



# Optical-audible combinations



# Overview Optical and Audible Combinations

## Double the safety with optical-audible signals

Large systems are often managed by only a few people, especially in automated production facilities and large machine shops. This results in optical signals not always being in the machine operator's immediate field of vision. In such cases, an audible signal may also be used. The use of both optical and audible alarms will help to counter an audible alarm not always being heard above an ambient noise level.

Overview Optical and Audible Combinations							
Product type		Installation	Free-standing	Free-standing	Free-standing	Free-standing	Free-standing
Mounting	Product range	Installation Combinations	EvoSIGNAL Mini	EvoSIGNAL Midi	Combinations	Design Combinations	Heavy Duty Combinations
Dimensions (Ø x Height)*		50 x 22 mm	62 x 85 mm	85 x 130 mm	146 x 171 mm 134 x 235 mm	-	
Dimensions (L x H x W)		-	-	-	134 x 407 x 144 mm	109 x 112,5 x 152 mm	136 x 138 x 119 mm 165 x 169 x 132 mm 168 x 211 x 155 mm
Voltage	12 V		●	●			●
	24 V	●	●	●	●	●	●
	60 V						●
	115 V	●	●	●	●	●	●
	230 V	●	●	●	●	●	●
Protection rating		IP65	IP66	IP66	IP65	IP65	IP66
Signalisation index optical**		3	4-5	6-8	5-9	6-8	4
Signalisation index audible**		3	4-7	6-7	6-7	8	6-10
Page		Page 208	Page 213	Page 217	Page 221	Page 227	Page 231

\* Technical diagrams can be found on the product page

\*\* Signalisation index - see page 13 + 21



## Variety of signals

WERMA supplies a large number of audible signals which can also be enhanced with the addition of optical light signals.

AUDIBLE SIGNALS: Sirens and Multi-Tone Sounder, Buzzer and Horns

OPTICAL SIGNALS: (LED) Permanent Light, Flashing Light, LED Double Flash Light, LED EVS Signal, LED Permanent/Flash/EVS Light

## Size comparison



Series	EvoSIGNAL Mini	EvoSIGNAL Midi	Heavy Duty 441
Ø	62 mm	85 mm	-
Height	85 mm	130 mm	-
L x H x W			165 x 167 x 132 mm



# Design Combination LED Multi-Tone Sirens

## Your benefits

The Design Combination LED Multi-Tone Sirens provide safety and security in environments with heightened aesthetic design requirements. The innovative housing design makes for simple mounting in many diverse applications.

- Ideal signalling effect over great distances
- Multiple visual and audible escalation levels possible
- Many application options with up to 32 tones available
- Up to 3 tones controlled remotely for the escalation of signals
- Includes standardised tones (including those used in fire alarms)

## Typical applications

Fault signalling

- In building service systems
- On machinery and equipment

## Installation options

- Wall mounting
- Base mounting
- Ceiling mounting

## Features

- Multi-voltage versions allow multiple applications with a single device
- Long life and energy-saving LEDs, either as a flashing light or EVS



Size comparison Design / Heavy Duty



Signalisation index	
Multi-Tone Sounder	8
LED Flashing Light	6
LED EVS	8



# 444 LED Double Flash/Multi-Tone Sounder Combination



Base mounting



Wall mounting

## ① TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	109 mm x 112 mm x 150 mm		
Housing:	PC/ABS-Blend		
Lens:	PC, transparent		
Connection:	24 V: Screw terminal 0.5-1.5 mm <sup>2</sup> 115/230 V: CAGE CLAMP®		
Cable entry:	Membrane for cable diameter max. 13 mm		
Life duration:	Up to 50,000 hrs (LED Double Flash)		
Flash frequency:	c. 1 Hz		
Fixing:	Wall, base and ceiling mounting		
Voltage:	24 V AC/DC	115 V AC	230 V AC
Current consumption Optical:	60 mA	30 mA	30 mA
Current consumption Audible:	200 mA	55 mA	30 mA
red	<b>444 100 75</b>	<b>444 100 67</b>	<b>444 100 68</b>
yellow	<b>444 300 75</b>	<b>444 300 67</b>	<b>444 300 68</b>

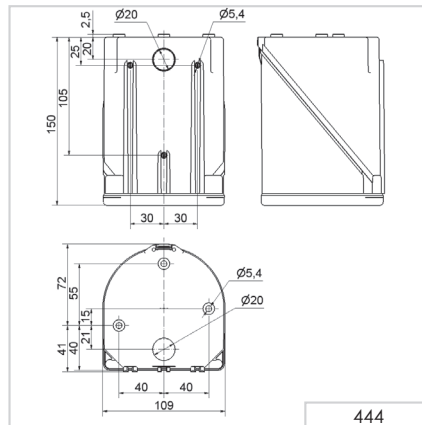
## ✂ ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief)	<b>975 444 01</b>
Protection rating IP 65 is guaranteed even without cable gland	

