

Addressable optical-acoustic alarm device



Optical-acoustic warning device for VAD fire alarm signal, category 0 (Open class). Optical coverage 0-4.6-2, volume 9.2m³. Sound pressure 101dB(A) @ 1m. Type B for outdoor use. Dual address for operation duplication. Programmable functions: 6 operating criteria, 64 sound modes, volume adjustment 2 levels, end-of-alarm tone, activation time and delay, flashing and/or acoustic signal can be excluded. Optical synchronised signaling. Signaling activation subject to formula. RSC® management: programming, remote management and control. Loop connection. Dual short-circuit isolator. Mounting with universal base TFBASE01. Protection rating IP33C. Operating temperature -25°C...+70°C. PC-ABS casing. White optical diffuser colour. Dimensions (D x H) 120 x 65mm. Approved EN 54-3:2001 + A1:2002 + A2:2006 - EN 54-23:2010 - EN 54-17:2005. Certification: 1293-CPR-0825.

MODEL										
Name	Item no.									
TFIES02	TF5TFIES02									

OBLIGATIONS AND NOTICES

The TFIES02 siren can only be used when connected to a compatible Tecnofire control unit detection loop. In the planning and installation phases, the regulations in force must be observed and applied.

LOGIC UNITS

The TFIES02 siren can be programmed to operate as a single or dual logic unit. By programming the second logical unit, called Alias, the siren takes on two functional addresses to which two signalling modes correspond. The position of the Enable rotary switch determines the number of physical/logical units of operation. With the Enable rotary switch programmed to position 0 (zero), there is only one Main Siren operating logic unit. With the Enable rotary switch programmed to any position other than 0 (zero), there are two logical units of operation, Main Siren and Alias Siren.

ADDRESSING

The physical address of the siren module is programmed by means of two decimal rotary switches, visible on the lower face of the siren. The selectors are marked by labels indicating the position of the digits that make up the address: X10 for the tens and X1 for the units. The numerical range of addresses allowed for the modules goes from address No.01 to address No.99. The programmed address is assigned to logical unit 1 (main siren). Attention: programming address No.00 effectively excludes the siren from operation, but its absorption nevertheless burdens the Loop.

NOTIFICATION PRIORITY

If the siren receives the alarm activation command for both main and alias identities, priority will be given to main siren. An alarm cycle of the alias siren stops when the main siren activates.

	Logic unit 1	Enable equal to 0
	Main siren 	Physical address = XX
	Logic unit 1	Enable different from 0
	Main siren 	Physical address = XX
	Logic unit 2	Logical address
	Alias siren 	Logical address = Physical address XX + 1

SHORT-CIRCUIT ISOLATOR

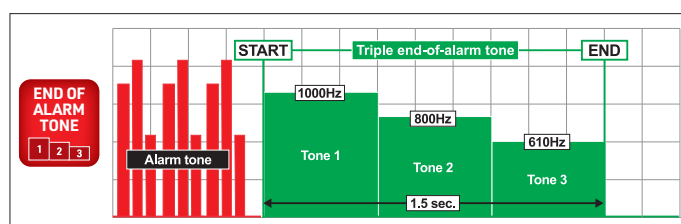
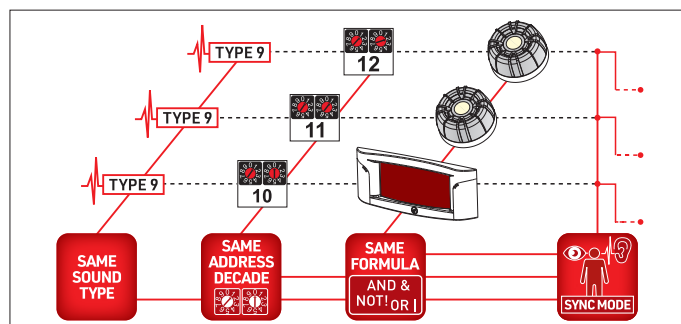
The siren is equipped with a line separator with double insulator. In the event of a short circuit of the Loop line, the separator intervenes by isolating the section of line affected by the fault, thus safeguarding the correct functioning of the devices connected upstream and downstream.

The intervention of the line separator preserves the smooth operation of the loop and generates the failure signal "Separator open".

SYNCHRONISED OPTICAL-ACOUSTIC SIGNALLING

Optical-acoustic alarm devices installed in the same place must have a synchronised optical and acoustic signalisation mode.

Tecnofire optical-acoustic signalling modules handle synchronous signalling automatically only if: their addresses belong to the same decade, the programmed sound type and the formula to which they are possibly subjected are the same.



