AHD-EOP / AHD-DEOP
Start-Stop Unit for Marine Diesel Engines



- ***Convenient start-stop system for marine diesel engines***
- ***Enhanced security thanks to a transponder key with a patented design***
- ***Operation via illuminated, dimmable buttons***
- ***Integrated emergency stop button***
- ***Expandable with AHD-DEOP for twin-engine systems***
- ***Optimized for MAN Marine Diesel (other engine manufacturers and variants available via the AHD-EOP adapter)***

BÖNING
SHIP AUTOMATION

General Information

The "AHD-EOP" start-stop system allows for convenient starting and stopping of marine diesel engines. Instead of a conventional ignition switch with separate start and stop buttons, the central unit AHD-EOP uses modern transponder technology and integrated control buttons. The transponder keys are individually programmed, significantly improving protection against unauthorized use.

In twin-engine systems, each drive unit is activated via its own AHD-EOP; the corresponding transponder is inserted into the appropriate slot like a key. In this position, the engine is ready for operation and can be controlled via the AHD-EOP as well as all other AHD-DEOP start-stop units connected to it.

Active unlocking is indicated by a color change in the transponder lighting on the AHD-EOP, while on DEOP, this is indicated by a separate LED.

The dual AHD-DEOP panel for twin-engine systems was developed for auxiliary control stations on board (e.g., the flybridge).

All devices feature rear connections, are easily cascadable, and can be installed without complex cabling. Connections are made via pluggable Lumberg connectors, which are available pre-assembled in various lengths (please inquire).

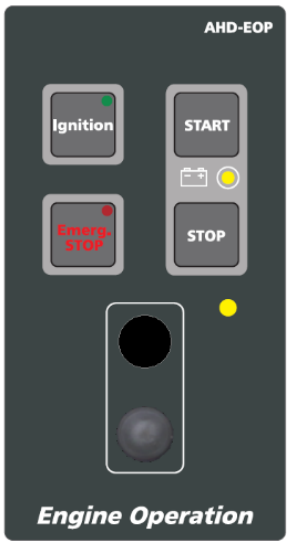
AHD-DEOP allows the engines to be started and stopped only if they have been enabled via the corresponding AHD-EOP panel (transponder inserted).

The system is optimized for current MAN marine diesel engines (direct connection to the engine terminal box via connector X7) and can also be combined with other engine models or manufacturers using the optionally available AHD-EOP adapter.

Note: For wire break detection in the emergency stop circuit, a terminating resistor must be installed on the last device in the signal chain (already included with items 12479, 12030, and 23749).

Variants / Views

AHD-EOP
Standard Design



AHD-EOP (G2)
V-New Design



AHD-EOP (BLK)
Black Design



Operating Instructions for AHD-EOP /

Activate Ignition Enable (AHD-EOP only)

- Insert the transponder
  ► If the transponder is valid, the transponder indicator light changes from orange to blue or green (depending on the model).
  ► The backlighting for the control buttons is activated (depending on the model); on the VMMDS-EOP variant, only the Ignition button flashes blue.
  ► On the AHD-DEOP, the LED with the lock symbol lights up (ignition enable unlocked)

Note:
If the transponder is invalid, the transponder indicator light changes from orange to red.

Turn on the ignition

- Press the **"Ignition"** button
  ► The "Ignition" button now lights up brightly and continuously (blue or green).
  ► The charging indicator light is on.

Starting procedure

- Press the **"Start"** button
  ► AHD-EOP sends a start command to the engine system, which initiates the starting process.
  ► The charge indicator lamp turns off when the engine is running.

Stopping the engine

- Press the **"Stop"** button
  ► Depending on the model, the ignition is turned off or a stop signal is sent to the engine system, causing the engine to stop. The system then enters the "Ignition Enabled" state and can be restarted.

Cancel ignition enable (AHD-EOP only)

- Remove the transponder from the AHD-EOP
  ► Ignition enable is canceled; the transponder indicator light changes to orange.
  ► On the AHD-DEOP, the LED with the lock symbol turns off (ignition enable locked)

Emergency Stop

- Press the **"Emerg. STOP"** button
  ► The engine stops immediately
  ► The charging indicator light is active.
  ► When the emergency stop is active, the emergency stop button on all AHD-EOP / AHD-DEOP panels lights up bright red. For MAN engines, you must also press the "Stop" button once to exit the emergency stop mode. The system then returns to the "Ignition Enabled" state, and the engine can now be restarted.

