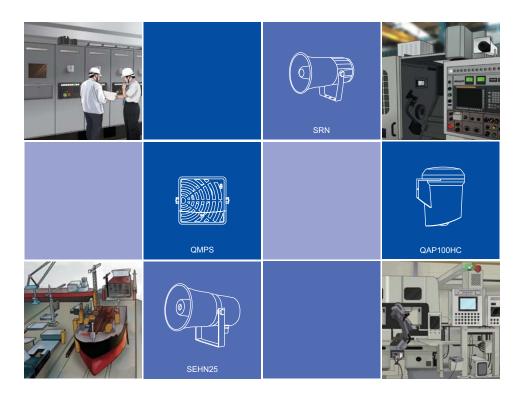
CATALOGUE

Electric Horns/ Speakers

INNOVATION IN ALARM & SIGNAL



Quick reference of volume	•••••••••••••••••••••••••••••••••••••••	108
Technical information		110
References		111
Product specifications		113



Product Volume Quick Reference Guide

Qlight provides a wide range of audible products between 85dB – 130dB. Please take a look at the Product Volume Quick Reference Guide for the sound level of each of our audible products.







Air plane - 140dB

130dB	Air Horn(SANA series)	
123dB	Motor Siren(SM400) Multifunctional Electric Horn(SMP50) Special Warning Electric Signal Horn(QWH50)	
120dB	Motor Siren(SM200) Heavy-Duty Electric Horn (SEHN50, SEWN50L, SEWN50-2T, SEWN50E)	Rock Concert - 120dB
118dB	Explosion proof Electric Horn(SPNA) Heavy-Duty Electric Horn(SEWN30E) Full Duplex Heavy-Duty Electric Horn(SHDN30)	
115dB	Motor Siren(SM40), Heavy-Duty Electric Horn(SEHN25) Electric Signal Horn(SEN25) Multifunctional Electric Horn(SMP35, QAP125HC) Special Warning Electric Horn(QWH35)	
110dB	Motor Siren(SM30)	Vehicle Horn - 100-110dB
108dB	Electric Horn(SEN15) Electric Horn(SRN)	
105dB	Electric Signal Horn(SN) Wall Mount High Sound Buzzer Horn (QAP80BZC, QAP100BZC, QAP125BZC)	
100dB	Multifunctional Panel Type Speaker(QMPS) Wall Mount High Sound Buzzer Horn(S60ADH) Multifunctional Electric Horn(QAP80HC, QAP100HC)	Plant / Train - 100dB
95dB	Electric Horn(SN-1) Lamp Attached Alarm Bell(SAB130, SAB200) Explosion proof Alarm Bell(SBE130, SBE150)	
90dB		

85dB

Panel Type Speaker(SPK)

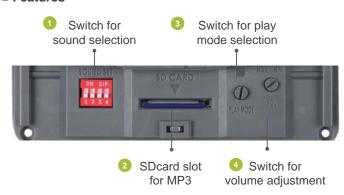
Vacuum Cleaner - 80dB



Technical Information for Multifunctional Electric Horns/ Speakers



■ Features



What is Multifunctional Electric Horn/ Speaker?

- 1. Multifunctional electric horn/ speaker is a versatile horn which is able to play built-in 30 sound tones as well as MP3 file from SDcard.
- 2. User can designate the sound tone in the SDcard through





Bit input mode selection from 6 groups

001: WS(5 Warning sounds)

010: WP(5 Special warning sounds 1st group)

011: WM(5 Melodies)

100: WA(5 Alarms)

101: WO(5 Special warning sounds 2nd group) 110: WN(5 Special warning sounds 3rd group)

Selection between pre-recorded sound mode and SDcard sound mode

0: Pre-recorded sound mode

1: SDcard sound mode

- Switch No1. allows user to choose the option between Pre-Recorded sound and sound from the SDcard.
- Switch No.2 4 allows user to choose 1 group of 6 in the case of bit input mode.

2 SDcards

- The SDcard is a compact flash memory card for storing MP3 files.
- After saving the MP3 files in the SDcard with the specified format, insert the card into the SDcard slot and switch the sound setting switch to ON(1) so the sounds can be played from the SDcard.

3 PLAY MODE setting switch

- Play mode setting switch allows the user to chose the proper channel input method and playback mode. Please refer to the table below for a description of each setting switch features.
- Switch No.0 and No.9. are not used.

_		
1	Bit Input Mode	5 sounds can be played from the selected group. (can choose 1 group among 6 groups) Play message one time and quit.(In case of Consecutive signal or pulse signal)
2	Binary Input Mode	Up to 31 sounds available for each model. Plays sound only once.(consecutive signal only)
3	Bit Input Hold Playback Mode	5 sounds can be played from the selected group. (can choose 1 group among 6 groups) The sound is repeated if the input signal is maintained.(Consecutive signal only) Sound will be suspended the STOP signal, otherwise the message is played repeatedly.
4	Binary Input Hold Playback Mode	Up to 31 sounds available for each model The sound is repeated if the input signal is maintained.(consecutive signal only) Sound will be suspended the STOP signal, otherwise the message is played repeatedly.
5	Bit Input Sound Reduction Mode	5 sounds can be played from the selected group. (can choose 1 group among 6 groups) Volume reduction signal line is able to decrease the volume by as much as 15dB.(can reduce input volume as well)
6	Binary Input Sound Reduction Mode	Up to 31 sounds available for each model Volume reduction signal line is able to decrease the volume by as much as 15dB.(can reduce input volume as well)
7	Bit Input Sequence Memory Playback Mode	5 sounds can be played from the selected group. (Can choose 1 group among 6 groups) Playback around 3 seconds for each sound in accordance with the sequence of input. Final input channel is fully played.(Bit input Mode ONLY)
8	Test Mode	In test mode, Ch1 of group is automatically played back repeatedly. Change to other modes in order to quit the test mode.

4 VOLUME

- Volume is adjustable with the sound dial included.



Reference for Electric Horn/ Speaker/ Motor Siren/ Buzzer Horn/ Bell















		100						_
Model	number(series)	SPK	QMPS	S60ADH	QAP80H	QAP80BZ	QAP100H	QAP100BZ
	Voltage	DC12V, DC24V AC110V, AC220V	DC12V-24V AC110V-220V	DC12V, DC24V AC110V, AC220V	DC12V-DC24V	DC12V, DC24V	DC12V-24V AC110V-220V	DC12V, DC24V AC110V-220V
	Diameter	80×80	120×120	Ø75	Ø83	Ø83	Ø97	Ø97
Dimension (mm)	Height	-	-	158	129	129	137	137
(11111)	Depth	75	69	86	93	93	109	109
	Materials	ABS	ABS	ABS	ABS	ABS	ABS	ABS
Sound	1 Tone Buzzer 5 Signal Sounds Voice	Max 85dB at 1m		Max 100dB at 1m		Max 105dB at 1m		Max 105dB at 1n
& Volume	30 Signal Sounds 31 Signal Sounds MP3		Max 98dB at 1m Max 95dB at 1m		Max 100dB at 1m		Max 100dB at 1m Max 95dB at 1m	
	Other Sound	D	D	MAZ-III	M/-II	M/-II	10/- II	10/- II
	nting structure	Panel mount	Panel mount	Wall mount	Wall mount	Wall mount	Wall mount	Wall mount
С	aple entry	-	-	-	Ø10	Ø10	Ø10	Ø10
Prof	ection rating	IP23	IP54	IP54	IP65	IP65	IP65	IP65
(Certificate	CE	CE, UL	CE	-	-	-	-
Cu	stomization	-	-	Strong buzzer 105dB	-	-	-	-
-	Fransistor	NPN type	NPN type		NPN type	-	NPN type	-
	Page	P113	P114-115	P116	P118	P118	P119	P119















