



Digital Exhibition Summary

Warning and notification-
with electronic sirens made in Germany

Show program 2021



HÖRMANN
Warnsysteme

60 years of expertise in mass warning and notification

Reliably warning the public of imminent threats is our main concern. This is what HÖRMANN Warnsysteme with its expertise from over 60 years of development and production of siren systems stands for. Our products alert populations around the world facing threats from tsunamis, flooding, fire, toxic substances or other disasters. Founded in 1955 by Dipl.-Ing. Hans Hörmann as a two-man operation, the first sirens laid the groundwork for today's HÖRMANN Group with over 27 companies.

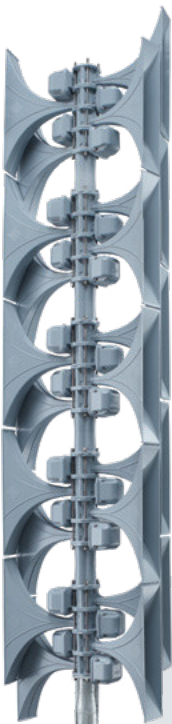
HÖRMANN Warnsysteme is not just THE pioneer in the development of electronic sirens. Our experience combined with delivery of outstanding quality has made us the market leader. HÖRMANN "made in Germany" sirens have already been a reliable component of mass warning systems around the world for many years. Our employees are experts in the planning, production, installation and maintenance of tailor-made siren systems of all sizes. Carefully selected, well-trained partners around the world enhance our extensive service network. This enables us to implement and maintain optimum siren systems at any location.



HÖRMANN
Warnsysteme

WARNING AND NOTIFICATION

Electronic Siren ECN-D



Siren Head

- ◆ Sound Pressure Level up to 123 dB (A)/30 m
- ◆ 360° Omnidirectional Sound Propagation
- ◆ Directional Sound Propagation possible
- ◆ Modular Siren Head Construction
- ◆ Weatherproof Siren Horns
- ◆ Installation with Pole on Building, Installation with Mast on Ground

SIREN HEAD

Siren head consisting of self-supporting siren horns in modular construction. By slit diffraction of the sound at the horn opening 360° omnidirectional sound propagation is achieved.

Siren Cabinet

- ◆ Activation of Alarms, Voice Messages, Live PA Announcements
- ◆ 19" Technology with Swing Frame
- ◆ Easy Expansion and Adaption
- ◆ Batteries 24 VDC for independence from external Power Supply
- ◆ 230 VAC or 110 VAC +/- 10% and/or Solar Power Supply
- ◆ Installation on Wall/Pole/Mast
- ◆ Minimum Maintenance Requirements



SIREN CABINET

Compact and clearly designed siren cabinet thanks to 19" plug-in technology and modular construction. Robust assemblies with long design life guarantee maximum reliability.

ECN-D Product Types

ELECTRONIC SIREN

	ECN 600-D	ECN 1200-D	ECN 1800-D	ECN 2400-D	ECN 3000-D
Sound Pressure Level (SPL)	109 dB (A)/30 m	115 dB (A)/30 m	118 dB (A)/30 m	121 dB (A)/30 m	123 dB (A)/30 m
Number of Horns/Drivers	4	8	12	16	20
Head Dimension (W x H x D) in mm	300 x 950 x 850	300 x 1605 x 850	300 x 2260 x 850	300 x 2900 x 850	300 x 3550 x 850
Weight Siren Head	28 kg	59 kg	89 kg	121 kg	152 kg
Windload (160km/h)	522 N	1064 N	1614 N	2200 N	2650 N
Number of Class-D Amplifiers	2	4	6	8	10
Weight Siren Cabinet in kg (incl. Batteries)	84 kg	85 kg	86 kg	87 kg	88 kg

SYSTEM

Fundamental Frequency	415 Hz/425 Hz
Alarms (Warning Tones)	9 (customized)
Messages (Pre-recorded Voice)	12 (customized)
Standby Time	up to 7 days
Batteries Capacity during 48h without charge	up to 20 minutes activation
Material of Horns	Aluminium (Alloy)

