INDUSTRONIC

INDUSTRONIC.COM

INDUSTRONIC

Founded in Wertheim in 1964

Based in the city of world market leaders

50 sales partners around the globe

4 subsidiaries worldwide

SAFE AND RELIABLE COMMUNICATION FOR ALL INDUSTRIAL SECTORS

Since 1964 the name INDUSTRONIC stands for innovation, quality and service. As the leading global supplier of industrial communication systems we excel in providing safe and reliable communication for all industrial environments.
We offer customized complete solutions for industrial communication that meet even the most difficult conditions and the most diverse international requirements. This includes areas with an inherent risk of explosive athmospheres where precisely defined safety requirements have to be met - despite extreme ambient conditions.
INDUSTRONIC's many years of experience combined with the highest level of innovation continue to set new standards in the industrial environment.

PROTECTION FOR PEOPLE, MACHINES AND THE ENVIRONMENT

INDUSTRONIC offers solutions that guarantee safe, effective industrial communication and optimum protection and safety for people. We use modern or proven technologies to ensure excellent speech intelligibility and optimum sound quality, even in noisy environments. Our claim to quality, safety and continuous process optimization makes our system one of the safest in the industry.

In critical systems cyber security can not be overstated or undervalued. From early on, we have focused on a holistical approach to security and its critical role in industrial communication. We apply best practices and implement security-by-design, based on international standards, to provide you with a resilient system and secure operations.

Every industry and every location has its own special requirements. Industrial communication solutions from INDUSTRONIC are used successfully in onshore and offshore applications, in petrochemical and pharmaceutical industrial plants, in steel mills and many other industries. Particularly in production processes and hazardous situations, immediate audio connections and unambiguous, clearly understandable information are crucial for ensuring the safety of your employees, minimizing cost-intensive production downtimes and preventing consequential damage.

INDUSTRONIC – SECURITY YOU CAN TRUST.

THE RIGHT SOLUTION FOR EVERY REQUIREMENT

Whether public address, alarm and warning, intercom or integrated solutions - our modular systems can be specifically adapted to the individual needs of our customers. Our team of highly qualified and committed employees develops and implements the optimal solutions for you.



1 SYSTEM – X SOLUTIONS

The INTRON-X is a state-of-the-art modular IP-based platform for scalable Intercom, PA/GA and PA solutions from INDUSTRONIC. With flexible interfaces for system networking, connection of external communication and control systems, and a modular design, the INTRON-X provides solutions for all types of industrial communication needs and requirements.

The INTRON-X portfolio offers a wide variety of products that excel by their robust, very durable design for challenging environments and their adaptability making them the perfect match for any type of industrial application, from small systems such as Driller's Intercom, to large multi-tier plant warning systems.

YOUR BENEFITS:

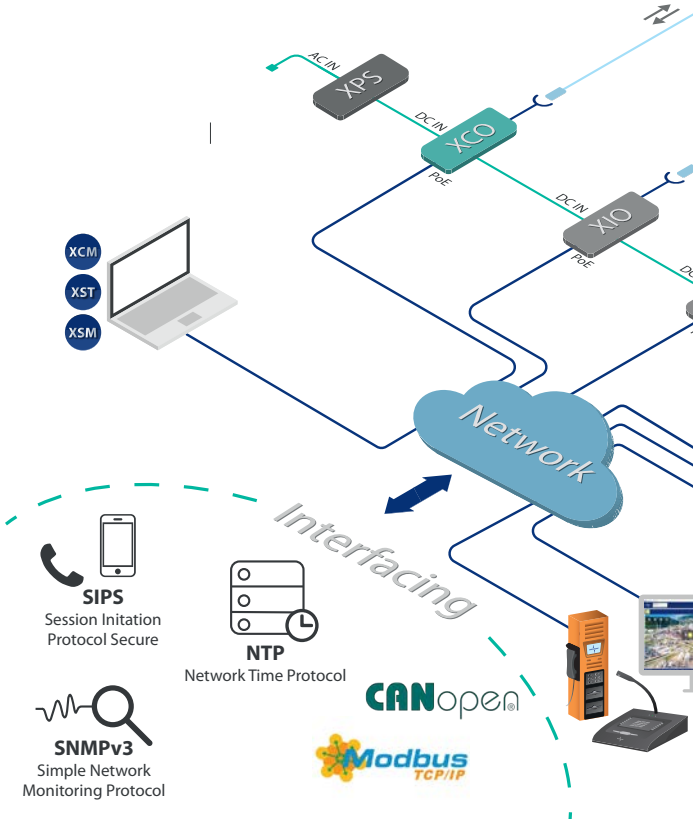
- High adaptability to local facilities and requirements through a distributed, completely decentralized installation of individual components
- Integration into existing IT infrastructures possible
- Easy installation thanks to industrial 19" IT design, pre-assembled cables and suitable terminal blocks
- High reliability through flexible redundancy concepts which can be tailored to individual budgets and customer demands
- Fully redundant network topologies possible as each INTRON-X module provides at least 2 network interfaces
- Easy scalability from small up to large networked systems
- Seamless integration with its predecessor system INTRON-D *plus*

