



Technical Manual

VoE-IOBox Rev. 2.0

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Version: 5.2

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|-----------------|-----------|
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| Version change: | Log |

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2 General

2.1 Abbreviations

The abbreviations used are explained below:

- V60 = Image analysis program from the VisionTools company
- PPE = personal protective equipment
- I/O = Input/Output
- VoE = Vision over Ethernet
- GND = Ground
- EMC = Electromagnetic compatibility

2.2 Information on the manual

This technical manual contains important instructions for working with the product named on the cover sheet. The prerequisite for workplace safety is the observance of all safety and handling instructions specified in this manual. The local accident prevention regulations and national health and safety regulations must be observed in addition to the instructions in this manual. All information and instructions are to be carefully read before use. The manual is a product component and must be kept accessible to the plant operator at all times.

2.3 Documents enclosed

- Manufacturer's declaration

2.4 Safety information

In this manual, icons (acc. to EN ISO 7010) are used to highlight correct text passages and relevant sections. If the product is sold in a non-EU country, the warning symbols may need to be amended, if necessary.

The signal word describes the severity of the impending risks:

- **Danger!** Imminent dangerous situation which will result in serious bodily injury or death.
- **Warning!** Potentially dangerous situation which could result in serious bodily injury or death.
- **Caution!** Potentially dangerous situation which could result in minor bodily injury or death. Also warning of damage to property.
- **Note!** For application instructions and other important information.



Note

General information



Follow the instructions

In accordance with DIN EN ISO 7010



General warning sign

In accordance with DIN EN ISO 7010



Warning of electrical voltage

In accordance with DIN EN ISO 7010



Warning of oxidising substances

In accordance with DIN EN ISO 7010

2.5 Limitation of liability

All information and statements in this manual are compiled in consideration of valid standards and regulations, as well as state of the art technological knowledge.

The manufacturer accepts no liability for damages due to:

- Failure to observe this manual
- Inappropriate use
- Using non-trained personnel
- Undertaking unauthorized modifications
- Using impermissible replacement parts

Additionally, the obligations, the General Terms and Conditions and delivery conditions of the manufacturer, and the statutory regulations valid at the time the contract was concluded will apply.

2.6 Copyright law

Copyright law to this operating manual belongs to the company VisionTools Bildanalyse Systeme GmbH. This manual is intended only for the operator and the operator's personnel.

It includes regulations and information that may not be

- duplicated,
- distributed, or
- transmitted in any other manner, either in whole or in part.

Duplicating the manual within a company for the purposes of training by the operator is excepted. Violations may have criminal consequences.

2.7 Guarantee and Liability

Our General Terms and Conditions apply. Claims for a guarantee or for liability in case of personal injury or property damage are excluded if they are due to one or more of the following causes.

- Inappropriate use of the assembly
- Inappropriate installation, commissioning, operation, and maintenance of the device or system
- Failure to follow the information in the manual regarding transportation, storage, installation, commissioning, operation, limit values, maintenance of assemblies
- Unauthorized modifications to the assemblies
- Unauthorized modifications to the programmes
- Lack of monitoring of components subject to wear
- Catastrophic incidents due to foreign objects and force majeure
- Liability for subsequent damages is excluded

3 Safety

3.1 Appropriate use

The VoE IOBox provides an interface between industrial process technology and the personal computer (PC).

It is intended for use on a PC, which is equipped with an Ethernet interface. The PC is subject to EC Directive 89/336/EEC and must meet the EMC protection requirements. Products that meet these requirements bear the CE mark.

The data between the VoE IOBox and the PC is exchanged via a shielded CAT6 cable with an X-Cross connector on the side of the module. The cable is connected to the X1 socket.

The module has 6 inputs and 4 outputs for processing digital 24 V signals.

For operation of the inputs and outputs, an external 24 V supply voltage is required. The terminals are divided into two groups with the GND potential. The inputs E1.0-E1.7 and the outputs A1.0-A1.7 have a common GND potential as well as the inputs E2.0-E2.7 and the outputs A2.0-A2.7.

The use of the VoE IOBox in combination with external clamping or relay boards requires professional installation in a closed control cabinet.

Therefore check the shielding capacity of the PC housing and cable shield before using the equipment.

Any other use or use beyond the scope of this document is deemed contrary to the designated use. The manufacturer shall not be liable for any resulting damages.

The intended use requires compliance with all instructions in the technical manual.



Limits of use

When using the **VoE IOBox**, in a plant, the interference resistance and emissions of the plant can also change. Increased emission or decreased interference resistance could mean that the conformity of the system is no longer ensured.

- The VoE IOBox must remain in its original packaging until use.
- Do not remove the identification numbers (serial number) of the VoE IOBox. To do so will result in loss of the warranty.

3.2 Foreseeable misuse

Any other use besides that determined in Appropriate use this chapter or any use extending beyond this is **not** appropriate!

The operator will bear sole responsibility

- for any damages that may result from such use.
- the company VisionTools accepts no liability.

In case of changes or unauthorized modifications to the system, any liability or guarantee from VisionTools Bildanalyse Systeme GmbH will cease to exist.

The electromagnetic behaviour of the system can be impaired by additions or changes of any kind.

Therefore, make **no** changes or additions to the system without consulting with the company VisionTools Bildanalyse Systeme GmbH and receiving written approval to do so.



Danger!

