

AHD-DPS02 System

Navigation and Signal Lights Control and Monitoring System



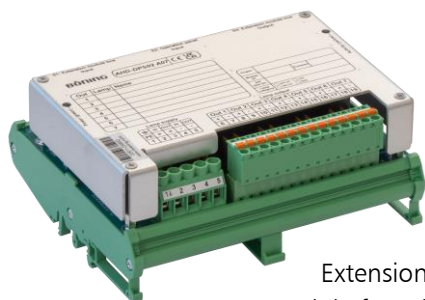
Color display with individual graphics and touch screen



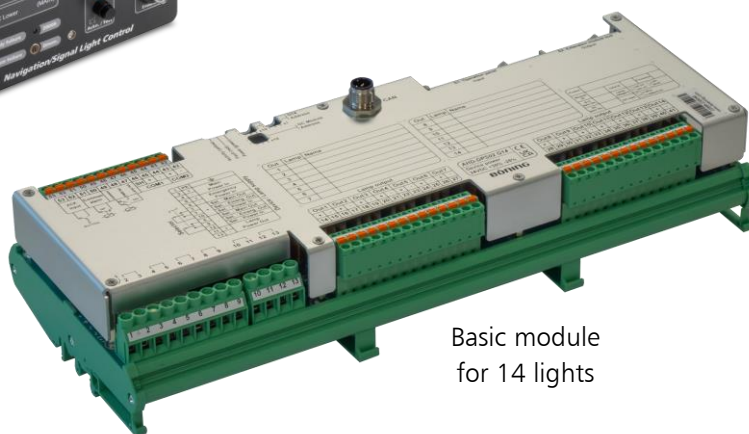
Control Panel (customized "large")



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 with customizable control panel, touch screen or standard PC**
- **Approvals: ABS, BV, CRS, DNV, LR, PRS, RINA (further approvals on demand)**

Introduction

The system AHD-DPS02 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 an electronics failure. 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 with 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; an external horn can also be connected. After the acknowledgement button has been 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 photo element.

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 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 PC. This allows, for example, remote control of the navigation lights on a touchscreen and a graphical user interface.

Using remote control, usually requires the additional use of an emergency control. 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 various 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 trigger an alert in the 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 the connection of external components. Depending on the type, the AHD-DPS02 GC module supports various protocols, including Modbus / NMEA 0183 (RS485/422) for controlling a Voyage Data Recorder (VDR). External lamp control and monitoring is also possible with 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
7 types for 24VDC, 115VAC, 230VAC (each bulb / incandescent or LED lamp)