Model	number(series)	QAP125H	QAP125BZ	SRN	SEN15	SEN25	SMP35	SMP50
	Voltage	DC12V-24V AC110V-220V	DC12V, DC24V AC110V-220V	DC12V, DC24V AC110V, AC220V	DC12V, DC24V AC110V, AC220V	DC12V, DC24V AC110V, AC220V	DC12V-24V AC110V-220V	DC12V, DC24V AC110V-220V
	Diameter	Ø116	Ø116	Ø125	130	130	145×177	145×177
Dimension (mm)	Height	149	149	-	-	-	-	-
(111111)	Depth	132	132	185(Length)	200(Length)	200(Length)	216(Length)	216(Length)
	Materials	ABS	ABS	ABS	ABS	ABS	ABS	ABS
	1 Tone Buzzer		Max 105dB at 1m					
	5 Signal Sounds			Max 108dB at 1m	Max 108dB at 1m	Max 115dB at 1m		
Sound	Voice			Max 98dB at 1m	Max 98dB at 1m	Max 108dB at 1m		
&	30 Signal Sounds	Max 115dB at 1m					Max 115dB at 1m	Max 123dB at 1n
Volume	31 Signal Sounds							
	MP3	Max 100dB at 1m	*				Max 113dB at 1m	Max 118dB at 1m
	Other Sound							
Mour	nting structure	Wall mount	Wall mount	Self stand				
С	aple entry	Ø10	Ø10	Ø10	Ø10	Ø10	Ø21	Ø21
Prot	tection rating	IP65	IP65	IP55	IP55	IP55	IP65	IP65
(Certificate	-	-	CE	CE	CE	-	-
Cu	stomization	-	-	External sound pattern signal line				
7	Fransistor	NPN type	-	NPN type				
	Page	P120	P120	P121	P121	P121	P123	P123
		•						



Reference for Electric Horn/ Speaker/ Motor Siren/ Buzzer Horn/ Bell













Model	number(series)	SN	SEHN25	SEHN50	SN-1	SM30	SM40
	Voltage	DC12V, DC24V AC110V, AC220V	DC12V, DC24V AC110V, AC220V	DC12V, DC24V AC110V, AC220V	DC12V, DC24V	DC12V, DC24V AC110V, AC220V	DC12V, DC24V AC110V, AC220V
	Diameter	Ø119(Horn)	Ø158(Horn)	Ø167(Horn)	Ø135(Horn)	Ø77	Ø128
Oimension (mm)	Height						
(11111)	Depth	167(Length)	238(Length)	242(Length)	140(Length)	82(Length)	162(Length)
ı	Materials	Housing-Steel	Housing-Steel	Housing-Steel	Housing-Steel	Housing-Steel	Housing-ABS
Sound & Volume	1 Tone Buzzer 5 Signal Sounds Voice 30 Signal Sounds 31 Signal Sounds MP3 Other Sound	Max 105dB at 1m Max 95dB at 1m	Max 115dB at 1m Max 108dB at 1m	Max 120dB at 1m Max 115dB at 1m	- - - Max 100dB at 1m	- - Max 110dB at 1m	- - - Max 116dB at 1m
Mour	iting structure	Self stand	Self stand	Self stand	Self stand	Self stand	Self stand
С	aple entry	Ø10	Ø21	Ø21	Ø10	Ø22	Ø22
Prot	ection rating	IP55	IP55	IP55	IP55	IP44	IP44
C	Certificate	KIMM	KIMM	KIMM	-	-	-
Cu	stomization	External sound pattern signal line	External sound pattern signal line	External sound pattern signal line	-	-	-
Т	ransistor	NPN type	NPN type	NPN type	-	-	-
	Page	P127	P127	P128	P124	P129	P129













						•	•
Model	number(series)	SM200	SM400	SAB130	SAB200	QWH35	QWH50
	Voltage	DC24V AC110V, AC220V	DC24V AC110V, AC220V	DC24V AC110V, AC220V	DC24V AC110V, AC220V	DC12V-24V AC110V-220V	DC12V, DC24V AC110V-220V
	Diameter	Ø143	Ø165	Ø130(Bell)	Ø200(Bell)	136×179	168×222
imension (mm)	Height	-	-	238	269	-	-
(11111)	Depth	231(Length)	284(Length)	107	107	126	163
	Materials	Housing-Steel	Housing-Steel	Bell-Steel Housing-ABS	Bell-Steel Housing-ABS	Horn-PC Housing-PC+ABS	Horn-PC HousingPC+-ABS
	1 Tone Buzzer						
	5 Signal Sounds						
Sound &	Voice 30 Signal Sounds						
α Volume	31 Signal Sounds	-	-	-	-	Max 115dB at 1m	Max 123dB at 1m
	MP3	-	-	-	-	Max 113dB at 1m	Max 118dB at 1m
	Other Sound	Max 120dB at 1m	Max 123dB at 1m	Max 95dB at 1m	Max 95dB at 1m	-	-
Mour	nting structure	Direct mount	Direct mount	Wall mount	Wall mount	Wall mount	Wall mount
С	aple entry	Ø9	Ø22	Ø26	Ø26	Ø21	Ø21
Prot	tection rating	IP44	IP44	IP56	IP56	IP66	IP66
(Certificate	CE				CE	CE
Cu	stomization	-	-	2 way cable entries	2 way cable entries	-	-
7	Fransistor	-	-	-	-	NPN type	NPN type
	Page	P130	P130	P131	P131	P126	P126



Panel Mounted Speaker

















SPK

SPK Max 85dB, Panel Mounted Speaker

- Panel mounted speaker that plays 8 clear and periodic sound tones
- General compatibility by adopting general equipment (62×62mm) mount holes
- Allowing volume control without dismantling the device
- Various sound patterns such as warning sound, melodies, and alarms can be chosen depending on the message use case
- · Wiring terminal on the back side of the product
- · Materials : ABS
- · Sound volume: Max 85dB at 1m
- Ambient operating temperature : -25°C to +50°C
- Protection rating: IP23 · Certificates : CE Compliant

Model		Pı	re-recorded Sound	Voltage/ Current	Cortificato	Weight	
number	ber Sound Type Ch Sound Pattern		Sound Pattern	dB	voltage/ Current	Certificate	vveignit
	WS- 5 Warnings	1 2 3 4 5	Fire.A-ANG Emergency WA-U(Yelp) Ambulance PI-PO(Hi-low) Machinery Fault High Expansion	85dB 85dB 85dB 85dB 83dB			
SPK	WM- 5 Melodies	1 2 3 4 5	Sweet Home For Elise Cuckoo's Waltz Piano Sonata Turkish March	85dB 85dB 85dB 85dB 85dB	DC12V / 0.288A DC24V / 0.155A AC110V / 0.036A AC220V / 0.018A	C € DC24V only	DC-0.19kg AC-0.21kg
	WA- 5 Alarms	1 2 3 4 5	Beep Intermittent Door Chime Phone Ring PI.PI.PI Short Tripping Beat	83dB 83dB 85dB 85dB 85dB			