## 🎵 TONE TYPES AND FREQUENCIES:

Selectable via DIP switch, see tone table on page 230, 3 tones can be externally triggered

## ↩ TECHNICAL DIAGRAMS:



Signalisation index	
Multi-Tone Sounder	8
LED Flashing Light	6

24 V 330 g	115 V / 230 V 470 g	IP 65	+50°C -30°C	(A) 110 dB	32	24 V PLC
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# 444 LED EVS / Multi-Tone Sounder Combination



Base mounting



The „EVS“ light effect ensures a maximum attention-grabbing effect

## ① TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	109 mm x 112 mm x 150 mm		
Housing:	PC/ABS-Blend		
Lens:	PC, transparent		
Connection:	24 V: Screw terminal 0.5-1.5 mm <sup>2</sup> 115/230 V: CAGE CLAMP®		
Cable entry:	Membrane for cable diameter max. 13 mm		
Fixing:	Wall, base and ceiling mounting		
Life duration:	Up to 50,000 hrs (LED EVS)		
Voltage:	24 V AC/DC	115 V AC	230 V AC
Current consumption Optical:	60 mA	30 mA	30 mA
Current consumption Audible:	220 mA	55 mA	30 mA
red	<b>444 110 75</b>	<b>444 110 67</b>	<b>444 110 68</b>
yellow	<b>444 310 75</b>	<b>444 310 67</b>	<b>444 310 68</b>

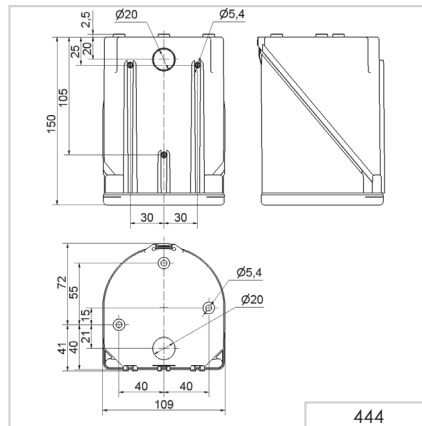
## ✂ ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief)	<b>975 444 01</b>
Protection rating IP 65 is guaranteed even without cable gland	

## 🎵 TONE TYPES AND FREQUENCIES:

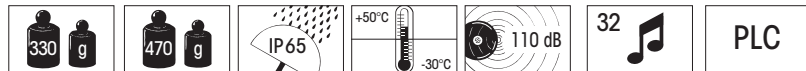
Selectable via DIP switch, see tone table on page 230, 3 tones can be externally triggered

## ↔ TECHNICAL DIAGRAMS:



### Signalisation index

Multi-Tone Sounder	8
LED EVS Light	8



## 444 Combination

The 444 Combinations offer a large choice of internationally recognised signal tones for the widest spectrum of applications. 3 tones can be triggered externally.

### STONE TYPES AND FREQUENCIES:

Tone 1	Tone type	Frequency (Hz)	Description	Use	Tone 2	Sound output (dbA)
1	continuous	200		BS 5839-1:2002	440 Hz cont.	97
2	rising	800 & 970	7 Hz		14	102
3	rising	800 & 970	1 Hz		14	103
4	continuous	2850			14	104
5	rising	2400 - 2850	7 Hz		4	109
6	rising	2400 - 2850	1 Hz		4	110
7	rising	500 - 1200	3 s, then 0.5 s OFF (then repeat)		14	106
8	falling	1200 - 500	1 Hz	DIN 33404-3	14	104
9	alternating	2400 & 2850	2 Hz		4	111
10	pulse	970	0.5 Hz (1 s On/1 s Off)	BS 5839 Part 1 1988	14	101
11	alternating	800 & 970	1 Hz	BS 5839 Part 1 1988	14	105
12	pulse	2850	0.5 Hz		4	104
13	pulse	970		0,25 s On/1 s Off	14	98
14	continuous	970		BS 5839-1:2002 PFEER - Toxic gas	10	102
15	alternating	554 & 440		France NFS	14	101
16	pulse	660	150 ms On/150 ms Off	Swedish	16	96
17	pulse	660	1.8 s On/1.8 s Off	Swedish	17	98
18	pulse	660	6.5 s On/13 s Off	Swedish	18	98
19	continuous	660		Swedish	19	98
20	alternating	554 & 440	0.5 Hz		20	102
21	pulse	660	1 Hz	Swedish	21	97
22	pulse	2850	150 ms On/100 ms Off	GB	14	104
23	rising	800 - 970	50 Hz (low)	BS 5839 Part 1 1988	14	102
24	rising	2400 - 2850	50 Hz (high)		4	109
25	pulse	970	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (low)	ISO 8201 US Temporal	26	101
26	pulse	2850	3 x 500 ms ON/500 ms OFF / 1.5 s silence, then repeat (high)	ISO 8201 US Temporal	25	104
27	continuous	4000			27	92
28	rising	2000 - 2850	7 Hz		2000 Hz cont.	111
29	alternating	988 & 645	2 Hz		988 Hz cont.	102
30	alternating	510 & 610	2 Hz		510 Hz cont.	102
31	alternating	800 & 970	2 Hz	5839-1:2002	800 cont.	105
32	alternating	800 & 1200	1 Hz		800 cont.	105