INTRON-X AT A GLANCE

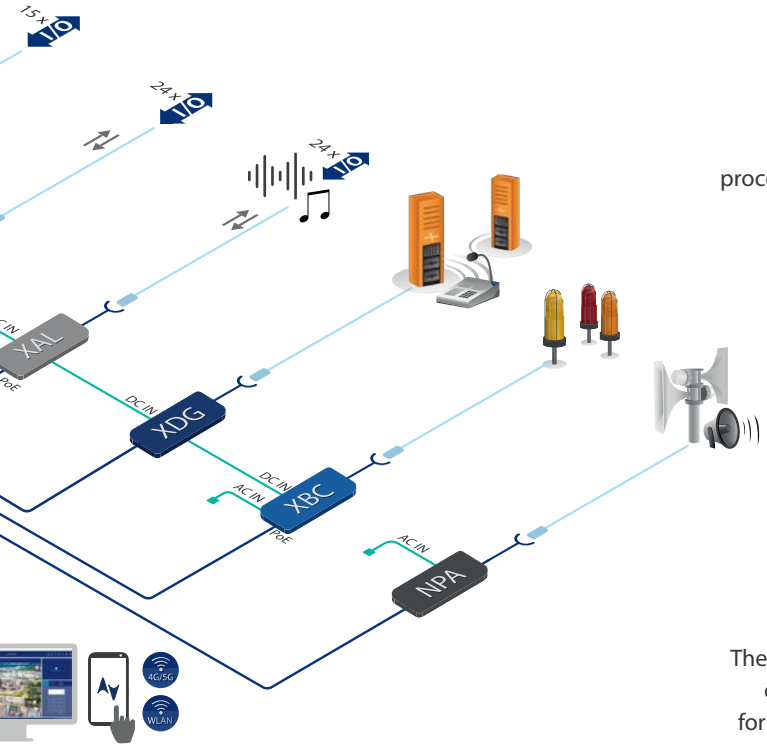
Decentralization and strategic distribution of individual INTRON-X modules minimizes costly cable runs while still forming a coherent and reliable system through networking. The degree of freedom to use both instrumentation cables and IP media for terminal devices proves extremely useful in system planning, whether it is your plant renewal project with existing cable infrastructure or your greenfield project with full fiber backbones.

Flexibility is a major cornerstone of the INTRON-X. The software configuration can be easily adapted to constantly changing process requirements. Helpful software tools are available for all types of users whether they design, monitor, maintain or operate the system – everything remotely if required.

Industrial communication systems are not isolated. The degree of **integration** with other telecommunication or process control systems is becoming increasingly important. INTRON-X offers manifold solutions based on common and secure IP protocol suites.



X-TENDING YOUR POSSIBILITIES



Monitored inputs and outputs and bidirectional audio handling enable **event-driven** and **automated** interfacing to all types of safety, security and process control systems, such as fire and gas, distributed control, access control, CCTV, PABX, legacy audio systems, and many more.

