

GROUP PANEL AHD 406H

406Hkat-englisch.doc



- microprocessor-controlled device for control desk installation
- registers 144 individual reports from, e.g., up to three KOMPAKT EDA-47-systems, via three serial inputs
- forms 10 arbitrarily programmable groups; every individual report can activate up to two groups
- internal print control
- can print 144 texts with 32 characters each with printer AHD 12
- 2 serial outputs for addressing of cabin and mess-room panels
- every group can be programmed as alarm or display
- up to six sub-groups can be formed, that are available as relay contacts (floating transfer contacts) at the 50-pole terminal block
- one horn and collective alarm relay each, 6 sub-group relays
- connection with ribbon cable and 50-pole terminal block
- integrated engineer-calling system
- available with individual LED or illuminated and automatically dimmed text-field for dark rooms
- type approved by: Germanischer Lloyd

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1. General

AHD 406H is a group alarm and display unit for 10 groups and is mainly used on vessels (bridge). It has three serial inputs over which it can register 48 individual reports per channel, which is 144 reports altogether. Every report can address between zero and two groups. Every group can be programmed as alarm or display. Six subgroup relays with floating transfer contacts are available for control purposes. Each of these relays can be assigned (arbitrarily programmable) to the ten groups, as far as these are designated as alarms. The unit has two serial outputs to address the engineer- and messroom-control-panels. Additionally, it has a further serial output to control a printer.

2. Construction

AHD 406H consists of two electronic cards which are connected by stay-rods. Together with the front panel, they form a plug-in unit. This plug-in unit is located in a housing for switchboard mounting according to DIN 43700. It has front dimensions of 72mm x 144mm and an installation depth of 227mm. A 50-pole terminal block that can be mounted on TS32 or TS35 and a ribbon cable as plug-in connection between device and terminal block are part of the delivery.

The front panel is available in the following two versions (see illustration on page 1 of this description):

- with individual LEDs and slide-in text field for illuminated rooms
- with surface LEDs and text field as film-negative, e. g. for bridges on vessels

3.0 Function

3.1 Data registration

AHD 406H registers the data over three serial inputs. As a source, among others, the following devices are possible:

- alarm and monitoring system COMPACT EDA 47
- data distributor AHD W
- alarm and safety system AHD 414A

The device receives the data according to the following serial protocol:

Startbit (high), 48 data bits out of which the high-bits can be grouped, 8 control bits for serial acknowledgement, 80 to 500 bit stop (low). There are no start- or stop-bits during the transmission. The data rate is 1200 baud.

There are reasons for this unusual serial format which cannot be explained in detail here. However, it is possible to configure the software if necessary.

Entering is done over optocouplers.

3.2 Grouping

The device has an Eeprom 27C64 or EEeprom 28C64, where the system-program and an area for the system-specific programming are located. If a print-function is also required, an EPROM 27C256 is used, as in this case additional storage space for the texts is necessary.

For grouping, further definition of the groups and sub-group relays, there are address fields on page 8 of this description (system-specific programming). For access to the EPROM or EEPROM, the plug-in unit has to be torn out of the housing, after loosening the housing-frame and the fixing screw. The storage is located on the upper card and can be torn out of the IC-socket for programming.

3.3 Alarms/Displays

Each group can be programmed as alarm or display. An alarm causes flashing of the corresponding measuring point. Simultaneously, the horn and collective alarm relay switch, and, as far as programmed,

