

Alarm- and Display System KOMPAKT EDA 47



- Device for control desk mounting, size 192mm x 144mm
- 48 illuminated and automatically dimmed text fields (40mm x 10mm), of which 47 can be used arbitrarily.
- Low costs for labeling, due to only one film-negative for all measuring points; only the text is illuminated; empty fields (see measuring points 2 and 4) are opaque.
- Delays for switching on and off between 1 and 99 sec.
- Every text field is illuminated by display elements consisting of 16 LEDs.
- Low wiring effort due to serial data entry.
- Connection with ribbon cable and terminal block (part of delivery)
- Integrated horn.
- One relay output each for horn and collective report.
- Type approved by: GL.

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1 General

Kompakt EDA 47 is a microprocessor controlled device for control desk mounting which is mainly used as alarm system on ships. Data are received serially from the binary or analog data stations or from a central unit AHD 882. An ideal installation site on board for this device is the bridge, due to the illuminated and automatically dimmed text fields. Serial data collection minimizes the required wiring between ECR and bridge for installation. In this regard, this feature is especially important for ships with lift-up bridge where wiring is not only expensive but also easily damaged.

Every text field has dimensions of 40 x 10 mm which guarantees easily readable texts. The whole text field is designed as a film-negative for 48 measuring points. The text will be illuminated from underneath when the corresponding measuring point is activated. This text-film can be easily removed and exchanged. The cost for a new text film is low, so that the system and texts can be easily redesigned, if necessary.

2 Construction

Kompakt EDA 47 consists of 2 electronic cards on top of each other. The upper card is almost completely equipped with surface LED elements. Every measuring point consists of two of these components (16 single LEDs each). The components are plugged onto IC sockets and can easily be exchanged. They are available in red, green or yellow.

The text field lies directly on the flat LED components (film negative). It is protected by a front cover made of acrylic glass that is fixed by a frame.

On the rear side of the case the second electronic card is located. It contains the processor system and all peripheral components. The cards are connected with each other by a 60-pole ribbon cable. The EEprom (28C64) is located on the rear side of the card and can be removed for necessary modifications to the system's function. It contains the system software, as well as an area for user-specific data.

All inputs and outputs are transmitted to a transfer unit (terminal block) over a 20-pole ribbon cable.

3 Function

3.1 Data collection

Kompakt EDA 47 can be addressed serially by the following devices:

- Binary data station AHD-PS 15/30/47 for 15, 30 or 47 binary inputs.
- Analog data station AHD-SAS 15
- Central unit AHD 882

The easiest application is collection via a AHD-PS 47. Here, the inputs 1 to 47 correspond to the terminal numbers of the data station and the measuring point numbers in the Kompakt EDA 47 device (see page 9 of this description).

Other data stations are usually used together with a central unit AHD 882 for larger decentralized systems. In this case, the assignment of the inputs on the substations can be programmed arbitrarily for up to 8 Kompakt EDA 47 systems (376 measuring points).

3.2 Alarms/Messages

Every measuring point can be programmed as alarm or message. In the event of an alarm, the measuring point flashes. Furthermore, the horn and the collective alarm relays switch. The integrated buzzer is activated. In the event of an alarm while a previous one has not yet been reset, the latest alarm will flash with half frequency. This is an important feature since the second alarm is often a consequence of the previous. This routine makes it possible to recognize the sequence of the alarms.

When switching on a message it shows steady light and no relay switches.

3.3 Reset/Lamp test

Alarms must be acknowledged acoustically first, then optically. By acoustic acknowledgement, the internal buzzer and the horn relay are switched off. The optical acknowledgement causes the flashing text field to show steady light instead. This sequence is mandatory as during switched-on horn the optical reset function is blocked.

By pushing the lamp test button, the whole text field will be illuminated.

3.4 Alarm blocking

Each measuring point can be blocked or activated by the first 5 measuring points. Therefore, it is useful to assign operational functions (i.e. main motor is running, auxiliary diesel no.1 is running,...) to them as they usually determine, if a measuring point is blocked or activated. Multiple blocking of a measuring point is possible.