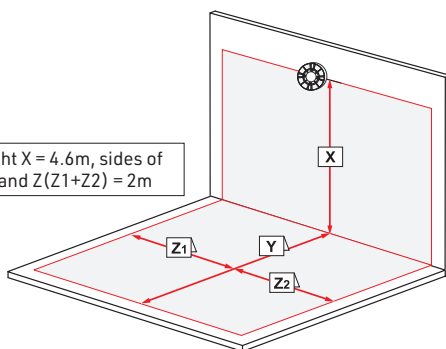
END-OF-ALARM TONE

The TFIES02 siren module manages the diffusion of the end-of-alarm tone. The tone diffused after the acknowledgment command consists of a succession of three tones with descending frequencies. The diffusion of the end-of-alarm tone can be excluded.

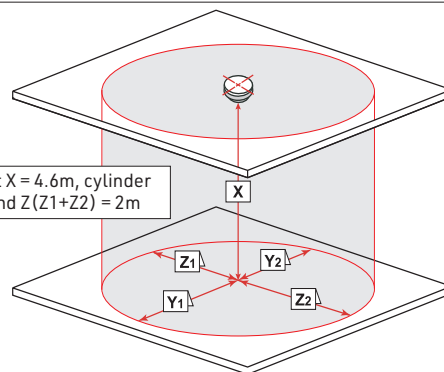
OPTICAL COVERAGE

EN
54-23
CATEGORY
0
4.6-2

Maximum height $X = 4.6\text{m}$, sides of cover cube Y and $Z(Z1+Z2) = 2\text{m}$



Maximum height $X = 4.6\text{m}$, cylinder ray $Y(Y1+Y2)$ and $Z(Z1+Z2) = 2\text{m}$



DIAGNOSTIC FUNCTIONS

Tecnofire control units manage a series of specialised diagnostic functions for each type of device. The diagnostic functions available for the siren module allow you to:

- Physically identify the module.
- Identify the device type.
- Identify the HW and FW version.
- Detect electrical operating data.
- Read statistics from the communication monitor.
- Activate the siren.

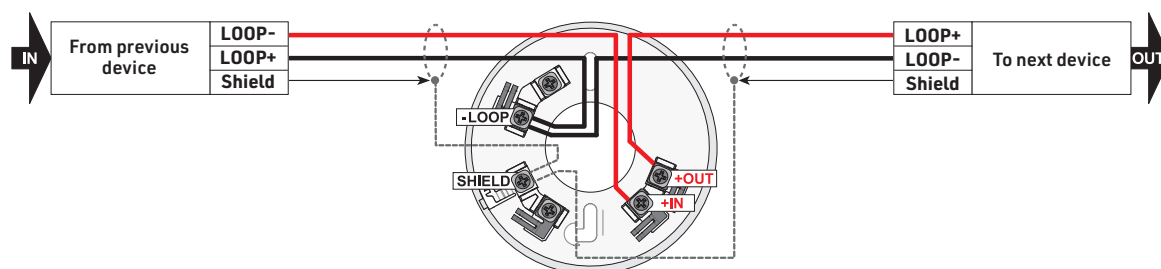
DIAGNOSTIC FUNCTIONS OF THE MODULE TECNO - siren EN 54-23

Identification	Turns on the Led of the device for its identification
Self declaration	Self declaration of the module type
HW release	Self declaration of the hardware version
FW release	Self declaration of the firmware version
Level reading	Measurement of the electric values of operation
Statistic	Statistic/functional values related to communication
Activation	Allows to activate the siren

Consumption
Power supply level
Zero level
Consumption level
Loop resistance

Strings sent
Errors
Percentage of success
Percentage of errors
Latency

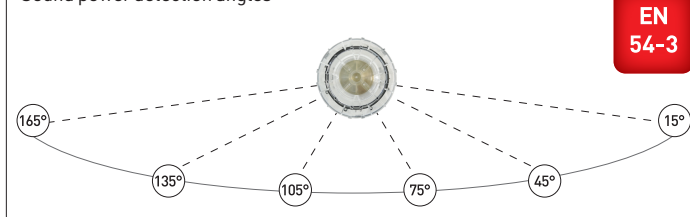
CONNECTION TO THE LOOP



SOUND SIGNALLING MODES

For each of the 64 sound modes, the table shows: frequencies, compliance with standards, sound levels measured at the angles indicated, with a 30V DC and 18V DC power supply, with high and low volume.