A wide range of **field-proven** peripheral devices for every area of use are available - for indoors, outdoors or hazardous areas. Signaling devices are driven by highly efficient Class-D amplifiers and compact beacon control modules. Intercom and access panels are robust and **modular in design** to ensure the best fitting hardware configuration for your needs.

The INTRON-X is complemented by apps that fully integrate Windows, Android or iOS devices into the system to realize complex control room applications for entire system networks or mobile system access **simplifies operations** and **reduces staff deployment** for system maintenance.

INTRON-X MODULES OVERVIEW

Each module is optimized for key system applications: central control, digital device connectivity, analog device and audio handling, discrete input/output processing, and beacon control. Their uniquely small form factor allow for three slide-in modules in a single rack unit 19" chassis, giving you an edge with ever-tighter on-site installation space.

There are virtually unlimited possibilities to decentralize individual modules or module arrays to foster cost-efficient, shortened cable runs. Combined with dual Ethernet ports serving redundancy plus cyber security purposes, and intelligent power supply solutions, setting up an INDUSTRONIC system is easier, more space-saving and more flexible than ever before.

I/O CORE MODULE

XCO - X-CONTROLLER MODULE

- Processor unit of the INTRON-X system that controls and monitors all components of the INTRON-X system
- Up to 250 controllers can be networked
- 12 I/Os integrated (optional)
- 4 Ethernet ports for redundant network connection and/or connecting PABX, F&G, control center or management systems
- Integrated audio processing unit with 2 GB storage for management of up to 1,000 audio tracks and 10 simultaneous audio channels

XDG - DIGITAL GATEWAY MODULE

- Connection of up to 8 digital INDUSTRONIC terminal devices (e.g. intercom stations, amplifiers, zone control units/selectors)
- Redundant connection of intercom stations to 2 different XDG modules possible

XAL - ANALOG LINE MODULE

- Connection of up to 6 analog audio components / intercom stations
- Connection of other INDUSTRONIC systems and 3rd party systems
- 24 bidirectional potential-free control inputs and outputs

XIO - I/O MODULE

- Module for reading in inputs / switching of outputs (e.g. reading in fault inputs, control of relays, 3rd party systems, F&G)
- 24 bidirectional potential-free control inputs and outputs

XBC - BEACON CONTROL MODULE

- Control of up to 4 flashing warning beacon lines or loops
- Line monitoring for cable break, short circuit and ground leakage

XPS - POWER SUPPLY MODULE

- Rated output voltage 48 V DC
- Output power 500 W
- Wide-range input
- 1+1 redundancy operation possible

PRODUCT PORTFOLIO

The INDUSTRONIC product portfolio of indoor intercom stations provide both IP-capable as well as digital devices. They are especially designed for use in state-of-the-art control rooms, measuring stations, clean rooms or offices.

INDUSTRONIC´s outdoor and Ex-proof intercom stations are designed for use in harsh industrial environments to withstand extreme temperatures, humidity, dust and dirt.

Each series is used successfully in numerous projects. The areas of application range from industries such as Oil & Gas, Chemical & Pharmaceuticals, Metals & Mining, and Power Generation Sector.

The connection and health status is constantly monitored, logged and flexibly forwarded system-internally and to 3rd party management systems.

The IP PA unit of the NPA series is INDUSTRONIC´s top-of-the-line product for intelligent PA solutions. Addressable speaker circuits enable simultaneous broadcasting of voice announcements, tone signals, or background music to different speaker zones. Different amplifier modules and power supply units can be flexibly combined. Both central and decentralized installation is possible.

With DUSTRON from INDUSTRONIC available for iOS and Android devices mobile communications has found its way into industrial environments. The app seamlessly integrates into the INDUSTRONIC world and turns your mobile device into a wireless control station enabling you to use both Intercom and PA/GA functions from anywhere on site. It also provides real time status and fault notifications for the complete INTRON-X system network and comes with helpful features for system maintenance and troubleshooting.

