

CONTROL AND MONITORING UNIT AHD 406



- control and monitoring unit for control desk installation, front-dimensions: 72mm x 144mm
- eight binary measuring points; two measuring points can be used as both binary and analog
- one input for alarm suppression
- three group relays, one horn relay
- one serial output
- connection with 50-pole ribbon cable and terminal block (part of delivery)
- text field can be exchanged easily

1. General

AHD 406 is a microprocessor controlled device that is mainly used for monitoring and controlling of engines. It meets the requirements of the rough operating conditions on sea vessels, as, e.g., high ambient temperatures, humid air, mechanical vibrations and peak voltages on the power supply lines.

2. Construction

AHD 406 consists of two electronic cards that are connected by threaded pins. The cards and the front panel form an insertion which is located in a housing for control desk installation acc. DIN 43700. It consists of impact-resistant and self-extinguishing plastic.

The integrated circuits (IC) that are used on the electronic cards are plugged onto sockets and can be exchanged without soldering. This makes service extremely easy and even a technical nonexpert will be capable to repair a defective device.

The insertion can be torn out after loosening of a permanent screw. All in- and outputs are led to a 50-pole plug acc. DIN 41651. A 50-pole terminal block and a ribbon cable with plugs for connection between device and transfer unit are part of delivery.

The system program, which is the information how the computer shall react to external data, is located in an Eprom type 27C64 or EEprom type 28C64.

3. Function

After connection with the power supply, the device starts to monitor. If now one of the 10 possible external sensors reacts, the corresponding alarm is reported optically by flashing of an LED in the front panel and acoustically by an external horn, after a preprogrammable time. At the same time, up to three group relays react and eventually activate alarm or control operations.

Function keys in the front panel



Lamp acknowledgement: flashing LEDs in the front panel subsequently show steady light. The key only obtains this function after the acoustical signal has been acknowledged.



Horn acknowledgement and lamp test: The key has a double function. Externally at the transfer unit, these functions can be reached separately over one contact each.



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Alarm test: With this key, the user can „pretend“ to the device that all alarms are activated. Thus, delays and group relays can be checked easily.

Acknowledged LEDs (steady light) go out when the corresponding alarm has been removed. At the same time, the relevant group relays switch back into their normal status.

4. Versions

The device is available in the following two versions:

- Front panel with individual LEDs
- Front panel with illuminated and automatically dimmed text fields, as it is required, e.g., on ship bridges. Here, a film negative as text field is placed onto the illuminated area, so only the text will be transparent.