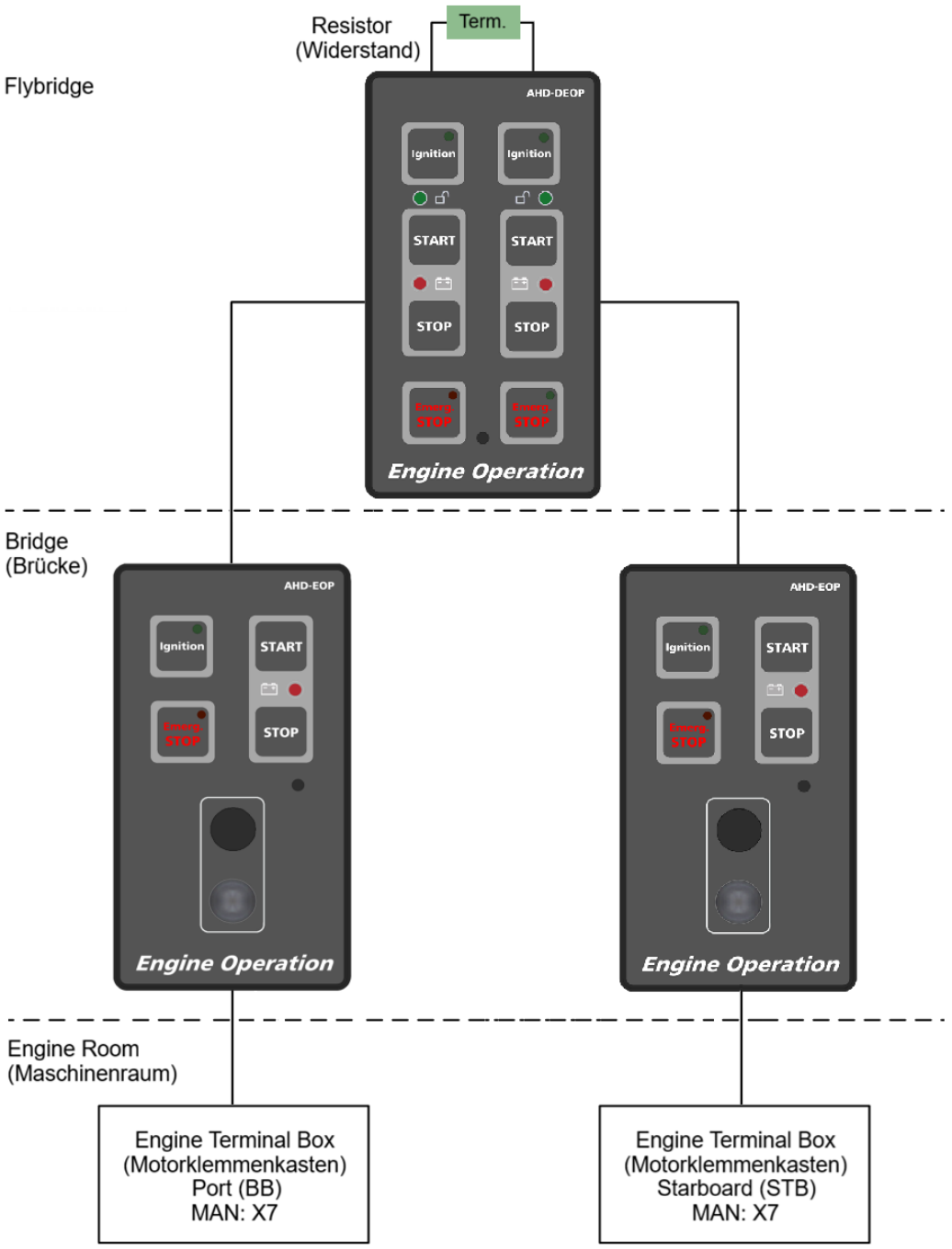
Switching output, additional function:

Depending on the version, the 2-pin relay contact on the rear closes when the ignition is on or when ignition is enabled. After turning off the ignition, the switch remains active for a delay period of approximately 120 seconds (exception: AHD-EOP BLK - Item No. 25850).

