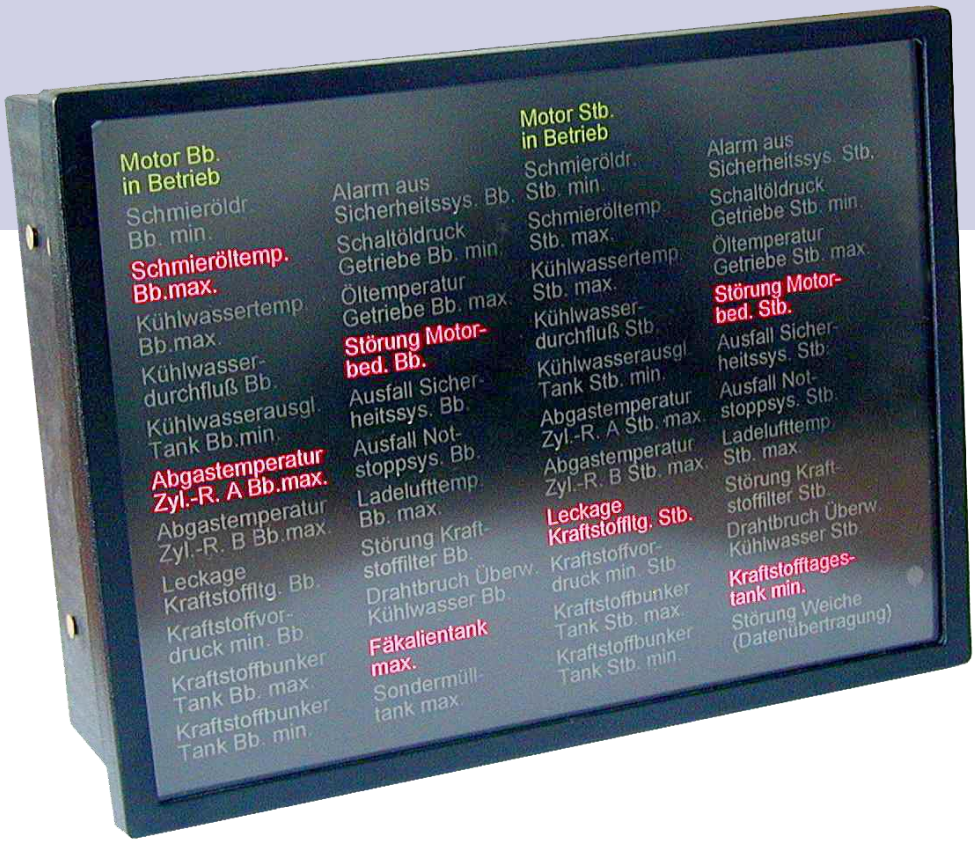
Alarm- and Display System
KOMPAKT EDA 47



- 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.

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Content Page

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.

EDAMU-e.MCD

Measuring point list for Compact EDA 47 (Page .... out of .... pages)

Client :

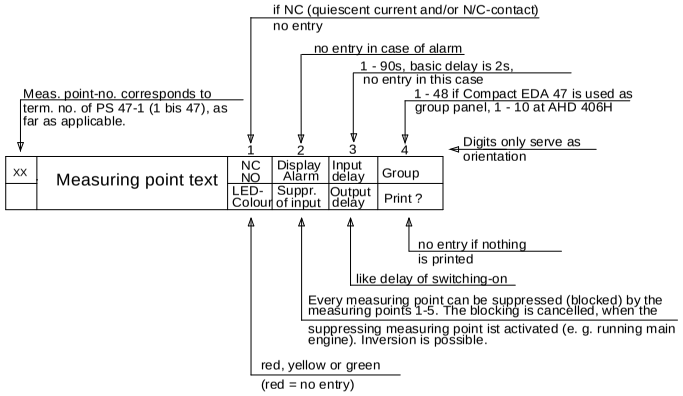
Shipyard :

Newbuilding :

Name of ship :

Com.-no. :

Date :



