Video solution

Hydra IP MR series

Digital video systems MR3060-4 / MR3060-6 / MR3080-8

Manual and installation instructions

Version 1.3.0

C O N T E N T

Document history

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1 General information

This document is a short installation instruction enabling you to install the video devices in busses, trains or in stationary locations.

1.1 Supported systems

This document with short installation instructions is valid for following systems of HydraIP series:

- MR3060-4 standalone, Master
- MR3060-6 standalone, Master, Slave
- MR3080-8

1.2 Required accessories

To install the video system into a vehicle for mobile applications specific requirements and accessories must be given. Please make sure that you have the following components:

- The video system
- The data disk (accessories)
- The electronic key for ejecting data disc (accessories)
- At least one **USB** flash drive (thin version, otherwise you will need an adapter cable)
- Adapter **cable CONTROL** for System connector 1 (accessories , control interface of device)
- If you want to use up to three trigger sensors: at least one Adapter **cable GPIO** for System connector 2 (accessories , GPIO interface of device)
- If you want to use more than three trigger sensors: two Adapter **cable GPIO** for System connector 2 and 3 (accessories , GPIO interfaces of device)
- All other specific components as cameras, video cable, preview monitor, people counter units etc.

ADVICE:

The cable adapters are usually used for connecting the device in the vehicle. Please consider that pin allocation of the system connectors at the video unit and the pin allocation at the cable adapters are different! In section 3 you will find the lists with description of that pin allocation and the related purpose – in section 6 of this documentation you will fin a connection plan of system connector and the adapter cables.

2 General installation instructions

2.1 Important information – interface & pin name conventions

To connect the device into the vehicle environment consider the following hints. The system offers several interfaces. To install the device you can use the adapter cables or not. There are different pin names because pin allocation at the video unit is not equal than the pin allocation/names at the cable adapters! That forces different interface/pin names. The name convention is:

SC_X_Y → System connector (directly at the video unit)
AMP_Z_Y → cable adapter (AMP-connector for vehicle side)

X = number of System connector at the video unit

Y = pin number of specified connector

Z = AMP connector type (4 pin, 2 pin, 14 pin or 6 pin)

For installation purposes only consider the Pins named AMP_Z_Y - if you use cable adapters.
If you don not use the cable adapters, consider only the pins named SC_X_Y .

For example:

Pin AMP_6_1: Pin 1 of 6pin-cable adapter (the CONTROL Plug cable) = system power (24 VDC +) or

Pin SC_1_1: Pin 1 of system connector 1 (CONTROL interface) directly at the device

In the interface/pin description tables in chapter 3 you will find both – pin allocation of the system connectors (SC_X) and pin allocation at the related AMP adapter cable (AMP_Z).

2.2 Mandatory installation requirements

Make sure that the following important installation requirements are full filled. Otherwise the manufacturer can not guarantee the errorless functionality. In case of any questions ask before the support of your system integrator or manufacturer.

Ensure and maintain the following conditions:

- Install the device only at places they are usable for it and mount it only in allowed positions!
- Make sure that the device is always connected to stabilized system power with power supply of 24 VDC at system connector pins (SC_1_1, AMP_1_1 and SC_1_2, AMP_1_2)
- Make sure that the device is only controlled by the ignition contact – pin allocation: (SC_1_1, AMP_1_1 und SC_1_2, AMP_1_2)
- Default configuration: alarm push button (**N**ormally **O**pen **NO**) at GPI 1 (SC_2)
- Default configuration: push button for switching video pictures (**NO**) at GPI 2 (SC_2)

2.3 Choosing the right installation location

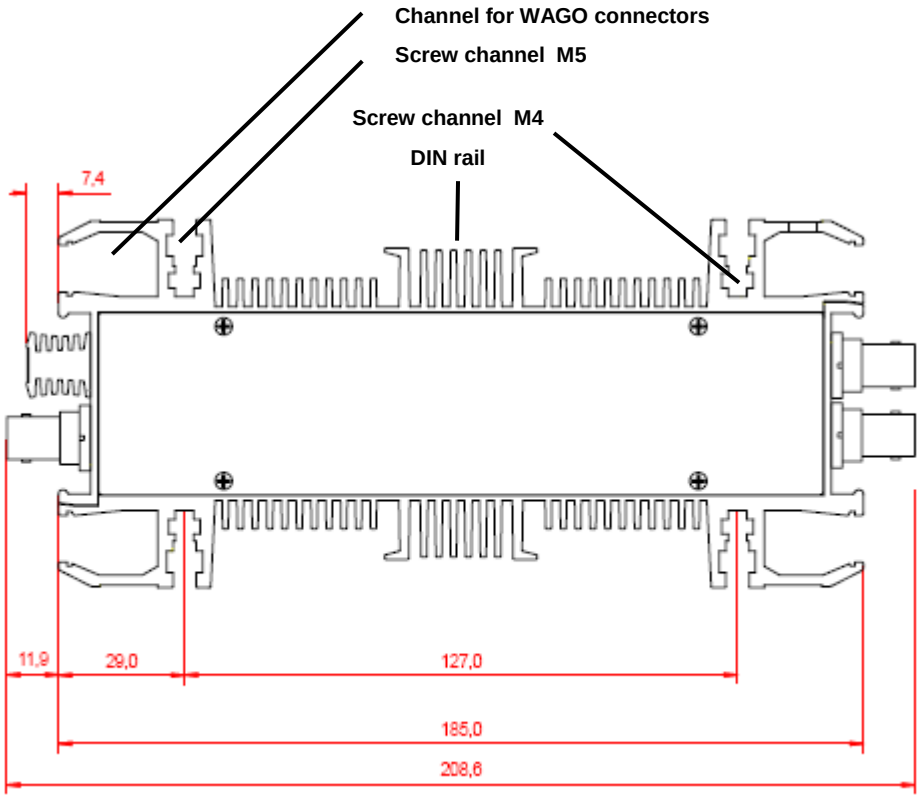
When choosing an installation location in the vehicle consider the following facts:

