ANNUNCIATOR
Alarm Annunciator

ANC SERIES

User Manual

Klemsan®

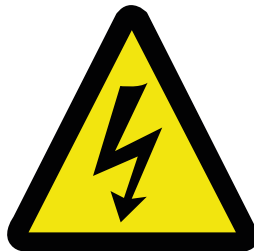# TABLE OF CONTENTS

SYMBOLS

Caution:

Wherever used, this symbol indicates that there is important information that must be taken into

consideration.

Danger of Electric Shock:

This symbol indicates that there is dangerous voltage or current.

GENERAL WARNINGS

- Do not work under live supply conditions. Before installation, turn off the power of the panel or any other related equipment.
- Installation, operation and putting into service of ANC8/16/24/32 must be performed by qualified personnel.
- The device must be put into service only after all connections are made.
- Keep and store away from moisture, dust, vibration and wet environment.
- For cleaning, remove the dust with a dry cloth. Do not use abrasives, solvents or alcohol.
- There are no user serviceable parts inside. Maintenance and calibration can only be carried out at manufacturer's end.
- It is recommend to connect circuit breakers or automatic fuses between power input of ANC8/16/24/32 and the network.

 Manufacturer shall not be responsible for undesirable situations which may arise due to failure to comply with the warnings above.

ANC8/16/24/32 SHORT DESCRIPTION:

ANC-8,ANC-16,ANC-24 and ANC-32 are utilized to track and record alarms from various applications. ANC8/16/24/32 has 8/16/24/32 windows on the front panel lighted with red and green LEDs from background. Operator can monitor alarm indications by these windows. ANC8/16/24/32 can record alarms with real time stamps. All devices have has an isolated RS485 port for the users to receive alarm data.

ANC-8,ANC-16,ANC-24 ve ANC-32 have the following features:

- 8 (ANC-8),16 (ANC-16),24 (ANC-24),32(ANC-32) channels for signal input
- Double-colored, backlit display
- Assigning alarm channels to "HORN" or "ALARM" relay individually by a dip-switch
- "HORN" channels displayed by green and "ALARM" channels by red (when alarm signal is
- received)
- Isolated RS-485 port
- Standard MODBUS RTU protocol
- Real time clock supported by lithium battery (minimum 5 years of battery life)
- Real-time event recording up to 6080 logs
- 24V, 48V, 110V and 220V AC/DC signal input
- Two modes of operation for alarm detection:
- when signal is received
- when a continuous signal is interrupted
- Adjustable alarm detection delay (0-30 seconds)
- 2 operation modes when displaying an alarm: 'CONSTANT' and 'PULSE'
- With front panel keys; user can test display windows, verify and delete alarms
- Alarm warning with an internal buzzer
- 2 relay outputs named as "HORN" and "ALARM"
- Flexible configuration by dip-switches and MODBUS
- Low power consumption
- Wide supply range
- Wide operation temperature range
- Adjustable mode as ANC or LSK

Receipt Control and Contents of Delivery

When you receive the package, please be sure that,
- packing is in good condition,
- product has not been damaged during transportation,
- product name and reference (order) number conforms to your order.

Table 1 Order Numbers

	Signal Voltage - Device Supply Voltage	8 channeled	16 channeled	24 channeled	32 channeled
NON - INSULATED	24VAC/DC, 85-300V AC/DC ±%10	604620	-	-	-
	48AC/DC, 85-300V AC/DC ±%10	604621	-	-	-
	110AC/DC, 85-300V AC/DC ±%10	604622	-	-	-
	220AC/DC, 85-300V AC/DC ±%10	604623	-	-	-
	24AC/DC, 85-300V AC/DC	-	604630	604660	604670
	48AC/DC, 85-300V AC/DC	-	604631	604661	604671
	110AC/DC, 85-300V AC/DC	-	604632	604662	604672
	220AC/DC, 85-300V AC/DC	-	604633	604663	604673
	24VAC/DC, 24-50V AC/DC ±%10	-	604650	604665	604675
	48VAC/DC, 24-50V AC/DC ±%10	-	604651	604666	604676
	110VAC/DC, 24-50V AC/DC ±%10	-	604652	604667	604677
	220VAC/DC, 24-50V AC/DC ±%10	-	604653	604668	604678
INSULATED	(24/48V AC/DC)	-	604700	604704	604708
	(110/220V AC/DC)	-	604701	604705	604709
	(24/48V AC/DC) (24-50VAC/DC p.s.)	-	604702	604706	604710
	(110/220V AC/DC) (24-50VAC/DC p.s.)	-	604703	604707	604711

Please also check the contents of delivery as below:

ANC16:
1 pc. ANC16
1 pc. CD-ROM
4 pcs fixing brackets and screws
1 pc. 2-pin female terminal block
1 pc. 4-pin female terminal block
2 pcs. 9-pin female terminal block
1 pc. 3-pin female terminal block
2 pc. Semi-transparent paper for front panel

ANC8:
1 pc. ANC8
1 pc. CD-ROM
2 pcs fixing brackets and screws
1 pc. 2-pin female terminal block
1 pc. 4-pin female terminal block
1 pc. 9-pin female terminal block
1 pc. 3-pin female terminal block
2 pcs. Semi-transparent paper for front panel

