The Total Solutions for Industrial Networking & Communication

Multiport Serial Cards

Ethernet Switches

Serial Device Servers

Wireless Solutions

Media Converters

Modbus I/O Modules

www.sunix.com.tw

SUNIX

A Trusted Company

SUNIX Co., Ltd. was founded in 1986, has about 350 employees worldwide, and has corporate headquarters in Taipei County, Taiwan. We have built our history by innovation in providing solutions that connect people and devices to networks and the Internet. We provide wonderful products that create tremendous value and utility to our customers.

History

In 1986 SUNIX started the business as a hardware manufacturer by developing I/O controller cards, floppy and hard disk controller interface and various types of controller chipsets to pave the way towards computerized world. In 1996, SUNIX enters in to the world of serial interfaces by developing world's first serial PCI controller chipset by integrating 90% of circuitry components in a single chipset.

A separate division was established with the name of SUNIX I.N.C. (Industrial Networking & Communication) to dedicated development of the products to be used in serial communication and linking them with the Ethernet.

SUNIX launches the offices in US, Brazil, Germany and China to manage these markets locally.

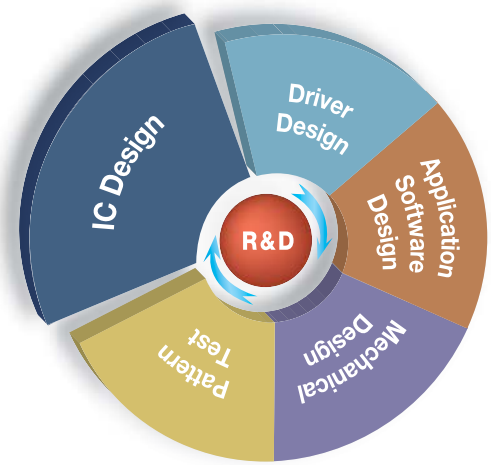
In conclusion, we may be an industrial networking manufacturer, but we serve customers who need more than Industrial products. Industrial doesn't just mean factory; it means any application where top performance is required and the environment is harsh. SUNIX I.N.C. (Industrial Networking & Communication) has resolved to meet these demands with our existing products and with new products that are under development.

Core Technologies

SUNIX, being pioneer in the field, is dedicated in the continuous development and innovation of serial / parallel and Ethernet communication technologies. SUNIX not only developed ASIC chipsets but also combined the high performance UART with DMA, PCI Bridge, INT, and EEPROM into a single chipset solution. The plenty of innovation was also added later on such as 128K-byte FIFO buffer, Auto Hardware Direction Control / Carrier Sense (AHDC / CS™ for R-485, hardware COM port remapping, Elite

about SUNIX

Ring™ for Ethernet, and chipsets for Serial to Ethernet communications. The development of these technologies had lead to the development of a full range of high performance and high quality products for harsh industrial grade environments.



SUNIX 5 Year Warranty

SUNIX products come with a solid 5 year warranty. This means that for a period of 5 years from the date of delivery, SUNIX will repair or replace defective products, provided the products were installed and used within its specification. The combination of SUNIX strict quality control procedures and 5 year product warranty, our customers have the absolute assurance that they are getting high quality and most reliable products from us, and that we stand behind our products.

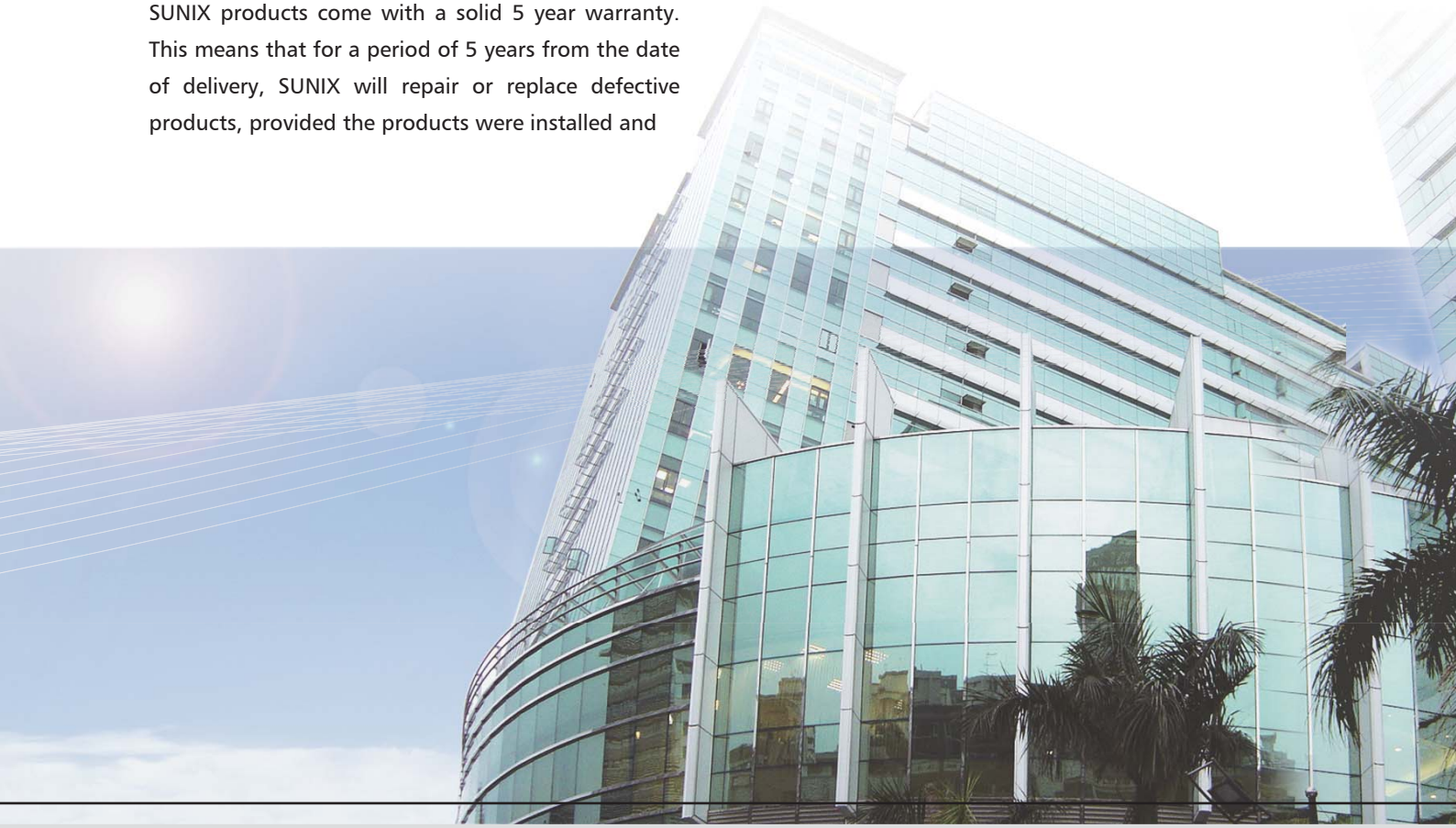
Warranty 5 year

Vision

To be the leading Industrial Networking Solutions Company for bringing the innovative communication technology to industrial control and automation

Core Value

- Trusted Relationship
- Product Reliability
- Professional Technology & Services
- Market Focus



SUNIX green policy

Environment Friendly Approach at SUNIX

"Sustainable development" is the most important issue for our planet, not only for the human race but all current and future business entities. SUNIX Group is committed, through our Green Policy, to adopt sound sustainable business management practices that value continual improvement and economic growth, and that integrate positive quality, environmental and social attributes. We embrace the challenge of continuing to develop superior quality products and technologies, while preserving a green Earth and pursuing harmony between humanity and the environment.

ISO 9001:2000

Research & Development, Manufacturing & Service, Quality product design.

ISO 14001

SUNIX Group attained ISO14001 certification for all its manufacturing facilities.

Policy

Through voluntary and responsible actions, each and every SUNIX employee will strive to achieve a better environment.

We shall:

- Design and manufacture products with consideration of the environment, health and safety as part of the process.
- Comply with or exceed relevant legislation and regulations.
- Provide safe working conditions for employees, encouraging them to identify possible improvements and providing training if necessary.
- Protect local and wider communities from environmental damage as a result of our activities.
- Measure and continually improve the environmental impact caused by our operations, products and activities.

Kunshan Factory, China

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Success Stories

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- POS over Ethernet
- Wireless Device Servers for Building Access
- Wireless Device Servers for Vehicle Monitoring
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Highway: ETHERNET for transportation safety, control, monitoring and management.

Project

Monitoring and controlling the traffic at Highway 1 and Highway 3, thanks to the Ethernet technologies.

The total distance reaches to more than 800km. The two highways were interconnected with a freeway. Government authorities want to make the traveling not only comfortable but with maximum road safety. The whole country has three main control centers and the task was to put all control to "Central Control Center", one of the main three. The network has to manage electrical information, emergency stop markers, dynamic sign posting and collection of traffic data via sensors separated by a remote Digital I/Os. This system can distinguish between different types of vehicles; measure the weight, the average speed, the traffic density, etc. From a safety perspective, ETHERNET enables information from the multitude of sensors and signals which are fitted along the Highways facing the extreme outdoor conditions, hence, increasing the complexity of the traffic control system further. The collected information is transmitted via an ETHERNET network to a "Central Control Center" located in the controlling and monitoring facility

Project parameters

The most important target is to be ETHERNET availability without any failure, 24 hours a day, 7 days a week. The ETHERNET has to be segmented in many smaller rings, and connecting the device boxes via fiber converters to the ETHERNET. The whole infrastructure then needs to be connected to SDH (backbone core routers) via RSTP redundancy technique.

Solution

The continuous ETHERNET availability and stability is ensure by ELITE Ring with <10ms recovery time, using ESW-08062-SSC managed switches. There are 28 sub control panels having four redundancy rings from each sub control panel were designed. These control panels were located all over the highways and also interconnected with each other and finally connected to backbone router using the Dual Homing technique.

Fiber to ETHERNET media converters were used to connect the DI & DV device boxes.