SIREN CABINET

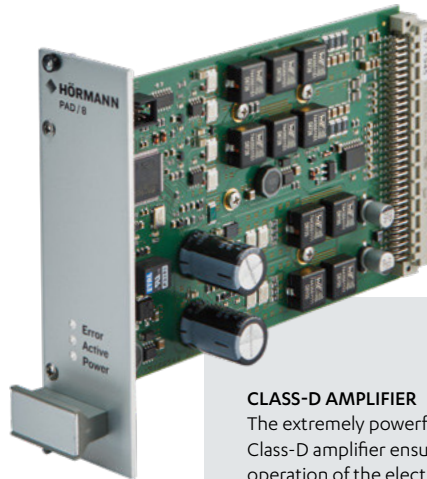
Operating Voltage/Batteries	24 VDC
Mains Power Supply (single phase)	230 VAC or 110 VAC +/- 10%
Solar Power Supply	optional
Maximum Charging Current	4 A
Cabinet Dimensions (W x H x D)	600 x 600 x 350 mm
Protection Class	IP66
Ambient Temperature Range	-25°C ... +65°C

Specifications are subject to change without notice.



Class-D Amplifier PAD/8

- ◆ Output Power 300 Watt at 5-7 Ohm
- ◆ Bandwidth 100 Hz – 20 kHz
- ◆ Efficiency above 97%
- ◆ Distortion less 4%
- ◆ Overload Protection
- ◆ Short Circuit Protection
- ◆ Status LEDs
- ◆ 19" Plug-in Module, 8 HP
- ◆ Weight 0,3 kg



CLASS-D AMPLIFIER

The extremely powerful and reliable Class-D amplifier ensures efficient operation of the electronic siren.

Siren Control Processor CP1+

- ◆ Embedded ARM7 CPU
- ◆ RTX-OS Realtime Multitasking Operating System
- ◆ HÖRMANN Process System Interface
- ◆ Diverse Interfaces: Ethernet (TCP/IP), Digital Radio, GSM/GPRS, Fibre Optic, Satellite, RS232/RS485
- ◆ Robust Foil Keypad as Input Device for all Operations
- ◆ LCD Display to show all Operating Steps and Results
- ◆ SD-Card Reader for Software Update (for Update of Alarms and Messages)



SIREN CONTROL PROCESSOR

The siren control processor monitors and controls the ECN-D siren and offers a wide range of interfaces for different communication methods.

ECN-D Advantages and Key Features

The Concept of the Electronic Siren

Latest technology combined with our long time experience in siren development has led to the new siren generation ECN-D (electronic siren with digital amplifiers). The electronic siren ECN-D, supplied by inbuilt batteries for independence from external power supply during emergency conditions, offers local and remote operations, activation of 9 customized Alarms, 12 customized Messages and Live PA Announcements, a variety of inbuilt test routines; advantages and features already known for the long time proven electronic siren ECN.

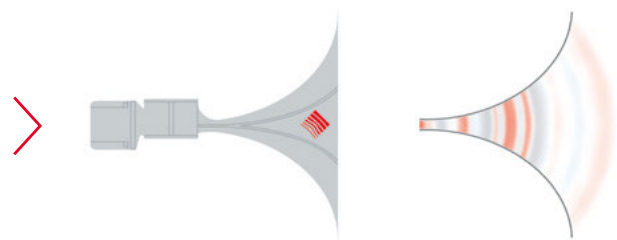
Use of new fully digital amplifiers increase the efficiency to above 97%. At the same time, energy consumption, weight and space requirement of the electronic cabinet are significantly reduced. Modular design, variable interfaces and the strict compliance with technical standards, make it possible to take special customer requirements into account and offer the best prerequisites for a reliable, customized siren warning system.