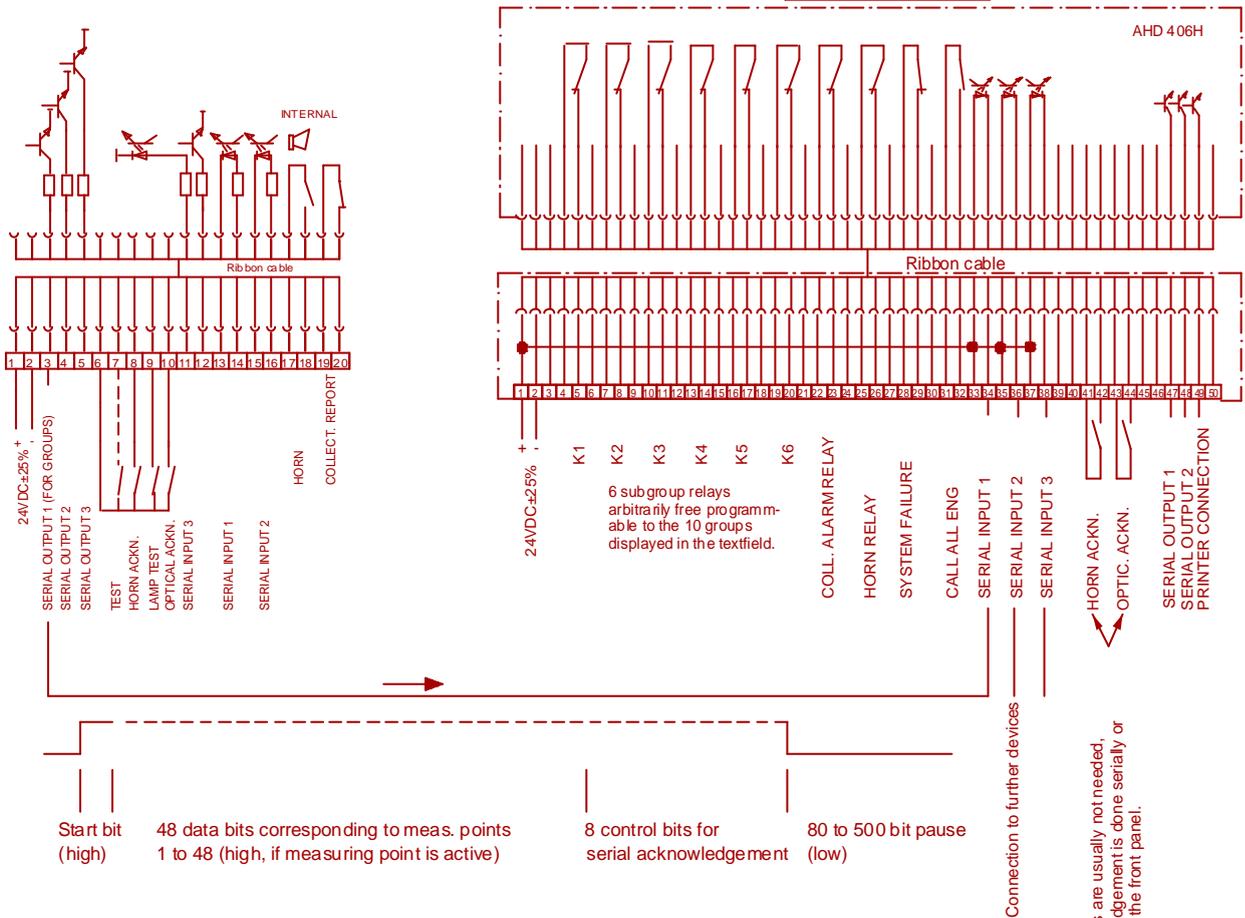
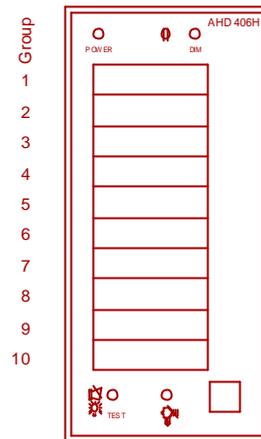
Example for serial data registration

406hie.mcd

Alarm- and monitoring-system Compact EDA 47

Group panel AHD 406H

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48 Failure Data Transmission



Data rate is 1200 Baud.
Up to three COMPACT EDA 47 can be connected to one group panel.

These inputs are usually not needed, as acknowledgement is done serially or over keys in the front panel.

3.4 Acoustic acknowledgement

The horn relay can be reset with a key in the front panel or over a corresponding input at the terminal block. Furthermore, the horn relay can be acknowledged serially. If the group panel receives its data e. g. from the COMPACT EDA 47 or from the data distributor AHD W, acknowledgement signals are transmitted serially from there, too.

3.5 Visual acknowledgement

A flashing measuring point changes to steady light by visual acknowledgement. This is also done with a key in the front panel or an input at the terminal block. Serial visual acknowledgement is also possible, which is done, e. g., by COMPACT EDA 47 or the data distributor AHD W.

3.6 Repeated addressing of a group

A group is usually a combination of several individual reports. In the event of an alarm, a group report that is already active but also acknowledged, is activated again, so that one individual report will not block the remaining alarms of the same group.