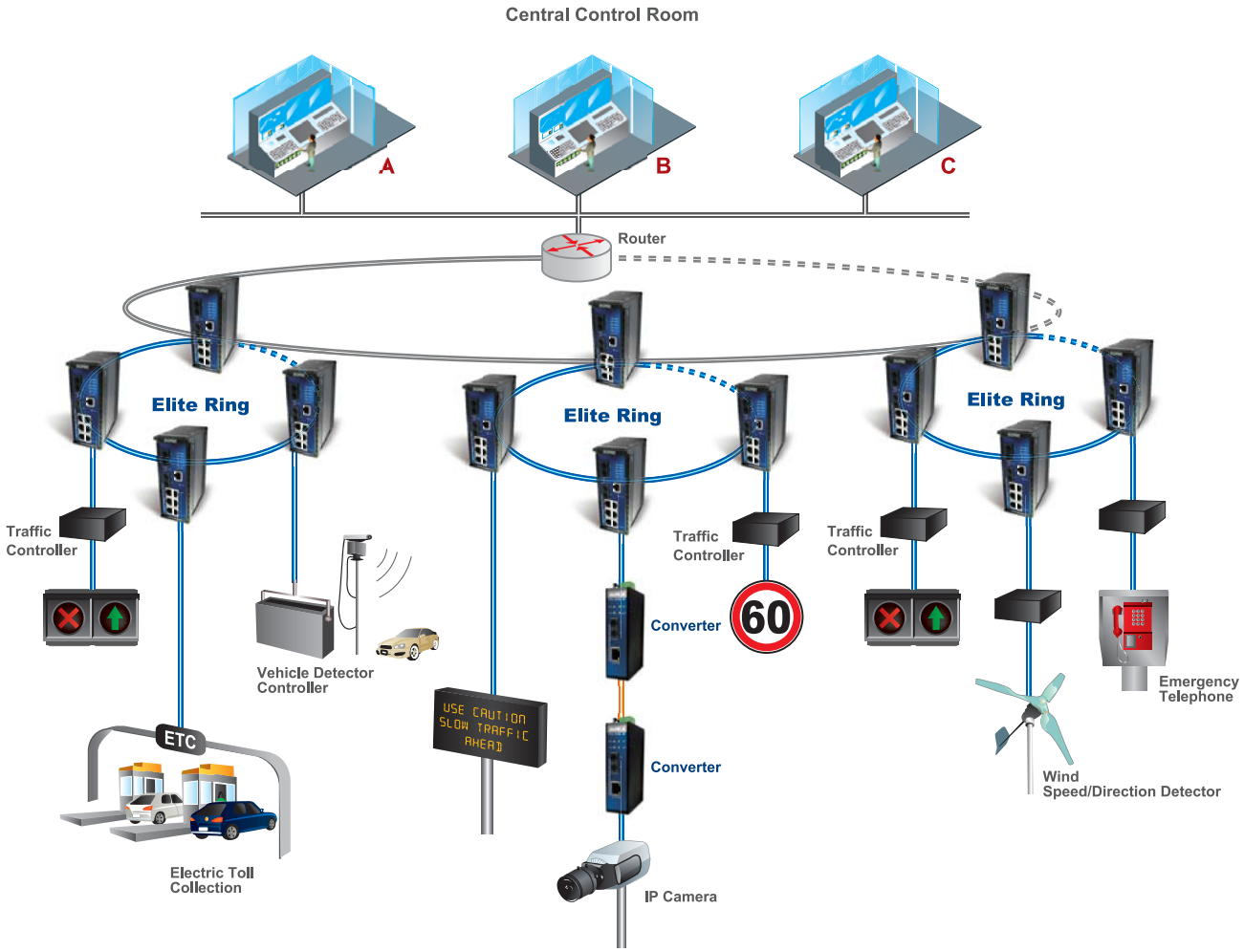
Why SUNIX

- **Long distance communication with remote monitoring and management**
- **SUNIX industrial switches managed switches with minimum recovery time for network resilience and redundancy**
- **Long operational system life with performance reliability**
- **Compatibility to existing backbone system**

Comments

"For the project of this size, we could only work with the products that we can trust. We knew that we could count on SUNIX solution for real time ETHERNET", Networking Designing Director states.

Application Topology



Key Products

ESW-8062-SSC-E
FTL-1218HR-SMC-E

Data Control System for Smooth Parking

Project

Centrally controlled distributed parking areas in the Taipei City Hall Parking

The big cities like Taipei are the most effected cities where car parking is becoming difficult and difficult with each coming day. In the downtown area after completion of the mass project like 101 Tower (The tallest building in the world till now), the need was felt to integrate all available City Government parking lots in the central control system.

The administration wants to acquire the all the data over the Ethernet from the electronic parking to provide accurate information about number of parking available at certain areas in the specific level. This will help people to save time to look around for the parking space area to area and level to level once enter. Before entering into the parking they will get the information and drive to available area.

Requirements

Provide state of the art parking access control system with centralized monitoring. The main idea was to give vehicle drivers right information about parking space to save time and fuel.

The Challenge

The challenge was to develop a centralized data management so can provide accurate information. Lot of sensors, serial display boards and PLC system needs to be controlled over the remote area.

Solution

SUNIX expert team offers the immediate and right solution with combination of serial cards plus Managed Ethernet Switches. The low-profile serial cards were the right choice to fit the industrial computer that will control all the serial devices e.g. sensors, PLCs, EMS.

The Managed Ethernet Switches solution in the ring topology offers convenient connectivity at the central data management center. The ELITE Ring function offers non-stop communication without any network failure. This opens the way to access any kind of data in future between the distributed locations and center.
The computers get the data from each parking space (whether it fills or not) and process to central location where application software compile and process it, and display the accurate information at public displays.
Now car owners don't need to enter the parking, go to basement and make whole trip to know there is no space, and move to next level.

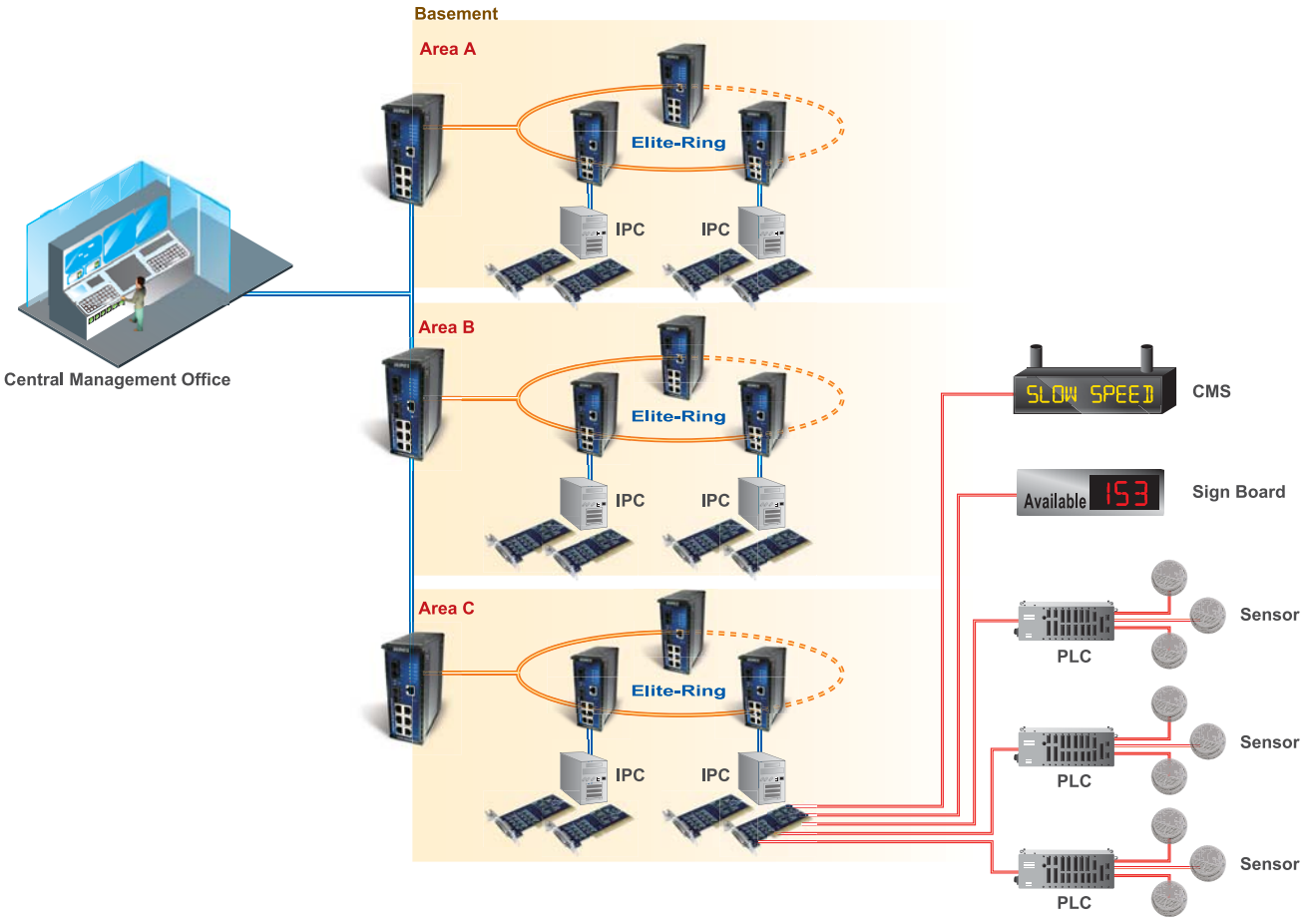
This solution not only saves time but also fuel wasted on circling around to find parking. It can be of little help towards having better environment by saving energy and spreading less pollution.

Why SUNIX

- **Extended solutions for industrial grade communication and networking.**
- **Real-time data availability with centralized control.**
- **AHDC/CS™ technology for collision free serial communication.**
- **Excellent support and services.**

The SUNIX solution not only meets the current requirements but future proof to implement any additional components to enhance the services. The Ethernet switches provide resilient network, and the ability to pin point network problems. Serial cards support various Operating Systems and single chipset solution, which means less CPU usage and enhanced computer performance.

Application Topology



Key Products

ESW-8062SS
IPC-P2008

Solution for Automated Parking System

Project

Centrally controlled distributed parking areas

Computing is becoming more and more essential part of living. When it stuck to traffic control, it is thought to use in the parking areas. In this way they can able to better monitor the parking areas and provide better security with decreasing the operation cost. It is also convenient for public to use this system with the sense of security. Electronic payment system means more accurate billing and option to use credit card for payments.

Requirements

Provide modern and secure parking access control system with centralized monitoring. The idea was to keep the existing hardware while adding the new to meet the requirements. In some areas the systems is quite up to date but in some areas, it was the legacy manual system.

