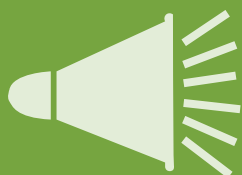


Annunciator
Audible Alarm Sound
Monitoring Relay
Diode Box



2022 PRODUCT CATALOG

ANNUNCIATOR AND MONITORING SYSTEM

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Annunciator

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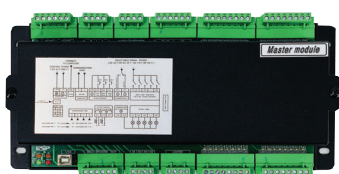


Annunciator

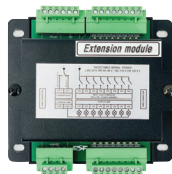


Alarm for general protection switchboard, switchgear cubical

Surface mount type



Master module



Extension module



Relay output module



Display window unit



Display window unit



Audible device

DIN Rail type



Features

- Robust and compact design
- Space problem solving by separate into three modules; Master module/Extension module/Relay module
- The three modules are connected by detachable wire connector
- Sequence control push button switches are separated as given design on control panel
- All input channels are opto-isolator designed concept
- Alarm input contact can be selected by software to accept either NO or NC contact
- Alarm sound can be selected to be bell or horn (heavy fault) and buzzer (light fault) by software
- Number of alarms : 16 to 64 alarms per one set of alarm sequence unit (maximum is 640 alarms)
- Number of I/O of master module is 16 I/O per module, Extension module is 8 I/O per module and relay output module is 8 NO contacts per module
- Supervisory contact (watchdog) for remote alarm or warning status.
- Easily could be programmed with the belonging software (ESPAN01 V1.0) connected via USB port to computer
- Communication port : USB and RS485 modbus RTU protocols (option : optical Port)
- Lay out of display window is flexible according to the requirement
- Power supply : 24VDC (~50 watt for 16 alarms, ~100 watt for 32 alarms, ~150 watt for 64 alarms)
- Protection class : IP55 for display window and IP50 for alarm sequence unit (master module + extension module)
- Ambient temperature : -10 to +55°C
- Storage temperature : +70°C
- Humidity : up to 95%

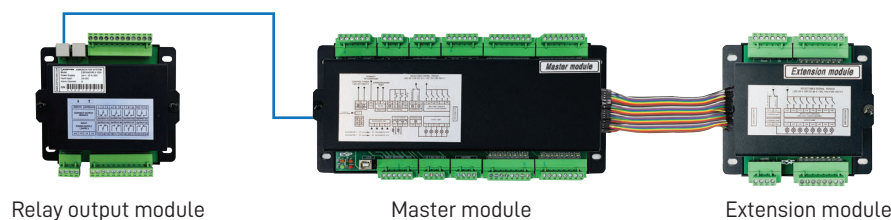
Technical data

Alarm sequence unit

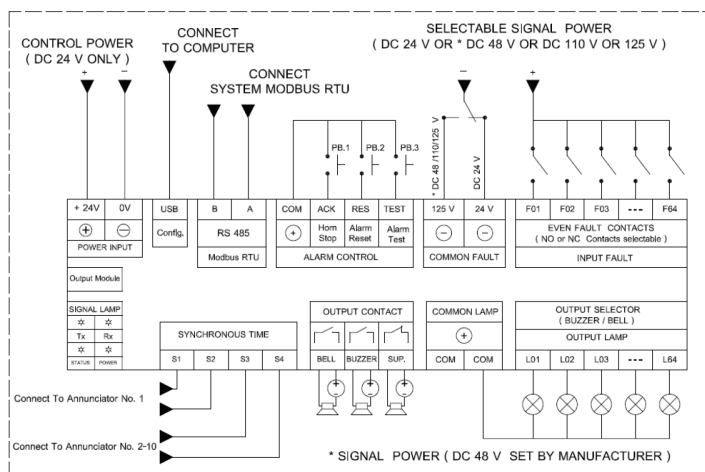
This unit is a combination module that starting from 16 to 64 alarm points using microprocessor base concept. When the fault signal occurs through an opto-isolator input channel, it will send flicker output (open collector type) toward the visual device (display window) and audible device such as bell or buzzer. The main features of this module are as below;

- This alarm sequence unit can accept fault signal DC 24/48V or DC 110/125V which powered through field contact.
- Flicker output can be adjustable and fault input signal can be adjust delay time by software.
- The alarm sequence units are 16, 24, 32, 40, 48, 56 and 64 alarm type.
- This unit can select bell or horn as a heavy fault and buzzer as a light fault by program software for each alarm point.
- Input alarm contact shall be either normally open (NO) or normally closed (NC) contact which can be selected by program software.
- Connection between modules equipped with detachable wire connector (RJ11 and pair connector)

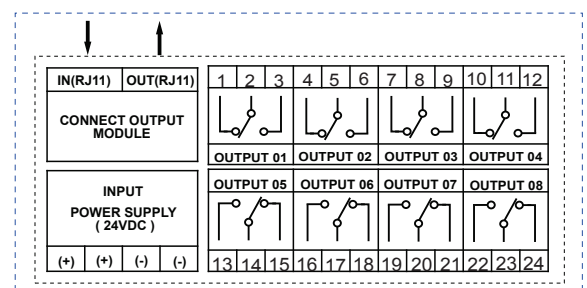
Wiring diagram



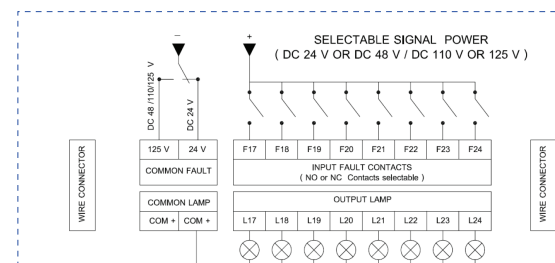
Wiring diagram ESPAN01 Master module



Wiring diagram ESPAN01 Relay output module



Wiring diagram ESPAN01 Extension module



ESPAN01	Width (mm.)	Length (mm.)	Height (mm.)	Weight (kg.)
Master (16 Alarm)	135	293	50	1.3
Extension (8 Alarm)	125	142	50	0.4
Relay output (8 N.O.)	125	142	50	0.5

Power supply unit



The Power Supply Unit is a DC/DC converter regulated type, designed with surge protection and to provide transient surge isolation between the station battery and the sensitive electronic components of the Annunciator system. Fuse protection is also provided to protect from overload or short circuit on the power supply output. There are three rating : 60 watts, 120 watts and 240 watts to suit for the Annunciator system (16, 32, 64 and more alarm point).

Input voltage is 48, 110, 125 or 220 VDC (specified when order) but output voltage shall be 24 VDC only.

Operating principle

The ESPAN-01 series Annunciator system is simple for installation by using detachable connector concept which managed most of the wiring. Besides, it is convenience for maintenance. Only the malfunction module of the three separate-modular module can be repaired or changed.

The operation sequence of the Annunciator is as following; when the fault signal is occurred in each input, an alarm output signal is sent toward bell/horn or buzzer which can be pre-selected as heavy fault (bell/horn) or light fault (buzzer). At the same time, it will send flicker output to the set style indication lamp that corresponds to each I/O channel. After pressing an acknowledged push button switch, if an alarm-contact is returned, then the alarm is canceled. However, the indication window is steady on unless the reset push button switch is activated. Then the lamp will be turn off and ready for the next operation.

The lamp test push button switch is also provided for the purpose of checking lamp at normal condition and while checking the lamp, if a fault occurs, the operating alarm sequence will operate as usual with no effect from the lamp test sequence anymore.

Function test of ESPAN-01 Annunciator : if the lamp test push button switch is pressed more than 3 seconds, all the display window lamps would flash with audible sound alarm. (bell/horn or buzzer)

Display window unit

- Display window frames are made of alu-zinc steel 1.0 - 1.5 mm. thickness, total depth is not more than 80 mm. (including protection cover-if any)
- Display window unit is made of self-extinguishing plastic material and acrylic resin for window plate.
- Display window compose of color legend plate, diffused lens and cover lens.
- Number of alarm windows start from 1 to 120 (max. 640 windows)
- Window plate color shall be specified when order.
W : White, R : Red, G : Green, Y : Yellow, A : Amber, S : Sky blue.
- Window sizes are available in 2 sizes; 30 x 30 mm. and 30 x 60 mm.
- Display lamp is 24 VDC LED; one lamp for window size 30x30 mm. and two lamp for window size 30x60 mm.
- Power consumption : size 30x30 mm. ≤ 0.5W/window, size 30x60 mm. ≤ 1.0W/window
- Lamp replacement could be done easily by taking off the front plate.
- Wiring connection between display window to alarm sequence unit is 1.5-2.5 sq.mm. or up on the requirement.
- Connection to the display windows has to be done through the terminal of the rear side only.
- Window arrangement is flexible according to the requirement (specified when order)

H30 x W30mm. (Window size)

Rows	Columns		1	2	3	4	5	6	7	8	9	10	11	12
	Dimension (mm.)	W	46	76	106	136	166	196	226	256	286	316	346	376
		Panel Cut-out W	35	65	95	125	155	185	215	245	275	305	335	365
	H	H	35	65	95	125	155	185	215	245	275	305	335	365
1	46	35	1	2	3	4	5	6	7	8	9	10	11	12
2	76	65	2	4	6	8	10	12	14	16	18	20	22	24
3	106	95	3	6	9	12	15	18	21	24	27	30	33	36
4	136	125	4	8	12	16	20	24	28	32	36	40	44	48
5	166	155	5	10	15	20	25	30	35	40	45	50	55	60
6	196	185	6	12	18	24	30	36	42	48	54	60	66	72
7	226	215	7	14	21	28	35	42	49	56	63	70	77	84
8	256	245	8	16	24	32	40	48	56	64	72	80	88	96
9	286	275	9	18	27	36	45	54	63	72	81	90	99	108
10	316	305	10	20	30	40	50	60	70	80	90	100	110	120
11	346	335	11	22	33	44	55	66	77	88	99	110	121	132
12	376	365	12	24	36	48	60	72	84	96	108	120	132	144



Size : H30 x W30mm. per window

Note: other window arrangements can be done upon requested.

H30 x W60mm. (Window size)

Rows	Columns		1	2	3	4	5	6	7	8	9	10
	Dimension (mm.)	W	76	136	196	256	316	376	436	496	556	616
		Panel Cut-out W	65	125	185	245	305	365	425	485	545	605
	H	H	65	125	185	245	305	365	425	485	545	605
1	46	35	1	2	3	4	5	6	7	8	9	10
2	76	65	2	4	6	8	10	12	14	16	18	20
3	106	95	3	6	9	12	15	18	21	24	27	30
4	136	125	4	8	12	16	20	24	28	32	36	40
5	166	155	5	10	15	20	25	30	35	40	45	50
6	196	185	6	12	18	24	30	36	42	48	54	60
7	226	215	7	14	21	28	35	42	49	56	63	70
8	256	245	8	16	24	32	40	48	56	64	72	80
9	286	275	9	18	27	36	45	54	63	72	81	90
10	316	305	10	20	30	40	50	60	70	80	90	100
11	346	335	11	22	33	44	55	66	77	88	99	110
12	376	365	12	24	36	48	60	72	84	96	108	120

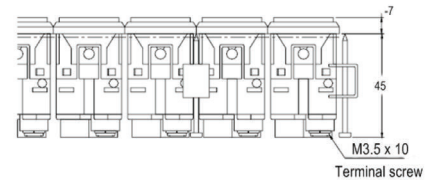
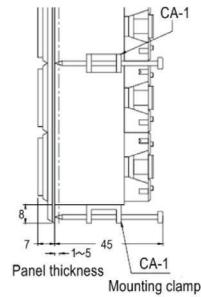
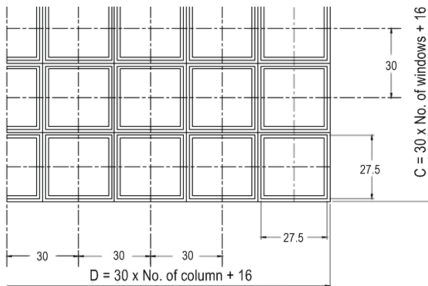


Size : H30 x W60mm. per window

Dimension

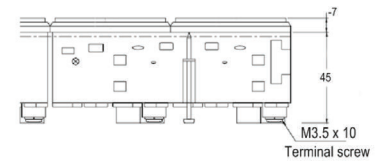
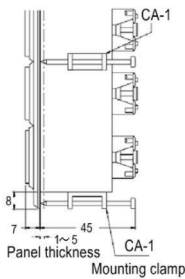
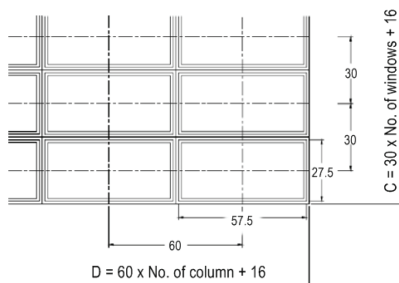
Surface mount type

Dimension of display unit 30 x 30



Legend plate size : 24 x 24mm.
Legend plate thickness : 1mm.
Lighting area : 24 x 24mm.
Engraving space : 24 x 24mm.

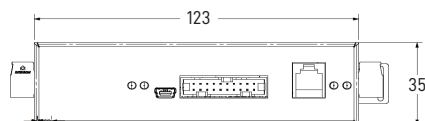
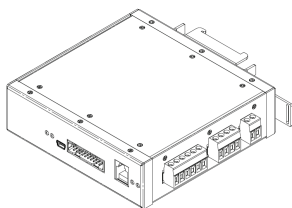
Dimension of display unit 30 x 60



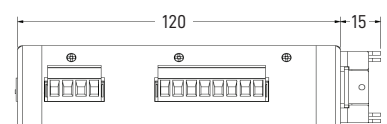
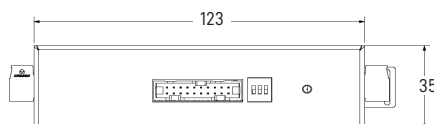
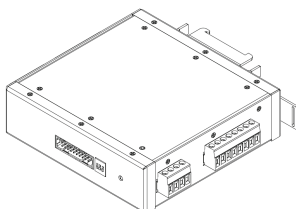
Legend plate size : 24 x 54mm.
Legend plate thickness : 1mm.
Lighting area : 24 x 54mm.
Engraving space : 24 x 54mm.