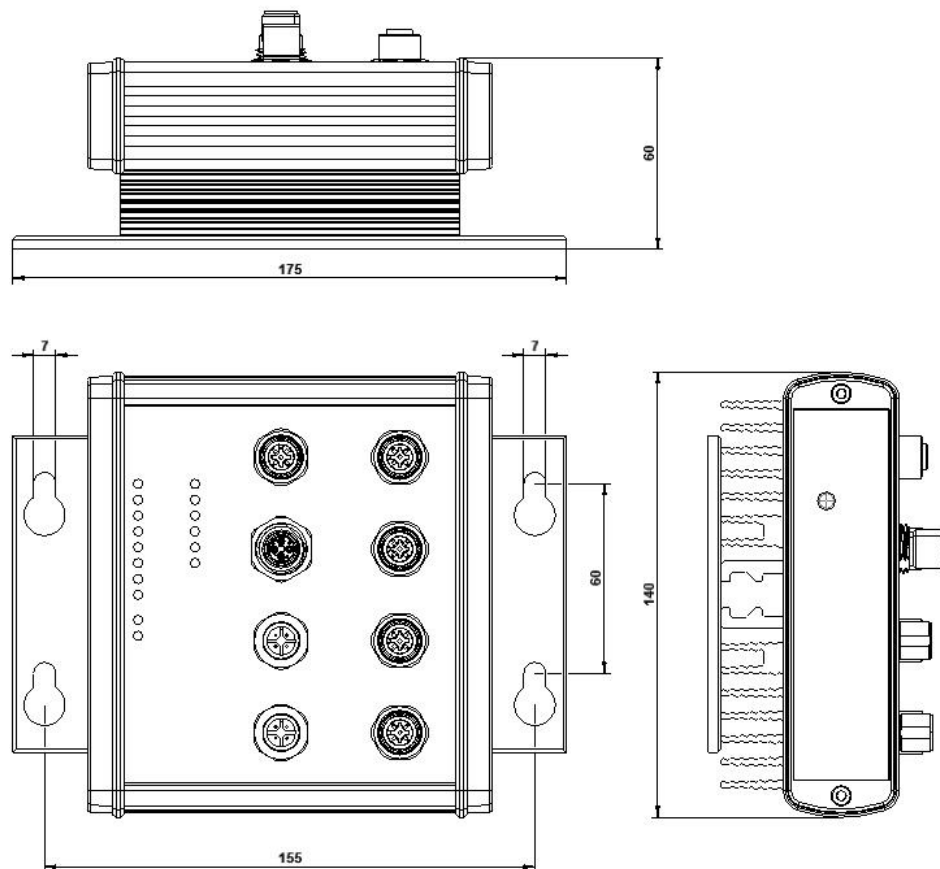
Dangers may occur following improper use.

4 Technical data

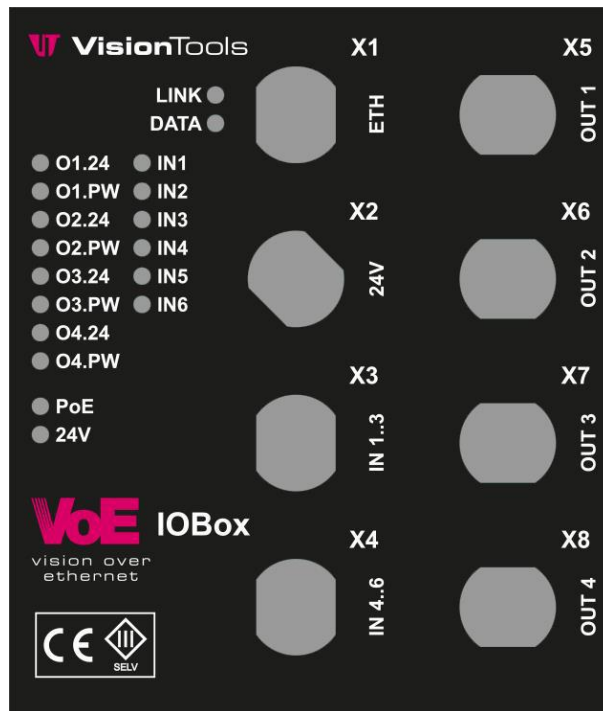
| | | |
|-----------------------------------|--|-------------|
| Housing | Aluminium diecast (IP65) | Unit |
| Dimension (LxBxH) | 130x140x76 (without plug) | mm |
| Temperature limit | | |
| Operating temperature | 0 to 60 | °C |
| Storage temperature | -15 to 70 | °C |
| Humidity | 30 – 99 whitout condensation | % |
| Electrical limits | | |
| PoE voltage | max. 56 | V |
| PoE current | max. 1.2 | A |
| X2 voltage | max. 30 | V |
| X2 current | max. 12 | A |
| Inputs (IN) | | |
| Type | positive switching | |
| Voltage | max. 30 | V |
| Current | 5 | mA |
| Connection type | M12 Male-Connector 4pos. A-Coded | |
| Outputs (OUT 24) | | |
| Type | positive switching | |
| Voltage | 24 | V |
| Current | max. 4 / in total max. 12 (depending on the power supply) | A |
| Connection type | M12 Female-Connector 4pos. A-Coded | |
| Outputs (OUT PW) | | |
| Type | push-pull | |
| Voltage | 24 | V |
| Current | max. 200 | mA |
| Frequency | 1.5 | kHz |
| min. pulse width (duty factor 1%) | 6.7 | µs |
| Connection type | M12 Female-Connector 4pos. A-Coded | |
| Interface | | |
| Type | Ethernet 10 | MBit/s |
| Connection type | M12 Female-Connector 8pos. X-Coded | |

| Power X2 | | |
|-----------------------------------|----------------------------------|---|
| Type | Power supply | |
| Voltage | max. 30 | V |
| Current | max. 12 | A |
| Connection type | M12 Male-Connector 4pos. T-Coded | |
| Current drain without load (idle) | approx. 0.1 | A |
| Power consumption without load | approx. 2.4 | W |

4.1 Dimensions (mm)



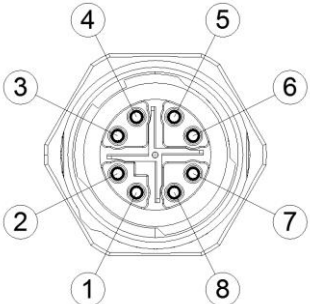
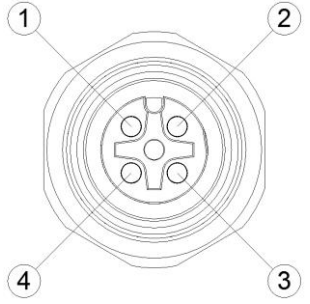
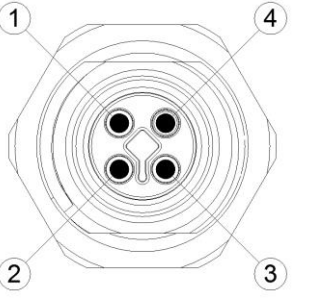
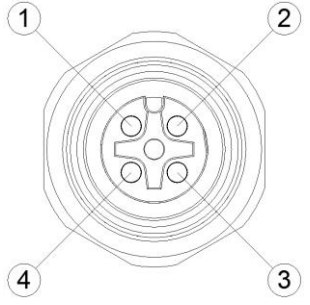
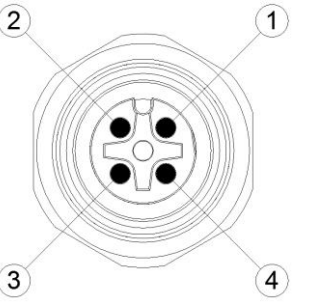
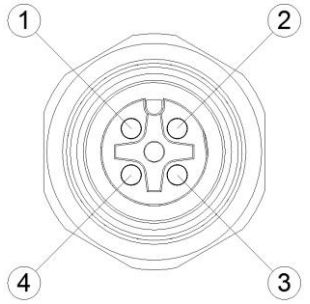
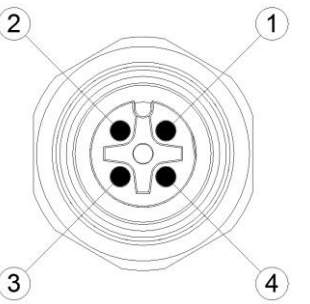
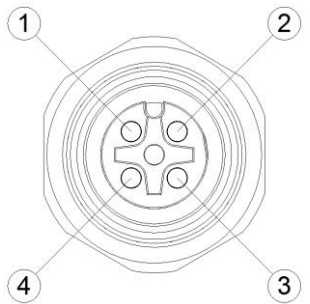
4.2 Plug Position



