Wide Area Sirens





klaxon®

Introduction



Introduction

Klaxon Signals, a part of the Texecom organization, have been supplying an extensive range of signalling products and warning systems to the world for over 80 years. Our wealth of experience in the field of signalling stems from vast knowledge gained by providing notification solutions for a broad spectrum of clients and industries.

Petro-Chemical, Nuclear, Civil Defence, Ports, Weather Warning, Construction and education are amonst those industries within our global portfolio who choose to benefit from a Klaxon Wide Area System.

Our expert advice and extensive product range ensures the client receives a warning solution that addresses their specific safety requirements in an appropriate, cost effective and timely manner. Whatever the requirement the client can rest assure that we have the ability to administer and control the project from concept to conclusion.

In doing so the company takes great pride in our sirens and control equipment being of the highest quality for optimum performance and reliability, whilst also providing ongoing support for the lifetime of the system supplied.

The Company naturally has ISO 9001, accreditation and operates a continued product development programme, complemented by rigorous quality checks.

Service

Klaxon's wide area systems provide a full product and service combination incorporating as required pre/post project evaluation, acoustic surveying, personnel training and maintenance for a tailor made solution to meet customer present and future requirements.

Our technical experts will first assess and fully understand your specific site requirements. This may then be accompanied by a site survey which could include a full acoustic survey of the site. The information gathered is used to run a sound coverage simulation which is presented in a graphical format highlighting estimated soundpressure levels accross the site. The simulation will help to advise the best system options appropriate for the site.

Following approval the system would be manufactured to the agreed specification. Equipment factory acceptance testing and personnel training can be arranged before delivery of the equipment to the site. A system commissioning service can also be organised to follow installation.

The siren systems supplied have a one year warranty period and require very low maintenance, however even after the warranty period has expired ongoing on-site support and technical assistance is available.







Contents

Intr	oduction	Page 2
	Overview	Page 2
	Service	Page 2
	Product Range Overview	Page 4
•	Products	Page 5
Мо	tor Driven Sirens	Page 6
	GP Range	Page 7
	FP Range	Page 8
•	Control Panels/Sound Coverage	Page 9
Ele	ctronic Sirens	Page 10
	Value Range	Page 10
	Value Range Control Options	Page 11
	SIP-51 HMI	Page 11
	DT-11 HMI	Page 11
	Superior Range	Page 12
	Superior Range Control Options	Page 14
	SIP-51 HMI	Page 14
	CMC-4 HMI	Page 14
	CMC-8 HMI	Page 15
	Talos 128 HMI	Page 15
	ES Connection Options	Page 16
	ES Control Room	Page 17
	Portable Range	Page 18
	ES ATEX Approved	Page 19
Sou	und Coverage Plots	Page 20
Sire	en Selection Criteria	Page 22

Products

Klaxon Signals provides a range of warning sirens for operation in various environments. The range includes both, conventional motor driven sirens and the more sophisticated and flexible electronic siren systems for non-hazardous and hazardous environment operation.

Motor Driven Sirens

Motor driven sirens are manufactured from cast aluminium and steel for use in outdoor environments. They produce a powerful universally recognised emergency notification signal. ATEX approved models are available for use in hazardous areas.

Features

- Simple robust technology.
- Rugged construction.
- Universally recognised emergency signal.
- Control panels using contact or TCP/IP technology available.



Electronic Siren Systems

Electronic siren systems consist of;

- An array of siren horns manufactured from cast aluminium for installation on a mast. The horns can be mounted in an omni or uni directional configuration depending on the shape and coverage of sound required.
- A controller which provides monitoring and control.

Note: Klaxon can supply the horn array in kit form to be fixed to an existing pole structure, or offer the option of supplying pre-installed onto a pole with or without a base fixing.