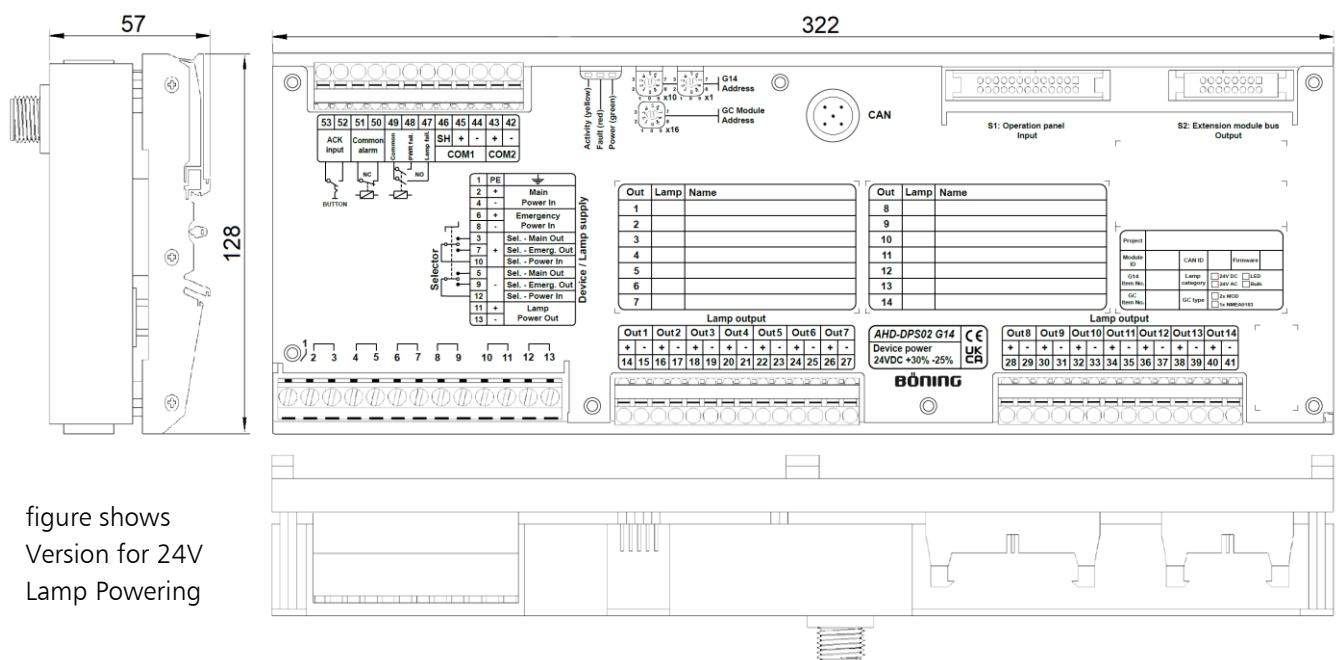


figure shows
Version for 24V
Lamp Powering

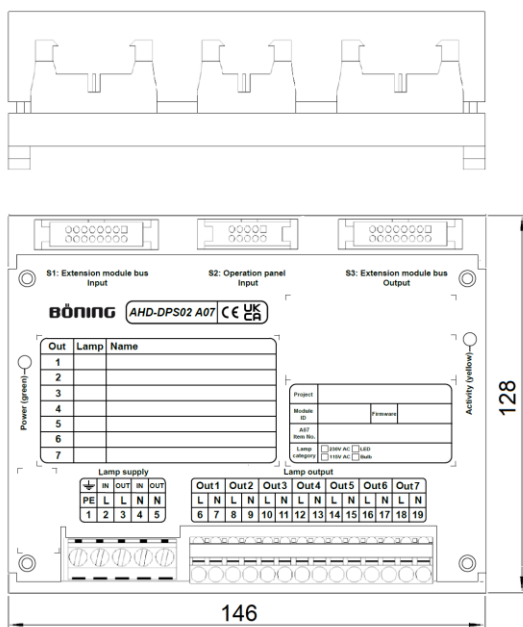
Item no. Basic module G14 (V2)

Voltage	Bulb	LED
24VDC	22893	22895
24VAC	22894	
115VAC	22892	22914
230VAC	22891	22913

AHD-DPS02 A07

Position lantern monitoring – extension module with 7 lamp channels

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



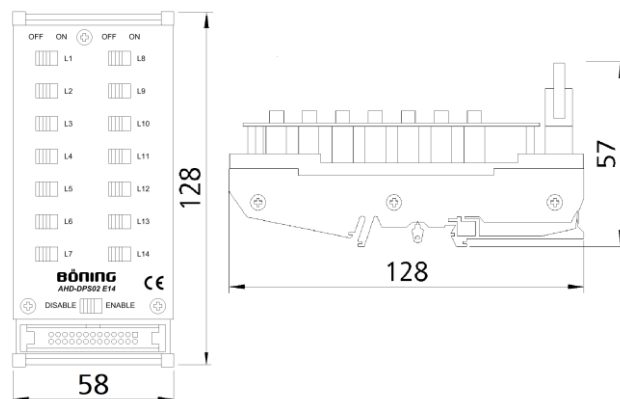
Item no. Extension module A07 (V2)		
Voltage	Bulb	LED
24VDC	22910	22911
24VAC	22908	
115VAC	22906	22909
230VAC	22904	22907

AHD-DPS02 E14

Switch module for Basic module AHD-DPS02 G14

Direct control of lamp channels; works as emergency control even in case of electronics failure. The module is directly connected to the extension module with a ribbon cable.