Terminal box for power and sound (back side)

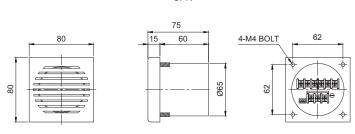




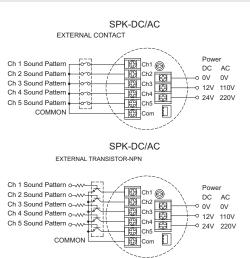
• 220-AC220V

Technical Diagram

(Units: mm)



Wiring Instructions





Panel Mounted Multi-Functional Speaker

Both built-in sounds and option for external sound input via SDcard (MP3) have 30 built-in sounds

Able to avoid signal confusion with a variety of tone options

- Bit Input offers 5 channels with 6 sound outputs
- Binary Input offers 30 sound outputs
- SDcard (MP3) combination





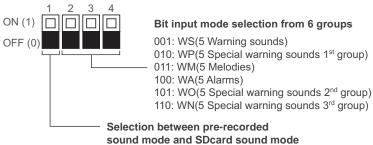
$QMPS \ \, {\tt QMPS} \ \, {\tt Panel} \ \, {\tt Embedded} \ \, {\tt Multifunctional} \ \, {\tt Speaker} \ \, ({\tt SDcard/MP3} \ \, {\tt Type})$

- · Can prevent cross talk of different voice environments by selecting an audio signal fit for the specific environment and condition
- Offers both Binary and Bit input mode options with 30 pre-recorded sounds
- Binary input mode has built-in 30 messages that can be played with switch for sound
- Bit input mode is organized into 6 groups of 5 sound tones for a total of 30 sound tone options. Playback can be selected from one of the 5 tones in each group (MP3 file with bit input mode)
- · Volume adjustment and sound selection switches located inside the unit
- SDcard type can play MP3 voice messages, user can select and change the sound message after record it
- · Sound volume: Max 98dB at 1m
- · Materials : Housing-ABS, Cover-ABS
- Ambient operating temperature : -25°C to +50°C
- · Protection rating: IP54
- · Certificates : CE Compliant, UL Listed
- · Compliant with RoHS directive

Sound Selection Instruction for SDcard Type

You can select between pre-recorded sound mode and SDcard sound (MP3) mode with the SOUND selection switch





0: Pre-recorded sound mode

1: SDcard sound mode

SDcard(MP3) Type



Features

You can easily rearrage the sound playback and group arrangement with PC. Capacity is 32Gbyte.

* SDcard sold separately.

- 30 pre-recorded sounds offered (5 warning sounds, 5 special warning sounds 1st group, 5 melodies, 5 alarms, 5 special warning sounds 2nd group, 5 special warning sounds 3rd group)
- External MP3 sound support (SDcard)
- Binary input: 30 channels
- Bit input : 5 channels (6 sound groups)
- A multi-functional product that can use an SDcard for MP3 playback
- Details on how to setup the multi-functional speakerphone are on page 140





















QMPS





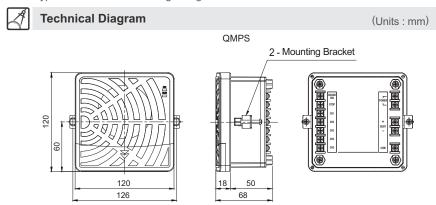


Terminal box for wiring both power and sound pattern(Rear)

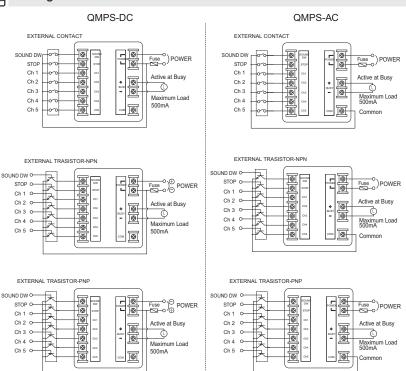
QMPS Max. 98dB, Panel Mounted Multifunctional Speaker

Model number	Voltage	Current	dB	Input Method/ No. of Ch	Certificate	Weight
OMPO	DC12V-24V	Max 0.750A	Warning: 98dB	Bit Input : 5Ch	C € DC only	0.35kg
QMPS	AC110V-220V	Max 0.100A	• MP3 : 95dB	Binary Input: 30Ch	DC only	0.53kg

- * DC type model has a free-voltage range of DC10V-30V.
- * AC type model has a free-voltage range of AC100V-240V.



Wiring Instructions



- In case of bits input, 5 sound tones can be played. For Binary input, 30 sound tones can be played.
- * Please refer to page 140 for detailed channel input instructions. (Wiring instruction is substituted for channel selection switch)



















S60ADH

S60ADH Max 100dB, Wall Mounted Buzzer Horn

- Elegant wall mounted buzzer horn
- Horn resonance structure gives the product low power consumption and high sound tone
- Cone sound diffusion structure provides wide & excellent signal sound transmission effect
- Sound volume : Max 100dB at 1m
- Ambient operating temperature : -25°C to +50°C
- Protection rating : IP54 • Certificates : CE Compliant

Specification										
Model number	Pre-recorded Sound	Voltage	Current	Certificate	Weight					
	1 Buzzer tone	DC12V	0.083A		0.12kg					
S60ADH		DC24V	0.042A	C € DC24V only	0.12kg					
SOUADH		AC110V	0.016A		0.12kg					
		AC220V	0.008A		0.12kg					

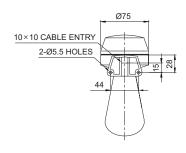
Pre-recorded Sound	Sound Pattern	Channel	dB
1 Buzzer tone	Dududu(Consecutive)	Ch1	100dB

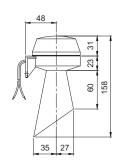


Technical Diagram

(Units:mm)

S60ADH





Customization

• 105dB strong buzzer type(Model number : S60ADH-HBZ)

Ordering Specification S60ADH 220 [Model number] [Voltage] • 12-DC12V • S60ADH • 24-DC24V • 110-AC110V • 220-AC220V



QAP series

Electric Horn/ High Siren Buzzer Horn

Wall mount multifunctional electric horn which supports 30 built-in sounds and 30 user defined sounds(MP3)

Bit input : 5Ch(6 groups) • Binary input: 30Ch Support SDcard(MP3)



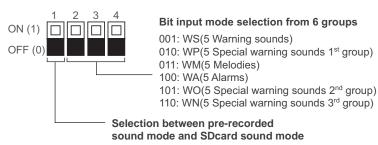


Common Specifications(QAP80/ QAP100/ QAP125)

- · Signal sound diffusing structure with wall mount supports 30 Built-in sounds and 30 user defined sounds
- Buzzer type siren horn supports Max 105dB
- · Volume control and tone selector switches are installed inside the unit
- User has the ability to enter voice tones directly into the unit via MP3 files from the SDcard
- This product has 30 Built-in sounds via binary input mode or bit input mode
- Binary input mode allows the user to select from 30 different sound options with the tone selection switch
- Bit input mode is organized into 6 groups of 5 sound tones for a total of 30 sound tone options. Playback can be selected from one of the 5 tones in each group (MP3 file with bit input mode)
- Supports both SDcard and MP3(QAP100HC/QAP125HC)
- · Materials : Housing-ABS, Resonance chamber-ABS
- Ambient operating temperature : -25°C to +50°C
- Protection rating: IP65
- · Compliant with RoHS directive

Sound Selection Instruction for SDcard Type

You can select between pre-recorded sound mode and SDcard sound (MP3) mode with the SOUND selection switch No.1



0: Pre-recorded sound mode

1: SDcard sound mode

SDcard(MP3) Type



Features

You can easily rearrage the sound playback and group arrangement with PC. Capacity is 32Gbyte.