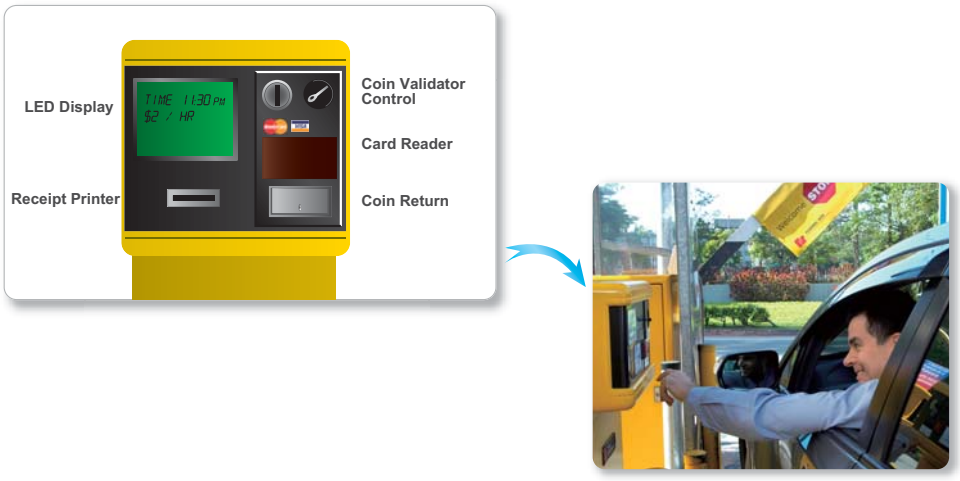
The Challenge

The challenge was to develop a centralized monitoring and control, with the ease of electronic billing and payment. Being secure application, industrial grade reliability was required.

Solution

Taking the complexity and nature of the project, SUNIX serial (RS-422/485) cards and SNMP Managed Ethernet switches were used. Serial cards added the serial ports in the local workstation to communicate with serial devices attached to parking system, such as multiple types of card readers, gate controller etc.

With implementing managed switches solution in the ring topology offers convenient connectivity at the central data management center. The ELITE Ring function offers non-stop communication with any network failure. This opens the way to access any kind of data in the future between the distributed locations and center without any failure. Sharing of video streams from security surveillance system is made possible, in case required. Amazingly, it helps to reduce the maintenance cost as easy to pin point the problem immediately in case of any warning.



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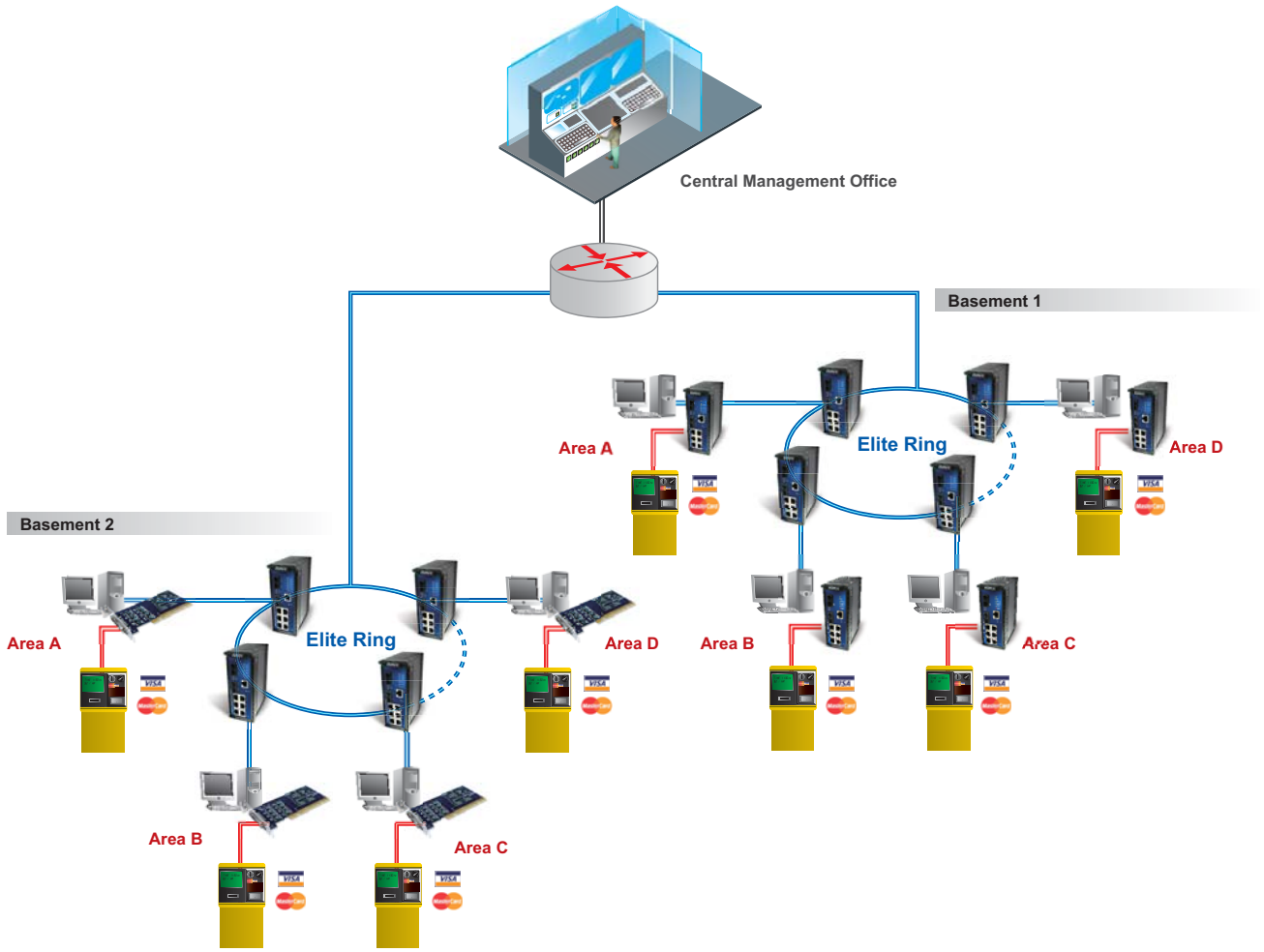


Key Products

ESW-8062-SS
IPC-P2008

Serial to Ethernet for Factory Floor Automation

Project

Connecting Factory Floor With Corporate Ethernet

A textile manufacturing factory was looking for a communication solution. Its current sophisticated automation systems for manufacturing, distribution and warehousing have historically been hampered by technical and feasibility issues connecting plant floor devices (warp, winding, spinning, loom etc) to PLCs within the enterprise due to incompatibility with industrial automation control systems.

Requirements

The desired objective is to produce high quality fabric economically and as free from faults as possible, this is achieved to a large extent by monitoring and control, which acts as a tool for the shop floor technicians by providing accurate:

- **Loss of Utilization (Out-of Production times)**
- **Stoppages - up to 8 distinct stoppages with reasons including Weft, Warp**
- **Stoppage analysis**

Production report shift wise/ sort wise for any period and up to the minute

Instantaneous and average production speeds

Warp change schedule

Maintenance scheduling of machines

Challenge

The challenge was to build the system to process monitoring, control and communication between PCs, PLCs, and other process controls (warp, winding, spinning, loom etc). The target was set to improve finished products quality assurance and gain more detailed manufacturing information utilizing current infrastructure.

Solution

The solution was instant by integrating SUNIX Industrial Device Server. It perfectly synchronized their Ethernet/IP network with their industrial serial devices. The device servers having an upper layer protocol fully compatible with standard TCP/IP protocols such as HTTP and SNMP. Hence SUNIX IDS series also offer communication redundancy, which was quite important for some serial segment. Those important serial devices integrated through IDS-3042 models which offer redundant port and 3-in-1 serial ports.

The auto-detection and switching of serial devices (between RS-422 and RS-485) allows users to apply the same objects and profiles for plug-and-play interoperability among different serial devices. Ethernet/IP provides manufacturers with a proven and future-proof network solution, one that incorporates all the advantages that have made Ethernet and Internet technologies ubiquitous and essential in office applications.

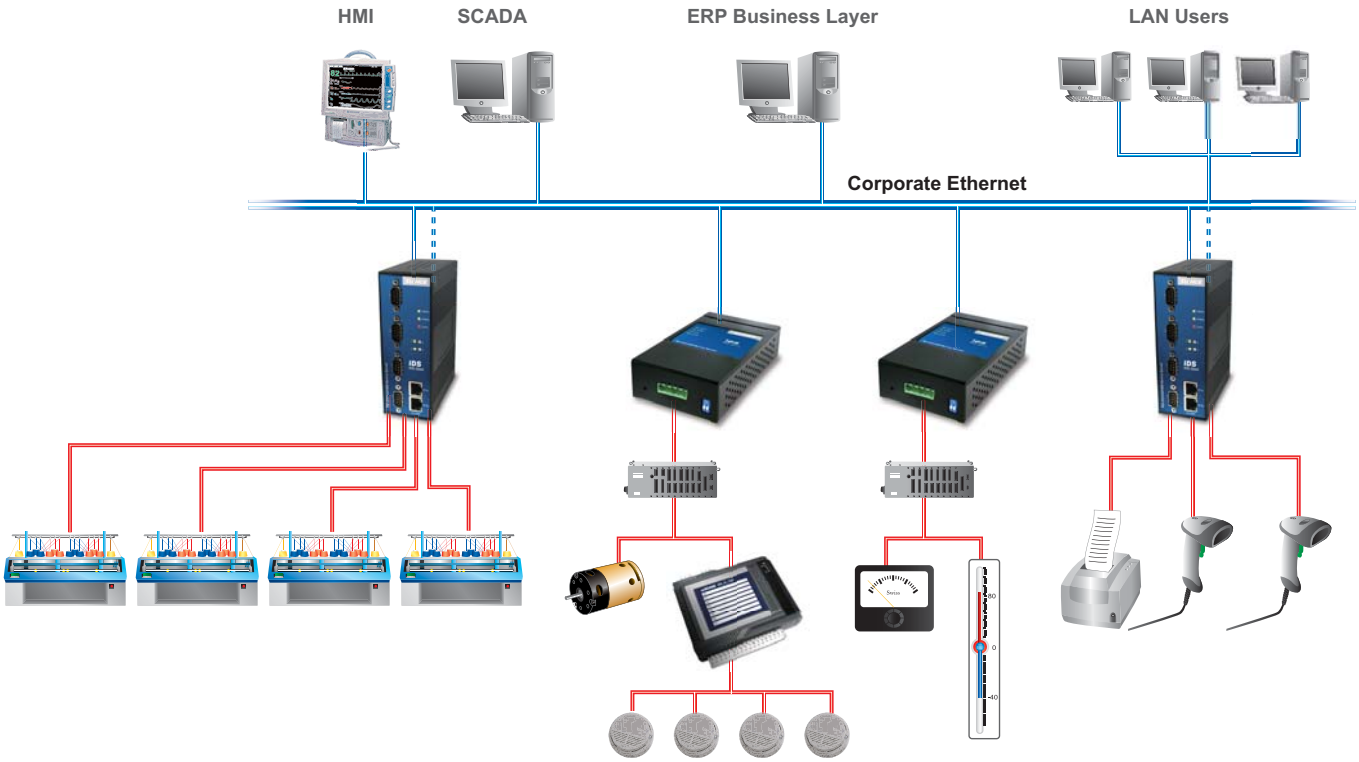
“In our manufacturing facility, we needed a solution to add multiple serial ports connecting loom machines, PLCs, bar code scanners and printers in order to improve product quality assurance and access more detailed manufacturing lot information. We were looking products that not only provide serial to Ethernet integration, but are also reliable, user friendly and withstand the harsh factory floor environment. It was the perfect solution to communicate with all of these added devices on our Ethernet/IP platform. It allowed us to minimize long-term costs, and still leverage our current infrastructure investment”, Tim Roger, Chief Engineer

