

## **AHD-DPS02 System**

### **Navigation and Signal Lights Control and Monitoring System**



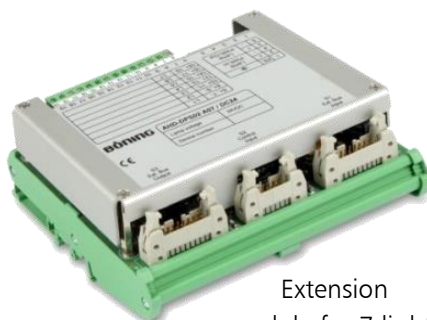
Color display with individual graphics and touch screen



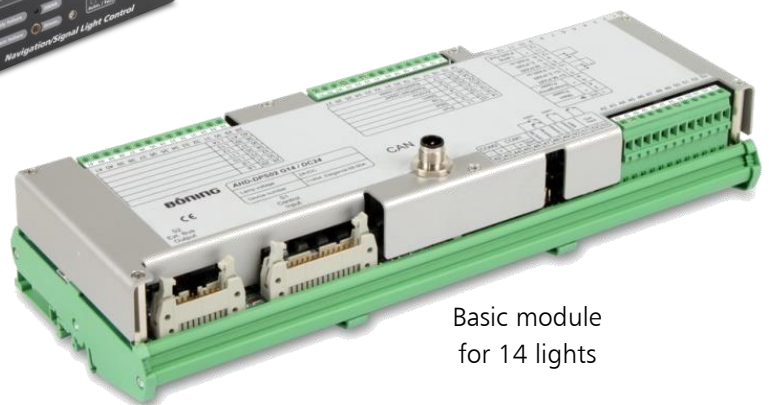
Control Panel (customized "large")



Control Panel (standard "square")



Extension module for 7 lights



Basic module for 14 lights

- **Modular control and monitoring of up to 42 lamp circuits per system**
- **Conventional or LED lamps can be monitored (24V, 115V, 230V)**
- **Self-resetting overload protection on both output terminals**
- **Operation via customizable control panel, touch screen or standard PC**
- **Approvals: BV, CRS, DNV, LR, PRS, RS (further approvals on demand)**

## Introduction

The AHD-DPS02 system is used for controlling and monitoring position and signal lights on ships. Since these lamps serve safety-critical functions, the control and monitoring system used must comply with certain prescribed criteria. In addition to the possibility of dual power supply (primary and emergency), a direct connection must be available so that all position and signal lights can be controlled even in the event of a failure of the electronics. Furthermore, for the control of LED lights, an operating hour monitoring is required for each lamp.

The Böning AHD-DPS02 concept meets all the above requirements and has proven itself in practical use on ships for decades through continuous development. The system is modularly designed and therefore easily adaptable to the respective requirements. There are six versions available, which take into account different lamp voltages (24VDC, 115VAC or 230VAC) and lamp types (incandescent or LED).

## Flexible configuration

A system consists of

- Basic module AHD-DPS02 G14 (with 14 channels)
- up to 4 extension modules AHD-DPS02 A07 (7 channels each)
- operating unit AHD-DPS02 BS / B14..42 (different sizes and versions available)
- optional switch units for basic or add-on module (emergency control)

The minimal configuration consists of a basic module AHD-DPS02 G14 with a maximum of 14 lamp channels and an operating unit AHD-DPS02 BS or AHD-DPS02 B14. By adding additional extension modules AHD-DPS02 A07, the number of lamp channels can be expanded in increments of 7 up to a maximum of 42. If more than 42 lamps need to be controlled, a second system can simply be added. All modules are housed in a profiled casing for rail mounting.

## Simple operation & safe detection

The lamp control is carried out via an operating unit using illuminated control elements. For each channel, a switch and a control LED are provided on the operating unit.

In the event of a short circuit or wire breakage in a lamp circuit, an alarm is signaled for that channel. The operating unit displays three states:

- Light off (LED off)
- Light on (LED on)
- Light defective (flashing LED)

In case of an alarm, an integrated horn is activated along with the visual signal, and an external horn can also be connected. Once the acknowledge key is pressed, the acoustic signal is switched off, but the LED will keep flashing until the channel is switched off or repaired. All LEDs on the operating unit are automatically dimmed by a photocell.

The control units are manufactured individually and can be supplied in different standard versions with switch rows (AHD-DPS02 B14...42) or with a customized front panel design.