DIN Rail type

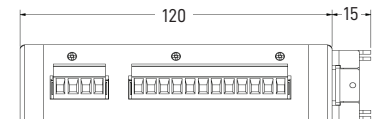
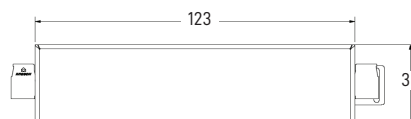
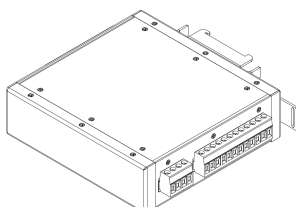
ESPAN 01 - Master module



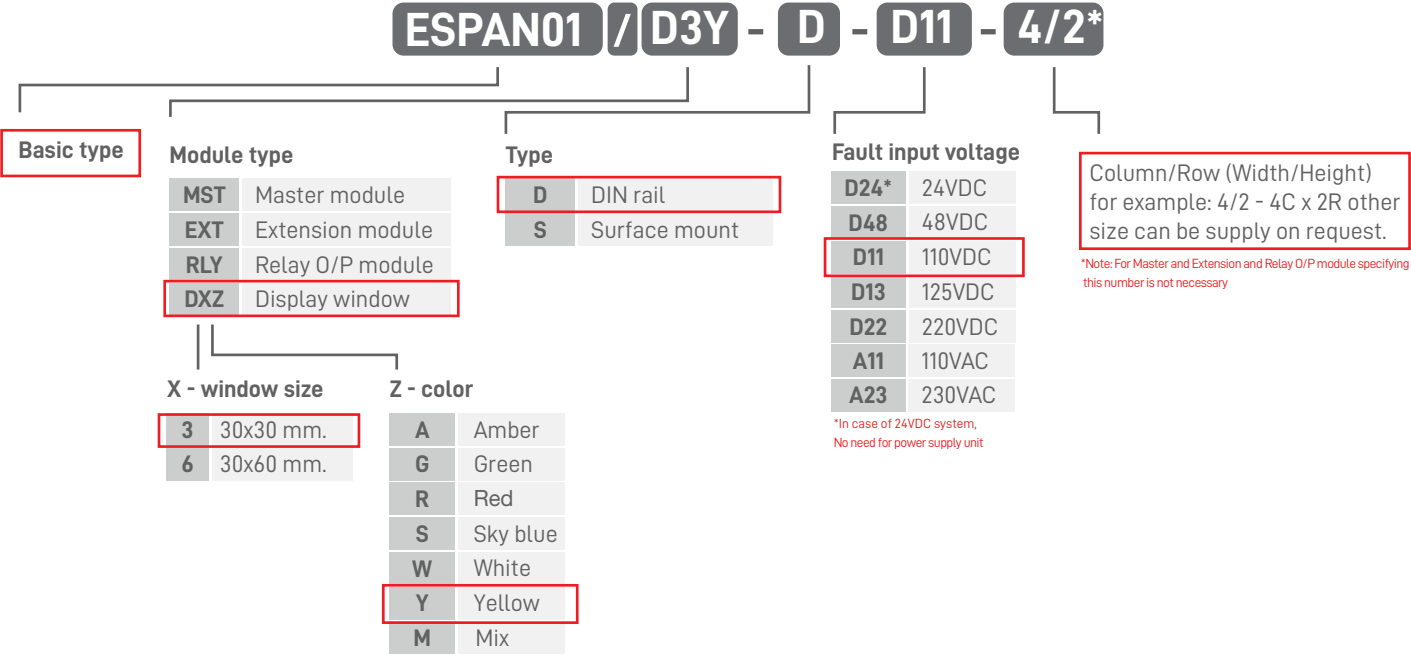
ESPAN 01 - Extension module



ESPAN 01 - Output relay module



Product coding





Description

ESPAN-02 series is designed to use as an alarm system for general protection switchboard, local control panel of GIS, local control cabinet of power transformer and all of control panels, which needs alarm function. It indicates fault status by using high brightness LED with assembly in PCB one card for each alarm input. Window displaying plates are made of white acrylic resin, which could be easily removed for text engraving.

Features

- Robust and compact design, comprise of display unit (single element) to combine as number as required and one of common unit
- Alarm input can be selected by dip - switch to accept either NO or NC contact
- One relay output contact (1 NO) of each alarm for remote function
- LED chip of high brightness display
- Direct power supply 24, 48, 110, 125, 220, 230 VAC or VDC (specify when order and same as fault input voltage)
- Display window size is 40 x 50 mm.
- Conform to ANSI/ISA-S18.1
- Alarm sequence can be selected by dip - switch on PCB

Technical data

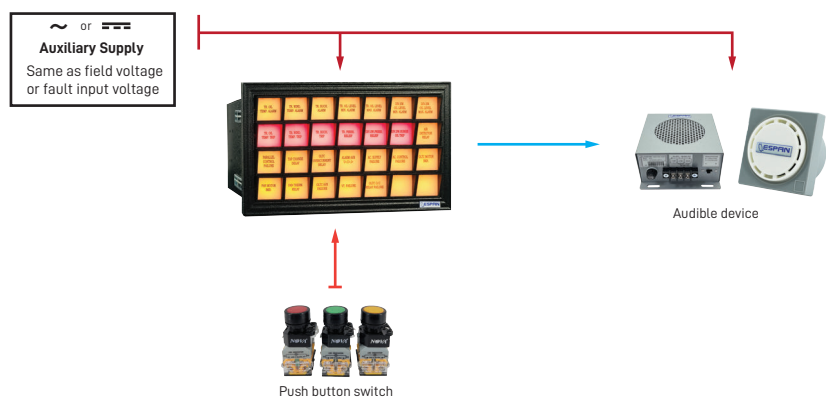
Model	ESPAN02
Rating voltage	AC/DC 24, 48, 110, 125, 220 and 230V
Power consumption per window	1W
Relay output 1 NO per window	10A/28VDC or 10A/120 VAC
Display window	Comprise of high brightness surface mount LED chip (two color)
Signal duration time	<20 ms
Ambient temperature	0°C to +55°C
Storage temperature	up to +70 °C
Humidity	up to 95%

Operating principle

When an alarm signal is occurred, it will initiate horn/buzzer to operate. In the meantime, it will send an output directly to the display lamp, which makes the lamp flicks. After pressing an acknowledged push button switch, horn or buzzer remains silence but the lamp is still steady on. If an alarm signal is returned to normal status then the alarm is cancelled. However, the light of the correspondent indicating display lamp will be sustained. Unless the reset push button switch is activated then the lamp will be turned off and return to its initial condition.

The lamp test switch is also provided for checking all lamps at normal condition. While checking all lamps and suddenly some of the alarm signals are occurred, the alarm sequence will be operated as usual without any effect from the lamp test sequence. Alarm sequence can be selected by selector or dip switch for manual reset sequence or auto reset sequence, which described as below:

System of Annunciator ESPAN 02



Sequence M : Manual reset

In this mode, the momentary fault inputs will be latched until acknowledgement is manually reset to clear. Alarm device will be silenced, also lamp would stop flashing and steady on when acknowledged command. Manual reset of the alarm can be done only when process conditions return to normal.

Standard	Signal	Normal	Alert	Ack before/After return to normal	Return to normal	Return to normal before ack	Reset
M-1-2-14	Visual lamp	Off	Flash	Steady on	Steady on	flash	Off
	Audible sound	Off	On	Off	Off	On	Off

Sequence A : Auto reset

In this mode, If alarm contact returns to normal before acknowledgement the alarm function will immediately reset on acknowledge stage.

Standard	Signal	Normal	Alert	Return to normal before ack	Ack before return to normal	Return to normal
A-1-2-14	Visual lamp	Off	Flash	Off	Steady on	Off
	Audible sound	Off	On	Off	Off	Off

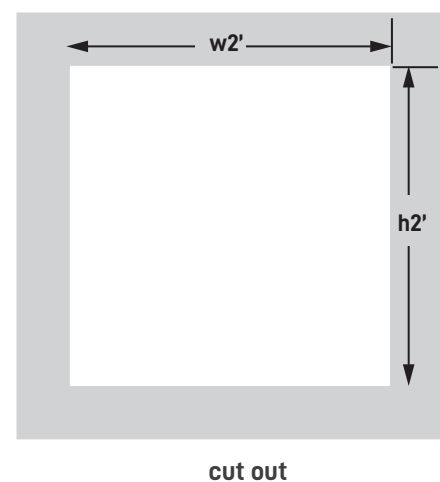
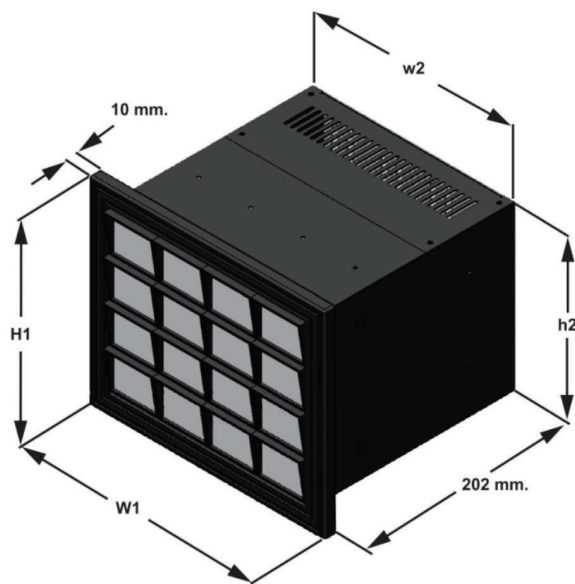
Sequence R : Ring back

When an alarm occurs, the lamp would flash and horn/buzzer will activate continuously. To stop the sound of horn or buzzer, ack push button switch should be pressed. Then horn/buzzer will be silenced but the lamp would be still steady on. When alarm input returns to the normal status the lamp will gently flash while reset is only a choice to turn off the lamp.

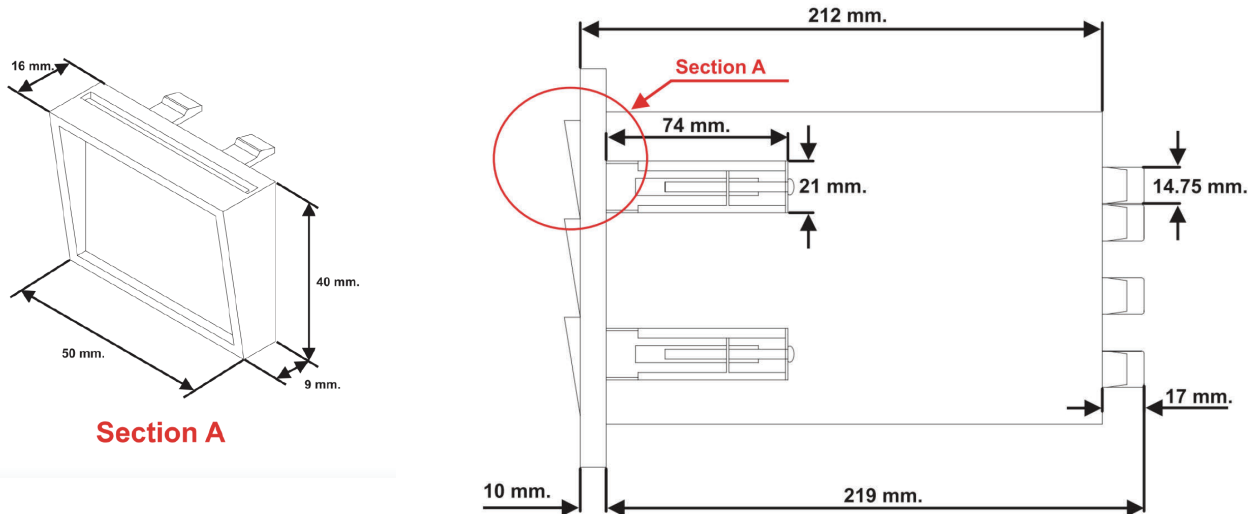
Standard	Signal	Normal	Alert	Ack	Return to normal	Reset
A-1-10	Visual lamp	Off	Flash	On	Slow flash	Off
	Audible sound	Off	On	Off	off	Off

Dimension

Window (HxW)	Dimension (mm.)				Cut out (mm.)	
	H1	W1	h2	w2	h2'	w2'
8(2x4)	122	242	85	207	90	212
9(3x3)	162	192	125	157	130	162
10(2x5)	122	292	85	257	90	262
12(3x4)	162	242	125	207	130	212
16(4x4)	202	242	165	207	170	212
18(3x6)	162	342	125	307	130	312
20(4x5)	202	292	165	257	170	262
24(4x6)	202	342	165	307	170	312
28(4x7)	202	392	165	357	170	362
30(5x6)	242	342	205	307	210	312
32(4x8)	202	442	165	407	170	412
35(5x7)	242	392	205	357	210	362
36(6x6)	282	342	245	307	250	312
40(5x8)	242	442	205	407	210	412
48(6x8)	282	442	245	407	250	412



Cut-out dimension



Product coding

ESPAN02 E / 24 - D 11 - R

Basic type

Fault output

none	Include output contacts
E	Exclude output contacts

Row/Column (Height/Width) for example: 4/6 - 4H x 6W other size can supply on request.

Number of windows

08*	8 windows(2H x 4W)
09	9 windows(3H x 3W)
10*	10 windows(2H x 5W)
12	12 windows(3H x 4W)
16	16 windows(4H x 4W)
18	18 windows(3H x 6W)
20	20 windows(4H x 5W)
24	24 windows(4H x 6W)
28	28 windows(4H x 7W)
30	30 windows(5H x 6W)
32	32 windows(4H x 8W)
35	35 windows(5H x 7W)
36	36 windows(6H x 6W)
40	40 windows(5H x 8W)
48	48 windows(6H x 8W)

Option

R Ring back

Rated voltage (±20%)

24	24V
48	48V
11	110V
13	125V
22	220V
23	230V

Supply type

D	DC
A	AC 50/60Hz.

*Note: Shall be excluded output contacts.

Description

ESPAN - 03 series is designed to use as an alarm for general switchgear cubicle or local control panel of GIS, local control cabinet of power transformer and all of control panel, which need alarm function. It indicates fault status by using special high brightness LED. The ESPAN - 03 series can be selected by the number of alarm input 8 alarm or 16 alarm which specified when order.