Why SUNIX

- **Extended serial to Ethernet communication solutions range.**
- **Higher reliability with Ethernet redundancy.**
- **Easy to use products with efficient integration capability.**

Lately, organizations don't need to be slaves to industrial automation protocols. Device servers from SUNIX enables plant floor devices (like CNC) and PLCs to communicate in the same network language, providing a fast and simple way to access raw data without a large capital investment. The most flexible device servers available in the market enable communication between serial devices residing on the factory floor and PLCs supporting the legacy serial industrial protocols.

Application Topology



Key Products

IDS-3042
IDS-2011

Serial over ETHERNET Solution for Healthcare

Project

Monitoring and maintenance of the patients' medical record and data, available at a central network in distributed architecture

The City District Hospital was looking a solution to implement central but distributed architecture for patient's medical record and data with the option to be accessed via internet. Currently, all departments process the information individually and forwards to Medical Record Department to maintain the record.

The real time data acquisition from medical equipment attached to critical patients, in Intensive Care Unit, Operation Theater and Emergency areas, was also the requirement.

Requirements

Until now the patients' data was recorded manually at each department and forwarded to Medical Record for compiling. Real time data acquisition was not possible. The network was used to do some limited operations. For medical care providers, access to timely and accurate information advances the ability to provide the highest quality of patient care. Decision support is not limited to the bedside though, and the quality of care is often dependent on the ability to share vital patient data with clinicians outside the care facility in real time. Accessing the real time, and/or recorded electronic information within the hospital LAN and over internet for consultation from Medical Specialists on vacation or residing in other city or country was the goal in effort to provide best possible healthcare services to the community.

Solution

By implementing Multi-port Serial Cards, it is ensures that the patients' data collected by different monitoring and testing serial devices more widely available in real time. The Managed Redundant Switches are used to keep the network running without any failures of data. The ELITE Ring function offers network recovery in less than 10ms in case of any node failure, thus providing permanent connectivity.

Now, staff at hospital is feeding this data to proprietary clinical applications and databases electronically, thus eliminating manual data entry.

Why SUNIX

- **Extended serial to ETHERNET solutions range**
- **Serial port isolation provides extended electrical safety to the patient and staff**
- **Meeting and exceeding the worldwide medical equipment safety requirements**
- **Long operational system life with performance reliability**

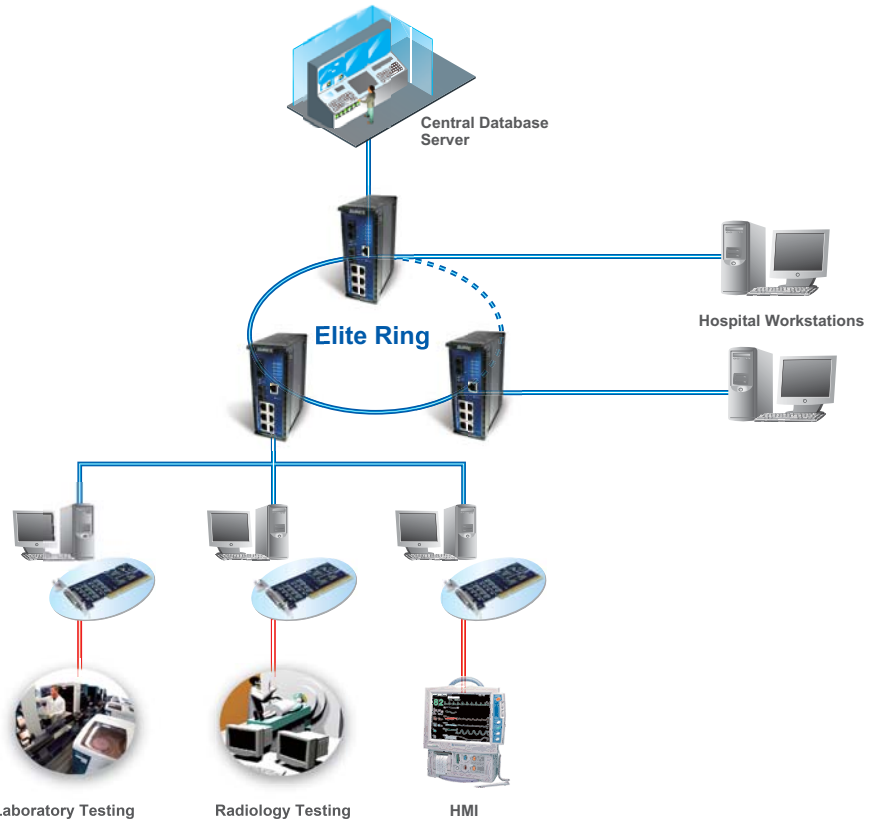
Comments

SUNIX developed the UART Chip that is use in Multi-port Serial Cards, which provides Auto Detect & Switching, and AHDC/CS™ technology that provides the freedom from any hardware (jumper) or software settings. It means lesser CPU usage and higher performance.

Reliability was something that required when planned to improving healthcare services by the use of Ethernet. Obviously, it will not only help to provide the best available care while sharing the real-time information over Ethernet / Internet to the group of physicians and/or surgeons, but also eliminate the need of manual record keeping thus patients are getting more attention from the medical staff.

"We are totally satisfied with the stability of SUNIX Industrial Ethernet equipment. It is user friendly and easy to deploy, operate and maintain, which is most attractive part for me", Manager MIS claims.

Application Topology



Key Products

Multi-port Serial Cards (2 & 4 ports)
ESW-8062-MM Managed Switches

Serial to Ethernet for Mining Automation

Project

Improve Safety of Miners with Automated Underground Monitoring

Since the computation is reaching to every part of the world, coal miners from Africa also got benefited from it. To improve the safety standards and meet new laws, a decision was made to upgrade the current legacy system with new Ethernet based technology. Communication and data streaming in our target mine needed to be improved and upgraded to ensure higher standards of safety in the underground environment.

Mining operations are being equipped with sophisticated industrial controls and sensors for safety and operating efficiency. In many mining applications, data is combined with information from sensors and industrial controls, not only pushing the bandwidth requirements up but also to reduce the electromagnetic interference; hence forcing to deploy fiber optics.

Requirements

The purpose of this project was to establish a surface-to-underground communication to manage routine sensors, alarms and serial devices. Another requirement for the system was to link and administrate the group of mines. The control office on the surface has complete access of every activity inside the mines. Using the Ethernet, underground air quality is also monitored to see whether it is safe for workers to enter the mine. Carbon Monoxide (CO) sensors and Methane sensors are used for this purpose. Lightning was very common in the area.

The Challenge

To established a reliable link to communicate with underground PLCs, seismic equipment and ventilation controls. Because such a link has the potential for broader applications in the industry, this project shows specifically how the Ethernet link from the surface to the underground can be set up by using industrial-grade Ethernet products. A reliable communications link between the surface control office and the miners was a basic prerequisite. Fiber media is future-proof for speed, and single-mode fiber easily handles the huge distances.

Significant technology developments would be required to achieve Ethernet-grade communications over the shearer cable. So, given the time constraints of the project, an Ethernet system was designed to provide connectivity from the surface to the tunnels.

Solution

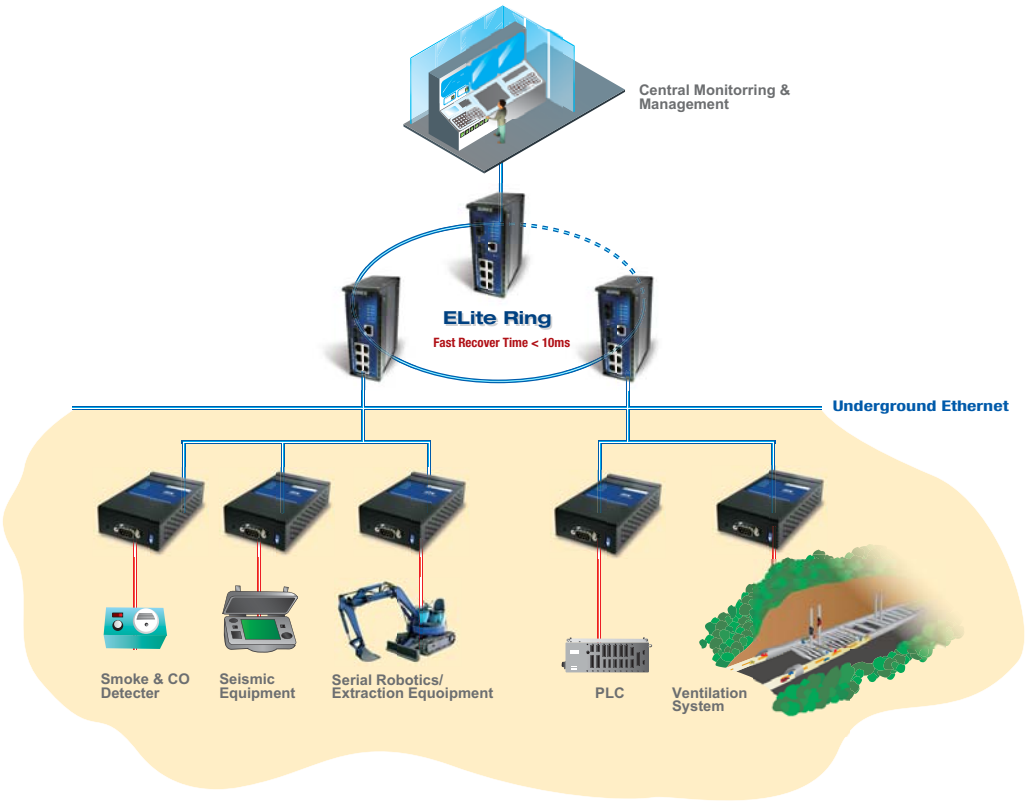
A combination of Managed Switches and Fiber Device Servers met the requirements perfectly. The flexibility of the optical ports offered the ideal solution for performing central and remote management of the distributed network architecture. Now the mine's management can manage up to 256 serial devices via Virtual COM port drivers, and Ring-based technology can be adopted for the connectivity without any failure. The fiber-optical cables offer the mine maximum data integrity from high incidence of lightning.