## Predictive monitoring

As an additional function, the operating time can be stored for each channel. This allows for early detection of when a lamp has reached its designated lifespan and needs to be replaced. This is a requirement for LED lamps.

## Remote control

The basic module is equipped with an integrated CAN bus for connecting a Böning display or AHD series PC. This allows, for example, remote control of the navigation lights via touchscreen and a graphical user interface.

When using remote control, the additional use of an emergency control is usually required. For this purpose, the switch units AHD-DPS02 E07...E14 have been developed, which ensure safe control of all lamp channels even in the event of device failure.

## Safe supply

The basic module AHD-DPS02 G14 is available in several device variants for different lamp voltages (24 VDC, 115 VAC, and 230 VAC). It is equipped with two power supplies (main and emergency supply). Switching between them is possible in case of a power supply failure to maintain the system's functionality. Both voltages are continuously monitored and alerted in case of a failure.

In the off state, both lines of a lamp circuit are disconnected from the power supply by relay contacts. Each switching channel is equipped with an internal overload protection at both output terminals. However, According to classification and installation requirements external fusing of the lamp circuits is needed.

## External interfaces

Upon request, the basic module AHD-DPS02 G14 can be extended with an interface module. This module is directly plugged into the board and allows for the connection of external components. Depending on the type, the AHD-DPS02 GC module supports various protocols, including Modbus (RS485/422) for controlling a Voyage Data Recorder (VDR). An external lamp control and monitoring is also possible via Modbus or external CAN.

## Alarm contacts

For direct forwarding of fault messages to a higher-level alarm system, additional relay contacts for collective alarm (1 x normally open) as well as voltage and lamp failure (2 x normally closed) are integrated.

## AHD-DPS02 G14

Position lantern monitoring – basic module with 14 lamp channels  
6 types for 24VDC, 115VAC, 230VAC (each bulb / incandescent or LED lamp)