Switch for

MP3

Sound selection SDcard slot for

Switch for play

mode selection

adjustment

Switch for volume

* SDcard sold separately.

- 30 pre-recorded sounds offered (5 warning sounds, 5 special warning sounds 1st group, 5 melodies, 5 alarms, 5 special warning sounds 2nd group, 5 special warning sounds 3rd group)
- External MP3 sound support (SDcard)
- Binary input: 30 channels
- Bit input: 5 channels (6 sound groups)
- A multi-functional product that can use an SDcard for MP3 playback
- Details on how to setup the multi-functional speakerphone are on page 140

⁾ series



Bit input : 5Ch(6 groups) Binary input: 30Ch



QAP80H/ QAP80BZ

QAP80 does not support SDcard.



QAP series' buzzer and electric sound signal is rich and clear because of the way the resonance chamber amplifies the sound.

Electric Horn/ High Siren Buzzer Horn



QAP80H Electric Horn, Wall Mount Type

· Built-in sound

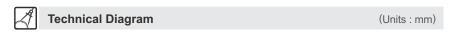
Model number	Voltage	Current	Built-in Sound and dB	Certificate	Weight
QAP80H	DC12V-24V	Max 0.450A	• Bit Input : 5Ch • Binary Input : 30Ch • Warning : Max 100dB	-	0.51kg

- * DC type model has a free-voltage range of 10V-30V.
- * Please refer to page 141 for detailed sound pattern information.

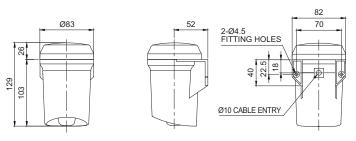
QAP80BZ High Siren Buzzer, Wall Mount Type

· Built-in high buzzer

Model number	Voltage	Current	Built-in Sound and dB	Certificate	Weight
0.4.00.00.7	DC12V	0.300A	Buzzer Volume :		0.54kg
QAP80BZ	DC24V	0.150A	Max 105dB	-	0.59kg

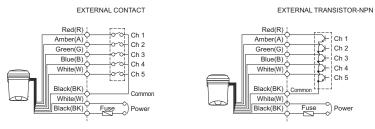


QAP80H/ QAP80BZ



Wiring Instructions

QAP80H-DC



- External power line standard : UL1015 AWG18(0.75sq)×2C 400mm
- Signal line standard: UL1007 AWG22(0.3sq) 400mm
- · Product can be wired regardless of polarity
- In case of bits input, 5 sound tones can be played. For Binary input, 30 sound tones can be played
- * Please refer to page 140 for detailed channel input instructions. (Wiring instruction is substituted for channel selection switch.)



⁾ series



Bit input: 5Ch(6 groups) Binary input: 30Ch

SDcard(MP3)



QAP100H/ QAP100BZ



QAP series' buzzer and electric sound signal is rich and clear because of the way the resonance chamber amplifies the sound.



Electric Horn/ High Siren Buzzer Horn

QAP100H Electric Horn, Wall Mount Type

• Built-in sound/ MP3

Model number	Voltage	Current	Built-in Sound and dB	Certificate	Weight
QAP100H	DC12V-24V	DC12V-24V Max 0.800A	Bit Input : 5Ch Binary Input : 30Ch		0.60kg
QAP 100H	AC110-220V	Max 0.290A	Warning : Max 100dBMP3 : Max 95dB	-	0.63kg

- * DC type model has a free-voltage range of 10V-30V.
- * AC type model has a free-voltage range of 100V-240V.
- * Please refer to page 141 for detailed sound pattern information.

QAP100BZ High Siren Buzzer, Wall Mount Type

· Built-in high buzzer

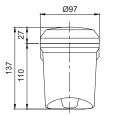
Model number	Voltage	Current	Built-in Sound and dB	Certificate	Weight
	DC12V	0.300A			0.651/0
QAP100BZ	DC24V	0.150A	Buzzer Volume : Max 105dB	-	0.65kg
	AC110-220V	Max 0.033A	Wax 100dB		0.68kg

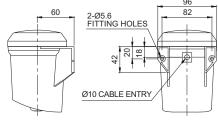
* AC type model has a free-voltage range of 100V-240V.



(Units:mm)

QAP100H/ QAP100BZ

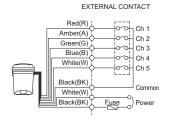


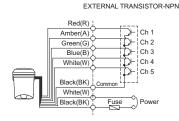




Wiring Instructions

QAP100H-DC/AC





- External power line standard : UL1015 AWG18(0.75sq)×2C 400mm
- Signal line standard: UL1007 AWG22(0.3sq) 400mm
- · Product can be wired regardless of polarity
- In case of bits input, 5 sound tones can be played. For Binary input, 30 sound tones can be played
- * Please refer to page 140 for detailed channel input instructions. (Wiring instruction is substituted for channel selection switch.)



^O series

Bit input: 5Ch(6 groups) Binary input: 30Ch

SDcard(MP3)



QAP125H/ QAP125BZ



QAP series' buzzer and electric sound signal is rich and clear because of the way the resonance chamber amplifies the sound.

Electric Horn/ High Siren Buzzer Horn



QAP125H Electric Horn, Wall Mount Type

• Built-in sound/ MP3

Model number	Voltage	Current	Built-in Sound and dB	Certificate	Weight
QAP125H	DC12V-24V	Max 0.800A	Bit Input : 5Ch Binary Input : 30Ch		0.70kg
QAP 125H	AC110-220V	Max 0.290A	Warning : Max 115dBMP3 : Max 100dB	-	0.73kg

- * DC type model has a free-voltage range of 10V-30V.
- * AC type model has a free-voltage range of 100V-240V.
- * Please refer to page 141 for detailed sound pattern information.

QAP125BZ High Siren Buzzer, Wall Mount Type

• Built-in high buzzer

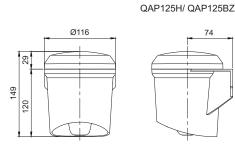
Model number	Voltage	Current	Built-in Sound and dB	Certificate	Weight
	DC12V	0.300A			0.751.0
QAP125BZ	DC24V	0.150A	 Buzzer Volume : Max 105dB 	-	0.75kg
	AC110-220V	Max 0.033A	Wax 100db		0.78kg

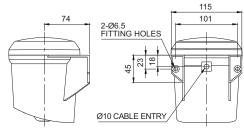
* AC type model has a free-voltage range of 100V-240V.



Technical Diagram

(Units: mm)

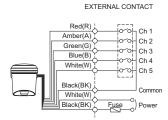


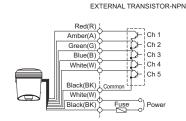




Wiring Instructions

QAP125H-DC/AC





- External power line standard : UL1015 AWG18(0.75sq)×2C 400mm
- Signal line standard : UL1007 AWG22(0.3sq) 400mm
- · Product can be wired regardless of polarity
- In case of bits input, 5 sound tones can be played. For Binary input, 30 sound tones can be played
- * Please refer to page 140 for detailed channel input instructions. (Wiring instruction is substituted for channel selection switch.)



