

AHD 414A Alarm / Safety System



- **Approved as Alarm or Safety System**
- **Compact system for monitoring sensors, switches, and contacts**
- **Panel installation unit using proven technology**
- **Flexible and adjustable to individual requirements**
- **10 free inputs**
- **Time-delayed alerting**
- **Horn relay and 3 freely programmable group relays**
- **Serial interface**
- **Inputs for external acknowledgement**
- **Input for alarm release**
- **Override-Function (safety system)**
- **Wire break monitoring of inputs and group relay K1 (stop relay for safety system)**
- **Designed for maritime use according to the guidelines of the classification society BV**

General Information

The AHD 414A Alarm and Safety System is a compact unit with 10 free binary inputs for alarm and status notifications.

Alarms and Status Notifications

Each input can be programmed as alarm or status notification. During an incoming alarm, the corresponding LED in the front plate blinks. Status notifications are indicated optically as a continuous light. Alarms activate an internal buzzer and switch on the horn relay. Both, alarms and status notifications can trigger the group relays K1, K2, and/or K3.

Acknowledgement

Activating the horn relay puts the horn quit function into its dormant state. This can be done with the frontside key (top) or the designated external input (Terminal 21).

Blinking LEDs are acknowledged (they change to continuous light) by activating the optical quit function. This can be done with the frontside key (middle) or its designated external input (Terminal 22).

Reset

When used as a safety system, all accrued alarms remain active, even if they have been acknowledged and the alarm cause has been resolved.

The corresponding notifications are deleted only after initiating the reset function (bottom key).

Lamp Test

The lamp test function is always available when no alarm is current or all alarms have already been acknowledged.

Alarm Release

The AHD 414A includes an input (measuring point 1), which can be used for releasing or suppressing alarms. The current condition is always indicated by the top LED.

Group Relay

The AHD 414A features 3 group relays, which can be assigned to every alarm. It is also possible to assign several group relays to a single alarm. The group relays can be programmed as initial value or new value indicators. In addition, they can be programmed as normal closed (NC) or normal open (NO). If the device is used as a safety system, the relay K1 always works as a normal open contact and initial value indicator.

Override

If the device is used as a safety system, the K1 relay functions as a stop relay. By configuration, each alarm channel initiating a stop can be assigned an override function. Within a system, this usually includes all stop alarms, except overspeed.

The override function works as follows: If a stop criterion is current and an override function exists for it, the relay K1 is not energized as long as the override input (Terminal 19) is active. The engine is not stopped. If the override input was not active when the alarm occurred, the engine stop can be intercepted by immediate activation of the override input (the already activated stop relay K1 switches off immediately).

Naturally, it is necessary that the engine speed at this time is still greater than the ignition speed. As a rule, if a stop criterion (e.g. overspeed) that does not have a designated override function occurs, the engine is topped.

Wire Break Encoder Line and Stop Criteria

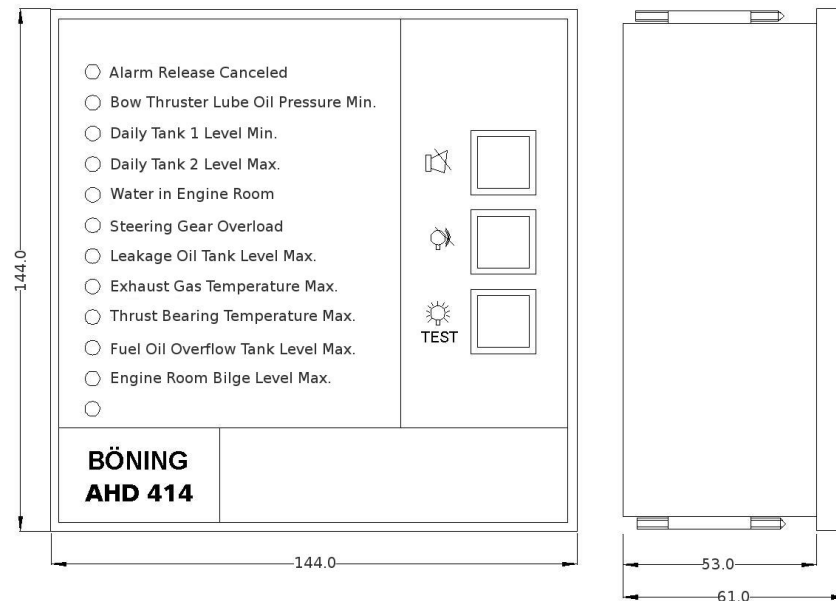
All input channels (Terminals 10 through 19) as well as the output relay K1 (Terminal 3) can be monitored for wire break.

The lower LED in the front panel signals an active wire break. If it is blinking alone, without other LEDs blinking at the same rhythm, it signals an output-side wire break at the group relay K1.