Acoustic – 360° Omnidirectional Sound Propagation

VERTICAL SOUND PROPAGATION

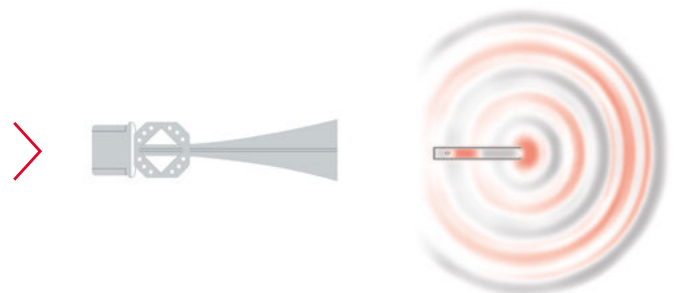
HÖRMANN designed and developed the horn for the ECN siren using and taking into consideration physical and acoustic laws, to achieve best propagation of the sound.

The 360° omnidirectional sound propagation pattern is created upon diffraction of sound on the slit of the siren horn. This physical effect allows sound penetrating the acoustic shadow.



HORIZONTAL SOUND PROPAGATION

To assure a 360° sound propagation pattern for siren head installations in the field, the siren head will be split in two channels, which are assembled in 180° opposite direction. The possibility of acoustic neutralisation by overlapping the sound waves is eliminated by generating the alarms with different fundamental frequency for the two channels.



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WARNING AND INFORMATION

Electronic Siren ECN 600-D

SYSTEM

Sound Pressure Level	109 dB (A) / 30 m
Fundamental Frequency	415 Hz / 425 Hz
Siren Sound / Signal	Customer Specification
Digital Textmessages	Customer Specification
Standby-time	up to 7 days
Number of Alarms available within 48 h without Mains Power Supply	up to 20

SIREN HEAD

Number of Horns / Drivers	4
Weight Siren Head	28 kg
Head Dimension (W x H x D)	300 x 950 x 850 mm
Windload at 160km/h	522 N
Material of Horns	Aluminium (Alloy)

SIREN CABINET

Number of Class-D Amplifiers	2
Mains Power Supply	230 V oder 110 V +/-10%
Battery Voltage	24 V
Max. Charging Current	4 A
Local Activation and Display	Foil Keypad and LCD Display
Remote Activation and Control	Customer Specification
Live PA Announcements	Yes
Cabinet Dimensions (W x H x D)	600 x 600 x 350 mm
Cabinet Design	Stainless Steel or Powder-coated
Cabinet Protection	IP65
Weight incl. Batteries	84 kg
Cabinet Ambient Temperature Range	-25 °C ... +65 °C

Specifications are subject to change without notice.



SIREN HEAD

Siren head consisting of self-supporting siren horns in modular construction. Single Slit diffraction effect leads to omnidirectional 360° sound propagation.



SIREN CABINET

Compact and clearly designed, based on 19" plug-in technology and modular construction. Robust assemblies and the absence of moving parts such as fans guarantee maximum reliability.

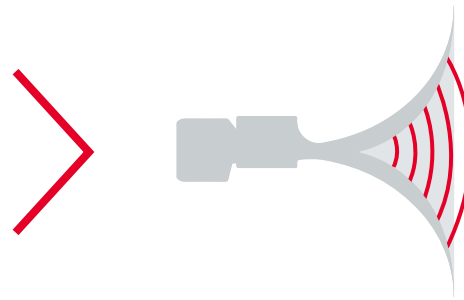
Electronic Siren ECN 600-D

Sound Propagation by the ECN Siren Horn

VERTICAL SOUND PROPAGATION

The ECN siren horn is a specific development with exponential increase of the horn's cross sectional surface, to propagate siren signals with high sound intensity.

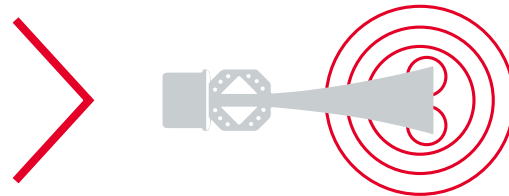
This special horn design assures optimum propagation of the sound wave within the horn, is widely in use, thoroughly tested and has proven to generate signals with high intensity.