Qlight

SRN/SEN15/SEN25

General Electric Horns















SRN



Common Specifications(SRN/ SEN15/ SEN25)

- Cost effective model with high signal sound
- A variety of sound selections between warning sounds, alarm sounds, melodies and voice messages to fit your sophisticated application needs
- User defined voice signal type(WV) shall be provided upon request
- · Can adjust sound volume with the switch built inside the unit
- Materials : Housing-ABS(Standard Color : Red)
- Ambient operating temperature : -25°C to +50°C
- Protection rating : IP55
- Certificates : CE Compliant



Model number	Bui	ilt-in Sound	dB	Voltage	Current	Certificate	Weight
	WS	5 Warnings	108dB	DC12V	0.322A		
CDN	WM	5 Melodies	108dB	DC12V DC24V	0.322A 0.233A	CE	DC-0.72kg
SRN	WA	5 Alarms	105dB	AC110V	0.073A	DC only	AC-0.98kg
	WV	5 Voices	98dB	AC220V	0.036A		

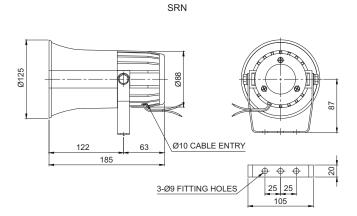


SEN15



Technical Diagram

(Units:mm)





SEN25

SEN15 Max 108dB

Model number	Bu	ilt-in Sound	dB	Voltage	Current	Certificate	Weight
	WS	5 Warnings	108dB	DC12V	0.366A		
CEN14E	WM	5 Melodies	108dB	DC12V DC24V	0.366A 0.266A	CE	DC-0.76kg
SEN15	WA	5 Alarms	105dB	AC110V	0.077A	DC only	AC-1.03kg
	WV	5 Voices	98dB	AC220V	0.038A		

SEN25 Max 115dB

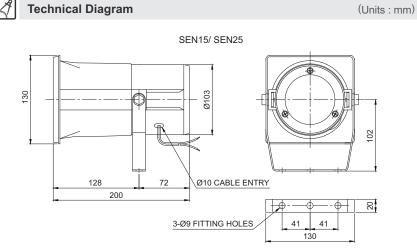
Model number	Bu	ilt-in Sound	dB	Voltage	Current	Certificate	Weight
	WS	5 Warnings	115dB	DC12V	2.211A		
CENOE	WM	5 Melodies	115dB	DC12V DC24V	1.022A	CE	DC-0.95kg
SEN25	WA	5 Alarms	113dB	AC110V	0.226A	DC only	AC-1.23kg
	WV	5 Voices	108dB	AC220V	0.113A		

Qlight

SRN/SEN15/SEN25

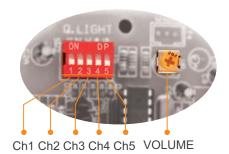
General Electric Horns





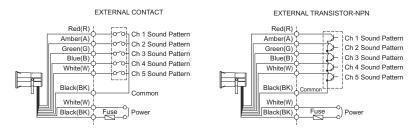
Sound Selection and Wiring Instructions

- Standard : Internal switch
- Internal switch allows to choose sound pattern for SRN/SEN15/SEN25 models



- External Power Line, Threading type : Standard VCTF(0.75sq×2C)×400mm
- LC type signal line: UL1007 AWG22(0.3sq) 400mm
- · Product can be wired regardless of polarity

SRN/ SEN15/ SEN25-DC/AC





Customization

- Customized type: Select using the external contact(LC)
- · You can select the audible sound pattern using external contacts or transistor with a customized external sound line(Model number : -LC)

Ordering	Specification		
SRN	- WS	- 220	- LC
[Model number]	[Sound]	[Voltage]	[Sound selection]
• SRN • SEN15 • SEN25	WS-5 Warnings WM-5 Melodies WA-5 Alarms WV-5 Voices	• 12-DC12V • 24-DC24V • 110-AC110V • 220-AC220V	None Internal Switch LC External Contact

Self Stand Multi-Functional Electric Horns



SMP series



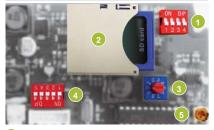






SMP35/SMP50

Channel Input Type of Multifunctional Product



- Switch for sound pattern selection
- SDcard slot for MP3
- Switch for play mode selection
- Switch for channel selection
- Switch for volume adjustment

Switch for Sound

· Switch No1. allows choosing one option between pre-recorded sound and SDcard



Bit input mode selection from 6 groups

001: WS(5 Warning sounds)

010: WP(5 Special warning sounds 1st group)

011: WM(5 Melodies)

100: WA(5 Alarms)

101: WO(5 Special warning sounds 2nd group)

110: WN(5 Special warning sounds 3rd group)

Selection between pre-recorded sound mode and SDcard sound mode

0: pre-recorded sound mode

1: SDcard sound mode

- 30 pre-recorded sounds offered (5 warning sounds, 5 special warning sounds 1st group, 5 melodies, 5 alarms, 5 special warning sounds 2nd group, 5 special warning sounds 3rd group)
- External MP3 sound support (SDcard)
- · Binary input: 30 Channels
- Bit input : 5 Channels (6 sound groups)
- · A multi-functional product that can use an SDcard for MP3 playback
- Details on how to setup the multi-functional speakerphone are on page 140

Common Specifications(SMP35/SMP50)

- · Can prevent cross talk of different voice environments by selecting an audio signal fit for the specific environment and condition
- 30 pre-recorded sound type and supports Binary input mode and Bit input mode
- Binary input mode can playback 30 sound tones by using sound tone select switch
- · Volume adjustment and sound selection switches located inside the unit. SDcard in the unit offers convenient operation
- · SDcard type allows the user to input the proper voice messages for specific operating conditions
- · Support MP3 file and user can input user defined sound
- Tightly sealed structure that blocks dust with IP65 protection rating- suitable for outdoor
- Materials: Housing-ABS, Resonance chamber-ABS, Bracket-STS
- Ambient operating temperature : -25°C to +50°C
- Protection rating: IP65
- · Compliant with RoHS directive

SMP35 Multifunctional Self Stand Type Electric Signal Horn(Supports Warning Sound/ MP3)

Volume: Max 115dB at 1m

Model number	Voltage	Current	Built-in Sound and dB	Certificate	Weight	Weight
ONADOS	DC12V-24V	Max 0.800A	Warning : 115dB	Bit Input : 5Ch		0.76kg
SMP35	AC110V-220V	Max 0.290A	• MP3 : 113dB	Binary Input : 30Ch	-	1.03kg

^{*} DC type model has a free-voltage range of 10V-30V. * AC type model has a free-voltage range of 100V-240V.

SMP50 Multifunctional Self Stand Type Electric Signal Horn(Supports Warning Sound/ MP3)

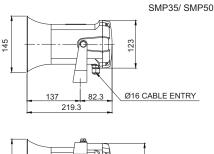
- · Powerful 50W unit can generate high signal sound
- Volume: Max 123dB at 1m

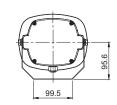
Model number	Voltage	Current	Built-in Sound and dB	Certificate	Weight	Weight
	DC12V	1.800A				0.051
SMP50	DC24V	1.000A	Warning : 123dB	•	_	0.95kg
	AC110V-220V	Max 0.600A	• MP3 : 118dB	Binary Input: 30Ch		1.23kg

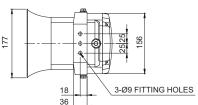
^{*} AC type model has a free-voltage range of 100V-240V.