3.5 Switch-on-/Switch-off delays

Time delays between 1 and 90 seconds can be programmed independently of each other for both alarms and messages.

3.6 NO/NC inputs

Every measuring point can be programmed as NO or NC contact. If analog data stations (e.g. AHD-SAS 15) are used, all inputs will be programmed as NO contacts no matter, if the message shall be shown at rising or falling signal or at both.

3.7 Grouping

Kompakt EDA 47 has a serial output (terminal 3) over which the processed data are led. It is connected to a group panel AHD 406H where, among others, 10 arbitrarily programmable groups can be formed. Up to three Kompakt EDA 47 can be connected to a group panel AHD 406H. Furthermore, grouping with a higher resolution is possible by using one Kompakt EDA 47 also as group panel. Special software is available for this purpose. Up to three Kompakt EDA 47 can be connected with a group panel with the same designation (48 groups made of 144 individual messages).

3.8 Dimming of the Text field

The front panel of the device contains a photo resistor of about 5 mm diameter. It registers the ambient brightness. The evaluation electronic is part of the bottom card. There is a trimmer in the rear side of the device to adjust the brightness of the text field illumination at darkness. At daylight, there is no dimming.

3.9 Data registration via 2 serial inputs

Sometimes it is more economic to register the inputs over, e.g., two data stations AHD-PS 47 in order to minimize wiring, because the sensors may be located far away from each other. In this case, one data station each is connected to serial channel 1 and 2. Equal inputs are now or-linked, as long as this is provided in the programming (see last page of this description). Thus, also further blockings of the inputs can be realized, as long as they are normally closed. In case they are normally open, they can activate measuring points from either one of the data stations.

4 Measuring point list, programming and application examples with binary stations

The basis for the design of an alarm system is a measuring point list. It is completed by the customer and is the basis for production and programming.

The devices are programmed according to the customer's requirements (measuring point list). It often happens that modifications to the program must be done on site during commissioning, which the customer wants to do himself.

Part of this documentation is a programming table which enables adjustment of the Kompakt EDA 47 depending on the kind of system. A standard programming device is required for PC-connection.

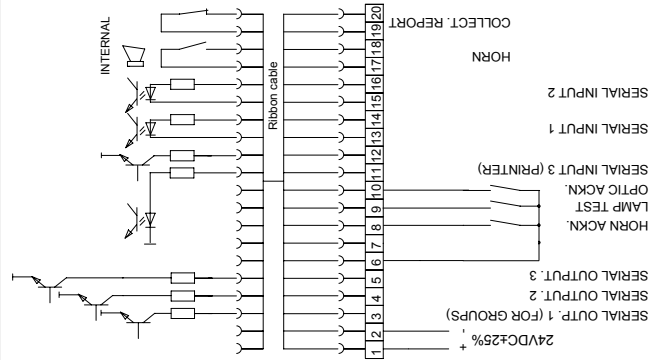
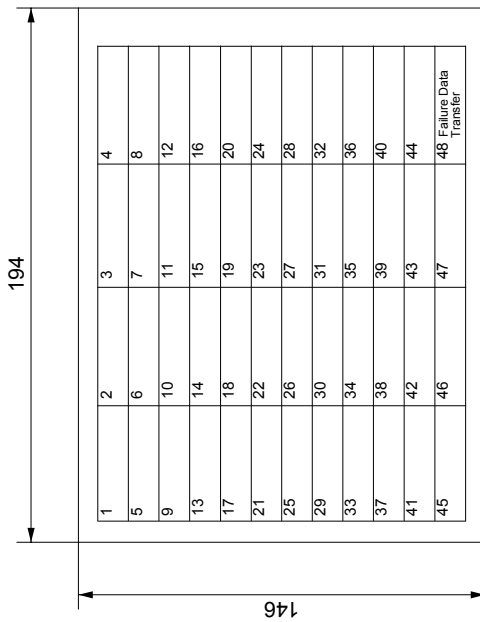
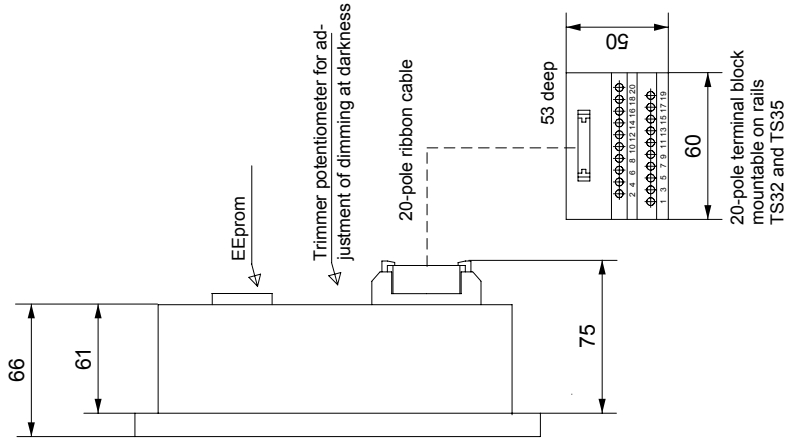
An EEprom type 28C64 is plugged into an IC-socket on the back side of the housing. It is removed and read in the programming device. After modification (editing of storage addresses), the EEprom will be programmed again and subsequently be re-inserted into the device.

