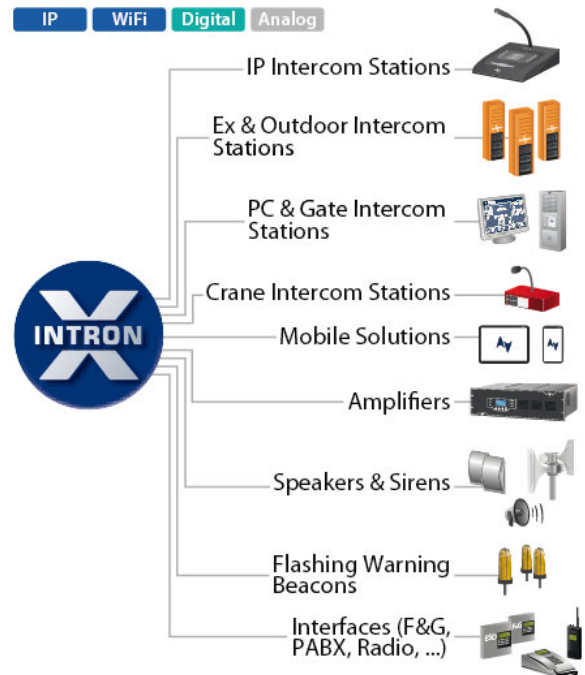# INTRON-X

IP INTERCOM, PA/GA AND PA SYSTEM

The INTRON-X is the modern, modular IP system platform for scalable Intercom, PA/GA and PA solutions from INDUSTRONIC.

Each INTRON-X system provides numerous interfaces for system networking and connection of external communication and control systems (e.g. SIP, SNMP, Modbus-TCP).

The modular and flexible system design allows for solutions meeting any type of industrial communication requirements.

- IP-based Intercom, PA/GA and PA system for small, medium-sized and complex solutions
- Flexible system networking via Ethernet/IP
- Integrated continuous self-monitoring
- Easy configuration
- Individual system architecture
- Connection of INDUSTRONIC IP, digital and analog terminal devices
- Connection of SIP terminal devices
- Flexibly configurable functions
- Configuration via INTRON-X management tools

GENERAL PARAMETERS

Max. number of networked controllers	250
Max. number of terminal devices	100,000
Group calls	1,000
Speaker zones	1,000
Priority levels	200
Warning sequences	1,000

SYSTEM NETWORKING

Ethernet - 10/100/1000BASE-T	

MAX. NUMBER OF TERMINAL DEVICES PER NODE

Terminal devices in total	400
INDUSTRONIC IP terminal devices	400
INDUSTRONIC digital terminal devices	200
Analog terminal devices	200

MAX. DISTANCE BETWEEN INTERCOM STATION AND NODE

IP intercom station	Depends on the network
Digital intercom station	Up to 4 km (2.49 mi)
Analog intercom station	Up to 4 km (2.49 mi)

MAX. NUMBER OF SIMULTANEOUS AUDIO CONNECTIONS PER NODE

Audio connections in total	400
IP - IP	400
Digital/analog - IP	200
Digital - digital	200

TECHNICAL DATA

Power supply	110 / 120 V AC or 220 / 240 V AC
Internal operating voltage	48 V DC
Bandwidth of voice transmission*	300 Hz to 3,400 Hz (G.711) 50 Hz bis 7,000 Hz (G.722)

*Depends on the system design

NETWORK REQUIREMENTS

IPv4 network

10Base-T/100/1000Base-TX Ethernet (IEEE 802.3), 100 MBit/s recommended, for X-Controller XCO 1000 MBit/s

Support of UDP, TCP, SCTP, RTP and RTCP protocols

Quality of Service (QoS)
> Ideal latency value < 20 ms (max. 50 ms)
> Jitter: max. 10 ms

NTP support for access to a central NTP time server

Bandwidths required per node
> 1 MBit/s basic bandwidth and 100 kBit/s per IP simplex connection

> 1 MBit/s basic bandwidth and 200 kBit/s per IP duplex connection

> For each IP intercom station: 200 kBit/s basic bandwidth and 200 kBit/s per active duplex audio channel, 100 kBit/s per simplex audio channel

> For each IP public address unit NPA: 200 kBit/s basic bandwidth and 100 kBit/s per active audio channel

