

# MULTIMEDIA 2022/23

Automotive Solutions



**For travel- /  
public buses  
& trains**



All products can also  
be found on the net  
[www.roshe.com](http://www.roshe.com)

**KFRA**  
AUTOMOTIVE COMPONENTS

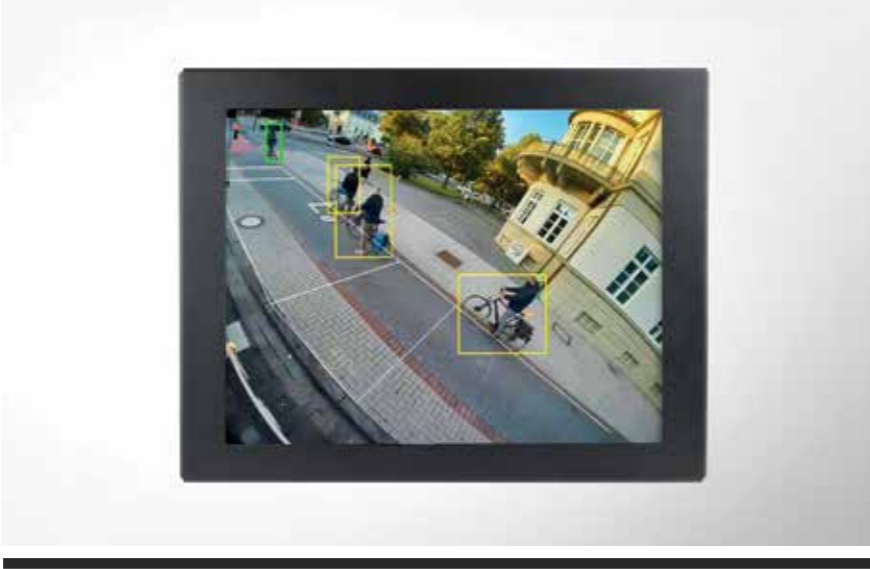
**ROSHO**  
Automotive Solutions

CONTENT

Monitors	04
7 - 10" Monitors	
Turn assistant	08
TurnCAM®	
Cameras	10
Allroander	
Mini-Cameras	
Bestseller	
Built-in cameras	
IP Line	
Interior	
Cable & adapter	20
Connection cable	
Adapter	
Multimedia	22
Audio	
USB Charger	
Toggle boxes	
Display systems	
LTE-WLAN-Router	
BIS	
Display systems	
Passenger counting	
About Rosho	34

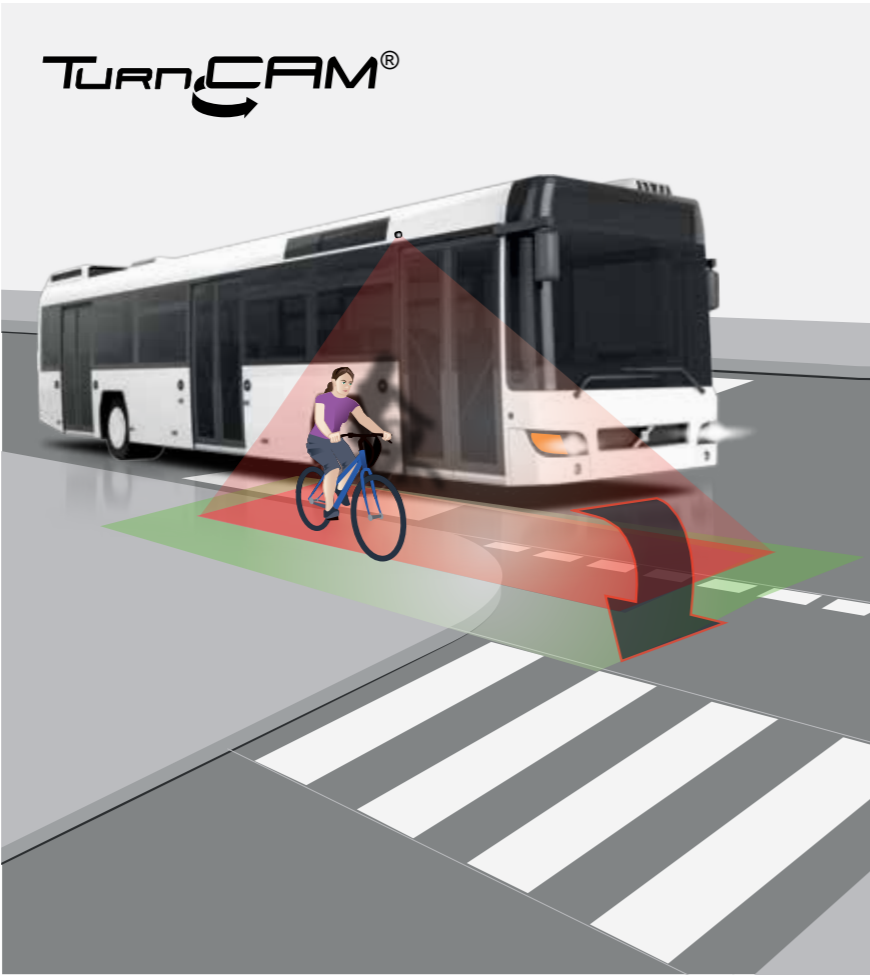
04

Monitors



08

TurnCAM®



10

Cameras



23

USB Charger

24

Quad boxes



30

DIRECS System



ROSHO Product solutions

Whether land, construction, transport vehicles or buses: ROSHO offers camera, video and multimedia solutions that are perfectly tailored to the various application scenarios in the vehicle. We cover all leading manufacturers with their common vehicle types.

The vehicles you use or offer are not included? No problem!

We also find excellent solutions for less common brands, vehicle types or scenarios. In case of doubt at your location. This is our promise.

We want it to be as easy as possible for you to equip your vehicles with powerful, innovative camera technology. For the protection of health and property, for the benefit of your and our customers.

You have the challenge. We have the solution. ROSHO

# MONITORS

High resolution 7-, 8-, 10-Inch



**Critical workflows can be checked with ROSHO systems more efficient**



## Monitor LCM 706F

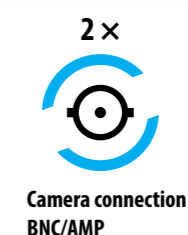
LCM 706FS with 2 × BNC/AMP	MB-2-070-05
150 mm connection cable	
LCM 706FL with 2 × BNC/AMP	MB-2-070-06
1000 mm connection cable	

7-inch built-in LCD monitor for connecting up to two cameras or video sources. Installation at the driver's workplace or in a molded part optionally available from the vehicle manufacturer.