4.3 Status LEDs

| LED label | Meaning |
|---------------|--|
| LINK | The VoE-IOBox is connected and supplied with power. |
| DATA | Data transmission takes place, or data packages are transmitted. |
| O1.24 – O4.24 | Outputs 1, 2, 3 or 4 are switched. |
| O1.PW – O4.PW | Outputs 1, 2, 3, or 4 were switched via the PWM duty factor [%]. |
| IN1 – IN6 | Inputs 1, 2, 3, 4, 5 or 6 are switched. |
| PoE | The power supply is via PoE. |
| 24V | The power supply is via 24V. |

4.4 Pin Assignment

| X1 Ethernet | | X5 Output | | | |
|---|------------|---------------|--|------------|---------------|
|  <p>M12 Female-Connector 8pos. X-Coded</p> | PIN | Signal |  <p>M12 Female-Connector 4pos. A-Coded</p> | PIN | Signal |
| | 1 | MX0+ | | 1 | 24V |
| | 2 | MX0- | | 2 | GND |
| | 3 | MX1+ | | 3 | GND |
| | 4 | MX1- | | 4 | PWM |
| | 5 | MX3+ | | | |
| | 6 | MX3- | | | |
| | 7 | MX2- | | | |
| | 8 | MX2+ | | | |
| X2 Power 24V | | X6 Output | | | |
|  <p>M12 Male-Connector 4pos. T-Coded</p> | PIN | Signal |  <p>M12 Female-Connector 4pos. A-Coded</p> | PIN | Signal |
| | 1 | 24V | | 1 | 24V |
| | 2 | GND | | 2 | GND |
| | 3 | GND | | 3 | GND |
| 4 | 24V | 4 | PWM | | |
| X3 Input | | X7 Output | | | |
|  <p>M12 Male-Connector 4pos. A-Coded</p> | PIN | Signal |  <p>M12 Female-Connector 4pos. A-Coded</p> | PIN | Signal |
| | 1 | INB/24V | | 1 | 24V |
| | 2 | INC | | 2 | GND |
| | 3 | GND | | 3 | GND |
| 4 | INA | 4 | PWM | | |
| X4 Input | | X8 Output | | | |
|  <p>M12 Male-Connector 4pos. A-Coded</p> | PIN | Signal |  <p>M12 Female-Connector 4pos. A-Coded</p> | PIN | Signal |
| | 1 | INB/24V | | 1 | 24V |
| | 2 | INC | | 2 | GND |
| | 3 | GND | | 3 | GND |
| 4 | INA | 4 | PWM | | |

4.5 Delivery status

| | |
|-----------------|---------------|
| MAC | individual |
| IP address | 192.168.0.254 |
| Subnetwork mask | 255.255.255.0 |
| Gateway | 192.168.0.1 |
| DNS1 | 192.168.0.1 |
| DNS2 | 0.0.0.0 |
| TCP/IP Port | 9760 |

To return the device to the delivery status, the RESET button must be pressed until the LED on the left of the RESET button begins flashing.

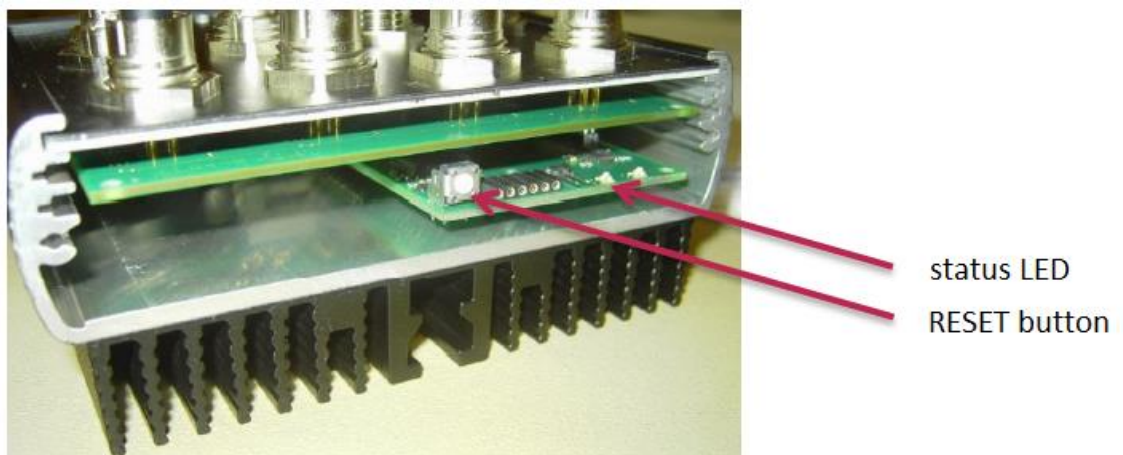
Then adjust the IP address in the *"TCP/IP-Client - Init"* object (see chapter Change the IP address) and briefly switch the box off.



NOTE!

Only the power supply may be connected for resetting.

The video *"How to reset the VoE IO-Box.mp4"* serves as an additional help.



4.6 Settings

4.6.1 Log

The commands are sent and received to the VoE-IOBox via "TCP-IP". The correct IP address as well as the correct port must be entered.

All commands are sent in plain text (ASCII). Values begin with an angle bracket and end with an angle bracket. Values are sent as decimal values in plain text (ASCII). If a command is not understood or is wrong, the module sends "ENR<X>".