ANC32:
1 pc. ANC32
1 pc. CD-ROM
4 pcs fixing brackets and screws
1 pc. 2-pin female terminal block
1 pc. 4-pin female terminal block
4 pcs. 9-pin female terminal block
1 pc. 3-pin female terminal block
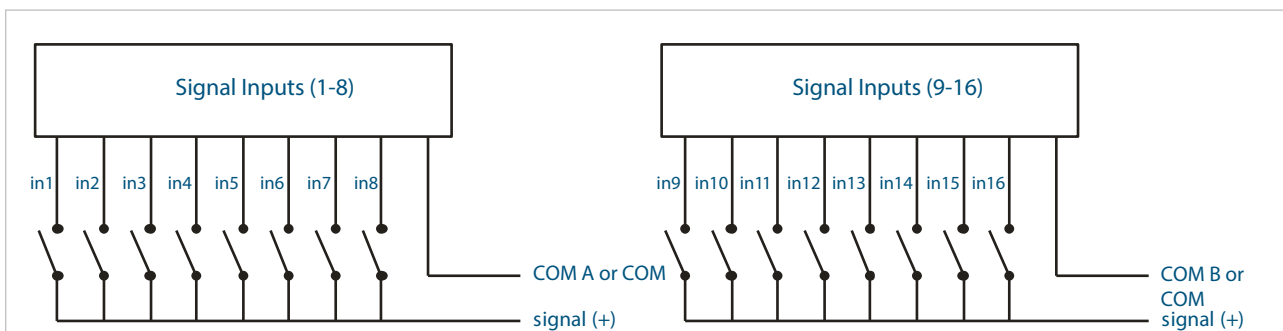2 pc. Semi-transparent paper for front panel

ANC24:
1 pc. ANC24
1 pc. CD-ROM
4 pcs fixing brackets and screws
1 pc. 2-pin female terminal block
1 pc. 4-pin female terminal block
3 pcs. 9-pin female terminal block
1 pc. 3-pin female terminal block
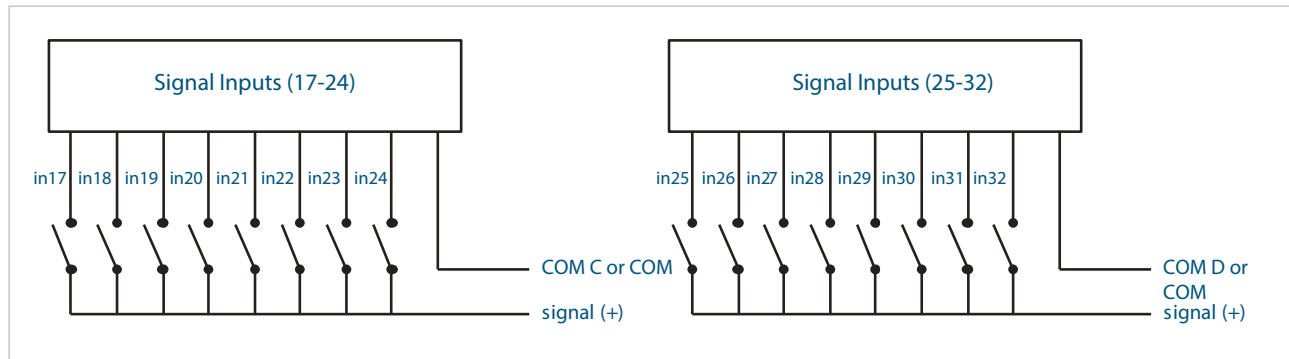2 pc. Semi-transparent paper for front panel

Signal Input

Voltage levels for signal inputs are 24V, 48V, 110V and 220V AC/DC.

LED Displays

There are 8 to 32 of LED displays in devices each of which is assigned to an input channel. Whenever an alarm is generated in a channel, the related display will indicate that there is an alarm in that channel.

LED displays can flash with two colors as red and green. Channels adjusted as HORN (by dip-switches) will flash green, and channels adjusted as ALARM (by dip-switches) will flash red (refer to Alarm / Horn Status and Relays).

How displays operate

There are 4 kinds of flashing of LED displays:
> Fast blinking
> Slow blinking
> Continuously flashing (turn on continuously)
> Turn off

For ANC8 the first alarm / for ANC16,ANC24,ANC32 the first or the last alarm (depending on setting) display blinks faster than the remaining channel displays which also have an alarm condition.

- Assume there is an alarm in the 3rd channel. Third channel's display will blink fast.
- After a while, assume that there appear alarms in 7th, 8th and 9th channels. Then third channel will blink fast; seventh, eighth and ninth displays will blink slowly.
- When the operator presses on the "Ack" button, all the channels (only the 3rd channel – other channels already blink slowly) will blink slowly and also the related relay(s) deactivate(s) (horn and/or alarm relay – depending on the setting).
- After that; if alarm conditions disappeared, slow blinking channels will flash continuously (LEDs turn on continuously).
- In the above condition, when the operator presses "Del" button; all the continuously flashing displays will turn off.

Front Panel Keys

There are 4 key buttons on the front panel of the device as "HORN", "ACK", "DEL" and "TEST".

HORN: This key deactivates the buzzer (if the buzzer was adjusted to be active in case of an alarm).

ACK: This key is used to confirm (acknowledge) the alarm.