INDUSTRONIC´s long-standing experience in acoustic design which is reflected in an extensive portfolio of speakers and electronic siren arrays for a variety of applications. Weather- or Ex-proof horn speakers are ideal for targeted sound reinforcement in harsh and hazardous environments, while siren arrays provide ultra wide sound coverage and voice transmission with our acclaimed audio quality.

For indoor applications such as offices and corridors, wall- or ceiling-mounted speakers are available in an unobtrusive sleek design. They reliably cover single rooms and meet common fire safety and ingress protection standards.

Whenever the ambient noise exceeds thresholds that require hearing protection, flashing warning beacons should be added to draw attention to ongoing announcements or alarms. They can also be implemented in regular process communications to take advantage of the visual notification of audible information.
The convenient direct connection of beacons to INDUSTRONIC intercom stations allows, for example, the display of incoming or missed calls.

The flashing warning beacons come in a variety of designs, light intensity and colors for indoor, outdoor and hazardous applications.

INDUSTRONIC products combine the latest technology with modular design. This configurable architecture offers a high degree of flexibility.
Ex and outdoor intercom stations, for example, can be equipped with a dial keypad and momentary rocker switches.
Additionally, outdoor intercom stations can also be provided with membrane keypads with 9 keys each and special expansion units to extend intercom stations with additional keys. Furthermore, you can connect a handset, headset or foot switch, just to name a few.

For high ambient noise environments light-weight, UV and marine atmosphere resistant accoustic hoods are available which are specifically made for Ex and outdoor intercom stations and their additional accessories.

INTRON-X SOFTWARE SUITE

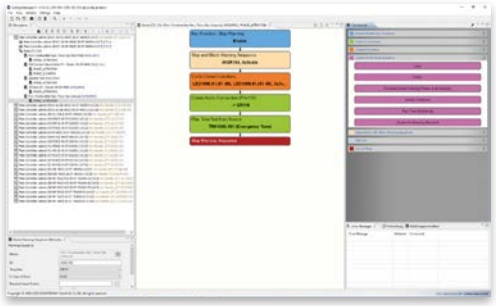
XCM

INTRON-X CONFIG MANAGER

The configuration software Config Manager X allows for the configuration of the modular IP system platform INTRON-X from INDUSTRONIC. From basic voice connections to complex warning sequences, all functions can be configured via the intuitive user interface. You can quickly and easily adapt the configuration for the entire system during the design phase, but also during live operation. You only require one configuration file for the entire system, which contains the configuration data for all components, and which can be conveniently distributed via a browser.

Here are some more facts:

- Visual representation, checking and evaluation of system configurations for INTRON-X systems
- Configuration of interfaces (SIP, Modbus TCP, CANopen, SNMP)
- Configuration of conferences, event groups, quick dial numbers and amplifiers
- Easy configuration of warning sequences via drag & drop
- Syntax and semantic checks for data entered
- Project overview & reports



INTRON-X SERVICE TOOL

With the INTRON-X Service Tool you have all maintenance functions right at your fingertips. The service staff can easily and securely access and view the real-time status of INTRON-X modules and IP terminal devices within an INTRON-X system by using the local service interface or network interface of the IP components.
It provides the following key features:

- Intuitive user interface for commissioning and maintenance
- Parallel access to several IP components
- Diagnostic and test functions
- Software updates & configuration uploads can be performed

