23 ANNIVERSARY

Boswell

Boswell

Contents

Corporate Profile

Boswell Connection Group Co.,Ltd., founded in 1994 with an aim to become a total solution for Fire and Security System, Lightning Protection system and Surge Protection System. The company policy emphasizes on good quality and standard of work. An more than 23 year experience enables us not only supply of equipment but also provide design, installation and maintenance as well. Which is the protection and supplement industry for safety in life and property in high buildings and industrial plants. Until now we expand the scope of service to Building and factory utility systems such as Grounding System, Fire Extinguishing System, CCTV System, Nurse Call System and RTRC Conduit etc. Now, with the registered capital of 50 Million Baht. Today Boswell's Group have service employing 40 employees. Each of Boswell's core businesses holds a leadership position in its specific market.

Mission & Goals

We will increase the value of our company and our portfolio of diversified brands by exceeding customers' expectation and achieving market leadership and operating fully integrated fire, security and safety business, which encompasses fire, security and safety based and total engineering services, confident of being a regional leader and s high performance organization with accountability, integrity, and optimum stakeholder returns, within a value-driven corporate culture. Fully understand and exceed our customers' needs, wants and preference and provide greater value to our customers than our competition.

Professional Assurance

We support electrical consulting engineers, architects and contractors through our extensive product documentation and specification guidelines. Continuous training of our reseller channel partners further maximizes this extensive support. The management team comprises of fully qualified professionals with extensive hands-on experience and expertise. Together with its well-trained support staff, Boswell provides quality service and solutions that meets your demanding quality power needs.

Our range of services

- Sales and Services
- Design, Consults, Installation for the systems with the certifier and experience engineers.
- Services and preventive maintenance, test the systems follow the National and International Standards.
- Training for suitable systems vary on customer needs.

Boswell

PENTAIR ERICO

CERTIFICATE OF DISTRIBUTORSHIP

This is to certify that

Boswell Connection Group Co. Ltd

has been appointed Official Distributor of the ERICO range of Lightning and Surge Protection products in Thailand.
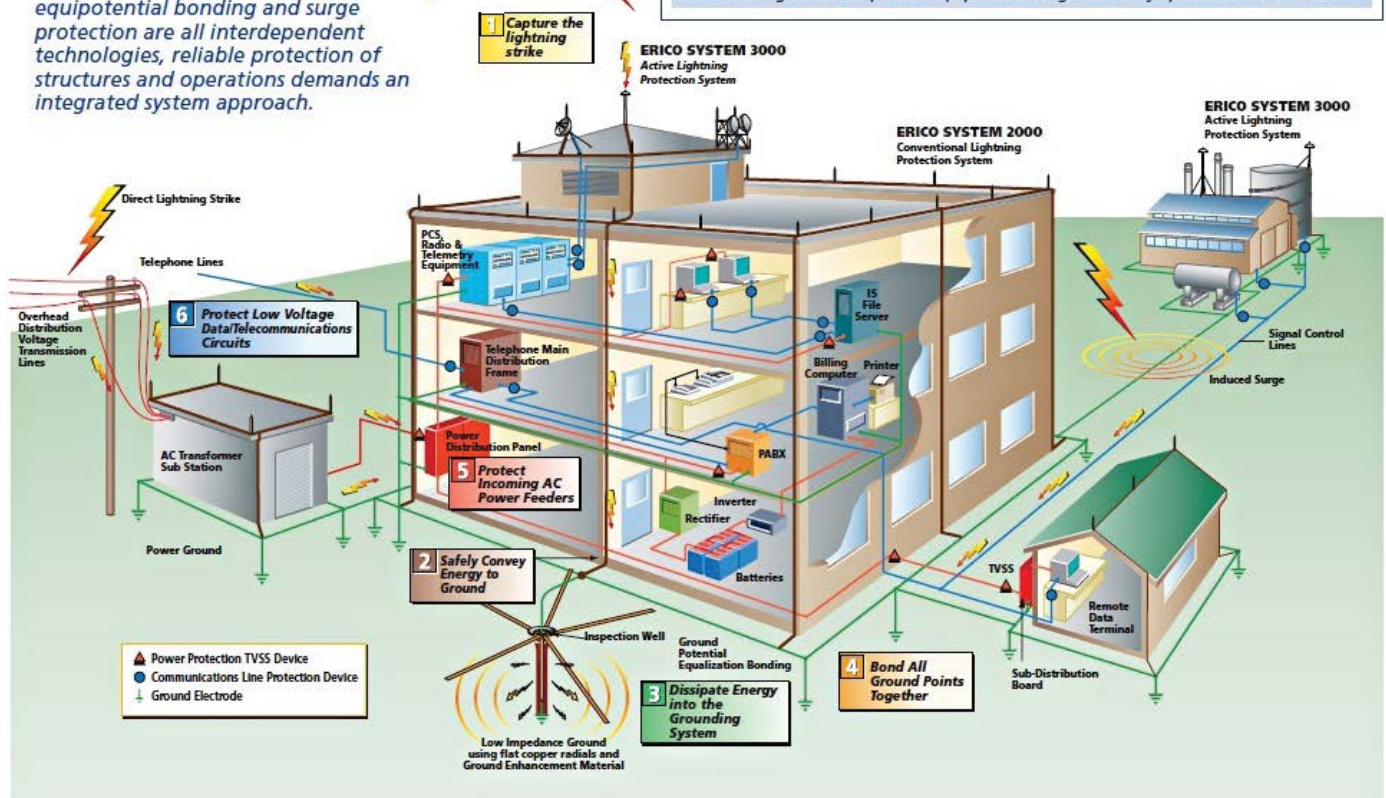
With over **23** years of experience in design and Installation. Boswell employs a total engineered systems approach when working with customer on any project–ranging from small installation to turnkey projects anywhere in Thailand.

Lightning Protection, grounding, bonding and surge protection are technical subjects that demand the expertise that only Boswell can provide. Boswell can point facility owners in the right direction with the necessary support needed to implement a complete facility electrical protection system

The Six Point Plan of Protection from Pentair/ERICO

1 **Capture the lightning strike.**
Capture the lightning strike to a known and preferred attachment point using a purpose-designed air terminal system.

2 **Convey this energy to ground.**
Conduct the energy to the ground via a purpose-designed downconductor.

3 **Dissipate energy into the grounding system.**
Dissipate energy into a low impedance grounding system.

4 **Bond all ground points together.**
Bond all ground points to eliminate ground loops and create an equipotential plane.

5 **Protect incoming AC power feeders.**
Protect equipment from surges and transients on incoming power lines to prevent equipment damage and costly operational downtime.

6 **Protect low voltage data/telecommunications circuits.**
Protect equipment from surges and transients on incoming telecommunications and signal lines to prevent equipment damage and costly operational downtime.

Because lightning protection, grounding, equipotential bonding and surge protection are all interdependent technologies, reliable protection of structures and operations demands an integrated system approach.

FACILITY ELECTRICAL PROTECTION

PENTAIR ERICO®

The consequences of an unexpected lightning strike or power surge can be catastrophic for a facility:

- Personnel are at risk
- Critical equipment may be damaged, or destroyed
- Data can be corrupted
- The costs of operational downtime and lost revenue can be very substantial.

As industries become more dependent on increasingly sensitive equipment, proper protection from lightning and dangerous over-voltage transients is necessary.

With over 60 years of research, testing and product development, Pentair/ERICO has acknowledged that no single technology can totally eliminate vulnerability to lightning and surges.

The Pentair/ERICO Six Point Plan of Protection is designed to provide total facility protection by integrating several concepts.

The Six point Plan will minimize the risk of damage to facilities through:
- Direct Strike Protection
- Grounding and Bonding
- Surge and Over-voltage Transient Protection

Pentair Engineered Electrical & Fastening Solutions is a leading global manufacturer and marketer of superior engineered products for niche electrical, mechanical and concrete applications. These Pentair products are sold globally under a variety of market-leading brands including ERICO, CADDY, ERIFLEX and LENTON.
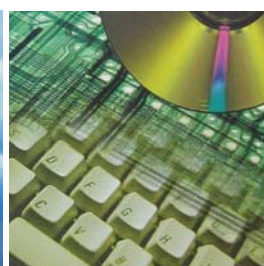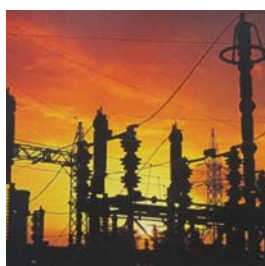
SYSTEM 3000

LIGHTNING PROTECTION PRODUCTS

The ERICO SYSTEM 3000 is a technically advanced lightning protection system. The unique features of this system allow the achievement of reliable lightning capture and control.

The ERICO DYNASPHERE air terminal provides a preferred point for lightning discharges which would otherwise strike and damage an unprotected structure and/or its contents. The ERICO DYNASPHERE is optimally connected to an ERICO ERICORE downconductor and low impedance grounding system in such a way as to provide a totally integrated system.