2 × Camera input // Protection class IP 54

### Technical specifications

Display resolution	800 × 480
Brightness	500 cd/m <sup>2</sup>
Operating voltage	10,5 - 36V DC
Temperature range	-30 °C ~ +85 °C
Connections	2 × BNC / AMP
Dimensions (W × H × D)	160.5 × 111.4 × 18 mm



Possible representations



3 × / 4 ×



Camera connection  
MiniDIN



Protection  
class

## Monitor LCM 703 series

LCM 703T (3 × Camera input)	MM-3-070-01
LCM 703QHD (4 × Camera input)	MM-4-070-01

7-inch monitor in an elegant and robust design housing (very flat), which was developed for use in buses and commercial vehicles. 3 or 4 cameras or video sources can be connected, which on the 703QHD can be displayed either as a single image, split or quad display.

3 × / 4 × Camera input // Protection class IP 64

### Technical specifications

Display resolution	800 × 480
Brightness	450 cd/m <sup>2</sup>
Operating voltage	10 - 32V DC
Temperature range	-20 °C ~ +70 °C
Connections	3 × / 4 × MiniDIN
Dimensions (W × H × D)	181 × 122 × 24 mm



## Monitors

### 10 Inch

#### Monitor LCM 1003T

LCM 1003 with 3 x MiniDIN MM-3-100-01

10" Monitor // 3 x Camera input // Protection class IP 64

##### Technical specifications

Display resolution	1280 × 800
Brightness	400 cd/m <sup>2</sup>
Operating voltage	12 - 32VDC
Temperature range	-10 °C ~ +60 °C
Connections	3 × MiniDIN
Dimensions (W × H × D)	252 × 172.5 × 29.2 mm



With sun visor  
and monitor holder



Protection  
class

3 ×



Camera connection  
MiniDIN

#### Monitor LCM 1003QHD

LCM 1003 with 4 x MiniDIN MM-4-100-01

10" Monitor // 4 x Camera input // Protection class IP 64

##### Technical specifications

Display resolution	1280 × 800
Brightness	400 cd/m <sup>2</sup>
Operating voltage	12 - 32VDC
Temperature range	-10 °C ~ +60 °C
Connections	4 × MiniDIN
Dimensions (W × H × D)	252 × 172.5 × 29.5 mm



Possible representations



Protection  
class

3 ×



Camera connection  
MiniDIN

#### Monitor LCM 806OEM

LCM 806 with 2 × BNC/AMP

MB-2-080-03

8-inch LCD monitor for connecting up to two cameras or video sources.

2 × Camera input // Protection class IP 54

##### Technical specifications

Display resolution	800 × 600
Brightness	450 cd/m <sup>2</sup>
Operating voltage	11 - 36V DC
Temperature range	-20 °C ~ +70 °C
Connections	2 × BNC / AMP
Dimensions (W × H × D)	204 × 156 × 24 mm



Protection  
class

2 ×



Camera connection  
BNC/AMP

#### Monitor LCM 1006

LCM 1006 with 2 × BNC/AMP

MB-2-104-03

10,4-inch-LCD-Monitor for the connection of up to two cameras or video sources.

2 × Camera input // Protection class IP 54

##### Technical specifications

Display resolution	800 × 600
Brightness	400 cd/m <sup>2</sup>
Operating voltage	10 - 36V DC
Temperature range	-20 °C ~ +80 °C
Connections	2 × BNC / AMP
Dimensions (W × H × D)	260 × 202 × 28 mm



Protection  
class

2 ×



Camera connection  
BNC/AMP

#### Monitor mount Vesa

for LCM 809 / 1006

ZA-2-002-01



# TURN ASSISTANT

TurnCAM®

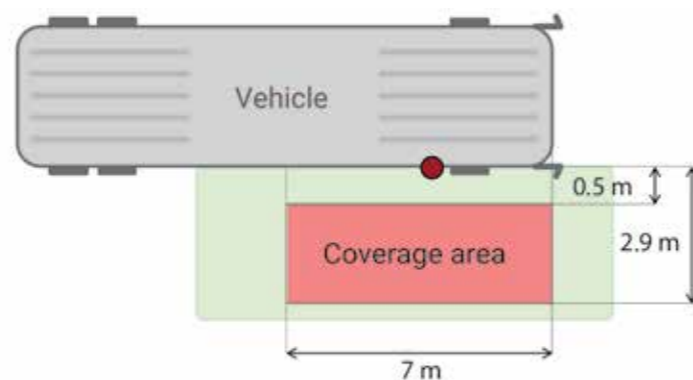
## Simply switch off the blind spot

The ROSHO-TurnCAM® consists of a few, high-performance components. This includes the Blind Spot Detection Box, which has a detection function for the side camera. This registers every moving object that is in the detection area. The display will be activated automatically. The corresponding loudspeaker can be switched on and off via the speed signal and / or turn signal or GPIO signals.

## Approval by the Federal Motor Transport Authority

TurnCAM® fulfills all the technical requirements that the Federal Ministry of Transport has formulated for turn assistant systems. This includes, for example, a precisely defined coverage area: This includes a rectangle 0.9 to 2.5 meters on the right-hand side of the vehicle; starting from the front right corner of the vehicle up to six meters behind the front of the vehicle.

The turn assistant from ROSHO has passed the extensive DEKRA test procedure and received a general operating permit (ABE No. 91806) from the Federal Motor Transport Authority. The system complies with the instructions and guidelines issued by the Federal Minister of Transport. The TurnCAM® can be used as an officially approved system on European roads.



Coverage area required by the Federal Ministry of Transport and Digital Infrastructure

(19. Sept. 2018 StV 22/7342-13/10)



# TURNCAM®

## Active turn assistant system

The TurnCAM® recognizes endangered people in the blind spot. The driver receives a visual and acoustic warning. All TurnCAM® systems have a general operating permit and are therefore eligible for funding in accordance with BMVI guidelines.

## TurnCAM® System variants

TurnCAM® System variant 01/A

SCM-1-001-80

TurnCAM® System variant 01/B

SCM-1-001-81

TurnCAM® System variant 01/D

SCM-1-001-83

TurnCAM® System variant 01/E

SCM-1-001-88

Other systems on request.

## TurnCAM® System variant C

Calibration box

ZA-4-900-47

TurnCAM® GPS Modul

ZA-7-900-108

TurnCAM® Buzzer Switchbox for

Turn signal and door signal

SA-1-007-04

Further accessories on request.



**Camera RK 1703B**

CB-1-130-03

Compact, versatile reversing camera for buses and commercial vehicles.