M4-e.MCD

Technical data

- Power supply : 24VDC +/-25%
- Current consumption of electronic : app. 0,2A (all text fields atlog. app. 1.2A)
- Inputs : 3 x serial (TTY), 4 x binary
- Outputs : 2 relays, 4 x serial
- Chargeability of relay outputs : 50V / 1A
- Degree of protection at front : IP23, (with front-cap IP54)
- Installation depth : 75mm
- Panel cutaway : 185mm x 137mm
- Weight : app. 1kg

Installation measurements and connection plan



PROGRAMMING TABLE FOR DECENTRALISED ALARM SYSTEM **KOMPAKT EDA 47**

Input	Alarm (00) Display (01)		NC (00) ^(a) NO (01)		Switching-on ^(b) delay		Switching -off delay ^(b)		Suppression over input ^(c)				
	1	2	3	4	5	6	7	8	9	10	11	12	
1	1E30		1E00		1E60		1860		1E90	1EC0	1EF0	1F20	1F50
2	1E31		1E01		1E61		1861		1E91	1EC1	1EF1	1F21	1F51
3	1E32		1E02		1E62		1862		1E92	1EC2	1EF2	1F22	1F52
4	1E33		1E03		1E63		1863		1E93	1EC3	1EF3	1F23	1F53
5	1E34		1E04		1E64		1864		1E94	1EC4	1EF4	1F24	1F54
6	1E35		1E05		1E65		1865		1E95	1EC5	1EF5	1F25	1F55
7	1E36		1E06		1E66		1866		1E96	1EC6	1EF6	1F26	1F56
8	1E37		1E07		1E67		1867		1E97	1EC7	1EF7	1F27	1F57
9	1E38		1E08		1E68		1868		1E98	1EC8	1EF8	1F28	1F58
10	1E39		1E09		1E69		1869		1E99	1EC9	1EF9	1F29	1F59
11	1E3A		1E0A		1E6A		186A		1E9A	1ECA	1EFA	1F2A	1F5A
12	1E3B		1E0B		1E6B		186B		1E9B	1ECB	1EFB	1F2B	1F5B
13	1E3C		1E0C		1E6C		186C		1E9C	1ECC	1EFC	1F2C	1F5C
14	1E3D		1E0D		1E6D		186D		1E9D	1ECD	1EFD	1F2D	1F5D
15	1E3E		1E0E		1E6E		186E		1E9E	1ECE	1EFE	1F2E	1F5E
16	1E3F		1E0F		1E6F		186F		1E9F	1ECF	1EFF	1F2F	1F5F
17	1E40		1E10		1E70		1870		1EA0	1ED0	1F00	1F30	1F60
18	1E41		1E11		1E71		1871		1EA1	1ED1	1F01	1F31	1F61
19	1E42		1E12		1E72		1872		1EA2	1ED2	1F02	1F32	1F62
20	1E43		1E13		1E73		1873		1EA3	1ED3	1F03	1F33	1F63
21	1E44		1E14		1E74		1874		1EA4	1ED4	1F04	1F34	1F64
22	1E45		1E15		1E75		1875		1EA5	1ED5	1F05	1F35	1F65