ERICO SYSTEM 3000 includes the following elements:
- ERICO DYNASPHERE air terminal
- ERICO ERICORE downconductor
- Lightning event counter
- Purpose designed low impedance grounding system.

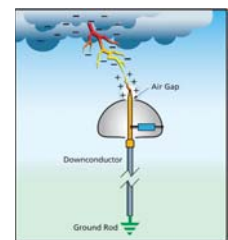**Principles of the ERICO DYNASPHERE**

For more than 200 years, little improvement was made in lightning protection systems. However, modern research and recording methods have led to an improved understanding of the lightning discharge process, and various advancements have been achieved in the simulation of lightning electric-field conditions. Two fundamental concepts have emerged from these advancement in the lightning attachment process and air terminal performance.

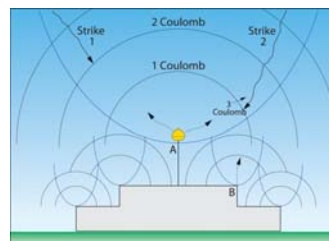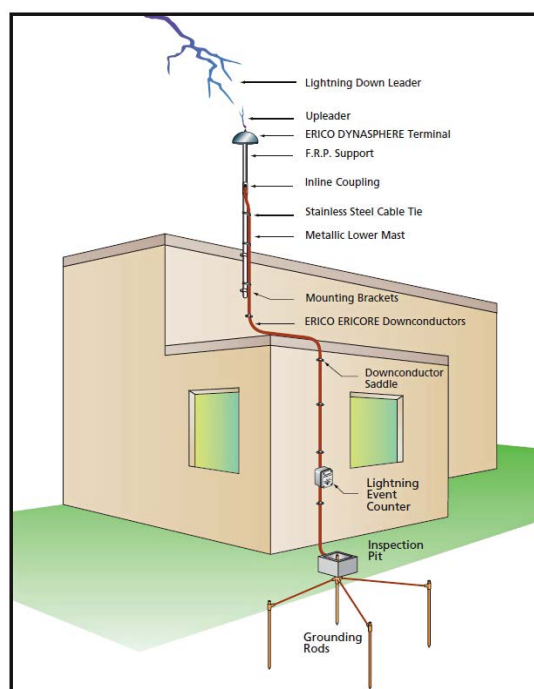D/S SILV MK3   D/S GOLD MK3

D/SMKIV-S3
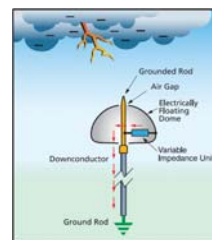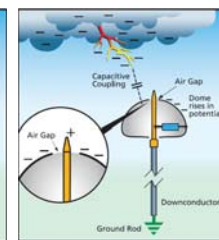
Static Thunderstorm Phase · Dynamic Thunderstorm Phase · Controlled Triggering Streamer Phase

• Air terminals that produce copious quantities of corona (space charge) are less efficient strike receptors.
• An optimum air terminal is one which launches an upward streamer when the ambient electric field is at a level to support the continual propagation of the leader.

Lightning Down Leader
Upleader
ERICO DYNASPHERE Terminal
F.R.P. Support
Inline Coupling
Stainless Steel Cable Tie
Metallic Lower Mast
Mounting Brackets
ERICO ERICORE Downconductors
Downconductor Saddle
Lightning Event Counter
Inspection Pit
Grounding Rods

The ERICO DYNASPHERE Enhanced Air Terminal
The patented ERICO DYNASPHERE is an enhanced air terminal.
Features include:
• Non-radioactive technology
• No external power required
• No moving parts
• Selection of tip radii and variable impedance to adjust for optimum performance at different installation heights
• Dynamic response to the approach of a lightning downleader
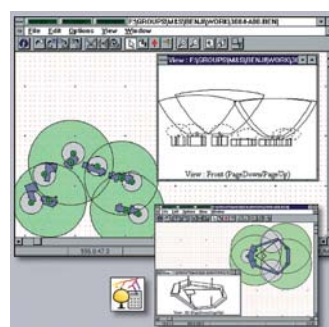
ERICO SYSTEM3000 Supported by Collection Volume Method Placement (CVM)
The Placement of air terminals on structures is often performed with the Rolling Sphere Method (RSM),which is based on the simple Electro Geometric Model (EGM) for striking distance.
The Collection Volume Method defines the lightning "capture volume" of potential strike points on a structure. This method is used in conjunction with the ERICO SYSTEM3000 lightning protection system but is equally applicable for the placement of conventional terminals

LPSD Lightning Protection Design Software

FEATURED LIGHTNING PROTECTION PRODUCTS

Pentair's innovative technology provides two systems for capturing lightning energy. The ERICO SYSTEM 2000 provides conventional air terminal technology to meet traditional needs.

Pentair offers the **ERICO SYSTEM 2000** series of air terminals, down-conductors and fittings in accordance with National and International Standards such as Australian-AS1768, Singaporean-CP33, IEC®/EN 62305-3 and USA-NFPA® 780.

Features:
• Wide range of air terminals, bases, conductors, connectors and fasteners
• Air termination components and fittings are available in copper and aluminum
• Downconductors are available as stranded or flat tape construction
• Computer-aided design optimizes the location of air terminals providing the most effective lightning-protection coverage.
• Based on conventional design principles rolling sphere, cone of protection and mesh method as found in AS1768, IEC®/EN 62305-3, CP33 and NFPA® 780
• Precision manufacturing helps ensure easy assembly and installation

This Illustration is not drawn to scale, nor does it portray an actual or typical application. It is designed to illustrate some of the major components of the ERICO SYSTEM 2000 Lightning Protection System and their relationship with one another.

COPPER TAPE

ALUMINIUM TAPE

PVC-COVERED COPPER TAPE

SOLID COPPER

STRANDED COPPER

PENTAIR ERICO®
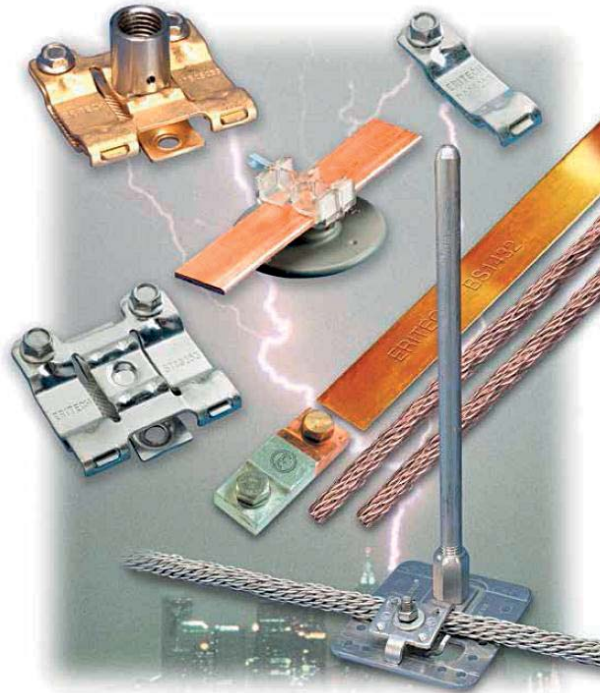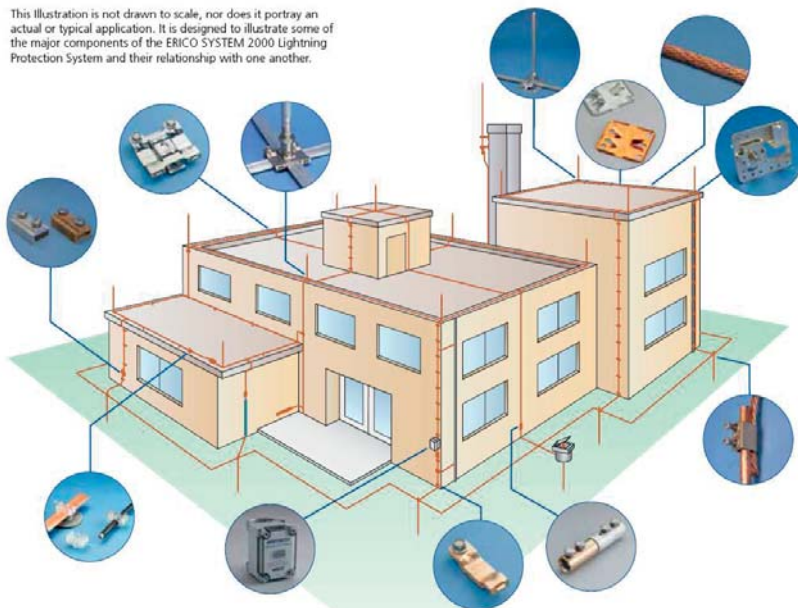
ESE LIGHTNING PROTECTION PRODUCTS

ERICO INTERCEPTOR ESE i-Series generates controlled magnitude and frequency pulses at the tip of the terminal during high static fields prior to a lightning discharge. This enables the creation of an upward leader from the terminal that propagates toward the downward leader coming from the thunder cloud.