Why SUNIX

- **Extended serial to Ethernet communication solutions range.**
- **Higher reliability with Ethernet redundancy.**
- **Reliability with fiber optic conversion of serial transmission.**

The use of Ethernet products in the mine has provided a much safer working environment. The Ethernet keeps information flowing at all times, streaming data about the status of workers and equipment -- and about whether conditions are safe for workers to be in the mine. The rugged outer case of products is ideal for mining environments, providing protection for the highly durable internal electronics. The fiber optics provides flexibility and cost-effectiveness while offering the highest level of data integrity, especially in the lightning season. The mine can perform its daily operations more safely and more confidently. Device Servers removed the bottleneck created by the need to monitor and manage a large number of serial devices via the Ethernet.

Application Topology



Key Products

ESW-8062MM
DS-3010M

POS over Ethernet

Project

Implementing New POS software to the Chain Store

In a big chain store, getting Point-of-Sale (POS) equipment to work cohesively together can be a real challenge. With each device requiring a dedicated point-to-point connection, installation can be expensive, and devices can be difficult to maintain and costly to service.

Requirements

Their current software is run on various operating systems from Win98 to XP. They even still have a few customers running their DOS software. With all of these variations, they wanted a solution that would fulfill their needs across the board in order to add simplicity to their support.

SUNIX device servers allow you to attach all of your POS devices to a common network connection. Device networking overcomes the limitations of serial connections, enabling POS devices to share information across the network without a dedicated server, providing greater scalability, significant cost savings, and more effective customer service.

The Challenge

The company's challenge was to try to take RS-232 registers and make them IP-ready to allow their customers LAN and WAN polling options. To find a solution they traveled to SUNIX partner.

Solution

"When we arrived, the support specialist verified that he understood our needs and had already prepared a list of different scenarios we were going to try," explained Avilla. "We together did a lot of testing. We even spoke directly with the product engineer at SUNIX about the underlying functionality of the device. At the end of the day, we had a reliable working solution, and had formed a real partnership with SUNIX."

Why SUNIX

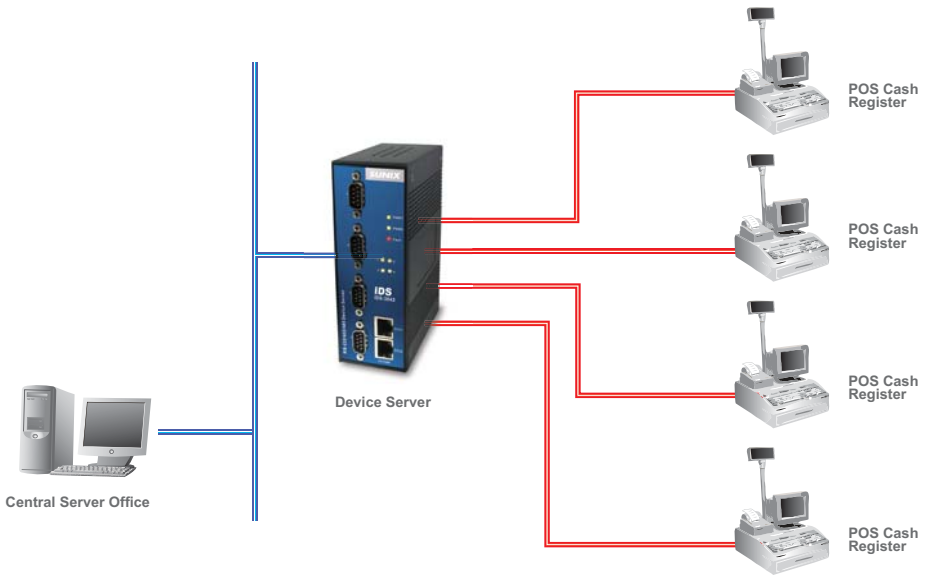
- **Extended serial communication solutions range.**
- **Higher reliability with Ethernet redundancy.**
- **Reliability with collision free transmission.**

The SUNIX device server provides the powerful ability to IP-enable serial devices allowing more options for data acquisition, device management, and industrial control. It includes a processor, operating system, TCP/IP stack, Web server and a network connection to provide a complete serial-to-Ethernet bridge. Using the embedded Internet protocols and a connection to an IP network, it encapsulates the serial data into packets and sends and receives it over an Internet or Intranet connection.

Comments

"We originally choose SUNIX because they were the only ones we could find that worked with all the various cash register protocols we support", said Avilla, Project Manager. We also knew of the quality and the enhanced functionality. In particular we have made extensive use of the remote programming capability."

Application Topology



Key Products

IDS-3042

Wireless Device Servers for Building Access

Project

Implement a low cost modern access system

Wireless is getting popular not only for its benefit but also due to fashion of using cool latest technologies. Wireless technology is highly adopted in newly-built state of the art skyscrapers for living and office purposes. These buildings offer a new digital life style for relaxed working environment and comfortable living. To provide better security system, a stronger and a reliable access control system is required along with the digital surveillance systems. Wire free systems give a trendy look while saving the cost of wires.

Requirements

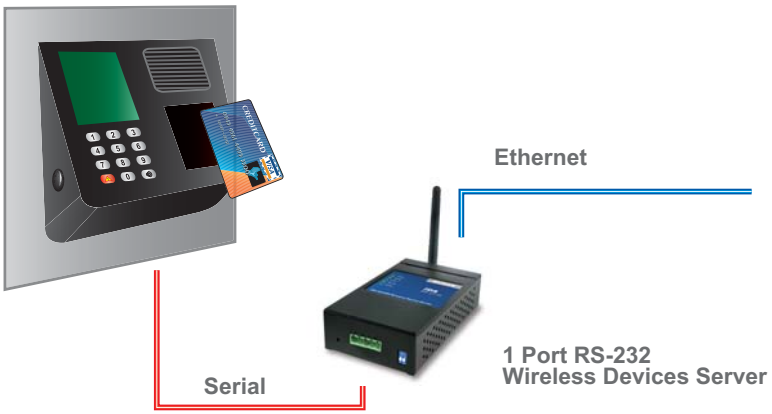
The financial company for his new headquarters building needs to implement reliable access system to avoid any unauthorized entry. Due to its business nature, extensive access control is designed and implemented for employees. Access is granted based on the departments and employees categories at different level.

The electronic access system with access card plus finger print recognition is to deploy via using wireless technology.

Taking the full advantage of IP protocol support from wireless and excluding the cabling hazard (and cost), wireless solution was the requirement.

The Challenge

The challenge was to develop a highly secured and reliable wireless access system avoiding the mix with other wireless running applications.



Solution

Taking the complexity and cost out of wireless networking, SUNIX wireless products provide a feature-rich, secure, easy-to-integrate, low-cost WiFi solution. They not only offer more port density but also support any kind of serial interface, thus integrating different serial devices in a single device server. Moreover, access point provides PoE which eliminates the need of power input for digital IP cameras.

Why SUNIX

- **Extended solutions for serial communication over wireless LAN.**
- **Highest level of integration availability with robust security (WPA, TKIP, 802.1X).**
- **Excellent support and services.**

The SUNIX device server provides the powerful ability to IP-enable serial devices allowing more options for data acquisition, device management, and industrial control. It includes a processor, operating system, TCP/IP stack, Web server and a network connection to provide a complete serial-to-Ethernet bridge. Using the embedded Internet protocols and a connection to an IP network, it encapsulates the serial data into packets and sends and receives it over an Internet or Intranet connection.

Application Topology

Key Products

IDS-3042W
WAP-5002P

Wireless Device Servers for Vehicle Monitoring

Project

Implement a low cost monitoring system

IEEE802.11b/g WiFi technology offers a variety of wireless connection advantages, including a highly reliable global set of standards. Perhaps the most relevant benefit to businesses is how cost-effective WiFi is versus cellular or other technologies for network deployment and expansion.

Requirements

The company has big public and corporate customers that manage large vehicle fleets. They need an efficient and cost-effective monitoring and maintenance systems for the fleet vehicles. These customers also required a small, easy-to-mount device enabling them to monitor location, vehicle status and driving behavior for more efficient and cost-effective operations.

Extending the life of a fleet vehicle while reducing operating costs can translate into thousands of dollars saved per year by eliminating the monthly cellular phone bills.

The Challenge

The challenge was to develop a wireless vehicle status and driver performance monitoring system for large fleets of vehicles which eliminates monthly recurring fees, and lowers operating and maintenance costs.

Solution

Taking the complexity and cost out of wireless networking, SUNIX wireless products provide a feature-rich, secure, easy-to-integrate, low-cost WiFi solution. From the access point of company's mesh wireless network, all the monitoring information can be downloaded to application server for analysis and reporting.

Why SUNIX

- **Extended solutions for serial communication over wireless LAN.**
- **Highest level of integration availability with robust security (WPA, TKIP, 802.1X).**
- **Reliable and committed performance.**

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Comments

"The IDS wireless device server from SUNIX provided us quick and easy installation which we were looking for", says Jacques Charl, Business Application Manager.