- Select place with adequate ventilation and cooling to prevent heat stroke
- Avoid places with high humidity
- The system can be installed horizontally or vertically – avoid vertical mounting in a way there the storage disc can fall down to the ground while eject process. There is risk of storage disc damages!
- Ample space for connecting the electronic key and removing the storage disc – at least a distance of at least 13 cm (from disk in direction of removal)
- Sufficient space to allow the connection of all system connectors and other interfaces (e.g. network interface)

2.4 Mounting of the systems

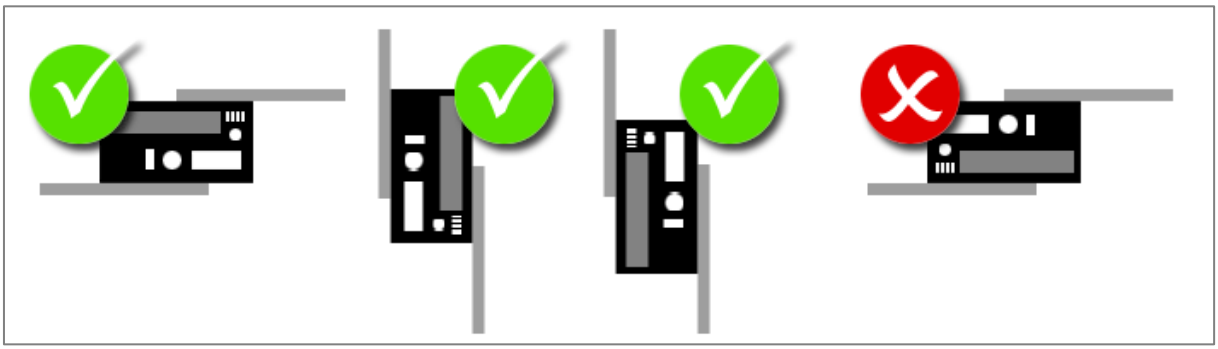
All systems of HydraIP series can be mounted in the vehicle by:

- using the integrated screw channels M4 or M5
- using the mounting panel (available as accessories)



2.5 Correct installation positions

ATTENTION: Up side down installation of the video unit is not permitted! The danger here is that system interfaces can confused, the LED codes can not red properly and/or cause damage on storage disk. An installation in which the opening of the disk is aligned to the vehicle floor is also prohibited.



2.6 Swapping storage disc using the electronical key

The release and the ejection of the storage disk is initiated by connecting the electronic key: Insert the key at the interface of the DVR - the system verify automatically stored electronic security code and the access permissions with the DVR deposited verify Key. Matches the key pair, the access is given and the storage disk will released automatically. If the key do not match the access will denied – this state will be displayed on the DVR LED panel.

The unlocking process can be performed without the system is turned on and connected to the electrical system of the vehicle. The electronic key contains internal batteries for this purpose that allows an ejecting process up to 100 times as possible. If the batteries are empty, they must be replaced – you shall require a new key from your system integrator or the manufacturer.

2.6.1 Security Concepts: Customized closure

The customer receives a custom specific security key that ensures only the customer employees have access to the system. The advantage is the higher level of security that is used. This but at the expense of simpler handling: If you serve as a systems integrator with several retail HydraIP systems, could result in a logistical problem that can manifest as noticeable in a complex key management would. Check them safe as companies such processes, this offers customers real value and contribute to improving data security.

ADVICE:
To use this security concept you need the key type: CUSTOM SPECIFIC

2.6.2 Security concepts: standard closure

The customer receives a standard-Key. This allows the full protection of the disk and the data on each individual system, but could be another customer (regionally located) have also HydraIP systems with a standard closure in use. This gives a certain risk, because this customer would theoretically access to the media of your DVR system fleet. The advantage is the ease of handling: If you serve as a system integrator several customers with HydraIP systems, this allows easier storage and the avoidance of costs for support, since you will be able to install systems for multiple customers with a central key and to function to test.

ADVICE:
To use this security concept you need the key type: STANDARD

ADVICE:
Tif the system deny access to the disk, a wrong key is used (eg the key of systems of another client). Check carefully whether or not the media can released with a different key.

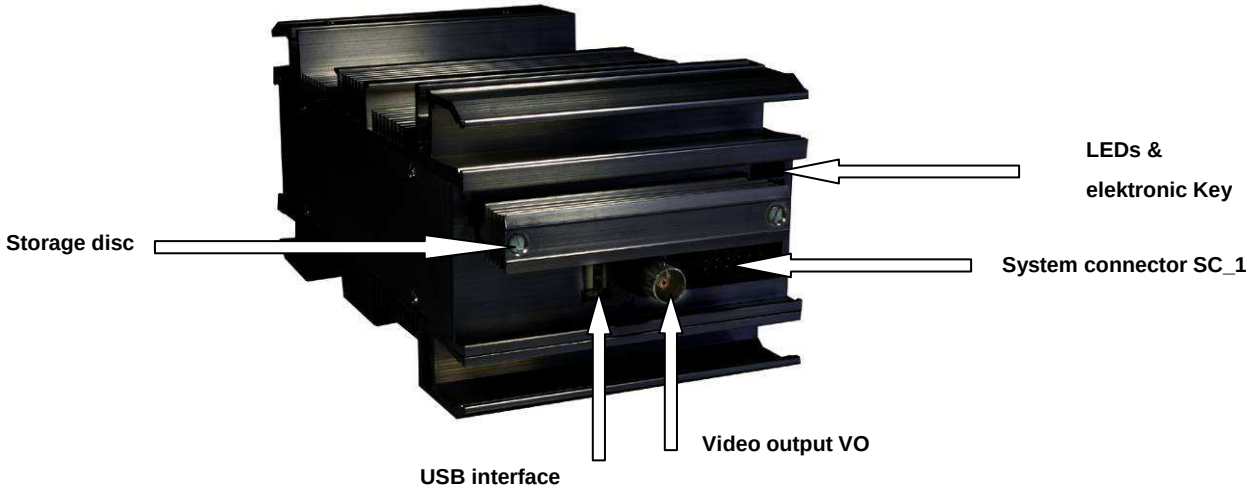
Never attempt to remove the disc forcibly. This will damage the system and/or individual components. This type of damages will automatically void the warranty and/or warranty claims. Since the damage has been caused deliberately, they will be charged

The configuration of the system functions independently of these security concepts. Standard is the configuration via the USB interface and the network interface.