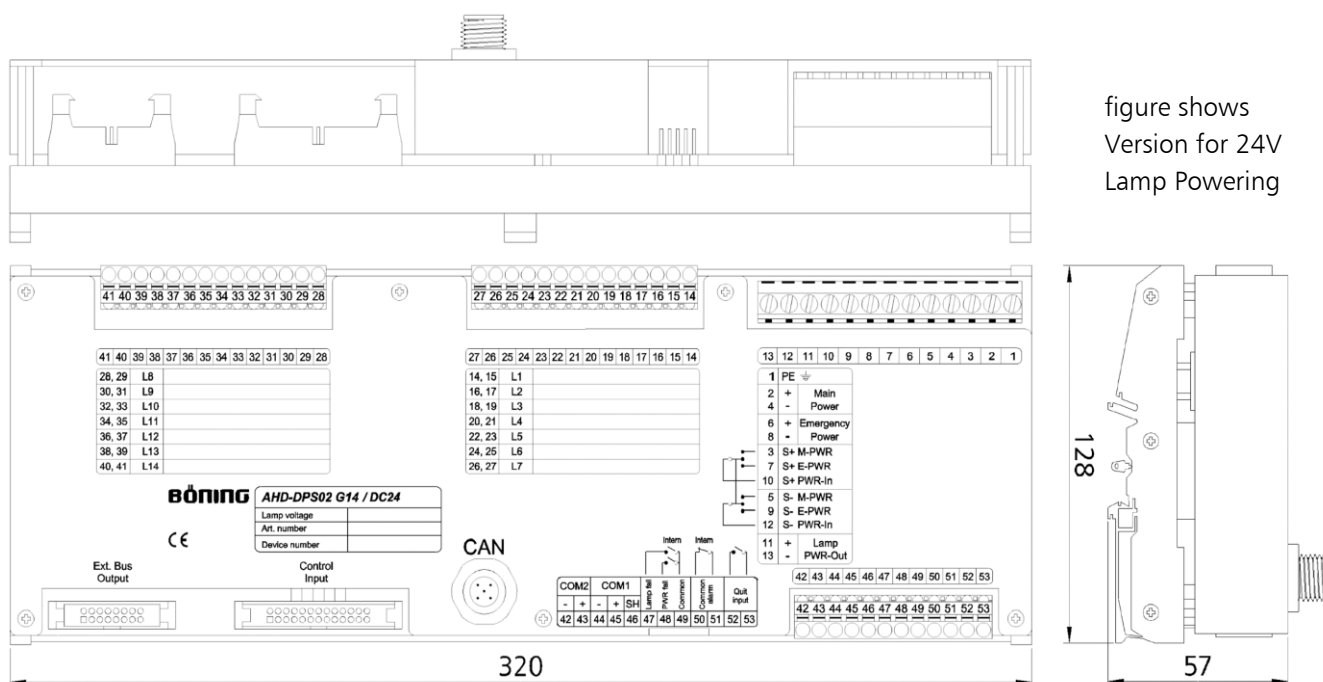


figure shows  
Version for 24V  
Lamp Powering

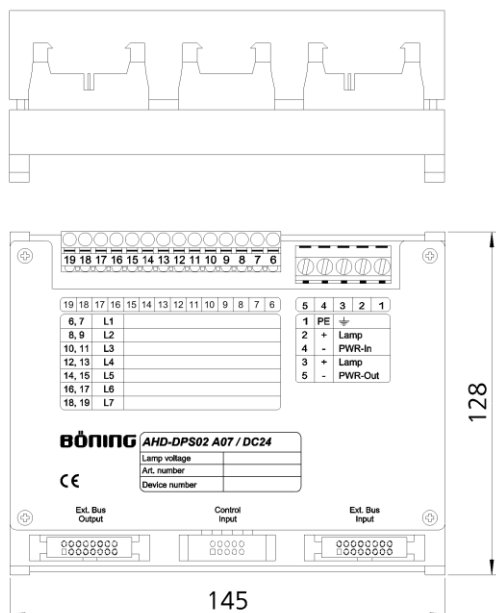
### Part-No. Basic module G14

Voltage	Bulb	LED
24VDC	13828	13831
115VAC	13830	15113
230VAC	14678	14679

## AHD-DPS02 A07

Position lantern monitoring – extension module with 7 lamp channels

6 types for 24VDC, 115VAC, 230VAC (each bulb / incandescent or LED lamp)



### Part-No. Extension module A07

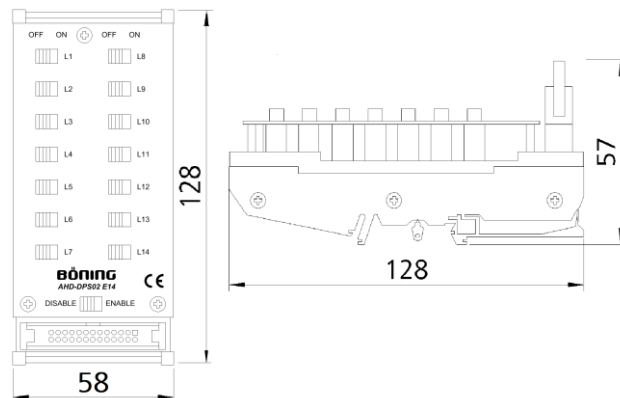
Voltage	Bulb	LED
24VDC	12337	12157
115VAC	11338	15114
230VAC	14674	14675

## AHD-DPS02 E14

Switch module for Basic module AHD-DPS02 G14

Direct control of lamp channels, works as emergency control also in case of failure of electronics. The module is directly connected to the expansion module via ribbon cable.

Part-No. Switch module E14: 14549

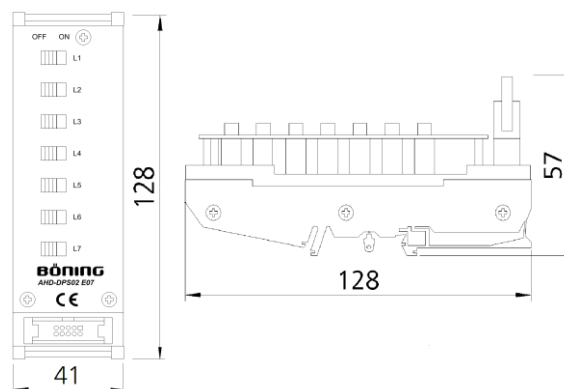


## AHD-DPS02 E07

Switch module for extension module AHD-DPS02 A07

Direct control of lamp channels, works as emergency control also in case of failure of electronics. The module is directly connected to the expansion module via ribbon cable.