Sound power detection angles



SOUND TYPES																			
Sound index	Type	Description	Functioning	Standard	Sound level - High volume dB @ 1m							Sound level - Low volume dB @ 1m							
					Max. @ 30V DC	15°	45°	75°	105°	135°	165°	Max. @ 30V DC	15°	45°	75°	105°	135°	165°	
1	Pulse	Intermittent tone	500ms @ 3550Hz + 700ms off			93	78	87	89	86	86	84	85	73	83	84	82	82	80
2	Pulse	Intermittent tone	500ms @ 2450Hz + 700ms off			90	78	81	87	80	75	76	84	74	78	83	76	70	73
3	Bitonal		500ms @ 2450Hz + 700ms off + 500ms @ 3550Hz + 700ms off			92	79	87	88	86	85	84	84	74	78	84	76	70	73
4	Bitonal		4x (500ms @ 2450Hz + 700ms off) + 4x (500ms @ 3550Hz + 700ms off)			92	79	87	88	86	85	84	86	75	84	85	83	83	81
5	Bitonal		250ms @ 3550Hz + 250ms @ 2450Hz + 700ms off			92	79	86	88	85	85	83	86	75	84	85	83	83	81
6	Bitonal		250ms @ 2450Hz + 250ms @ 3550Hz + 700ms off			92	79	87	88	86	85	83	84	74	82	84	80	80	79
7	Sweep	Prealarm UNI 11744	1000ms @ 800Hz...970Hz + 0ms off	 	UNI 11744 / BS5839 Pt1	96	83	88	93	93	90	82	85	75	80	85	85	82	73
8	Continuous	Evacuation alarm UNI 11744	970Hz continuous	 	UNI 1174 / BS5839 Pt1	92	77	82	88	87	83	77	84	72	77	82	82	79	70
9	Special	Tecnofire alarm (sweep up)	1000ms @ 353Hz...1950Hz + 50ms off			98	83	90	95	95	91	83	88	76	83	87	88	84	75
10	Special	Tecnofire technical alarm (sweep up)	1000ms @ 445Hz...590Hz + 50ms off			96	80	86	90	90	87	80	86	76	82	86	86	83	76
11	Special	Tecnofire failure (sweep up/down)	1000ms @ 445Hz...1000Hz + 100500ms @ 3550Hz + 700ms off			95	83	89	92	93	89	83	85	75	81	85	85	81	74
12	Special	Tecnofire prealarm (4 tone pulses)	100ms @ 1050Hz + 50ms off + 200ms @ 1300Hz + 50ms off + 100ms @ 1600Hz + 50ms off + 200ms @ 1900Hz + 50ms off			101	84	95	99	98	92	82	90	75	85	89	88	82	73
13	Bitonal	AFNOR French alarm tone	400ms @ 440Hz + 100ms @ 554Hz		NFS 32-001	94	79	84	89	88	85	81	89	75	80	85	84	81	73
14	Bitonal		500ms @ 440Hz + 500ms @ 554Hz			94	81	84	90	88	85	81	86	77	80	86	85	81	77
15	Bitonal		250ms @ 500Hz + 250ms @ 610Hz			94	81	84	90	88	85	81	86	74	80	86	86	83	75
16	Bitonal	AFNOR French alarm tone	500ms @ 500Hz + 500ms @ 1200Hz		NFS 32-001	93	79	85	89	90	89	83	86	74	80	86	86	83	75
17	Bitonal		500ms @ 580Hz + 500ms @ 1000Hz			93	82	84	88	88	86	77	84	74	79	82	83	83	76
18	Bitonal		250ms @ 628Hz + 250ms @ 925Hz			93	82	84	87	88	86	77	85	76	80	85	85	82	71
19	Bitonal		250ms @ 670Hz + 370ms @ 845Hz			95	83	86	91	91	89	79	85	76	80	85	85	82	71
20	Bitonal		500ms @ 800Hz + 500ms @ 970Hz		BS 5839 Pt1	95	83	86	91	91	89	80	87	75	82	87	86	81	75
21	Bitonal		150ms @ 800Hz + 150ms @ 970Hz			97	81	88	94	93	88	82	84	71	81	84	83	82	75
22	Bitonal		170ms @ 2400Hz + 170ms @ 2900Hz			95	79	89	92	91	89	83	84	71	80	84	83	81	75
23	Bitonal		150ms @ 2400Hz + 150ms @ 2850Hz			95	79	89	91	91	89	83	84	71	80	84	83	81	75
24	Bitonal		250ms @ 2400Hz + 250ms @ 2850Hz			95	79	89	91	91	89	83	75	67	71	75	73	71	68
25	Bitonal		250ms @ 2500Hz + 250ms @ 3100Hz			86	76	82	85	83	81	77	75	63	72	75	72	69	61
26	Pulse		600ms @ 440Hz + 600ms off			93	75	84	87	86	83	80	89	72	83	87	85	84	80
27	Pulse		250ms @ 580Hz + 250ms off			93	75	84	87	86	83	80	88	76	81	86	87	83	76
28	Pulse	Swedish alarm tone	150ms @ 660Hz + 150ms off			95	80	85	89	89	84	80	88	78	82	87	87	82	79
29	Pulse		1.8s @ 660Hz + 1.8s off			95	80	85	89	89	84	80	88	78	84	88	88	83	80
30	Pulse		6.5s @ 660Hz + 13s off			95	81	86	90	90	84	82	91	79	84	89	89	83	81