Key Products

IDS-1011W

City Traffic Light Control System

Project

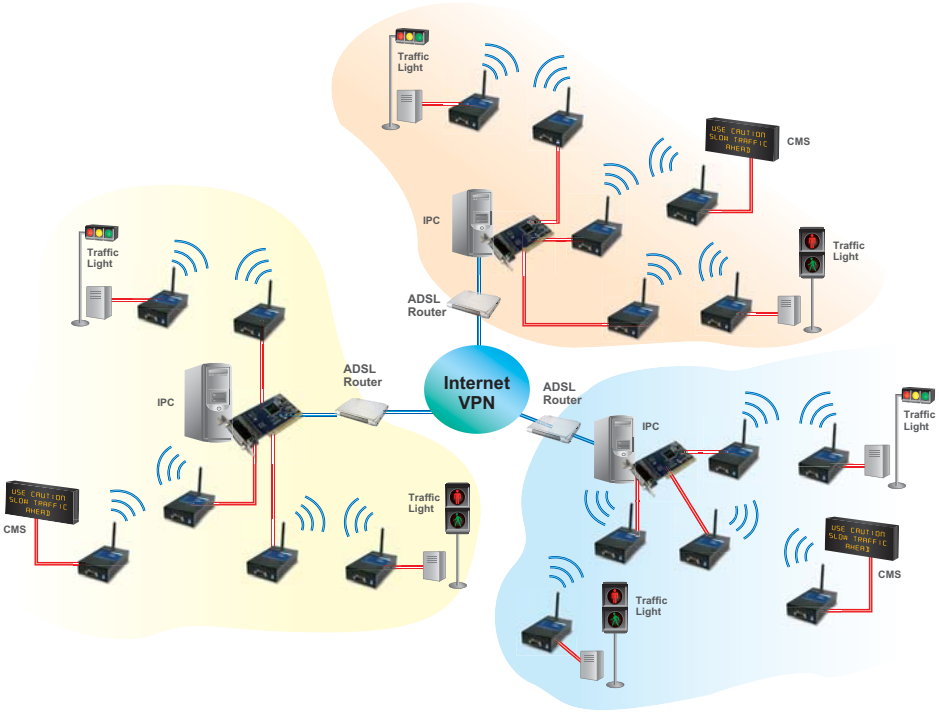
In the busy intersections of the city, where more traffic lights are put along with signboards, the implementation of wireless technology seems to be the solution. This will eliminates the need of data wiring combing with electric wiring, thus saving the wiring cost.

The control box with an industrial PC equipped with SUNIX serial card provides the serial ports. These serial ports attached with couple of SUNIX Wireless IDS. These industrial grade device servers enriched with security and operation modes flexibility.

Moreover, the paired device servers were put at each serial control of traffic lights, CMS, pedestrian signals. All this signals can be control through industrial PC which is connected to central control station through ADSL. Comparing to other solution, it provides lot of saving and also central management. No more manual control is needed.

Application Topology

We are happy to provide the safer traffic system to the public and since then it is managed by remotely. We are satisfied with the performance and accuracy of the system, traffic police superintendent claims. SUNIX is making public daily life safer and convenient without their notice. It is not only business but great sense of satisfaction for us.



FOCUSED PRODUCTS

IDS-3011W
IPC-E3004

Central Traffic Control

Project

Centrally managed but distributed traffic control

The city development authorities were looking to upgrade their old infrastructure of traffic lights, which were based on old technology. Due to this traffic jams were common, which urges the need to put manpower in action to control the traffic properly. This was some times hard to manage and ends up with hike in expenses. Centrally controlling the lights can reduce these manual human visits and provide better information to public.

Requirements

It was necessary to have an intelligent traffic control throughout the city from a central management. Hence the limitation was to overcome the difficulty of wide area since deploying fiber was not an option at this stage. The authorities were also looking for the solution that could be future proof to meet any type of upgrades when more resources and better technologies are available.

Solution

After analyzing the situation, SUNIX team come up with the idea that they can use their current telephone system as alternative communication media. To control the serial devices, they can use Industrial Device Server from SUNIX, which can be connected to central management station via ADSL routers at remote areas. At each location IDS-1011 was the right choice to provide serial connectivity to traffic lights, pedestrian signals and message display boards.

In case of any change is required, management at central control send the signal to end devices through ADSL routers. They can change the signal timing for specific reasons or rush hour timings that can keep the traffic going smoothly. In case of any re-routing or any cautionary message, the instructions could be communicated to drivers through display boards.

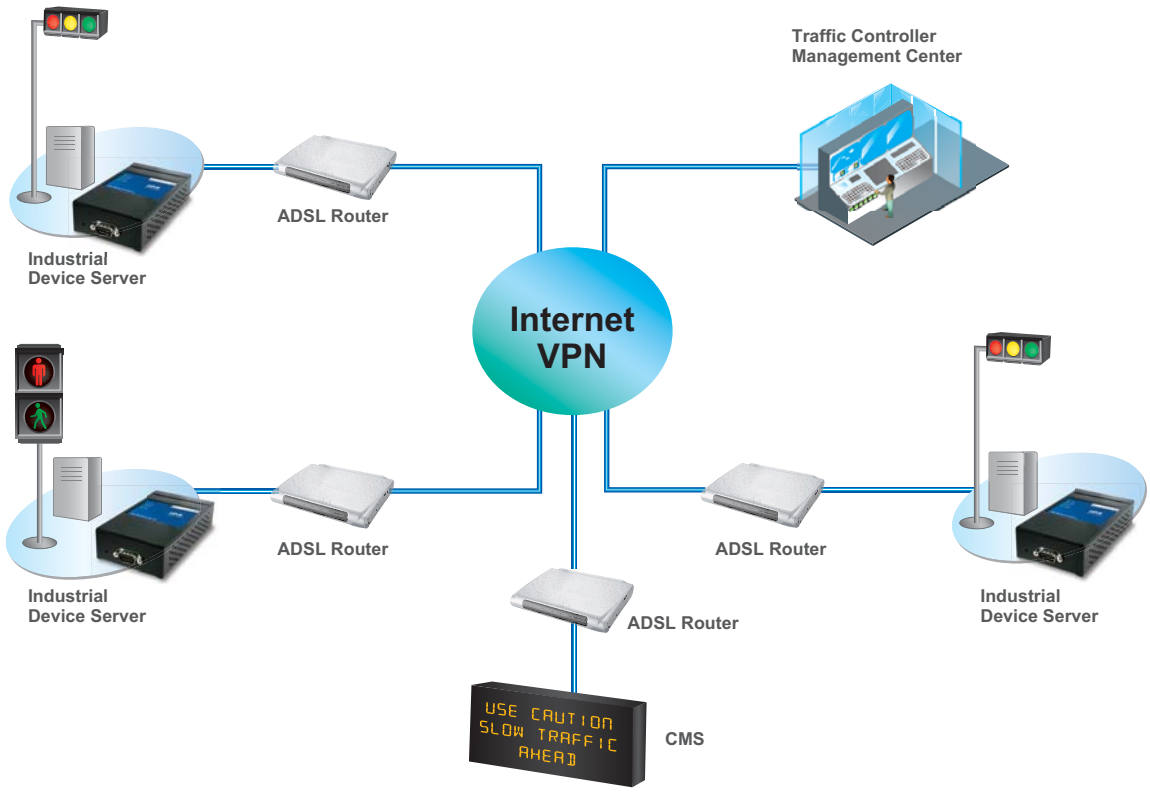
This is intelligent system provide safer roads and stress free driving, while reducing the operating costs. Keep in mind, this solution is ready to connect with Ethernet once it will be deployed. It will save the current investment for future enhancements.

Why SUNIX

- **Future proof solution.**
- **Featured product that comes with operation ease.**
- **Real-time data availability with centralized control.**
- **Excellent support and services.**

The SUNIX solution not only meets the current requirements but future proof to implement any additional components to enhance the services in future. The Ethernet based intelligent system would be the next step. SUNIX open to discuss and ready to provide any kind of technical details to come up with solutions that match your requirements. It is not always the technology, we deal with trust.

Application Topology



Key Products

IDS-1011

Industrial Multi-port Serial Cards

- Multi-port Serial Cards Introduction & Features
- **Universal PCI Cards - Lite**

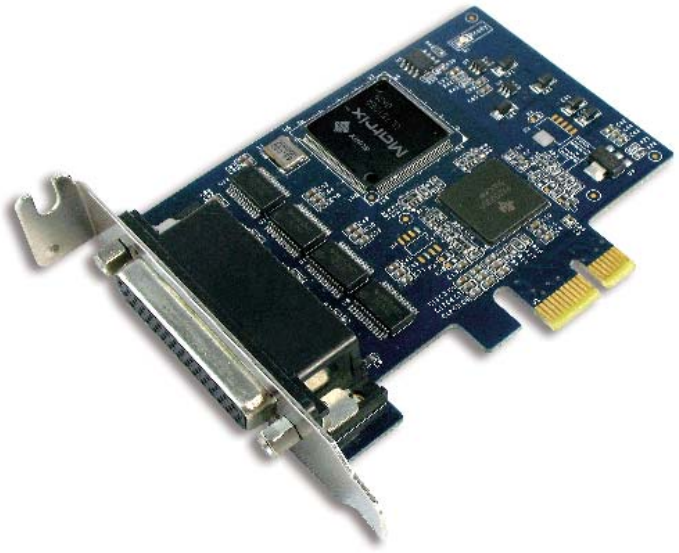
  RS-422/485 Interface Cards

  RS-232/422/485 Interface Cards
- **PCI Express Cards - Lite**

  RS-422/485 Interface Cards

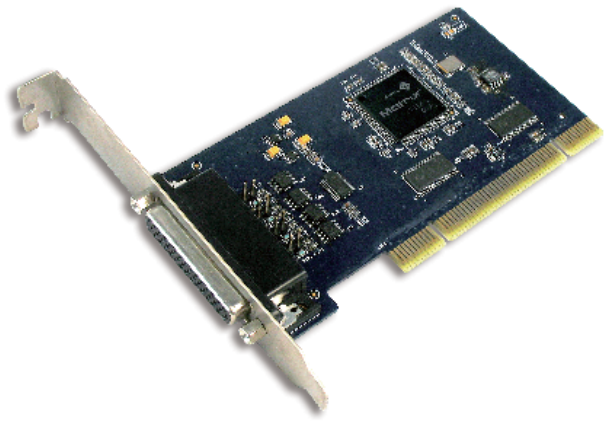
  RS-232/422/485 Interface Cards
- **PCI / 104 Cards - Lite**

  RS-422/485 Interface Cards



Multiport Serial Cards *Extending the Serial Networks*

Introduction



SUNIX Serial Communication Boards family provides an array of PCI Express, PCI, PCI/104 and PC/104 interfaces to meet your serial port expansion needs. Multi-port Serial Communication Board comes in the selection of 2/4/8/16 ports in choice of RS-232, RS-422/485 or 3-in-1 combo with DB9 or DB25 serial connectors and compatible with all major operating systems for industrial applications. The Serial Boards series is best suited for applications where the CPU is able to devote some of its resources to handling computations or to real time applications that require short latency intervals.