TCP/IP-Client - Init

Name: TCP/IP-Client - Init

Host-Adresse: 192.168.0.254

Port: 9760

Verbinden über

Name IP-Adresse

Hostnamen auflösen

Pause für erneuten Verbindungsaufbau: 1000

OK Abbrechen Abarbeiten

1. Example (read out limit values of the outputs):

Command to read: **RCRL1** (1 to 4 are the outputs of the VoE-IOBox)

TCP/IP-Client - Senden

Name: TCP/IP-Client - Senden

TCP/IP-Client - Init

Zu sendende Zeichenkette

Objekt Ergebnis

- Zeichenkette - RCRL1

OK Abbrechen Abarbeiten

2. Example (read error):

Command to read: **ERR** (Result 99 = over-current)

Configure CIP/RCIP IP addresses

Write:

CIP<IPAddr,Mask,Gateway,DNS1,DNS2,HostName>

Answer: none

_CIP<IPAddr,Mask,Gateway,DNS1,DNS2,HostName>

Answer: „ACK“

E.g. CIP<192.168.0.10,255.255.255.0,192.168.0.1,0.0.0.0,VOE_HOST>

Read:

RCIP

Answer: CIP<MACAddr,IPAddr,Mask,Gateway,DNS1,DNS2,HostName>

E.g.: CIP<00:04:A3:D0:00:00,192.168.0.10,255.255.255.0,192.168.0.1,0.0.0.0,VOE_HOST>

RVER Returns the program version

Read:

RVER

Answer: VER<vX.XX.XX>

UPL Upload Mode

Send:

UPL

Answer: UPL<vX.XX.XX>

The controller is set to upload mode for 4 seconds. See Bootloader.

TEST starts and stops the test run.

Send:

TEST

Answer: TEST<1>

Answer: TEST<0>

The controller is set to test mode.

CADC Calibration of the analogue measurement

Send:

CADC

Answer: RVER<vX.XX.XX>

See Calibration of analogue measurement.

SPA memory parameterSend:

SPA Answer: SPA

Transmitted parameters such as CF1x<>, CFOx<>, TMRx<> and CRL<> are not immediately permanently stored in the EEPROM of the VoE-IOBox. Only with the command SPA are the parameters stored permanently and are then still available after a restart.

EXCEPTION CIP<> is stored immediately.

CFI/RCFI Setting the inputs IN1...6Write:

CFI1<PORT,EVENT,MODE,Debounce time> Answer: none

_CFI1<PORT,EVENT,MODE,Debounce time> Answer: „ACK“

CFI1<0..4,0..4,0..1,0..999> Specifies the output to be switched.
0 = not assigned to any output, 1 = OUT1, 2 = OUT2, 3 = OUT3, 4 = OUT4

CFI1<0..4,0..4,0..1,0..999> 0 = Input static. Output remains on as long as the input is present.
1 = positive edge.
Output switches on with rising edge for the time programmed with TMR1<...>.
2 = negative edge.
Output switches on with falling edge for the time programmed with TMR1<...>.
3 = positive edge.
Output switches on/off with rising edge (impulse relay).
4 = negative edge.
Output switches on/off with falling edge (impulse relay).

CFI1<0..4,0..4,0..1,0..999> 0 = polling input.
1 = push input.
If the input state changes, INP1<0> or INP1<1> is transmitted.

CFI1<0..4,0..4,0..1,0..999> 0..999 ms debouncing for IN1.

CFI2<x,x,x,xxx> see CFI1<x,x,x,xxx>

CFI3<x,x,x,xxx> see CFI1<x,x,x,xxx>

CFI4<x,x,x,xxx> see CFI1<x,x,x,xxx>

CFI5<x,x,x,xxx> see CFI1<x,x,x,xxx>

CFI6<x,x,x,xxx> see CFI1<x,x,x,xxx>

OUT/ROUT Switches the outputs OUT1...4

Write:

OUTx<STATUS> Answer: none

_OUTx<STATUS> Answer: „ACK“

OUT1<0..1> 0 = Switches OUT1 off

with CFO1<0,xxxx> Output OUT1.24 is switched off and the PWM signal at output OUT1.PWM is stopped.

with CFO1<1,xxxx> the PWM signal is stopped at Output OUT1.24.

1 = Switches OUT1 on

with CFO1<0,xxxx> Output OUT1.24 is switched on and the PWM signal at Output OUT1.PWM is output.

with CFO1<1,xxxx> the PWM signal is output at Output OUT1.24.

OUT2<x> see OUT1<x>

OUT3<x> see OUT1<x>

OUT4<x> see OUT1<x>

Read:

ROUT1 Answer: OUT1<0..1>

ROUT2 Answer: OUT2<0..1>

ROUT3 Answer: OUT3<0..1>

ROUT4 Answer: OUT4<0..1>

OUTP Switches the outputs OUT1...4 with PWM value

Write:

OUTPx<STATUS,PWM> Answer: none

_OUTPx<STATUS,PWM> Answer: „ACK“

OUTP1<0..1,0..100> 0 = Switches OUT1 off

with CFO1<0,xxxx> Output OUT1.24 is switched off and the PWM signal at output OUT1.PWM is stopped.

with CFO1<1,xxxx> the PWM signal is stopped at Output OUT1.24.

1 = Switches OUT1 on

with CFO1<0,xxxx> Output OUT1.24 is switched on and the PWM signal at Output OUT1.PWM is output.

with CFO1<1,xxxx> the PWM signal is output at Output OUT1.24.

OUTP1<0..1,0..100> 0..100% Brightness for OUT1.

OUTP2<x,xxx> see OUTP1<x,xxx>

OUTP3<x,xxx> see OUTP1<x,xxx>

OUTP4<x,xxx> see OUTP1<x,xxx>

OUT0 Simultaneous switching of the outputs OUT1...4

Write:

OUT0<OUT1,OUT2,OUT3,OUT4>

Answer: none

_OUT0< OUT1,OUT2,OUT3,OUT4>

Answer: „ACK“

OUT0<0.X.1,0.X.1,0.X.1,0.X.1> 0 = Switches OUTx off

with CFO1<0,xxxx> Output OUT1.24 is switched off and the PWM signal at output OUT1.PWM is stopped.

with CFO1<1,xxxx> the PWM signal is stopped at Output OUT1.24.

1 = Switches OUTx on

with CFO1<0,xxxx> Output OUT1.24 is switched on and the PWM signal at Output OUT1.PWM is output.

with CFO1<1,xxxx> the PWM signal is output at Output OUT1.24.

X = no change at OUTx

OUTP0 Simultaneous switching of outputs OUT1...4 with PWM value

Write:

OUTP0<OUT1,PWM1,OUT2,PWM2,OUT3,PWM3,OUT4,PWM4>

Answer: none

_OUTP0<OUT1,PWM1,OUT2,PWM2,OUT3,PWM3,OUT4,PWM4>

Answer: „ACK“

OUTP0<0.X.1,0..100,..
..0.X.1,0..100> 0 = Switches OUTx off

with CFO1<0,xxxx> Output OUT1.24 is switched off and the PWM signal at output OUT1.PWM is stopped.

with CFO1<1,xxxx> the PWM signal is stopped at Output OUT1.24.

