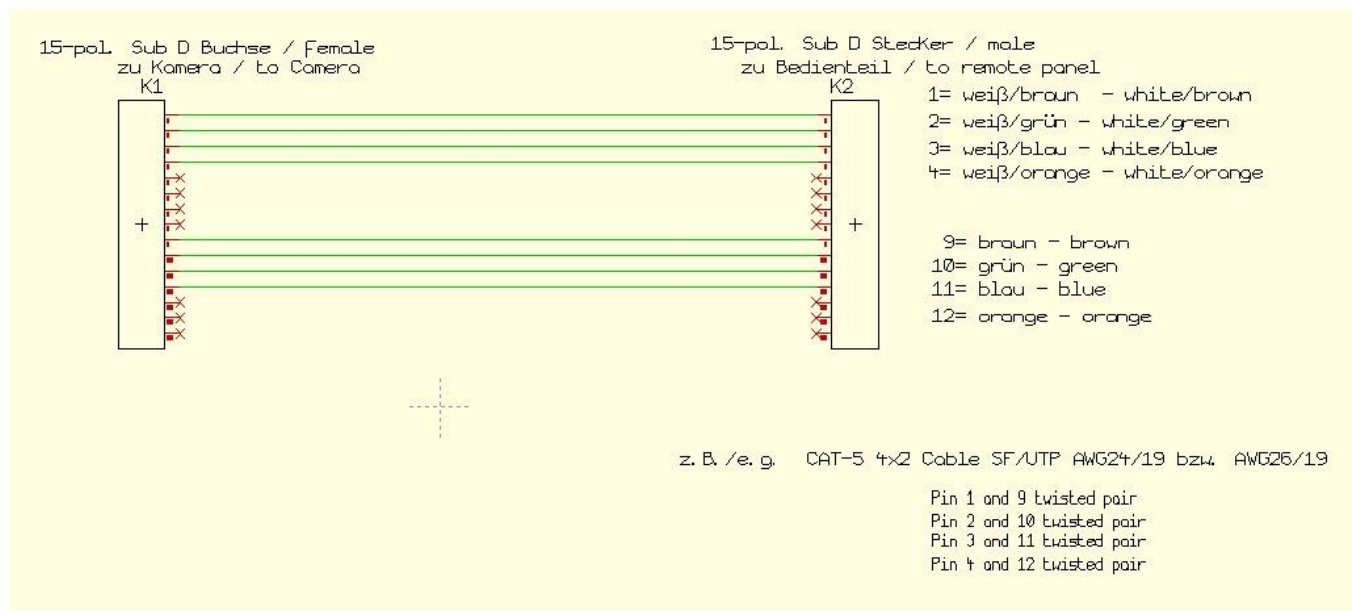
Contact is open = Memory 1 → set-up, Potentiometers without functional