SUNIX boards offers "Auto Detect and Switching RS-422/485" technology, which can automatically detects the state of RS-422 full duplex or RS-485 half duplex and control the data transmitter and receiver wires at the same port without any jumper setting. This design gives users the convenience and hassle free option to change the communication mode settings. SUNIX has also developed a hardware technology called Auto Hardware Direction Control/Carrier Sense (AHDC/CS™), which is to control the direction of signals (ON or OFF) automatically in 2-wire RS-485 mode. This can precisely control the transmitting signals during the start and end of data transmission.

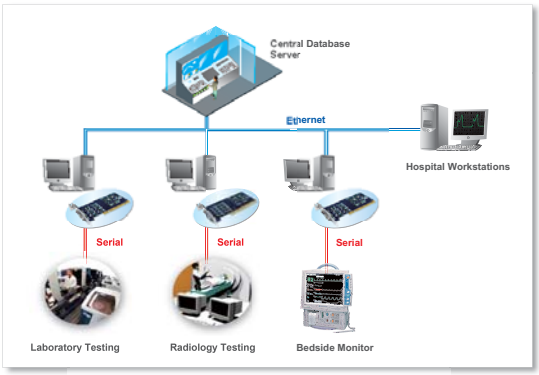
Features

- **Supports 16/8/4/2 independent RS-232, RS-422 or RS-485 serial ports**
- **Supports, Universal PCI, PCI Express, PCI / 104 bus types**
- **Serial communication speeds up to 921.6Kbps**
- **SUNIX AHDC / CS™technology for RS-485 2-wire signal direction control**
- **RS-422 and RS-485 Auto Detect and Switching technology**
- **Built-in 64 byte hardware FIFO and reliable communications**
- **Easy to install - no DIP switches or jumpers to set**
- **Surge and Isolation protection for SI version**
- **Supports DOS, Linux, Microsoft Windows 2000, XP, 2003, Vista, Linux 2.4x, 2.6x and Unix**
- **Ready for the Intel®and AMD®32 / 64-bit CPU and operation system**

Application

HEALTH CARE

Centralized and distributed medical data of patients over Ethernet in a hospital

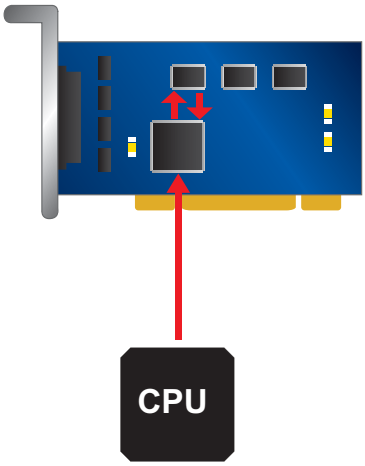


SUNIX Tech Forum

Single Chipset Solution

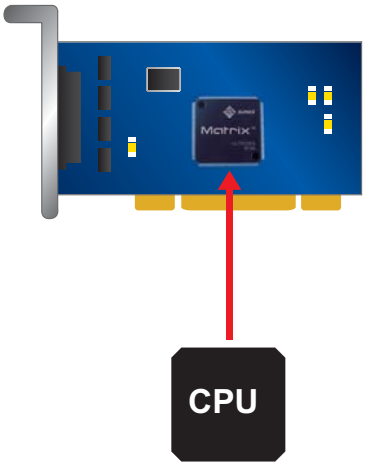
SUNIX serial cards are based on the single ASIC with built-in UART controllers developed by its own. Its remarkable achievement and this single chipset solution can support up to 16 serial ports, thus becoming the first in the World to have 16-port serial cards utilizing single chip technology. Adapting this technique, means improve the system performance by eliminating the need to use CPU resources. At the serial side, it will boost the communication with faster response cycle. The ultimate performance solution for your serial networks.

UART Controllers



Chip with separate UART

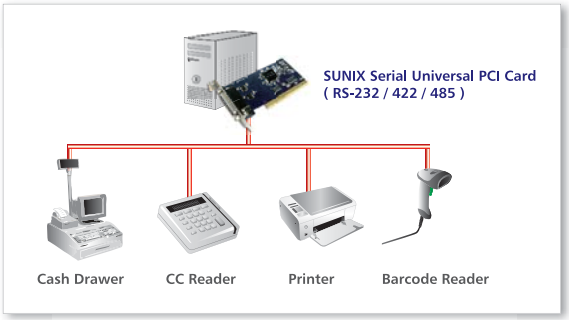
Martix with UART Controllers



Single Chip Solution

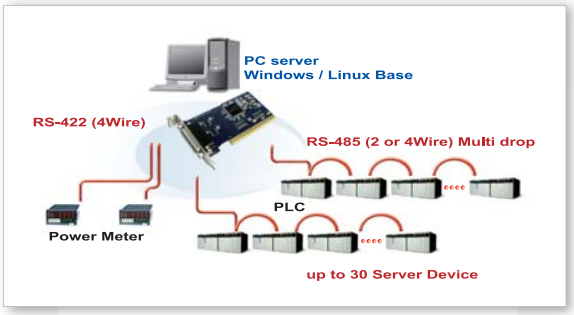
RS-232 Application

Because of the limitation in number of COM ports on PC-based POS (Point-Of-Sale) system; users can architecture SUNIX serial communication board to satisfy numerous RS-232 peripheral requirements in your existing devices or applications, such as Invoice printer, Weighing Scale, Pole Display, and Credit Reader.



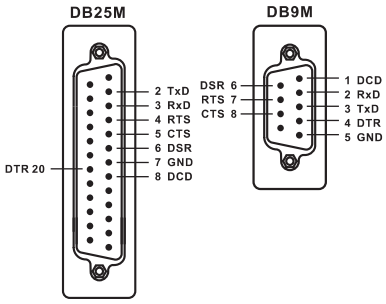
RS-422/485 Application

SUNIX RS-422/485 universal PCI card enables your laptop or workstation with the ability to communicate with RS-422/485 serial peripherals. It supports 2/4-wire RS-485 multi-drop and 4-wire RS-422 point-to-point operation mode through PCI Bus. SUNIX RS-422/485 universal PCI card provides a quick, simple and cost-effective way to bring the advantages of data accessibility and mobile solution for configuring field instruments.

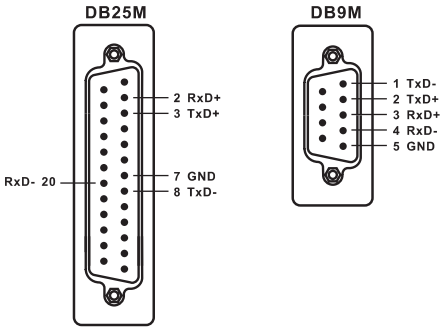


RS-232 RS-422/485 pin assignment

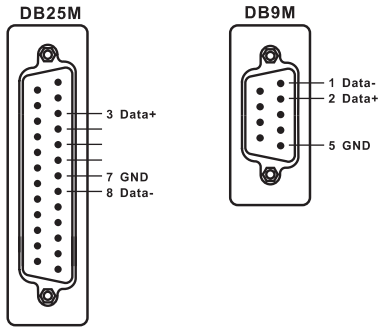
• **RS-232**



• **RS-422**



• **RS-485**



Optical Isolation Protection

The ground loop is a common problem in many industrial environments, especially when ground voltage levels differ between connected devices by a longer transmission line in critical or harsh factory environments. Communication devices connected by long cables may be damaged by the mismatch between ground voltage levels at the two ends of the wire. Optical isolation uses photo cells at both ends of the line to isolate the devices' sensitive components from this type of electrical damage. SUNIX provides 2.5KV optical isolation for power and signals to eliminate this kind of problem.

Surge Protection

Surges are high amplitude electrical pulses lasting only several millionths of a second in duration. They can be caused by heavy-duty equipment, power lines, short circuits, or large motors. A surge suppressor has the ability to effectively absorb the high energy in an extremely short period of time, preventing the connected devices from damage. To eliminate this problem, we provide the embedded 600W surge protection for all signals, and it meets IEC61000-4-5 standards.

RS-422/485 Auto Detect & Switching Technology

SUNIX developed a unique technology "Auto Detect and Switching RS-422/485", which can automatically detect the state of RS-422 full duplex or RS-485 half duplex and control the data transmitting and receiving wires at the same port without any jumper settings. This design gives users the convenience to change the communication mode setting without any system shut downs.

Low Power Consumption

Low power consumption is always a large part of the needs expressed by customers. Recently, low power consumption has become essential not only for system development but also for environmental reasons, and in fact low power consumption has become an ever larger part of the needs expressed by customers. SUNIX has pursued this issue via various approaches, as it seeks to provide special cell-bases ASICs that meet today's challenging needs for lower power consumption during active and standby modes.

AHDC/CS™Technology

Since RS-485 is bidirectional which means the driver is turned on only when it needs to transmit some data, otherwise it is floating. SUNIX developed a new design to control the direction of driver (On or off) automatically which is called Auto Hardware Direction Control/Carrier Sense. AHDC/CS™ works on the same principle and only turns on the driver when UART needs to transmits some data; but the advantage is that AHDC/CS™ will check to see if the bus is idle or not before it starts transmission. If the bus is not idle (some data flows in the bus), then it will postpone the transmission of UART until the bus is idle. This is for the CS (carrier sense) part.

User-friendly LED display

The Ready LED for prompt status information about the chip; if it is ready to run.