Technical Diagram

(Units : mm)







Qlight

SMP series

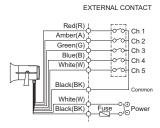
Self Stand Multi-Functional Electric Horns

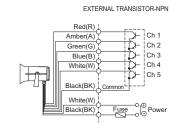
	Category	Ch	Sound
		Ch1	Fire.A-ANG
		Ch2	Emergency WA-U(Yelp)
WS	5 Warning Sounds	Ch3	Ambulance PI-PO(Hi-low)
	Sourius	Ch4	Machinery Fault
		Ch5	High Expansion
	F 0	Ch1	Fire.A-ANG
	5 Special	Ch2	Abandon Alarm
WP	Warning Sounds	Ch3	Machinery Fault
	(1 st group)	Ch4	High Expansion
	(1 gloup)	Ch5	7 Short Pl. / 1 Long
		Ch1	Sweet Home
		Ch2	For Elise
WM	5 Melodies	Ch3	Cuckoo's Waltz
		Ch4	Piano Sonata
		Ch5	Turkish March
		Ch1	Beep Intermittent
		Ch2	Door Chime
WA	5 Alarms	Ch3	Phone Ring
		Ch4	PI.PI.PI Short
		Ch5	Tripping Beat
	F Ci-l	Ch1	Phone Ring
	5 Special Warning	Ch2	Police
WO	Sounds	Ch3	Emergency
	(2 nd group)	Ch4	Phone Ring 2
	(<u>L</u> 9.00p)	Ch5	911 siren
	5.0	Ch1	Do-ong Do-ong
	5 Special Warning	Ch2	Di- Di-
WN	Sounds	Ch3	PI.PI.PI long
	(3 rd group)	Ch4	Li long Li long
	(- g. 5 4P)	Ch5	Siren

Sound Selection and Wiring Instructions

- Standard : Select using the switch inside of the unit
- Customized wiring in case of external contact or transistor wiring type as sound tone selector (Model name: -LC)

SMP35/ SMP50-DC/AC





- DC type : Black output is negative(-)
- Channel selection, 5 sounds played for Bit input and 30 sound played for binary input
- * Please refer to page 140 for detailed channel input instructions. (Wiring instruction is substituted for channel selection switch.)

Ordering Specifications SMP50 110/220 LC [Model number] [Voltage] [Sound selection] • SMP35 • 12/24-DC12V-24V Standard • 110/220-AC110V-220V - Built-in Switch • LC • SMP50 • 12-DC12V - External contact • 24-DC24V • 110/220-AC110V-220V

Small Size Electric Horn











SN-1

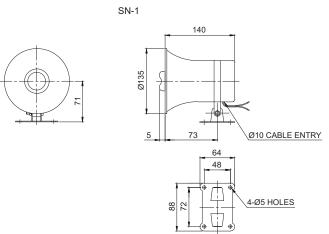
Ordering Specification SN-1 12 [Voltage] [Model number] • SN-1 • 12-DC12V • 24-DC24V

SN-1 Max 100dB

· 1 warning sound and cost effective model for DC only



(Units:mm)



QWH series



Wall mount electric horn that offers 31 pre-recorded warning sounds and 30 user selected sound messages

- Bit input offers 5 channels with 6 sound outputs
- · Binary input offers 31 sound outputs and SD Card (MP3) combination



Sound Selection and Volume **Adjustment Instructions**

QWH series has control switches inside the unit for sound selection and volume adjustment. You can play customized sound message(MP3) with SD Card.

QWH series Product Category						
QWH35	Standard pre-recorded sound type					
QWH35SD	SD Card(MP3) type					
QWH50	Standard pre-recorded sound type with high volume output					
QWH50SD	SD Card (MP3)type with					

Common Specifications(QWH35/ QWH35SD/ QWH50/ QWH50SD)

- Signal fit for the specific environment and condition.
- Options to select between 31 special warning sounds included in the pre-recorded sound type and SD Card(MP3) type
- Volume adjustment and sound selection switches located inside the unit. SD Card in the unit offers convenient operation.
- · SD Card type allows the user to input the proper voice messages for specific operating conditions.
- The SD Card type 31 Special alarms built in which includes the voice alert from the SD Card (MP3). 31 special warning sounds are built both in pre-recorded sound type and SD Card type
- Offers both Binary and Bit input mode options (only the SD Card type has the bit input)
- Tightly sealed structure that blocks water and dust with IP66 protection rating suitable for outdoor installation
- Cable entry: PG 13.5
- Materials : Horn-PC, Housing-PC+ABS
- Ambient operating temperature : -30°C to +50°C(Standard type) -30°C to +50°C(SD Card type)

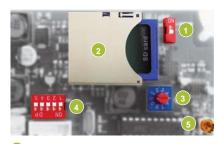
• Protection rating : IP66 • Certificates : CE Compliant · Compliant with RoHS directive

Pre-recorded sound type



- Switch for channel selection Switch for volume adjustment

SD Card (MP3) type



- Switch for sound pattern selection
- SD Card slot for MP3
- Switch for play mode selection
- Switch for channel selection
- Switch for volume adjustment

The input method of built-in sound type

ON OFF	1	2	3	4	5
No.					5
0	0	0	0	0	0
1	0	0	0	0	1
2	0	0	0	1	0
:	:	:	:	:	:
31	1	1	1	1	1

Select from 31 pre-recorded output sound options by using a combination of the 5 channel input switches.

The binary input method allows you to express each of the 31 alarm sound signals with a "0" or "1" by switching the 5 channels on and off as shown in the table.

Sound selection instruction for SD Card type

You can select between pre-recorded sound mode and SD Card sound (MP3) mode with the SOUND selection switch.



Selection between pre-recorded sound mode and SD Card sound mode

- 0 : pre-recorded sound mode 1: SD Card sound mode
- 31 built-in alarm sounds and special sound
- Supports SD Cards for external sound (MP3)
- Binary Input: 31Ch
- Bit Input : 5Ch(SD Card only)
- · A versatile product that can play MP3 files via the SD
- For detailed setup instructions, please see page 138 for the special beep-type products.
- · Channel 1 is set as the factory default



- series













QWH35 series

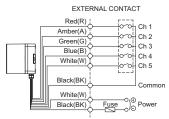


QWH50 series

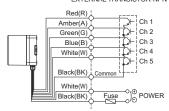
Sound Selection and Wiring Instructions

- · Standard : Internal switch
- Customization : External contact(LC)

QWH35/ QWH50-DC/AC



EXTERNAL TRANSISTOR-NPN



- · Channel selection, 5 sounds available with Bit input and 31 sound available with Binary input
- DC type : Black line is negative(-)
- * Please refer to Page 138 for channel input. (Wiring Instructions is changed to channel selection switches)

Wall Mount Electric Horn with Pre-recorded Special Warning Sound

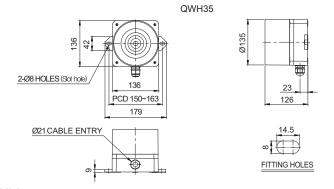
$QWH35\,$ Wall Mount Electric Horn MP3(SD Card) with Pre-recorded Special Warning Sound

Model n	umber	Voltage	Current	Volume	Binary input/ Channels	Certificates	Weight
QWH	35			Special warning	Binary Input: 31Ch		
QWH	35SD	DC12V-24V AC110V-220V	Max 0.800A Max 0.290A	• MP3 sound : 113dB	Bit Input : 5Ch (SD Card only) Binary Input : 31Ch	C € DC Only	0.9kg

- * DC type model has a free-voltage range of 10V-30V.
- * AC type model has a free-voltage range of 100V-240V.