3 Interfaces, operation modes and system integration

The systems offer several interfaces at the front and rear side. The MR3060-6 standalone and Master version provide interfaces for storage disc, LED block, USB interface, video inputs/video outputs and three system connectors.

MR3060-6 – Front side (Master, Standalone)



MR3060-6 – Rear side (all versions)

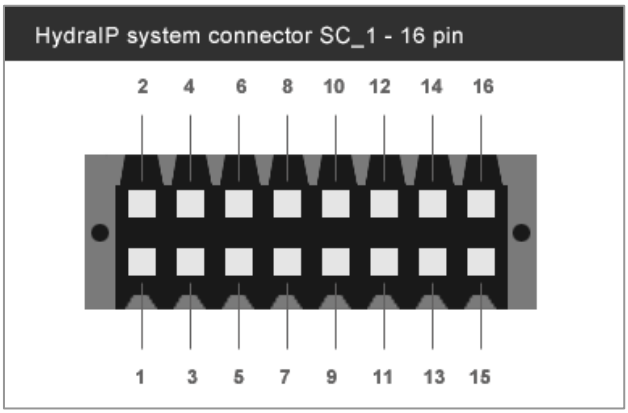
3.1 System interface overview MR3060-4 / MR3060-6 / MR3080-8

Interface	count	side	Interface type	purpose
Storage disc*	1	Front	SATA	Storage, data recording
Ignition	1	Front	SC_1, Weidmüller, 16 pin	Control interface for start and shutdown of system
System power	1	Front	SC_1, Weidmüller, 16 pin	Power supply of system
IBIS	1	Front	SC_1, Weidmüller, 16 pin	Integration of system into vehicle IBI data bus
USB 2.0 pin	1	Front	SC_1, Weidmüller, 16 pin	Only for internal communication purposes
CAN	1	Front	SC_1, Weidmüller, 16 pin	Integration of internal system CAN-Bus
Video out	1/1/2	Front	BNC	Video output for monitors**
USB 2.0 Typ A	1	Front	USB - Typ A	Service interface for configuration, updates, diagnostic purposes
Electronic Key*	1	Front	4 pin interface	Interface for storage ejection and other access right management
LED*	4	Front	LED	Visualisation of system states and errors
Video in	4/6/8	Rear	BNC	Capturing of CVBS video data
Digital general purpose input (GPI)without control power 12 VDC	4	Rear	SC_2 + SC_3 Weidmüller, 18 pin	Potential free, usable as trigger interface (switches, sensors etc.)
Digital general purpose input (GPI)with control power 12 VDC	2	Rear	SC_2, Weidmüller, 18 pin	Potential free, only usable as control power for additional components (relay)
Digital general purpose output (GPO)	4	Rear	SC_2 + SC_3 Weidmüller, 18 pin	Potential free relais, configurable as closing or opening contact
12 V DC power supply external	Max. 2.0 A	Rear	SC_2 + SC_3 Weidmüller, 18 pin	Power supply for external devices (camera, monitor, people counter etc.)
Audio Line In	2/2/2	Rear	SC_3 Weidmüller, 18 pin	Capture of audio data
M12 Ethernet*	1/1/4	Side, Front & Rear	M12 D coded	Network communication between MR30x0-x and other systems

*** only available at master systems and MR3080-8 offers 4 x M12 interface**

**** MR3080-8 offers two video outputs with several signals**

3.2 PIN allocation system connector 1



The cable adapter CONTROL offers at one side the plug for the system connector and at the other side 2x AMP-plugs:

1 x 6 pin – system power & control
1 x 4 pin – IBIS vehicle bus

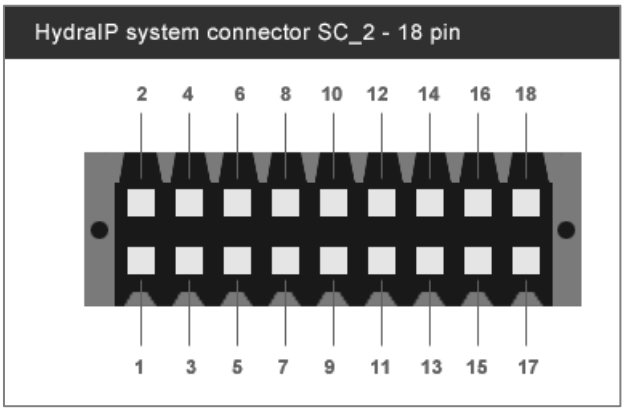
Pin allocation at external system connector SC_1 (front side) and at AMP cable adapter CA_1			
SC_1	**AMP_**	**acronym**	**description**
1	**6_1**	**SYS_PWR_P**	System power supply input 12/24 VDC positive (+)
2	**6_2**	**SYS_PWR _N**	System power supply 12/24 VDC negative (-), Vehicle chassis*
3	**-**	**IBIS GND**	Ground potential for IBIS bus (only one side at the system must be connected!)
4	**6_3**	**-**	**Contact MUST NOT be connected!**
5	**4_1**	**IBIS WBMS**	IBIS bus system
6	**4_2**	**IBIS WBSD**	IBIS bus system
7	**4_3**	**IBIS WBME**	IBIS bus system
8	**4_4**	**IBIS WBED**	IBIS bus system
9	**-**	**USB GND**	Ground USB bus
10	**-**	**USB VBUS**	VBUS USB 2.0 interface
11	**-**	**USB_D_N**	USB 2.0 interface data negative (-)
12	**-**	**USB_D_P**	USB 2.0 interface data positive (+)
13	**-**	**-**	Not allocated
14	**-**	**-**	Not allocated
15	**6_5**	**IGNITION_N**	System control – ignition contact, negative (-),Vehicle chassis*
16	**6_6**	**IGNITION_P**	System control – ignition contact, positive (+)