Please note:

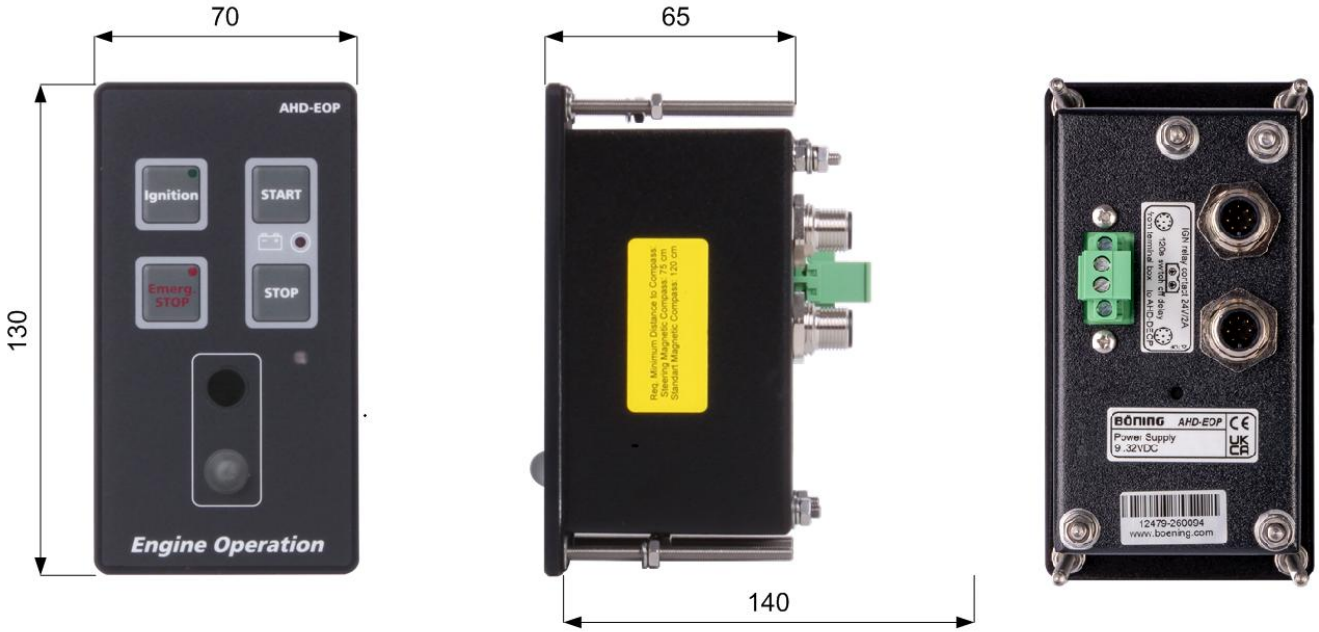
- For MAN engines, the emergency stop function is monitored by the engine system.
- The charging indicator light always displays the current charging status of the generator ( ) when the ignition is on.
- For CAT/MTU engines, the control commands (ignition, start, stop, emergency stop) are routed via relay outputs of an additionally installed AHD-EOP adapter.

Connection example (MAN engines)



Views

AHD-EOP (Dimensions / Connections)

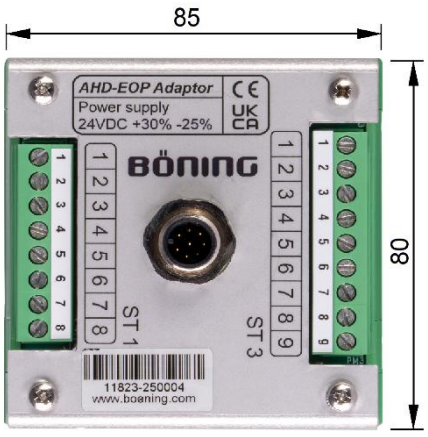


Required installation depth for cable connection
(Erforderliche Installationstiefe für Kabelanschluss)



AHD-DEOP (Rear View)

AHD-EOP Adapter
(Dimensions / Connections)



Depth = approx. 75

Warning!