Point of view 130° // Protection class IP68

**Technical specifications**

Sensor resolution	<b>760 × 420</b>
Sensitivity	<b>0.1 Lux (8 IR LED)</b>
Point of view	<b>130°</b>
Operating voltage	<b>12V DC +/- 10%</b>
Temperature range	<b>-30 °C ~ +85 °C</b>
Casing	<b>Aluminum</b>
Protection class	<b>IP 68</b>
Dimensions (W × H × D)	<b>60 × 53.8 × 78.5 mm</b>
Connections	<b>BNC / AMP</b>



Connection cable  
BNC/AMP



Point of view



Protection  
class

**Plastic wedge for RK 1703B**

PA-1-002-22

**Camera SK 1706M / SK 1708M / SK 1710M**

Camera SK 1710M (78°) CM-1-078-01

Camera SK 1706M (150°) CM-2-150-01

Camera SK 1708M (180°) CM-2-180-01

A wide-angle camera for good all-round visibility. Extremely robust design (highest protection class IP 69K). Can be used as a reversing and side camera for TurnCAM turning assistance systems.

Point of view 78° / 150° / 180° // Protection class IP 69K

**Technical specifications**

Sensor resolution	<b>960 × 480</b>
Sensitivity	<b>0 Lux (8 IR LED)</b>
Point of view	<b>150° / 180° / 78°</b>
Operating voltage	<b>12 - 24V DC</b>
Temperature range	<b>-30 °C ~ +70 °C</b>
Casing	<b>Aluminum</b>
Protection class	<b>IP 69K</b>
Dimensions (W × H × D)	<b>57 × 47.5 × 65.5 mm</b>
Connections	<b>MiniDIN screwable</b>



Voltage



Connection cable  
MiniDIN



Protection  
class



Point of view

**Adapter for SK 1706M / SK 1708M / SK 1710M**

ZA-1-007-03

Adapter for anti-reflective coating and for use e.g. as a front camera.

**Camera****SK 1701M / SK 1702M / RK 1705M  
SK 1701B / SK 1702B / RK 1705B**

Camera SK 1701M (right side) CM-2-120-01

Camera SK 1702M (left side) CM-2-120-02

Camera RK 1705M (reversing camera) CM-1-120-01

Camera SK 1701B (right side) CB-2-120-01

Camera SK 1702B (left side) CB-2-120-03

Camera RK 1705B (reversing camera) CB-1-120-04

Compact, teardrop-shaped reversing camera for buses and commercial vehicles. Extremely robust (highest protection class IP 69K). In the SK 1701M version as a side camera for the right side of the vehicle. As SK 1702M as a side camera for the left side of the vehicle.

Point of view 125° // Protection class IP69K

**Technical specifications**

Sensor resolution	<b>760 × 420</b>
Sensitivity	<b>0.01 Lux (4 IR LED)</b>
Point of view	<b>125°</b>
Operating voltage	<b>9 - 15V DC</b>
Temperature range	<b>-30 °C ~ +85 °C</b>
Casing	<b>Aluminum</b>
Protection class	<b>IP 69K</b>
Dimensions (W × H × D)	<b>45 × 61 × 41 mm</b>
Connections	<b>MiniDIN screwable BNC / AMP</b>



Connection cable  
BNC/AMP



Connection cable  
MiniDIN



Point of view



Protection  
class

**Adapter for SK 1701M / SK 1702M / RK 1705M**

ZA-1-900-13

Camera adapter for SK 1701M, SK 1702M, RK 1705M for camera cables or extension cables.



# Clear

Edge circumspction  
with ROSHO-Cameras

# 12 Cameras Allrounder



Connection cable  
MiniDIN



Point of view



Protection  
class

## Camera RK 1001M

CM-1-150-09

Ball camera with extremely robust casing. For hard-to-reach areas on the outside of the vehicle. Can be aligned on all sides.

Point of view 150° // Protection class IP 68

### Technical specifications

Sensor resolution	500 × 582
Sensitivity	0 Lux (8 IR LED)
Point of view	150°
Operating voltage	12 V DC
Temperature range	-30 °C ~ +70 °C
Casing	Plastic
Protection class	IP 68
Dimensions (W × H × D)	97 × 85 × 79 mm
Connections	MiniDIN screwable



RK 1002M



RK 1004M



Connection cable  
MiniDIN



Point of view



Protection  
class

## Camera RK 1002M/1004M

Camera RK 1002M (110°)

CM-1-110-01

Camera RK 1004M (110°)

CM-1-110-04

Ball camera with extremely robust casing (highest protection class IP 69K). For hard-to-reach areas on the outside of the vehicle. Can be aligned on all sides.

Point of view 110° // Protection class IP 69K

### Technical specifications

Sensor resolution	500 × 582
Sensitivity	0 Lux (8 IR LED)
Point of view	110°
Operating voltage	12V DC +/- 10%
Temperature range	-30 °C ~ +70 °C
Casing	Aluminum/Plastic
Protection class	IP 69K
Dimensions (W × H × D)	
RK 1002M	63 × 76.5 × 50.5 mm
RK 1004M	84 × 97 × 79.2 mm
Connections	MiniDIN screwable



Connection cable  
MiniDIN



Point of view



Protection  
class



Voltage



Connection cable  
Fakra/AMP



Point of view



Protection  
class



Format

# Cameras 13 Mini-Cameras

## Camera RK 1303M / 1304M

Camera RK 1303M (150°)  
Camera RK 1304M (185°)

CM-1-150-10  
CM-1-185-01

Extremely robust construction. Can be placed almost anywhere.

Point of view 180° // Protection class IP 69K

### Technical specifications

Sensor resolution	1280 × 960
Sensitivity	0.02 Lux (F1.4)
Point of view	150° / 180° diagonal
Operating voltage	12 - 24V DC
Temperature range	-30 °C ~ +85 °C
Casing	Aluminum
Protection class	IP 69K
Dimensions (W × H × D)	23 × 23 × 25 mm
Connections	MiniDIN screwable

## Camera RK 1330 / 1331

Camera RK 1330 (PAL)

CB-1-150-04

Camera RK 1331 (NTSC)

CB-1-150-05

Minicamera for various areas of application on and in the vehicle. Extremely robust (highest protection class IP 69K).