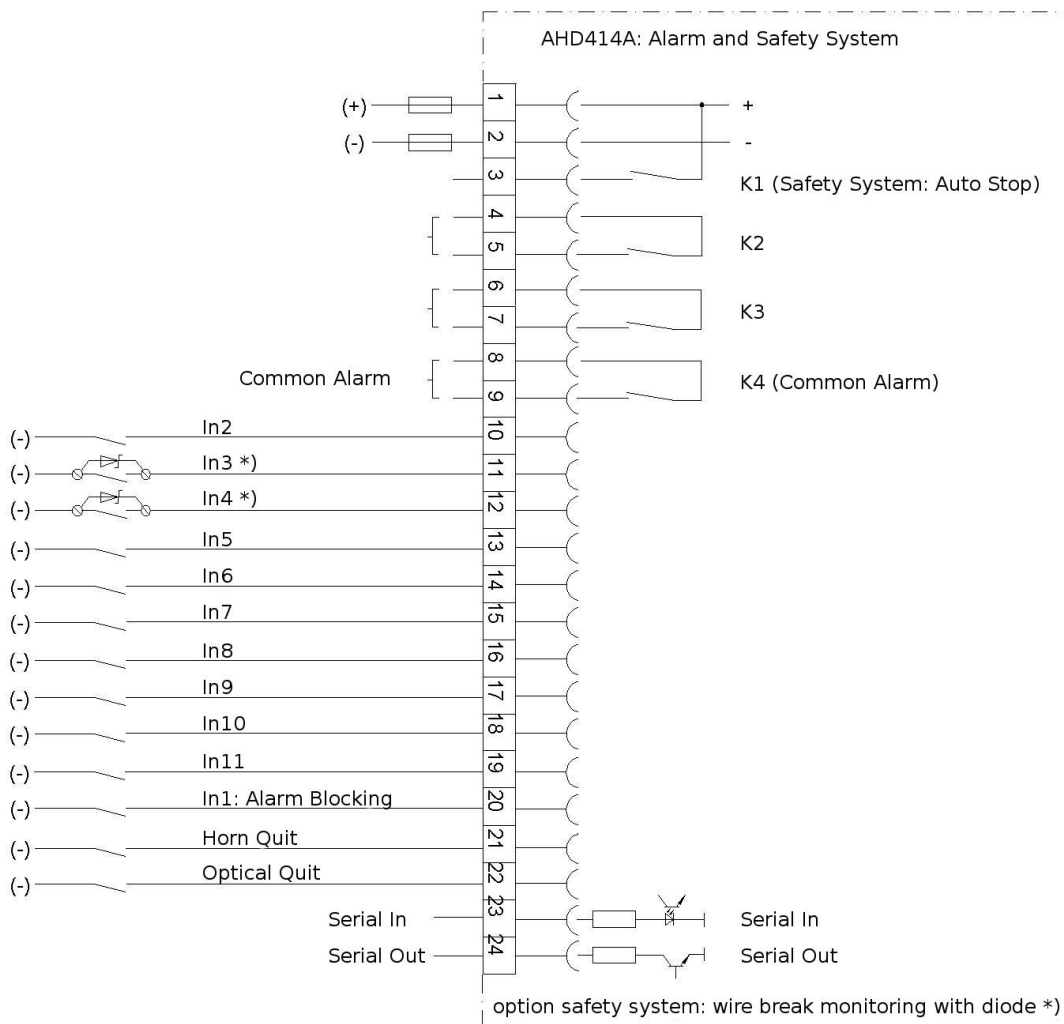
If other LEDs blink parallel to it at the same rhythm, it signals interruptions at the corresponding input circuits.

The optical indication occurs out of phase to the "actual" alarm indications, so that they can be easily differentiated.

View and Dimensions



Connections Diagram



AHD 414A: Technical Data

General Data	
Dimensions, W x H x D	144 x 144 x 53 mm
Panel Cutout	138 x 138 mm
Weight	ca. 0.5 kg
Installation Type, Housing	
	Panel installation housing, aluminum front with printed foil
Environmental Data	
Operating Temperature	-10°C...~+55°C
Storage Temperature	-30°C...~+85°C
Protection Class	IP 20 IP 54 front side with front cap
Electrical Data	
Power Supply	24 V DC (+30% / -25%)
Power/Current Consumption	max. 200 mA (24VDC)
Inputs	
8 Digital Inputs	<ul style="list-style-type: none">• 2 x binary input Capture of command signals (acknowledge)• 10 x binary input with switchable wire break monitoring• 1 x binary input (alarm suppression)

Outputs	
7 Relay Contacts	<ul style="list-style-type: none">• 1 x relay contact, switched positive (K1: stop circuit in safety system mode) DC – 2 Amps. continuous current• 3 x relay contact, potential free DC - 2 Amps. continuous current
Operational Elements	
4 Shortstroke Keys	Horn quit, optical quit, lamp test (alarm system) or horn quit, optical quit/test, reset (safety system)
Indicator Lights	
13 LED	<ul style="list-style-type: none">• 11 x alarm/status• 1 x relay-status K1
Interfaces	
serial	1 x TTY (optocoupler) – output of alarm and switching conditions
Approvals	
Classification Societies	Bureau Veritas