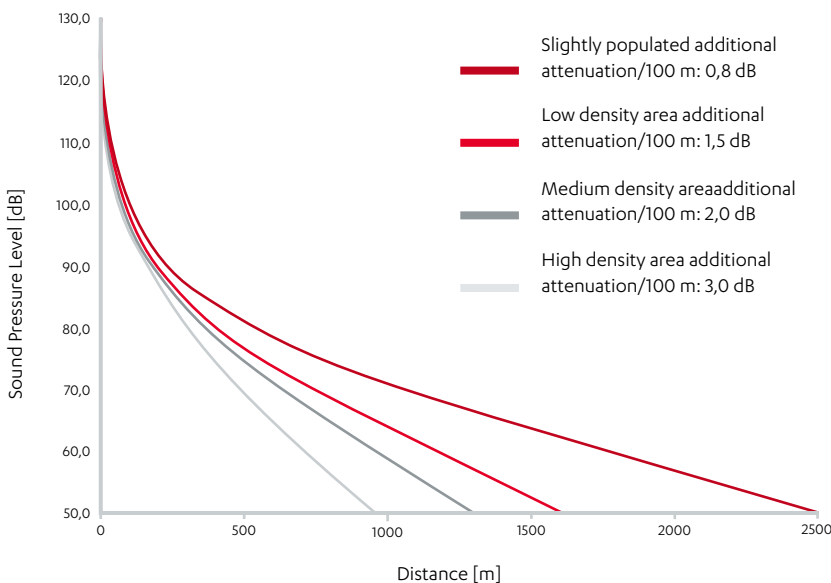
HORIZONTAL SOUND PROPAGATION

The siren horn's omnidirectional propagation of the sound wave in horizontal plane is based on the „Huygens principle“.

This physical guideline explains the diffraction of a sound wave at a single slit. Diffraction of sound results in a circular sound wave of omnidirectional characteristic, which leads to 360° sound propagation.



Propagation of Sound Pressure Level (SPL)



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WARNING AND INFORMATION

Electronic Siren ECN 1200-D

SYSTEM

Sound Pressure Level	115 dB (A) / 30 m
Fundamental Frequency	415 Hz / 425 Hz
Siren Sound / Signal	Customer Specification
Digital Textmessages	Customer Specification
Standby-time	up to 7 days
Number of Alarms available within 48 h without Mains Power Supply	up to 20

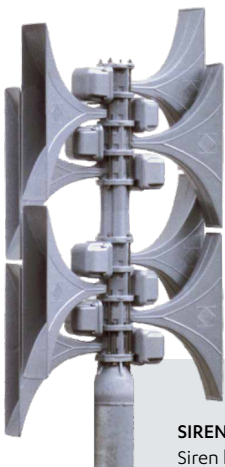
SIREN HEAD

Number of Horns / Drivers	8
Weight Siren Head	59 kg
Head Dimension (W x H x D)	300 x 1605 x 850 mm
Windload at 160km/h	1064 N
Material of Horns	Aluminium (Alloy)

SIREN CABINET

Number of Class-D Amplifiers	4
Mains Power Supply	230 V oder 110 V +/-10%
Battery Voltage	24 V
Max. Charging Current	4 A
Local Activation and Display	Foil Keypad and LCD Display
Remote Activation and Control	Customer Specification
Live PA Announcements	Yes
Cabinet Dimensions (W x H x D)	600 x 600 x 350 mm
Cabinet Design	Stainless Steel or Powder-coated
Cabinet Protection	IP65
Weight incl. Batteries	85 kg
Cabinet Ambient Temperature Range	-25 °C ... +65 °C

Specifications are subject to change without notice.



SIREN HEAD

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SIREN CABINET

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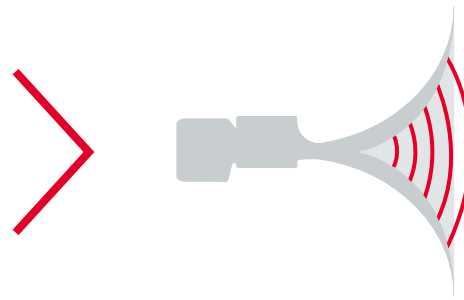
Electronic Siren ECN 1200-D