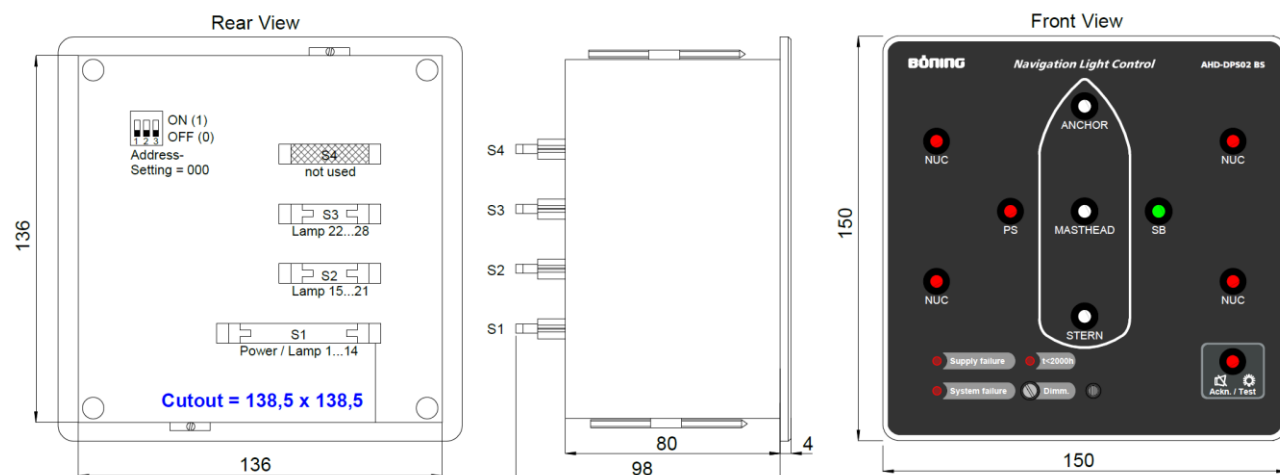
Part-No. Switch module E07: 14548



## Control panel AHD-DPS02 BS (Custom Design)

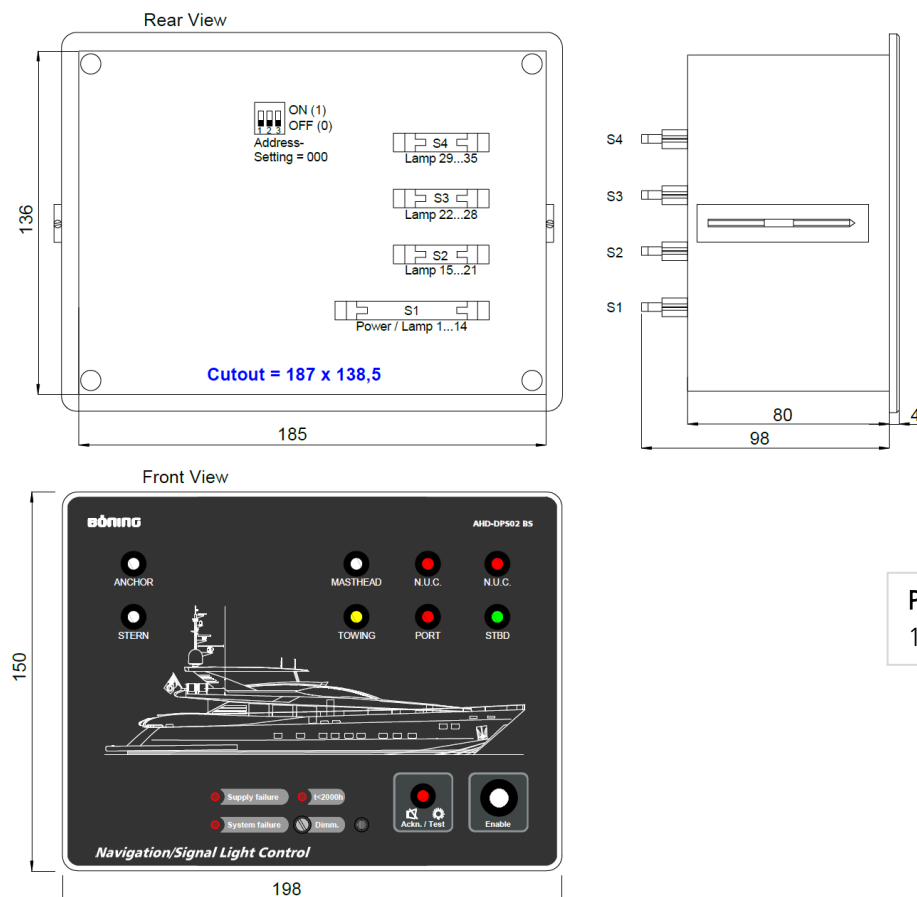
Small control panel for control and monitoring of up to **28** lamp channels:

Lamp control and display of error messages in case of failure or end of life (LED). The module is directly connected to the basic module AHD-DPS02 G14 via ribbon cable.