*** most for automotive applications, for railway applications check the ground potentials of vehicle before!**

For installation in railway application this system is completely isolated and has several ground potentials (housing potential, electronic potential and power minus). That forces that all negative power has to be separated from the housing ground potential. For installation in busses usually a common ground is used – in this case consider that the appropriate power-minus pins has to be connected with the vehicle ground.

The Ground potential IBIS_GND at pin SC_1(3) MUST NOT connected to the vehicle ground – otherwise the internal filter circuit is void. That can cause seriously damages.

3.3 PIN allocation system connector 2



The cable adapter GPIO offers at one side the plug for the system connector and at the other side 3 x AMP-plugs:

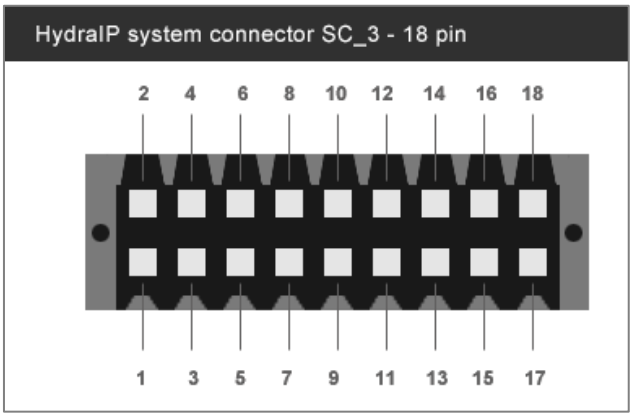
1 x 14 pin – digital inputs and outputs (GPIO)
2 x 2 pin - power supply for external devices

Pin allocation of external system connector SC_2 (rear side top) and AMP Cable adapter GPIO			
SC_2	**AMP_**	**acronym**	description
1	**14_1**	**DIG_IN_N(1)**	General Purpose Input 1 negative (-)
2	**14_2**	**DIG_IN_P(1)**	General Purpose Input 1 positive (+)
3	**14_3**	**DIG_IN_N(2)**	General Purpose Input 2 negative (-)
4	**14_4**	**DIG_IN_P(2)**	General Purpose Input 2 positive (+)
5	**14_5**	**DIG_IN_N(3)**	General Purpose Input 3 negative (-)
6	**14_6**	**DIG_IN_P(3)**	General Purpose Input 3 positive (+)
7	**14_7**	**INPUT2_PWR**	Control power for GPI 2 – 12 VDC (+), max. 2.5 mA, (use with Pin 4, GPI2 +)
8	**14_8**	**INPUT1_PWR**	Control power for GPI 1 – 12 VDC (+), max. 2.5 mA, (use with Pin 2, GPI1 +)
9	**2_2**	**ED_PWR_N**	Power supply external devices 12 VDC negative (-)
10	**2_2**	**ED_PWR_N**	Power supply external devices 12 VDC negative (-)
11	**2_1**	**ED_PWR_P**	Power supply external devices 12 VDC positive (+), max. 2.0 A
12	**2_1**	**ED_PWR_P**	Power supply external devices 12 VDC positive (+), max. 2.0 A
13	**14_9**	**OUT2_NO**	General Purpose Output 2 – normally open (NO)
14	**14_10**	**OUT1_NO**	General Purpose Output 1 – normally open (NO)
15	**14_11**	**OUT2_COM**	General Purpose Output 2 – common
16	**14_12**	**OUT1_COM**	General Purpose Output 1 – common
17	**14_13**	**OUT2_NC**	General Purpose Output 2 – normally closed (NC)
18	**14_14**	**OUT1_NC**	General Purpose Output 1 – normally closed (NC)

The GPI power supply (Pin 7 (for GPI 2) and 8 (for GPI 1) can be used to avoid additional wires for trigger signals/power supply for the GPI-trigger. It is not intended for general power supply of external devices. Using this power for other purposes can cause seriously damages at the system.

NOTE: If you use normal push button for alarm/video at GPI 1 or 2 and you use the control power from the device make sure, the cable adapter is connected to system connector SC_2 ! If you use SC_3 the system will not work properly!

3.4 PIN allocation system connector 3



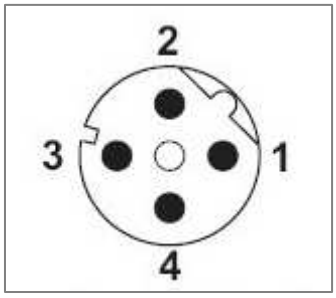
The cable adapter GPIO offers at one side the plug for the system connector and at the other side 3 x AMP-plugs:

1 x 14 pin – digital inputs and outputs (GPIO)
2 x 2 pin - power supply for external devices