Features

- DIN format 96 x 96 mm.
- Large space savings on the front panel of the cabinet
- Built-in three push buttons for acknowledge/reset/test
- The label is a single paper sheet which slides into a small transparent envelope recessed in the front panel.
- All inputs are isolated with opto - couple NO or NC volt-free contact can be selected by software.
- Alarm sequences (auto/manual reset/indicator) of each input can be selected by software.
- Alarm type (bell/buzzer) of each input can be selected by software.
- High brightness LED display (5 mm.)
- Integrated two test functions (lamp test/function test) in only one push button ("TEST")
- Auto acknowledge function time can be set from 1 - 240 seconds.
- Direct power supply 24, 48, 110, 125, 220, 230VDC (specify when order also same as fault input voltage)
- Built-in heart beat function by LED lamp to display healthy status as self - supervision function.
- Supervisory contact (watchdog) for remote alarm or warning status.
- Communication port : RS232

Option

- Serial interface (RS232 or RS485 - Modbus RTU)

Technical data

Model	ESPAN03
Auxiliary power supply ($\pm 20\%$)	VDC 24, 48, 110, 125, 220, 230 and 250
Power consumption (max)	10W
Alarm type relay contact	10A/30VDC or 5A/120VAC
Response time (Operating time)	20 ms
Operating temperature	0 ~ +55°C
Storage temperature	up to +70 °C
Relative humidity	up to 90% (no dew drop)

Operating principle

When an alarm signal is occurred, it will initiate bell/buzzer to operate. In the meantime, it will produce output direct to the display LED, which makes LED flicking. After pressing an acknowledged push button, bell or buzzer remains silence but LED is steady on. If an alarm signal is return to normal status then the alarm is cancelled. However, the light of the indicating display LED will be sustained. Unless the reset push button switch is activated. Then the LED will be turn off and return to its initial condition. The "TEST" push button included two functions. The first function is "Lamp TEST" if push and hold this push button less than 3 seconds, it will light up all LED lamp at the front panel only. The second function is "Function test" if push and hold this push button more than 3 seconds, the LED lamp will start flicking and bell/buzzer alarm. This "TEST" push button is provided for the purpose of checking all LED and operating function at normal condition. While checking all LED and suddenly some of the alarm signals are occurred, the alarm sequence will be operated as usual without effect from the lamp test sequence. Alarm sequence can be selected by software for manual reset sequence or auto reset sequence, which described as below:

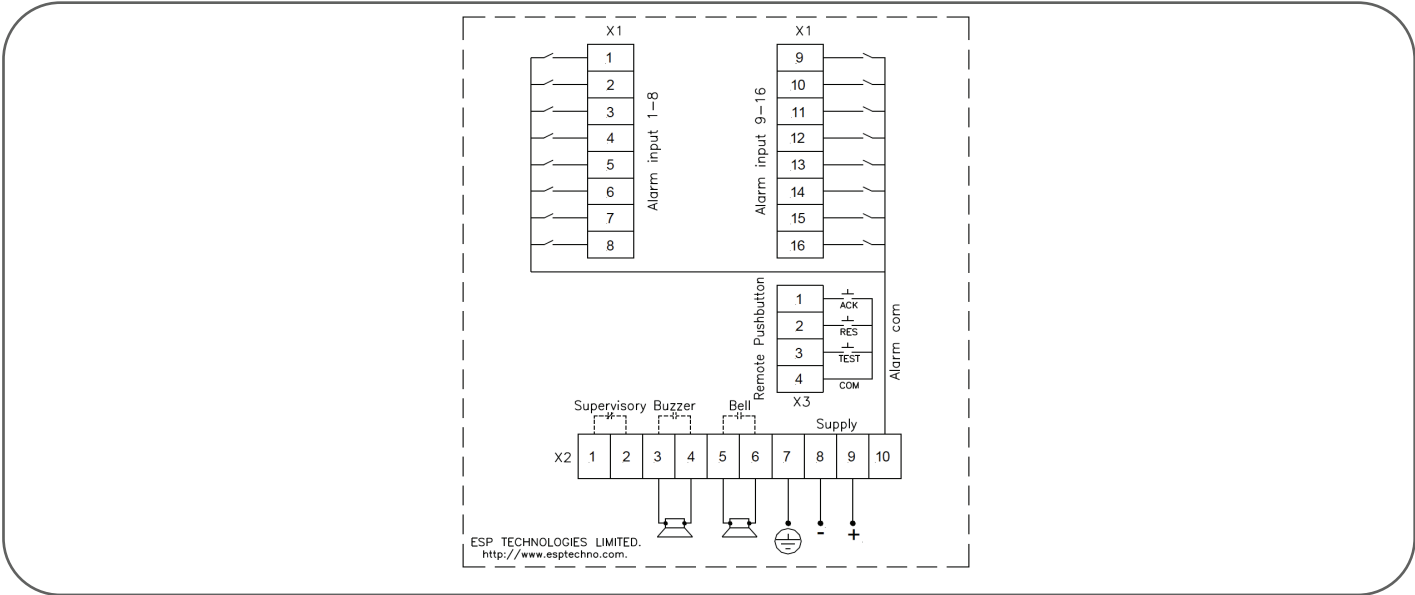
Sequence1 : Manual reset

When an alarm signal is occurred, the LED would gently flash and bell or buzzer will activate continuously. To stop the sound of bell or buzzer, "ACK" push button has to be pressed. Then bell/buzzer is silenced but LED is still steady on. Reset is only possible by "RESET" push button when alarm input returns to normal status.

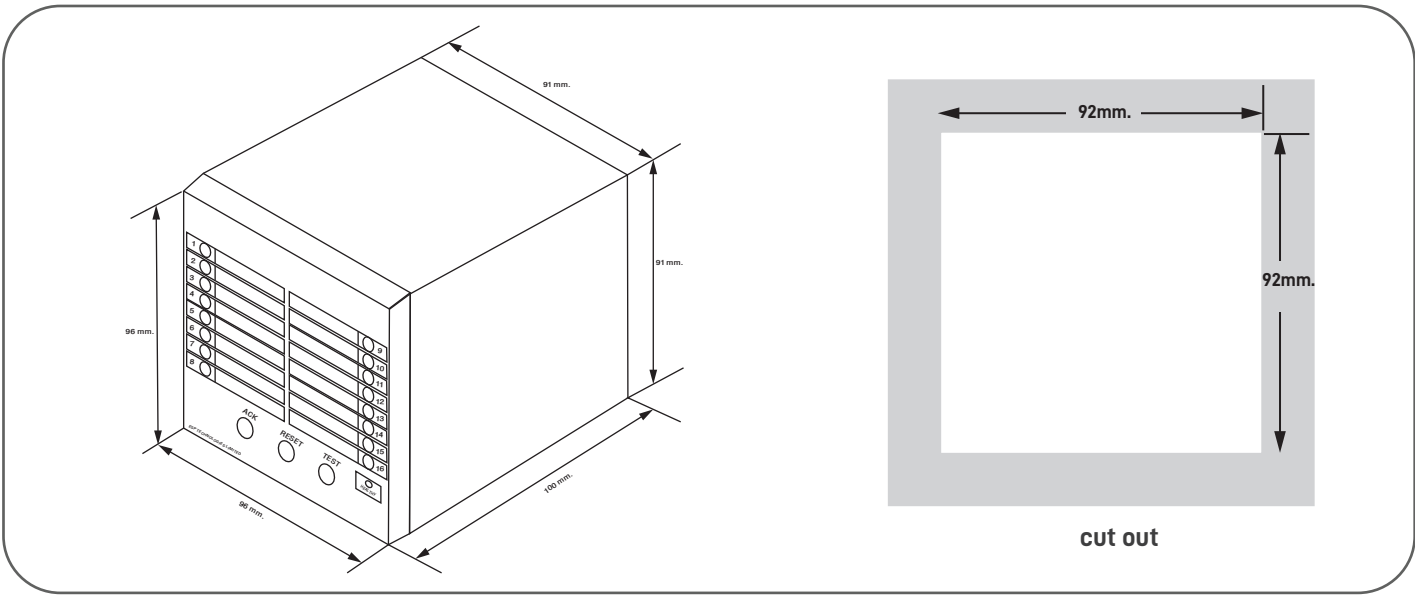
Sequence2 : Auto reset

When an alarm signal is occurred, the LED would gently flash and bell or buzzer will activate continuously. To stop the sound of bell or buzzer, "ACK" push button has to be pressed. Then bell/buzzer is silenced but lamp is steady on. Auto reset will take place when alarm input returns to normal status.

Connection Diagram



Dimension and cut-out



Product coding

ESPAN03 / 16 - D 13

Basic type	Number of Alarm input	Supply type	Rated voltage(±20%)
	08 8 Alarm input	D DC	24 24V
	16 16 Alarm input	A AC 95-250VAC 50/60Hz.	48 48V
			11 110V
			13 125V
			22 220V
			22 230V



Description

ESPAN-04 series is designed to use as an alarm for general switchgear cubicle or local control panel of GIS, local control cabinet of power transformer and all of control panel, which needs alarm function. It indicates fault status by using special high brightness LED. The ESPAN-04 series can be selected by the number of alarm input 8,10,16 alarm or 20 alarm which specified when order.



Features

- Aluminum housing, DIN format 96 x 96 mm.
- Operating delay time can be selected by software starting from 200 ms. Up to 2400 ms.
- Built-in three push buttons for acknowledge, reset and test
- The label is a single paper sheet which slides into a small transparent envelope recessed in the front panel.
- All inputs are isolated with opto-couple, NO or NC volt-free contact can be selected by software.
- Alarm sequences (auto/manual reset/indicator) of each input can be selected by software.
- Alarm sound type (bell/buzzer) of each input can be selected by software.
- High brightness LED display (3 mm.) in 3 colors (R,G,A) can be selected by software
- Integrated two test functions (lamp test & function test) in one push button ("TEST")
- Time of auto acknowledge function can be set from 1-240 seconds.
- Aux. power supply 24, 48VDC and 95-265VAC/DC (specify when order also same as fault input voltage)
- Built-in heart beat function which illuminated by LED lamp to display healthy status as self - supervision function.
- Supervisory contact (watchdog) for warning status
- Communication port : USB for configuration (at front side), RS485 – Modbus RTU for serial interface (at rear side)
- Alarm monitor software for remote monitoring and control (ack/reset/test)

Option

- Relay output module : The auxiliary contact output or repeat relay module, normally used for remote alarm or remote control as given design.

Technical data

Model	ESPAN04
Auxiliary power supply / Fault input voltage ($\pm 20\%$)	VDC 24, 48, 110, 125, 220, 230 / VAC 95-265
Power consumption (max)	10W
Relay contact rating	10A/30VDC or 5A/120VAC
Response time (Operating time)	5-50 ms
Operating temperature	0°C ~ +55°C
Storage temperature	up to +70 °C
Relative humidity	up to 90% (no dew drop)

Operating principle

When an alarm signal is occurred, it will initiate bell/buzzer to operate. Meanwhile, it will produce output direct to the display LED, which makes LED flicking. After pressing an acknowledged push button, bell or buzzer remains silence but LED is steady on. If an alarm signal is return to normal status then the alarm is cancelled. However, the light of the indicating display LED will be sustained. Unless the reset push button switch is activated. Then the LED will be turn off and return to its initial condition. The "TEST" push button includes two functions; the first function is "Lamp TEST" if push and hold this push button less than 3 seconds, it will light up all LED lamps at the front panel only. The second function is "Function test" if push and hold this push button more than 3 seconds, the LED lamp will start flicking and bell/buzzer alarms. This "TEST" push button is provided for checking purpose of all LED and operating functions at normal condition. While checking all LED and suddenly some of the alarm signals are occurred, the alarm sequence will be operated as usual without effect from the lamp test sequence. Alarm sequence can be selected by software for manual reset sequence or auto reset sequence as described as below.

Sequence1 : Manual reset

When an alarm signal is occurred, the LED would gently flash and bell or buzzer will activate continuously. To stop the sound of bell or buzzer, "ACK" push button has to be pressed. Then bell/buzzer is silenced but LED is still steady on. Reset is only possible by pressing "RESET" push button when alarm input returns to normal status.

Sequence2 : Auto reset

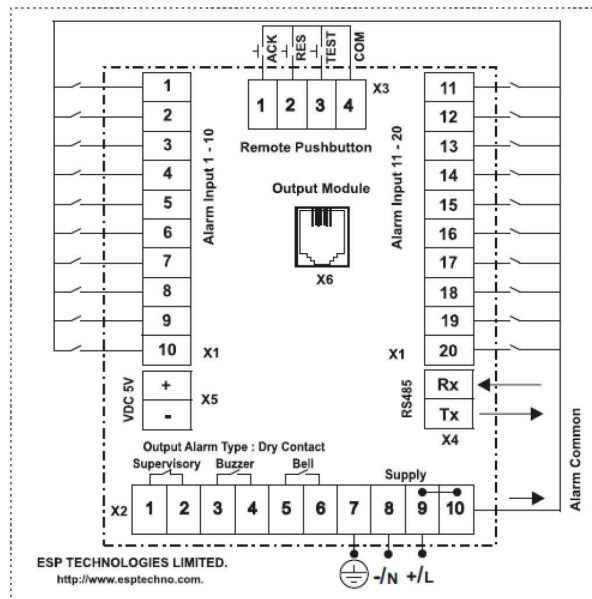
When an alarm signal is occurred, the LED would gently flash and bell or buzzer will activate continuously. To stop the sound of bell or buzzer, "ACK" push button has to be pressed. Then bell/buzzer is silenced but lamp is steady on. Auto reset will take place simultaneously when alarm input returns to normal status.

Input indicator function

This function is same as indicator lamp. When an alarm signal feed through an assigned input of Annunciator, the LED display lamp of that design fault will lid or steady on. After alarm input returns to normal then the display lamp will automatically switch off.

Connection diagram

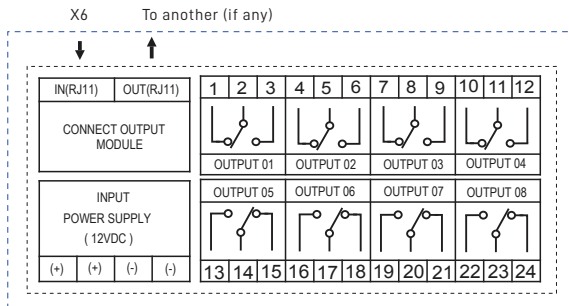
Connection diagram of ESPAN04



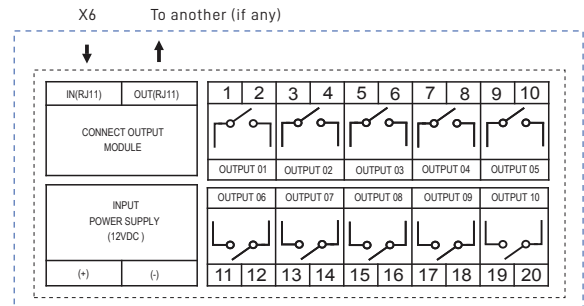
Remark : Aux. supply and fault input voltage shall be the same source.

Connection diagram of relay output module

Relay output module 8 windows



Relay output module 10 windows



Product coding

ESPAN04 / 16 - D 24 - 16

Basic type

Number of alarm input

08	8 Alarm input
10	10 Alarm input (Only ESPAN04 Series)
16	16 Alarm input
20	20 Alarm input (Only ESPAN04 Series)

Supply type

D	DC
A	AC 95-250VAC 50/60Hz.