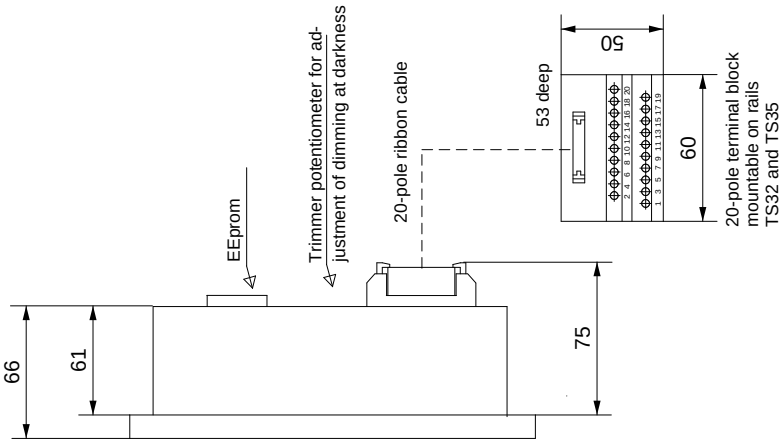
		1	2	3	4			1	2	3	4			1	2	3	4			1	2	3	4
01						02						03						04					
05						06						07						08					
09						10						11						12					
13						14						15						16					
17						18						19						20					
21						22						23						24					
25						26						27						28					
29						30						31						32					
33						34						35						36					
37						38						39						40					
41						42						43						44					
45						46						47						48	Failure data transfer				

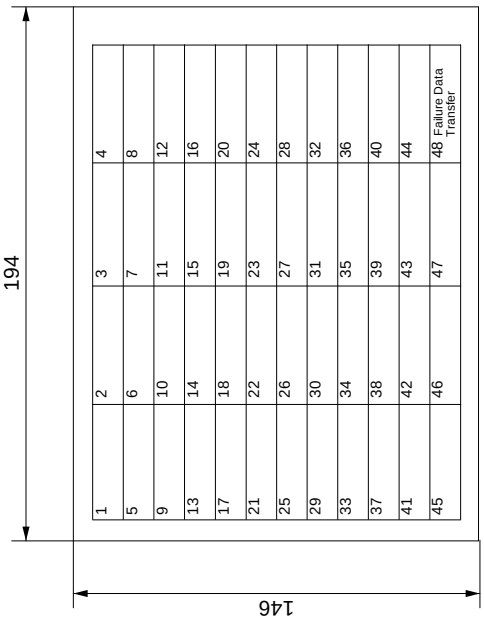
M4-e.MCD

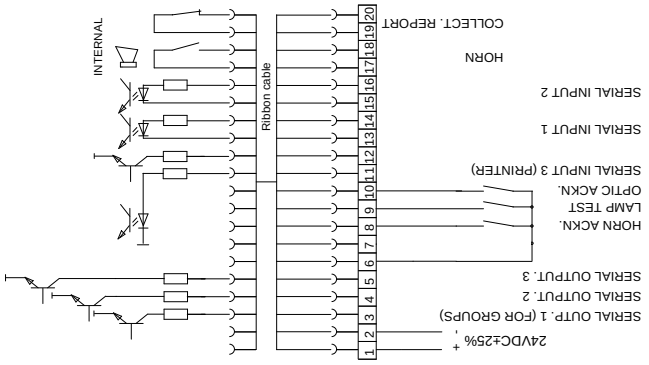
Technical data

Power supply	: 24VDC +/-25%
Current consumption of electronic	: app. 0,2A (all text fields altog. 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	
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.

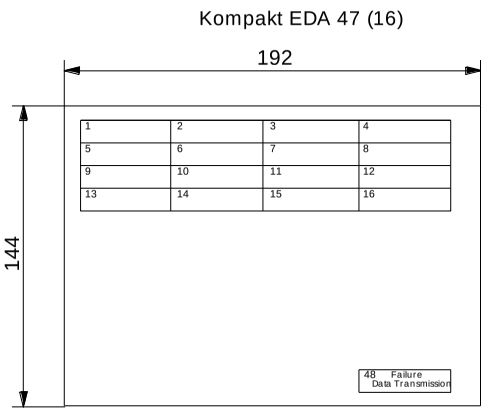
a) NC $\widehat{=}$ Report is executed at opened contact or falling analog measuring point; the content of the storage address has to be "00".
NO $\widehat{=}$ Report is executed at closed contact or rising analog measuring point; the content of the storage address has to be "01".

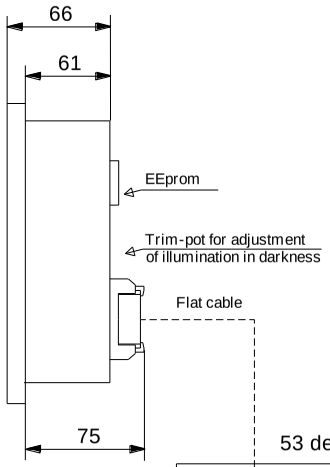
b) Content of the storage address corresponds appr. to the delay time in seconds. If a Compact EDA 47 device is directly connected to the data station PS 47-1, the content (if higher than 10s) has to be altered by 10%, which means that the content of the storage cell for a delay of 20 s is 22. Entering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

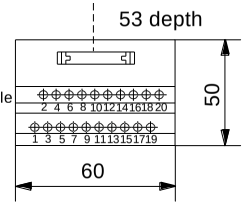
c) Every input can be suppressed by the inputs 1 to 5. Example: measuring point 1 $\rightarrow$ auxiliary diesel engine 1 in operation; measuring point 8 $\rightarrow$ auxiliary diesel engine 1 oil pressure leakage; measuring point 8 shall be suppressed by measuring point 1, when engine is not running. 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.