Pin allocation of external system connector SC_3 (rear side down)			
SC_3	**AMP_**	**acronym**	**description**
1	**14_1**	**DIG_IN_N(4)**	General Purpose Input 4 negative (-)
2	**14_2**	**DIG_IN_P(4)**	General Purpose Input 4 postive (+)
3	**14_3**	**DIG_IN_N(5)**	General Purpose Input 5 negative (-)
4	**14_4**	**DIG_IN_P(5)**	General Purpose Input 5 postive (+)
5	**14_5**	**DIG_IN_N(6)**	General Purpose Input 6 negative (-)
6	**14_6**	**DIG_IN_P(6)**	General Purpose Input 6 postive (+)
7	**14_7**	**AU_ANA2**	Audio input 2 analog
8	**14_8**	**AU_ANA1**	Audio input 1 analog
9	**2_2**	**ED_PWR_N**	Power supply external devices 12 VDC (-), Audio GND
10	**2_2**	**ED_PWR_N**	Power supply external devices 12 VDC (-), Audio GND
11	**2_1**	**ED_PWR_P**	Power supply external devices 12 VDC (+), max. 2.0 A
12	**2_1**	**ED_PWR_P**	Power supply external devices 12 VDC (+), max. 2.0 A
13	**14_9**	**OUT4_NO**	General Purpose Output 4 – normally open (NO)
14	**14_10**	**OUT3_NO**	General Purpose Output 3 – normally open (NO)
15	**14_11**	**OUT4_COM**	General Purpose Output 4 – common
16	**14_12**	**OUT3_COM**	General Purpose Output 3 – common
17	**14_13**	**OUT4_NC**	General Purpose Output 4 – normally closed (NC)
18	**14_14**	**OUT3_NC**	General Purpose Output 3 – normally closed (NC)

3.5 Pins of ethernet interfaces M12

This interface is only provided by the master/slave version (MR3060-6 M/S) and MR3080-8. The following graphics shows how to confect the M12 plug. Use always the correct and appropriate ethernet cable (min. CAT 5) – for railway applications it must be free of halogen or other hazard substances!). Consider also the installation instructions for master/slave devices!



Pin 1 – Ethernet signal **TD+**
Pin 2 – Ethernet signal **RD+**
Pin 3 – Ethernet signal **TD –**
Pin 4 – Ethernet signal **RD –**

ADVICE:
Only use D-coded Ethernet plugs and consider enough space for that during the installation process!

3.6 LED – visualisation of system state

 1 2 3 4	**1**	**STATE**	Main state of system (boot, shut down, errorless, update etc.)
	2	**ERROR**	Indication for system errors
	3	**RECORD**	Indication of recording state (ring/alarm)
	4	**RESERVE**	reserve
	colours	R = Red, O = Orange, G = Green, x = Off	

LED	State	flashing	description
O O O O	**Start**		Functionality test while systems tart, System short flashing after power insertion
O x x x	**Start, shutdown**		System is in state boot up or shut down (startup time: approx. 40 sec.) , changing into operation mode RECORD or STANDBY possible
O x R x	**No disk**		no storage disk inserted - the system is started no disc is found
G x G x	**RECORD**		System records video data into the ring archives
G x O x	**RECORD**		System records video data into the alarm archives
G x x x	**SLEEP**	**X**	System operates in SLEEP mode, the operating system is not started, no record of video data. System can be set in mode RECORD or STANDBY using external triggers or commands.
G x x x	**STANDBY**		System operates in STANDBY mode, the operating system is not started, no record of video data. System can be set in mode RECORD or SLEEP using external triggers or commands.
x x x O	**Update**	**X**	System processes an update of firmware. All LED are flashing orange and change to green with succeeding success… see codes below
O O O O x x x O x x O O x x x O G x x x G O O O G G O O G G G G			
G G G G	**Update result**	**X**	Update successfully finished (standalone, Master & Slave) – LEDs are flashing. Disconnect the USB flash drive to reboot the system with the new firmware. **The existing system configuration will not change.**
R R R R	**Update result**	**X**	Update process aborted - not successfully. LEDs are flashing…
G G x x	**Insert Key**	**X**	Three times flashing of STATE & ERROR - LED: Authentification successful, access granted
R R x x	**Insert Key**	**X**	Three times flashing of STATE & ERROR - LED:: Authentification not successful, access denied (a wrong key was used)
R x x x	**Error**		Unit has seriously system error, also in conjunction with changing from RED to ORANGE – the unit must be sent to the manufacturer/system integrator
R O x x x	**Error**	**x**	Error LED is blinking, State LED is RED: configuration Error – maybe the wronog configuration type was used (8-channel system configuration for 4 channel system)
R O G x	**Error**	**x**	Error LED is blinking, State LED and Record LED are lightning.

If the system indicate errors by red lightning STATE LED (with or without error LED) try to restart the system by switching ignition off and on again. System shutdown can forced by connecting the electronic key (for disc release) twice.

4 Pre-configuration of the system

The system works with an internal set of configuration files. Usually the system is preconfigured for customers need. If no custom specific configuration was created before (at the production process at the manufacturer), the system works with an internal default configuration:

- PAL system, frame rate 6 fps, format 2CIF (half screen, PAL), medium quality,
- Compression MPEG4 H.264
- GPI 1 – use this input for connecting an alarm push button
- GPI 2 – use this input for connecting an push button to switch the video picture at the preview monitor
- Recording time: 72 hours, after this time the oldest data will be automatically deleted
- Automatic sequential changing of video picture from all cameras at video output 1

5 USB-Service Interface

The USB service interface is intended for:

- Updates of firmware (**USB-update flash**)
- Download diagnostic files (**USB-diagnostic flash**)
- Download and upload of configuration (**USB-configuration flash**)
- Other specific system access (**USB-tool flash specific named**)

ADVICE:
For system configuration there is no need to format the USB flash drive every time you use. Only before first use formatting is necessary! Ask the manufacturer or your system integrator for the specific tool files!

For every of these purposes it is necessary to prepare an separate USB flash drive in this way:

- Format the USB flash drive before use
- Copy specific “tool command files” on the USB flash drive (the required file packages will offered by your system integrator or the manufacturer)

ADVICE:
At a later time, a tool for easy and convenient preparation of the individual USB flash drive is offered . The tool is expected to be available in 04/2011.