Rated voltage(±20%)

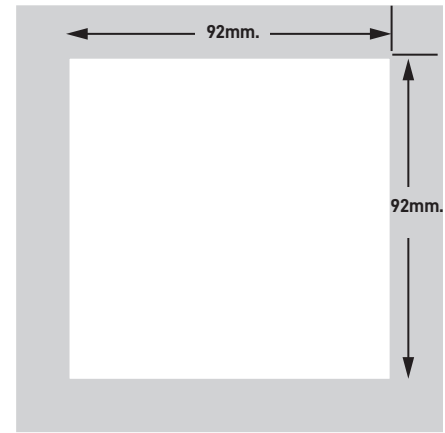
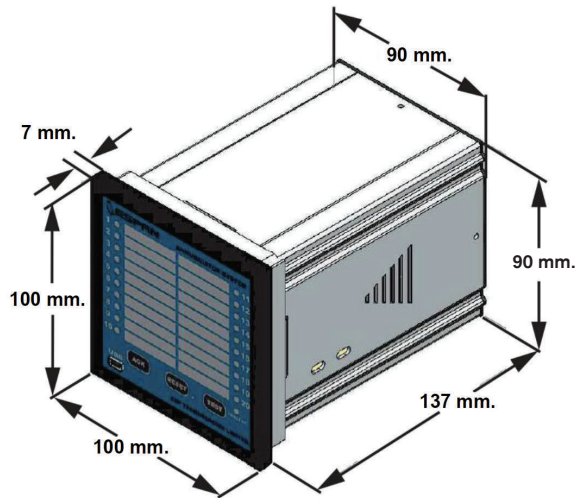
24	24V
48	48V
11	110V
13	125V
22	220V
22	230V

Relay output *

None	No output
08	08 output
10	10 output
16	16 output
20	20 output

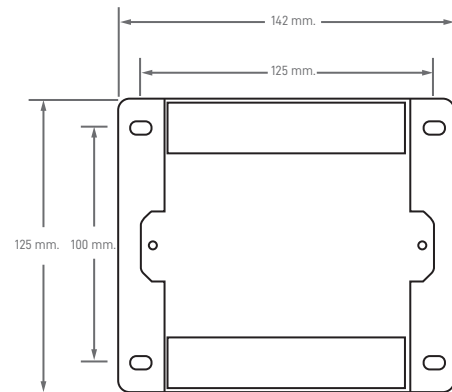
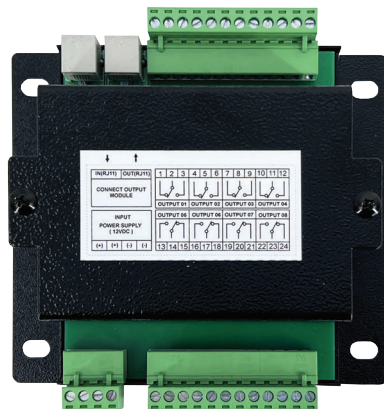
* ESPAN04 only

Dimension and cut-out dimension

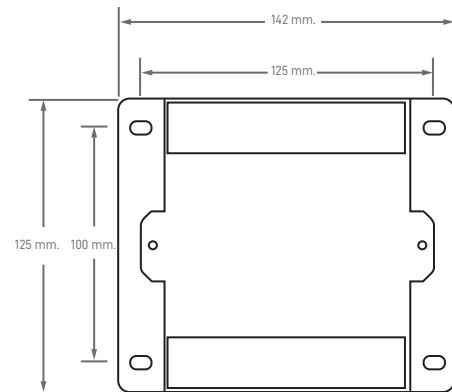
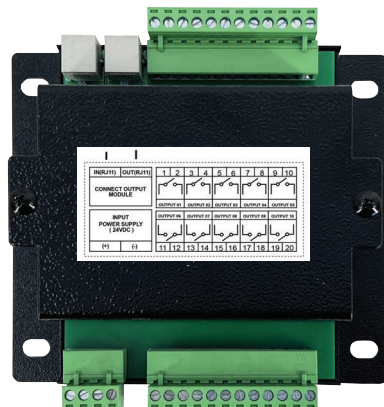


cut out

Relay output module 8 output



Relay output module 10 output





Audible Alarm Sound



Audible alarm sound for heavy-duty indoor and outdoor application use

Description

The ESPAN power buzzer type PBZ is manufactured for general purpose alarm and warning applications. Installing is quick and simply by tightening the four screws mount holes onto panel boards (62x62 mm.) for Round cutout type and cutout hole (92x92 mm.) for Square cutout type. Applications include : panel boards, switchboards, ceilings and walls for building hallways, corridors and manufacturing sites.



Features

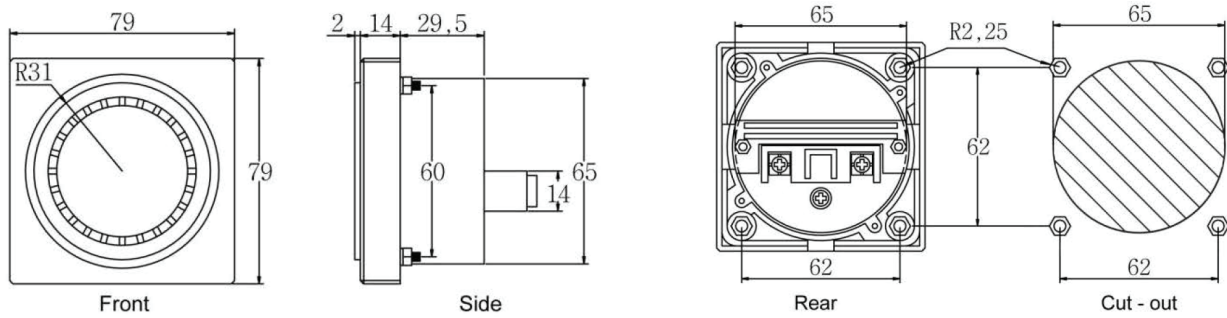
- Electronic type, low power consumption
- Power supply DC type or AC type
- Wide operating range : -10% to +10% of nominal voltage
- Protection class : IP40
- Operating temperature : -25°C to +50°C

Technical data

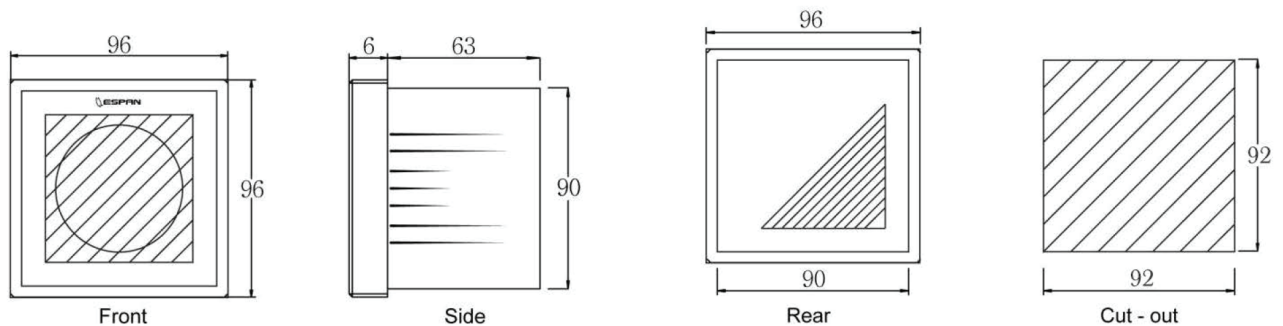
Model	Description	VA (W)	Model
PBZ-D24	Power buzzer I/P DC 24V	4	85 db at 1 ft.
PBZ-D48	Power buzzer I/P DC 48V		
PBZ-D11	Power buzzer I/P DC 110V		
PBZ-D13	Power buzzer I/P DC 125V		
PBZ-D22	Power buzzer I/P DC 220V		
PBZ-D23	Power buzzer I/P DC 230V		
PBZ-A11	Power buzzer I/P AC 110V		
PBZ-A22	Power buzzer I/P AC 220V		

Dimension

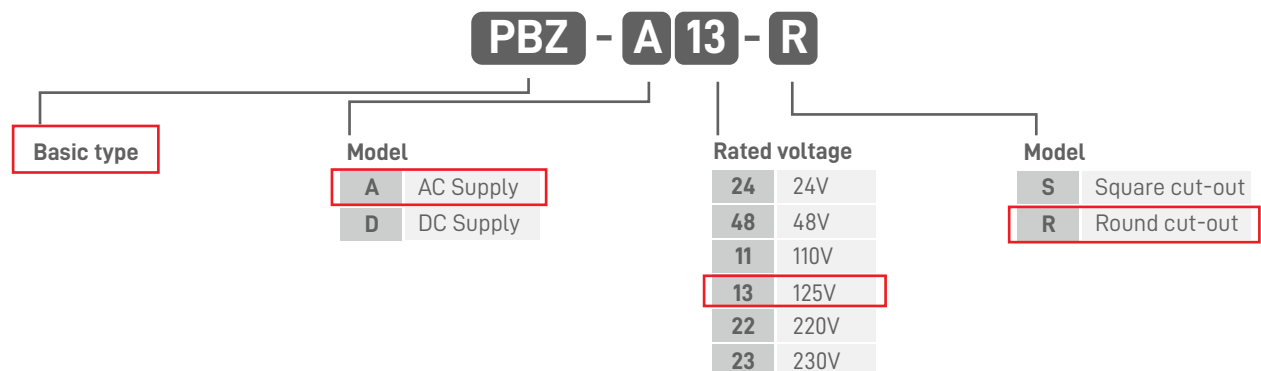
Round cut-out



Square cut-out



Product coding



Description

High decibel universal vibrating horn for heavy - duty and indoor application use. This device operates from a local power source which makes it possible in a system to connect the device to power sources of different voltages.

The ESPAN electro - mechanical vibrating horn is manufactured for general purpose alarm and warning applications. Installation is quick and simple by tightening the four screws onto panel boards. Applications include : panel boards, switchboards, ceilings and walls for building hallways, corridors and manufacturing sites.



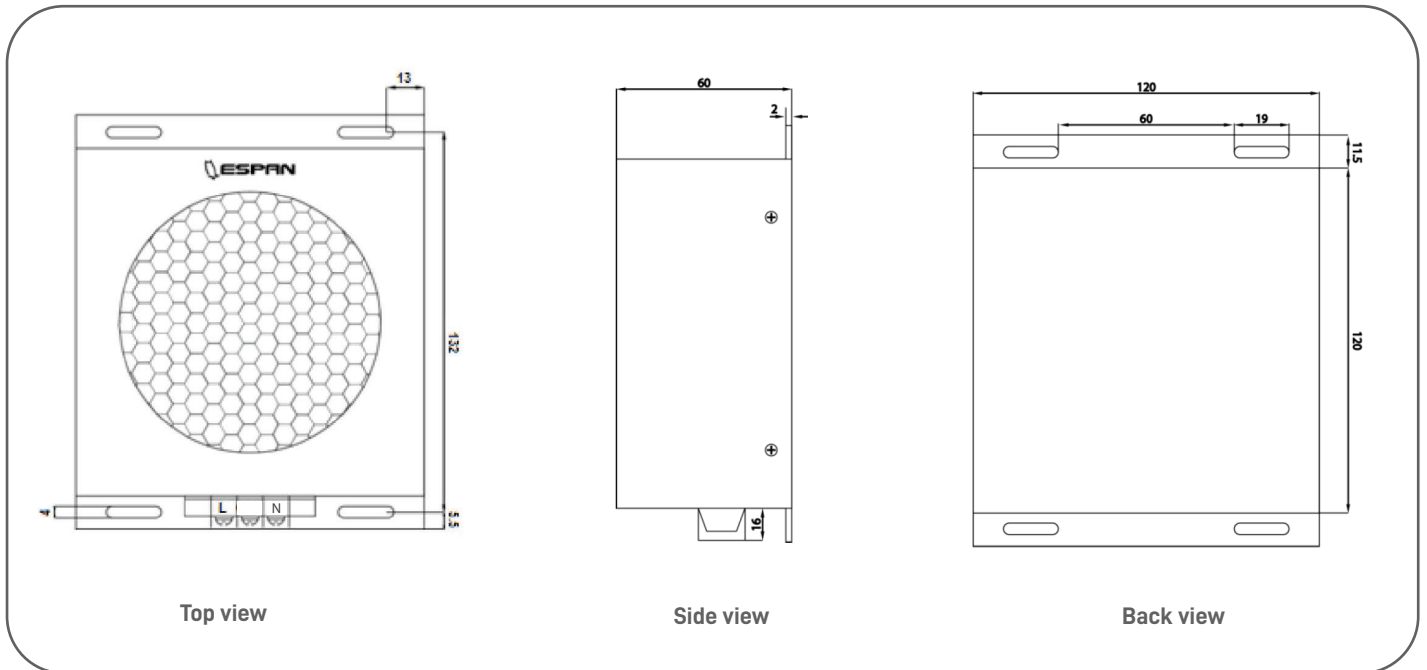
Features

- Complete assembled, rugged design
- Universal power supply from 48 - 240 VAC/DC
- Low power consumption, only 5VA (maximum)
- Corrosion resistant finish (Epoxy Resin Color)
- Wide operating range : -10% to +10% of nominal input voltage
- Fuse protection in case of overload
- Kind of sound by selector switch : C = Continuous sound, A = Alternate sound
- Continuous duty time : 105 minutes

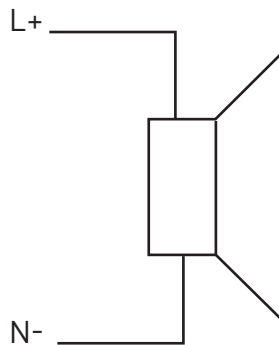
Technical data

Product coding	Connection	Input voltage	VA (W)	Sound output
VH - U	L(+), N(-)	48 - 240 VAC/VDC	5	98 db at 1ft.
VH - D	(+), (-)	24 VDC	5	98 db at 1ft.

Dimension



Wiring diagram



Product coding

VH - D 23 C

Basic type

Model

D	VDC
U	48-240V AC/DC

Input Rated voltage

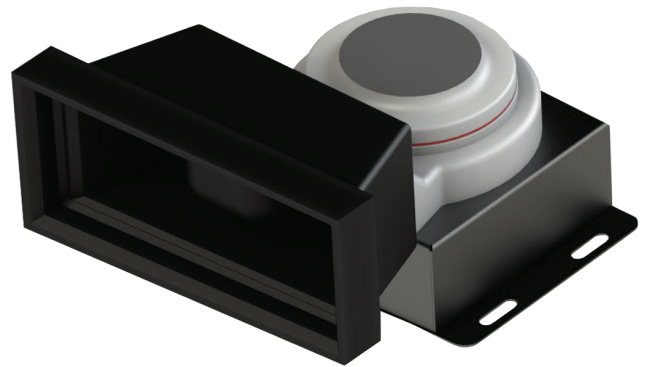
24	24V
48	48V
11	110V
13	125V
22	220V
23	230V

Sound

C	Continuous sound
---	------------------

Description

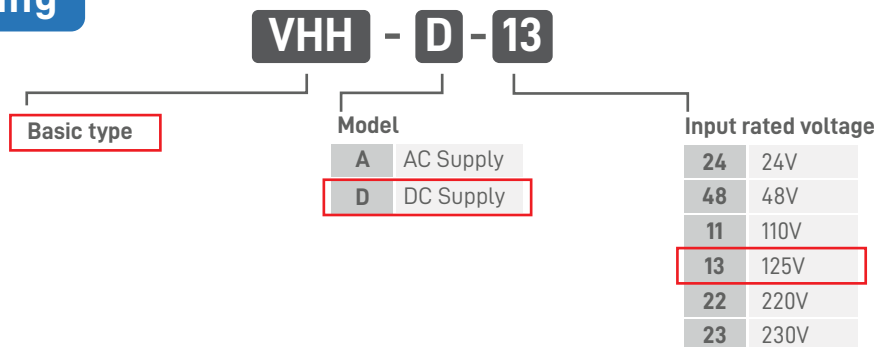
The Heavy duty vibrating horn speaker is designed to be mounted into your light bars low profile and acoustic. When the low profile speaker are fitted within the light bar, a speaker grille is included incorporating a weather resistant foam barrier to allow the sound to be transmitted whilst providing protection against water ingress. Acoustic type speaker can also be used as stand alone speaker if required, the design is weather resistant without the need for additional protection.