Technical Diagram

(Units: mm)



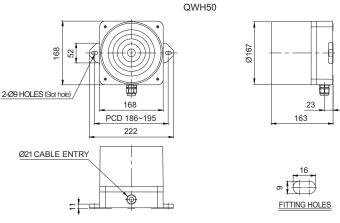
QWH50 Wall Mount Electric Horn MP3(SD Card) with Pre-recorded Special Warning Sounds

			,		•	
Model number	Voltage	Current	Volume	Binary input /Channels	Certificates	Weight
QWH50	DC12V		Special warning	Binary Input: 31Ch		
QWH50SD	DC24V AC110V-220V	Max 5.800A Max 0.600A	sound : 123dB • MP3 sound : 118dB	Bit Input: 5Ch (SD Card only) Binary Input: 31Ch	C € DC Only	2.7kg

* AC type model has a free-voltage range of 100V-240V.

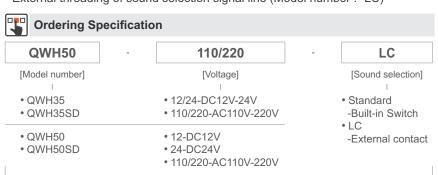


(Units : mm)



Customization

• External threading of sound selection signal line (Model number : -LC)



Qlight

SN/SEHN25













Steel Housing





SEHN25

Common Specifications(SN/ SEHN25/ SEHN50)

• Steel housing provides excellent vibration and shock resistance under seismic conditions

Electric Horns for Vessels and Heavy Industrial Applications

- · A variety of sound selections between warning sounds, alarm sounds, melodies and voice messages to fit your sophisticated application needs
- · Can adjust sound volume with the switch built inside the unit
- · Materials : Housing-Steel, Horn housing -Steel
- · Housing standard color : Red
- Ambient operating temperature : -25°C to +50°C
- Protection rating : IP55, Suitable for outdoor installation
- Certificates : KIMM Compliant

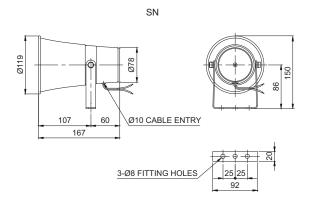
SN Max 105dB, Self Stand Type

Model number	Sound pattern		Volume	Voltage / Current	Certificates	Weight
	WS	5 Warning sounds	105dB	DC12V / 0.266A	KIMM	
CNI	WM	5 Melodies	105dB	DC24V / 0.211A		DC-0.91kg
SN	WA	5 Alarms	103dB AC110V / 0.062A 95dB AC220V / 0.031A		KIIVIIVI	AC-1.06kg
	WV	5 Customizable sounds				

^{*} Please refer to Page 136 for detailed information about selectable sound patterns.

Technical Diagram

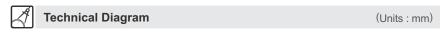
(Units : mm)

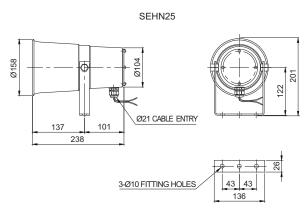


$SEHN25\,$ Max 115dB, Self Stand Type

Model number	Sound pattern		Volume	Voltage / Current	Certificates	Weight
	WS	5 Warning sounds	115dB	DC12V / 2.211A		
SEHN25	WM	5 Melodies	115dB	DC24V / 1.022A	KIMM	DC-2.26kg
SERINZS	WA	5 Alarms	113dB	AC110V / 0.226A	KIIVIIVI	AC-2.48kg
	WV	5 Customizable sounds	108dB	AC220V / 0.113A		

^{*} Please refer to Page 136 for detailed information about selectable sound patterns.







Electric Horns for Vessels and Heavy Industrial Applications









Steel Housing



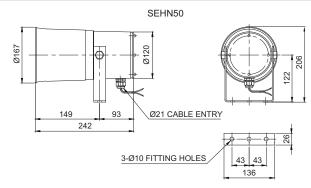
SEHN50 Max 120dB, Self Stand Type

Model number		Sound pattern		Volume	Voltage / Current	Certificates	Weight
		WS	5 Warning sounds	120dB	DC12V / 2.440A	KIMM	
	SEHN50	WM	5 Melodies	120dB	DC24V / 1.186A		DC-2.67kg
	SENIN30	WA 5 Alarms		118dB	AC110V / 0.244A	KIIVIIVI	AC-3.30kg
		WV	5 Customizable sounds	115dB	AC220V / 0.122A		

* Please refer to Page 136 for detailed information about selectable sound patterns.

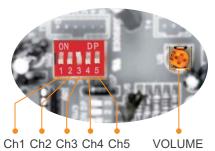
Technical Diagram





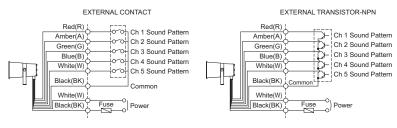
Sound Selection and Wiring Instructions

- · Standard : Internal switch
- When each channel dip switch is on, a related sound will be played



Customization : External contact(LC)

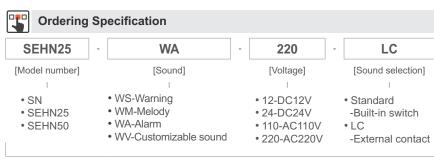
SN/ SEHN25/ SEHN50-DC/AC



- External power line standard : VCTF(0.75sq)×2C 400mm
- LC type signal line standard : UL1007 AWG22(0.3sq) 400mm
- · Product can be wired regardless of polarity

Customization

· You can select the audible sound pattern using external contacts or transistor with a customized external sound line. (Model number: -LC)





Motor Sirens















SM30



SM40



Continuous operation rating time is 10 mins. Over 10 mins of continuous operation may cause motor damage. Please be careful.

Ordering Specification

SM30	-	24
[Model number]		[Voltage]
1		I
• SM30		• 12-DC12V
• SM40		• 24-DC24V

• 110-AC110V • 220-AC220V

SM30 Miniature Motor Siren

• Ø80mm compact structure with 110dB sound output

• Motor RPM: 10,000RPM

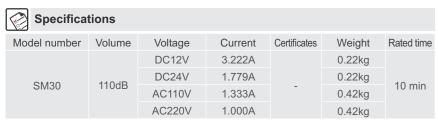
· Materials : Steel

• Power consumption: 40W · Protection rating: IP 44

· Housing standard color : Red

Insulation resistance: 100MΩ(at 500 VDC)

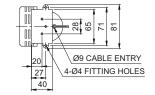
• Ambient operation temperature : -25°C to +50°C



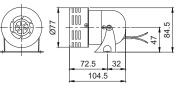
Technical Diagram

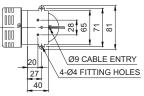
SM30-DC12/24

Ø22 CABLE ENTRY 47 35



SM30-AC110/220





(Units: mm)

SM40 Miniature Motor Siren

• Ø100mm compact structure with 116dB sound output

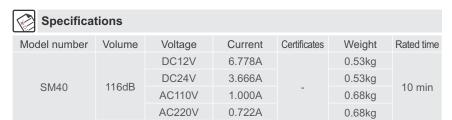
• Motor RPM: 7,000RPM

· Protection rating: IP 44

· Housing standard color : Gray

· Materials : ABS • Power consumption: 80W • Insulation resistance : 100MΩ(at 500 VDC)

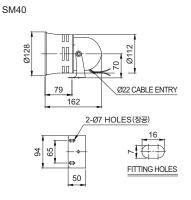
• Ambient operation temperature : -25°C to +50°C



Technical Diagram

(Units:mm)





SM series

Motor Sirens



(Units: mm)













SM200



SM400



Continuous operation rating time of SM400 is 3 mins. Over 3 mins of continuous operation may cause damage to the motor. Please be careful.