31	Pulse	Intermittent tone	150ms @ 925Hz + 600ms off			95	81	86	90	90	84	82	93	79	84	89	88	83	81
32	Pulse	Intermittent tone	250ms @ 925Hz + 1s off		BS 5839 Pt1	95	81	86	90	90	84	82	92	79	84	89	88	83	74
33	Pulse	Intermittent tone	250ms @ 970Hz + 1s off		BS 5839 Pt1	93	80	84	89	89	84	75	92	80	84	89	89	83	74
34	Pulse		500ms @ 970Hz + 500ms off			93	80	84	89	89	84	75	91	77	81	87	86	83	75
35	Pulse		3x (500ms @ 950Hz + 500ms off) + 1500ms off		ISO 8201 / LBS 5839 Pt1	92	76	82	88	86	82	77	91	76	81	87	86	82	75
36	Pulse	Intermittent tone	1s @ 970Hz + 1s off		BS 5839 Pt1	92	77	82	88	87	83	76	88	76	81	87	86	82	75
37	Pulse	Pelican crossing	150ms @ 2850Hz + 100ms off			92	77	82	88	87	83	76	89	76	81	87	86	82	76
38	Pulse	Backup alarm	500ms @ 2850Hz + 500ms off		HF / BS 5839 Pt1	92	77	82	88	87	83	77	76	62	73	76	72	69	63
39	Pulse		3x (500ms @ 2850Hz + 500ms off) + 1500ms off		ISO 8201 HF	86	70	80	83	79	76	70	78	64	75	78	74	71	64
40	Pulse		1000ms @ 2850Hz + 1000ms off			86	70	80	83	79	76	70	83	69	79	82	78	75	69
41	Continuous	US temporal tone 3	610Hz continuous		ISO 8201	86	71	80	83	79	76	70	85	69	79	82	78	75	69
42	Continuous	End of alarm or Swedish alarm tone	660Hz continuous			95	77	84	90	90	87	80	84	69	79	82	79	75	69
43	Continuous		845Hz continuous			95	84	86	91	92	89	80	86	77	80	84	85	83	73
44	Continuous		925Hz continuous			94	81	86	90	90	84	82	86	77	80	84	85	83	73
45	Continuous		1200Hz continuous			94	81	86	90	90	84	82	87	74	81	87	86	81	75
46	Continuous	US temporal tone 3	2850Hz continuous		ISO 8201	93	81	85	90	90	85	75	85	75	80	85	85	79	67
47	Continuous		4000Hz continuous			93	81	85	90	90	85	75	85	75	80	85	84	79	67
48	Sweep		1000ms @ 300Hz...1200Hz + 0ms off			81	69	78	81	78	75	68	81	71	76	79	80	81	73
49	Sweep		3x (500ms @ 300Hz...1200Hz + 500ms off) + 1500ms off			100	59	91	99	98	95	81	75	62	72	75	71	68	62
50	Sweep		3x (500ms @ 400Hz...1200Hz + 500ms off) + 1500ms off			96	82	87	92	91	87	80	86	76	82	86	86	82	75
51	Sweep		3000ms @ 400Hz...1200Hz + 500ms off			95	80	86	90	90	87	80	93	79	85	89	89	86	79
52	Sweep		140ms @ 500Hz...1000Hz + 0ms off			96	81	87	91	91	88	80	93	80	86	90	90	86	79
53	Sweep	Slow evacuation swap	3.5s @ 500Hz...1200Hz + 500ms off		NEN 2575	96	82	88	92	92	89	83	87	77	82	86	86	84	77
54	Sweep	Slow evacuation swap	3.76s @ 500Hz...1200Hz + 250ms off		NEN 2575	95	83	88	92	92	90	83	85	74	81	85	85	81	74
55	Sweep	LF buzzer	20ms @ 800Hz...970Hz + 0ms off		BS 5839 Pt1	97	83	89	93	93	90	83	88	77	83	87	87	84	78
56	Sweep	Fast sweep	140ms @ 800Hz...970Hz + 0ms off (7Hz)		BS 5839 Pt1	97	83	89	93	93	90	83	87	77	83	87	87	84	77
57	Sweep		330ms @ 800Hz...970Hz + 0ms off (3Hz)		BS 5839 Pt1	93	80	87	91	91	89	81	84	72	79	83	83	80	72
58	Sweep		500ms @ 800Hz...1000Hz + 0ms off			94	81	87	91	92	88	80	84	73	80	84	84	80	72
59	Sweep		3x (500ms @ 1200Hz...300Hz + 500ms off) + 1500ms off			94	81	87	91	92	88	80	84	73	80	84	84	80	72
60	Sweep	Evacuation tone	1000ms @ 1200Hz...500Hz + 10ms off		DIN PFEER	95	82	88	92	92	88	80	85	73	80	84	84	81	72
61	Sweep		20ms @ 2400Hz...2850Hz + 0ms off (50Hz)			94	79	86	90	90	86	79	94	79	85	89	89	86	78
62	Sweep	Fast sweep or Australian alarm tone	140ms @ 2400Hz...2850Hz + 0ms off (7Hz)		VdS, AS 2220	96	82	88	92	92	89	81	85	73	80	84	85	81	73
63	Sweep		330ms @ 2400Hz...2850Hz + 0ms off (3Hz)			96	82	87	91	92	88	81	86	75	81	85	86	82	75
64	Sweep		1000ms @ 2400Hz...2850Hz + 0ms off			88	75	82	86	83	79	73	72	59	67	72	69	64	57