Sound Propagation by the ECN Siren Horn

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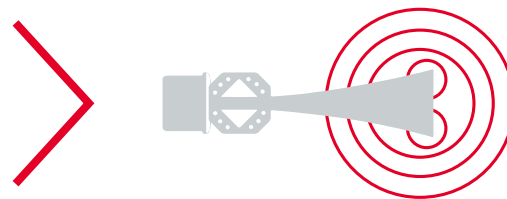
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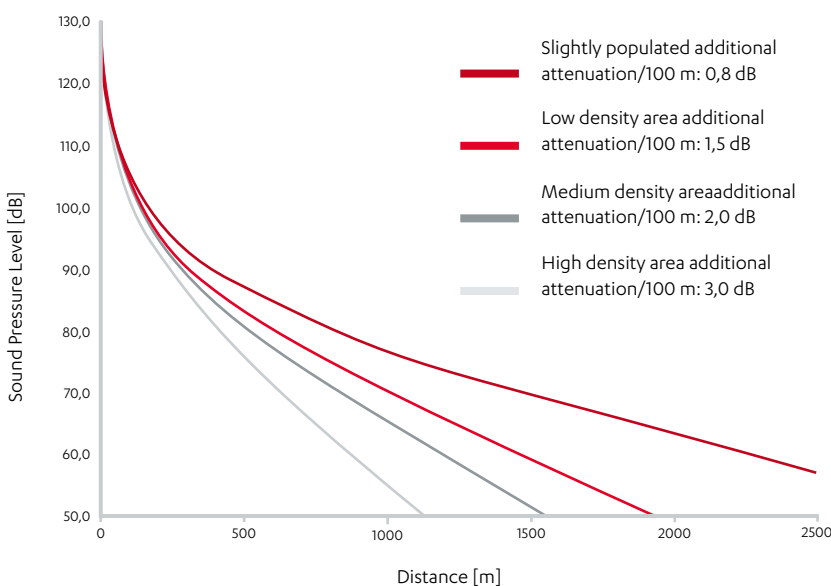
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Propagation of Sound Pressure Level (SPL)



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WARNING AND NOTIFICATION

Siren System Command and Control Software

Command and Control Software CCCS

The CCCS (Computerized Command and Control Software) runs in a PC-based electronic siren network and acts as initiation/control/monitoring platform for the siren warning and notification system.

Designed by HÖRMANN Warnsysteme with utmost comprehensive functions and features, it is continuously optimized for user specific needs.

Features

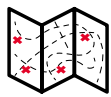
- ◆ Intuitive activation of alarms, pre-recorded messages and live PA announcements
- ◆ User friendly navigation with graphics based interface
- ◆ Straightforward control and monitoring for all equipment of the siren warning and notification system
- ◆ Map based GIS software
- ◆ No blocking dialogues and windows
- ◆ Native language support
- ◆ Comprehensive status log and record functions
- ◆ Running under MS Windows™
- ◆ Integrated online support



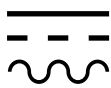
KSC KEY SWITCH CONTROLLER

Rugged desktop panel with security key for protection against unauthorized and unintentional activation of the electronic sirens. Microphone and PTT button for live PA announcements.

How does our CCCS software work?



1 Select sirens



2 Select alarm, message, live PA



3 Confirm with key switch



4 Sirens active

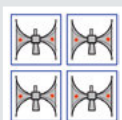
Operation

An essential requirement for reliable operation of a siren warning and notification system is simple and intuitive usability of the software. Different operating modes demand a clear separation of selectable options. This prevents the operator from initiating unintentional activities. "Monitoring" mode provides the operator a snapshot for the technical condition of the system, status information for each individual station and allows generating reports of different origin and destination.

"Active" mode permits the operator all functions of the monitoring mode, in addition enables the operator to select and initiate any kind of activations (alarms, pre-recorded messages, live PA announcements) and to select and initiate any kind of test procedures and status requests.

"Administration" mode allows unrestricted access for the operation of the CCCS. In particular setup-configuration-parameters of the individual stations can be modified and adapted to circumstances. This gives the administrator all options for scaling the siren warning and notification system according to requirements.