Features

- Low, medium and high output siren options. Ranges from 106dB – 127dB at 30 meters.
- Pre-recorded or live voice messages in addition to traditional tones. Different voice messages can be broadcast to different areas simultaneously depending on the situation in each area.
- Perform silent tests at a user defined time period which determines the operational capability of the siren.
- Battery powered siren operation means loss of site power has no effect on the functionality of the siren. An AC power supply is only required to maintain battery charge by default.
- The siren is able to be installed in more locations because it only requires a 110/230VAC supply instead of the standard 400VAC 3phase supply required for motor driven sirens.
- Up to 8 different user defined warning signals can be activated via volt free contacts and more when an R\$485 interface is used as a means of control.
- Regional and Local Control. Multiple local, geographically separated warning systems can be alerted through one regionally controlled system, such as an emergency centre or remotely via a computer with internet access.
- Siren system can be charged from a solar panel array for use in remote locations.
- Variable sound levels for each warning signal enables on-site and off-site warning through the same siren.
- Control room to siren connection can be hardwired, TCP/IP,
 Fibre Optic or VHF/UHF radio.



Motor Driven Sirens

Product Type	Model Name	Control Options
	GP6	
Standard (Non-Hazardous Area)	GP10 GP12	Master and slave control panels with integral and wired remote controls that can be operated as single master or master with multiple slave panels.
ATEX (Hazardous Area)	FP6 FP10	Master and slave control panels with integral and wired remote controls that can be operated as single master or master with multiple slave panels.

Note: Standard type sirens are also available with anti-icing heaters

Electronic Sirens

Product Type	Model Name	Sound Radiation	Control Options
	ES1/2V	Omni-directional	
Value	ES1/3V	Uni-directional	Volt-free switch or HMI module (DT-11, SIP) connected
	ES2V	Uni or Omni-directional	
	ES1/2S	Omni-directional	
	ES1/3S	Uni-directional	Volt-free switch or HMI module (PC, CMC-4, CMC-8, SIP)
Superior	ES2S	Uni or Omni-directional	connected via multicore cable, TCP/IP, Fibre Optic or
	ES3S	Uni or Omni-directional	VHF/UHF radio.
	ES4S	Uni or Omni-directional	
ΔΤΕΥ	ES1SF	Uni or Omni-directional	Volt-free switch or HMI module (PC, CMC-4, CMC-8, SIP)
AIEA	ES2SF	Uni or Omni-directional	connected via multicore cable, TCP/IP or Fibre Optic.
Internal	100v Line	Adaption for superior syste	em to allow connection of 100v loudspeakers to output.

Motor Driven Sirens



GP Range

The GP range provides a motor siren solution for general wide are notification in a variety of industrial, civil and commercial environments.

The units are of a sturdy rugged construction and produce the familiar low frequency 'air raid' sound.

Features

- 3 Phase 400VAC ±10% 50Hz supply required for operation (alternative voltages available by request).
- 475Hz constant tone from the GP6 & GP10 sirens and a combined 475/560Hz constant tone signal from the GP12 siren.
- Cast aluminium and steel construction
- Can be supplied with anti-icing heaters installed.
- Control panels can be supplied to safely operate the siren and allow production of a 'wail' tone as a secondary function to the standard 'constant' tone.
- The Motor windings are tropicalized as standard.

Ratings

- Overall unit rated IP55 (Electrical connection box alone is IP65)
- Operating temperature between -20°C and +60°C

Sound levels - dB(A)

Distance	GP6	GP10	GP12
lm	135	140	145
30m	105	110	115
500m	81	86	91
1km	75	80	85
3km	65	70	75
5km	61	66	71

Note: Levels are indicated over unobstructed flat ground through still air in the prime direction.