1 = Switches OUTx on

with CFO1<0,xxxx> Output OUT1.24 is switched on and the PWM signal at Output OUT1.PWM is output.

with CFO1<1,xxxx> the PWM signal is output at Output OUT1.24.

X = no change at OUTx

OUTP0<0.X.1,0..100,..
..0.X.1,0..100> 0..100% Brightness for OUTx.

PSS/RPSS Switches the outputs PSS1...2 on

Write:

PSS1<STATUS> Answer: none

_PSS1<STATUS> Answer: „ACK“

PSS1<0..1> 0 = Switches PSS1 off

1 = Switches PSS1 on

Switches at X3.1 24Volt on/off. Used to supply voltage to a connected sensor with max. 200mA.

PSS2<x> see PSS1<x>

Switches at X4.1 24Volt on/off. Used to supply voltage to a connected sensor with max. 200mA.

Read:

RPSS1 Answer: PSS1<0..1>

RPSS2 Answer: PSS2<0..1>

TRG Software trigger for Outputs OUT1...4

Write:

TRG1<TIME> Answer: none

_TRG1<TIME> Answer: „ACK“

TRG1<0...9999> 0..9999 ms Duty cycle for OUT1

with CFO1<0,xxxx> Output OUT1.24 is switched on and the PWM signal at Output OUT1.PWM is output. After the time has elapsed, both outputs are switched off.

with CFO1<1,xxxx> the PWM signal is output at Output OUT1.24. After the time has elapsed, the output is switched off.

TRG2<xxxx> see TRG1<xxxx>

TRG3<xxxx> see TRG1<xxxx>

TRG4<xxxx> see TRG1<xxxx>

If TRG1..4 is sent with empty brackets "<>", the time of TMR1..4 is taken.

TMR/RTMR Duty cycle of the outputs OUT1...4 with hardware trigger

Write:

TMR1<TIME> Answer: none

_TMR1<TIME> Answer: „ACK“

TMR1<0...9999> 0..9999 ms Trigger timer for OUT1
 Duty cycle for OUT1 at CFI1<1,1,0..1> or CFI1<1,2,0..1>

TMR2<xxxx> see TMR1<xxxx>

TMR3<xxxx> see TMR1<xxxx>

TMR4<xxxx> see TMR1<xxxx>

Read:

RTMR1 Answer: TMR1<0..9999>

RTMR2 Answer: TMR2<0..9999>

RTMR3 Answer: TMR3<0..9999>

RTMR4 Answer: TMR4<0..9999>

PWM/RPWM Changes the brightness value Outputs OUT1...4

Write:

PWM1<brightness value> Answer: none

_PWM1<brightness value> Answer: „ACK“

PWM1<0..100> 0..100% Brightness for Out1.

PWM2<0..100> 0..100% Brightness for Out2.

PWM3<0..100> 0..100% Brightness for Out3.

PWM4<0..100> 0..100% Brightness for Out4

Read:

RPWM1 Answer: PWM1<0..100>

RPWM2 Answer: PWM2<0..100>

RPWM3 Answer: PWM3<0..100>

RPWM4 Answer: PWM4<0..100>

PWM0 Simultaneous changing of the brightness value outputs OUT1...4

Write:

PWM0<PWM1,PWM2,PWM3,PWM4> Answer: none

_PWM0<PWM1,PWM2,PWM3,PWM4> Answer: „ACK“

PWM01<0..100,<0..100>,<0..100>,<0..100> 0..100%
 Brightness for
 OUTx.

CRL/RCRL Limit value for current of outputs OUT1...4

Write:

CRL1<0..1,0..4000> 0 = no action.
 1 = sends error message ECL1<0..4000>

CRL1<0..1,0..4000> 0..4000mA.
 Limit value for maximum current on Output OUT1.24

CRL2<x,xxxx> see CRL1<x,xxxx>

CRL3<x,xxxx> see CRL1<x,xxxx>

CRL4<x,xxxx> see CRL1<x,xxxx>

Read:

RCRL1 Answer: CRL1<0..1,0..4000>

RCRL2 Answer: CRL2<0..1,0..4000>

RCRL3 Answer: CRL3<0..1,0..4000>

RCRL4 Answer: CRL4<0..1,0..4000>

RCUR Reads the current of the supply and the outputs OUT1...4

Read:

RCUR0 Answer: CUR0<0..12000> in mA

RCUR1 Answer: CUR1<0..4000> in mA

RCUR2 Answer: CUR2<0..4000> in mA

RCUR3 Answer: CUR3<0..4000> in mA

RCUR4 Answer: CUR4<0..4000> in mA

CUR0 Total current

CUR1 Current from OUT1

CUR2 Current from OUT2

CUR3 Current from OUT3

CUR4 Current from OUT4

RSPG Reads the voltages of the power supply

Read:

RSPG1 Answer: SPG1<0..3000> in Deci Volt (10^{-1})

RSPG2 Answer: SPG2<0..3000> in Deci Volt (10^{-1})

RSPG3 Answer: SPG3<0..3000> in Deci Volt (10^{-1})

SPG1 Internal voltage

SPG2 Voltage of X1

SPG3 Voltage of X2

ERR Returns the last 10 errors

Read:

ERR Answer: ERR<0..99,0..99, ,0..99,0..99>

ErrorNo. 1
 -
 -
 99 Overcurrent

4.6.2 Bootloader

After the device has been switched on, link LED flashes for 4 seconds. In this time, the boot loader is ready to receive. After 4 seconds have elapsed, the device switches to normal operating mode.

During this time, the boot loader has the IP-addr.: 192.168.97.60 and the port 69. The new program file can be transferred using the Windows tool "TFTP".

e.g. *TFTP 192.168.97.60 put elr4-neu.hex*

The upload of a new program can also be started in operation. After sending the command "UPL", the bootloader will start with the current IPAddr. Also here, the program file is transmitted with the TFTP tool. After 4 seconds, the device is back in the normal operating mode.

4.6.3 Calibration of analogue measurement

Prerequisite

An adjustable power supply with a max. of 30V and 5A.

A precise load or an adjustable load for each output.

Measurement devices for current and voltage.

With this load, exactly 1000mA at 24V should flow to the output.

Preparation

Connect the voltage supply from the power supply to X2.

Check, whether with the switched on the output OUTx.24 exactly 24V is on Pin1.

Measure whether with the connected load on the output OUTx. 24 exactly 1000mA flows.

Calibration

All presets have been carried out and the outputs switched off again.