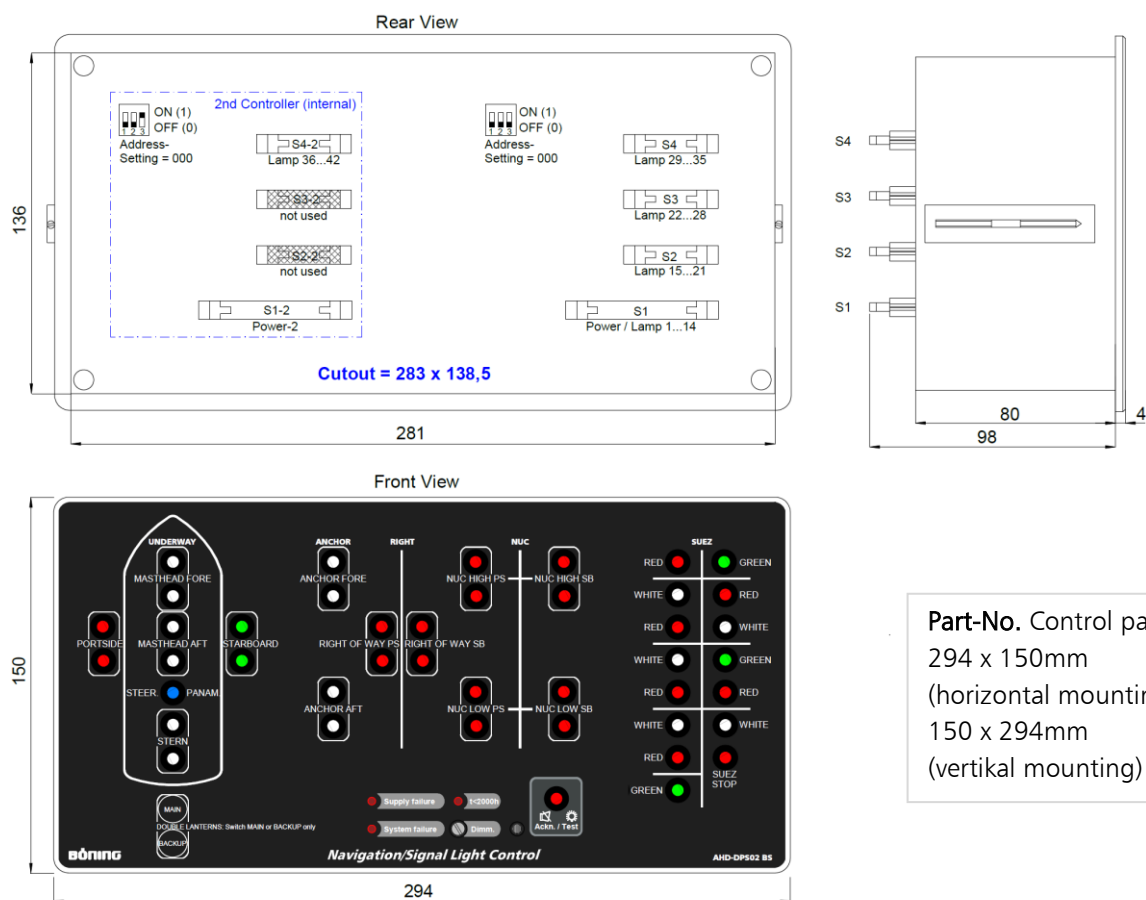
Part-No. Control panel BS „square“ 150 x 150mm: **10945Vx**

Medium-sized control panel for controlling and monitoring up to **28** lamp channels:



Part-No. Control panel BS „medium“  
198x 150mm **22723**

Large control panel for controlling and monitoring up to 42 lamp channels:



**Part-No. Control panel BS „large“**  
 294 x 150mm **11061Vx**  
 (horizontal mounting)  
 150 x 294mm **11060Vx**  
 (vertical mounting)

### Control panel AHD-DPS02 B14...B42 (standard design)

Standard control panel for control and monitoring of up to 42 channels:  
 Lamp control and display of error messages in case of failure or end of of life (LED). The module is directly connected via ribbon cable to the basic module AHD-DPS02 G14.