The ERICO INTERCEPTOR ESE i-Series has been extensively tested at an independent high-voltage laboratory in accordance with the revised 2011 requirements of French NFC 17-102. The testing, as defined in the standard, was designed to simulate naturally occurring conditions and allow comparison of the performance between differing types of lightning protection systems.

Features
- Designed and tested to NF C 17-102 and similar standards
- 304 stainless steel design suitable for most environments
- Available in three models to suit specific site requirements
- Suitable for use with a variety of downconductor systems, including tape, cable, smooth- weave, Isolated Downconductor (ISODC) and ERICO ERICORE conductor

ERICO INTERCEPTOR i-series ESE
Early Streamer Emission Lightning Terminal

According to the NF C 17-102 and similar ESE standards
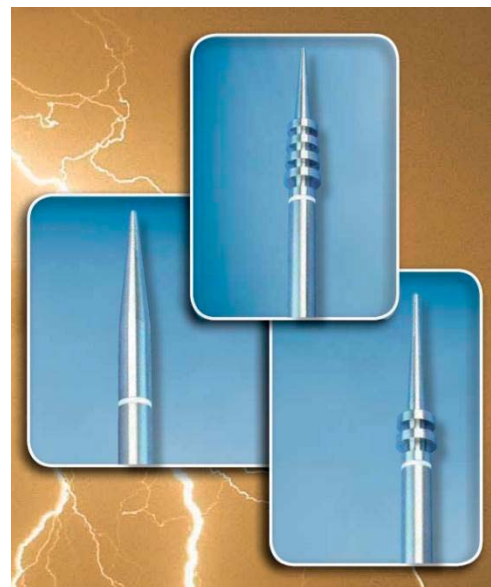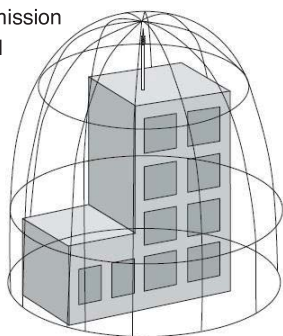
Protection Level	Protection Level I (99%, D = 20 m)			Protection Level II (97%, D = 30 m)			Protection Level III (91%, D = 45 m)			Protection Level IV (84%, D = 60 m)		
Model	SI25i	SI40i	SI60i	SI25i	SI40i	SI60i	SI25i	SI40i	SI60i	SI25i	SI40i	SI60i
ΔT (µs)	25	40	60	25	40	60	25	40	60	25	40	60
h (m)	Rp (m) Protection Radius											
2	17	23	32	19	26	34	23	30	40	26	34	44
3	25	35	48	26	39	52	34	45	59	39	50	65
4	34	46	64	39	52	68	46	60	78	52	67	87
5	42	58	79	49	65	86	57	75	97	65	83	107
6	43	59	79	49	66	86	58	76	97	66	84	107
7	44	59	79	50	66	87	59	76	98	67	85	108
8	44	59	79	51	67	87	60	77	99	68	86	108

Protecting Areas

According to NF C 17-102:2011, the standard protection radius (Rp) of the ERICO INTERCEPTOR ESE i-Series is linked to ΔT (below), the protection levels I, II, III or IV (as calculated in EN 62305-2) and the height (h) of the ERICO INTERCEPTOR ESE i-Series above the structure or feature to be protected (defined by NF C 17-102 as a minimum 2 m).
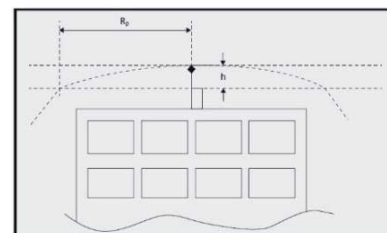
Where h≥5 m, then Rp can be calculated from

$$R_p (h) = \sqrt{2rh - h^2 + \Delta(2r+\Delta)}$$

Where 2 m ≤ h ≤ 5 m, then Rp can be calculated from

$$R_p = h \times R_p(5) / 5$$

Pentair offers three versions of the ERICO INTERCEPTOR ESE i-Series air terminals:

- SI25i with a triggering advance of 25 µs
- SI40i with a triggering advance of 40 µs
- SI60i with a triggering advance of 60 µs
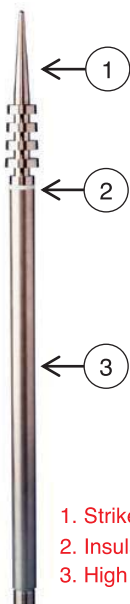
1. Strike tip
2. Insulator ring
3. High voltage control section
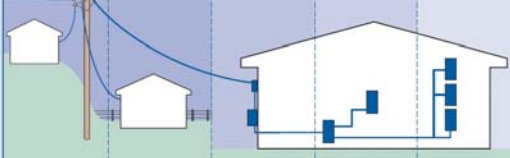
SURGE PROTECTION SYSTEM

PENTAIR ERICO

By following the Six Point Plan of Protection, Pentair/ERICO customers are able to implement the most effective solutions to individual lightning, grounding and surge problems while retaining an integrated protection philosophy.

Point 5 of the Six Point Plan advocates a coordinated approach to surge protection, where the first stage of defense is the installation of primary protection devices at the mains supply service entrance, followed by secondary protection at distribution branch panels and where necessary, at point-of-use applications.

Point 6 recognizes the need to provide effective surge protection on cables supplying telecommunications, signal and data management equipment.

Underwriters Laboratories Inc.®

Critical Factors

Critical factors need to be considered when determining the need for facility protection. Many factors can be determined by answering the following questions:

- What is the risk to personnel?
- What is the risk of equipment damage?
- What are the consequences of equipment failure?
- Is the equipment associated with an essential service?
- How will equipment failure affect overall facility operation and revenue generation?
- What are the legal implications of providing inadequate protection?

As a protection solutions provider, Pentair also offers protection systems and consultancy services to suit specific industry applications ranging from power conversion for the telecommunications industry to plug-in power line filters for the home/small office environment.

Pentair/ERICO facility electrical protection products are designed to provide comprehensive protection against surges of up to 20kA on telephone subscriber lines, industrial process control lines, coaxial feeders, computer networks and serial data circuits.

GROUNDING PRODUCT AND SYSTEM

PENTAIR ERICO®

Grounding & Bonding

For the efficient performance of a lightning protection system, it is essential that a low impedance ground be provided to facilitate the dissipation of the lightning energy into the earth mass.

Because soil conditions and seasonal patterns vary from site to site, the methods of grounding need to be considered on an individual basis.

As a grounding specialist, Pentair/ERICO provides a range of grounding systems to suit any application.
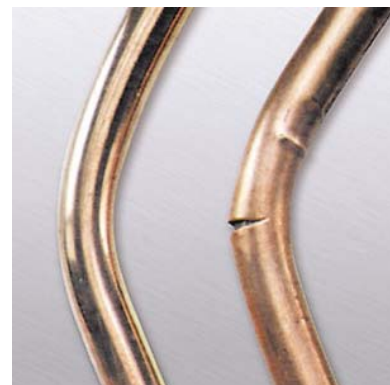
ERICO CU-BOND ROUND CONDUCTOR

ERICO CU-BOND Round Conductor is manufactured with the highest quality materials according to internationally recognized standards.
• UL Certified to IEC®62561-2, Requirements for Conductors and Earth Electrodes.
• Meets the requirements of IEC® 62305-3, Edition 2, for Lightning Protection.
• Materials manufactured according to ASTM 370 to confirm steel quality and ASTM 376 to verify copper thickness.
• Meets the requirements of IEC 62305-3, Edition 2, for Lightning Protection.
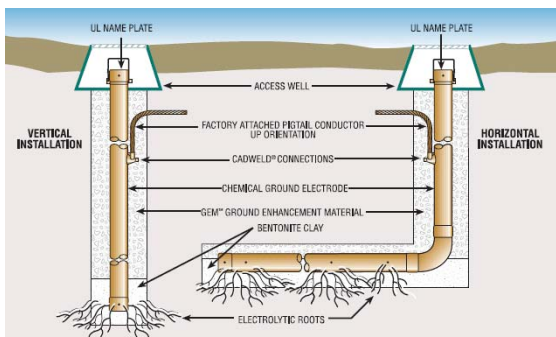
Chemical Ground Electrode

Chemical ground electrodes provide a low impedance ground in locations of high soil resistivity and dry soil conditions. Used in conjunction with a Bentonite backfill and ERICO's unique GEM material, the ERICO chemical ground rod electrode systems provide a method to improve soil resistivity directly surrounding the electrode, and can replace multiple conventional ground rods. It maintains a low ground resistance, maintenance-free installation that dissipates lightning energy and other dangerous electrical fault currents, even in sandy or rocky soil conditions.