• SM200

ī • 24-DC24V

• SM400

ī

• 110-AC110V

• 220-AC220V

SM200 120dB Heavy-Duty Motor Siren

• Excellent durability and high volume are suitable for noisy environment

• Motor RPM: 7,200RPM

· Housing standard color : Red

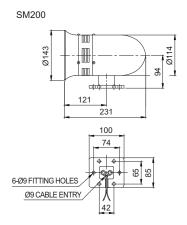
· Materials : Steel/Al • Insulation resistance : 100MΩ(at 500 VDC)

• Ambient operation temperature : -25°C to +50°C • Protection rating : IP 44

· Certificates : CE Compliant

Specifications Certificates Model number Volume Voltage Current Weight Rated time DC24V 7.820A CE 2.19kg SM200 120dB AC110V 2.105A 2.55kg 10 min AC220V 1.005A 2.55kg





SM400 Sound 123dB Heavy-Duty Motor Siren

- 123dB high volume model suitable for long-distance audible signal in noisy environments
- Motor RPM: 7,600RPM
- · Housing standard color : Red

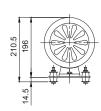
· Materials : Steel/ABS

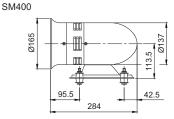
- Insulation resistance : 100MΩ(at 500 VDC)
- Ambient operation temperature : -25°C to +50°C Protection rating : IP 44

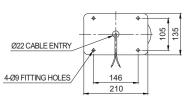
Specifications										
Model number	Volume	Voltage	Current	Certificates	Weight	Rated time				
	123dB	DC24V	12.000A	-	3.19kg	3 min				
SM400		AC110V	6.300A		3.75kg					
		AC220V	3.800A		3.75kg					

Technical Diagram

(Units:mm)









Qlight

SAB series

SAB130

-Bell housing Ø130mm

SAB200

-Bell housing Ø200mm



SAB130



SAB200

Customization

Two way cable entries with PG19

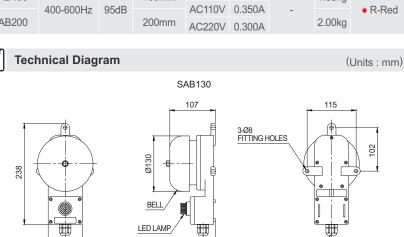
SAB130/ SAB200 Max 95dB

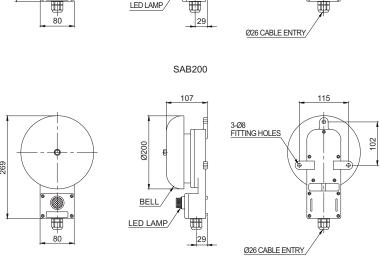
- Electric solenoid bell system provides excellent durability to vibration and shock for vessels and large facilities
- Special material for bell housing provides clear and crisp alarm sound

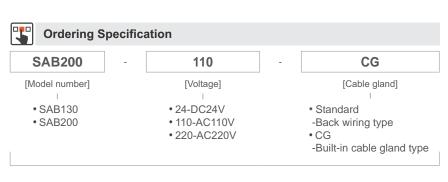
Alarm Bells with Lamp Attached for Vessels and Heavy Industrial Applications

- Excellent vibration and shock resistant structure for superior durability
- Easy wiring and maintenance with terminal box attached
- · Lamp attached provides visual signals
- Bell and lamp operation is synchronized. Each function can also operate separately
- Sound volume : Max 95dB at 1m
- Standard color : Housing-beige, Bell/ Lamp-Red
- · Materials : Bell-Steel, Housing-ABS
- Ambient operating temperature : -25°C to +50°C
- Protection rating: IP56 · Cable entry: PG19

Specifications									
Model number	Frequency	Volume	Bell diameter	Voltage	Current	Certificates	Weight	Bell/ Lamp color	
SAB130	400-600Hz	130	130mm	DC24V	1.100A		1.88kg		
		95dB		AC110V	0.350A	-		R-Red	
SAB200			200mm	AC220V	0.300A		2.00kg		









Technical Certification

Qlight products are designed to meet strict quality and technical standards. Thus, the Qlight brand is widely recognized for its high quality and technical innovations from leading institutions around the world.



ISO International Organization for Standardization

Qlight quality assurance systems have been certified by ISO by applying the ISO 9001:2008, KS Q ISO 9001:2009 regulation.



IECEx International Explosion Proof Certification (IECEx)

Certified that Qlight's products are being manufactured and manage according to international standards.



ATEX The European Regulatory Framework or Manufacture. Installation and Use of Equipment in Explosive Atmospheres

Qlight explosion proof products comply with ATEX Directives 94/9/EC.



NEPSI National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation

Qlight's design and manufacturing system meets the People's Republic of China National explosion proof Standard. (Chinese Standard-GB3836/GB12476)



KGS Korea Gas Safety Corporation

Approved from "Korea Gas Safety Corporation" that Qlight's design and manufacturing system meets the standard of KGS.



KOSHA Korea Occupational Safety and Health Agency

Approved by the "Korea Occupational Safety and Health Agency" that Qlight's design and manufacturing system meets the standard of KOSHA.



ABS American Bureau of Shipping

Qlights design and quality assurance system has been certified by the American Bureau of Shipping.



LR Lloyd's Register

Qlight design and quality assurance system has been certified from Lloyd's Register.



CCS China Classification Society

Qlight design and quality assurance system has been certified by the China Classification Society.



RMRS Russian Maritime Register of Shipping

Qlight design and quality assurance system has been certified from Russian Maritime Register of Shipping.



KR Korean Register of Shipping

Qlight design and quality assurance system has been certified by the Korean Register of Shipping.



CE European Commission

Qlight has been certified by the European



UL Underwriters Laboratories

Qlight design and quality assurance system has been certified from UL to ensure the stability of consumption goods and to protect consumers.



KC Korea Safety Certification

Qlight products are certified by KC for preventing accident caused by fire.



CCC China Compulsory Certificate

Qlight has obtained CCC which guarantees safety, protection against fraud, environment, etc.



ICAO International Civil **Aviation Organization**

Qlight guarantees our products satisfy the criteria regulated by the International Civil Aviation Organization(ICAO, FAA).



E-mark Commission Directive Regarding Vehicle Industry

Qlight has obtained EU mark for approved vehicles and vehicle components sold into the EU(EEA: European Economic Area)



RoHS Restriction of Hazardous Substances Directive

Qlight complies with the Restriction of Hazardous Substances Directive by limiting its use of hazardous materials.