23	1E46		1E16		1E76		1876		1EA6	1ED6	1F06	1F36	1F66
24	1E47		1E17		1E77		1877		1EA7	1ED7	1F07	1F37	1F67
25	1E48		1E18		1E78		1878		1EA8	1ED8	1F08	1F38	1F68
26	1E49		1E19		1E79		1879		1EA9	1ED9	1F09	1F39	1F69
27	1E4A		1E1A		1E7A		187A		1EAA	1EDA	1F0A	1F3A	1F6A
28	1E4B		1E1B		1E7B		187B		1EAB	1EDB	1F0B	1F3B	1F6B
29	1E4C		1E1C		1E7C		187C		1EAC	1EDC	1F0C	1F3C	1F6C
30	1E4D		1E1D		1E7D		187D		1EAD	1EDD	1F0D	1F3D	1F6D
31	1E4E		1E1E		1E7E		187E		1EAE	1EDE	1F0E	1F3E	1F6E
32	1E4F		1E1F		1E7F		187F		1EAF	1EDF	1F0F	1F3F	1F6F
33	1E50		1E20		1E80		1880		1EB0	1EE0	1F10	1F40	1F70
34	1E51		1E21		1E81		1881		1EB1	1EE1	1F11	1F41	1F71
35	1E52		1E22		1E82		1882		1EB2	1EE2	1F12	1F42	1F72
36	1E53		1E23		1E83		1883		1EB3	1EE3	1F13	1F43	1F73
37	1E54		1E24		1E84		1884		1EB4	1EE4	1F14	1F44	1F74
38	1E55		1E25		1E85		1885		1EB5	1EE5	1F15	1F45	1F75
39	1E56		1E26		1E86		1886		1EB6	1EE6	1F16	1F46	1F76
40	1E57		1E27		1E87		1887		1EB7	1EE7	1F17	1F47	1F77
41	1E58		1E28		1E88		1888		1EB8	1EE8	1F18	1F48	1F78
42	1E59		1E29		1E89		1889		1EB9	1EE9	1F19	1F49	1F79
43	1E5A		1E2A		1E8A		188A		1EBA	1EEA	1F1A	1F4A	1F7A
44	1E5B		1E2B		1E8B		188B		1EBB	1EEB	1F1B	1F4B	1F7B
45	1E5C		1E2C		1E8C		188C		1EBC	1EEC	1F1C	1F4C	1F7C
46	1E5D		1E2D		1E8D		188D		1EBD	1EED	1F1D	1F4D	1F7D
47	1E5E		1E2E		1E8E		188E		1EBE	1EEE	1F1E	1F4E	1F7E
"48"	1E5F		1E2F		1E8F		188F		1EBF	1EEF	1F1F	1F4F	1F7F

- On the left side of each column, the storage addresses are indicated. Into the empty fields on the right side, the data are entered corresponding to the individual requirements. **All empty fields have the content "00".**

- The input marked with "48" is activated, when the data conduit between transmitter and Compact EDA is interfered.

a) NC $\overline{\wedge}$ Report is executed at opened contact or falling analog measuring point; the content of the storage address has to be "00".