3.7 Lamp test

The key for visual acknowledgement in the front panel of the device has also the function lamp test. All measuring points shine while it is pushed.

3.8 Collective alarm and subgroup relays

Every alarm also causes switching of the collective alarm relay. In the event of a second alarm, the relay switches into normal position (closed) for app. 2s and then opens again (collective alarm repetition). A subgroup relay can be assigned to every measuring point, as far as it is programmed as alarm. If several measuring points have an effect on one relay, this relay can operate as first value indicator or, like the collective alarm relay, as new value indicator.

3.9 Call engineer

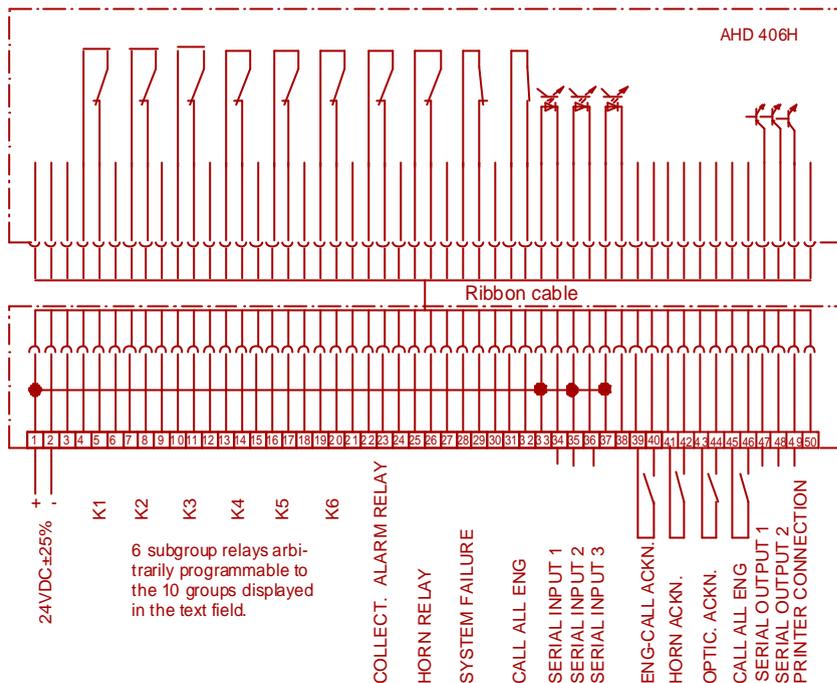
If an alarm is not acknowledged acoustically in the engine control room within 5 minutes (and thus serially the group panel, too), the relay CALL ALL ENG. switches. It is led to the 50-pole terminal block as normally-closed-contact and is reset after acknowledgement. In case chamber-/mess-room panels, within the scope of a st.-by alarm system, are connected to the device, this report will be activated there (serially), too.

3.10 System failure

AHD 406H has a relay that, under normal circumstances, has switched. The contact that leads to the terminal block is closed. In case of system failure or power failure the contact opens.