# Heavy Duty Combination – Multi-Tone Siren with Xenon Flash

## Your benefits

The WERMA Heavy Duty Combination - Multi-Tone Siren with Xenon Flash features a very robust housing. The combination device provides safety and security through reliable, loud signalling in particularly harsh environments. Up to 120 dB for use in extremely noisy environments and signalling over long distances.

- Multiple visual and audible escalation levels possible
- Includes standardised tones (including those used in fire alarms)
- Up to 42 tones for signalling various statuses

## Typical applications

Signalling of faults or alarms

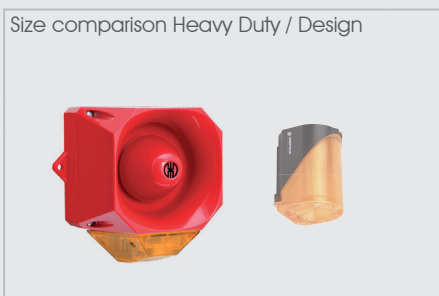
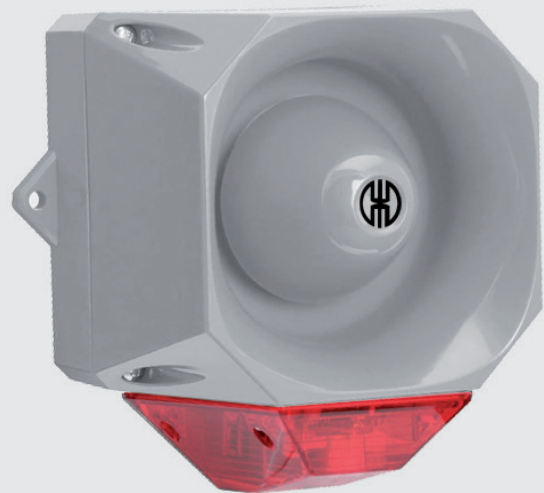
- Outdoors in extreme conditions
- In larger industrial plants
- As an evacuation alarm

## Installation options

- Wall mounting

## Features

- High protection rating IP66
- Multi-voltage versions available



	Siganlisation index		
	439	441	442
Multi-Tone Sounder	6	8	10
Xenon Flash	4	5	5-6





# 439 Xenon Flash / Multi-Tone Sounder Combination (105 dB)



## ① TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	136 mm x 138 mm x 119 mm	
Housing:	ABS	
Connection:	Screw terminal 0.28-2.5 mm <sup>2</sup>	
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)	
Flash frequency:	1 Hz	
Flash energy	1.6 Ws	
Tone type and frequency:	Selectable via DIP switch, 2 tones can be externally triggered	
Voltage:	9-60 V DC	110-230 V AC
Current consumption:	230 mA (24 V)	30 mA (230 V)
Housing/Flash		
red / red	<b>439 010 55</b>	<b>439 010 68</b>
red / yellow	<b>439 030 55</b>	<b>439 030 68</b>
grey / red	<b>439 110 55</b>	<b>439 110 68</b>
grey / yellow	<b>439 130 55</b>	<b>439 130 68</b>

## ✂ ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief)

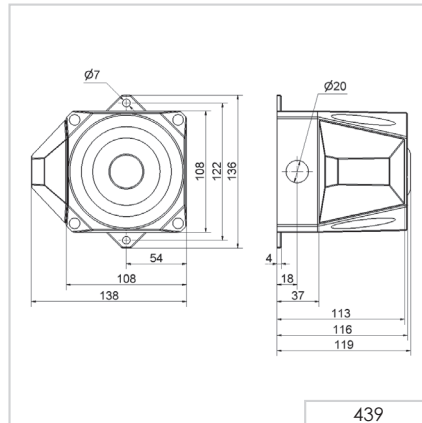
Protection rating IP 65 is guaranteed even without cable gland

**975 444 01**

## ♪ TONE TYPES AND FREQUENCIES:

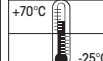
For further details see [www.werma.com](http://www.werma.com).