Point of view 150° // Protection class IP 69K

### Technical specifications

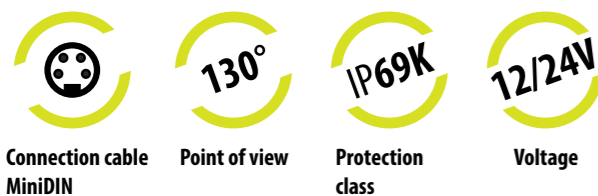
Sensor resolution	1280 × 960
Sensitivity	0.02 Lux
Point of view	150°
Operating voltage	5 - 30V DC
Temperature range	-30 °C ~ +85 °C
Casing	PC ABS
Protection class	IP 69K
Maße (B × H)	28 × 37.6 mm
Connections	Fakra / AMP



Dust, dirt,  
and rain-  
resistant

# 14

## Cameras Bestseller



### Camera RK 1306M

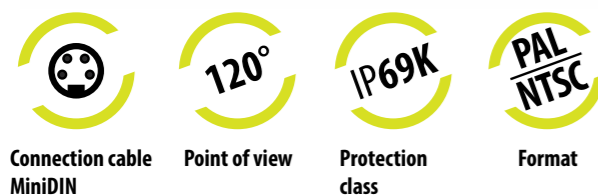
CM-2-130-11

Small 12 and 24V cameras for hard-to-reach areas on the outside of the vehicle. Extremely robust construction (highest protection class IP 69K). Can be placed almost anywhere.

Point of view 130° // Protection class IP 69K

#### Technical specifications

Sensor resolution	960 × 480
Sensitivity	0 Lux (5 IR LED)
Point of view	130°
Operating voltage	12 - 24V DC
Temperature range	-30 °C ~ +70 °C
Casing	Aluminum
Protection class	IP 69K
Dimensions (W × H × D)	41 × 29 × 45.5 mm
Connections	MiniDIN screwable



### Camera RK 1112M

Camera RK 1112M (PAL) CM-1-120-13  
Camera RK 1112M (NTSC) CM-1-120-12

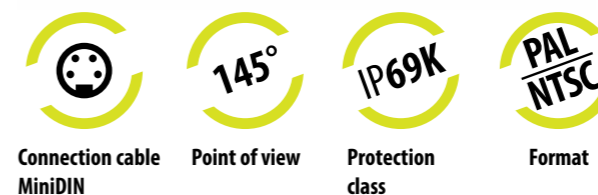
Point of view 120° // Protection class IP 69K

#### Technical specifications

Sensor resolution	1,23 Megapixel
Sensitivity	0 Lux with IR LED an
Point of view	120°
Operating voltage	12V DC +/-10%
Temperature range	-40 °C ~ +80 °C
Casing	Aluminum
Protection class	IP 69K
Dimensions (W × H × D)	93 × 42 × 70 mm
Connections	MiniDIN screwable

# 15

## Cameras Bestseller



### Camera RK 1100M

Camera RK 1100M (PAL) CM-1-130-08  
Camera RK 1100M (NTSC) CM-1-130-12

Reversing camera with electrical protective cover. Extremely robust (highest protection class IP 69K). Included in delivery: Shutterbox for controlling the mechanical shutter flap, 20-meter connection cable.

Point of view 145° // Protection class IP 69K

#### Technical specifications

Sensor resolution	1020 × 507
Sensitivity	0 Lux
Point of view	145°
Operating voltage	12V DC
Temperature range	-40 °C ~ +70 °C
Casing	Edelstahl / Plastic
Protection class	IP 69K
Dimensions (W × H × D)	88 × 65 × 53 mm
Connections	MiniDIN screwable



### Camera RK 14xx Serie

Camera RK 1404M (78°) CM-1-070-06  
Camera RK 1405M (130°) CM-1-130-10  
Camera RK 1415M (150°) CM-1-150-05  
Camera RK 1415M (150°) NTSC CM-1-150-06

12 and 24V reversing camera with window heating for use on agricultural machinery and commercial vehicles. Viewing angles in 78°, 130° and 150° diagonally. Extremely robust (highest protection class IP 69K). Dust, dirt, rain and frost resistant.

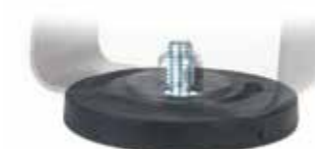
Point of view 78° / 130° / 150° // Protection class IP 69K

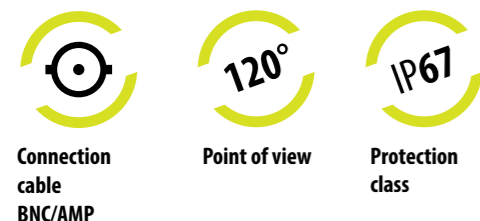
#### Technical specifications

Sensor resolution	960 × 480
Sensitivity	0 Lux (8 IR LED)
Point of view	78° / 130° / 150°
Operating voltage	12 - 24V DC
Temperature range	-30 °C ~ +70 °C
Casing	Aluminum
Protection class	IP 69K
Dimensions (W × H × D)	76 × 70 × 42 mm
Connections	MiniDIN screwable

### Magnetic base for the RK 14xx series

ZA-1-002-09





## Built-in camera Camera DBC 204075

CB-4-120-04

High-resolution built-in camera for monitoring the door and stair areas in buses and trains

Point of view 120° // Protection class IP 67

### Technical specifications

Sensor resolution	1,23 Megapixel
Sensitivity	0.01 Lux
Point of view	120°
Operating voltage	12V DC
Temperature range	-10 °C ~ +70 °C
Casing	Aluminum
Protection class	IP 67
Dimensions (W × H)	33 × 33 × 31 mm
Connections	BNC / AMP

## Built-in camera Camera DBC 204064

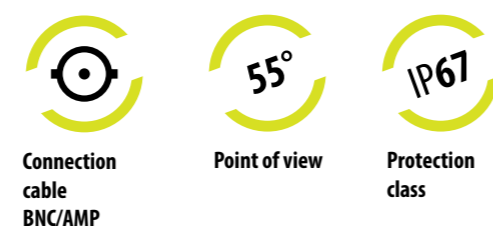
CB-4-055-03

High-resolution built-in camera for use as a front and Panorama camera in buses and trains

Point of view 55° // Protection class IP 67

### Technical specifications

Sensor resolution	1,23 Megapixel
Sensitivity	0.01 Lux
Point of view	55°
Operating voltage	12V DC
Temperature range	-10 °C ~ +70 °C
Casing	Aluminum
Protection class	IP 67
Dimensions (W × H)	33 × 33 × 31 mm
Connections	BNC / AMP



## Rod camera DBC 11xx Serie

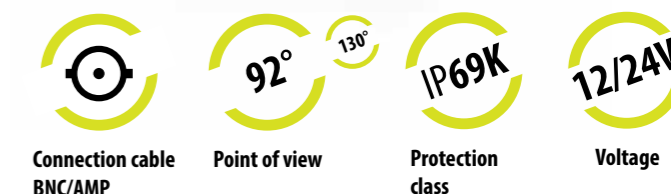
Camera DBC 114078 (55°)	CB-5-055-01
Camera DBC 114081 (92°)	CB-5-092-04
Camera DBC 114082 (130°)	CB-5-130-01

Rod camera for space-saving and discreet use in the vehicle (only lens and protective screen visible). With screw mechanism for simple and precise integration into different molded parts.