NO $\overline{\wedge}$ Report is executed at closed contact or rising analog measuring point; the content of the storage address has to be "01".

b) Content of the storage address corresponds appr. to the delay time in seconds. If a Compact EDA 47 device is directly connected to the data station PS 47-1, the content (if higher than 10s) has to be altered by 10%, which means that the content of the storage cell for a delay of 20 s is 22. Entering is executed decimal. The maximum content is 99.

c) Every input can be suppressed by the inputs 1 to 5. Example: measuring point 1 → auxiliary diesel engine 1 in operation; measuring point 8 → auxiliary diesel engine 1 oil pressure leakage; measuring point 8 shall be suppressed by measuring point 1, when engine is not running. Content of the storage address 1E97 has to be "01". The suppression is cancelled when the report „auxiliary diesel engine in operation“ comes and the corresponding delay time has run out. The assignment of the suppressed measuring points to the „suppressing inputs“ is always done by entering „01“ into the relevant storage addresses. This means that if the measuring point 27 shall be suppressed by input 5, „01“ is also entered into the storage address 1F6A (not "05"). Multiple suppressing of one measuring point is permitted.

Kompakt EDA 47 (16)

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

144

Binary Data Station AHD-PS 15

Kompakt EDA 47

Alarm and Display System Kompakt EDA 47

AHD-PS 15

Application example

Technical Data (Kompakt EDA 47)

- Power supply : 24VDC +/-25%
- Current consumption : appr. 0.2A (all text fields appr. 1,2A)
- Inputs : 3 x serial (TTY), 4 x binary
- Outputs : 2 Relay, 4 x serial
- Max. load of relay contacts : 50V / 1A
- Degree of protection (frontside): IP23, (incl. cover IP54)
- Installation depth : 75mm
- Panel cut-out : 185mm x 137mm
- Weight : appr. 1kg

Technical Data (AHD-PS 15)

- Power supply : 24VDC +/-25%
- Current consumption : ca. 0.065A
- Inputs : 15 x binary via opto coupler
- Outputs : 3 x serial
- Degree of protection : IP10
- Weight : appr. 0.2kg

EDM47 & AHD-PS15_en low

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Decentralized alarm system
Kompakt EDA 47 with Binary
Data Station AHD-PS 15

27.05.2009

S07-2055

Kompakt EDA 47

192
144
66
61
75

Binary Data Station AHD-PS 47

AHD-PS 47

0.5A electronic internal supply 5V

Voltage input U_H U_L

Voltage output for supply of further stations

Outputs (serial) S1+, S1-, S2, S3

Inputs "IN1", "IN2", "IN3", "IN4"

Terminal block 20-pole snap on profile rail TS32 and TS35

53 depth

60

50

Serial output 17...32VDC

Input No. 1 2 3 4 5 6 7 8 ... 41 42 43 44 45 46 47

1. 2. 3. 4. 5. 6. Application example

Kompakt EDA 47

INTERNAL

SERIAL CABLE

SERIAL OUT 1 (GROUPS) +

SERIAL OUT 2

SERIAL OUT 3

HORN ACKN

LAMP TEST

OPTIC ACKN

SERIAL INPUT 3

SERIAL INPUT 1

SERIAL INPUT 2

SERIAL INPUT 1

HORN

COLLECTIVE ALARM

Alarm and Display System Kompakt EDA 47

serial data line, connect unused cores of cable with (-)

55

77

285

Snap on profile rails TS32 and TS35 plugable terminal lists

edöning
AHD-PS 47

17...32VDC

POWER

TEST

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

Technical Data (Kompakt EDA 47)

- Power supply : 24VDC +/-25%
- Current consumption : appr. 0.2A (all text fields appr. 1.2A)
- Inputs : 3 x serial (TTY), 4 x binary
- Outputs : 2 Relay, 4 x serial
- Max. load of relay contacts : 50V / 1A
- Degree of protection (frontside): IP23, (incl. cover IP54)
- Installation depth : 75mm
- Panel cut-out : 185mm x 137mm
- Weight : appr. 1kg

Technical Data (AHD-PS 47)

- Power supply : 24VDC +/-25%
- Current consumption : ca. 0.2A
- Inputs : 47 x binary via opto coupler
- Outputs : 3 x serial
- Degree of protection : IP10
- Weight : appr. 0.6kg

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EDA47 & AHD-PS47_english

15.08.2011

Decentralized alarm system Kompakt EDA 47 with Binary Data Station AHD-PS 47

SoT-2057



Systems and Devices for Automation of Ships,
Monitoring and Control Technology

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