## ↔ TECHNICAL DIAGRAMS:



### Signalisation index

Multi-Tone Sounder	6
Xenon Flash	4



# 441 Xenon Flash / Multi-Tone Sounder Combination (110 dB)



## ① TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	165 mm x 169 mm x 132 mm	
Housing:	PC/ABS-Blend	
Connection:	Screw terminal 0.28-2.5 mm <sup>2</sup>	
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)	
Flash frequency:	1 Hz	
Flash energy	2.5 Ws	
Tone type and frequency:	Selectable via DIP switch, 2 tones can be externally triggered	
Voltage:	9-60 V DC	230 V AC
Current consumption:	230 mA	35 mA
Housing/Flash		
red / red	<b>441 010 55</b>	<b>441 010 68</b>
red / yellow	<b>441 030 55</b>	<b>441 030 68</b>
grey / red	<b>441 110 55</b>	<b>441 110 68</b>
grey / yellow	<b>441 130 55</b>	<b>441 130 68</b>

## ✂ ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief)

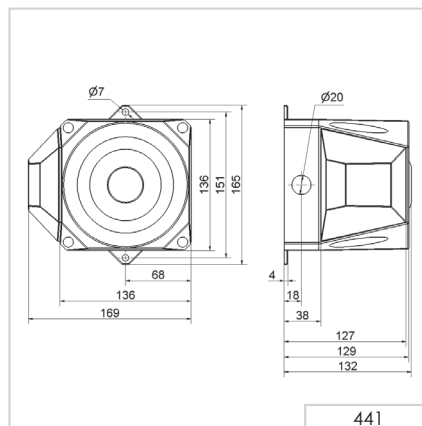
Protection rating IP 65 is guaranteed even without cable gland

**975 444 01**

## 🎵 TONE TYPES AND FREQUENCIES:

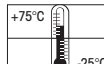
For further details see [www.werma.com](http://www.werma.com).

## ↔ TECHNICAL DIAGRAMS:



### Signalisation index

Multi-Tone Sounder	8
Xenon Flash	5



# 442 Xenon Flash / Multi-Tone Sounder Combination (120 dB)



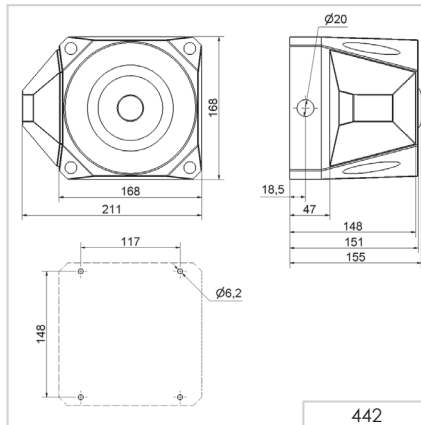
## TECHNICAL SPECIFICATIONS/ORDER SPECIFICATIONS:

Dimensions (L x H x W):	168 mm x 211 mm x 155 mm	
Housing:	PC/ABS-Blend	
Connection:	Screw terminal 0.28-2.5 mm <sup>2</sup>	
Cable entry:	Cable gland M20 x 1.5 mm (not included in assembly)	
Tone type and frequency:	Selectable via DIP switch, 3 tones externally triggered see table on page 235	
Voltage:	18-30 V DC	115/230 V AC
Current cons. Multi Tone Sounder:	450 mA	130/65 mA
Current consumption Flash:	127-389 mA (dependent on voltage and flash frequency)	- /15 mA (dependent on voltage and flash frequency)
Flash frequency	0.75 Hz/1 Hz	1.25 Hz/2 Hz
Flash energy	3.5 Ws	2 Ws
Housing/Flash		1 Hz (Flash can only be operated with 230 V)
red / red	<b>442 010 55</b>	<b>442 010 68</b>
red / yellow	<b>442 030 55</b>	<b>442 030 68</b>
grey / red	<b>442 110 55</b>	<b>442 110 68</b>
grey / yellow	<b>442 130 55</b>	<b>442 130 68</b>

## ACCESSORIES:

Cable gland M20 x 1.5 mm (for cable strain relief) Protection rating IP 65 is guaranteed even without cable gland	<b>975 444 01</b>
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## TECHNICAL DIAGRAMS:



Signalisation index	
Multi-Tone Sounder	<b>10</b>
Xenon Flash	<b>5-6</b>

442 XX0 55 2.0 Kg	442 XX0 68 2.2 Kg	IP66	+75°C -25°C	120 dB	2/3,5 Ws	42
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## 442 Combination

The Flash/Multi-Tone Sounder Combination 442 offers a large choice of internationally recognised signal tones for the widest spectrum of applications. 3 tones can be triggered externally. The first two tones can be freely chosen. The third tone is paired with the second tone.