Point of view 92° / 130° // Protection class IP69K

### Technical specifications

Sensor resolution	960 × 480
Sensitivity	0.3 Lux
Point of view	55° / 92° / 130°
Operating voltage	12 - 24V DC
Temperature range	-10 °C ~ +60 °C
Casing	Aluminum
Protection class	IP 69K
Maße (B × H)	29.5 (24.4) × 59.8 mm
Connections	BNC / AMP



With our accessories you can be sure, that everything fits perfectly





## IP Dome camera DIP 150161 XR

Camera DIP 150161 XR CX-3-120-05

High-resolution IP dome camera for interior surveillance in buses and trains. Aluminum casing protected against vandalism. Perfectly matched to the digital recording and fleet management systems from ROSHO.

Point of view 120° // Protection class IP 10K

### Technical specifications

Sensor resolution	3 Megapixel
Sensitivity	0 Lux bei IR on
Point of view	120°
Operating voltage	12V DC and PoE
Temperature range	-25 °C ~ +60 °C
Casing	Aluminum/Polycarbonat
Protection class	IP 10K
Dimensions (W × H × D)	97.4 × 114.5 × 53 mm
Connections	RJ45 / AMP (opt.M12)



Connection  
cable  
RJ45/AMP



Point of view



Protection  
class



## Dome camera DBD 15xx Serie

Camera DBD 154643 (70°) CB-3-070-01  
Camera DBD 154060 (92°) CB-3-092-01  
Camera DBD 1540600 (120°) CB-3-120-01  
Camera DBD 1540150 (150°) CB-3-150-01

High-resolution dome camera for interior surveillance in buses and trains. Aluminum casing protected against vandalism. Perfectly matched to the digital recording systems from ROSHO.

Point of view 70° / 92° / 120° // Protection class IP 10K

### Technical specifications

Sensor resolution	1280 × 960
Sensitivity	0.01 Lux
Point of view	70° / 92° / 120° / 150°
Operating voltage	12V DC +/- 10%
Temperature range	-10 °C ~ +60 °C
Casing	Aluminum/Acryl
Protection class	IP 10K
Maße (B × H)	80 × 57 mm
Connections	BNC / AMP



Connection  
cable  
BNC/AMP



Point of view



Protection  
class

CB-3-120-02  
CB-3-092-10



## Design camera DBD 11xx Serie

Camera DBD 114051 (120°) CB-3-120-02  
Camera DBD 114052 (92°) CB-3-092-10  
Camera DBD 114052 (55°) silver CB-6-055-01

High-resolution, elegant design camera for installation in buses.

Point of view 92° / 120° // Protection class IP 10

### Technical specifications

Sensor resolution	1280 × 960
Sensitivity	0.1 Lux
Point of view	92° / 120°
Operating voltage	12V DC +/- 10%
Temperature range	-25 °C ~ +60 °C
Casing	Plastic
Protection class	IP 10K
Dimensions (W × H × D)	96 × 53 × 101 mm
Connections	BNC / AMP



Connection  
cable  
BNC/AMP



Point of view



Protection  
class

More safety  
with ROSHO  
systems



# CABLE & ADAPTER

Always the best connection



On every  
vehicle  
tailored

## Camera cable BNC/AMP

2 m	CW-1-020-02
5 m	CW-1-050-01
10 m	CW-1-100-01
15 m	CW-1-150-01
20 m	CW-1-200-01
25 m	CW-1-250-01
30 m	CW-1-300-01
35 m	CW-1-350-01



BNC socket pluggable / AMP socket pluggable

## Video cable BNC

3 m	VW-1-030-01
6 m	VW-1-060-01
10 m	VW-1-100-01

BNC socket pluggable



## Cable & adapter

Connection cable MiniDIN/BNC/AMP



## Extension cable MiniDIN

2 m	CW-2-020-02
5 m	CW-2-050-06
10 m	CW-2-100-04
15 m	CW-2-150-03
20 m	CW-2-200-03
with slotted corrugated pipe / 10 m	CW-2-100-14
with slotted corrugated pipe / 15 m	CW-2-150-14
MiniDIN plug screwable	
MiniDIN socket screwable	



## Camera cable MiniDIN

2 m	CW-2-020-01
3 m	CW-2-030-05
5 m	CW-2-050-02
10 m	CW-2-100-03
15 m	CW-2-150-02
20 m	CW-2-200-01
MiniDIN plug pluggable	
MiniDIN socket screwable	

## Adapter AV

ZA-5-900-04

MiniDIN socket pluggable  
Cinch plug pluggable / AMP plug pluggable



## Camera Adapter

ZA-1-900-12

MiniDIN socket screwable  
BNC socket pluggable / AMP plug pluggable /  
Open wire for reflection



## Monitor Adapter

ZA-2-900-10

MiniDIN socket pluggable  
BNC socket pluggable / AMP socket pluggable



## Adapter for RK 1705M/ SK 1701M/SK 1702M

ZA-1-900-07

MiniDIN socket screwable  
BNC socket pluggable / AMP socket pluggable



## Multimedia

### Audio



### RFM 02/02S Driver microphone

RFM 02 (without control line)	A-3-004-04
RFM 02S (with control line)	A-3-004-05

Robust telescopic microphone, which was specially developed for use in city buses and trains. Switching on and off takes place either via direct activation on the amplifier or, in the alternative variant, by means of a control line. It is infinitely adjustable and can be rotated in all directions thanks to the 360-degree joint integrated on the foot. 1.5 meter microphone cable.



### DMV2 MIC Microphone amplifier

DMV2 (without accessories)	SA-1-002-01
DMV2 (Including Bosch adapter)	SA-1-002-02

The digital stereo amplifier DMV 2-MIC has an output power of  $2 \times 45$  watts. The device has  $2 \times$  Remote In,  $2 \times$  Line In and can be used for indoor and outdoor announcements.



### DMV4 MIC Microphone amplifier

DMV4 MIC (without accessories)	A-1-003-02
--------------------------------	------------

The four-channel amplifier with integrated 56-bit DSP technology has an output power of  $4 \times 45$  watts. Various sources such as radios, microphones, etc. can be connected to the amplifier. With the DSP it is possible to adjust vehicle-specific sound settings such as B. Equalizing or runtime correction (optional).