TFIES02

Addressable optical-acoustic alarm device

Accessories

	TFBASE01 Mounting base for sirens TFIS01 and TFIES02. ABS material. White colour. Dimensions (D x H) 100 x 19mm. Item no. TF6TFBASE01N
	TFIS01-PLEXI Plexiglass signage, with mounting location for TFIS01 and TFIES02 sirens. Wording "FIRE ALARM". Dimensions (L x H) 360 x 121mm. Item no. TF5TFIS01PX-UK
	TFBOX-SBWP Junction box for mounting base TFBASE01, with additional seal for mounting siren module TFIES02. Circular shape with 2 flat walls, pre-marked plugs for mounting 2 PG9 pipe sockets in opposing or side-by-side arrangement. Plug for plexiglass signage. Protection rating of TFBOX-SBWP IP65. ABS enclosure. Colour white. Dimensions (D x H) 121 x 40mm. Item no. TF5TFBOXSBWP

Technical and functional specifications

General information	Addressable optical-acoustic alarm device	TFIES02	
	Area of use	Type B (for outdoors)	
Optical characteristics	VAD classification	Visual Alarm Device	
	Category O Open Class	Wall or ceiling mounting	
	Optical coverage	0 - 4.6 - 2	
Acoustic characteristics	Sound level	Max .101dB(A) @ 1m	
	Main sound type (compliant with EN 54-3)	Number 9	
Programmable functions	Functional duplication	Principal ID + Alias ID	
	Optical synchronisation	Programmable	
	Polling signaling Led	Excludable	
	Polling frequency	Programmable	
	Functioning criterions	6 modes	
	Optical signalling	Excludable	
	Acoustic signaling	Excludable	
	Acoustic signalling modes	64	
	Acoustic volume adjustment	2 settings	
	End-of-alarm tone	Excludable	
	Activation delay	Programmable	
	Activation time	Programmable	
	Device activation	It can be controlled by the formula	
	Loop interface	Addressable module	Connection over loop
		Addressing	2 rotary switch
Occupied addresses		Max. 2 (Double ID)	
Communication protocol		FIRE-SPEED	
Loop isolator		Double insulator	

Electrical specifications	Nominal voltage	24V DC
	Operating voltage	18V...30V DC
	Consumption in stand-by	870µA @ 24V DC
	Average absorption during signalling	Optics and acoustics 4.5mA @ 24V DC
Acoustic only 3mA @ 24V DC		
Optics only 4mA @ 24V DC		
Physical specifications	Operating temperature	-25°C...+70°C
	Relative humidity (non-condensing)	10%...93%
	Protection class	IP33C (EN 60529)
	Protection class with junction box TFBOX-SBWP	IP65 (EN 60529)
	Casing	PC ABS
	Dimension (D x H)	120 x 65mm
	Weight	230g
	Conformity	Standards
System compatibility		UNI EN 54-13:2020
Certification number		1293-CPR-0825
Year of CE marking		22
Number of declaration of performance		045_TFIES02
Notified body		EVPU

N.B. Declarations of conformity and performance are available on www.tecnofiredetection.com



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