Item no. Switch module E14: 14549

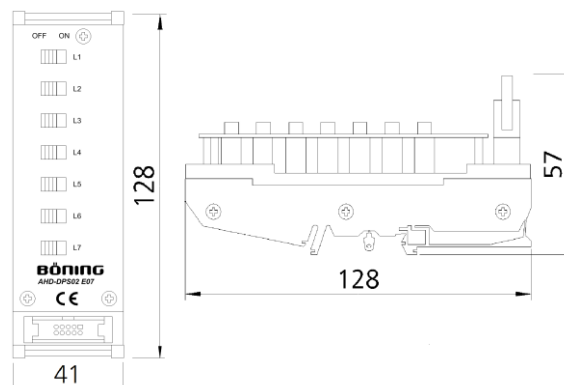


AHD-DPS02 E07

Switch module for extension module AHD-DPS02 A07

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

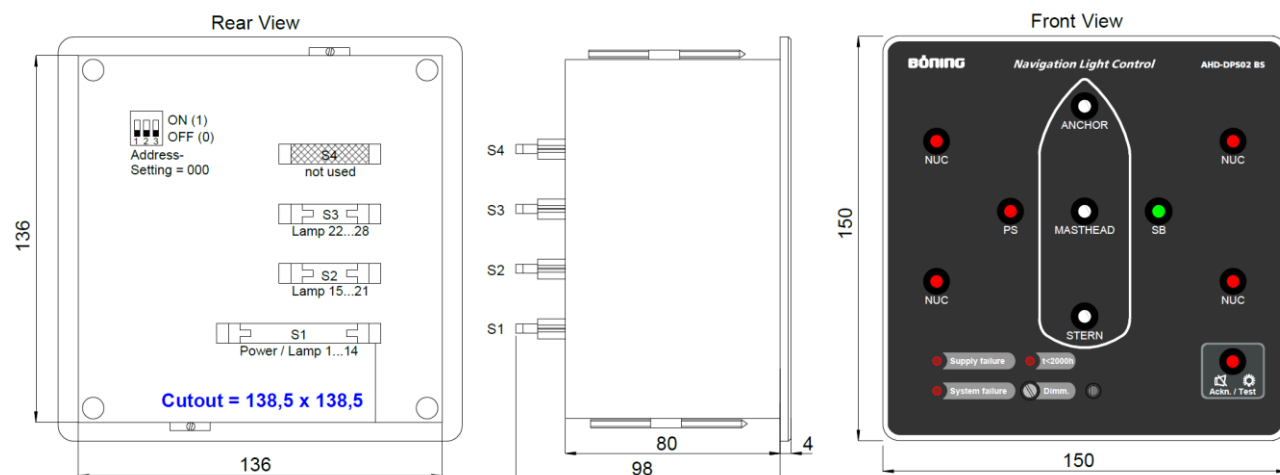
Item no. Switch module E07: 14548



Control panel AHD-DPS02 BS (Custom Design)