Technical data

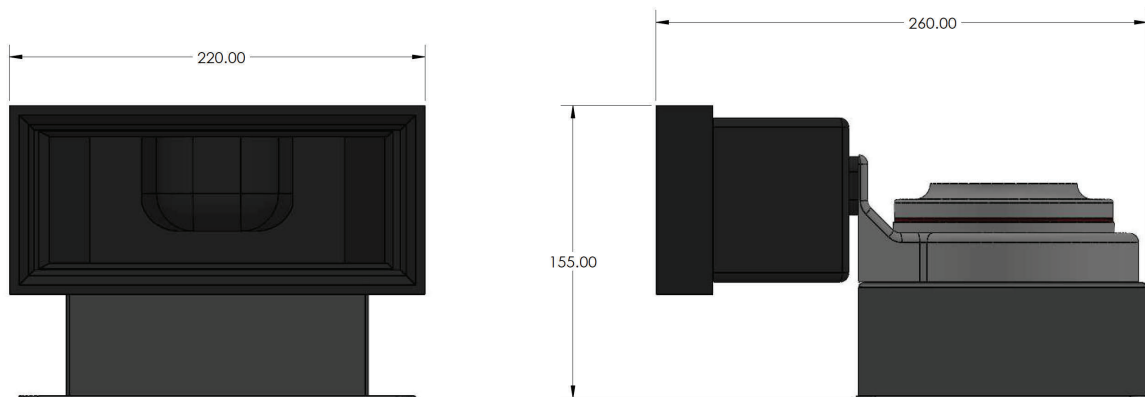
Model	VHH
Power	100-150W
Frequency	300-5000Hz
Distortion factor	≤5
Independence	4-11 ohm
Sound pressure	120-125dB
Magnet	NdFeB inside
Materials	Aluminum alloy body with ABS plastics
Dimension (WxHxD)	6.3 x 2.6 x 8
Weight	3 Kg

Product coding

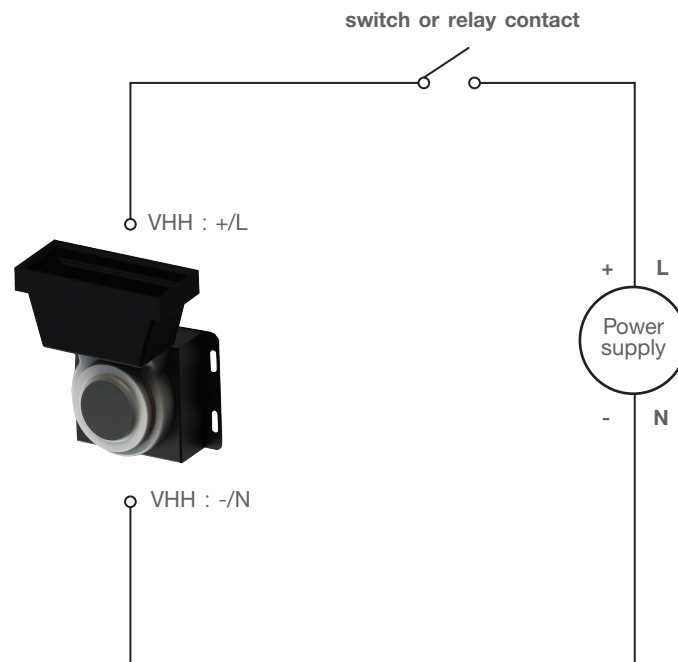


Note : Other rating are available upon request

Dimension



Wiring diagram



Description



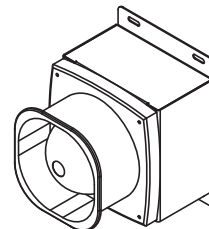
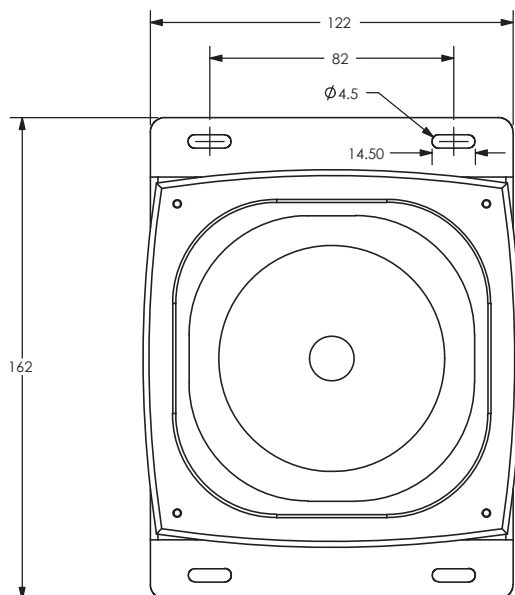
Model EH-M electronic horn have two warning functions which are LED lamp and selectable sound working together. The electronic horn offers an electronics design which produces a very loud, clear and variety of sound selection between warning sounds, alarm sounds and other sound to fit your sophisticated application needs. Electronic horn with tightly sealed structure has excellent durability. Suitable for general alarm, vessels, heavy industry, and outdoor plant applications.

Features

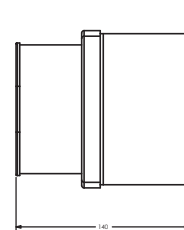
- Metal housing provides excellent durability and can install on wall mount type or self standing type
- Operating temperature : - 20°C to +50°C
- Degree of protection : IP56 (suitable for outdoor installation)
- Adjustable sound volume built inside the unit
- Sound selection can adjust for 8 kinds of sound
- Sound and lamp operate simultaneously
- Materials : Housing : Zinc steel coated with polyester painting
Horn housing : PC



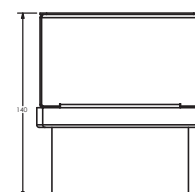
Dimension



Front view

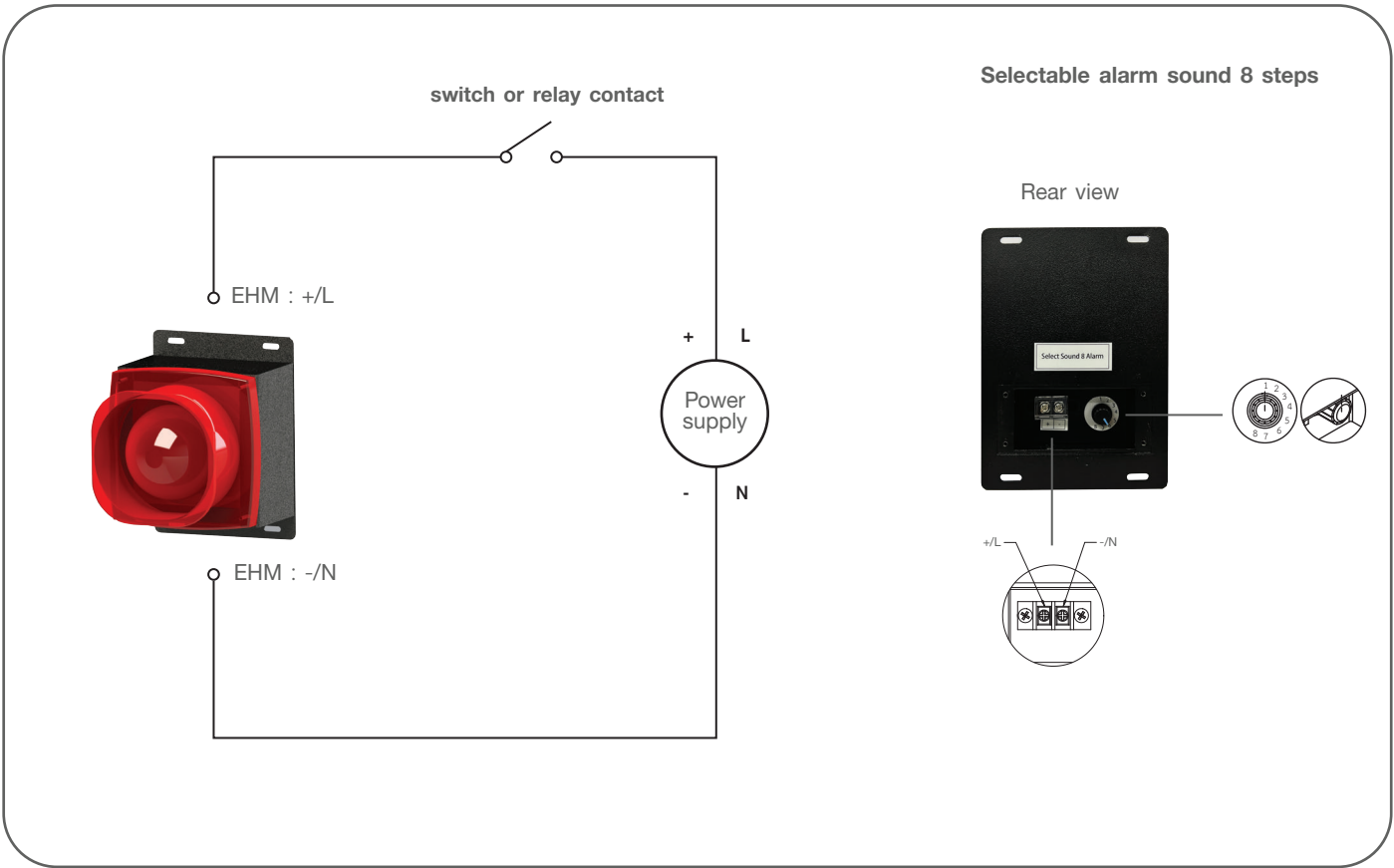


Side view

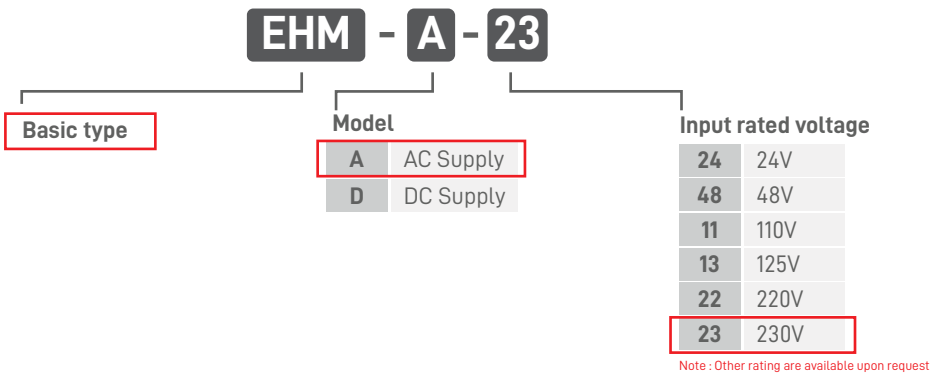


Top view

Wiring diagram



Product coding





Description

Special design for all kinds of engineering machinery (mobile crane, crawler crane, overhead travelling crane, etc.), Port machinery (gantry crane, bridge crane, etc.), Plant (Electronic cabinet), Metallurgies, Chemical industry, Mines and marine etc.

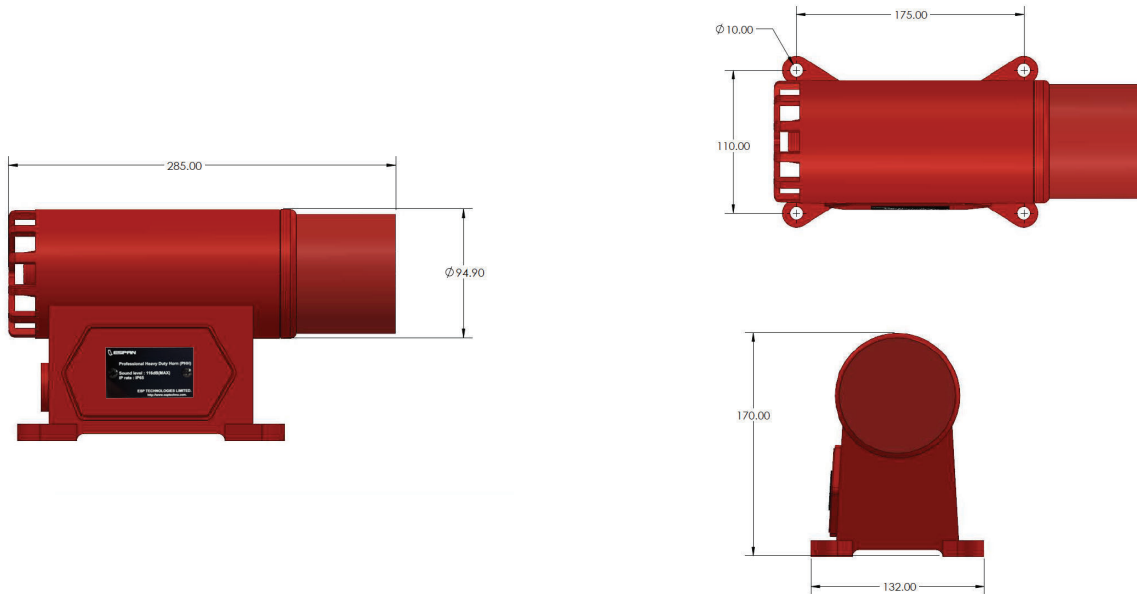
Features

- Die casting aluminum enclosure, providing good appearance, light weight and corrosion resistance.
- Sealed structure design, dustproof and waterproof.
- Super bright LED technology, lifespan up to 100,000 hours.
- Fresnel PC lens provides excellent impact resisting strength, thermal stability and gloss.
- Professional integrated circuit design provides strong anti-EMI capability.
- Various tones/voices and adjustable volume for option

