

Intelligence Module

Security beyond the fence. The future is here with 3D spatial situational awareness.



- Perimeter Detection
- Motion Alerts
- Intrusion Management
- Reduced False Alarms
- Scalable + Integrable
- Small-to-Enterprise
- Integration with Genetec Software



Intelligent Hybrid System(IHS) / Sensor | Fence installation type intrusion detection sensor.



Product Overview

The Intelligent Hybrid System Sensor (IHS Sensor) is an advanced detection and analysis solution designed to identify and respond to intrusion attempts by monitoring instantaneous acceleration (vibration) and tilt changes in three directions, as well as detecting approach motion.

This system integrates machine learning to minimize false alarms caused by natural environmental factors such as wind and rain.

Key Features

Hybrid Detection

Monitors and analyzes vibration, shock, and tilt within a maximum radius of 2.5 meters, with a recommended installation within 2 meters. Provides approach motion detection and split detection for up to 180° x 5m range. Supports real-time live communication between DGU and individual sensors for comprehensive surveillance.

Machine Learning

Utilizes built-in machine learning algorithms to filter out false alarms caused by environmental factors. Implements group setting and differential comparison technology to enhance detection accuracy.

Path Redundancy:

Ensures reliability through the configuration of DGU and sensor ring redundancy.

Low False Alarm Rate

Features a proprietary analysis algorithm with a false alarm rate (NAR) of less than 0.01%.

Automatic Sensitivity Adjustment:

Adjusts sensitivity based on environmental sensors such as weather filters and natural vibration compensation.

Convenience and Durability:

Easy installation and maintenance with a Mean Time to Recovery (MTTR) of 5 minutes. Waterproof and dustproof design, ensuring robustness in various conditions.

Relay interface for hardwired system interface and smart interface with API

Intelligent Hybrid System(IHS) / Sensor | Fence installation type intrusion detection sensor.**IHS300 Related Products**

Division	IHS300RP / IHS302RP / IHS320RP	IHSLP
Product Features	Includes sensor function and communication line signal amplification	Prevents equipment loss due to overvoltage and overcurrent
Installation range	Recommended to use at intervals of 50 sensors	Apply one unit of intelligent hybrid sensor or less
Input voltage range	DC 24V	DC 12 ~ 24V
Operating environment	temperature : - 40°C ~ 80°C	temperature : - 20°C ~ 55°C
Product size	96(L) x 115(H) x 43(D) (mm)	96(L) x 115(H) x 43(D) (mm)

Advanced Detection Capability**Vibration/Shock/Tilt Detection**

Detects movements within a maximum sensor radius of 2.5 meters (recommended installation distance is within 2 meters).

Extended Coverage

Supports up to 600 meters per port and up to 1200 meters per DGU, managing up to 510 sensors in total.

Integrated Processor

Offers web-based remote configuration, sensor ID management, and firmware updates for both individual and group sensors.

Automatic Tilt Correction

Features automatic gravitational tilt adjustment, ensuring continuous detection performance even in cases of structural deformation, ground subsidence, or fence damage due to environmental factors.

Environmental Adaptability

Interoperability with Environmental Sensors incorporates an anemometer, which automatically adjusts detection sensitivity based on environmental conditions such as wind speed.

Condition Monitoring

Provides real-time monitoring of sensor integrity, including cables, through a sensor-specific "alive" signal management system.

ID Management

After sensor installation, IDs are automatically assigned and managed in sequence for easy setup and reconfiguration.

Group Functionality

Sensors can be grouped for comparative detection, allowing for group-specific or individual detection alerts, particularly useful in adverse weather conditions.

Hybrid Detection Capabilities

Multi-Level Detection Combines acceleration and tilt detection to monitor for fence shocks, vibrations, and tilt. Each detection function can be customized and linked in stages to suit specific security needs.

PIR (Passive Infrared) access detection can be scheduled for specific time periods, allowing motion detection to be activated as needed.

Hybrid Detection Capabilities

Utilizes a 4-stage accelerometer ($\pm 2/4/8/16g$) adaptable to different perimeter security conditions and detection requirements. This flexibility makes it suitable for various applications such as security fences, rockfall detection, and facility damage monitoring.

On-site installation diagram

Intelligent Hybrid System(IHS) / Sensor | Fence installation type intrusion detection sensor.