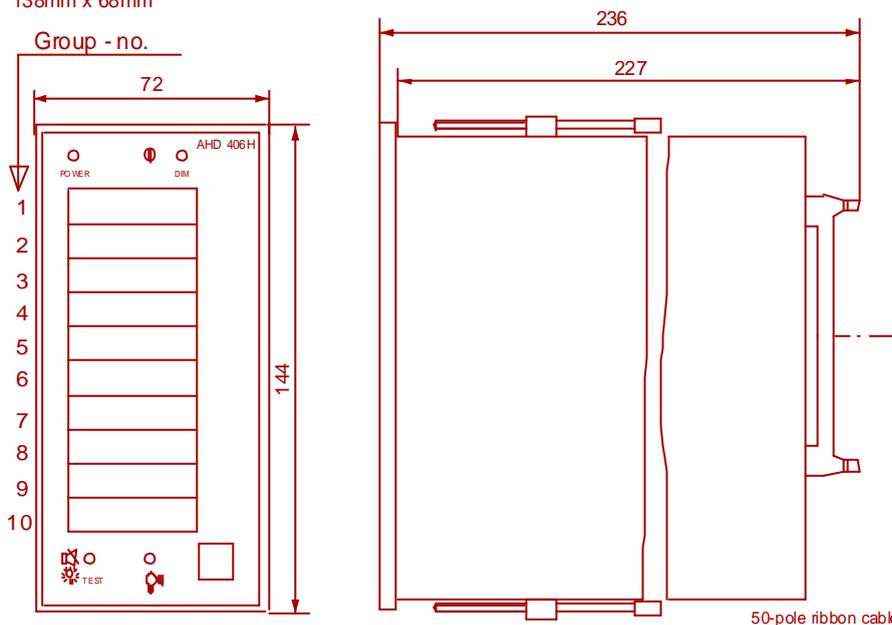
3.11 Dimming of display elements

The construction of the device with a text field illuminated by surface LEDs, has a photo resistor by which the lucency of the LED is dimmed automatically depending on the ambient brightness. The maximal dimming at darkness can also be adjusted with a potentiometer in the front panel. Thus, dazzling or reflecting in the windowpanes is avoided.



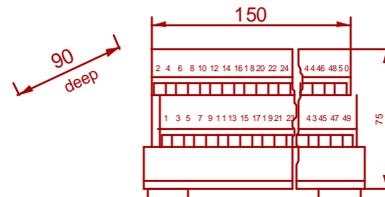
Technical data

- Power supply : 24VDC +/-25%
- Power consumption of electronic : appr. 0.3A
- Loadability of relay contacts : 1A, 48V
- Perm. ambient temperature : 0-65 °C
- Perm. relative air humidity : 99%
- Degree of protection at front side : IP 20 (with front cap IP44)
- Panel cutout : 138mm x 68mm



Short description

Over 3 serial inputs, the device can register up to 144 individual reports from up to 3 COMPACT EDA 47. Every individual report can be assigned arbitrarily to 0 to 2 groups. The groups can be defined as alarms (flash, horn relay switches) or displays. Additionally, 6 subgroups are available of which each can be assigned to any group displayed in the front panel. If an alarm group is not acknowledged for more than 5 minutes, the relay CALL ALL ENG. switches. A storage area for the texts to be printed (144 measuring points with 32 characters each) is located in the EEPROM (tear out insertion). Two serial outputs are available for addressing the chamber- and messroom-panels.



Terminal block is mountable on rails TS 32 and TS 35

Order-related technical specification for group panel AHD 406H

GROUP RELAY DEFINITION K1 K2 K3 K4 K5 K6

First value indicator						
New value indicator						

Length of ribbon cable:

Group - no.	Meas. point text	Group relay (1 possible from K1 to K6)	Group as alarm (Al) or display (An)	LED-Color (red, yellow or green)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

The assignment of the individual reports according to the here mentioned groups has to be defined in the measuring point lists.

Client	
Shipyards	
Newbuilding	

Com-no. (Böning)	4-
Date:

SYSTEM-SPECIFIC PROGRAMMING

Serial input 1

Individual report no.	Eprom address 1st group	Content	Eprom address 2nd group	Content
1	1A00		1A30	
2	1A01		1A31	
3	1A02		1A32	
4	1A03		1A33	
5	1A04		1A34	
6	1A05		1A35	
7	1A06		1A36	
8	1A07		1A37	
9	1A08		1A38	
10	1A09		1A39	
11	1A0A		1A3A	
12	1A0B		1A3B	
13	1A0C		1A3C	
14	1A0D		1A3D	
15	1A0E		1A3E	
16	1A0F		1A3F	
17	1A10		1A40	
18	1A11		1A41	
19	1A12		1A42	
20	1A13		1A43	
21	1A14		1A44	
22	1A15		1A45	
23	1A16		1A46	
24	1A17		1A47	
25	1A18		1A48	
26	1A19		1A49	
27	1A1A		1A4A	
28	1A1B		1A4B	
29	1A1C		1A4C	
30	1A1D		1A4D	
31	1A1E		1A4E	
32	1A1F		1A4F	
33	1A20		1A50	
34	1A21		1A51	
35	1A22		1A52	
36	1A23		1A53	
37	1A24		1A54	
38	1A25		1A55	
39	1A26		1A56	
40	1A27		1A57	
41	1A28		1A58	
42	1A29		1A59	
43	1A2A		1A5A	
44	1A2B		1A5B	
45	1A2C		1A5C	
46	1A2D		1A5D	
47	1A2E		1A5E	
48	1A2F		1A5F	

The 48th individual report is set automatically in case of failure of the serial data and can thus be evaluated, too.