GEM Ground Enhancement Material

GEM is a low-resistance, non-corrosive, carbon-based superior conductive material that improves grounding effectiveness, especially in areas of poor conductivity such as rocky ground, mountain tops and sandy soil. GEM is also the answer in situations where ground rods can't be driven or where limited land area makes adequate grounding difficult with conventional methods.

CADWELD PLUS

Installation Is Easy!

4 Simple Step For Permanently Welded Electrical Connections

Insert CADWELD PLUS package into mold (may require use of cover/baffle)

Attach control unit termination clip to ignition strip

Press and hold control unit switch and wait for the ignition

Open the mold and remove the expended steel cup – no special disposal required

FireFinder XLS System

Nothing protects people and property like a FireFinder® XLS system. When a fire is detected anywhere in the building, the panel is instantly alerted. In less time than it takes to draw a single breath, alarms are activated and emergency control operations are engaged, including fire door closure, elevator capture and air handler shut-off. When first responders arrive, the FireFinder XLS displays the critical information they need to make potentially life-saving decisions, courtesy of an industry-leading 6-inch, full-color LCD that provides crystal-clear, easy-to-read text on screens color-coded by event type. Floor plans, hazmat icons and available actions are also accessible via intuitive on-screen menus.

Cerberus PRO

Cerberus™ PRO offers four fire control panels. They answer the different requirements from small and simple to large and complex application sites. All fire control panels can either stand alone or be networked. Even redundant, EN 54-approved networks are possible thanks to the Ethernet technology that is built into every panel.

The fire control panels process all system messages and trigger alarms. Every model provides a simple user interface and customizable user prompting texts. This makes the control panels easy-to-operate – and safe and correct action is ensured in case of an event. In addition, remote access for remote operation and servicing is possible.

MM8000 – the danger management station

MM8000 enables centralized alarm management and supervision of a broad range of fire safety, electronic security and control systems. All are displayed in a uniform and clearly structured manner. Alarms and messages are listed according to security-relevant priorities, so operators have all relevant information at a glance. And in case of an event, MM8000 guides the user step by step through predefined procedures. Thanks to a user-friendly engineering tool, MM8000 can be configured quickly and easily. Moreover, MM8000 is a highly flexible and scalable danger management station that can be adapted to changing requirements any time.

Fire Alarm Systems
Our fire protection, detection, notification and suppression systems are the answer to protecting your people and property.

- NITTAN has 60 years' history since 1954. We are one of the largest company in the fire protection industry in Japan.
- NITTAN has 40 years' business history in the United Kingdom
Since NITTAN (UK), LTD was established in 1972. We are the first manufacture which started this business in the country.
- Our detectors, used in the aircraft and ships, have a large market share in those fields which require high reliability products.
- NITTAN detectors are equipped in the Shinkansen (Bullet train) in Japan.
- NITTAN's communication protocol is proved to be highly reliable in many countries.

SPERA™ is derived from the Latin word 'spera' which means hope and trust.

SPERA™

SPERA™ is a 'next generation' modular network system that is designed for the most demanding fire protection and emergency communications applications. SPERA™ introduces an impressive new range of system configurations, including a wide array of cabinets and sizes for control and annunciation requirements.

I OVERVIEW

Modular System Design
SPERA™ is designed to be highly versatile and can be customized with a wide array of adder modules to meet various needs of applications. Maximum 8 display/control modules and 7 loop driver cards can be added in a single panel. In addition, the base panel supports maximum 16 conventional circuit adder modules such as initiating circuit module, indicating circuit module and relay circuit module.

EVA series Detectors and Modules
SPERA™ supports Nittan's EVA series intelligent detectors and modules, which are the industry's most advanced, highly reliable devices. EVA series smoke detectors incorporate a unique technology developed by Nittan, that is, dual optical sensing method to reduce false alarm and special smoke chamber to respond equally to various type of smoke from a fire.

Expandable, Networkable Fire Alarm System
SPERA™ fire alarm panel is expandable to maximum 14 loops (7 loop cards) in a single panel. The network interface module allows SPERA™ to make a large peer-to-peer network fire alarm system with maximum 63 panels, that support up to 224,000 addressable devices.
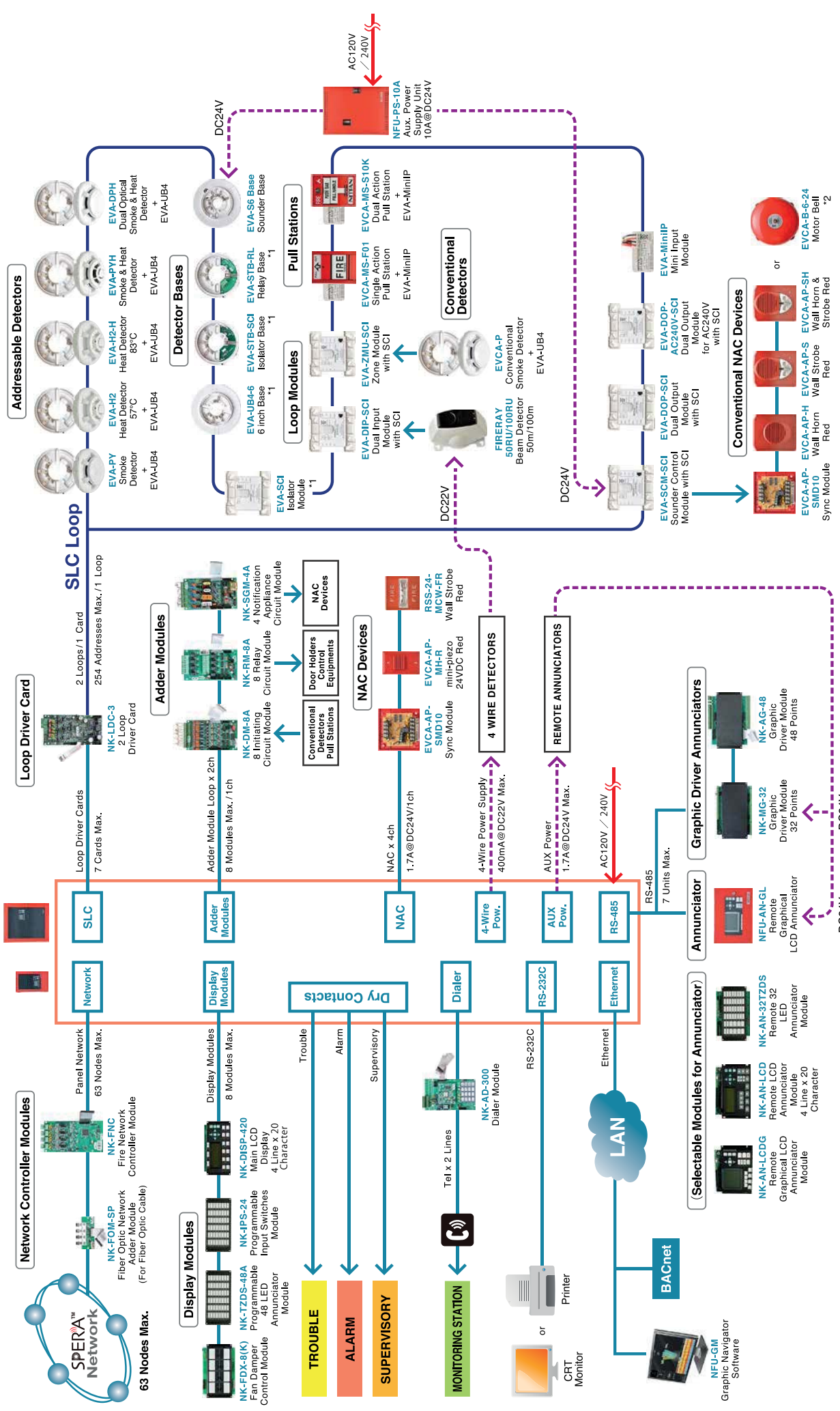
For commercial building, BACnet interface allows SPERA™ connection to BMS. SPERA™ is an ideal fire alarm solution from a small size to a large size project with multiple buildings.

SPERA™ System Configuration

FIRE ALARM SYSTEM

NFU-7000 / NFU-7000-L

Addressable Detectors

- **EVA-DPH** Dual Optical Smoke & Heat Detector + EVA-UB4
- **EVA-PYH** Smoke & Heat Detector + EVA-UB4
- **EVA-H2-H** Heat Detector 83°C + EVA-UB4
- **EVA-H2** Heat Detector 57°C + EVA-UB4
- **EVA-PY** Smoke Detector + EVA-UB4

Detector Bases

- **EVA-S6 Base** Sounder Base
- **EVA-STB-RL** Relay Base *1
- **EVA-STB-SCI** Isolator Base *1
- **EVA-UB4-6** 6 inch Base *1

Pull Stations

- **EVCA-MS-S10K** Dual Action Pull Station + EVA-MiniIP
- **EVCA-MS-F01** Single Action Pull Station + EVA-MiniIP

Loop Modules

- **EVA-ZMU-SCI** Zone Module with SCI
- **EVA-DIP-SCI** Dual Input Module with SCI
- **EVA-SCI** Isolator Module *1

Conventional Detectors

- **EVCA-P** Conventional Smoke Detector + EVA-UB4
- **FIRERAY 50RU/100RU** Beam Detector 50m/100m

Conventional NAC Devices

- **EVCA-AP-SH** Wall Horn & Strobe Red
- **EVCA-AP-S** Wall Strobe Red
- **EVCA-AP-H** Wall Horn Red
- **EVCA-AP-SMD10** Sync Module
- **EVCA-B-6-24** Motor Bell *2

- **EVA-MiniIP** Mini Input Module
- **EVA-DOP-AC240V-SCI** Dual Output Module for AC240V with SCI
- **EVA-DOP-SCI** Dual Output Module with SCI
- **EVA-SCM-SCI** Sounder Control Module with SCI

*1 These loop devices do not expend the loop addresses.
*2 Bells should not be mixed with other NAC devices on the same line.