## Multimedia

### USB Charger



### USB Chargerset for handrails

without cap	SZ-1-001-220 black
with cap	SZ-1-001-200 black

Never again an empty battery!

- For tube diameter 30.34 and 35 mm
- 12/24 V Connection to the existing on-board Electrical system
- $2 \times 2,5A$  Charging current (sufficient for all standard smartphones and tablets)

In any RAL color upon request \*  
(\* depending on the number of items).

RAL 7001 – grey	RAL 9005 – black
RAL 1023 – yellow	RAL 5017 – blue
RAL 3020 – red	RAL 6024 – green



### USB-C/A Double socket

without cap	ZA-7-900-490
with cap	ZA-7-700-540

12/24V Input and 3,6A Output  
including overvoltage protection



### USB-C/A Double socket structure

ZA-7-900-500
--------------

12/24V Input and 3,6A Output  
including overvoltage protection



### Audio / video switch box (24V) incl. holder

ZA-1-004-01

Switches audio and video sources using a 24V signal.



### Video switch box (24V) without holder

ZA-1-004-00

Switches video sources with a 24V signal.

## Quad Control Box M1

ZA-1-002-01

Quad Control Box for connecting up to four cameras and video sources.  
Automatic switch-on possible via trigger signals.

Possible representations



## Quad Control Box M3

ZA-1-002-20

Quad Control Box for connecting up to 6 cameras and video sources.  
Two monitor outputs. Including extensive configuration software (e.g. for zooming or mirroring the individual cameras, horizontal and vertical split or quad display, etc.).

Possible representations



## M3-Adapter BNC / MiniDIN

ZA-6-900-06

Adapter for easy connection of up to six ROSHO MiniDIN cameras to the Quad Control Box M3.



## LED Signal sign

STOP MB-0-100-01

LED signal sign, for installation in MAN city buses.

WAGEN HÄLT

WAGEN HÄLT MB-0-100-02

DE BUS HÄLT

DE BUS HÄLT MB-0-100-03

ARRET DEMANDE

ARRET DEMANDE MB-0-100-04

PARAR

PARAR MB-0-100-05

STANNAR

STANNAR MB-0-100-06

FERMATA PRENOTATA

FERMATA PRENOTATA MB-0-100-07

STOPP

STOPP MB-0-100-08

STOPPER

STOPPER MB-0-100-09

DURACAK

DURACAK MB-0-100-10



WLAN Router LTE WiFi LOCAL 2

(without CMS-System)

ZA-7-900-91

(with CMS-System)

ZA-7-900-134

WLAN router with integrated LTE Cat 4 modem for convenient internet access on the bus.

- Use up to 40 users at the same time  
up to 2 SIM data cards possible (manual switching),  
2 SIM card slots outside  
(for permanently integrated data cards)
- SSID can be set manually
- Password can be set manually
- APN identifier can be set manually
- Automatic firmware update via server (manufacturer) and Remote monitoring



NB2800, LTE-WLAN-Router

(with LTE + GPS)\*

ZA-7-900-94

(with Dual-LTE + GPS)\*

ZA-7-900-87

\*(Additional accessories required)

\*Roof antenna MIMO LTE + GPS - 3 m cable,  
Series NB2800

ZA-7-900-88

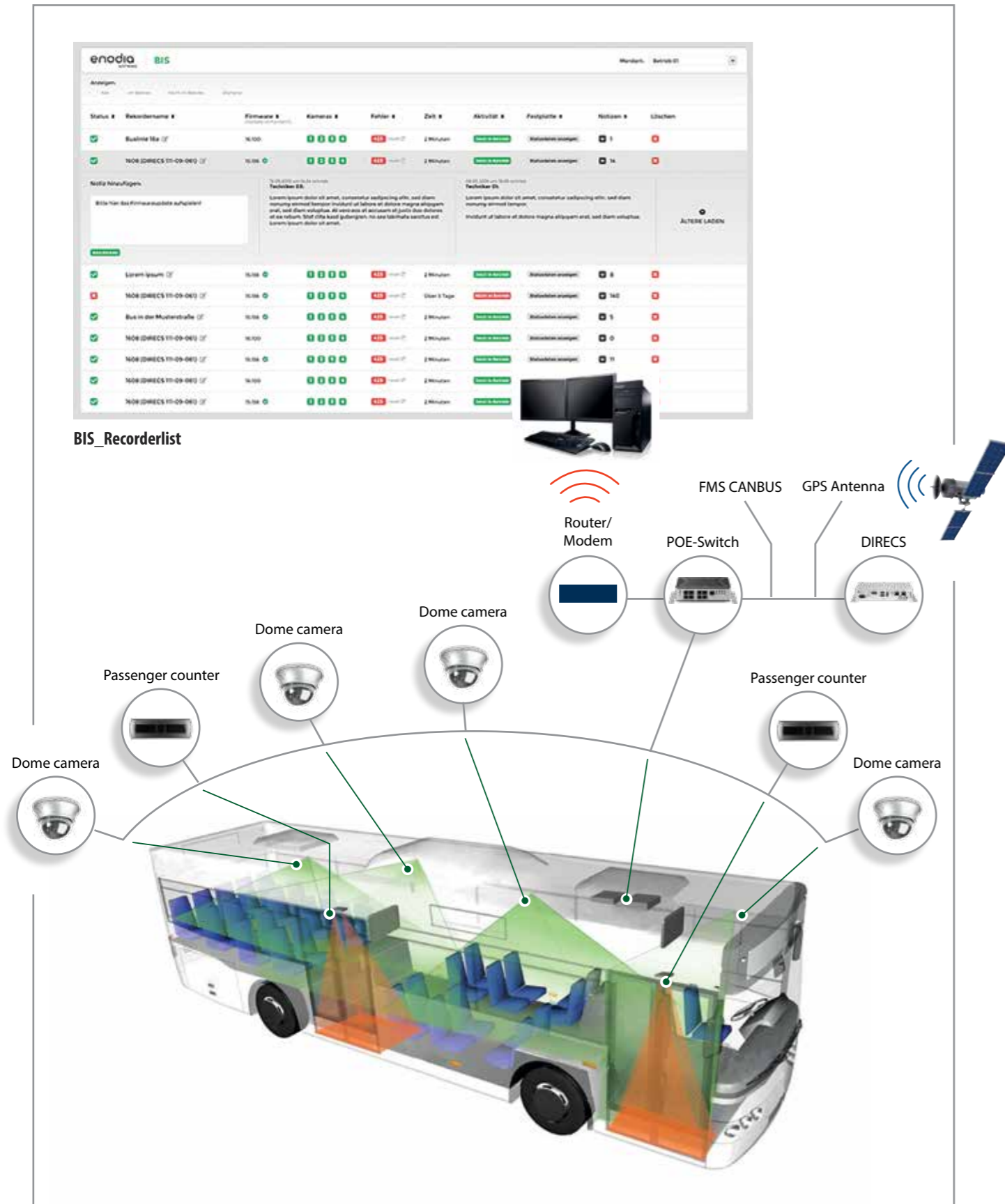
\*Indoor sticky antenna MIMO WLAN, 3m cable,  
Fakra - Series NB2800