5.1 Update of system firmware

ATTENTION: DO NEVER INTERRUPT A FIRMWARE UPDATE PROCESS!
Interruption can damage the device and/or your configuration settings. Make sure that the ignition of the vehicle and the DVR is switched ON while complete update process!

Make sure that you got the actual update file package from your system integrator and/or the manufacturer. Follow these steps:

- Download the update file package and extract it (after that you will find a specific folder with some files and folders)
- Take an USB flash memory (with LED) and format it (FAT32), copy now **only the extracted folder** to the USB flash
- Switch on the System and connect this USB-update flash drive to system USB interface
- System will recognize the update package and will start the update process – wait until LED show the success state (successful or error – see LED codes)
- Unplug the USB- flash drive - **the system will reboot automatically with the new firmware, do not perform a manual Reboot**!
- After changing the LEDs to green the process is finished successfully – if the system shows an error code after reboot, the upload of a new configuration might necessary.

5.2 Download diagnostic files

Download diagnostic files is necessary if the system indicates system faults. In this case it is helpful to download this files for analysis purposes.

Prepare an USB flash drive (formatting) and copy the diagnostic file package on it. Insert the flash drive at the USB interface. The system will recognize this and will start the copy of the system specific diagnostic files. After successful copy process the system will indicate this by the LED.

ADVICE:
in seldom cases of system errors (STATE LED = RED) for analysis purposes the diagnostic files are mandatory. After successful download from the unit send these files to the system integrator or manufacturer.

5.3 Download and upload of system configuration

ADVICE:
At this time only configuration using a USB flash drive is possible. Configuration using TCP/IP connection directly from PC will available from 04/2011. The configuration in detail is described in the Configuration Manual.

To configure the video system use the USB-configuration flash drive. You prepare it in the same way as described before.

ADVICE:
You have to erase the USB flash drive only for the first use. After that it is usable for configuration of all systems of your fleet! To use the configuration Internet Explorer 7.0 (or higher) or Mozilla Firefox 3.0 (or higher) is needed – activate JavaScript functionality of your webbrowser and allow file access!

For configuration of system follow these steps:

- Create an USB-configuration flash drive for the first time or use your existing
- Connect it to the unit and wait – system will download the configuration file sets to the flash drive
- After successful download (refer LED codes) unplug the flash drive
- Connected to your computer and open the start file ***configApp.html*** with your web browser (you have to agree the access to the file system and the execution of ActiveX components)
- Select a configuration and open it for editing
- Save the configuration directly at the USB flash drive
- Plug the flash drive at the unit again and wait until the upload to unit was successful
- The system will reboot and start with new configuration set.

5.4 Power supply and controlling of the video units

ADVICE:

The system MUST connected to the vehicle battery or other with continuously power supply of 24 VDC. The system MUST controlled by the ignition contacts. Start/shutdown the system using the power supply pins will damage the unit or parts of it! If the system is hardly turned on and off by the main power or supplied with too high voltage/surge (> 36 VDC), the result is system damage - in these cases, the manufacturer assumes no guarantee or warranty.

The system needs a stabilized power supply **24 VDC** from the vehicle power system (max 9..36 VDC). Make sure that the system is always connected using the right pins:

SYSTEM POWER: **SC_1_1 or AMP_6_1 (+ POSITIVE)**
SC_1_2 or AMP_6_2 (- NEGATIVE)

Always use ONLY the ignition signal contacts (12 or 24 VDC) for controlling the video device (start and shutdown):

IGNITION CONTROL: **SC_1_15 or AMP_6_5 ignition (- NEGATIVE)**
SC_1_16 or AMP_6_6 ignition (+ POSITIVE)

DO NOT CONTROL THE SYSTEM USING THE POWER SYSTEM PINS! For installation of master/slave systems every device MUST connected in the same way! That means cable adapter CONTROL is necessary for master AND slave unit!

5.5 Power supply of external devices

The system provides different power supply 12 VDC for external devices as cameras, preview monitor etc. The power supply is provides at the pins:

System connector unit **SC_2** and **SC_3**: pins **9 & 11** and **10 & 12**
Cable adapters **GPIO 2 x AMP_2**: pins 1 and 2 (**AMP_2_1** and **AMP_2_2**)

ADVICE:

Consider the maximum power consumption! The amount of external devices depends on their power consumption in sum –refer to data sheets of these components!

5.6 Ethernet connection between video units

ADVICE:
use only the right Ethernet cable (railway conform cable without hazard substances). Cable shall be minimum category CAT 5. Only use D-coded connectors!

Using the system ethernet interface(s) the unit can be connected to other Ethernet devices. Note here that the IP addresses of the systems are generated automatically and is not yet configurable. If you want to operate system in a network where other Ethernet devices exist, ask our service team for advice.

The systems currently does not support DHCP and use static internal IP addresses that are automatically generated from the serial number.

ADVICE:
If the MR3080-8 is used with an ethernet connection, always connect first Ethernet interface 1 at first. This automatically activates the internal ethernet switch of the system. one of the system. If the port 1 is not used, the interfaces 2-4 are disabled automatically.

6 Possible problems and their remedies

6.1 Possible problems while installation

problem	possible cause	remedy
Missing installation material	▪ Incomplete delivery ▪ Faulty order	▪ Check with the manufacturer or system integrator in combination, the missing material is replenished as soon as possible
Defective installation material	▪ Transport damages ▪ Delivery of defective goods	▪ You may have to contact the service team of the system integrator or manufacturer
Faulty or missing wiring plans	▪ Inadequate project preparation ▪ Faulty communication	▪ You may have to contact the service team of the system integrator or manufacturer
Negative results of functionality	▪ Error/faulty installation of wiring, additional components and / or system	▪ Check the installation, wiring and functionality of all components ▪ Ensure that all components are connected properly and are supplied with a correct voltage ▪ Check the configuration of the system ▪ You may have to contact the service team of the system integrator or manufacturer
Other problems	▪ Unknown or not to indicate	▪ Check whether a problem exists and are listed below with the proposed measures can resolve ▪ You may have to contact the service team of the system integrator or manufacturer