NFU-PS-10A Aux. Power Supply Unit 10A@DC24V

AC120V / 240V
DC24V
DC22V
DC24V

SLC Loop

2 Loops / 1 Card
254 Addresses Max. / 1 Loop

Loop Driver Card

- **NK-LDC-3** 2 Loop Driver Card

Loop Driver Cards
7 Cards Max.

Adder Modules

- **NK-SGM-4A** 4 Notification Appliance Circuit Module → NAC Devices
- **NK-RM-8A** 8 Relay Circuit Module → Door Holders Control Equipments
- **NK-DM-8A** 8 Initiating Circuit Module → Conventional Detectors Pull Stations

Adder Module Loop x 2ch
8 Modules Max. / 1ch

NAC Devices

- **RSS-24-MCW-FR** Wall Strobe Red
- **EVCA-AP-MH-R** mini-piezo 24VDC Red
- **EVCA-AP-SMD10** Sync Module

NAC x 4ch
1.7A@DC24V/1ch

4 WIRE DETECTORS

4-Wire Power Supply
400mA@DC22V Max.

REMOTE ANNUNCIATORS

AUX Power
1.7A@DC24V Max.

AC120V / 240V

Graphic Driver Annunciators

- **NK-AG-48** Graphic Driver Module 48 Points
- **NK-MG-32** Graphic Driver Module 32 Points

DC24V

Annunciator

- **NFU-AN-GL** Remote Graphical LCD Annunciator

RS-485
7 Units Max.
DC24V

Selectable Modules for Annunciator

- **NK-AN-32TZDS** Remote 32 LED Annunciator Module
- **NK-AN-LCD** Remote LCD Annunciator Module 4 Line x 20 Character
- **NK-AN-LCDG** Remote Graphical LCD Annunciator Module

Network Controller Modules

- **NK-FOM-SP** Fiber Optic Network Adder Module (For Fiber Optic Cable)
- **NK-FNC** Fire Network Controller Module

Panel Network
63 Nodes Max.

Display Modules

- **NK-TZDS-48A** Programmable 48 LED Annunciator Module
- **NK-IPS-24** Programmable Input Switches Module
- **NK-DISP-420** Main LCD Display 4 Line x 20 Character
- **NK-FDX-8(K)** Fan Damper Control Module

Display Modules
8 Modules Max.

SPERA™ Network

63 Nodes Max.

Dry Contacts

- Trouble → **TROUBLE**
- Alarm → **ALARM**
- Supervisory → **SUPERVISORY**

Dialer

- **NK-AD-300** Dialer Module

Tel x 2 Lines → **MONITORING STATION**

RS-232C → Printer

Ethernet

LAN

CRT Monitor

BACnet

NFU-GM Graphic Navigator Software

| SLC | Network | Adder Modules | Display Modules | NAC | Dialer | 4-Wire Pow. | AUX Pow. | RS-232C | RS-485 | Ethernet | Annunciator |

NITTAN

FIRE ALARM SYSTEM

HOCHIKI

Hochiki is a product developer, system designer, installer as well as being a distributor and a maintenance contractor. We are entrusted with peoples lives and property, and have since foundation, consistently built up reputable service company.
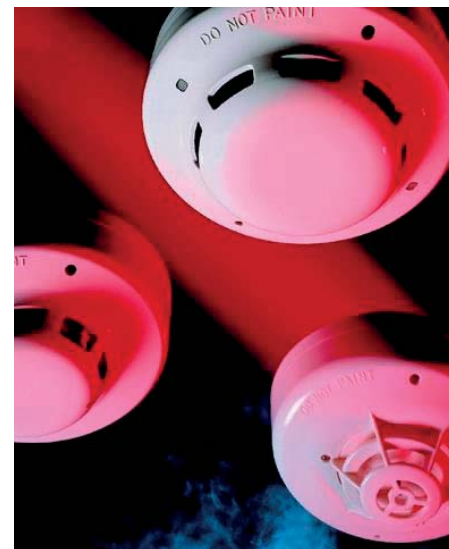
• **Multi purpose zone configuration**
  - Versatile zone configuration to suit various alarm need.
    (Zone 1 is preset and fixed for fire alarm only)
• **Light weight and compact in size**
• **Easy installation**
  - By means of 'Wire Insertion' terminals
  - Wide internal cabinet space of easy wiring
  - 180 degree wide panel door opening
• **Improved local bell control with programmable 'silence' timer**
• **Time delay function**

• **New function**
  - Improved lightning surge protection
  - Easy configuration of local bell and interlock release control, which can be monitored from the zone panel.
  - Functional test equipped with 2 reset modes for heat and smoke detectors.
  - 'Hands-free' intercom communication at control panel
  - Voltage display for ' Stand by Battery' test
  - Sound alert during 'Time Delay' operation
  - Optional per-alarm alert for 'Time Delay' operation
 - Zone open circuit monitored

HOCHIKI AMERICA CORPORATION

THROUGH OUR SOPHISTICATED LIFE SAFETY, FIRE DETECTION AND EMERGENCY DEVICES, PEOPLE'S LIVES AND PROPERTY ARE KEPT PROTECTED, HELPING MAKE THE WORLD A SAFER PLACE TO LIVE. WE STRIVE TO IMPROVE THE LIFESTYLE OF EACH EMPLOYEE, STOCKHOLDER, AND MEMBER OF THE COMMUNITY.

At the backbone of the FireNET® analog addressable system is the FireNET® control panel itself. Utilizing Hochiki's patented Digital Communication Protocol (DCP), it allows for robust intelligent communication with other analog addressable products. An RS-485 bus provides communication to the panel network, while the RS-232 interface allows the convenience of programming via a PC.

UL864 9th Edition Listed
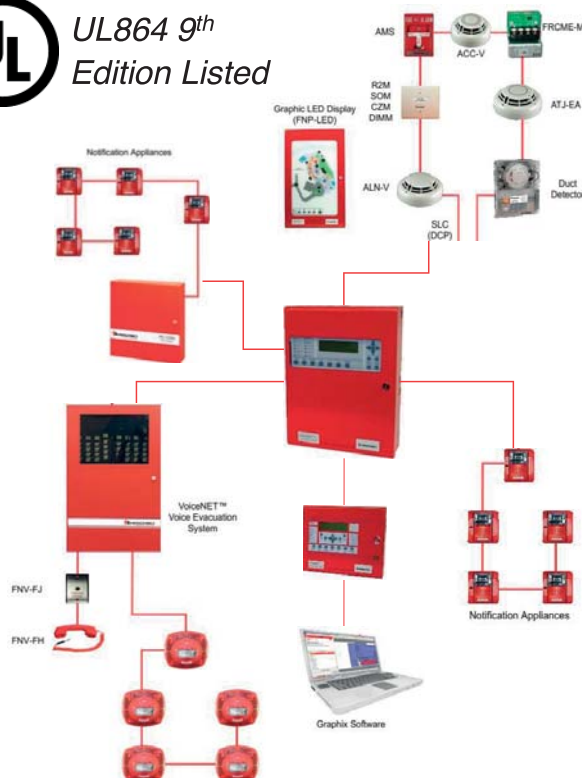
FIRE EXTINGUISHING SYSTEM

SIEMENS

Sinorix – intelligent extinguishing solutions to keep fire virtual

A perfect fire protection solution requires technology and expertise. Sinorix intelligent extinguishing solutions, offer you the latest technologies based on long-term know-how and experience in fire detection and extinguishing from a global partner. The solutions are tailored to your individual needs to maximize business continuity. Fires are detected early and extinguished quickly and reliably. Sinorix high-quality solutions protect people, environment, processes, and assets.

Sinorix N2-Ar-CO2-
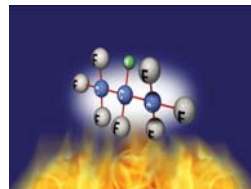**automated extinguishing solutions with natural agents**
Sinorix N2-Ar-CO2 bundle the long-term know-how from Siemens in integrated solutions from one source that also comprise a comprehensive service offering-from risk assessment, system design, installation and commissioning to maintenance. Sinorix N2-Ar-CO2 extinguishing solutions use pure natural agents as well as state-of-the-art technology for fast and reliable extinguishing without harming the environment. In addition, the extinguishing solutions with natural agents can be precisely tailored to the existing building structure, requirements and risks of fire thanks to their high flexibility regarding system planning and design.