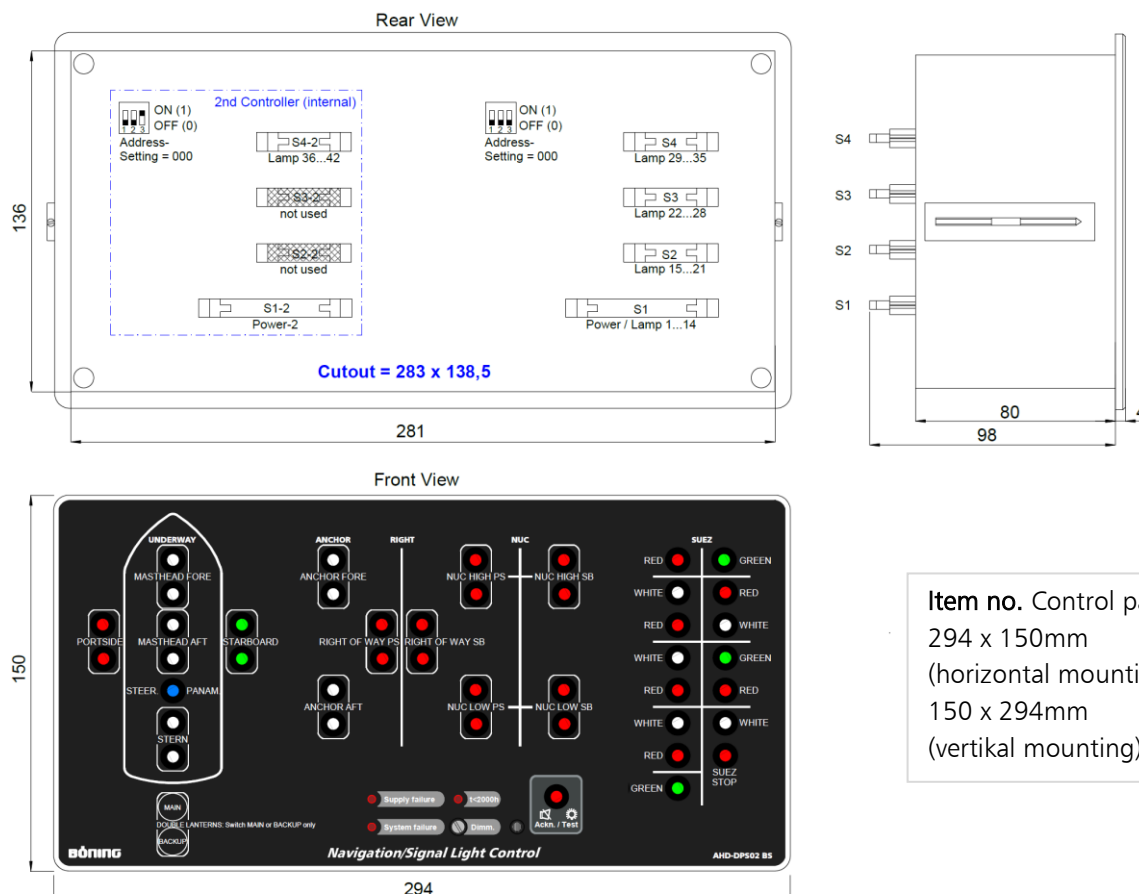
Small control panel for control and monitoring of up to **28** lamp channels:

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 with a ribbon cable.



Item no. Control panel BS "square" 150 x 150mm: **10945Vx**

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



Item 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 42 channels:
Lamp control and display of error messages in case of failure or end of of life (LED). The module is directly connected with a ribbon cable to the basic module AHD-DPS02 G14.

Standard control panel	Front size	Item no.
B14 14 Switch	150x150mm	11414Vx
B21 21 Switch	150x150mm	11481Vx
B28 28 Switch	294x150mm	12521Vx
B35 35 Switch	294x150mm	12522Vx
B42 42 Switch	294x150mm	12382Vx