### ♫ TONE TYPES AND FREQUENCIES:

Tone 1+2 No	Tone type	Use	Output (dbA)	Tone 3
1	alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)		120	14
2	rising 800/970 Hz in 7 Hz stroke (7/s)		120	14
3	rising 800/970 Hz in 1 Hz stroke (1/s)		120	14
4	continuous 2,850 Hz		111	9
5	rising 2,400-2,850 Hz in 7 Hz stroke		109	4
6	rising 2,400-2,850 Hz in 1 Hz stroke		110	4
7	500-1,200 Hz rising in 3 sec., 0.5 sec. OFF	Slow Whoop Holland	119	14
8	falling 1,200-500 Hz in 1 Hz stroke	DIN/PFEER (PAPA), DIN 33404-3, VDS tested	119	14
9	alternating 2,400/2,850 Hz in 2 Hz stroke (250 ms-250 ms)		113	4
10	pulse 970 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)	PFEER Alarm	117	14
11	alternating 800/970 Hz in 1 Hz stroke (500 ms-500 ms)		118	14
12	pulse 2,850 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)		112	4
13	970 Hz pulse: 0.25 sec. ON / 1 sec. OFF		117	14
14	continuous 970 Hz	PFEER - Toxic gas	118	8
15	554 Hz/100 ms alternating 440 Hz/400 ms	French alarm signal AFNOR NFS 32S 32-001	115	14
16	660 Hz pulse: 150 ms ON, 150 ms. OFF	Swedish alarm signal	114	14
17	660 Hz pulse: 1.8 sec. ON, 1.8 sec. OFF	Swedish alarm signal	115	14
18	660 Hz pulse: 6.5 sec. ON, 13 sec. OFF	Swedish alarm signal	115	14
19	continuous 660 Hz	Swedish alarm signal	116	1
20	alternating 554/440 Hz in 0.5 Hz stroke (1 sec. ON / 1 sec. OFF)	Swedish alarm signal	115	19
21	pulse 660 Hz in 1 Hz stroke (500 ms-500 ms)	Swedish alarm signal	115	4
22	pulse 2,850 Hz in 4 Hz stroke (150 ms ON / 100 ms OFF)	Swedish alarm signal	110	4
23	rising 800-970 Hz in 50 Hz stroke	Swedish alarm signal	117	14
24	rising 2,400-2,850 Hz in 50 Hz stroke	Swedish alarm signal	110	4
25	970 Hz pulse.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.	ISO 8201 / US Temporal	118	14
26	2,850 Hz pulse.: 3 x 500 ms. ON, 500 ms OFF, break 1.5 sec.	ISO 8201 / US Temporal	112	4
27	continuous 4,000 Hz		105	6
28	alternating 800/970 Hz in 2 Hz stroke (250 ms-250 ms)		118	14
29	alternating 990/650 Hz in 2 Hz stroke (250 ms-250 ms)		117	14
30	alternating 510/610 Hz in 2 Hz stroke (250 ms-250 ms)		116	14
31	rising 300-1,200 Hz in 1 Hz stroke		118	14
32	continuous Bell		117	3
33	continuous Bell: 3x500 ms. Pulse, 1.5 sec. Silence, then repeat	Bell / US Temporal	117	14
34	alternating 1,000/2,000 Hz in 1 Hz stroke (500 ms-500 ms)	Singapore	115	4
35	pulse 420 Hz (0,625 sec.)	Australian alarm signal	118	14
36	500-1,200 Hz rising in 3.75 sec., then 0.25 sec. OFF	Australian alarm signal (Evacuation)	117	14
37	rising 1,400-1,600 Hz in 1 sec., falling in 0.5 sec.	NF C 48-265	116	14
38	500-1,200 Hz rising and falling in 3 sec.	Siren	117	14
39	pulse 720 Hz: 0.7 sec. ON, 0.3 sec. OFF	German industrial alarm	118	14
40	rising 422-775 Hz in 0.85 sec., 1 sec. silence, then repeat	NFPA Whoop	118	14
41	continuous 470 Hz	Horn (USA)	114	3
42	continuous 370 Hz	Air Horn (USA)	113	3



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