Contact is closed = Memory 2 → welding, Potentiometers active

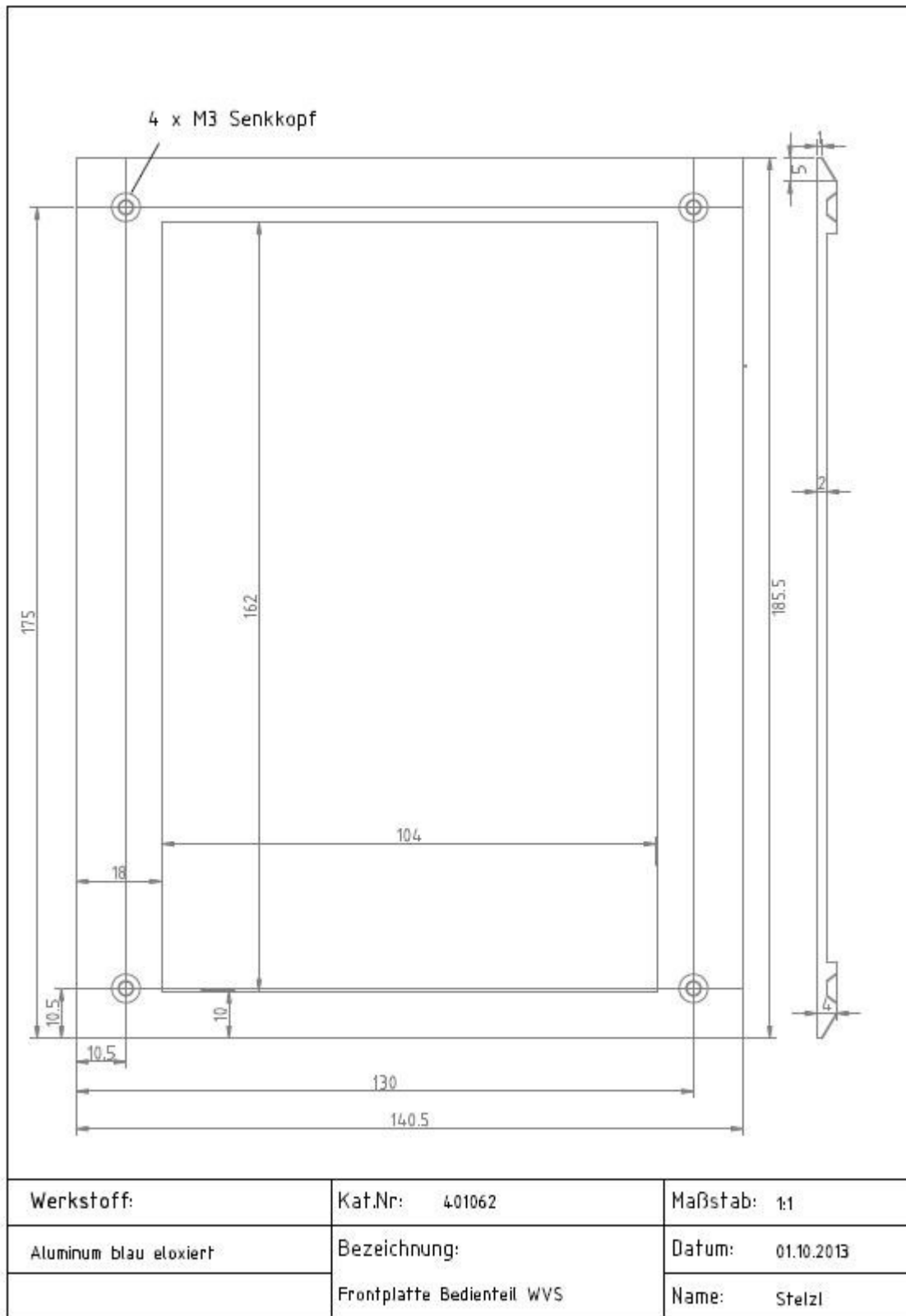
After switch ON the camera first uses an internal memory.

To select saved adjustments of memory 1 or 2 press button to select.

Camera cable:



Dimension Panel mount version:



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 temperatures 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.

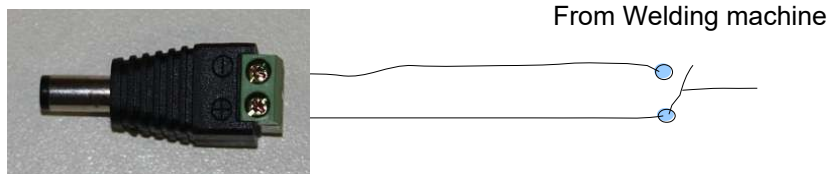
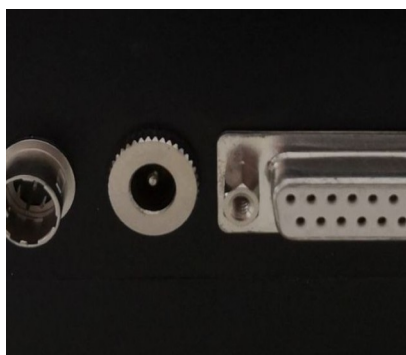
with close up lens