- ◆ Highest security for activation of electronic sirens with key switch or password protection
- ◆ Buttons with pictograms and text
- ◆ Ad-hoc selection and grouping of electronic sirens on the map
- ◆ Selection of individual, pre-defined groups or all electronic sirens via buttons or from station list
- ◆ Customized user groups and profiles with various authorization levels



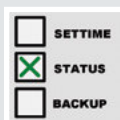
SELECT ALL



STATUS



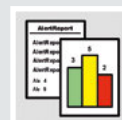
ACTIVATE



SERVICE



TEST



REPORTS

BUTTONS AND FUNCTIONS

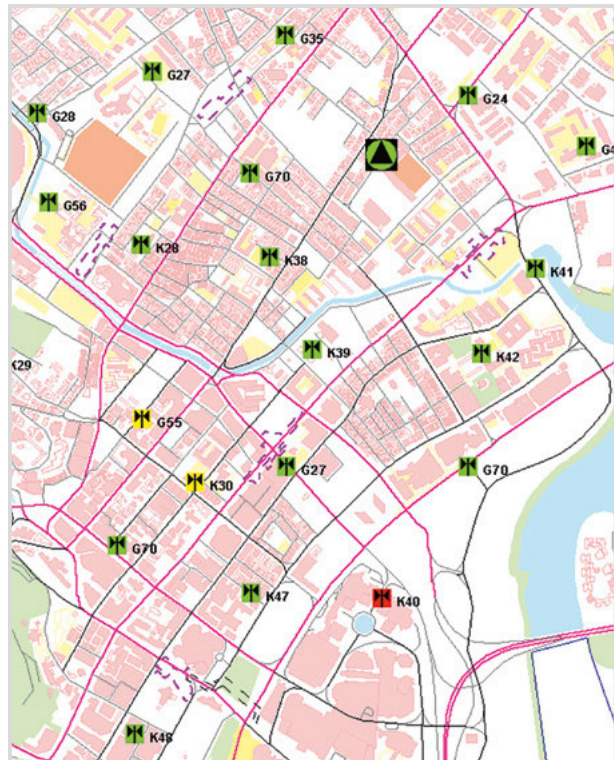
Operation via intuitive buttons with pictograms and text.

Monitoring

The CCCS allows activation of the electronic sirens within few seconds and provides detailed, user friendly overview of the system status. Colour coded icons indicate the condition for each station of the siren warning and notification system, for both global and detailed status.

Detailed status provides comprehensive technical information on module level for the individual station including communication.

- ◆ Status monitoring of electronic sirens and control centre(s) using colour coded map icons
- ◆ Spontaneous reports (e.g. missing mains power supply) will be indicated automatically by a blinking icon with changed colour
- ◆ Direct access to status information and status history via icons (e.g. battery-, driver-, amplifier-communication status etc.)
- ◆ Complete reports on history of activities and events etc. for electronic sirens and control centre(s)
- ◆ User friendly presentation of a high number of electronic sirens by combining them under "area icons"
- ◆ Integrated database with automated recording of all activities and changes of status



STATUS INDICATION of electronic sirens and control centre(s) following traffic light principle.

Reporting and Analysis

The CCCS offers a wide range of reporting and analysis functions, to evaluate all recorded activities and status information about the operation of the siren warning and notification system. This information can likewise be used to coordinate and schedule any necessary measures to remedy any malfunction conditions.

- ◆ Display of any activities during a selected period (Who? What? When?)
- ◆ Reports presented as tables or charts
- ◆ Detailed user defined process and report functions
- ◆ Display of electronic sirens and control centre(s) status over the entire operating time
- ◆ Generation of activation statistics with detailed examination of electronic siren conditions
- ◆ Analysis and indication of malfunctions of electronic sirens
- ◆ Print, export and archive of data



REPORTING AND ANALYSIS

CCCS software contains an integrated database with comprehensive evaluation functions for electronic siren activations up to indication of status information for electronic sirens and control centre.

Administration

The “Administration” mode offers the authorized user a variety of options for customization of the siren warning and notification system to client specific needs.

- ◆ Setup and configuration of individual stations
- ◆ Changing parameters of individual stations
- ◆ Flexible editing of stations
- ◆ Creating and defining user configurations
- ◆ Modification of automated periodic command configurations (e.g. selftest, status request, channel broadcast test, auto alarm etc.)