Main Functions

LED Status Indication

Built-in 3-color LEDs that can be turned on/off on the sensor to display alarms and status information for response and management, warning, and convenience

Hybrid detection and false longitudinal avoidance

The PIR sensor detects human access within a maximum of 5m of the fence and automatically adjusts the sensitivity of the vibration sensor and the AND, OR condition of PIR detection Choose to Implement Alarms on Hybrid Detections

Specifications

Category	IHS300	IHS320 / IHS302
Processor	32bit RISC Processor	
Applied Technology	3-axis acceleration/tilt sensing	3-axis acceleration/tilt detection / Motion detection (PIR)
Sensing Capability	Dynamic selection in the range of $\pm 2/4/8/16g$, 16-bit high resolution, sensing	
Detection Range	Acceleration/Tilt : Up to 5 x 5 m (within 4 m recommended)	Front (back) surface 2PIR, Motion detection : Horizontal 180°, Vertical 110° Distance 5m
Communication method	2-wire serial communication (CAN), DGU to sensor and sensor to sensor	
LED Indication	Three-color LEDs	
Eligibility	Aesthetic mesh, security EX metal fence, etc., and all facilities that can generate vibration	
Detection Type	Vibration, shock, tilt, infrared heat detection during wall fence, cutting, impact, and subsidence (IHS302, IHS320)	
Setting S/W	IHS-Web Tool (Embedded Web)	
Connection cable	UV urethane shield cable, included within 2 m / hot-dip galvanized flexible sheath (optional)	
Fixation method	Sensor - Attaching the fence with a dedicated Universal Bracket / Connecting cable -Fence binding using ties	
Recovery Time	MTTR (Mean Recovery Time) less than 5 minutes/Sensor	
Power Consumption	DC 24V / 0.9mA(Typ) Max. 1.9mA	
Surge Protection	600W Peak Pulse Power Protection (IHSLP)	
Op-Environment	Temperature -40°C~ 80°C / Humidity 90% or less	
Size	96(L) x 115(H) x 43(D) (mm) (subject to change for optimization)	
Exterior Material	ASA (Acrylic Styrene. Acrylonitrile)	
Certifications	IP66, KC	
Amplification	Built-in signal amplifier (IHS300RP, IHS320RP, IHS302RP)	

On-site installation diagram

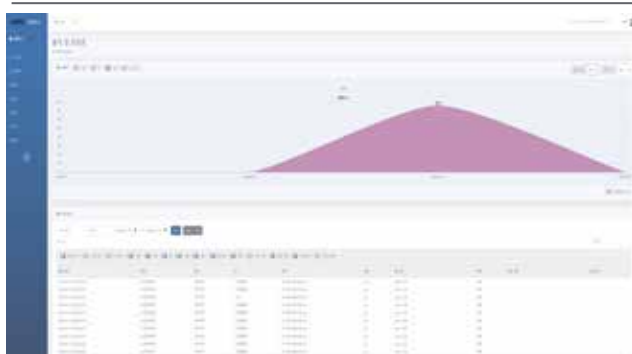


AxiCos | SOFTWARE

Overview

AxiCos provides the integration function of perimeter security equipment, stability, and ease of use, and enables real-time processing, and is compatible with MS Window OS. It provides IT-friendly intrusion security management services, such as intuitive UI configuration in the form of a dashboard that is easy to use in the environment. It monitors, displays, controls, and interacts with all sensors supplied by Cartis, and is suitable for various facility management. Perimeter security management software (AxiCos) works with relay input/output devices, NVRs, CCTV cameras, IP warning broadcasting systems, etc. Suitable for industrial facilities, plants, power plants, airports/ports, etc., and fully supports a wide range of physical security applications and real-time monitoring, security device configuration and control, automation, database management, and reporting management.