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

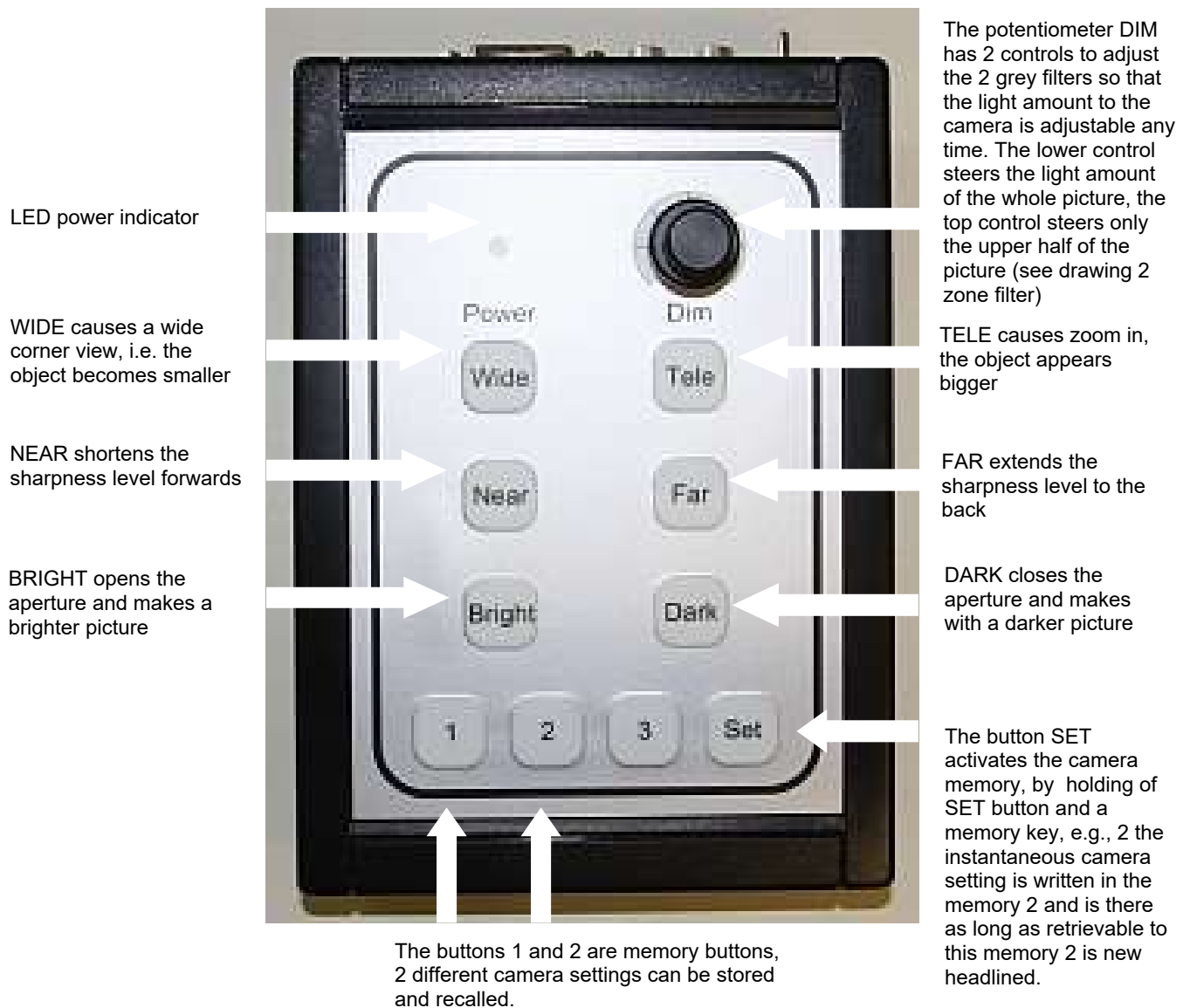


Please note:

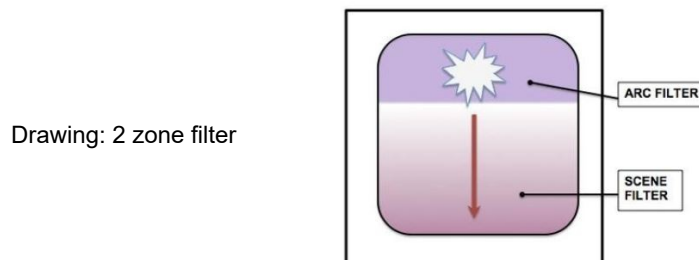
DIM-Function is only active if the contact on ext. control is closed

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.





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



**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 piece 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,
752 x 582 Pixel

Lens : 10-fold optical zoom,
f= 5,1mm, 54°, Wide
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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