Standard control panel	Front size	Part-No.
<b>B14</b> 14 Switch	150x150mm	<b>11414Vx</b>
<b>B21</b> 21 Switch	150x150mm	<b>11481Vx</b>
<b>B28</b> 28 Switch	294x150mm	<b>12521Vx</b>
<b>B35</b> 35 Switch	294x150mm	<b>12522Vx</b>
<b>B42</b> 35 Switch	294x150mm	<b>12382Vx</b>

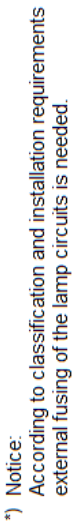


### AHD-DPS02 GC Expansion Module

Expansion module for communication with external systems. Depending on the physical interface (CAN, RS422 or RS485) various protocols are supported. AHD-DPS02 GC is plugged directly onto the basic module.

Part-No.	CAN	RS422	RS485
<b>11231</b>		1x	
<b>12254</b>	2x		
<b>12256</b>	1x		1x
<b>12258</b>			2x

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## Technical Data

### AHD-DPS02 G14

Power supply (electronic unit)	24 V DC (+30% / -25%)
Current consumption	100...420 mA (24 VDC)
Light Power (according to the model)	24 V DC (+30% / -25%) 115 V AC / 47...65 Hz 230 V AC / 47...65 Hz
Operating temperature	-25 °C...70 °C
Storage temperature	-30 °C...85 °C
Weight	0,98 kg
Degree of protection	IP 20
External dimensions	320 x 128 x 57 mm
In-/outputs	14 x lamp output, 2-pole switched and protected 2 x communication bus internal (operating unit, extens. module) 1 x CAN bus 3 x Output (Relay contact, max. switching voltage 32 VDC) Option (with AHD-DPS02 GC): Modbus RS485/422/CAN
Mounting	On DIN Rail TS 32 and TS 35
Classification	BV, CRS, DNV, LR, PRS, RS

### AHD-DPS02 A07

Power supply (electronic unit)	via AHD-DPS02 G14 (Flat ribbon cable)
Current consumption	120...380 mA
Light Power (according to the model)	24 V DC (+30% / -25%) 115 V AC / 47...65 Hz 230 V AC / 47...65 Hz
Operating temperature	-25 °C...70 °C
Storage temperature	-30 °C...85 °C
Weight	0,54 kg
Degree of protection	IP 20
External dimensions	145 x 128 x 57 mm
In-/outputs	7 x lamp output, 2-pole switched and protected 2 x communication bus internal (operating unit, basic module)
Mounting	On DIN Rail TS 32 and TS 35
Classification	BV, CRS, DNV, LR, PRS, RS

### AHD-DPS02 BS / AHD-DPS02 B14...B42

Power supply (elektronic unit)	via AHD-DPS02 G14 (Flat ribbon cable)
Current consumption	50...250 mA
Operating temperature	-25 °C...70 °C
Storage temperature	-30 °C...85 °C
Weight	0,54 kg
Degree of protection	IP 20
External dimensions (according to the model)	150 x 150 x 98 mm 198 x 150 x 98 mm 294 x 150 x 98 mm 150 x 294 x 98 mm
In-/outputs	1 x communication bus internal (basic or extension module)
Mounting	Auf Schiene TS 32 und TS 35
Classification	BV, CRS, DNV, LR, PRS, RS

### AHD-DPS02 E14

Connection	via AHD-DPS02 G14 (Flat ribbon cable)
Current consumption	-
Operating temperature	-25 °C...70 °C
Storage temperature	-30 °C...85 °C
Weight	0,15 kg
Degree of protection	IP 20
External dimensions	58 x 128 x 57 mm
In-/outputs	14 x slide switch (direct lamp control)
Mounting	On DIN Rail TS 32 and TS 35
Classification	BV, CRS, DNV, LR, PRS, RS

### AHD-DPS02 E07

Connection	via AHD-DPS02 G14 (Flat ribbon cable)
Current consumption	-
Operating temperature	-25 °C...70 °C
Storage temperature	-30 °C...85 °C
Weight	0,15 kg
Degree of protection	IP 20
External dimensions	41 x 128 x 57 mm
In-/outputs	7 x slide switch (direct lamp control)
Mounting	On DIN Rail TS 32 and TS 35
Classification	BV, CRS, DNV, LR, PRS, RS