If the alarm condition is still on for the related channel(s); whenever ACK key is pressed,

- the fast blinking LED display (for ANC16, ANC24, ANC32 the first or the last alarm display/ for ANC8 the first alarm display) begins to blink slowly.
- slow blinking LED displays (channels, which have alarm condition, other than the above channel) remain to blink slowly.
- Alarm and/or Horn relay deactivate(s)

If the alarm condition is OFF for the related channel(s); whenever ACK key is pressed,

- All the blinking channels will flash continuously
- Alarm and/or Horn relay deactivate(s)

NOTE: In LSK mode, this button releases the relays. However, as long as the alarm input is active, the LEDs of the channels belonging to that input will continue to light.

DEL: This key is used to delete the alarm. Operator can delete alarms only if alarm conditions have disappeared and operator has pressed "Ack" key before.
In such a condition, whenever DEL key is pressed, LED displays of the related channels will turn off.

TEST: This key is merely used to test displays of channels. LED displays lights up in red and green, respectively as long as the TEST key is pressed.

Alarm / Horn Status Dip-switches and Relays

All input channels can be adjusted as "ALARM" or "HORN" channels individually by "Alarm/Horn Status" dip-switches.

When an alarm condition occurs in any of the input channels;
if the related display blinks red, this means that channel was adjusted to be an "Alarm" channel.
if the related display blinks green, this means that channel was adjusted to be a "Horn" channel.
Red LED displays are for "ALARM" channels

There are 2 relays available in all devices named as "ALARM" and "HORN" relays.
Alarm channels are assigned to "ALARM" relay and horn channels are assigned to "HORN" relay. This means, whenever an alarm condition occurs in a channel adjusted as 'alarm channel'; alarm relay will activate.
Likewise, whenever an alarm condition occurs in a channel adjusted as 'horn channel'; horn relay will activate.
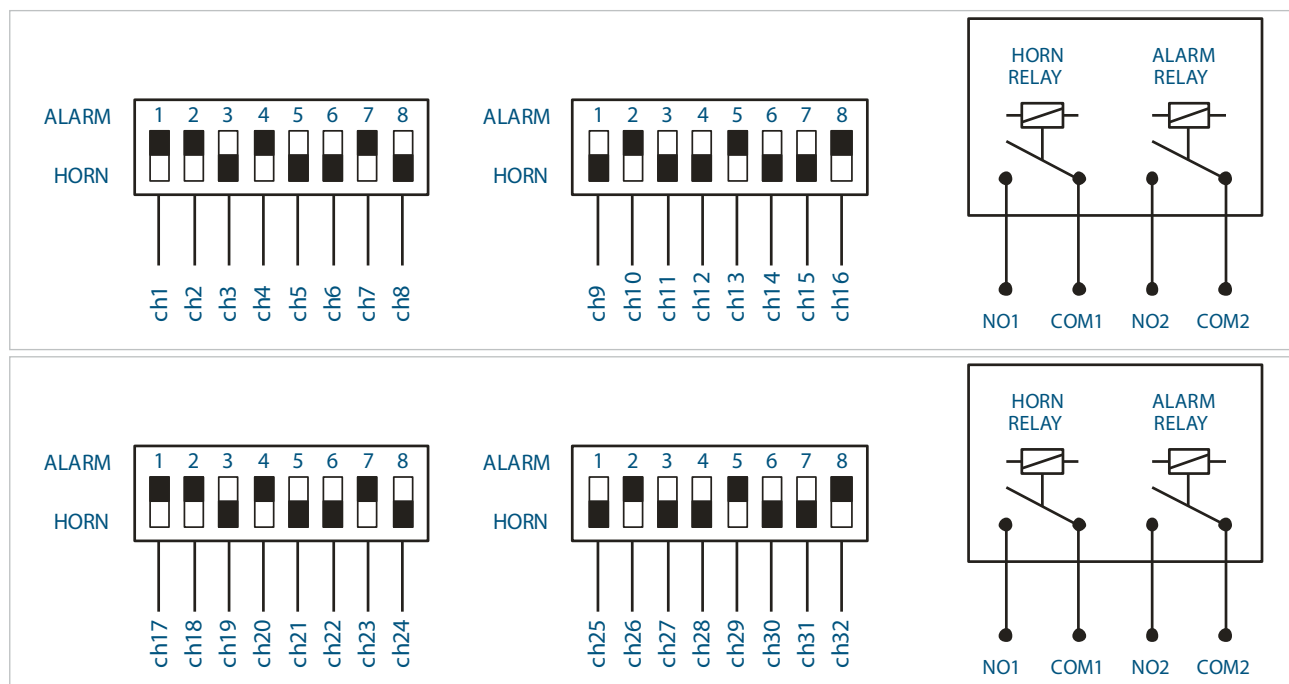
> ⚠️ Operator should reset the device after changing dip-switches.Otherwise, device will operate with the old dip-switch settings.

Device Configuration

The response of device against input signals can be adjusted by dip-switch.