OPTIONS

Audio processor

IP Voice Recorder NVR

Redundancy
> Hot Standby System
> A+B (shared operation)
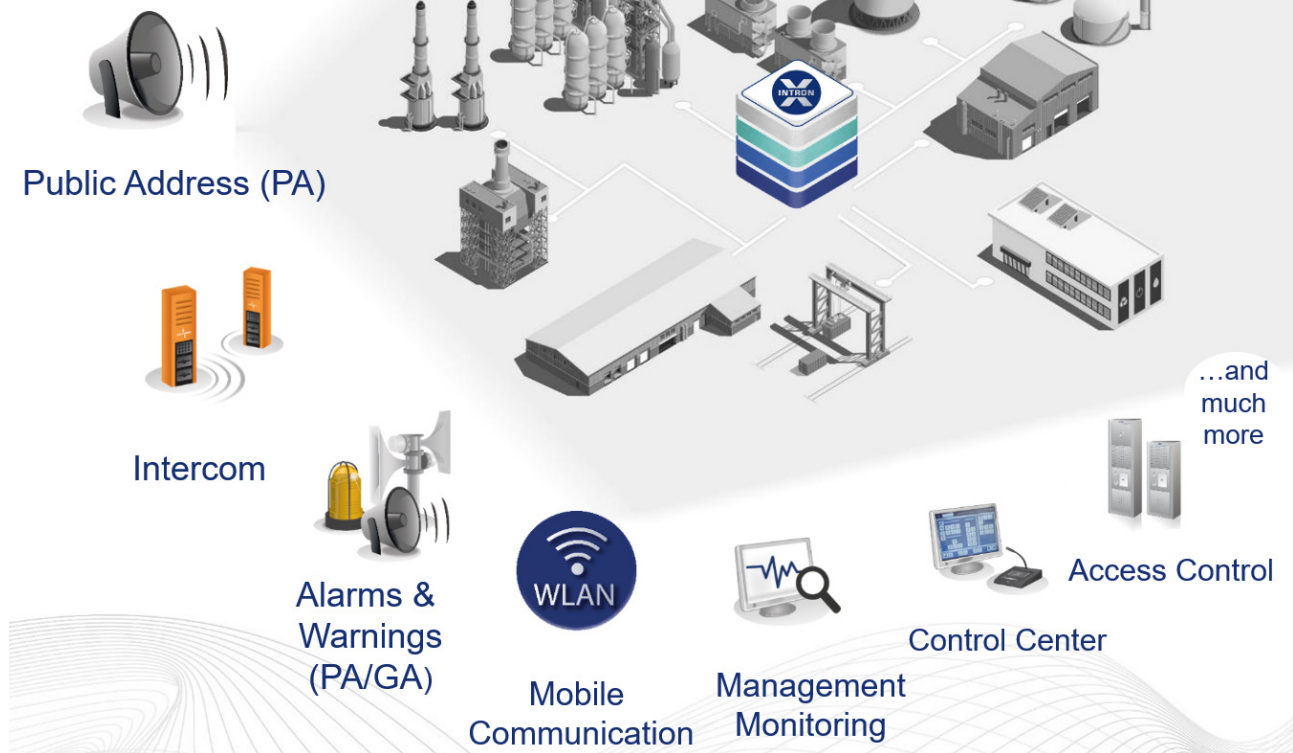> N+1 amplifier redundancy
> N+1 power supply redundancy
> Network redundancy

Battery backup

Interconnection/integration of third-party systems

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One System · INTRON · Solutions

- Public Address (PA)
- Intercom
- Alarms & Warnings (PA/GA)
- Mobile Communication
- Management Monitoring
- Control Center
- Access Control
- …and much more

INTRON-X SYSTEM FEATURES

Intercom

- **Direct Two-way Communication***
- **Dynamic Two-way Communication***
- **Handsfree Communication***
- **Full-duplex Communication***
- **Page & CallBack***
- Conference
- Party Line
- **Parallel Group***
- **Call Storage***
- **Quick Dialing***

Alarms / Warnings (PA/GA)

- Mass notification
- Live announcements or playback of stored alarm tones / texts (e.g. an evacuation alarm)
- Manual, automatic and semiautomatic triggering of warning sequences
- Individual or simultaneous alarms in different areas
- Prioritization of alarms
- Emergency call function

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Control Room Functions

- Call Request Control
- Switchboard Call
- **MultiControl Group***
- Elevator Emergency Call

Software & Interfaces

- Configuration software Config Manager X
- DUSTRON – App for industrial communication
- Interface to fire detection and gas alarm systems as well as to emergency shutdown systems (ESD)
- SIP interfaces for the connection of IP telephone systems
- Modbus TCP interface for communication with building management systems / fire detection and gas alarm systems
- CANopen interface for communication with control room systems
- SNMP interface for connection of a network management system
- E-mail interface for forwarding of fault messages

Public Address (PA)

- **Group Call***
- **Dynamic Group Call***
- **All Call***
- Store & Forward
- Repeat Last Message

Management / Monitoring

- **Integrated management via web interface***
- **INTRON-X Service Tool XST***
- **Permanent, automatic self-monitoring***
- **Fault message processing***
- **Automatic indication of fault messages and states***
- **Event processing***
- **Diagnostic functions***
- Voice recording
- Redundancy concepts for highest availability

Control Functions

- **Access control***
- Time control
- Control of lines / outputs / relays
- **200 different priority levels***
- **Maintenance mode***
- **Muting***
- **Volume control***

Signaling

- **Pre-busy signaling***
- **Visual and acoustic call and busy signaling***
- **Triggering of flashing warning beacons***

Audio

- **Audio bandwidth 7 kHz***
- Playback of tones and texts
- Acoustic pre-announcement tone

*Included as standard function in the activation ACT-Controller XCO

For further information on the individual system features, refer to our functional data sheets or the INDUSTRONIC specification.

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