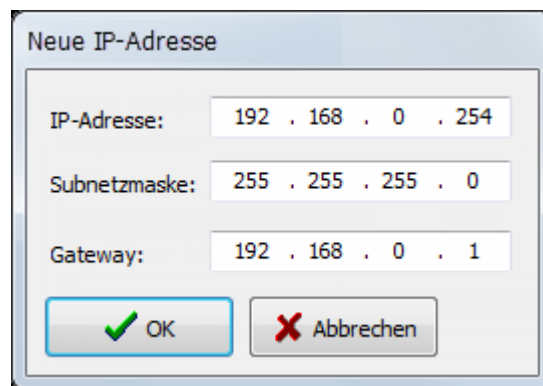
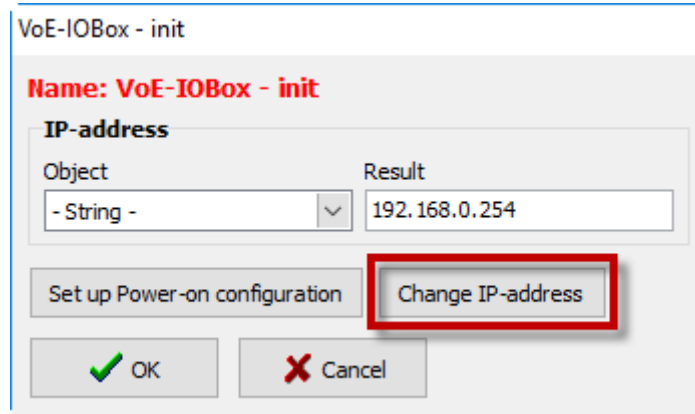
Now the calibration is started with the command "CADC".

When the calibration is completed, the control sends the controller the version number RVER<vX.XX.XX>

4.6.4 Change the IP address

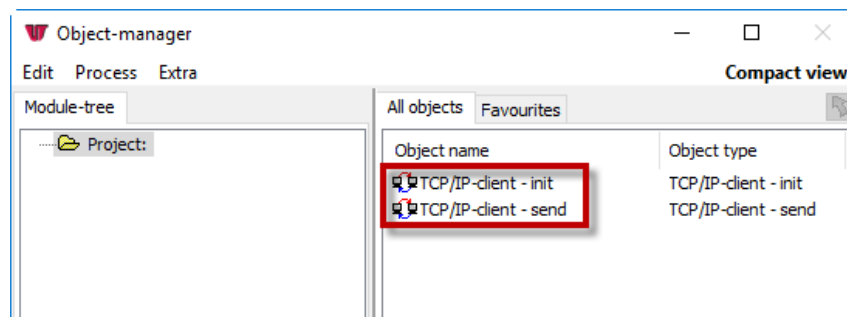
from the V60-version 7.140.001

1. In the object "VoE-IOBox - Init", the IP address can be changed easily using the button [change IP address].



V60 versions older than 7.140.001

1. Start the V60 and set up the objects "TCP/IP client - Init" and "TCP/IP client – Send".



2. Parametrise the "TCP/IP client - Init" object and set the **IP address** and the port of the IOBox.

The IOBox IP address is in the as-delivered status: 192.168.0.254 and subnetwork mask: 255.255.255.0

TCP/IP-client - init

Name: TCP/IP-client - init

Host address:

Port:

Connect via

Name IP-address

Resolve host-name

Pause for new connection set-up:

OK Cancel

3. Parametrise the "TCP/IP client – Send" object. Select the previously set up "TCP/IP client - Init" object and set the object type to "-character string-" under the character string

TCP/IP-client - send

Name: TCP/IP-client - send

TCP/IP-client - init

String to be sent

Object

Result

OK Cancel

4. As a result, the command to change the IP address is entered in the following format:

CIP<IPAddr,Mask,Gateway,DNS1,DNS2,HostName>

Example entry:CIP<192.168.0.10,255.255.255.0,192.168.0.1,0.0.0.0,0.0.0.0,HOST_VOE>

5. Process the objects "TCP/IP client - Init" and "TCP/IP client – Send".

The IP address of the IOBox is now changed.

4.6.5 Update firmware

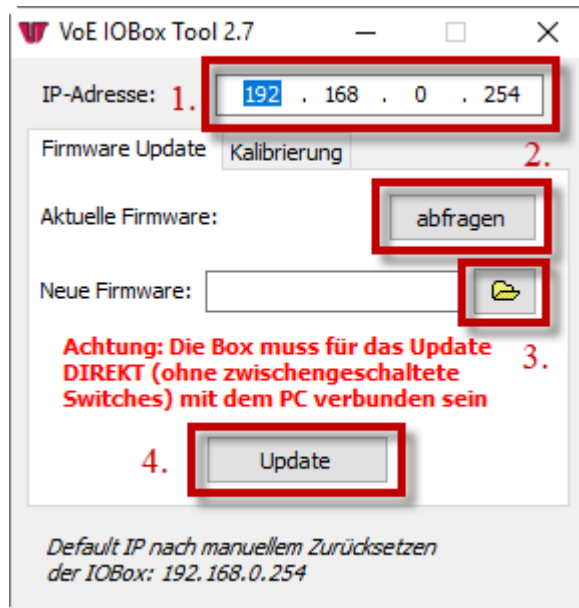


Caution!

An update may only be carried out if the VoE-IO boxes are connected directly to the PC (without interconnected switches).

The update is performed using TFTP (based on UDP). Therefore any disturbance or interruption on the network can destroy the box.

Start the program "Firmware update IOBox 2.7" from the driver CD



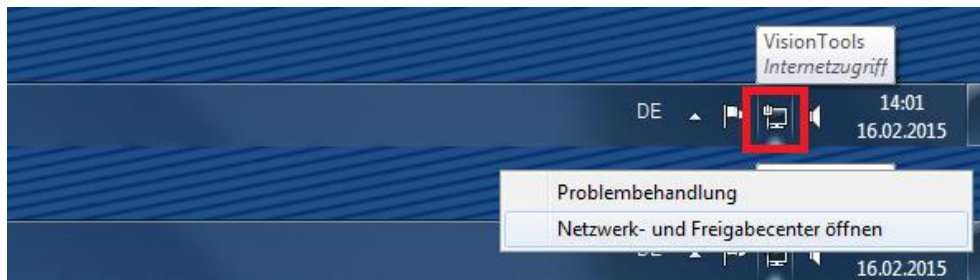
1. Enter the IP address of the VoE-IOBox. By default, the IP address is entered as 192.168.0.254.
2. Via the button **[query]**, you can query the status of the current firmware version.
3. Enter the path of the current firmware file ("**elr4_v2.05.01.hex**") via the folder icon.
4. Finally, press the **[update]** button.