GP6 Siren





GP12 Siren

Siren Model	Product Code	Current Rating	Weight	Dimensions: Length, Width & Height
GP6	SWG-0032	- 54	50Kg	492 x 398 x 438mm
GP6H (with heater)	SWG-0036	52Kg	582 x 398 x 438mm	
GP10	SWG-0023	11A 112	110Kg	536 x 495 x 557mm
GP10H (with heater)	SWG-0037		112Kg	576 x 495 x 557mm
GP12	SWG-0006	22A 1	195Kg	762 x 496 x 585mm
GP12H (with heaters)	SWG-0005		199Kg	842 x 496 x 585mm

Sound levels - dB(A)

Distance	FP6	GP10
lm	135	140
30m	105	110
500m	81	86
1km	75	80
3km	65	70
5km	61	66

Note: Levels are indicated over unobstructed flat ground through still air in the prime direction.

FP Range

The FP range provides a motor siren solution for hazardous areas that demand an ATEX approved product.

The units are of a sturdy rugged construction and produce the familiar low frequency 'air raid' sound.

Features

- 3 Phase 400VAC ±10% 50Hz supply required for operation (alternative voltages available by request).
- 475Hz constant tone
- Cast aluminium and steel construction
- Control panels can be supplied to safely operate the siren and allow production of a 'wail' tone as a secondary function to the standard 'constant' tone.
- The Motor windings are tropicalized as standard.

Ratings

- Overall unit rated IP55 (Electrical connection box alone is IP65)
- Operating temperature between -20°C and +60°C
- ATEX approved for category 2 (zone 1)
- Overall siren approval Exd IIG IIC T4
- Non electrical parts approval EExc IIC T1..T6 X



FP6 Siren



Siren Model	Product Code	Current Rating	Weight	Dimensions: Length, Width & Height
FP6	SWG-0028	5A	66Kg	521 x 398 x 448mm
FP10	SWG-0034	11A	143Kg	612 x 495 x 557mm

GP & FP Siren Control Panels

Control panels can be supplied to safely connect and control the GP & FP range of motor sirens. They also provide the facility to operate different warning tones form the siren by timing the supply to produce a 'wail' tone in addition to the standard 'constant' tone.

Features

- Enclosure manufactured from powder coated mild steel rated to IP65.
- Integral switches on the door allow for complete isolation (lockable in the off position), activation of the constant tone, activation of the wail tone and stopping of the siren operation.
- LED indicators highlight the presence of the 400VAC supply and the derived 110VAC.
- Remote switch input facility allowing volt-free contacts to switch a 110VAC control signal.
- Adjustable warning signal duration timers.
- Adjustable wail tone signal duty cycle (default set to 4 seconds on, 4 seconds off pattern).
- Volt-free output connection which changes state when the contactor is active (useful for beacons or third party system connections).
- Volt-free output connection which changes state in the event of an overload.
- Protected 110VAC output to allow synchronised operation of slave units when multiple sirens are required.
- Protected 230VAC output for GP anti-icing heater connection.
- Thermistor trip relay for FP sirens.
- Remote wired switch module also available SIP-3 (HDW1036)



Model	Product Code	Current Protection	Weight	Dimensions: Length, Width & Height
Master Panel for GP6	SWC-0027	27 2		235 x 400 x 600mm
Slave Panel for GP6	SWC-0033	TOA MCD	15 Kg	235 x 400 x 400mm
Master Panel for GP10	anel for GP10 SWC-0029 25A MCP 2		21 Kg	235 x 400 x 600mm
Slave Panel for GP10 SWC-0035	SWC-0035	ZJA MCD	15 Kg	235 x 400 x 400mm
Master Panel for GP12	SWC-0031		21 Kg	235 x 400 x 600mm
Slave Panel for GP12	SWC-0037	40A MCB	15 Kg	235 x 400 x 400mm
Master Panel for FP6	Master Panel for FP6 SWC-0028 Slave Panel for FP6 SWC-0034	21 Kg	235 x 400 x 600mm	
Slave Panel for FP6		15 Kg	235 x 400 x 400mm	
Master Panel for FP10	aster Panel for FP10 SWC-0030 25A MCB - 25A MC	21 Kg	235 x 400 x 600mm	
Slave Panel for FP10		15 Kg	235 x 400 x 400mm	

Electronic Sirens – Value Range

ES Value

The value range of electronic sirens provide an economic solution for a wide variety of industries with the key advantages of continual operation during power loss and no requirement for 3phase power.