Sinorix 227 -
automated extinguishing solution based on extinguishing agent HFC227ea (FM200)
Sinorix 227 is a solution based on the worldwide known HFC 227ea with 25- and 42-bar technology. Thanks to the high-pressure technology, the cylinders can be installed away from the protected room' thus allowing central positioning of the cylinder battery. HFC 227ea is an extinguishing agent that is highly effective at low extinguishing concentrations and that protects assets and people. It is chemically inert, has no electric conductivity, and is thus safe for electric and electronic equipment. The extinguishing concentration is also harmless for people. With an ozone depletion potential of 0, it has no influence on the ozone layer. HFC 227ea is thermically and chemically stable when stored and can thus be used over a long time period.

Sinorix 1230 -
automated extinguishing solution based on chemical agent Novec 1230
Sinorix 1230 is the latest generation of our chemical extinguishing systems, offering a range of unique features and benefits. This integral solution from one source also comprises a comprehensive service portfolio' from risk assessment, system design, installation, and commissioning to maintenance. Sinorix 1230 is based on a long-term, sustainable technology that has one of the highest safety margins and ensures quick and reliable extinguishing without negative impact on the environment, especially on global warming. The 42-bar technology from Siemens is space-saving and assures maximum design flexibility.
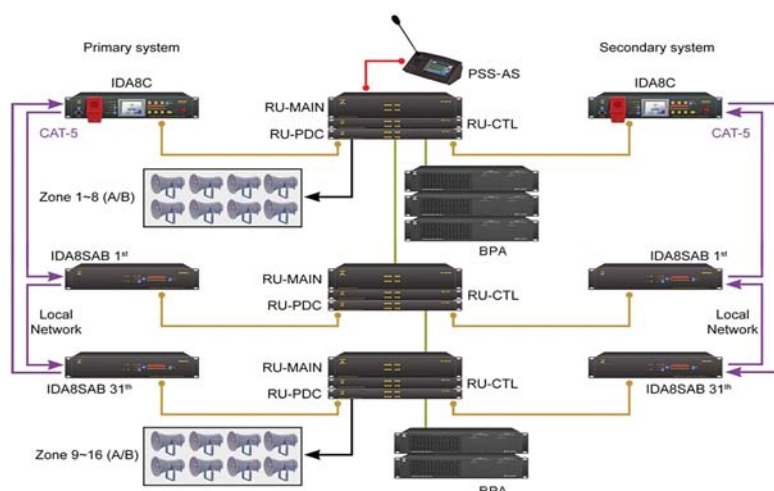
IDA8

Highly Integrated Secure PA/VA Network System

ATEÏS proudly introduces a highly integrated PA/VA system which has all the essential functionality to comply with EN54-16 and UL60065 requirements.

The IDA8 system offers a fully digital and networked PA/VA system with adjustable parameters within the digital domain. The IDA8C controller consists of an 8 input by 8 output networked control for the use in any installation size, whether is a small local system of 256 zones or a big complex multi-zone and multi-input system of 8,192 zones. All these functions are present within the main matrix to ensure high quality of audio production required at different ambient environment and sites.

IDA8C
Networkable PA/VA System Controller – Matrix Mode

IDA8SAB
Networkable PA/VA System Slave Unit – A/B-zoning – Matrix Mode

IDA8S
Networkable PA/VA System Slave Unit – Matrix Mode

IDA8SL
Networkable PA/VA System Lo-Z Slave Unit – Matrix Mode

IDA8C-SW
Networkable PA/VA System Controller – Switch Mode

IDA8SAB-SW
Networkable PA/VA System Slave Unit - Switch Mode

AMPLIFIERS

SPA SPA2120/SPA2240
24VDC Backup Security Power Amplifier

DPA DPA8060/DPA4125/DPA4250/DPA2500
48VDC Class-D Backup Digital Power Amplifier

BPA BPA-4060/BPA-2060/BPA-2120/BPA-2240/BPA-2480/BPA-1000
48VDC Backup Bridging Power Amplifier

CHARGER UNIT

SONAES
Charger & Monitoring Unit

0359-CDP-0177
0359-CDP-0140
LISTED
E341243

REMOTES

PPM-AS
Desktop Paging Console

PSS-AS
Colour Touch Screen Paging Console

URC - Programmable Remote Controller
URC-200 - Ethernet Programmable Remote Controller

CD-Touch
Wall-Mounted Touch Screen Paging Console

REDUNDANCY SWITCHING UNIT

RU-Main
Digital Audio Processing Unit with Paging Console Interface

RU-CTL
Secured Audio IN/OUT Contacts Unit

RU-PDC
Auxiliary Audio IN/OUT Contacts Unit with Paging Console & Telephone Line Interface

Full support for 100% redundancy and use of watchdog services guarantees maximum system availability with immediate switchover of primary to secondary not only by means of active spare amplifiers but also the control equipment. Should any main equipment fail there is an automatic switchover to the redundant system to ensure uninterrupted operation.

APPLICATION EXAMPLE
FULL-REDUNDANCY CONFIGURATION

SOUND SYSTEM

BOUTIQUE™

The new EN54-16/UL2572 listed BOUTIQUE system from ATEÏS is a highly flexible, feature rich PA/VA system targeting small to large installations offering full monitoring of speaker lines, microphones, and amplifiers. Based on the latest DSP processing technology, the BOUTIQUE expands from a single controller, capable of as little as 4 zones, to a large networked system capable of 16,384 zones, making the BOUTIQUE suitable for a wide variety of applications.

Integrated Scalable PA VA System

BOUTIQUE PA/VA System are certified to the following international standards

EN 54-16 for Voice Alarm Systems
UL2572 for Mass Notification Systems

Utilizing switching technology, a BOUTIQUE system is capable of discrete paging into multiple zone from a single channel amplier. By adding a second, external amplier to the rst, it creates a background music channel and a back-up amplier channel at the same time. Additional ampliers add additional capacity for each channel.

APPLICATION EXAMPLE

The Falcon Spider Crawler Lifts

TCA LIFT
Tall Compact Aerial
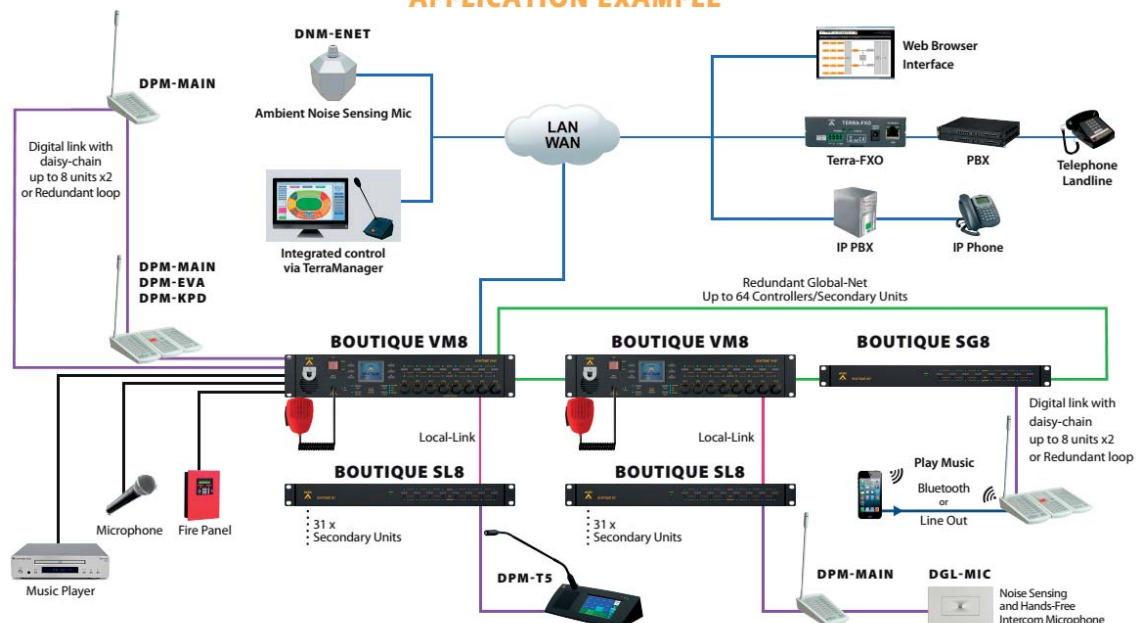
The Inventor Of The Original Spider Lift

The Falcon Spider Atrium Lift line of narrow, aerial, compact, atrium access lifts- or the "The Falcon Spider Atrium Lift Concept" as it is also known today – was developed and patented in the late 1970's by its former parent company E. Falck Schmidt A/S in Denmark. The goal was quite simple, to develop a lift that could pass through a regular door opening, obtain considerable work height in minutes, yet be light and flexible.