Screen Composition



Alarm Analysis



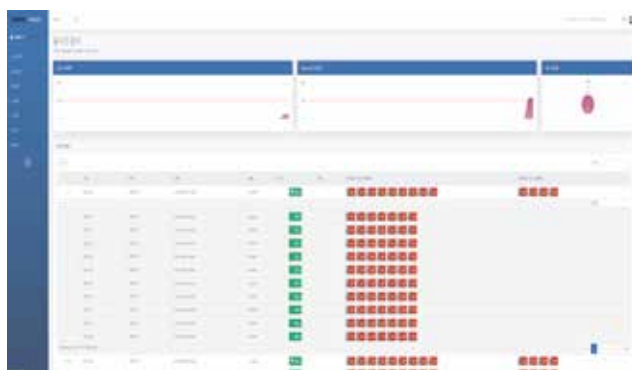
Real-time surveillance



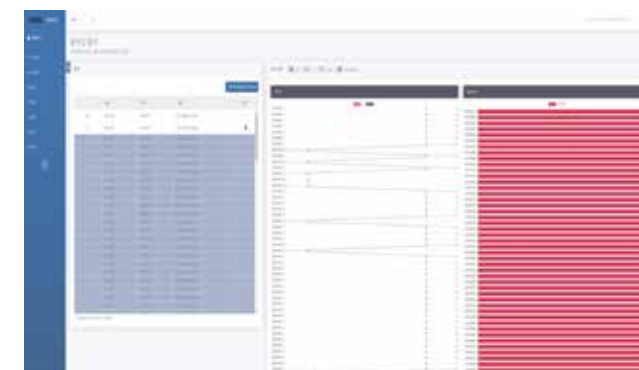
dashboard



Graphic Map



Device Status



Sensor Data

AxiCos | SOFTWARE

Features

- Precise alarm location display in 1~5m increments for the detection result of IHS300 sensor
- Communication encryption (Server – DGU: AES Algorithm / DGU – Device: Dynamic Encryption Algorithm)
- Group setting function (no restrictions), individual/group operation
- Visible user screen
- Alarms and pop-ups in case of sensor operation status, line failure, DGU (Data Gathering Unit) operation status, and other communication failures
- Scalable Windows-based TCP/IP architecture, MS SQL database
- I/O module expansion provides an infinite variety of sensor inputs and relay outputs
- Unlimited integration of image detection system, various detection sensors, and intrusion detection devices
- Live video and intrusion graphic map on one screen

Function

System	<ul style="list-style-type: none"> ▪ Time zone support ▪ Automatic registration and configuration of controller/sub-device ▪ AES-encrypted communication between server and controller 	<ul style="list-style-type: none"> ▪ System Diagnostics Management Function ▪ Leverage data and create custom reports ▪ Support for external API connection protocols 	<ul style="list-style-type: none"> ▪ Permanent retention of data from the controller ▪ User password lifetime management
Alarm Management & I/O Control	<ul style="list-style-type: none"> ▪ Support for custom alarms ▪ Predefined and freeform alarm actions and responses ▪ Graphical monitoring of alarms and I/O status ▪ 255 Levels of Alarm Priority and Color Settings 	<ul style="list-style-type: none"> ▪ Easy-to-use and powerful alarm/I/O linkage ▪ Manual/scheduled alarm monitoring and I/O control ▪ Email/Smitt Alert Notification 	
Etc	<ul style="list-style-type: none"> ▪ Easy to use and various schedule linkage configurations 	<ul style="list-style-type: none"> ▪ User-centric reports 	<ul style="list-style-type: none"> ▪ Real-time image display function (contact compatible product manufacturer)

System Requirements

Division	AxiCos Server	AxiCos Client
CPU	Intel i7 – 3.0 GHz, 4 Core or higher	Intel i5 – 2.4 GHz, 4 Core or higher
RAM	8 GB or more	8 GB or more
HDD	At least 500 GB	500 GB or more
Optical Drive	CD-ROM drive or higher	CD-ROM drive or higher
Network card	10 / 100 MB or more	10 / 100 MB or more
Display	1280 x 1024, 16-bit high color	1280 x 1024, 16-bit high color
Operating System	Up to MS Windows 10	Up to MS Windows 10
database	MS SQL Server 2012 Express or later	X

IHS Management Software – IHS Web Tool

Features

WEB-based software to set the sensitivity and sensor information of IHS series sensors in the field or networked place through DGU

Main Functions

- Use the WEB Browser to enter the IP to access
- Easy-to-use interface based on WEB
- Automatic recognition of connected sensors through individual independent basic addresses
- Sensor individual logical ID setting function
- Optimal sensitivity setting function for each sensor
- Sensor individual remote monitoring function
- Various modes and filter settings for false alarm control
- Real-time monitoring of environmental data such as wind speed
- Real-time alarm monitoring of individual and group sensors

IHS300 Series Related Devices | IHS-related main control device

Data Gathering Unit(DGU) – SC1000**Features**

IHS Series Sensor Management, Information Processing, and Other Interlocking Subdevice Management Processors

- Convenience, high functionality
 - Stores 100,000 offline histories with abundant memory
 - Updates and device management using embedded tools, and system design convenience using various sub-devices
- Stable communication redundancy
 - Active/standby operation with redundant communication with subordinate devices, and stable sensor detection signal reception by automatic switching in case of failure
 - AES128 algorithm to encrypt communication