The products are of modular construction which allows the sirens to be scaled and tailored to the user's specific requirement in terms of signalling and omni or uni – directional sound coverage. The system can be supplied as a kit for installation of the horns onto an existing pole structure, or with the horn array preinstalled onto a pole with a junction box.



Features

- Enclosure manufactured from powder coated mild steel with an IP65 rating. Stainless steel enclosures are available by request.
- Siren is powered from an internal 48VDC battery supply which remains charged via a monitored PSU.
- Mains supply to the panel PSU is 110/220VAC ±20% @ 47-63Hz.
- Solar panels with charge regulators can be added for appropriate installations where AC is not available.
- Expected siren operation of 6 minutes following a 7 day loss of AC power.
- Siren controller can be configured to operate direct from the AC supply without battery if required.

- Live PA feature via a 600Ω balanced and isolated input or microphone connected to HMI interface.
- Output amplifier features a self healing short circuit with thermal and over current protection.
- Full control of single or multiple units can be achieved via R\$485 over distances up to 1.5km.
- VHF/UHF radio units, IP modules or Fibre Optic modems can be used for remote operation.
- Simple control via 8 opto-coupled/volt-free inputs.
- Volt-free output preconfigured for active siren allows operation of third party equipment (e.g. beacons).
- Operating temperature is between -20°C and +60°C

Levels are indicated over unobstructed flat

ground through still air in the prime direction.

Numeric Information

Siren Model	Horn Configuration		Distance from Siren					
	Horn Conliguration	30m	500m	1km	3km	5km		
ES1/2V	Omni-directional 2 horns	106	81	76	66	62		
ES1/3V	Uni-directional 3 horns	115	91	84	75	71		
ES2V	Omni-directional 6 horns	115	91	84	75	71		
ES2V	Uni-directional 6 horns	121	97	91	81	77		

Note:

ES Value - Control Options

The following devices are the most commonly supplied to operate the value range of siren systems. We do understand that each project is unique, if our standard control options are not the exact requirements for you we may be able to offer a more bespoke solution.



SIP-51 HMI

The basic switch & indicator HMI unit provides a means of siren control and basic indication for a single or multiple sirens.

- Activation of up to 4 signals plus stop.
- LED indicator can be red or green and setup to illuminate or extinguish when siren activates.
- Smaller units available with less switches/indicators.
- Environmental rating of IP65.



DT-11 HMI Console

The console features a 2 line 16 character LCD backlit display and allows operation of a single or multiple sirens plus the facility to broadcast live voice using the optional microphone.

- Activation of up to 4 signals.
- Live PA facility when optional microphone is connected.
- Can be wall mounted or fixed within the siren control cabinet.
- Connection to the siren controller is via wired RS485 or TCP/IP using ES IP interface.
- Console can be connected to communicate with the siren controller via VHF/UHF radio link or Fibre optic as an alternative to cabling.
- All configuration information is stored on non-volatile memory.





ES Superior

The superior range of electronic sirens provides a sophisticated, robust and versatile signalling solution for a range of industrial, civil, commercial and environmental requirements.

The products are of modular construction incorporating a user configuration software package which allows the sirens to be scaled and tailored to the user's most complex specific needs including omni or uni – directional sound coverage and customised sound output.



Features

- Enclosure manufactured from powder coated mild steel with an IP65 rating. Stainless steel enclosures are available by request.
- Siren is powered from an internal 48VDC battery supply which remains charged via a monitored PSU.
- Mains supply to the panel PSU is 110/220VAC ±20% @ 47-63Hz.
- Solar panels with charge regulators can be added for appropriate installations where AC is not available.
- Expected siren operation of 6 minutes following a 4 day loss of AC power.
- Siren controller can be configured to operate direct from the AC supply without battery if required.
- Live PA feature via a 600Ω balanced and isolated input or microphone connected to HMI interface.
- Output amplifier features a self healing short circuit with thermal and over current protection.
- Full control of single or multiple units can be achieved via R\$485 over distances up to 1.5km.
- VHF/UHF radio units, IP modules or Fibre Optic modems can be used for remote operation.