ZA-7-900-89

- Router for LTE internet access in the bus
- Media server functionality
- Up to one terabyte of local storage
- Several LTE modems
- Several WLAN-ac AP / clients
- 2 Gigabit Ethernet Ports
- VLAN, RSTP, LLDP
- 12 / 24V



## BIS system infrastructure for more mobility



### Basic version BIS:

- External surveillance
- Overview of all recorders
- Recorders can be given their own name
- Firmware version can be displayed and there is an information whether there is an update
- A note can be added to a recorder as a history is built. The user is also displayed.
- The list of recorders can be filtered differently:
  - Normal view, all recorders one below the other with current status
  - Recorder with current error
  - Recorder with errors in the last xx days
  - Recorder with outdated firmware status
  - List of a recorder with history (various filters)
  - Log for the workshop
  - Export the list as an Excel / CSV file
  - Print function for the list
- A detailed view can be displayed for each recorder
- The errors are possibly linked to the GPS position of the bus
- Link the alarm button with GPS.
- The storage of the status data in the BIS system is limited to 100 days.
- Error counter can be reset

## Modular extension BIS:

### 1. AFZ (Passenger counting)

- Transmission of counting results in real time or at time intervals
- Preparation of the data on server systems
- Support of common interfaces
- Integration in evaluation systems from any provider

## 2. Video protection

- Transmission of alarm data and images
- Remote access to camera systems
- Transmission of the GPS coordinates
- Setting of alarm markers

### 3. FMS-CANBus

- Real-time status of vehicles and systems

Further modules and extensions on request and project-related possible at any time!



## Display systems and surveillance systems of the latest generation for mobile use

### DIRECS 4/8plus recorder

<b>DIRECS 4</b> (4 Camera connections)	<b>DR-1-004-01</b>
<b>DIRECS 8</b> (8 Camera connections)	<b>DR-1-008-01</b>

*DIRECS 4 Voltage supply and inputs / outputs	<b>ZA-3-900-12</b>
*DIRECS 8 Voltage supply and inputs / outputs	<b>ZA-3-003-02</b>

- Specially designed for use in public transport, logistics and valuables transport
- All necessary certifications (e / E, EN 50155) for use in the mobile area
- Optimized for use under extreme conditions (-15 to + 70 ° C)
- Recording of video, audio and additional data (IBIS, log file, GPS)
- Recording of up to 8 analog CCTV and digital network cameras
- Wear-free recording on hard disks (HDD) and flash (SSD)



EView overview

### DIRECS equipment

#### USB Evaluation unit

**ZA-3-900-05**

USB evaluation unit for DIRECS exchangeable hard disks for connection to a PC or laptop, incl. power supply.



#### Removable drive SSD

<b>250 GB</b> (linear)	<b>DF-1-250-11</b>
<b>500 GB</b> (linear)	<b>DF-1-500-02</b>



#### Removable drive HDD

<b>320 GB</b> (linear)	<b>DF-1-320-02</b>
<b>320 GB</b>	<b>DF-1-320-03</b>
(linear + extended temperature range)	
<b>500 GB</b> (linear)	<b>DF-1-500-11</b>
<b>1000 GB</b> (linear)	<b>DF-1-1000-01</b>



DIRECS 4/8

## 4 × IP cameras + up to more 8 × IP cameras via switch + 4 x analog cameras



### DIRECS Vbox5\*

**HW-1-0005**

Fanless embedded PC for recording IP cameras and connection of passenger counting sensors in buses and trains.

- 4 x LAN with PoE + 1 x LAN
- 2 x USB 3.0
- Intelligent energy management with switch-on / switch-off delay the ignition via software control and low voltage protection
- LTE modem
- GPS
- Wide range input from 9 - 48V
- Operating temperature -40 ° C ~ 70 ° C
- Dimensions 240 × 161 × 85 mm
- Weight 1.4 kg

\*Further embedded PC products on request



### LCM 800W

**HW-4-0003**

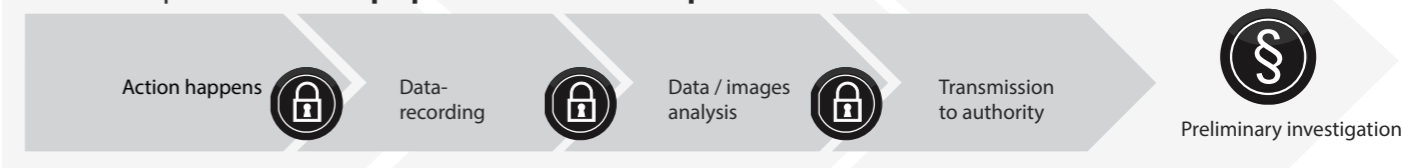
8" Monitor // 1 × VGA Input // 2 x A/V Input via adapter cable\*  
\*further accessories required

- LED touch display
- 800 (W) x (RGB) x 480 (H)
- Brightness 500 cd / m2
- Contrast 500: 1
- Point of view 40/60/60/60
- Wide range input from 9 - 36V
- Operating temperature -30 ° C ~ 85 ° C (ambient W / 0.6M / S air flows around)
- Dimensions 220 × 135 × 29 mm
- Weight approx. 0.8kg

### Removeable drive HDD or SSD

Storage sizes from 320GB to 2TB available; further information on request

#### Schematic representation of the perpetrator identification process





IRMA MATRIX-Structure-Variant



IRMA MATRIX-Installation-Variant

## IRMA MATRIX R2

Sensor-Variant DIST500-A

HW-2-0019

Sensor-Variant DIST500-F

HW-2-0020

Efficient, precise, robust. The IRMA MATRIX sensor records the number of passengers entering and exiting. To do this, it is installed over passage-ways that passengers have to pass when using public transport (e.g. over a bus door). The sensor calculates the distance values to the object in each of the 500 pixels simultaneously from the phase difference and the delay time shift between transmitted and received light. \*

\* Other accessories required



## APS-R-PoE

HW-2-0008

The APS-R-PoE is the morne passenger counter. It uses 3D image processing algorithms to analyze the flow of people. A counting accuracy of 98% or higher is achieved. The APS-R-PoE improves user-friendliness, maximizes options for the new remote connectivity and automates many processes that typically require manual intervention. As a result, the labor costs for installing, commissioning and operating traditional APC units can be reduced. \*