Main Functions

- DGU-Sub-unit communication redundancy: 2-CAN Bus communication supports star and ring connection
- Condition monitoring and convenient maintenance of DGU and sub-devices
- Alarm analysis, pattern management, firmware management
(more than 510 sub-devices can be connected in total, sensor input/output device combination)

Specifications

Division	Specification
Processor	ARM Cortex-M4 32bit MCU+FPU, 210DMIPS
Communication	Ethernet (10/100MB) 1 port / CAN 2 port / RS485 1 port
Undercarriage	Up to 510 or more connections (IHS300, IHS300RP, IHS200TB, DOU, DIU)
Detection Range	600m or less(up to 255 sensors) / per 1-CAN port, 1,200m or less (up to 510 sensors) / per DGU
Offline History	100,000개(512MB Flash)
Inputs/Outputs	Digital 2 Inputs/ 2 Outputs
Options Board	I/O expansion, Digital 4 Inputs (2 Phase/4 Phase) / 2 Outputs (NC/NO)
Power Consumption	DC 12V ~ DC 24V / Max.100mA
Surge Protection	IEC61000-4-2 (ESD) 15kV Lower Overvoltage Protection
Security	Application of upper level and AES128 algorithm, lower level device and dynamic encryption algorithm
OP-Environment	Temperature: -20°C to 85°C
Size	128(W) x 76(D) x 20(H) (unit: mm)
Authentication	KC



I/O expansion board (SD110CR)

Hybrid sensor terminal board – IHS200TB**Product Features**

A product used for branching fence doors, etc. with 2 input and 2 output functions (specifications may vary depending on the site)

Product specifications

Division	Specification
Input port	Digital input 2 or 4 phase * 2Port
Input specifications	DC 0~5V (Line Open, Open, Close, Short), Temper input, Analog input
Temper port	1 Input Port(Micro Switch, Photo sensor)
Output port	Digital output * 2Port
Output specifications	Max.DC30V / 1A
Power Consumption	DC 24V / Typ 1.5mA (Max. 5.5mA)



IHS300 related products | IHS related products

Environment Gathering Unit(EGU) – EGU100

Product Features

- 7 input boards connected to DGU and CAN communication
- Receives information from various climate detection sensors (wind speed, rainfall, etc.) using digital/analog input and transmits it to DGU.

Main function

- 2-phase or 3-phase input setting function for each port
- Firmware program can be upgraded through the network, providing convenience in device maintenance
- Various statuses of each port can be easily checked through LED

Division	Specification
processor	ARM Cortex-M3 32-bit Microcontroller
input port	CAN, RS232, RS485 1 port each, Digital Input 2 ports, Analog Input 4 ports
Power Consumption	DC 24V / Max. 100mA
OP-Environment	Temperature: -40°C to 80°C
Size	144(W) x 190(D) x 100(H)(단위: mm)
Connection method	terminal block



EGU100

ADAM Series

Product Features

- Digital input/output modules mainly used in industrial automation and control systems
- A variety of digital signals can be detected and processed with 6 digital inputs and outputs.

Main function

- Intelligent control capabilities through peer-to-peer and GCL functions, remote monitoring and control through mobile devices
- Firmware program can be upgraded through the network, providing convenience in device.

Division	Specification
Communication	Ethernet, Modbus TCP
Input, Output	Input Channels: 6, Output Channels: 6
Power Consumption	3W (maximum) @ 24VDC
Operating environment	-20°C ~ 70°C / Humidity: 20 ~ 95%
Size	70(W) x 27(D) x 122(H)mm (Unit: mm)



ADAM6060

Accessory – Cable tie / Cable protection tube (optional)

Product features (Cable tie)

It has UV resistance, moisture proof function, and UV protection properties, so it is not affected by the weather and does not corrode even when exposed to the outside for a long period of time and maintains the bond.

Product features (Cable protection tube)

Accessories to protect the communication/power connection cable of the external sensor IHS300 from wild animals. Available separately as an option depending on the installation environment

product specifications



Division	Specification
Texture	Nylon
Tensile strength	18.1Kg
Resistance properties	UV protection
OP-Temperature	-60°C ~ 85°C
Color	Black



Division	Specification
Inner diameter	9.7mm
Texture	Hot dip galvanized steel sheet
	High-tensile flexible conduit



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