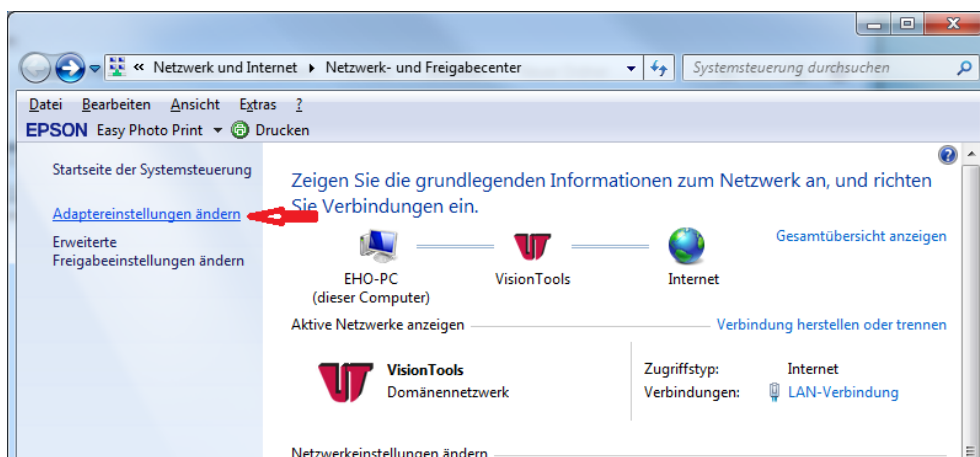
The upload mode is detected by the flashing "LINK" LED. After a short time, the LED stops flashing. The upload can take up to a minute depending on the hardware used.

4.6.6 Setting the IP address of the network adapter

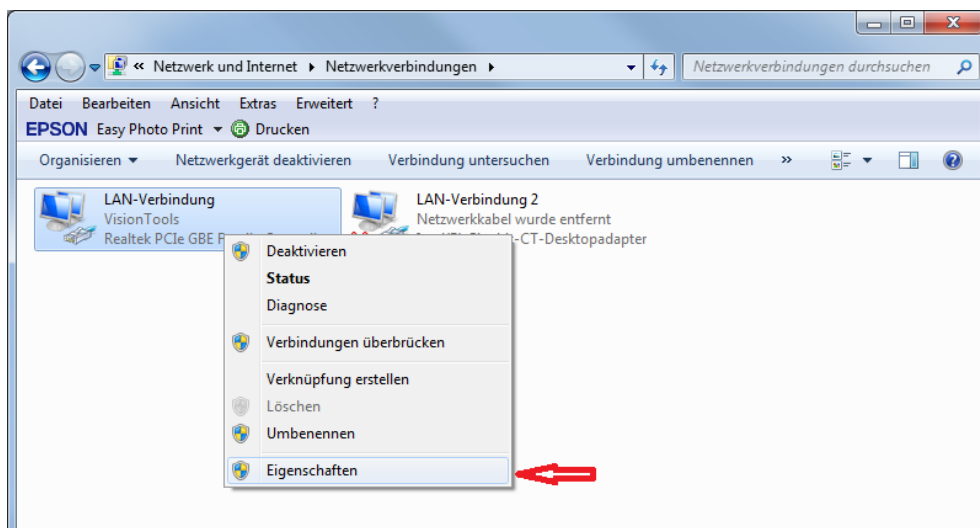
1. Open the network and sharing centre by right clicking on the network icon.



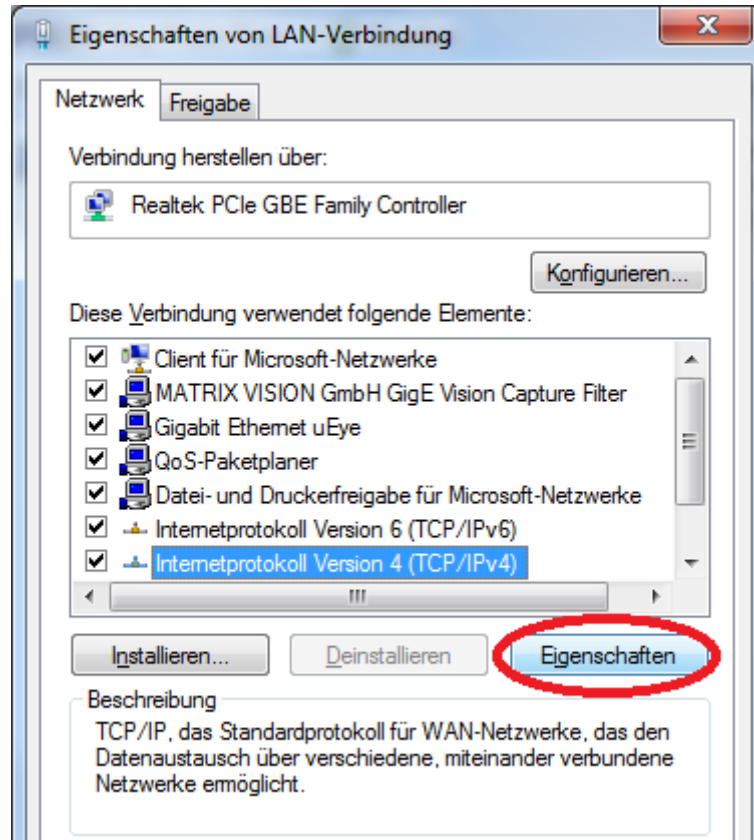
2. Click on change adapter settings.



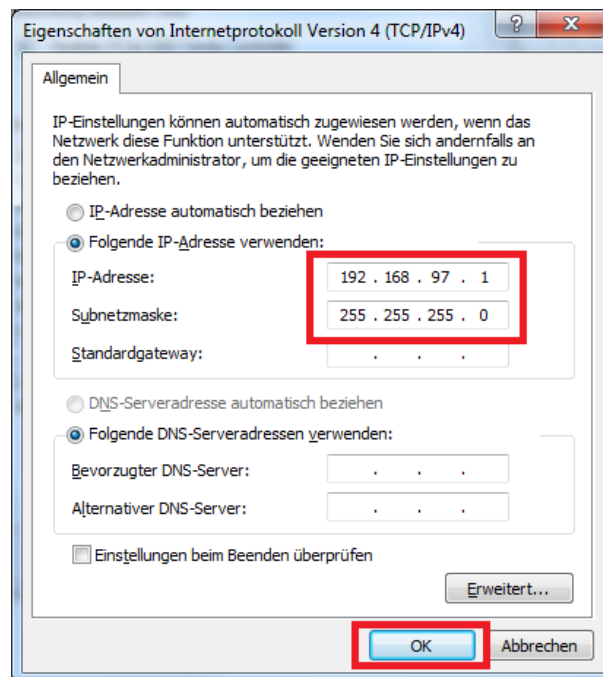
3. Select the connected adapter and go to Properties.