6.2 Possible problems with storage disc and electronical key

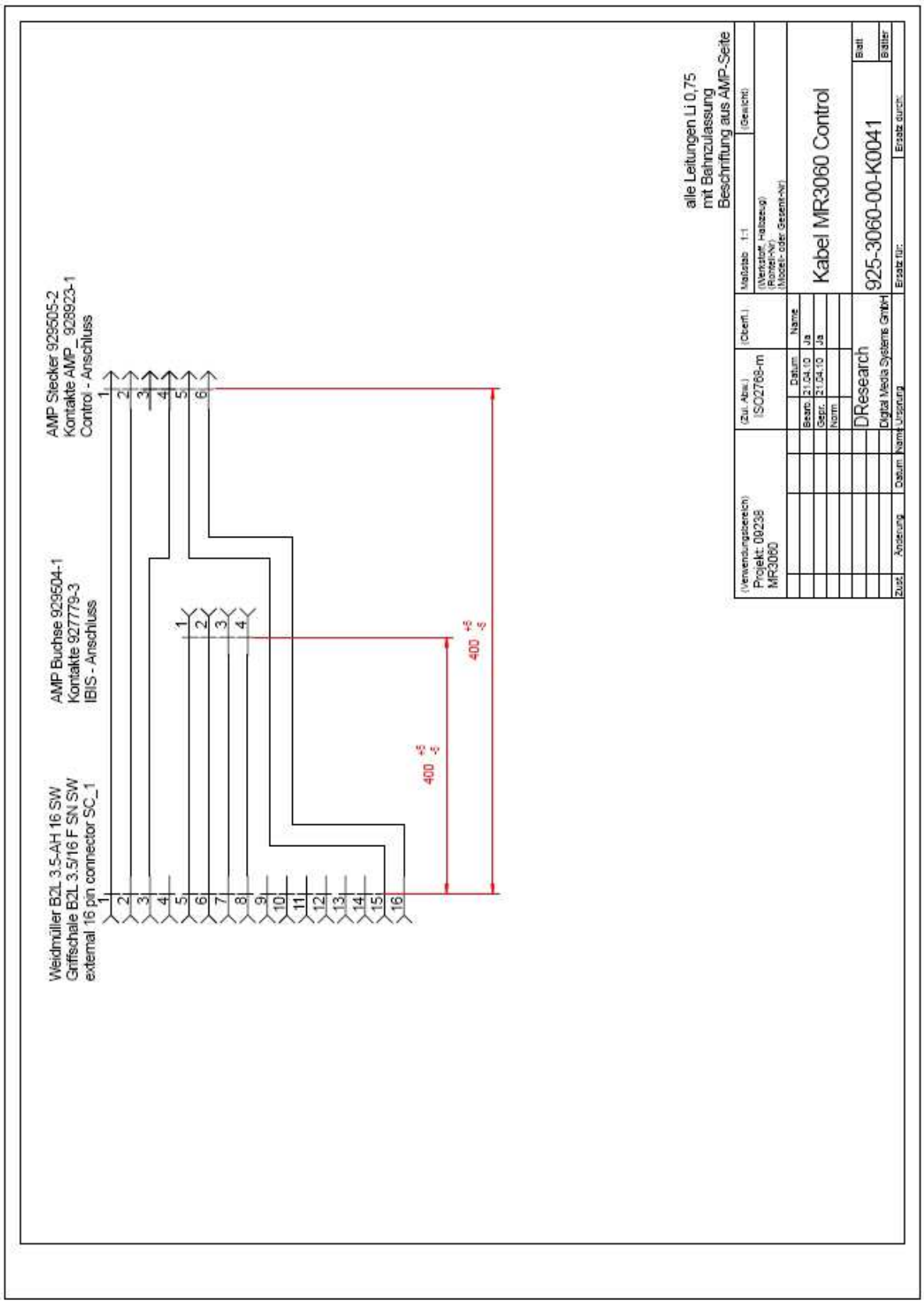
problem	possible cause	remedy
STATE & ERROR LED = red (flashing), storage disc is not removable	▪ Authentication is not possible, access/permission denied ▪ Incorrect key was used ▪ a key that does not match the security mechanism (lock) of system was used ▪ a key that is programmed for systems of other customers was used	▪ try to use another key (if you have) for storage disc removing ▪ Check with the manufacturer or system integrator in combination to find out if you use the correct key
System does not react	▪ Seriously system fault ▪ Key is not plugged correctly into the interface ▪ Batteries of key are empty	▪ Check the correct connection of the key ▪ Change the batteries of the key ▪ Require a new key from system integrator/manufacturer
LED ERROR = Rot/Orange	▪ Present system error ▪ Configuration is corrupt or invalid	▪ Try reboot/restart of system ▪ Upload a new configuration to the system