- Continuous / Pulse mode ("pulse / cont")
- Buzzer active / passive ("buzzer")
- Input signal inversion ("inverse" switch for ANC-8; "m1,m2,m3 " switches for ANC-16, 24 and 32.
- Last alarm / first alarm ("m1,m2,m3" switches - for ANC-16/24/32)
- Delay ("t3", "t2", "t1)

ANC-8
Configuration dip-switches

ANC-16
Configuration dip-switches

ANC-24
Configuration dip-switches

ANC-32
Configuration dip-switches
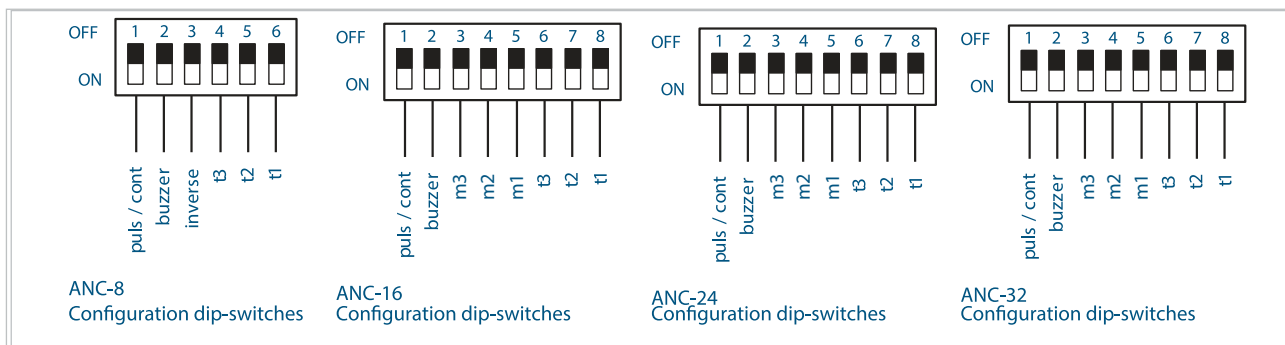
Continuous / Pulse Mode

ANC-8/16/24/32 "CONTINUOUS" mode of operation:

When the "puls / cont" key in configuration dip-switch is in the OFF position, "CONTINUOUS" mode is selected.

- If at least one of the channels was adjusted as 'alarm channel' and an alarm condition is present in that channel → "ALARM" relay will energized continuously.
- If at least one of the channels was adjusted as 'horn channel' and an alarm condition is present in that channel "HORN" relay is energized continuously.
- If the buzzer is adjusted to be ON in case of an alarm, buzzer will be activated continuously.
- The relays and buzzer keep their current positions until the alarms are confirmed. When the user presses on "Ack" button, ALARM relay, HORN relay and the buzzer will be deactivated.

ANC-8/16/24/32 "PULSE" mode of operation:

When the "puls / cont" key in configuration dip-switch is in the ON position, "PULSE" mode is selected.

- If at least one of the channels was adjusted as 'alarm channel' and an alarm condition is present in that channel → "ALARM" relay will be energized for 5 seconds and then de-energized.
- If at least one of the channels was adjusted as 'horn channel' and an alarm condition is present in that channel "HORN" relay is energized for 5 seconds and then de-energized.
- If the buzzer is adjusted to be ON in case of an alarm, buzzer will be activated for 5 seconds.

Buzzer Active / Passive
The built-in buzzer of devices can be activated/de-activated via the "BUZZER" adjustment key.

Input Signal Inversion
When the above mentioned dip switch keys of ANC8/16/24/32 is in OFF position, devices will accept a high signal as an alarm. For example for 604630 - ANC16 (24V AC/DC) device; when a signal of 24 VACrms or 24VDC is present on anyone of the channels, that channel will accept this condition as an alarm.

When the above mentioned dip switch keys of ANC8/16/24/32 is in ON position, devices will accept a low signal as an alarm. For example, for 604630 - ANC16 (24V AC/DC) device; operation with no alarms can be possible only with 24VACrms or with 24VDC on all of the channels. When the continuous signal on anyone of the channels is interrupted, that channel will accept this condition as an alarm.

First Alarm / Last Alarm
ANC16/24/32

According to the "m1,m2,m3" configuration dip-switches , If "FIRST ALARM" mode is selected and when the device is in "FIRST ALARM" mode, the first alarm blinks rapidly and all the next alarms blink slowlly.

According to the "m1,m2,m3" configuration dip-switches , "LAST ALARM" mode is selected and when the device is in "LAST ALARM" mode, last alarm blinks rapidly and all the previous alarms blink slowly.

ANC8

There is no last/first dip-switch key in ANC8. As a result, ANC-8 always operates in "first alarm" mode.

Delay Period
The alarm detection of the device can be delayed as long as the adjusted period. Delay period can be adjusted with the keys t1, t2, t3 in the configuration dip-switch as 0, 2, 5, 10, 15, 20, 25 and 30 seconds.

configuration tables									
m3	m2	m1	mode	inverse channels	indicate fast	t3	t2	t1	delay
0	0	0	ANC	NO	FİRST	0	0	0	off
0	0	1	ANC	NO	LAST	0	0	1	2 sec
0	1	0	ANC	1-12	FİRST	0	1	0	5 sec
0	1	1	ANC	1-12	LAST	0	1	1	10 sec
1	0	0	ANC	ALL	FİRST	1	0	0	15 sec
1	0	1	ANC	ALL	LAST	1	0	1	20 sec
1	1	0	LSK	NO	NONE	1	1	0	25 sec
1	1	1	LSK	ALL	NONE	1	1	1	30 sec

Flow chart of ANC8/16/24/32 Operation
All devices operate according to the algorithm below (ANC Mode) Outputs as long as channel input is active at the end of the delay time in LSK mode:

```
                                    ALARM
                                      │
                                      ▼
                            ┌─────────────────┐
                            │ Is the receiving│
          ┌─────────────┐   │    channel      │   ┌─────────────┐
          │ hom channel │ ◀ │ an alarm channel│ ▶ │alarm channel│
          └─────────────┘   │ or a horn channel│  └─────────────┘
                 │          └─────────────────┘          │
                 ▼                                        ▼
          ┌─────────────┐                          ┌─────────────┐
          │ first / last│                          │ first / last│
          │   alarm?    │                          │   alarm?    │
          └─────────────┘                          └─────────────┘
       YES          NO                          NO          YES
```