Serial input 2

Individual report no.	Eprom address 1st group	Content	Eprom address 2nd group	Content
1	1A60		1A90	
2	1A61		1A91	
3	1A62		1A92	
4	1A63		1A93	
5	1A64		1A94	
6	1A65		1A95	
7	1A66		1A96	
8	1A67		1A97	
9	1A68		1A98	
10	1A69		1A99	
11	1A6A		1A9A	
12	1A6B		1A9B	
13	1A6C		1A9C	
14	1A6D		1A9D	
15	1A6E		1A9E	
16	1A6F		1A9F	
17	1A70		1AA0	
18	1A71		1AA1	
19	1A72		1AA2	
20	1A73		1AA3	
21	1A74		1AA4	
22	1A75		1AA5	
23	1A76		1AA6	
24	1A77		1AA7	
25	1A78		1AA8	
26	1A79		1AA9	
27	1A7A		1AAA	
28	1A7B		1AAB	
29	1A7C		1AAC	
30	1A7D		1AAD	
31	1A7E		1AAE	
32	1A7F		1AAF	
33	1A80		1AB0	
34	1A81		1AB1	
35	1A82		1AB2	
36	1A83		1AB3	
37	1A84		1AB4	
38	1A85		1AB5	
39	1A86		1AB6	
40	1A87		1AB7	
41	1A88		1AB8	
42	1A89		1AB9	
43	1A8A		1ABA	
44	1A8B		1ABB	
45	1A8C		1ABC	
46	1A8D		1ABD	
47	1A8E		1ABE	
48	1A8F		1ABF	

Serial input 3

Individual report no.	Eprom address 1st group	Content	Eprom address 2nd group	Content
1	1AC0		1AF0	
2	1AC1		1AF1	
3	1AC2		1AF2	
4	1AC3		1AF3	
5	1AC4		1AF4	
6	1AC5		1AF5	
7	1AC6		1AF6	
8	1AC7		1AF7	
9	1AC8		1AF8	
10	1AC9		1AF9	
11	1ACA		1AFA	
12	1ACB		1AFB	
13	1ACC		1AFC	
14	1ACD		1AFD	
15	1ACE		1AFE	
16	1ACF		1AFF	
17	1AD0		1B00	
18	1AD1		1B01	
19	1AD2		1B02	
20	1AD3		1B03	
21	1AD4		1B04	
22	1AD5		1B05	
23	1AD6		1B06	
24	1AD7		1B07	
25	1AD8		1B08	
26	1AD9		1B09	
27	1ADA		1B0A	
28	1ADB		1B0B	
29	1ADC		1B0C	
30	1ADD		1B0D	
31	1ADE		1B0E	
32	1ADF		1B0F	
33	1AE0		1B10	
34	1AE1		1B11	
35	1AE2		1B12	
36	1AE3		1B13	
37	1AE4		1B14	
38	1AE5		1B15	
39	1AE6		1B16	
40	1AE7		1B17	
41	1AE8		1B18	
42	1AE9		1B19	
43	1AEA		1B1A	
44	1AEB		1B1B	
45	1AEC		1B1C	
46	1AED		1B1D	
47	1AEE		1B1E	
48	1AEF		1B1F	

Program groups as alarm or display

Group	Eprom address	00 = Alarm 01 = Display
1	1A00	
2	1A00	
3	1A00	
4	1A00	
5	1A00	
6	1A00	
7	1A00	
8	1A00	
9	1A00	
10	1A00	

Activation of the serial inputs

serial input	Eprom address	00 = not active, 01 = active
1	1A00	
2	1A00	
3	1A00	

Assignment of the 6 subgroup relays to the 10 groups (only alarms)

Group	Eprom address	Subgroup relays (01 to 06 possible)
1	1BE6	
2	1BE7	
3	1BE8	
4	1BE9	
5	1BEA	
6	1BEB	
7	1BEC	
8	1BED	
9	1BEE	
10	1BEF	

Subgroup relay as first value or new value indicator

Subgroup relay	Eprom address	00 = First value ind. 01 = New value ind.
1	1BE0	
2	1BE1	
3	1BE2	
4	1BE3	
5	1BE4	
6	1BE5	

Do not fill in addresses with content 00.