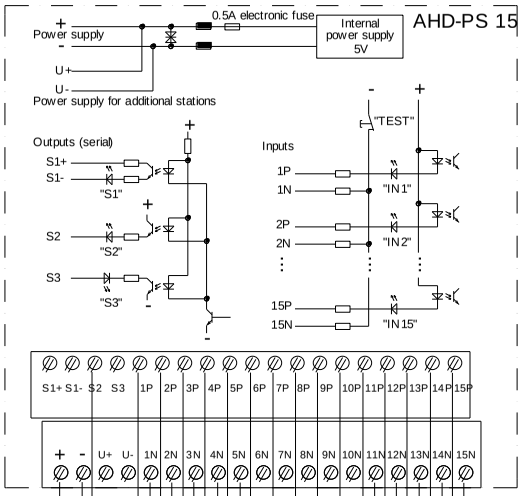
SoT-2055

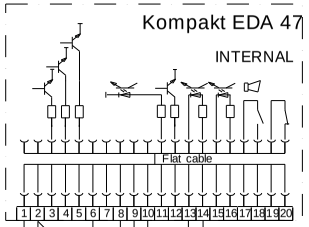
Alarm- and Display System KOMPAKT EDA 47





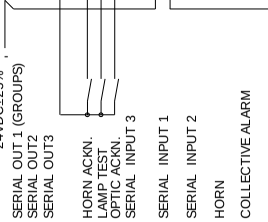


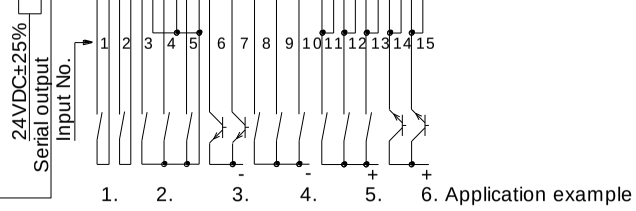


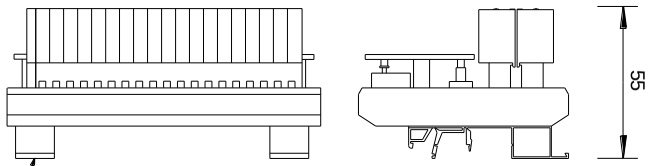


serial data line, connect unused cores of cable with (-)