INTRON-X SYSTEM MANAGER

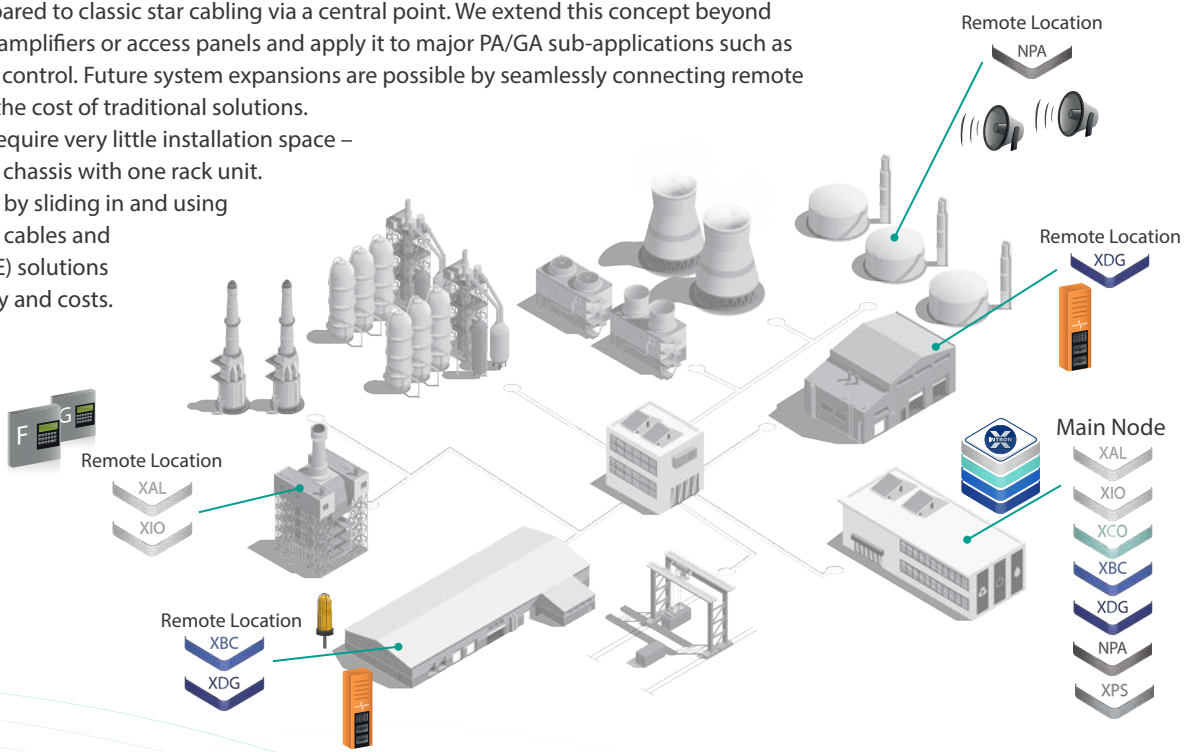
As the size of communication systems and IT security requirements are constantly increasing, a central management system is a great advantage. Here the INTRON-X System Manager can play to its full strength. Our management software consists of a back end that is installed on a standard server and permanently monitors all system components in real time. Secure user access to the XSM is possible via a standard browser.

The INTRON-X System Manager provides the following main functions:

- Centralized software updates of all IP-based system components
- Centralized configuration of the complete system
- Automated, cyclical backup options for configuration and log files
- Visualization of the complete system status in real time
- Fault indication in real time including fault history

DECENTRALIZATION, MODULAR DESIGN AND EASY INSTALLATION

Fundamentally shortened cable paths due to decentralization capabilities enable flexible design and reduced infrastructure costs compared to classic star cabling via a central point. We extend this concept beyond the commonly known IP amplifiers or access panels and apply it to major PA/GA sub-applications such as I/O handling and beacon control. Future system expansions are possible by seamlessly connecting remote locations at a fraction of the cost of traditional solutions.
The INTRON-X modules require very little installation space – three modules fit in a 19" chassis with one rack unit.
And the ease of handling by sliding in and using pre-assembled plug type cables and Power-over-Ethernet (PoE) solutions further reduce complexity and costs.

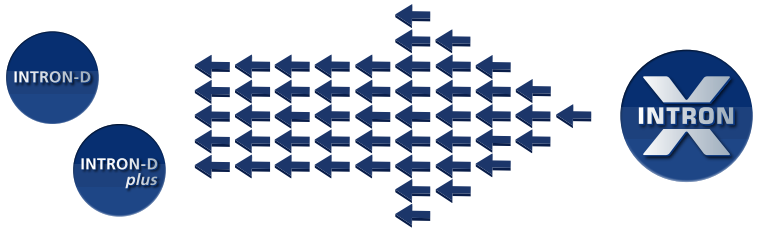


X-PAND OR X-CHANGE AS YOU LIKE

The backwards compatible INTRON-X offers the best of both worlds - latest technology and long-term investment security. Existing installations with our predecessor generation are supported for a pro-longed lifespan and can be easily modified to be prepared for the future of communication. Additionally, with our hybrid cabling concept we strive to re-use existing cable infrastructure wherever possible.