4. Scroll to the item "Internet Protocol version 4 (TCP/IPv4)" and click Properties.



5. Set an IP address, which is located in the same network as the IOBox (e.g. 192.168.97.1) and a valid subnet mask (for example, 255.255.255.0). Confirm with "OK". **The IOBox and network adapter may have not the same IP address.**



6. The IP address of the IOBox is now changed.

4.6.7 Dim lights

The connected lights can be dimmed in V60 via the object "VoE-IOBox - set output". For this purpose, a duty cycle between 0 and 100% must be entered.

VoE-IOBox - set output

Name: VoE-IOBox - Ausgang setzen

VoE-IOBox - init:

Output
Output OUT:
 X6

State:

Wait for completion

Timeout [ms]:

PWM duty factor [%]

Automatically turn off output

Timer [ms]:

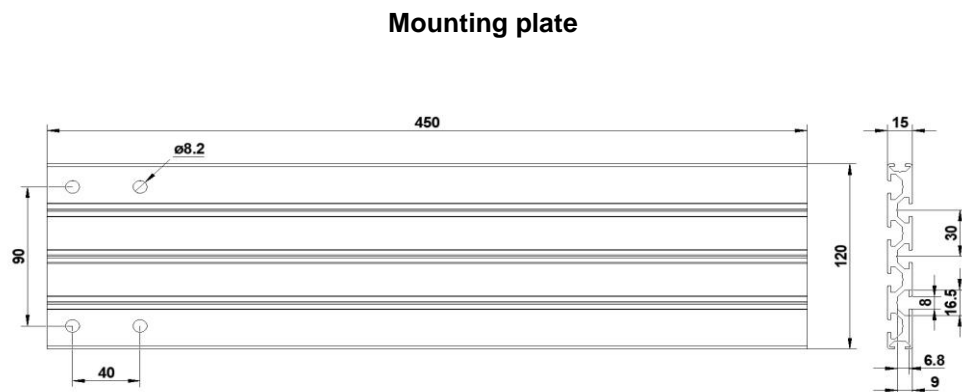
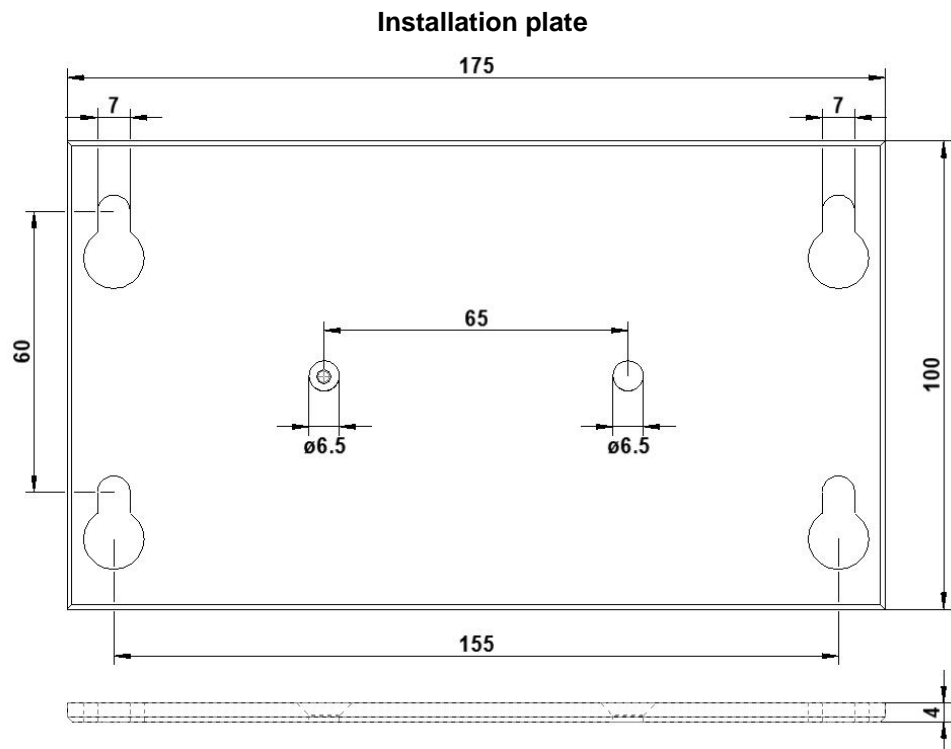
0 = timer value from current configuration

5 Commissioning

5.1 Assembly

It is recommended ;that the VoE IOBox be mounted to a **mounting plate** .

This is then mounted on a **mounting plate** so that the fixing plate can be fixed to a profile.



6

Disposal

Dispose special waste and garbage according to company-internal provisions and regulations. These must be brought to the correct collection stations.

Your responsible administrative authority can give you more specific information on where authorized collection stations can be found.



NOTE!

Observe national regulations and internal operational solutions!

Dispose of the packaging of production materials (including in the product cycle of the system) appropriately!

Ensure appropriate separation and disposal.

7 Notes

8 Attachment

8.1 Manufacturer's Declaration



Manufacturer's declaration

This statement is used for the following designated products:

VOE IO Box
ELR4
4 channel lighting control with PWM brightness control
and 6 control inputs.

This declaration is the sole responsibility of
KELLER Elektronik GmbH
Liebigstraße 33
74221 Leingarten
Germany

and applies under the condition that it is properly installed, used and maintained in accordance with the relevant safety regulations and the manufacturer's instructions in accordance with the intended use.

We hereby declare that this product complies with the provisions of the following EC directives: EWGRL 89/336 and EWGRL 98/37

This statement applies to all copies produced after the production documents in accordance with EBSUP16169912.

A certified institute was tasked with EMC testing.

The following standards were used for the assessment of the product with regard to electromagnetic compatibility:

- DIN EN 61000-6-2:** 2005 (as per VDE 0839 part 6-2 / March 2006), as well as
- DIN EN 61000-6-3:** 2007+ A1: 2011 (as per VDE 0839 part 6-3 / September 2011)

We point out that:

- the manufacturer's declaration and thus the approval shall expire if this product is changed without prior consultation with us.
- Non-professionals have the conditions of the area of operation and the resulting requirements reviewed and approved by experts before initial commissioning.
- with devices that fall under the EMC Directive, an initial commissioning may only take place after the conformity with its provisions has been established.
- with machines/plants that fall under the Machine Directive, an initial commissioning may only take place after the conformity with its provisions has been established.

On request, we will provide test copies of the EMC tests.

Legally binding signature of the manufacturer 08 April 2014