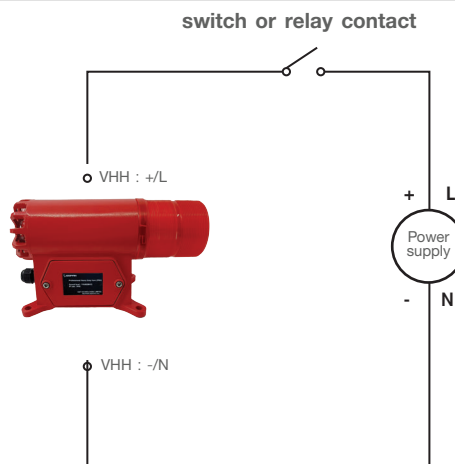
Technical data

Model		PHH
Rated voltage		AC 100-230V / DC 12~48V
Rated power consumption		<16W
AC frequency		50Hz ~ 60Hz
Single tone/Dual tones		16 kinds of tones, 32 kinds of tones
Sound level		116dB (max)
Volume adjustable		Yes
Alarm mode		Audible visible synchronized / Audible visible separated
Operating temperature		-40 °C ~ +55 °C
Ambient humidity		10% ~ 95% (non-condensing)
Material	Enclosure material	Aluminum alloy
	Lens material	PC
Weight		3 kg
IP rate		IP65

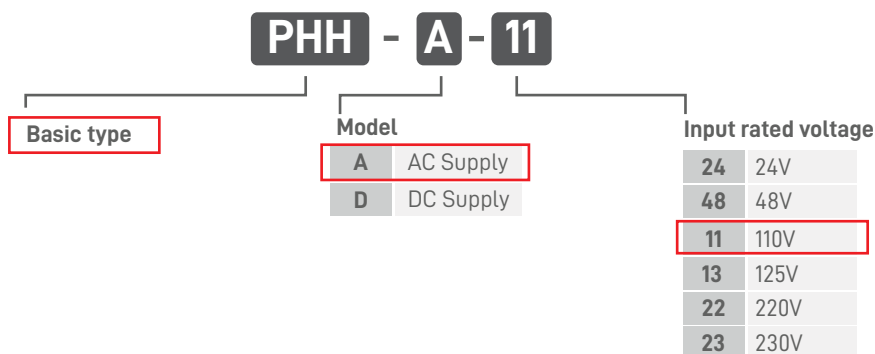
Dimension



Wiring diagram



Product coding



Note : Other rating are available upon request



Monitoring Relay



Control and protection the magnetic circuit breaker

Description



The relay type E94 fast trip relay or auxiliary tripping relay is intended to be used in control and protection circuit for applications requiring high reliability and availability such as power stations, substations and industrial plants. The relay has been designed for flush mounting style, the robust contacts are characterized by high making/breaking capacity, overload capacity and continuous current intensity capacity. Their high degree of protection ensure reliable operation in tropical and/or salty sea air ambient conditions.

Regarding to the auxiliary tripping relay or fast trip relay. The pick-up time of the relay E94 is less than 8ms. and drop-out time is less than 40ms. The relay type E94 are consist in two versions, the first version is E94-3 which has three changeover contacts, flush mounting type with screw-type terminals at the rear. The second is E94-6 which has six changeover contacts and other specifications are the same as the first one.

The relays E94 series comply with the IEC/EN, IEEE standards (type test and routine test)

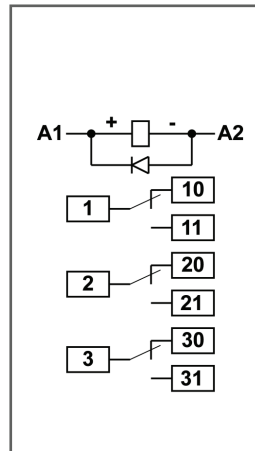
The relay has electrical tests performed according to EN 60255

Insulation	2 kV/50 Hz/ 1 min
Impulse withstand strength	5 kV/1.2/50 μ s
Dielectric strength	>2000 M Ω /500 V (peak to peak)
Flammability tests according to IEC 60692-2-1	
Plastic materials (acc. to IEC 60695)	UL94 : VO
Degree of protection (acc. to IEC 60529)	IP50

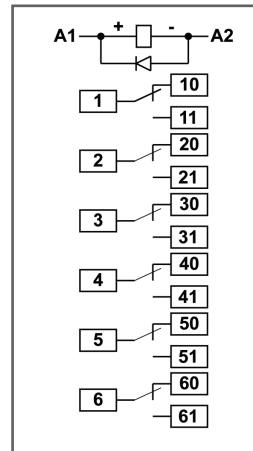
Technical data

Model	E 94
Input voltage system	48/110/125/220 VDC
Pick-up time	< 8ms
Drop-out time	< 40ms
Relay output	3 Changeover contacts (E94-3)
	6 Changeover contacts (E94-6)
Switching contact continuous current	10A at 110 VDC
	40A at 250VAC
Overload capacity	80A/200ms
Operating temperature	0°C ~ +55°C
Storage temperature	Up to +70°C
Relative humidity	Up to 90% (no dew drop)
Function indicator	Operated (LED color : Red)

Connection diagrams



E 94-3

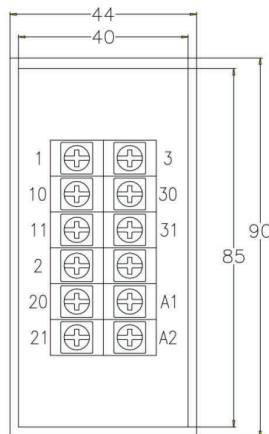


E 94-6

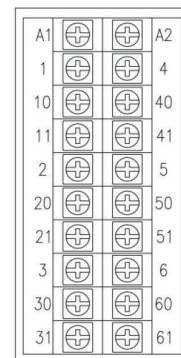
Dimension



Front view
E94-3 and E94-6

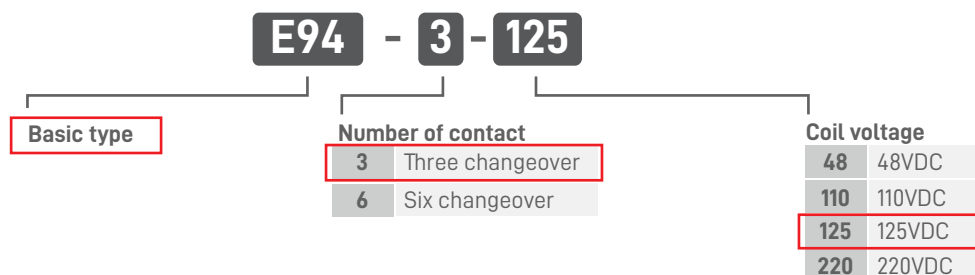


Rear view
E94-3



Rear view
E94-6

Product coding



Description

The EL series latching relays has self - holding function using permanent magnets in the magnetic circuit which prevent intermediate position or contact trip while switching. Enables great reliability and a long stable service life. The EL series is designed based on quality and reliability concerns and manufactured according to IEC and IEEE standards. The EL series are adopted either AC or DC supply at same rated voltage. Number of change over contacts of EL series are 4 and 8.

To cut off the input voltage which directs supply to coil after operation is the design concept of EL series by series their own contact with the coil, so it will reduce power consumption and make relay longer life. EL series latching relays are adopted either pulse or permanent supply.

Indicating status of the EL series latching relays can be seen through a viewing window at the top of the cover. Setting status will indicate red and resetting status will indicate black.

The EL series latching relays is designed to mount on standard DIN rail 35 mm. Also terminal plug was designed to use with wire 1.0 – 2.5 mm. diameter.



Application

The main application for these relays is as “change over” contacts in these control systems where two different stable positions are required. The use of the relays reduces wiring from the outside switchgear to the control board, reduce the cost and assure a contact simultaneous operation thereby dramatically reducing the possibility of miss operation. Other important usages are for remote control demands signals

Technical data

Model		EL	
Contact resistance		50 mΩ max.	
Contact material		Silver Alloy	
Operate time		15 ms max.	
Release time		15 ms max.	
Insulation resistance		100 MΩ min. (at 500VDC)	
Dielectric strength		between open contact	750VAC 50/60 Hz (1 min.)
		coil & contact	2000VAC 50/60 Hz (1 min.)
Vibration		10 - 55 Hz; 1.5mm.	
Shock		500 m/s ² (approx. 50G)	
Ambient temperature		Operating : - 40°C to 70°C	
Humidity		45% to 90% RH	
Service life		Mechanical : 500,000 operations	
		Electrical : 100,000 operations	
Weight	EL04	250 g.	
	EL08	350 g.	

Coil rating

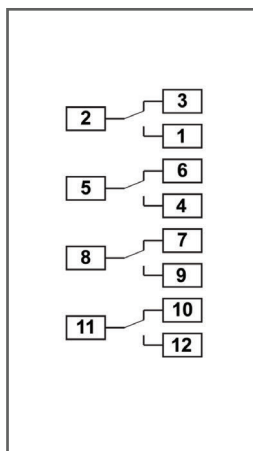
Rated voltage(V) \ Item		EL04		EL08		Maximum voltage
		Coil Resistance	Set/Reset Coil resistance (Ω)	Coil Resistance	Set/Reset Coil resistance (Ω)	
AC/DC	24	300	430k/430k	300	450k/450k	10% of rated voltage
	48		450k/450k		480k/480k	
	110		500k/500k		530k/530k	
	125		530k/530k		560k/560k	
	220		570k/570k		600k/600k	
	230		600k/600k		630k/630k	

Note : 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15% to -20% for current and ±15% for rated coil resistance
 2. The rated current and performance characteristics are measured at a coil temperature of +5 to +35°C
 3. Peak reverse voltage of the built-in diode is 1 kV

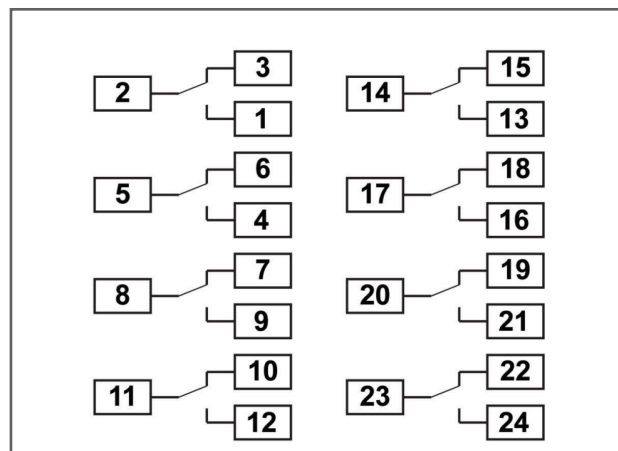
Contact Rating

Item \ Load	Resistance load (cosφ = 1)	Inductive load (cosφ= 0.4)
Rated load	250 VAC 5A	250 VAC 2A
Carry current	5 A	
Max. operating voltage	250 VAC	
Max. operating current	5 A	
Max. switching capacity	1,250 VA	
Minimum permissible load	1 VDC 1 mA (ref. value)	

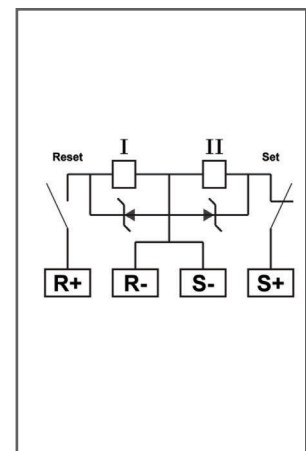
Connection diagrams



EL04

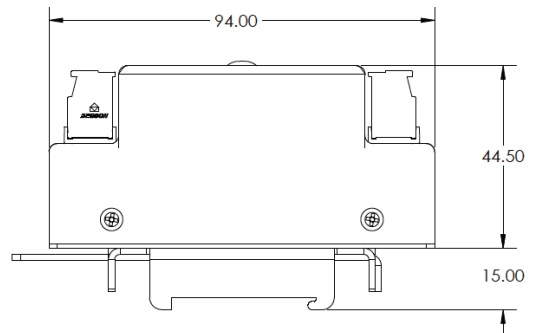
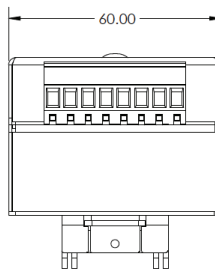
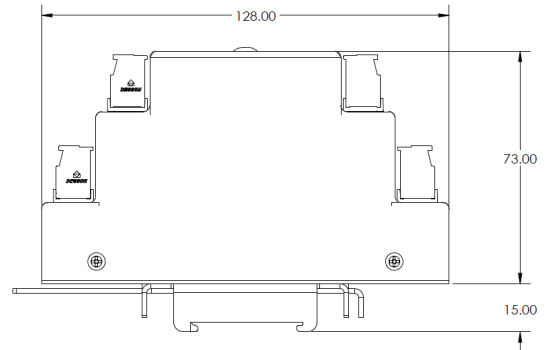
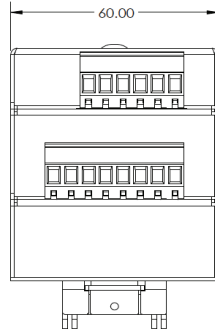


EL08

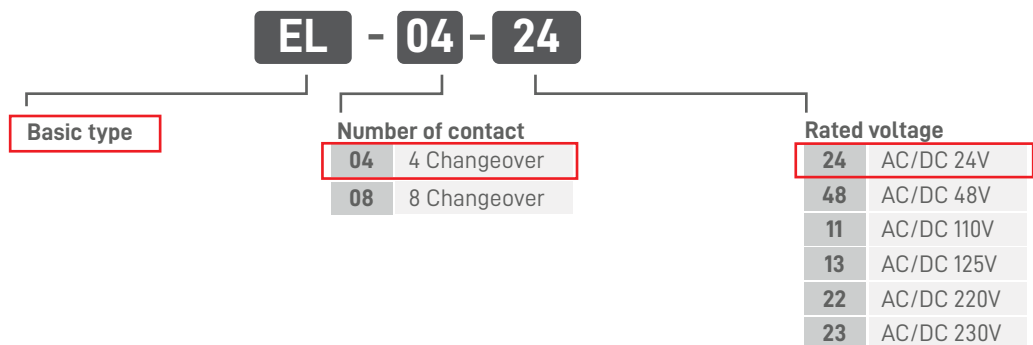


Reset

Dimension



Product coding



Description

The AC voltage monitoring relay type E27/59A is a digital relay and designed to monitor a three-phase supply and single-phase supply by checking all phase are pleasant and within set voltage limit. An adjustable time delay is incorporated to avoid nuisance tripping. When power is applied to relay, the green LED will illuminate healthy function or watchdog function is working. Un on under voltage unit and 100 ~ 120% un on over voltage unit with time delay 0 ~ 60 seconds set point.



Under voltage function (E27A)

When the monitor voltage falls below the set point, the time delay is started and the red LED (under voltage LED display) start flashing until time delay has reached the set point value. (The response time of the relay is adjustable between 0 to 60 seconds) Then the red LED stop flashing but steady on, simultaneously with relay energizes or switches to its operating position. The relay will automatically reset once the monitored voltage rises above the set point. When reset, the LED will extinguish at the same time if time delay is not activated.