While the goal was simple, the solution of the new Falcon Spider Atrium Lift was not.

Safety being the Number One priority and the trademark of the company, it was crucial to find a solution that would offer maximum safety combined with an environment, as friendly as possible, for the operator. The result was the "The Falcon Spider Atrium Lift Concept", a compact spider lift that like its namesake sibling in nature can squeeze through very narrow places, and unfold when in position.

Consequently the lift can pass through an 1m wide and 2m high door opening, and when in place, the outriggers unfold like a spider's legs, providing safe support for the lift. A unique and patented safety system was developed at the same time, constantly monitoring the pressure of each individual outrigger. In case of insufficient support, the lift will automatically shut down and limit operations to those functions that will re-establish support and safe operations. While revolutionary in the 1970s it is today standard equipment on any Falcon Spider Atrium Lift Concept together with a secondary safety system.

In March 2005 E. Falck Schmidt A/S successfully merged with DENKA Lift A/S to form WORLDLIFT Industries AS. WORLDLIFT Industries combined the two lines to offer trailer and compact platform solutions from 22 to 52 metres working height.

In 2009 the owner of WORLDLIFT Industries, SKAKO A/S (holding company) decided a rebranding of all companies in the group, and SKAKO Lift A/S was created. At the same time it was decided to concentrate all activities in Odense, and start up a massive outsourcing project.

The above mentioned decisions to merge the Denka line with The Falcon Spider Atrium Lift line, and at the same time to establish a massive outsourcing project was more difficult and resource demanding than expected.

The Falcon Spider Crawler Lifts

TCA LIFT
Tall Compact Aerial

This has lead to the decision to put SKAKO LIFT A/S for sale.

By effect of September 1st 2011 the senior management of SKAKO LIFT A/S, Finn Schlitterlau and Thyge Mikkelsen, has bought The Falcon Spider Atrium Lift Concept activities under the name TCA LIFT A/S. The strong brands Falcon Spider Atrium Lift and ReachMaster are kept together with a strong team of highly experienced employees.

The aim for TCA LIFT A/S is to be one of the strongest players on the market with one of the best product programs. We develop, manufacture, deliver and maintain, on a global basis, systems and solutions which are superior in safety, functionality, technology and design, which enables our customers to conduct their tasks in a safer, better and more efficient way.

Key values TCA LIFT

Key values which in our past have, in our present time does and in the future shall influence actions of all our employees:
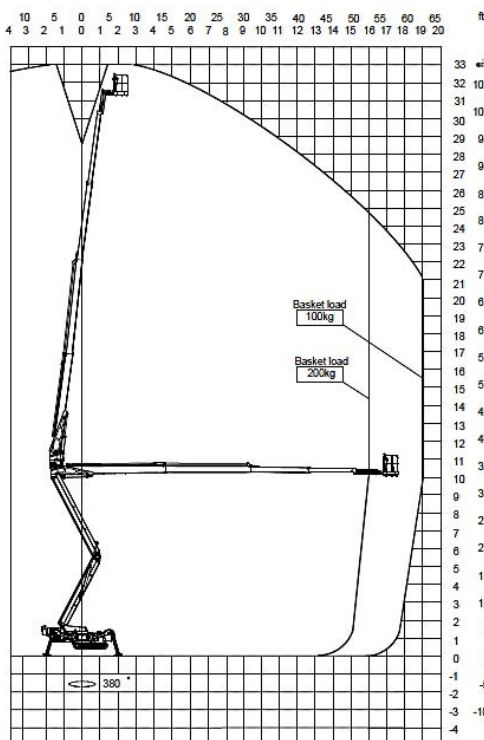
Reliability Trust
- We will only deliver reliable solutions
- We must act trustworthy in the eyes of our partners, colleagues, customers and suppliers
- We will stand up to our commitments

Innovation
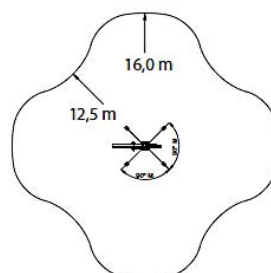- We will encourage innovative thinking
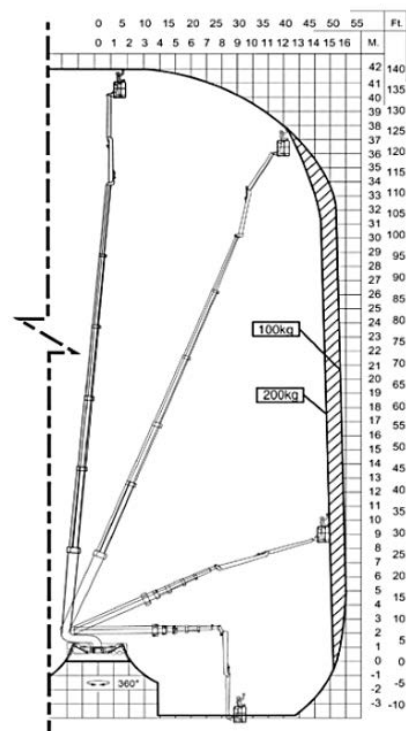- We will challenge the existing we can do it even better

FS330Z

FS420

CCTV SYSTEM

Panasonic

WHY PANASONIC?
From the company that brought you the first security camera in 1957 and invented over a dozen industry standards, Panasonic provides industry-leading solutions to capture, record, manage and analyze surveillance video. Panasonic provides a comprehensive lineup of video surveillance products and solutions that offer the industry's highest picture quality, missioncritical reliability and the industry's lowest total cost of ownership. When it counts, you can count on Panasonic video surveillance products and systems to deliver.

Freely control where you monitor at will.
Install Panasonic's omnidirectional camera to select and monitor specific areas at will, reduce costs, eliminate blind spots, and enhance your surveillance quality, The 360-degree surveillance camera is programmed with various recording modes to be the ideal solution to satisfy such surveillance needs.

High Resolution from Corner to Corner

Top quality imaging eliminates the blurriness of conventional cameras.
Panasonic's 4K surveillance camera provides users with the ability to simultaneously monitor a wide rage and accurately identify license plates and faces. With its outstanding high-definition images, this camera monitors a broad range of outdoor spaces and records clear image despite harsh weathers. Support you to ensure your safety and security with just a single camera to monitor a large space.

A surveillance system that can withstand harsh weather.
Panasonic's Rain Wash Coating Technology provides users with clear surveillance image even during strong rain and poor vision. The dome-shaped cover softens the rain drops, which prevents the rain from distorting or obstructing surveillance images. Rain or shine, the advanced monitoring technology provides high-quality surveillance to ensure your security and safety.

With Rain Wash Coating   **Without Rain Wash Coating**

CCTV SYSTEM

Market specific surveillance solutions

Oil & Gas Surveillance Solutions

The oil & gas industry is a fast-moving world of drilling rigs and supertankers. The rewards are high. But so are the risks involved. Incidents that are not dealt with immediately may interrupt your operations and pose a threat to public safety. We offer a complete solution for the surveillance of your oil & gas location, from explosion-protected cameras to intelligent control room software.

Benefits

- Monitor hazardous areas, drilling rigs, winches, helidecks and loading docks with our wide range of explosion-protected cameras and surveillance cameras
- See in the dark with our ultra-low-light cameras
- Transmit footage over vast distances using our fiber-optic equipment
- Automate the surveillance of unmanned platforms and substations with our perimeter intrusion detection (PID)
- Migrate from analogue to digital at a rate that suits you best
- Get remote access to all critical assets whenever, wherever
- Mix and match our products with a variety of security solutions manufactured by our sister companies in the TKH Group, including offshore cables, access control, lighting solutions and system integration

Marine Surveillance Solutions

We offer a complete solution for the surveillance of your marine location, from rugged stainless steel cameras to intelligent control room software. All components are designed to increase situational awareness and help you detect incidents before they escalate.

Benefits

- Monitor wind farms, ships, cruise ship, ports and loading docks with our wide range of stainless steel cameras and surveillance cameras
- See in the dark with our ultra-low-light cameras
- Transmit footage over vast distances using our fiber-optic equipment
- Automate the surveillance of unmanned platforms and substations with our perimeter intrusion detection (PID)
- Migrate from analogue to digital at a rate that suits you best
- Get remote access to all critical assets whenever, wherever
- Mix and match our products with a variety of security solutions manufactured by our sister companies in the TKH Group, including offshore cables, access control, lighting solutions and system integration

Mobility Surveillance Solutions

Monitoring traffic and public transport systems can be a real challenge. Stopped vehicles, wrong-way driving, lost cargo or smoke: events such as these need to be handled quickly and efficiently. Our broad range of surveillance cameras and video encoders deliver crystal clear images, allowing you to spot the tiniest details even in low-light situations. Get notified as soon as an incident is detected and reduce your response time by automating the decision-making process.