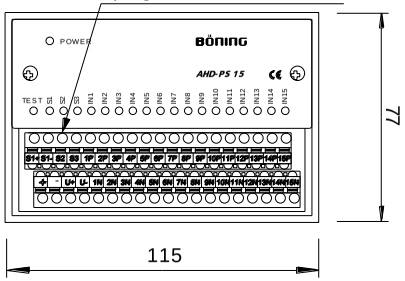
Alarm and Display System Kompakt EDA 47







Snap on profile rails TS32 and TS35
plugable terminal lists



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

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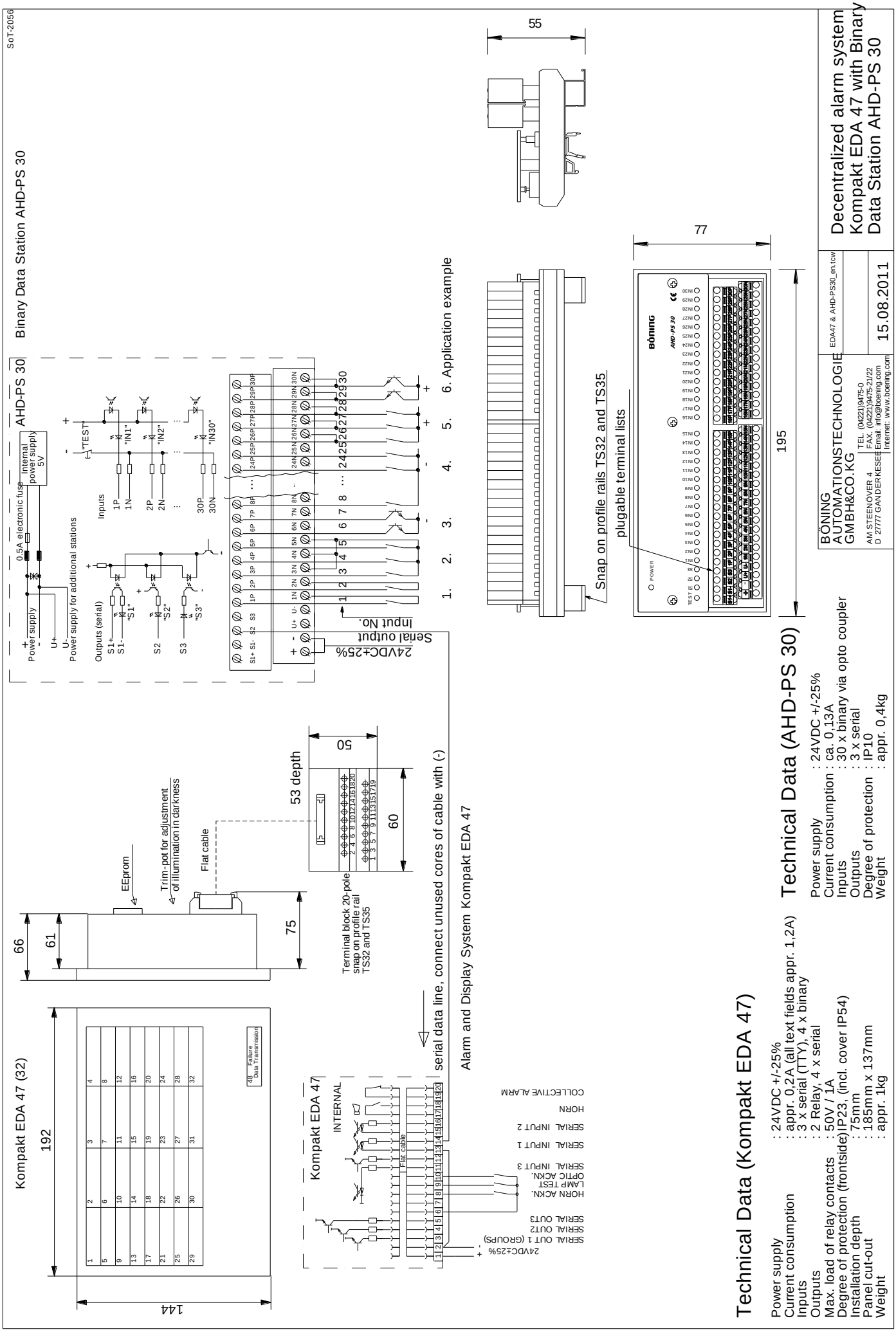
EDA47 & AHD-PS15_en.tcw

27.05.2009

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


SoT-2056
Binary Data Station AHD-PS 30
AHD-PS 30
0.5A electronic fuse
internal power supply 5V
Power supply
U+
U-
Power supply for additional stations
Outputs (serial)
S1+
S1-
"S1"
S2
"S2"
S3
"S3"
Inputs
1P
1N
2P
2N
30P
30N
"TEST"
"IN1"
"IN2"
"IN30"
24VDC±25%
Serial output
Input No.
1. 2. 3. 4. 5. 6. Application example
55
77
195
Snap on profile rails TS32 and TS35
plugable terminal lists
BÖNING
AHD-PS 30
POWER
TEST
Decentralized alarm system
Kompakt EDA 47 with Binary
Data Station AHD-PS 30
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EDA47 & AHD-PS30_en.tcw
15.08.2011
Technical Data (AHD-PS 30)
Power supply : 24VDC +/-25%
Current consumption : ca. 0,13A
Inputs : 30 x binary via opto coupler
Outputs : 3 x serial
Degree of protection : IP10
Weight : appr. 0,4kg
Kompakt EDA 47 (32)
192
144
48 Failure Data Transmission
66
61
75
EEprom
Trim-pot for adjustment of illumination in darkness
Flat cable
53 depth
50
60
Terminal block 20-pole snap on profile rail TS32 and TS35
serial data line, connect unused cores of cable with (-)
Alarm and Display System Kompakt EDA 47
Kompakt EDA 47
INTERNAL
Flat cable
24VDC±25%
SERIAL OUT 1 (GROUPS)
SERIAL OUT2
SERIAL OUT3
HORN ACKN.
LAMP TEST
OPTIC ACKN.
SERIAL INPUT 3
SERIAL INPUT 1
SERIAL INPUT 2
HORN
COLLECTIVE ALARM
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

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

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