X-Pand your legacy system step-by-step or fully **X-Change** to enjoy all INTRON-X benefits.

We support you in working out an optimal solution tailored to your needs regarding plant renewals or expansions. Of course we will take into account your specific requirements and budget. Backed by our more than 50 years of experience, we will take care of your needs.



- Investment security
- Reliable modular solution
- Reduced cabling
- Minimized risk of incorrect installations
- Less staff required for commissioning and troubleshooting

REDUNDANCY CONCEPTS – SYSTEM AVAILABILITY IS KEY

PA, PA/GA & Intercom systems are safety-critical applications that have to withstand harsh industrial environments and need to be reliable in the event of an emergency to protect people, machines and the environment. We offer suitable redundancy solutions which increase system availability.

HOT STANDBY SYSTEM

- Maximum flexibility in redundant configuration of critical components

A + B SYSTEM

- Optimum protection against failures
  - No single point of failure

A + B SYSTEM & N+1 / N+N

- Highest system & component availability

CONCEPTS FOR ANY REQUIREMENTS & BUDGETS

INDUSTRONIC offers the following flexible redundancy concepts for the INTRON-X:

- N+1 component redundancy
- Hot Standby System
- A+B System (shared operation)
- A+B System & N+1 / N+N component redundancy

All of our redundancy concepts are provided with integrated continuous system monitoring including watchdog function.
This ensures real-time detection and indication of component failures.

Our redundancy concepts can be tailored to customer and site requirements. We at INDUSTRONIC will assist you in finding the right solution.

ELIMINATE ANY SINGLE POINT OF FAILURE

If you want to increase the availability of your PA, PA/GA & Intercom system, you need to eliminate single point of failures.
Identifying critical components in your system and duplicating them is an adequate solution to avoid system failures and downtimes.

TO ENSURE SAFETY WHILE PROTECTING YOUR DATA AND ASSETS

From the origin of the INTRON-X idea to its product launch: the security aspect has always been an integral part of our thinking. The many advantages offered by IP-based systems must be matched by a solid IT/OT security concept to counter the ever-increasing threat of cyber attacks. This is especially important, since our products are utilized as alerting and evacuation systems, for which the highest availability and reliability must be guaranteed at all times. That is why we see our systems as integral part of holistic risk mitigation to protect your data and assets, while ensuring system readiness to manage and send signals to protect your employees.

HARDENED EMBEDDED LINUX PLATFORM

- Encrypted, read-only file system
  - To prevent malicious attempts to detect and exploit security vulnerabilities
- Secure Boot and TPM 2.0 (Trusted Platform Module)
  - To avoid manipulation of firmware and execution of malicious code during system start-up
- Integrated firewall allowing individual whitelisting of services and protocols
  - To eliminate attack vectors by disabling all protocols and ports that are not strictly required for the applications at customer's site

SECURE PROTOCOLS AND SYSTEM ACCESS

- SNMPv3 and SIPS with authentication and privacy mechanism
- HTTPS with TLS 1.3 and SSL certificates for browser access to system web interface
- Encrypted IP device access via Service Tool XST
  - To verify access by authorized entities only and to encrypt the data exchange

PASSWORD AND USER MANAGEMENT

- Activation of password policy with warning features
  - To encourage users to employ unique passwords and avoid default passwords
- Brute force prevention
  - To reliably detect and block unauthorized access attempts

DISCOVERY

- Real-time auto discovery of all terminal devices connected to the system
  - To keep a reliable inventory and avoid outdated shadow IT

SECURE GATEWAY

- Physical and logical separation between network segments and to 3rd party interfaces via 4 integrated ETH interfaces on main controller XCO
  - Additional layer of defense to further reduce attack surfaces and exposure
  - IP packet routing between the network interfaces prohibited