Benefits

- Enjoy crystal clear video with our wide range of surveillance cameras and video encoders
- Choose cameras with automatic incident detection (AID) to streamline traffic flow management
- Scan license plates and identify faces and objects with our advanced video management system
- Prevent costly replacements by choosing our vandal-resistant cameras
- Peer into the darkest of tunnels with our ultra-low-light cameras
- Use our fiber-optic equipment to transfer video streams over great distances
- Migrate from analogue to digital at a rate that suits you best

Public Sefety

No two public spaces are alike. A surveillance setup that is perfect for one location might not work for another. We listens to your needs and helps you create an environment where people feel safe and protected, from shopping malls and sports stadiums to entire city centres. Our public safety solutions let you detect incidents, share video streams with authorised users and communicate directly with first responders in the field, all through one intuitive interface.

Benefits

- Capture highly detailed footage with our wide range of surveillance cameras and video encoders
- Use our perimeter intrusion detection (PID) to receive alerts whenever someone crosses a detection line or enters a detection zone
- Consolidate your surveillance equipment into a single seamless solution with Siqura's intelligent video management system
- Deploy our vandal-resistant cameras to safeguard high-risk areas
- Migrate from analogue to digital at a rate that suits you best
- Transfer video streams over vast distances using our fiber-optic equipment

COMMAX

Nurse Call System

Main Receiver/ Central Controller/ Bed Console/ Operation room Interphone/ Radiation room Interphone

Prioritizing human lives
- Human technology for happier world

Calling device helps patients to easily contact or alert nurses incase of emergency right from the bed.

Easy-to-use call and display features

Nurse can now imminently respond to patient's regular or emergency calls simply by checking on the display showing patient profile stored in the device.

Automatic call-transfer

Up to 2 missed calls can saved and displayed when the main receiver is busy. Missed calls will be transferred automatically by sequence after the previous call.

Broadcast throughout interphones and wards

Broadcast throughout inter-phones is possible by simply pressing a button on the main receiver of the station. Also, broadcast throughout the entire hospital is possible by the main receiver's handset.

Restroom (Shower booth) call

Corridor light switches on and the receiver's alarm goes off with illuminating LED when the restroom emergency call is activated.

Corridor light indicator

Corridor light switches on with 4 colors for each different function s, White-regular call (on and off), red-emergency call (on and off) Green (on), yellow-medical service call (on)

AVIATION
Suvarnabhumi Airport
Don Muang Airport
Hat Yai Airport
Khon Kaen Airport
Phetchabun Airport
Ranong Airport
Ubon Ratchathani Airport
Etc.

BUILDING
Chachuri Square
B.T.S.Station
Chiang Mai Conventional Centre
Empire Tower
Metro Tower
Nation Tower
S.V. City
Etc.

DEPARTMENT STORE
Big C
Central Department Store
Fashion Island
Lotus Supercentre
Seri Centre
Siam Makro
Etc.

GOLF COURSE
Alpine Golf Club
Krungthep Kreetha Golf Club
Laem Chabang Golf and Country Club
Milford Golf Course
Mission Hill Golf Club
Panya Golf Course
President Golf and Country Club
Royal Chiang Mai Golf Club
Thai Country Club
Thana City Golf Club
Windmill Country Club
Lakewood Country Club
Etc.

GOVERNMENT
Australian Embassy
Chulabhorn Research Institute
Chiang Mai Convention Center
EGAT, Bangpakong
EGAT, Banggruay
EGAT, Lampang
EGAT, Sirikit Dam
Expressway Authority of Thailand
Forestry Department
Malaysian Embassy
Police Academy (Khon Kaen,Nakhon Pathom)
Royal Thai Air Force
Royal Thai Army
Royal Thai Navy
Royal Thai Police
The Royal Bangkok Sports Club
Sirinthorn Tower
Stock Exchange of Thailand
Social Welfare Building
Pattaya City
Etc.

HOSPITAL
Bangkok Chest Hospital
Bumrungrad International Hospital
Buddhist Monk Hospital
Children Hospital
Department of Public Health
Petchavej Hospital
Phra Mongkut Hospital
Prapokklao Hospital
Siriraj Hospital
Samitivej Hospital
Etc.

HOTEL & RESORT
Bangkok Palace Hotel
Baiyoke Sky Hotel
Chiang Mai Hotel
Club Andaman Hotel
The Chedi Hotel
Imperial Hotel
MP Hotel & Resort
Thai Muang Resort
Etc.

INDUSTRY
Thai Beverage
Khon Kaen Sugar Industry
Bangchak
American Standard
BMW Manufacturing Thailand
Burapha Steel
Mayer Factory
Nakorn Thai Strip Mill
Phoenix Pulp and Paper
Sheico Corporation
Siam Cement Thai
Suramaharaj Factory
TGCI Factory
TSSI Steel Mill
Tycoons Worldwide Group (Thailand)
Thai Copper Smelter (Kvaerner)
Star Micro Factory
Etc.

PALACE
Sukhothai Palace
Bang Pa-In Palace
Banglan Embankment
Etc.

TELECOMMUNICATIONS
DTAC
C.A.T. Satellite Station
P.E.A. Communication Tower
Samart Telecom
Thaicom Ground Station
Etc.

SCHOOL & UNIVERSITY
A.I.T
Chiang Mai University
Mahidol University
St.Andrew International School
Sirinthorn Health College
Sukhothai Thammathirat University
Thammasat University
Rangsit University
Etc.

Boswell

CONTACT US
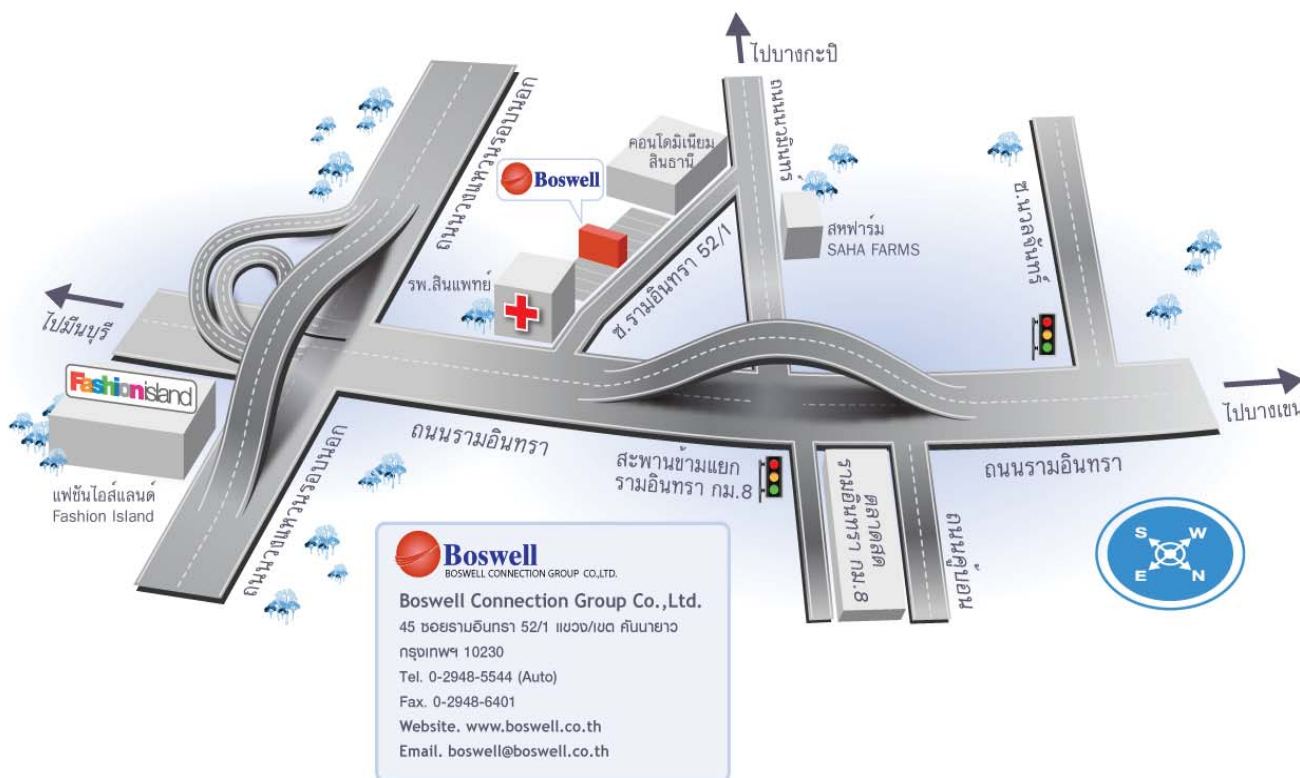
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Email : boswell@boswell.co.th
Website : www.boswell.co.th

NOTE :

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Boswell

PENTAIR **ERICO** • **SIEMENS** • **NITTAN** • **HOCHIKI**

COMMAX • **Panasonic** • **SIQURA** SURVEILLANCE SOLUTIONS • **ATEÏS**

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