Over voltage function (E59A)

As it is common with all AC voltage monitoring relays, on over voltage unit the relay energizes when the monitor voltage exceeds and the response value is selected, the time delay is started and the orange LED (over voltage LED display) start flashing until time delay has reached the set point value. Then the orange LED stop flashing but steady on, simultaneously with relay energizes. The relay will automatically reset once the monitored voltage falls below the set point. When reset, the LED will extinguish together in case of time delay is not activated.

Auxiliary supply

This type is also designed to use with the auxiliary supply source from 90 to 250 VDC. In case of AC voltage from VT or main source are failed, the relay will still working (or status of relay is O.K. when AC input voltage are failed)

Technical data

Model	E27A	E59A	E27/59A
Nominal voltage system	63.5 ~ 240* VAC (L-N), 110 ~ 415 VAC (L-L)		
Voltage set point range	80 ~ 120% (of rated voltage)		
Under voltage setting range	80 ~ 100% (of rated voltage) $\pm 2\%$		
Over voltage setting range	100 ~ 120% (of rated voltage) $\pm 2\%$		
Response time delay	0 ~ 60 seconds +0.2Sec		
Burden	<5VA		
Overload	1.2 x Un continuously		
	2.0 x Un for 3 seconds		
Relay output	2 changeovers		
Outputs relay contact	5A at 24VDC or 240VAC non-inductive		
Auxiliary power supply	Self-supply (equal to nominal voltage), AC single phase 90 ~ 250VAC (L-N), AC three phase 155 ~ 435VAC (L-L)		
Option for auxiliary supply	Auxiliary Supply 90 ~ 250VDC (in case of input voltage system less than nominal voltage system)		
Operating temperature	0 ~ +55°C		
Storage temperature	Up to +70°C		
Relative humidity	Up to 90% (no dew drop)		

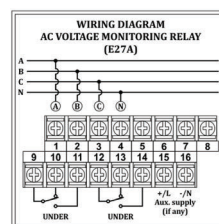
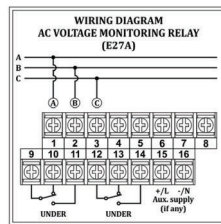
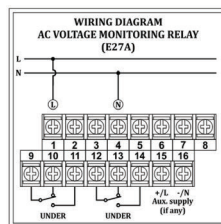
*Note : Other monitoring ranges and voltages are available upon request.

Model		E27A	E59A	E27/59A
Function indicator LED Color	Green	Healthy		
	Orange	27 (P/U)	59 (P/U)	59
	Red	27 (D/O)	59 (D/O)	27

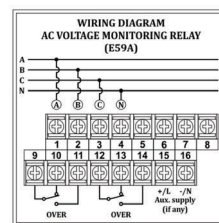
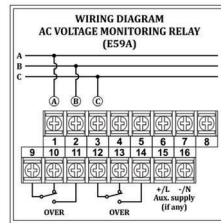
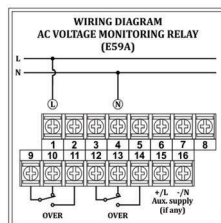
Connection diagram

Flush mount type

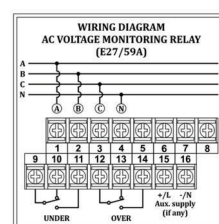
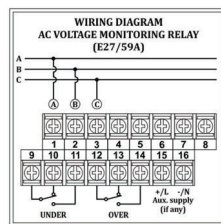
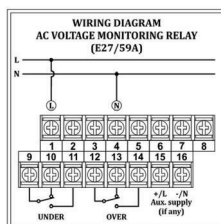
E27A



E59A



E27/59A



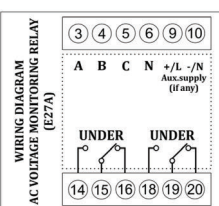
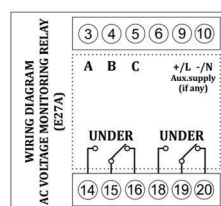
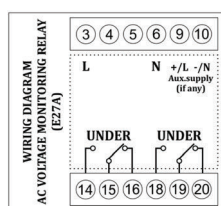
1 phase 2 wire

3 phase 3 wire

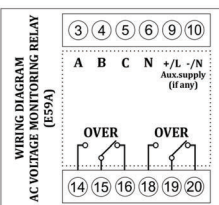
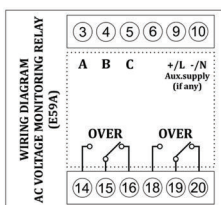
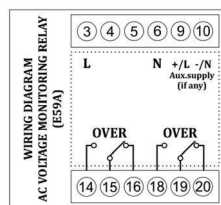
3 phase 4 wire

DIN rail type

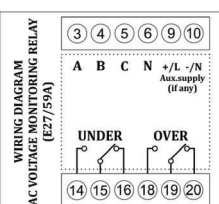
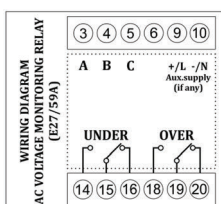
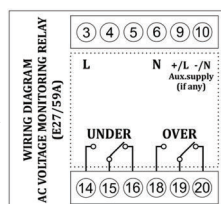
E27A



E59A



E27/59A



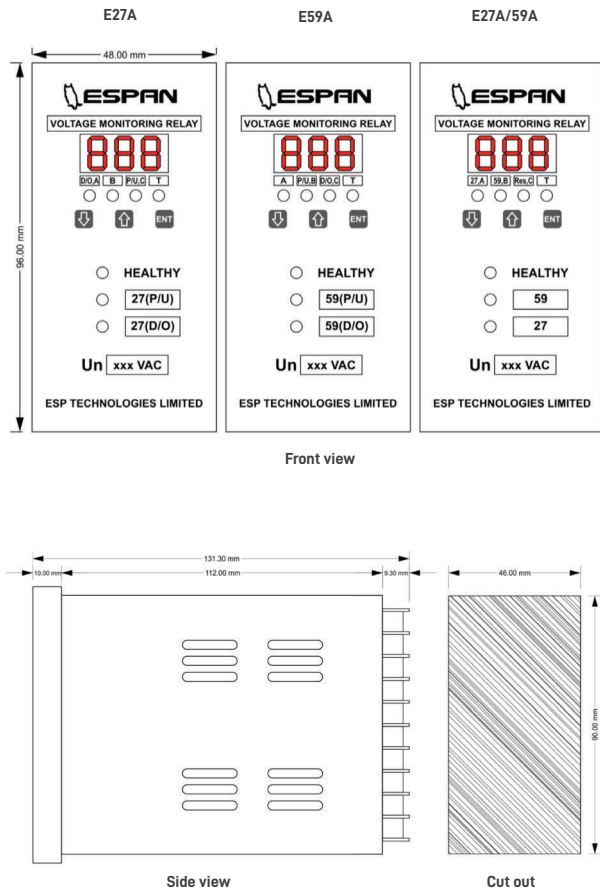
1 phase 2 wire

3 phase 3 wire

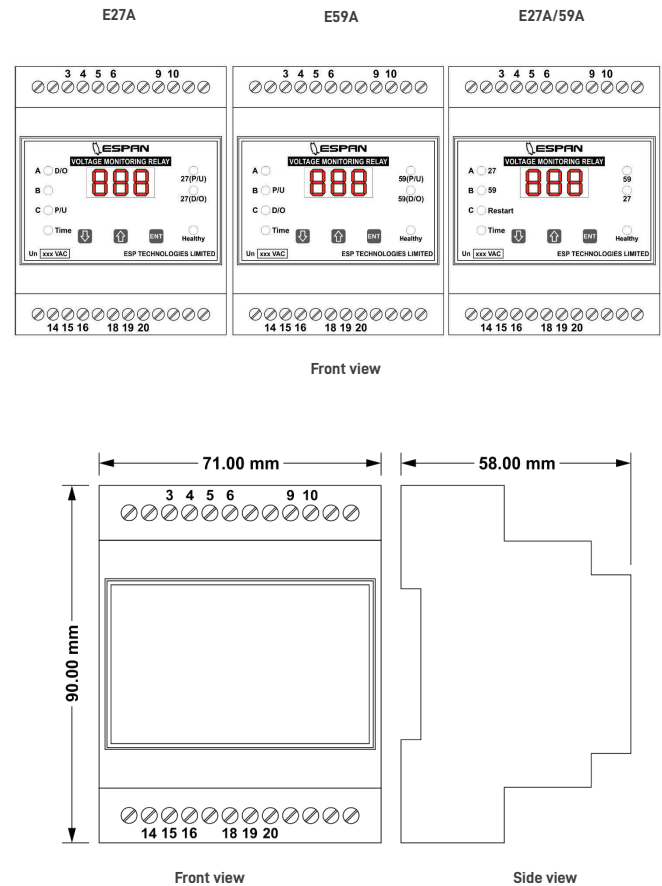
3 phase 4 wire

Dimension

Flush mount type



DIN rail type



Product coding

E27A - 110 - A - 34 - F

Model

E27A	AC under voltage relay
E27A2	AC under voltage relay two step
E59A	AC over voltage relay
E27/59A	AC under & over voltage relay

Input voltage

64*	63.5VAC
66*	66.4VAC
69*	69.3VAC
110	110VAC
115	115VAC
120	120VAC
220	220VAC
230	230VAC
240	240VAC
380	380VAC
400	400VAC
415	415VAC

*suggest to have auxiliary supply.

Power supply

A	Aux. supply 90~250VDC
S	Self-supply

Voltage system

12	1 phase 2 wire
33	3 phase 3 wire
34	3 phase 4 wire

Mounting type

F	Flush mount
D	DIN rail

Description

The DC voltage monitoring relay type E27D is a digital or microcontroller base relay, commonly used for monitoring battery voltage conditions, but can be used in any applications which DC voltage level is critical too. The relay is provided with 1 volt step adjustable pickup and dropout voltage with time delay 0 ~ 60 seconds set point. By the way, the relay can be adjusted voltage between 75% - 125% of U_n . Moreover, it has watchdog function to monitor the healthy of itself.



Under voltage function

When power is applied to the relay the green LED (Healthy) will start flashing (watchdog function is working), simultaneously the orange LED (P/U) will light up to show that the DC voltage is on normal condition or the input voltage exceeds the pickup setting (P/U). When the monitor voltage falls below the dropout setting (D/O), the time delay is initiated and the red LED (27 - Under voltage LED display) start flashing until time delay reached the set point value. (The response time delay of the relay can be adjusted between 0 ~ 60 seconds) Then the LED stop flashing but steady on, simultaneously with relay energizes or switches to its operating position. The relay will reset once the monitored voltage rises above the pickup set point, the time delay is initiated and the orange LED (P/U) start flashing until time delay reached the set point value. Then the LED stop flashing but steady on, simultaneously with relay reset to normal.

Over voltage function

In case of voltage increased to the over voltage set point the orange LED (over) will flashing to show that voltage had reached the set point value until the setup time delay is time out than the orange LED (over) stop flashing but study on and over voltage contact output close or become NC status.

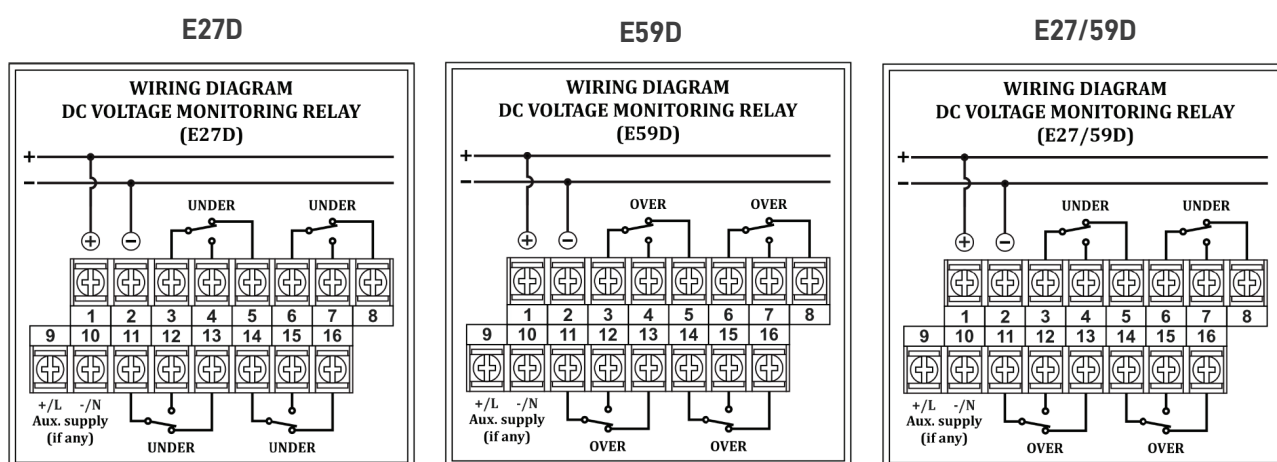
Technical data

Model	E27D	E59D	E27/59D
Input voltage	24, 48, 110, 125, 220 VDC		
Under & Over voltage setting range Accuracy class 3% (of reading)	24VDC : 18 ~ 30VDC / 48VDC : 36 ~ 60VDC 110VDC : 83 ~ 138VDC / 125VDC : 93 ~ 156VDC / 220VDC : 165 ~ 275VDC		
Response time delay setting range	0 ~ 60 seconds		
Burden	<5VA		
Overload	1.2 x U_n continuously		
	2.0 x U_n for 3 seconds		
Relay output	4 changeovers		
Outputs relay contact	5A at 240VAC non-inductive		
Auxiliary power supply	Self-supply (equal to input voltage)		
Option for auxiliary supply	Auxiliary supply 90 ~ 250VAC		
Operating temperature	0 ~ +55°C		
Storage temperature	Up to +70°C		
Relative humidity	Up to 90% (no dew drop)		

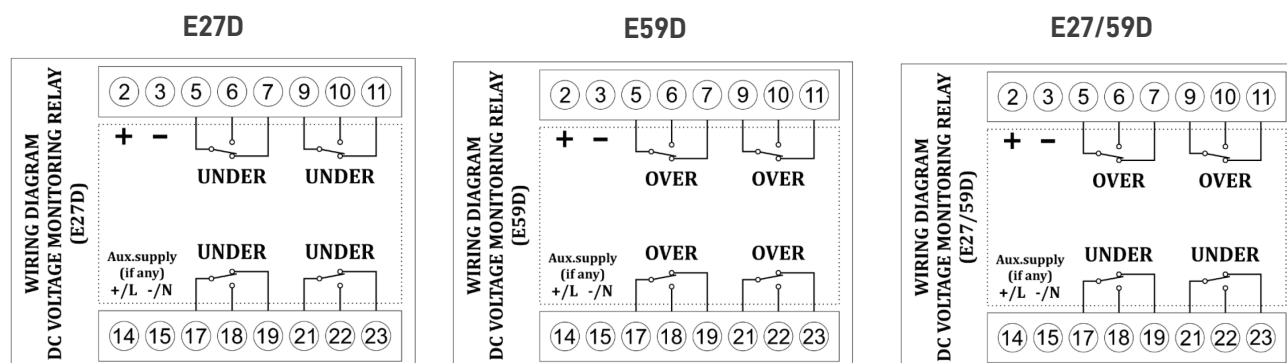
Model		E27D	E59D	E27/59D
Function indicator LED Color	Green	Healthy		
	Orange	27 (P/U)	59 (P/U)	59
	Red	27 (D/O)	59 (D/O)	27