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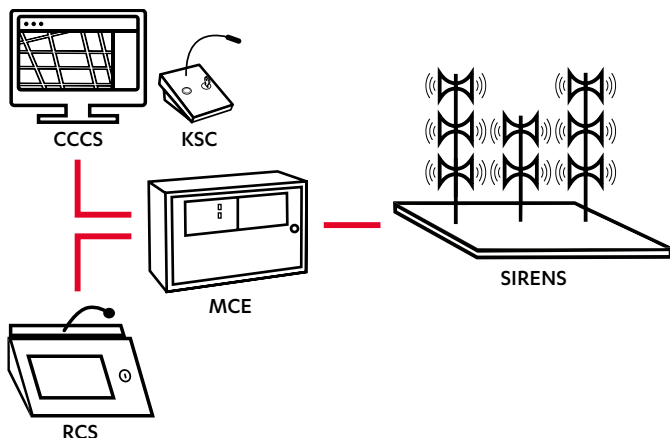
Siren System Control Centre Technology

Control Centre Technology MCE

A warning and notification system, integrating any number of electronic sirens, requires for unlimited operation and monitoring a sophisticated hardware/software and a reliable communication network.

HÖRMANN has developed the "Management Control Equipment" (MCE), representing the core of a siren warning and notification system. The MCE is working as an interface between initiation/control devices (Control Panel/RCS and/or PC/CCCS) and the electronic sirens.

The MCE also acts as network gateway which controls and monitors all data exchange and communication in the siren warning and notification system.



Technical Specifications

- ◆ 19" plug-in technology with swing frame
- ◆ Mains power supply 230 VAC or 110 VAC +/-10%
- ◆ Backup power supply with integrated battery 12 VDC
- ◆ Diverse Interfaces: Ethernet (TCP/IP), Digital Radio, GSM/GPRS, Fibre Optic, Satellite, RS232/RS485
- ◆ Message encryption and security encoding prevent unauthorized system activation
- ◆ Free, flexible digital I/O
- ◆ Scalable hardware structure for easy expansion and adaption
- ◆ RTX-OS Realtime Multitasking Operating System
- ◆ Modular software architecture for customization of user specific needs
- ◆ Cabinet dimension (WxHxD) 600x380x290 mm

MCE CABINET

Compact and clearly designed cabinet thanks to 19" plug-in technology and modular construction. Robust assemblies guarantee maximum reliability.



Siren System User Interfaces

Control Panel – RCS

- ◆ Rugged desktop panel
- ◆ ARM11 embedded panel PC with 7" touch-screen
- ◆ Flexible selection of electronic sirens (single, groups, all electronic sirens)
- ◆ Activation of alarms, pre-recorded messages and live PA announcements
- ◆ Flat navigation structure with icons
- ◆ Status monitoring of electronic sirens via colour-coded LED icons (green, yellow, red)
- ◆ Key-switch for electronic siren activation
- ◆ 12 VDC power supply from MCE
- ◆ Optional with microphone and PTT button for live PA announcements



RCS CONTROL PANEL

Touch panel for easy monitoring and activation of the electronic sirens. Status display following traffic light principle. Electronic sirens are triggered in seconds through intuitive operation procedure.

Control Software – CCCS

- ◆ Password protected login
- ◆ Activation of electronic sirens with key-switch and / or password protection
- ◆ Ad-hoc selection and grouping of electronic sirens (single, groups, or all electronic sirens)
- ◆ Activation of alarms, pre-recorded messages and live PA announcements
- ◆ Electronic sirens and control centre status using colour-coded map icons (green, yellow, red)
- ◆ Flat navigation structure ensures intuitive use
- ◆ Map based GIS application
- ◆ Comprehensive reports and statistics of system status and –history; detailed to the second
- ◆ Analysis and indication of malfunctions
- ◆ Data print and export functions



CCCS CONTROL SOFTWARE

Simple and intuitive software for controlling and monitoring a siren warning and notification system. Activation of electronic sirens in seconds, status display following traffic light principle.

We look forward to you getting in touch and are more than happy to give you the time for a detailed advise session

Please feel free to contact us via phone or email for your individual consultation

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