\* Other accessories required

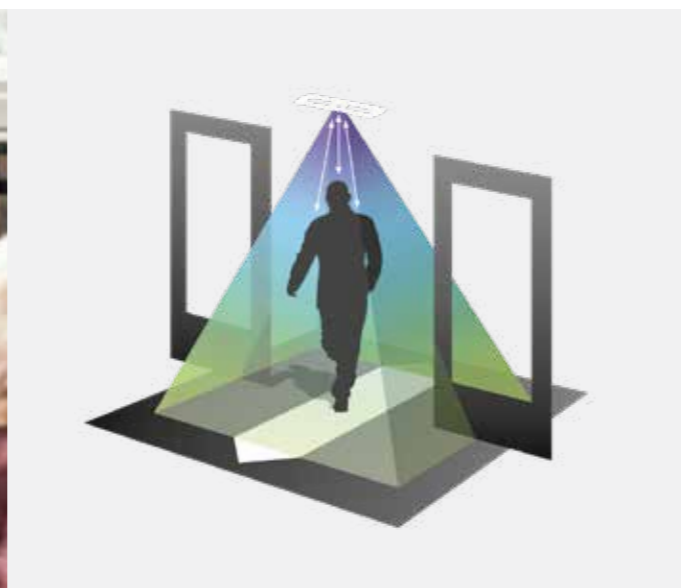
## APS-B

HW-2-00080

The APS-B offers the proven range of functions of the APS family and, with its slim design, is designed for easy ceiling mounting in buses. Despite the significantly more powerful hardware, the device is smaller, lighter and more energy-efficient than its predecessor. In addition, the APS-B impresses with its excellent computing power and attractive pricing. Thanks to the device software proven from APS-R and APS-R-PoE, the APS-B has an identical range of functions with the same excellent counting accuracy. \*



Installation variants



## PoE-Switch 4S

ZA-7-007-14

The PoE switch 4S has **5 Giga-Bit Fast Ethernet ports**, including **4 PoE ports** according to IEEE 802.3af, to transfer large amounts of video streaming, voice and critical data smoothly and quickly over the Ethernet network .

Since the power source of a vehicle is inherently unstable, the mobile PoE switches support a wide input voltage range from 9 VDC to 36 VDC and offer intelligent power management with protection against low battery voltage, switch-on and switch-off delay timers and auto-ignition on / off. Switch-off functions. These unique features can ensure reliable operation and prevent premature failure of both the PoE switches and the vehicle.

- PoE connection with **4 x 10/100/1000 Mbit / s** (802.3af compatible)
- 15.4 W at 48 VDC for each PoE port
- CE / FCC, E13 certification
- -30 ~ 70 ° C operating temperature



## PoE-Switch 8S

ZA-7-007-15

The 8S PoE switch offers **9 Giga-Bit Fast Ethernet ports**, including **8 PoE ports** compliant with IEEE 802.3af, to transfer large amounts of video streaming, voice and critical data smoothly and quickly over the Ethernet network.

Since the power source of a vehicle is inherently unstable, the mobile PoE switches support a wide input voltage range from 9 VDC to 36 VDC and offer intelligent power management with protection against low battery voltage, switch-on and switch-off delay timers and auto-ignition on / off. Switch-off functions. These unique features can ensure reliable operation and prevent premature failure of both the PoE switches and the vehicle.

- PoE port with **8 x 10/100/1000 Mbit / s** (802.3af compatible)
- 15.4 W at 48 VDC for each PoE port
- CE / FCC, E13 certification
- -30 ~ 70 ° C operating temperature

## PROFINET-Patch-cable 2 x RJ45-socket

1 m	CL-4-010-01
2 m	CL-4-020-01
5 m	CL-4-050-01
10 m	CL-4-100-01
15 m	CL-4-150-01
25 m	CL-4-250-01



## PROFINET-Patch-cable RJ45 and M12 socket

1 m	CL-4-010-02
2 m	CL-4-020-02
5 m	CL-4-050-02
10 m	CL-4-100-02
15 m	CL-4-150-02
25 m	CL-4-250-02



Further cable variants on request

## PoE-Switch 8T

ZA-7-007-16

The unmanaged switch offers 8 Fast Ethernet ports. With the M12 Connector technology on the IP54 casing, the switch is ideal suitable for use in vehicles of the public transport company. The switch is plug & play, easy to use and has a very good price-performance ratio.

Further switch variants on request



Grown with experience

## Our history, our future

The roots of today's ROSHO Automotive Solutions GmbH go back to the 1970s. The company entered the world of commercial vehicles in the 1980s with the development of audio-visual products for travel buses, which quickly established themselves as sought-after alternatives to the market-leading products of the time.

Today, ROSHO Automotive Solutions GmbH specializes in system solutions and products for trucks, public transport and commercial vehicles - for a good two decades as a contemporary and flexible company. We are optimally equipped for the future of mobility.

We have been using digital, networked and intelligent technologies for many years and are already working on the next step for more safety on the road - with innovative hardware and software that we refine into highly reliable complete systems.

- **1970s**  
Entertainment systems
- **1980s**  
Audiovisual products
- **1980-1985**  
Camera surveillance systems
- **Today**  
System solutions for commercial vehicles

As made for you

## Customized developments for optimal solutions

We do not leave you alone with your wishes and problems. If you are looking for an individual solution or a system specially tailored to your wishes and requirements, such as a single technical component, then ROSHO is the right partner for you.

Feel free to contact us and let our experts advise you on your individual application purposes.



ROSHO Automotive Solutions

## We make safety mobile.



Transport &  
Logistics



Bus & train



Agriculture



Construction



Municipal

## Good reasons to rely on ROSHO



### Service with value

Competent all-round support is a high priority at ROSHO – so that our customers can trust our solutions right from the start: Instead of call centers, we rely on personal contact with our experienced developers and technicians.



### Solutions with system

As a system provider, ROSHO supplies not only preconfigured complete packages but also solutions tailored to individual customer requirements: For vehicles in freight transport, local and long-distance passenger transport, as well as in the agricultural, construction and special vehicle sectors.



### Engineered in Germany

We pay attention to the smallest detail. Development, final assembly and quality control take place at our locations in Germany.



### Comfort with safety

Solutions and products from ROSHO increase safety as well as comfort – for vehicle drivers, passengers, control rooms and road users: Enjoy the good feeling of creating the best possible technical conditions for smooth vehicle operation.



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Automotive Solutions

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