- GSM module available for SMS or DTMF operation of up to 255 siren controllers.
- Simple control via 8 opto-coupled/volt-free inputs.
- Volt-free outputs are fully configurable for active siren, PA active, siren fault, AC power loss etc. allowing connection to third party systems (eg. Beacons, existing system).
- 4 optocoupled/volt-free inputs for system monitoring (door open, AC loss).
- Generated tones and/or pre-recordered messgaes can be stored on the panel. Maximum usable tones/messgaes depends on the control option being used.
- Replication of existing site tones possible between 200Hz-18kHz for any pattern/sweep.
- User definable schedules for time/date signalling which can be synchronised by an optional GPS clock or by PC if using configuration software.
- Option of 100v Line driver output in place of or in addition to standard horns to allow internal hazadous area signalling.
- Operating temperature is between -20°C and +60°C

Note: Levels are indicated over unobstructed flat ground through still air in the prime direction.

Siron M	adal.	Horn Configuration	Distance from Siren					
ES1/2S ES1/3S			30m	500m	1km	3km	5km	
ES1/2S		Omni-directional 2 horns	106	81	76	66	62	
ES1/3S		Uni-directional 3 horns	115	91	84	75	71	
ES2S		Omni-directional 6 horns	115	91	84	75	71	
ES2S		Uni-directional 6 horns	121	97	91	81	77	
ES3S		Omni-directional 12 horns	121	97	91	81	77	
ES3S		Uni-directional 12 horns	124	99	93	84	79	
ES4S		Omni-directional 18 horns	124	99	93	84	79	
ES4S		Uni-directional 18 horns	127	102	96	87	82	

ES Superior - Control Options

The following devices are the most commonly supplied to operate the superior range of siren systems. We do understand that each project is unique, if our standard control options are not the exact requirements for you we may be able to offer a more bespoke solution. All of the following can be supplied to communicate via cable, GSM, TCP/IP, Fibre Optic or VHF/UHF radio.



SIP-51 HMI

The basic switch & indicator HMI unit provides a means of siren control and basic supervision for a single or multiple superior range siren system.

- Activation of up to 4 signals or pre-recorded messages plus stop.
- Indicator can be red or green and illuminated or extinguished to show AC present, Siren fault, Siren active.
- Smaller units available with less switches and/or more/less indicators.
- rated to IP65.



CMC-4 HMI Console

The console features a 2 line 16 character LCD backlit display and allows operation of a single or multiple sirens plus the facility to broadcast live voice using the optional microphone.

- Control of up to 10 sirens
- Operation of up to 4 signals and 2 pre-recorded messages.
- With microphone connected voice messages can be recorded and stored.
- Can be wall mounted or fixed within the siren control cabinet.
- Silent test facility with results displayed on the display.
- Magnetically coded key enables signal and voice activation functions.
- Connection to the siren controller is via R\$485 using RJ45 connectors.
- Power is 12VDC which can be supplied over the RS485 cable or by connecting a separate PSU to the 12v input socket.
- All configuration data is stored on non-volatile memory.







CMC-8 HMI Console

The console provides a means of siren control and supervision for a multiple siren system where the use of a PC based control system is not appropriate for the environment.