YES	NO	NO	YES
LED indicator of channel blinks rapidly in green	LED indicator of channel blinks slowly in green	LED indicator of channel blinks slowly in red	LED indicator of channel blinks rapidly in red

horn relay is activated

alarm relay is activated

What is the position of dip-switch for buzzer setting

What is the position of dip-switch for buzzer setting

ON	OFF	OFF	ON
buzzer active	buzzer passive	buzzer passive	buzzer active

ANC8/16/24/32 operating mode

ANC8/16/24/32 operating mode

CONTINUOUS	PULSE	PULSE	CONTINUOUS
Buzzer and horn relay are active and remain active	Buzzer and horn relay will be de-activated after 5 seconds	Buzzer and Alarm relay will be de-activated after 5 seconds	Buzzer and Alarm relay are active and remain active

Real Time Clock (RTC)

Device has a real time clock. Time adjustments can be accomplished via MODBUS (Refer to MODBUS table).

Log (Record)

Device can record 6080 alarm events with real time data.

Recorded events consist of the following data:
- Number of the channel on which alarm event appears/disappears
- Which buttons are pressed by the operator
- Device turn-on and turn-off times
- Reset ANC8/16/24/32 resets only if baud rate setting is changed via MODBUS)

Each record occupies 64 bits (8 bytes) in memory. It is as follows:

Day in BCD Format								Month in BCD Format							
63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48

Year in BCD Format (last two digits)								Hours in BCD Format							
47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32

Minutes in BCD Format								Seconds in BCD Format							
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16

RST	PON	PDWN	HORN	ACK	DEL	TEST	SHORN	SACK	SDEL	ALMS	ALARM CHANNEL				
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 63 – 56 : Day of month in BCD format
Bit 55 – 48 : Month in BCD format
Bit 47 – 40 : Year in BCD format (only the last two digits, i.e. 13 instead of 2013)
Bit 39 – 32 : Hours in BCD format
Bit 31 – 24 : Minutes in BCD format
Bit 23 – 16 : Seconds in BCD format
Bit 15   : Reset ANC8/16/24/32
Bit 14   : ANC8/16/24/32 is powered-on
Bit 13   : ANC8/16/24/32 is powered -off
Bit 12   : HORN button is pressed
Bit 11   : ACK button is pressed
Bit 10   : DEL button is pressed
Bit 9   : TEST button is pressed
Bit 8   : SOFTWARE HORN command came
Bit 7   : SOFTWARE ACK command came
Bit 6   : SOFTWARE DEL command came
Bit 5   : Alarm status. 1 → alarm is generated; 0 → alarm condition disappeared.
Bit 4 - 0   : Number of the channel where the event occurred. Data is in "hex" format.

BCD Format

"Binary coded decimal" (BCD) is a class of binary encodings of decimal numbers where each decimal digit is represented by a fixed number of bits. Usually 4 bits represent a digit by taking advantage of the fact that four bits are enough to represent the range 0 to 9. Likewise, in ANC8/16/24/32, 4 bits represent a decimal digit.
For example, the decimal number 35 will be represented in BCD format as 0011 0101.
Refer to the below table for more examples.

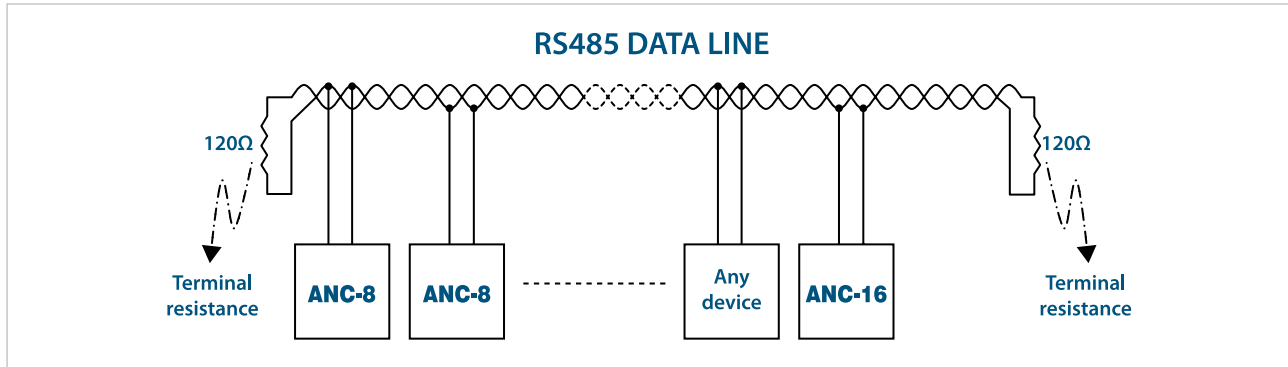| Decimal	Binary	BCD
0	0000	0000 0000
1	0001	0000 0001
2	0010	0000 0010
3	0011	0000 0011
4	0100	0000 0100
5	0101	0000 0101
6	0110	0000 0110
7	0111	0000 0111
8	1000	0000 1000
9	1001	0000 1001
10	1010	0001 0000
11	1011	0001 0001
12	1100	0001 0010
13	1101	0001 0011
14	1110	0001 0100
15	1111	0001 0101