5. Adjustment of the analog inputs

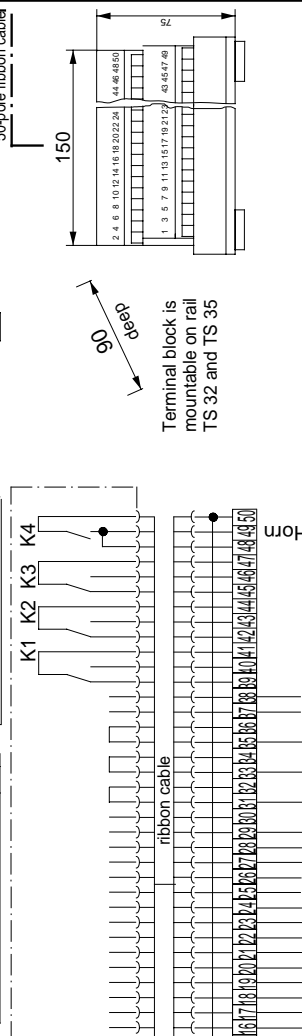
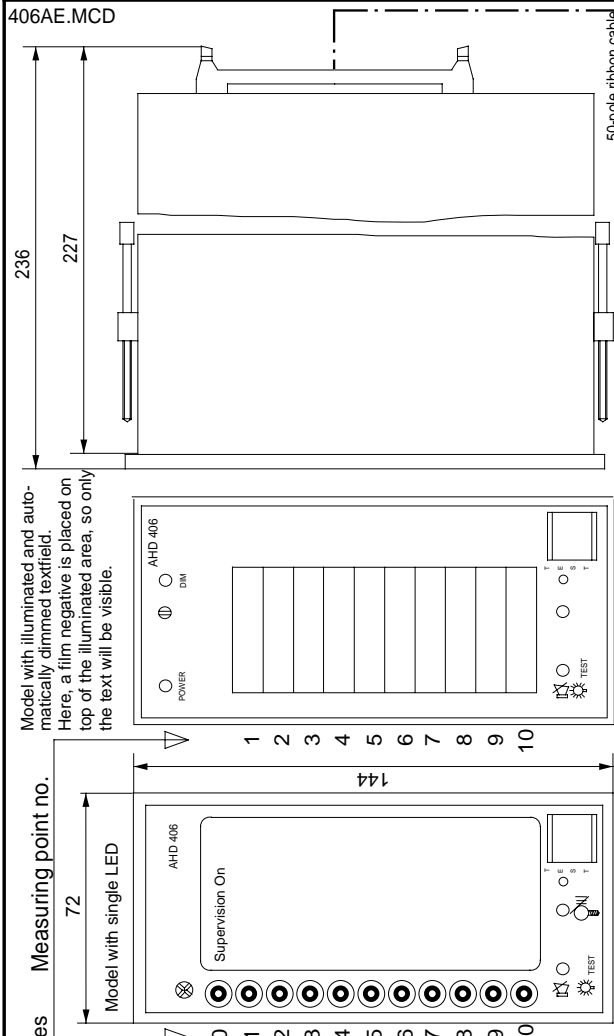
If the customer desires that alarm 9 and (or) 10 shall be activated in analog mode with a dc current signal 4-20 mA, the device will be equipped accordingly. The switching points can be adjusted arbitrarily with spindle trimmers. The potentiometers have been arranged on the lower circuit board of the insertion. They are labeled with numbers according to their affiliation to the alarms 9/10.

For both trimmer-potentiometer the following applies:

- turn to the right - switching point increases
- turn to the left - switching point decreases

The following table serves for rough pre-adjusting of the switching points. Deviations may occur due to tolerances of the components.

Amount of rotations of trimmer-potential- meters to the right	Input signal (mA)
0	3.8
2	4.1
4	5.0
5	5.6
6	6.2
7	6.9
8	7.9
9	9.2
9.5	10.0
10	10.8
10.5	12.1
11	13.7
11.5	16.0
12	18.0
12.5	20.0



Technical data	
Power supply	: 24VDC +/-25%
Power consumption of electronics	: appr. 0.3A
Loadability of relay contacts	: 2A, 48V
Perm. ambient temperature	: 0-65 °C
Perm. relative air humidity	: 99%
Degree of protection at front	: IP 20 (with front cap IP54)
Weight	: appr. 1,5 kg

arm sys-
arm tes-
knowledge
dump tes-
trial out-

Ala	<div> <div>ORDER-RELATED</div> <div>TECHNICAL SPECIFICATION</div> </div>	406AE
Ala		
Ac		
Ac		
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Se		

[illegible]

Suppression input

1F00

Storage addresses (E-Prom/EE-Prom)

After deactivation of the input with terminals 27 and 28 and elapsing of the here entered time (0-99s), the usually suppressed measuring points are

Suppression input

1F40	
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Content 00 → NC (quiescent current)
Content 01 → NO (operating current)

activated.

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Device no.	Length of ribbon cable
1	1.5 m
2	1.5 m
3	1.5 m
4	1.5 m
5	1.5 m
6	1.5 m
7	1.5 m
8	1.5 m
9	1.5 m
10	1.5 m
11	1.5 m
12	1.5 m
13	1.5 m
14	1.5 m
15	1.5 m
16	1.5 m
17	1.5 m
18	1.5 m
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92	1.5 m
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96	1.5 m
97	1.5 m
98	1.5 m
99	1.5 m
100	1.5 m