- Control of up to 96 sirens
- Operation of up to 16 signals and 400 pre-recorded messages.
- User definable groups with definable legends for ease of operation.
- With microphone connected voice messages can be recorded and stored.
- Can be wall or desk mounted.
- 8 Volt-free inputs and 8 volt-free outputs.
- Silent test facility with results displayed on the display.
- Test results can be output to a printer
- Magnetically coded key enables signal and voice activation functions.
- Individual password protection and configurable command restrictions
- Connection to the siren controller is via RS485 using RJ45 connectors.
- Power is 12VDC which can be supplied over the RS485 cable or by connecting a separate PSU to the 12v input socket.
- All configuration data is stored on non-volatile memory.



TALOS HMI Software for a PC System

The software is designed for Microsoft Windows and allows the control and supervision of a complex multiple siren system. The software is provided in three formats named by the total siren limitation of each.

- Control of up to 5, 10 or 128 sirens from a single PC.
- The ability to have multiple control stations connected to a master overall supervisory control station
- Selection of up to 16 alarm signal and 400 prerecorded messages.
- Live voice broadcast communication facility
- Individual or group siren silent test facility with the results dynamically displayed,.
- User definable legends for sirens, siren groups and signals for ease of operator control
- Master volume control for activated sirens
- Event and siren test logs output to a file or printer.
- Secure multiple operator access control with Individual password protection and configurable command control restrictions





Electronic Sirens – Connection Options





Control Room Equipment

When connecting to the siren using IP, Fibre Optic or Radio, a control room cabinet will be used. Depending on the number of sirens to be controlled and the type of connection required either a Universal cabinet or 19" rack with be provided with the relevant equipment installed and ready for site.

Universal Cabinet

- IP connection to max 255 sirens
- Fibre connection for ring or max 4 sirens in star
- RS485 RJ45 connection for HMI Module or PC
- IP 65
- Connection for optional backup battery

19" Rack Cabinet

- Radio base station for Value or Superior systems
- Fibre connection for 5-96 sirens in star
- RS485 RJ45 connection for HMI Module or PC
- Key lockable access panels on 3 sides
- Connection for optional backup battery on base stations



Universal Cabinet setup for Fibre Optic ring configuration



Radio Base satation unit



Electronic Sirens – Portable

ES Superior Portable

The ES siren superior portable range provides a robust, sophisticated and rapidly deployable wide area warning solution. With its own integral battery pack it is ideally suited for emergency and civil defence operation, quarrying, open cast mining, railway maintenance and many other agile mass notification applications.

The products are based on the standard superior range of siren which allows the sirens to be scaled and tailored to the user's specific needs in terms of signalling and omni or uni – directional sound coverage.

A smaller carry case is availible as a mobile control station. Designed to operate with either a CMC-4 or CMC-8 using VHF/UHF radio. This control case can work in conjuction with any fixed or portable Superior system setup for radio.



Features

- Audibility range between 106db @ 30metres for the smallest unit to 115db @ 30metres for the largest unit. Sirens in this range in increasing order of sound output are the ES1/2SP and ES1/3SP.
- 16 user selectable & configurable emergency signals.
- Storage for up to & selectable 200 pre-recorded voice messages. (Voice files are stored as PCM-CCITT 8000 kHz 8 bits mono).
- Live PA via a 600 ohm balanced & isolated input & record playback facility to avoid acoustic feedback.
- Battery operated from an integral battery pack housed in its own container for rapid replacement in operational conditions.
- User definable schedules for time/date signalling.
- Silent test facility to minimise nuisance signalling to test the siren.
- Full control and fault diagnosis of a single or multiple units via an RS485 interface of up to 1km distance from the siren.
- Simple control and fault reporting via 8 volt-free/optocoupled inputs. (3 connected to buttons on the enclosure).
- Supports a radio & modem for remote operation via bi-directional integrated R\$232 interface.