Communication

ANC8/16/24/32 has one isolated RS485 port. As software protocol MODBUS RTU is implemented in the device. Supported functions of MODBUS RTU are as follows:

- Read Holding Registers (03H)
- Write Single Register (06H)
- Write Multiple Registers (10H)

RS485 Connect Line / Diagram

RS485 DATA LINE

120Ω   120Ω

Terminal resistance   ANC-8   ANC-8   Any device   ANC-16   Terminal resistance

Modbus Table

Adres	Parametre Açıklaması	R / W	Veri Tipi	Fonksiyon
0	Status of channels input (32-17 channels)	RO	16 bit word	03H
1	Status of channels input (16-1channels)	RO	16 bit word	03H
2	Status of channels dip-switch (32-17 channels)	RO	16 bit word	03H
3	Status of channels dip-switch (16-1 channels)	RO	16 bit word	03H
4	Configuration of config. dip switch	RO	16 bit word	03H
5	Number of logs in memory	RO	16 bit word	03H
6	Seconds	R / W	16 bit word	03H-06H-10H
7	Minutes	R / W	16 bit word	03H-06H-10H
8	Hours	R / W	16 bit word	03H-06H-10H
9	Day	R / W	16 bit word	03H-06H-10H
10	Month	R / W	16 bit word	03H-06H-10H
11	Year	R / W	16 bit word	03H-06H-10H
12	Blaud Rate	R / W	16 bit word	03H-06H-10H
13	Slave ID	R / W	16 bit word	03H-06H-10H
14	RESERVE	RO	16 bit word	03H
15	Firmware version	RO	16 bit word	03H
16	Fast Flashing indicators (32-17 channels)	RO	16 bit word	03H
17	Fast Flashing indicators (16-1 channels)	RO	16 bit word	03H
18	Slow Flashing indicators (32-17 channels)	RO	RO	03H
19	Slow Flashing indicators (16-1 channels)	RO	RO	03H

Adres	Parametre Açıklaması	R / W	Veri Tipi	Fonksiyon
20	Steady indicators (32 - 17 channels)	RO	16 bit word	03H
21	Steady indicators (16 - 1 channels)	RO	16 bit word	03H
24	Command address	WO	16 bit word	06H
50	Log 1 Day and month	RO	16 bit word	03H
51	Log 1 Year and hours	RO	16 bit word	03H
52	Log 1 Minutes and seconds	RO	16 bit word	03H
53	Log 1 Data	RO	16 bit word	03H
54	Log 2 Day and month	RO	16 bit word	03H
55	Log 2 Year and hours	RO	16 bit word	03H
56	Log 2 Minutes and seconds	RO	16 bit word	03H
57	Log 2 Data	RO	16 bit word	03H
58	Log 3 Day and month	RO	16 bit word	03H
59	Log 3 Year and hours	RO	16 bit word	03H
60	Log 3 Minutes and seconds	RO	16 bit word	03H
61	Log 3 Data	RO	16 bit word	03H
62	Log 4 Day and month	RO	16 bit word	03H
63	Log 4 Year and hours	RO	16 bit word	03H
64	Log 4 Minutes and seconds	RO	16 bit word	03H
65	Log 4 Data	RO	16 bit word	03H
66	Log 5 Day and month	RO	16 bit word	03H
67	Log 5 Year and hours	RO	16 bit word	03H
68	Log 5 Minutes and seconds	RO	16 bit word	03H
69	Log 5 Data	RO	16 bit word	03H
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
24358	Log 6076 Day and month	RO	16 bit word	03H
24359	Log 6076 Year and hours	RO	16 bit word	03H
24360	Log 6076 Minutes and seconds	RO	16 bit word	03H
24361	Log 6076 Data	RO	16 bit word	03H
24362	Log 6077 Day and month	RO	16 bit word	03H
24363	Log 6077 Year and hours	RO	16 bit word	03H
24364	Log 6077 Minutes and seconds	RO	16 bit word	03H
24365	Log 6077 Data	RO	16 bit word	03H
24362	Log 6078 Day and month	RO	16 bit word	03H
24363	Log 6078 Year and hours	RO	16 bit word	03H
24364	Log 6078 Minutes and seconds	RO	16 bit word	03H
24365	Log 6078 Data	RO	16 bit word	03H

Adres	Parametre Açıklaması	R / W	Veri Tipi	Fonksiyon
24362	Log 6079 Day and month	RO	16 bit word	03H
24363	Log 6079 Year and hours	RO	16 bit word	03H
24364	Log 6079 Minutes and seconds	RO	16 bit word	03H
24365	Log 6079 Data	RO	16 bit word	03H
24366	Log 6080 Day and month	RO	16 bit word	03H
24367	Log 6080 Year and hours	RO	16 bit word	03H
24368	Log 6080 Minutes and seconds	RO	16 bit word	03H
24369	Log 6080 Data	RO	16 bit word	03H

NOTE: Maximum 248 data bytes can be received by the master device via MODBUS RTU.