The transponder keys for the AHD-EOP are equipped with magnets and must not be stored near the navigation or steering compass or other sensitive electronic components. Be sure to observe the required minimum distance (see technical data)!

Technical Data

AHD-EOP

Power Supply	9 – 32 V DC
Current consumption	Approx. 60 mA
Ambient Temperature	-10°C...65°C
Storage temperature	-30°C...85°C
Weight	Approx. 0.5 kg
Protection class	Front: IP65 Rear: IP54
Dimensions (W x H x D)	70 x 130 x 65 mm
Panel cutout	60 x 113 mm
Required minimum distance to compass	Steering magn. compass: 75 cm Standard magn. compass: 120 cm
Interfaces	2 Lumberg connectors

Variation	Part Number
AHD-EOP G2 for MAN (V-New)	12479
AHD-EOP for MAN V-Classic	12030
AHD-EOP for MAN engines with MDCP (V-Classic)	13013
AHD-EOP for MAN engines, without emerg. stop	15354
AHD-EOP for Caterpillar	12836
AHD-EOP for Caterpillar, without emerg. stop	13495
AHD-EOP for MTU	12837
AHD-EOP for MTU, without emerg. stop	13494
AHD-EOP for Yanmar	21734
VMMDS-EOP for MAN (V-New) (OEM / MAN Part 51.27720-7042)	12216BS
AHD-EOP BLK (Black Design / standard)	23749
AHD-EOP BLK (Black Design, without switch off delay)	25850

AHD-EOP Adapter

Power Supply	24 V DC +30%-25% (MAN, MTU, Caterpillar) 12 V DC +30%-25% (Yanmar)
Current Consumption	Max. 30 mA
Ambient temperature	-10°C...65°C
Storage temperature	-30°C...85°C
Weight	0.25 kg
Protection class	IP20
Dimensions (W x H x D)	80 x 85 x 75 mm

When connecting inductive loads, it is recommended to use a contact protector (RC circuit).

Variation	Part Number
AHD-EOP Adapter	11823
AHD-EOP Adapter (MAN EDC)	12366
AHD-EOP Adapter (MAN MDCP)	13130
AHD-EOP Adapter (MTU)	12367

Variation (continued)	Part Number
AHD-EOP Adapter (Caterpillar)	12368
AHD-EOP Adapter (Yanmar 12V)	21733

AHD-DEOP

Power Supply	24 V DC (+30% / -25%)
Current consumption	Approx. 50 mA
Ambient Temperature	-10°C...65°C
Storage temperature	-30°C...85°C
Weight	Approx. 0.5 kg
Protection class	Front: IP65 Rear: IP54
Dimensions W x H x D	70 x 130 x 65 mm
Desk cutout	60 x 113 mm
Interfaces	4 Lumberg connectors

Variation	Part Number
AHD-DEOP G2 for MAN V-New	12480
AHD-DEOP G2 for MAN V-New, Landscape Design	22968
AHD-DEOP for MAN V-Classic	11479
AHD-DEOP for MAN engines with MDCP (V-Classic)	13014
AHD-DEOP for MAN engines, without emerg. stop	15390
AHD-DEOP for Caterpillar	12838
AHD-DEOP for Caterpillar, without emerg. stop	13498
AHD-DEOP for MTU	12839
AHD-DEOP for MTU, without emerg. stop	13499
VMMDS-DEOP for MAN (OEM / MAN Part 51.27720-7043)	12221BS

Accessories

Item	Part Number
Terminating resistor 18 kOhm, 8-pin Lumberg connector (OEM / MAN Part 51.25432-0083)	11746BS
Transponder dual key Stainless steel Böning	12214
Böning Plastic Transponder Dual Key	12215V02
Plastic Transponder Double Key for AHD-EOP / MAN (OEM / MAN Part 51.27720-0036)	11759V02
AHD-DEOP K for MAN, with 2 key switches	13625
AHD-DEOP K for MTU or Caterpillar, with 2 key switches	16459

Additional accessories, such as pre-assembled connection cables and transponder keys in a wide variety of designs (customizable upon request, with plastic or stainless-steel options), are available upon request.