- Supports a GPS clock for accurate time synchronisation for schedules via an integrated R\$232 interface.
- Output amplifier features a self healing short circuit with thermal and over current protection.
- Auxiliary monitor & control inputs & outputs.
- Siren activity and fault report log.
- Operation run time when emitting a continuous sound or message is approximately 1 hour from a fully charged battery pack.
- Supports CMC 4 optional engineer's activation & supervision panel with microphone input facility.
- Case is rated to IP65 when closed.
- Battery pack would be rechargeable from a suitable 230Vac supply and would take in the region of 8 hours when charging from a fully discharged state.
- Operating temperature range of -20 to +60 degrees C
- Ether standard loudspeaker horns permanently installed on a suitable structure or as part of a trailer/sledge arrangement can be used for the speaker array.

ES Superior ATEX

The Superior siren controller and associated loudspeaker devices have been specifically designed and manufactured for wide area and distributed signalling in hazardous area locations. Dependent on location requirements this system can be supplied with either ATEX horn drivers, ATEX Controller (as pictured) or both.

Main Features

- Certified EExd IIB T6 IP66 Category Ex II 2 G D
- Silent test facility to minimise nuisance signalling to test the siren
- Siren activity and fault report log
- User definable schedules for time/date signalling.
- Full control and fault diagnosis of a single or multiple units via an R\$485 interface of up to 1.5km distance from the siren
- 16 user selectable & configurable emergency signals.
- Storage for up to & selectable 400 pre-recorded voice messages. (Voice fi les are stored as PCM-CCITT 8 kHz 8 bits mono).
- Live PA via a 600 ohm balanced & isolated input.
- Multiple control interfaces which include R\$232, R\$485 and a simple VFC interface via 12 volt free/opto-coupled inputs and 4 relay outputs.

- Output amplifier features a self healing short circuit with thermal and over current protection..
- Option of driving 100V line driver horns instead of or as well as the standard horns for distributed horn installations in hazardous areas.
- Warning and message signalling plus functional siren contro completely software configurable to allow ease of modification should requirements change.
- Control cabinet constructed from cast aluminium as (670 x 580 x 333mm), which provides an environmental rating of IP66 and the siren horns are manufactured of cast aluminium.
- Power supplied from an 88-132/176-264Vac @ 47-63Hz power source.
- Operating temperature range of -40 to +40 degrees C.

Numeric Information

Note: Levels are indicated over unobstructed flat ground through still air in the prime direction.

Siver Medel	Horn Configuration		Distance from Siren				
Siren Model		30m	500m	1km	3km	5km	
ES2SF	Omni-directional ATEX 6 horns	105	81	75	65	61	
ES2SF	Uni-directional ATEX 6 horns	108	84	78	68	64	

Sound Coverage

The plots are a plan view indicating the reduction required dependent on the angle from the prime direction. This type of plot allows reference at any distance using the specified dB(A) level as '0' and deducting the relevant amount at the required angle.

Motor Sirens

The prime direction of a motor siren is the direction in which the center of the rotor is facing. Below are typical sound coverage plots in clear still air on level terrain with no obstructions

GP6 / GP10 / FP10





GP12







Electronic Sirens

The ES range of sirens can be configured for omni- or uni-directional sound coverage. Below are typical sound coverage plots in clear still air on level terrain with no obstructions. The horn has a narrow - rectangular shape to provide a specific SPL at ±90° to the prime direction of radiation.

Uni-directional Configuration

Dimensions







Omni-directional Configuration



Siren Selection Criteria

Siren Slection

The main factors to take into consideration when determining a solution for a siren system are:

- The sound pressure level* (SPL), of the required warning signals.
- The quality and type of sound(s) in the local environment.
- The ambient noise level that has to be overcome.
- The number of distinct warning signals required.
- The reliance of the siren to operate when required even in the event of power failure.
- The annoyance factor that may be created from scheduled siren testing of certain siren types.
- The electricity supply available to power the siren and the installation costs, particularly if high voltage cabling is required.
- The required duration of the warning signal.
- The means of siren activation and possibly condition monitoring.
- The shape of the sound coverage required.
- To summerise the desicion process should focus on:
- Understanding of the required sound pressure levels.
- Choice of siren type.