Alarm flags for channels

15	14	13	12	11	10	9	8
32. Channel Alarm Status	31. Channel Alarm Status	30. Channel Alarm Status	29. Channel Alarm Status	28. Channel Alarm Status	27. Channel Alarm Status	26. Channel Alarm Status	25. Channel Alarm Status

7	6	5	4	3	2	1	0
24. Channel Alarm Status	23. Channel Alarm Status	22. Channel Alarm Status	21. Channel Alarm Status	20. Channel Alarm Status	19. Channel Alarm Status	18. Channel Alarm Status	17. Channel Alarm Status

15	14	13	12	11	10	9	8
16. Channel Alarm Status	15. Channel Alarm Status	14. Channel Alarm Status	13. Channel Alarm Status	12. Channel Alarm Status	11. Channel Alarm Status	10. Channel Alarm Status	9. Channel Alarm Status

7	6	5	4	3	2	1	0
8. Channel Alarm Status	7. Channel Alarm Status	6. Channel Alarm Status	5. Channel Alarm Status	4. Channel Alarm Status	3. Channel Alarm Status	2. Channel Alarm Status	1. Channel Alarm Status

Status of channels' dip-switch

15	14	13	12	11	10	9	8
32. Channel	31. Channel	30. Channel	29. Channel	28. Channel	27. Channel	26. Channel	25. Channel

7	6	5	4	3	2	1	0
24. Channel	23. Channel	22. Channel	21. Channel	20. Channel	19. Channel	18. Channel	17. Channel

15	14	13	12	11	10	9	8
16. Channel	15. Channel	14. Channel	13. Channel	12. Channel	11. Channel	10. Channel	9. Channel

7	6	5	4	3	2	1	0
8. Channel	7. Channel	6. Channel	5. Channel	4. Channel	3. Channel	2. Channel	1. Channel

0 → Channel was adjusted as an "Alarm channel" by dip-switch
1 → Channel was adjusted as a "Horn channel" by dip-switch

Configuration Dip-Switch Situations

ANC-8

15	14	13	12	11	10	9	8
Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved

7	6	5	4	3	2	1	0
Reserved	Reserved	t1	t2	t3	Inverse	Buzzer	Cont / Pals

ANC16-ANC24-ANC32

15	14	13	12	11	10	9	8
Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved

7	6	5	4	3	2	1	0
t1	t2	t3	First / Last	Inv. Ch 9-16	Inv. Ch 1-8	Buzzer	Cont / Pals

Latest log index

The latest recorded log index is available to the user/programmer via MODBUS register address 3. ANC8/16/24/32 can keep 6080 blocks of event log.

When reserved memory for data logging is full, ANC8/16/24/32 start to record "event logs" from the beginning. 6079 is the final log index. Any event after this record will be recorded starting from index 0.

Time / Date Adjustment

Time and date data is readable and writable via MODBUS addresses 4 - 9. Data of these addresses can be changed with MODBUS functions 06H and 10H.

Slave ID Adjustment

Slave ID is readable and writable via MODBUS address 11. Slave ID can be adjusted in the values between 1 and 247. Factory default value of slave ID is 1..

Modbus Addresses to Indicate Last Status of LED Display

In order to understand last status of LED display through modbus communication, users should query 12nd,13rd and 14th addresses. It is possible to understand how LED windows are blinked(fast, slowly, etc) from these modbus addresses.

bit15	bit 14	bit 13	bit 12	bit 11	bit 10	bit 9	bit 8
32. Channel LED Display	31. Channel LED Display	30. Channel LED Display	29. Channel LED Display	28. Channel LED Display	27. Channel LED Display	26. Channel LED Display	25. Channel LED Display

bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
24. Channel LED Display	23. Channel LED Display	22. Channel LED Display	21. Channel LED Display	20. Channel LED Display	19. Channel LED Display	18. Channel LED Display	17. Channel LED Display

bit15	bit 14	bit 13	bit 12	bit 11	bit 10	bit 9	bit 8
16. Channel LED Display	15. Channel LED Display	14. Channel LED Display	13. Channel LED Display	12. Channel LED Display	11. Channel LED Display	10. Channel LED Display	9. Channel LED Display

bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
8. Channel LED Display	7. Channel LED Display	6. Channel LED Display	5. Channel LED Display	4. Channel LED Display	3. Channel LED Display	2. Channel LED Display	1. Channel LED Display

Explanations for 12nd,13rd and 14th addresses

• Address 12 – Fast blinked LED display can be fallowed from 12nd modbus address. If a bit value that is read from 12nd address is "1", it means that related LED display blinks fast.

• Address 13 – Slow blinked LED display can be fallowed from 13rd modbus address. If a bit value that is read from 13rd address is "1", it means that related LED display blinks slowly.

• Address 14 –LED windows that are turned on constantly can be fallowed from 14th modbus address.

If a bit value that is read from 14th address is "1", it means that related LED display is turned on constantly. If it is "0", it means related LED display is turned o.

NOTE: The values that are queried from 12nd, 13rd and 14th addresses should be evaulate as binary

format. Each LED display is represented by a bit value. 1st bit value represents 1st LED display (channel),

2nd bit value represents 2nd LED display (channel), etc.