SECURITY AND FAIL-SAFE BY PROJECT DESIGN

- Dark fibers, secured VLANs or physically separated subnets
  - We integrate our system and network share in your resilient and secure network architecture
- Duplication of terminal devices in different subnets
  - We provide you with options to add high-level service redundancy and fallback levels

PENETRATION TESTING & REGULAR SECURITY PATCHES

- Pen-testing before each software release and at regular intervals throughout product life cycles
  - To explore and eliminate existing security weaknesses continuously

ICSP – UNIQUE, FAST & RELIABLE COMMUNICATION

Since the INTRON-X is a network-based system it uses different network protocols for different reasons. Where it is possible and sensible, standard protocols like e. g. HTTPS, NTP, etc. are used. INDUSTRONIC systems are often considered as critical systems which need to perform well during an emergency, so their availability and reliability is of paramount importance. All critical components, cablings & interfaces are monitored in real time.

The basis for this function is provided by INDUSTRONIC's own network protocol ICSP, which stands for INDUSTRONIC Control and Signaling Protocol. It has been specifically designed to meet the requirements of fast and targeted industrial communication (intercom), public address (PA, PA/GA) and monitoring in real time.

The indication that a subscriber is busy before placing a call (pre-busy signaling) particularly supports targeted and fast communication during the production process. In addition, it is possible to control a wide range of different priority levels to ensure that alarms are reliably transmitted in emergency situations.

The controller uses the ICSP to offer varied point-to-multipoint and multipoint-to-multipoint communication for industrial demands and fast Push-to-Talk communication. It is ensured that any crucial information (e.g. alarms and important announcements) is always broadcasted with highest priority. For this purpose, 200 different priority levels are provided which can be defined for individual connections and for each controller separately. A further advantage is the continuous monitoring of connected terminal devices and hence the corresponding indication of fault messages. Control and indication functions are also implemented via ICSP so that no further protocol is required.

Even if ICSP is a proprietary protocol, the INTRON-X offers open protocols for integration with 3rd party applications such as:

- SIP trunk for PBX interconnections
- SIP based device interface for speakers, telephones, intercom devices
- CANopen protocol for integration into other control center systems
- Ready for integration into a given umbrella management system via SNMPv3
- Modbus TCP

CERTIFIED QUALITY

CERTIFICATIONS

INDUSTRONIC has a strong commitment to quality, exceptional reliability and availability of its systems as they are used in the most challenging environments. Our systems comply to a wide range of international standards, are granted all necessary type approvals and certifications for a variety of industrial applications. We strive to maintain and continuously develop our certification standards further to meet the highest industrial communication requirements.

DIN EN 54-16	Fire detection and fire alarm systems
DIN EN 50849	Sound systems for emergency purposes
NFPA 72	National Fire Alarm and Signaling Code
IEC 50695	PA-General-Emergency-Alarm-System, Communication-System for marine applications
DIN EN 81	Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods
DIN EN 81-20	Passenger and goods passenger lifts
DIN EN 81-28	Remote alarm on passenger and goods passenger lifts

OUR BENEFITS FOR YOU

- Advanced IP technology
- Modular system design
- For industrial communication needs
- Scalable from small to large systems
- Decentralized installation possible
- Flexible redundancy options
- Interconnection of 3rd party systems
- Backward compatibility
- Reuse existing cable infrastructure
- Small installation footprint
- Easy installation

TAKE ADVANTAGE OF OUR EXCELLENT SERVICES!

PLANNING AND DESIGN PHASE

- Pre-planning and feasibility studies
- FEED assistance
- Tender specifications
- Acoustic design

ENGINEERING

- Construction site inspection
- System integration
- Detail design
- Customization

INSTALLATION AND COMMISSIONING

- Site inspection
- Installation
- Supervision
- Commissioning
- User instructions

AFTER SALES SERVICE

- Support Center
- On-site service
- 24-hour service
- Extended spare parts availability

TRAINING

- In-house and on-site training courses
- Workshops
- Hands-on courses for maintenance staff
- Online self-study seminars via our eCampus

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