*Understanding of the Required Sound Pressure Levels

In an ideal situation the difference between ambient background sound levels and siren warning signal would be at least 6db. A useful guide to determining sound level is contained in the table below.

A further consideration is the ability to distinguish a siren signal from the ambient noise, if the signal contains sweeping frequencies and varying temporal patterns this will emphasise the signal recognition to personnel even if the diffence between signal and background levels are marginal.

Motor Operated Sirens

Advantages:

- Simple unsophisticated technology.
- Cost in terms of audible output level over the Superior siren units. However if the siren requires an additional control unit to enable the siren to produce a second warning signal the Value siren range is probably the more cost effective option.

Limitations:

- Loss of AC mains power to the siren, which could occur in a major site incident, would prevent the sirens operation and hence prevent a safety warning being provided.
- Only one steady tone alarm signal can be produced unless an electronic control unit is added to allow a wail tone second signal. Maximum number of 2 alarm signals.
- The siren must be sounded at regular intervals to determine its operational condition.
- The sirens require a nominal 400Vac 3 ph supply which may be expensive to provide if the power cable run is long.
- Unit weight if required to be mounted on a mast.

These limitations can be overcome with Electronic Sirens.





Electronic Sirens

Advantages:

- The siren is battery powered in operation, requiring an AC power supply only to maintain the battery charge, therefore loss of site power has no effect on the operation and functionality of the siren.
- The siren perform silent tests at a user defined time period to determine the operational capability of the siren and relays the results of such a test to a monitoring point so that action can be initiated to repair the unit if necessary in a timely fashion and without causing any nuisance sound to neighbours for testing purposes.
- Up to 8 different alarm signals can be activated via volt free contacts and more if an RS485 interface is used to control the siren.
- The alarm signals are fully user definable and may include pre-recorded voice messages as well as tone signals. Live voice is also an option.
- Because the electronic siren only requires a 110/230Vac supply instead of the 400Vac 3ph supply required for motor driven sirens there may be a significant saving on installation costs.
- In suitable remote locations the siren could be powered from a solar panel array.
- Sound levels of each signal can be user defined therefore enabling the possibility of the same siren being able to be used for on-site and off-site warning.
- The siren also contains two extremely flexible user definable schedulers for time signalling purposes.
- The sirens can also support 100V line drive loudspeakers for overcoming high ambient noise levels in specific locations or if a PA function is required.

Limitations:

- More sophisticated technology and therefore requires a greater installation and maintenance skill level.
- Greater initial cost than a conventional motor driven siren (for the superior models) but this is usually offset by the advantages and reduced installation costs of an electronic siren.

Main Differences between Value and Superior Electronic Sirens are as follows:

- The Value range of sirens can be considered as a mid technology solution fitting between the very limited signalling and control facilities of the motor operated siren technology and the fully configurable and monitored Superior siren technology.
- The Value siren offers up to a maximum of 8 different warning signals, live voice broadcasting and battery powered operation so would be unaffected by loss of site power unless for a prolonged period of several days. Control of a single siren via simple VFC switches or single and group siren control over an RS485 or radio network.
- A major advantage over the motor driven technology but falling short of the Superior siren range which offers all that the Value siren range can provide but with the addition of full siren functionality monitoring and the ability of silent self testing meaning the siren only has to be sounded to make people aware of an emergency situation or to provide them periodic awareness of what the signal sounds like. Other issues to be considered are the ability to store pre-recorded messages, configurable VFC input and outputs, greater number and flexibility in the definition and use of warning signals, sophisticated onboard scheduling options and the maximum size of the siren and hence audible output available. The Value siren systems are limited to a maximum of a 6 horn siren unit.

Klaxon Signals is a division of Texecom Ltd:

www.klaxonsignals.com www.sales@klaxonsignals.com

UK Office: Middle East Office: St Crispin Way P.O.Box: 57180 Haslingden Dubai Lancashire UAE BB4 4PW Tel: +971 (0)50 6522860