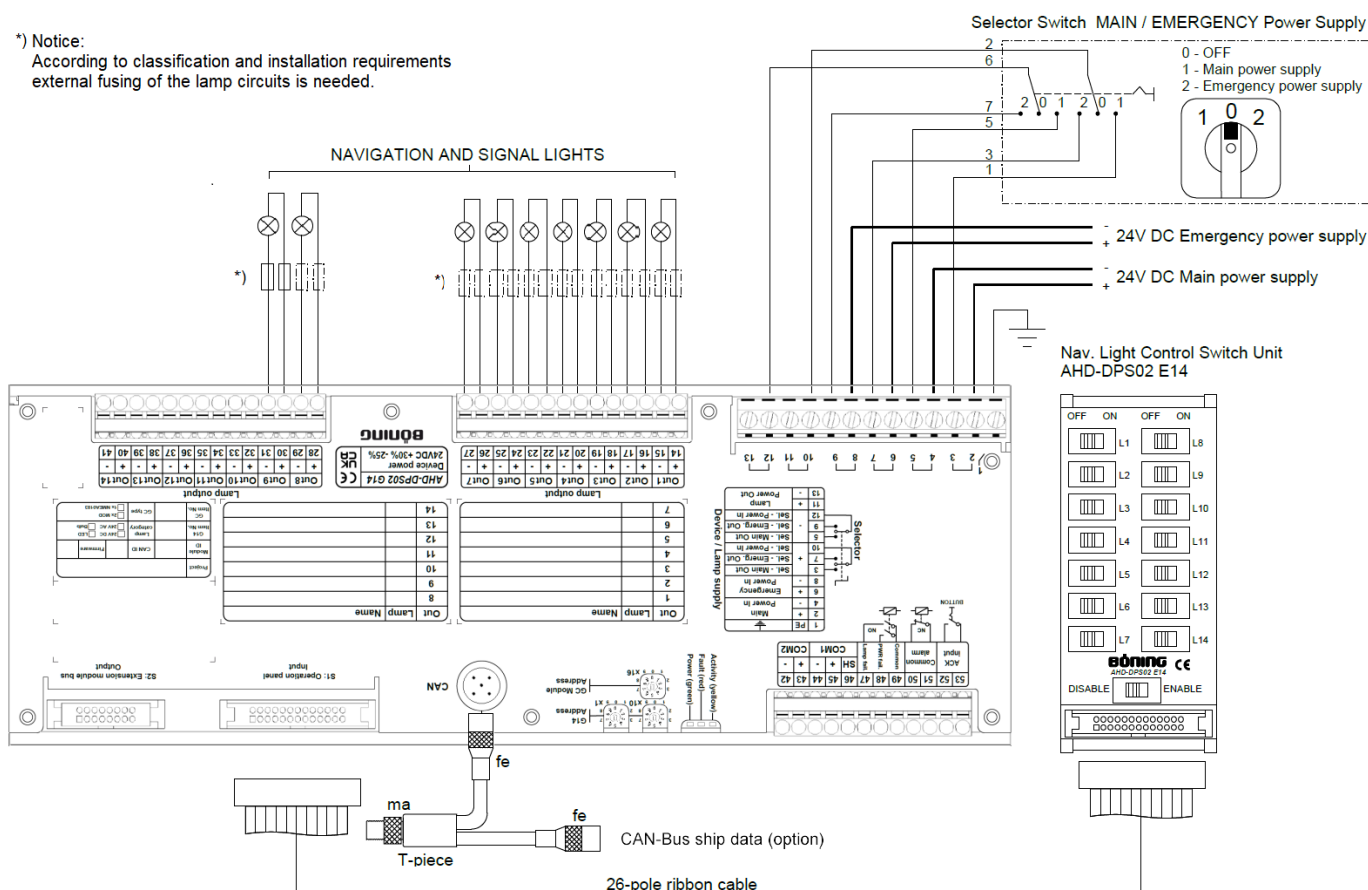
AHD-DPS02 GC Extension Module

Extension 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.

Item no.	CAN	RS422	RS485
11231		1x	
12254	2x		
12256	1x		1x
12258			2x

Application AHD-DPS02 G14 - Minimum configuration with switch unit

*) Notice:
According to classification and installation requirements external fusing of the lamp circuits is needed.



Technical Data

AHD-DPS02 G14 (V2)

Power supply (electronics unit)	24 V DC (+30% / -25%)
Current consumption	100...420 mA (24 VDC)
Light Power (dependeing on the model)	24 V DC (+30% / -25%) 24 V AC / 47...65 Hz 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	322 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
Approvals	ABS, BV, CRS, DNV, LR, PRS, RINA

AHD-DPS02 A07 (V2)

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%) 24 V AC / 47...65 Hz 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	146 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
Approvals	ABS, BV, CRS, DNV, LR, PRS, RINA

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...0.85 kg
Degree of protection	IP 20
External dimensions (according to the model)	150 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	Console or wall mounting
Approvals	ABS, BV, CRS, DNV, LR, PRS, RINA

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
Approvals	ABS, CRS, DNV, LR, PRS, RINA

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
Approvals	ABS, CRS, DNV, LR, PRS, RINA