6.3 Possible problems while start up process

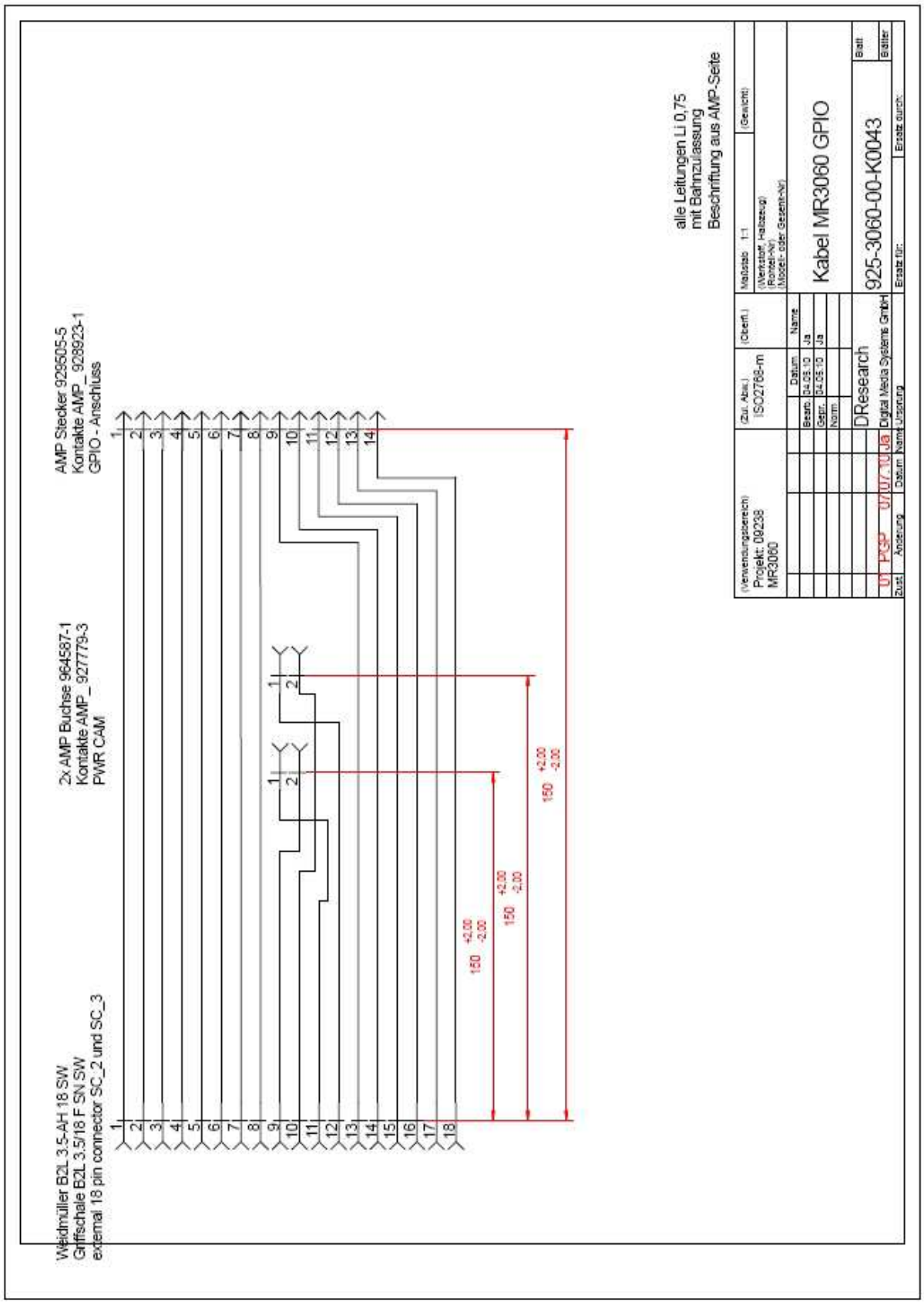
problem	possible cause	remedy
System does not start	▪ Insufficient system power supply ▪ Missing switching power for system ▪ Incorrect connection of the negative potential and/or the GND contacts ▪ System is defective	▪ Ensure that the system is applied with continuous voltage of 24 VDC ▪ Ensure that the system at the switching voltage (ignition/start up signal) bears (12...24 VDC) ▪ Ensure that the potential for preventing not inside the vehicle, the system start ▪ When connected correctly, should at least light flashing LED STATE / - possibly the entire system is defective and must be replaced
System does not start	▪ Ambient temperature is too high or too low	▪ Make sure the ambient temperature is within the acceptable range (record mode from 0℃…75℃)
LED STATE = red	▪ General system error	▪ Restart the system (use ignition or connect the electronic key twice, that forces a restart of system)
LED ERROR = red/orange	▪ Present system error ▪ Configuration could not load	▪ Try to fix the problem by restart of system ▪ Upload a new and valid configuration
LED RECORD = red	▪ Missing or defective storage disc	▪ Check the storage disc is inserted correctly ▪ Check if there is a storage disc inside the disc enclosure ▪ Check the disc using the check functionalites of analysis software ImageFinderNX ▪ Try to fix the problem by use of another disc
No camera pictures or recordings of black pictures	▪ Faulty power supply for cameras ▪ Defective cameras ▪ Faulty video cabelingbetween system and cameras ▪ Faulty or incorrect system configuraton	▪ Check the power supply of the cameras ▪ Check the functionality of the camera and/or try another camera ▪ Check if the cable wiring to cameras work properly, is right connected and not confused ▪ Check if the configuration of the system is valid and/or make any necessary changes
No system reactions to trigger signals to start alarm recordings, video switching or other actions	▪ Incorrect connection of push buttons or other trigger units ▪ Lack of switching power for GPI ▪ Confusion of system connectors SC_2 and SC_3 ▪ Incorrect configuration	▪ Check the correct connection of the trigger (switch, button, switch signals) ▪ Check that the adapter cord plugged into the correct system connectors and are not confused – swap them if necessary ▪ Check that the configuration of the system is correct and make any necessary changes
No audio recording	▪ Incorrect connection of audio devices ▪ Defective audio device	▪ Check the correct connection of the audio device ▪ Try another audio device
Monitor stays black	▪ Incorrect power supply of monitor ▪ Incorrect video connection between system and monitor	▪ Check the power supply of the monitor ▪ Check the video cable between monitor and system ▪ Try another monitor
Erratic system behavior or other problems	▪ System faults ▪ Incorrect configuration	▪ Contact the Service and describe the problem. The service team of the system integrator or manufacturer will seek to resolve the problem as quickly as possible

7 Cable wiring diagrams

7.1 Wiring diagram CONTROL Cable – System connector 1 to AMP (6pin, 4pin)



7.2 Wiring diagram GPIO Cable – System connector 2/3 to AMP (14pin, 2pin)



Annotations:

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