Command Address

It is possible to control HORN, ACK and DEL buttons from 20th address. When the values that are dened in below table are sent to 20th address, related command is executed.
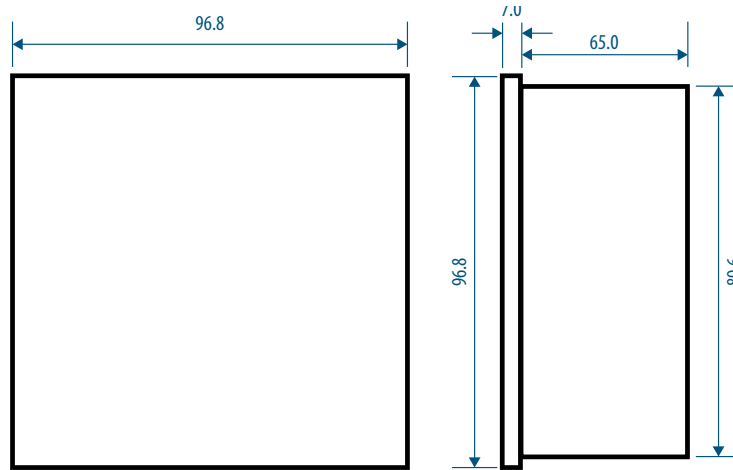
Command type	Modbus address	The Values to be sent
Push HORN Button	24	1111
Push ACK Button	24	2222
Push DEL Button	24	3333

When related command is executed, It is saved as a LOG with timestamp. (Refer to Log)
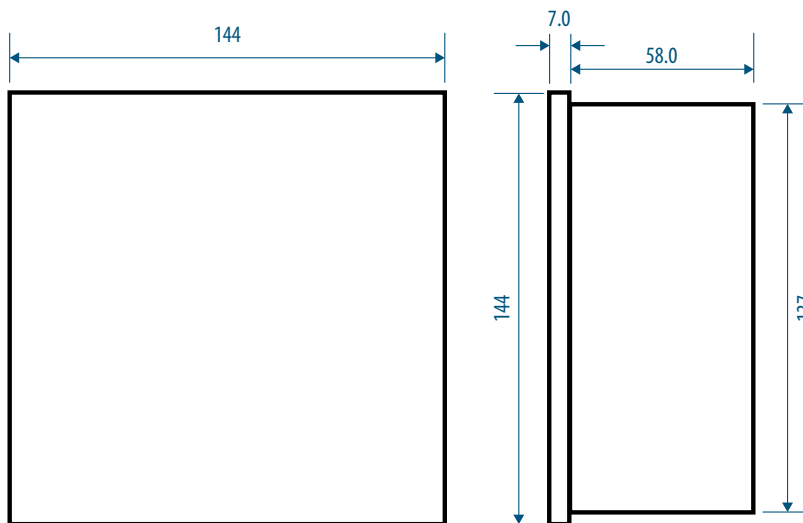
Firmware Version

Firmware version that belongs to embeded code can be read from "Firmware version" modbus address.

DIMENSIONS (mm)

ANC-8 Dimensions

ANC-16/24/32 Dimensions

Technical Specifications

Input

Channel Number	8 (ANC-8)
	16 (ANC-16)
	24 (ANC-24)
	32 (ANC-32)
Channel Current	< 1.5mA
Input Sıgnal	24V, 48V, 110V ve 220V AC/DC

		45Hz	50Hz	60Hz	65Hz	DC
	24V	16V	17V	18V	19V	21V
Limits for a signal	**48V**	32V	33V	35V	38V	42V
to be accepted as	**110V**	72V	75V	80V	85V	100V
ON.	**220V**	145V	150V	160V	170V	200V

		45Hz	50Hz	60Hz	65Hz	DC
	24V	14V	14V	14V	14V	13V
Limits for a signal	**48V**	28V	28V	28V	28V	27V
to be accepted as	**110V**	67V	67V	67V	67V	62V
OFF.	**220V**	135V	135V	135V	135V	125V

General

Supply Voltage	ANC-8 series => 110-300VAC/DC±%10
	ANC-16,24 and 32 series=> 85..300VAC/DC or 24..50VAC/DC ±%10
Frequency	45..65Hz
Insulation	1500Vrms (between each 8 signal groups) – Only available in insulated models (see Table-1)
Power Consumption	< 5VA -> ANC-8 (85..300VAC)
	< 3W -> ANC-8 (85..300VDC)
	< 5VA -> ANC-16,ANC-24,ANC-32 (85..300VAC)
	< 3W -> ANC-16,ANC-24,ANC-32 (85..300VDC)
	< 5VA -> ANC-16,ANC-24,ANC-32 (24..50VAC)
	< 3W -> ANC-16,ANC-24,ANC-32 (24..50VDC)
RTC Battery Life	> 5 years
Operation Temperature	-20°C..+70°C
Storage Temperature	-30°C..+80°C
Relative Humidity	Max.95% (with no condensation)
Connection	Screw type terminals
Dimensions	96x96x72 (ANC-8)
	144x144x65 (ANC-16, ANC-24, ANC-32)
Protection Class	IP50 (front)
	IP20 (back)

User Interface

Key Set	4 pieces of ESD protected button
LED indicator	8 pieces of double-colored-led indicator with back lighting, 1 piece of ON led (ANC-8)
	16 pieces of double-colored-led indicator with back lighting, 1 piece of ON led (ANC-16)
	24 pieces of double-colored-led indicator with back lighting, 1 piece of ON led (ANC-24)
	32 pieces of double-colored-led indicator with back lighting, 1 piece of ON led (ANC-32)

Output

Relay Outputs	2 pieces of Form-A relay
Max. Switching current	5A AC, 3A DC
Max. Switching voltage	250V AC, 30V DC
Max. Switching power	1250VA, 90W

Communication

Serial Interface	Isolated RS485 port
Protocol	Modbus RTU
Isolation	2500V RMS
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600 bps

Revision No: 09082019

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