Connection diagram

Flush mount type

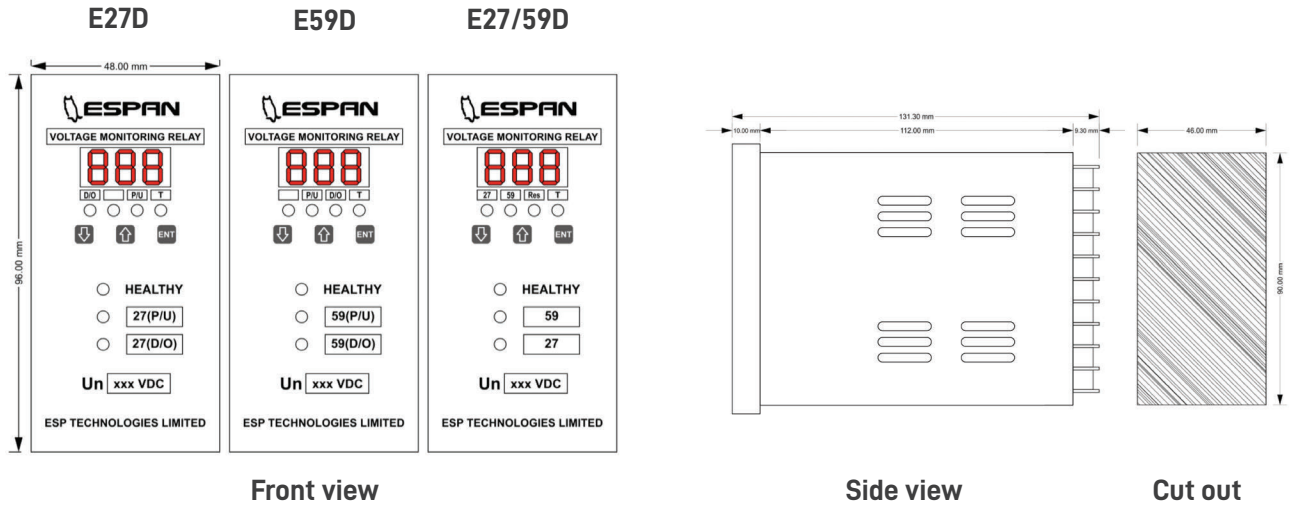


DIN rail type

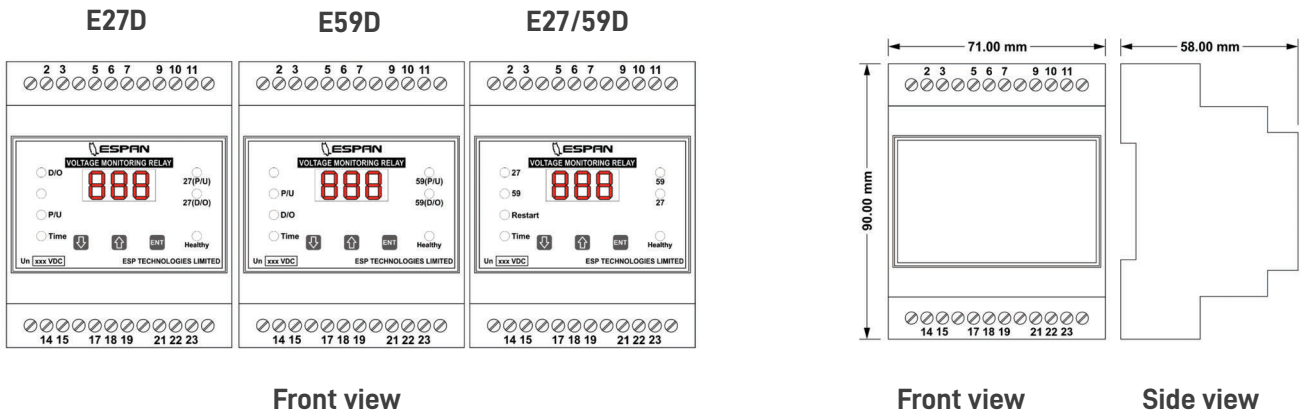


Dimension

Flush mount type



DIN rail type



Product coding

E27D - 110 - A - F

Model

E27D	DC under voltage relay
E59D	DC over voltage relay
E27/59D	DC under & over voltage relay

Input voltage

24	24VDC
48	48VDC
110	110VDC
125	125VDC
220	220VDC

*suggest to have auxiliary supply.

Power supply

A	Aux. supply 90~250VAC
S	Self-supply

Mounting type

F	Flush mount
D	DIN rail

 **ESPAN**

Diode Box

Model : DTB01-10



Diode Box



Description

Diode box is use for rectifier, polarity reverse protect, suppressor spike voltage from DC relay coil (back EMF), blocking DC volt, bypass DC volt etc. Safety from electric shock and easy to install with DIN rail mount or surface mount. High current circuit, 1A or 3A (specify when order).

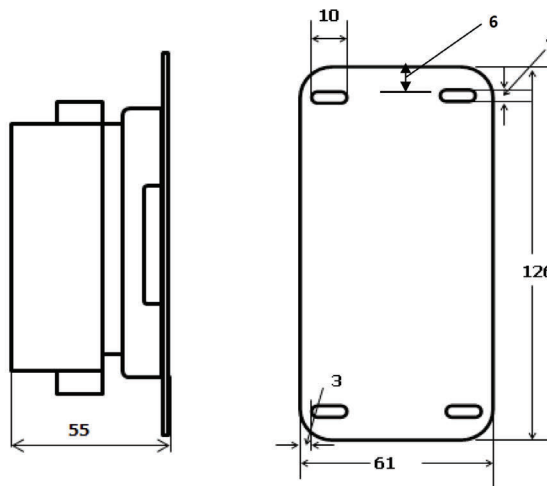
Features

- 10 or 15 chanel of diode
- High current circuit (1A or 3A)
- Low forward voltage drop
- High surge current duration
- High reliability and stability
- Easy install with DIN rail mount & surface mount

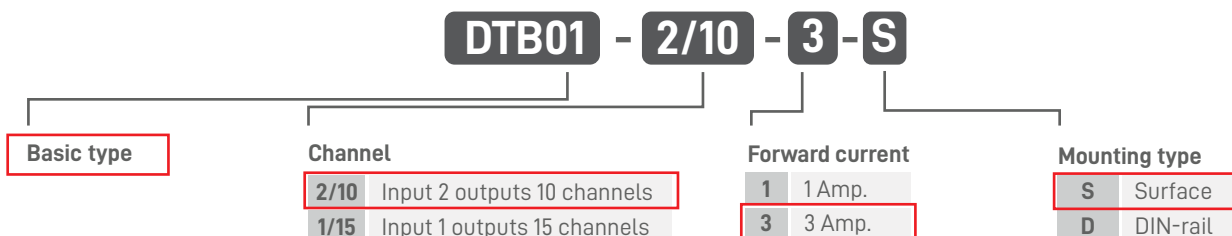
Specification

Model	DTB01
Input / Output	2/10, 1/15 channels
Power rating	1A, 3A
Reverse voltage	1000V
Insulation	100MΩ at DC 500V
Ambient temp.	0°C ~ +60°C
Storage temp.	-20°C ~ +85°C

Dimension

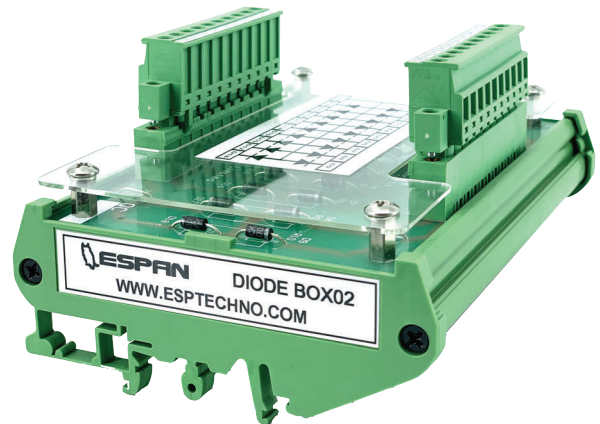


Product coding



Description

Diode box is use for rectifier, polarity reverse protect, suppressor spike voltage from DC relay coil (back EMF), blocking DC Polarity, bypass DC volt, etc. Easy to install with DIN rail mount. High current circuit 1A or 3A (specify when order).



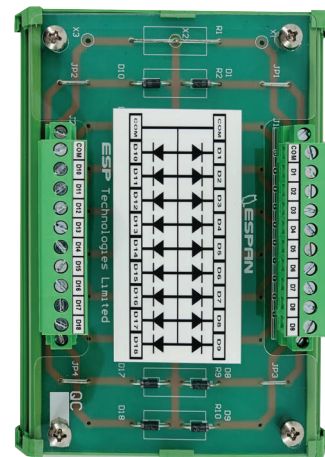
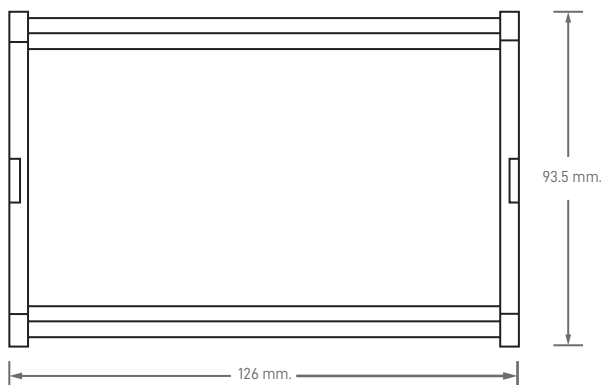
Features

- 18 channels diod
- High current (1A, 3A)
- High reliability
- Low forward voltage drop
- High surge current duration
- Easy install with DIN rail mount

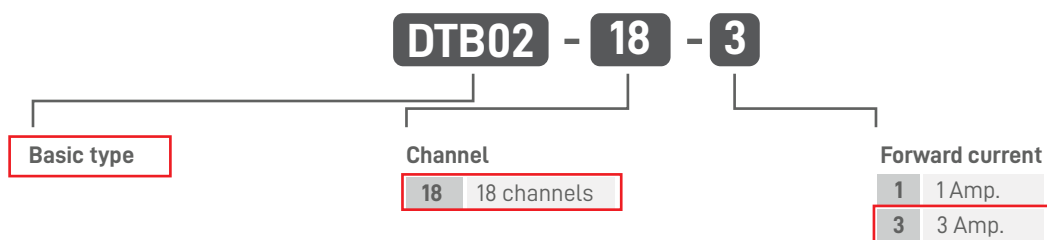
Specification

Model	DTB02
Channel	18 Channels
Power rating	1A , 3A
Reverse voltage	1,000V
Insulation	100 MΩ at DC 500V
Ambient temp.	0°C ~ +60°C
Storage temp.	-20°C ~ +85°C

Dimension



Product coding





Digital Time Display



Description

ESPAN – Digital Time Display is manufactured for high contrast display. The LED numbers are brightly displayed which everyone can see from various view. There are two mode setting : Normal clock and calendar mode. Input supply is DC 5V from switching mode power supply (15W) This device is designed for heavy-duty and indoor application use. The applications are also including for switchboards, panel boards, mosaic panel, building hallways, corridors and site works.

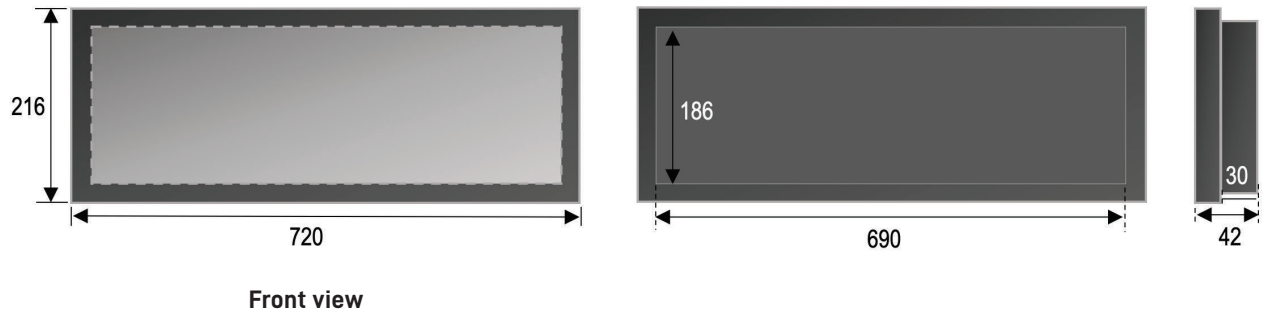
Features

- Easy to use
- Affordable price
- Plug and play
- Remote control setting
- Two mode setting : Normal clock and calendar

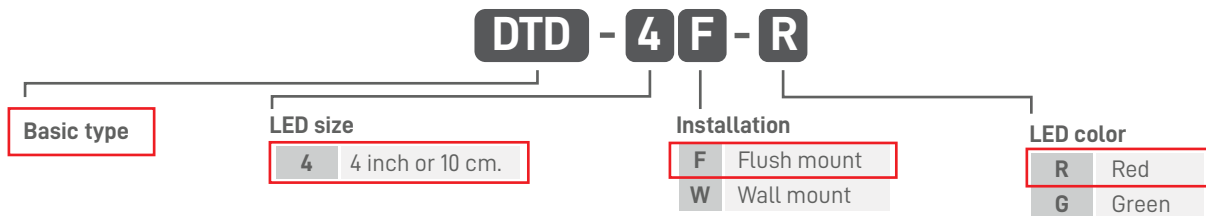
Specification

Model	DTD
Display method	4-inch large LED Display in 6 digit. (red color)
Hour and minutes	Normal clock works as a digital clock in 24/12 hours format display time in hours, minute and seconds.
Calendar, select calendar mode such as day	Month : Year or Month : Day : Year
Low voltage DC input supply only	5 VDC
Remote control	infrared type (2 x Battery AAA)
Overall dimension	Length 72 cm., Height 21.6 cm., Depth 4.2 cm.
Weight	2.5 kg.

Dimension



Product coding



Product Catalog 2022

Contact



ESP TECHNOLOGIES LIMITED

138/79 M.2, Ban Klang, Mueang Pathum Thani, Pathum Thani 12000

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