Universal PCI Cards

Serial Interface		RS-422/485		
Model		**IPC-P2002**	**IPC-P2004**	**IPC-P2008**
Product				
Description		Industrial 2-port RS-422/485 PCI Serial Card	Industrial 4-port RS-422/485 PCI Serial Card	Industrial 8-port RS-422/485 PCI Serial Card
Serial Communication	**Interface**	PCI Ver 3.0 / 2.3 / 2.2		
	No. of Port	2 ports	4 ports	8 ports
	Max No. of System	Unlimited (only limitation is availability of PCI slots on the system)		
	BUS	64/32bit 3.3V/5V PCI and PCI-X 33 MHz / 66 MHz		
	Connector Type	DB44 Female		
	IRQ	Assigned by System		
	IO Address	Assigned by System		
	FIFO	64byte (Hardware), 16C750 Compatible		
	Signal	RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+, TxD-, RxD+, RxD-, GND 2 Wire RS-485: Data+, Data-, GND		
	Baud rate	75bps to 921.6Kbps		
	Data bit	5,6,7,8		
	Stop bit	1,1.5,2		
	Parity	None, Even,Odd, Space,Mark		
	Flow Control	XON/XOFF(Software)		
	ESD Protection	Embedded 15KV ESD Protection		
	RS-485 Directional	SUNIX AHDC/CS™ Technology		
	Select RS-422/485	RS-422/485 Auto Detect and Switch		
Driver Support		Linux 2.4 / 2.6, SCO OpenServer 5.06 / 5.07, Windows 2000 / XP (32-64bit) / 2003 (32-64bit) / Vista (32bit) , DOS		
Regulatory Approvals		CE, FCC class B		
Environment	**Operation Temperature**	0°C to 70°C		
	Operation Humidity	5% to 95%RH		
	Storage Temperature	- 40°C to 85°C		
Connection Cable		DB44 Male to DB9/DB25 Male (2/4/8 ports) 40/100cm		
Dimensions		63.5 x 120 mm (Low Profile & Standard)		63.5 x 120 mm (Standard)
WARRANTY		5 years		

Serial Interface		RS-422/485		
Model		**IPC-P2002SI**	**IPC-P2004SI**	**IPC-P2008SI**
Product				
Description		Industrial 2-port RS-422/485 PCI Serial Card with Surge & Isolation	Industrial 4-port RS-422/485 PCI Serial Card with Surge & Isolation	Industrial 8-port RS-422/485 PCI Serial Card with Surge & Isolation
Serial Communication	**Interface**	PCI Ver 3.0 / 2.3 / 2.2		
	No. of Port	2 ports	4 ports	8 ports
	Max No. of System	Unlimited (only limitation is availability of PCI slots on the system)		
	BUS	64/32bit 3.3V/5V PCI and PCI-X 33 MHz / 66 MHz		
	Connector Type	DB44 Female		
	IRQ	Assigned by System		
	IO Address	Assigned by System		
	FIFO	64byte (Hardware), 16C750 Compatible		
	Signal	RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+, TxD-, RxD+, RxD-, GND 2 Wire RS-485: Data+, Data-, GND		
	Baud rate	75bps to 921.6Kbps		
	Data bit	5,6,7,8		
	Stop bit	1,1.5,2		
	Parity	None, Even, Odd, Space, Mark		
	Flow Control	XON/XOFF(Software)		
	ESD Protection	Embedded 15KV ESD Protection		
	Surge Protection	Circuit Damage Protection of 600W Peak Per IEC 61000-4-5		
	Isolation	2.5 KV Isolation Protection for all signal and power		
	RS-485 Directional	SUNIX AHDC/CS™ Technology		
	Select RS-422/485	RS-422/485 Auto Detect and Switch		
Driver Support		Linux 2.4 / 2.6, SCO OpenServer 5.06 / 5.07, Windows 2000 / XP (32-64bit) / 2003 (32-64bit) / Vista (32bit) , DOS		
Regulatory Approvals		CE, FCC class B		
Environment	**Operation Temperature**	0°C to 70°C		
	Operation Humidity	5% to 95%RH		
	Storage Temperature	- 40°C to 85°C		
Connection Cable		DB44 Male to DB9/DB25 Male (2/4/8 ports) 40/100cm		
Dimensions		63.5 x 120mm (Low Profile & Standard)		103.5 x 125 mm(Standard)
WARRANTY		5 years		

Universal PCI Cards

Serial Interface		RS-232/422/485	
Model		**IPC-P3004**	**IPC-P3008**
Product			
Description		Industrial 4-port RS-232/422/485 (3 in 1) PCI Serial Card	Industrial 8-port RS-232/422/485 (3 in 1) PCI Serial Card
Serial Communication	**Interface**	PCI Ver 3.0 / 2.3 / 2.2	
	No. of Port	4 ports	8 ports
	Max No. of System	Unlimited (only limitation is availability of PCI slots on the system)	
	BUS	64/32bit 3.3V/5V PCI and PCI-X 33 MHz / 66 MHz	
	Connector Type	DB44 Female	Mini SCSI 68pin
	IRQ	Assigned by System	
	IO Address	Assigned by System	
	FIFO	64byte (Hardware), 16C750 Compatible	
	Signal	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+, TxD-, RxD+, RxD-, GND 2 Wire RS-485: Data+, Data-, GND	
	Baud rate	75bps to 921.6Kbps	
	Data bit	5,6,7,8	
	Stop bit	1,1.5,2	
	Parity	None, Even,Odd, Space,Mark	
	Flow Control	XON/XOFF(Software)	
	ESD Protection	Embedded 15KV ESD Protection	
	RS-485 Directional	SUNIX AHDC/CS™ Technology	
	Select RS-422/485	RS-422/485 Auto Detect and Switch	
Driver Support		Linux 2.4 / 2.6, SCO OpenServer 5.06 / 5.07, Windows 2000 / XP (32-64bit) / 2003 (32-64bit) / Vista (32bit) , DOS	
Regulatory Approvals		CE, FCC class B	
Environment	**Operation Temperature**	0°C to 70°C	
	Operation Humidity	5% to 95%RH	
	Storage Temperature	- 40°C to 85°C	
Connection Cable		DB44 Male to DB9/DB25 Male (4 ports) 40/100cm	Mini SCSI 68pin to DB9 Male (8 ports) 40/100cm
Dimensions		63.5 x 120 mm (Low Profile & Standard)	
WARRANTY		5 years	

PCI Express Cards

Serial Interface		RS-422/485	
Model		**IPC-E2002**	**IPC-E2004**
Product			
Description		Industrial 2-port RS-422/485 PCI-Express Serial Card	Industrial 4-port RS-422/485 PCI-Express Serial Card
Serial Communication	**Interface**	PCI Express Bus Spec. Revision 1.0a	
	No. of Port	2 ports	4 ports
	Max No. of System	Unlimited (only limitation is availability of PCI-E slots on the system)	
	BUS	1-Lane PCI Express	
	Connector Type	DB44 Female	
	IRQ	Assigned by System	
	IO Address	Assigned by System	
	FIFO	64byte (Hardware), 16C750 Compatible	
	Signal	RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+, TxD-, RxD+, RxD-, GND 2 Wire RS-485: Data+, Data-, GND	
	Baud rate	75bps to 921.6Kbps	
	Data bit	5,6,7,8	
	Stop bit	1,1.5,2	
	Parity	None, Even, Odd, Space, Mark	
	Flow Control	XON/XOFF(Software)	
	ESD Protection	Embedded 15KV ESD Protection	
	RS-485 Directional	SUNIX AHDC/CS™ Technology	
	Select RS-422/485	RS-422/485 Auto Detect and Switch	
Driver Support		Linux 2.4 / 2.6, SCO OpenServer 5.06 / 5.07, Windows 2000 / XP (32-64bit) / 2003 (32-64bit) / Vista (32bit) , DOS	
Regulatory Approvals		CE, FCC class B	
Environment	**Operation Temperature**	0°C to 70°C	
	Operation Humidity	5% to 95%RH	
	Storage Temperature	- 40°C to 85°C	
Connection Cable		DB44 Male to DB9/DB25 Male (2/4 ports) 40/100cm	
Dimensions		64 x 90 mm (Low Profile & Standard)	64 x 105 mm (Low Profile & Standard)
WARRANTY		5 years	

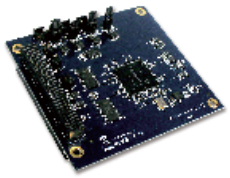
PCI Express Cards

Serial Interface		RS-422/485		
Model		**IPC-E2002SI**	**IPC-E2004SI**	**IPC-E2008SI**
Product				
Description		Industrial 2-port RS-422/485 PCI-Express Serial Card with Surge & Isolation	Industrial 4-port RS-422/485 PCI-Express Serial Card with Surge & Isolation	Industrial 8-port RS-422/485 PCI-Express Serial Card with Surge & Isolation
Serial Communication	**Interface**	PCI Express Bus Spec. Revision 1.0a		
	No. of Port	2 ports	4 ports	8 ports
	Max No. of System	Unlimited (only limitation is availability of PCI-E slots on the system)		
	BUS	1-Lane PCI Express		
	Connector Type	DB44 Female		
	IRQ	Assigned by System		
	IO Address	Assigned by System		
	FIFO	64byte, 16C750 Compatible		
	Signal	RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+, TxD-, RxD+, RxD-, GND 2 Wire RS-485: Data+, Data-, GND		
	Baud rate	75bps to 921.6Kbps		
	Data bit	5,6,7,8		
	Stop bit	1,1.5,2		
	Parity	None, Even,Odd, Space,Mark		
	Flow Control	XON/XOFF(Software)		
	ESD Protection	Embedded 15KV ESD Protection		
	Surge Protection	Circuit Damage Protection of 600W Peak Per IEC 61000-4-5		
	Isolation	2.5 KV Isolation Protection for all signal and power		
	RS-485 Direction	SUNIX AHDC/CS™ Technology		
	Select RS-422/485	RS-422/485 Auto Detect and Switch		
Driver Support		Linux 2.4 / 2.6, SCO OpenServer 5.06 / 5.07, Windows 2000 / XP (32-64bit) / 2003 (32-64bit) / Vista (32bit) , DOS		
Regulatory Approvals		CE, FCC class B		
Environment	**Operation Temperature**	0°C to 70°C		
	Operation Humidity	5% to 95%RH		
	Storage Temperature	- 40°C to 85°C		
Connection Cable		DB44 Male to DB9/DB25 Male (2/4/8 ports) 40/100cm		
Dimensions		68.5 x 110 mm (Low Profile & Standard)	68.5 x 123 mm (Low Profile & Standard)	95.5 x 119.62 mm (Standard)
WARRANTY		5 years		

PCI Express Cards

Serial Interface		RS-232/422/485
Model		IPC-E3004
Product		
Description		Industrial 4-port RS-232/422/485 (3-in-1) PCI-E Serial Card
Serial Communication	Interface	PCI Express Bus Spec. Revision 1.0a
	No. of Port	4 ports
	Max No. of System	Unlimited (only limitation is availability of PCI-E slots on the system)
	BUS	1-Lane PCI Express Bus
	Connector Type	DB44 Female
	IRQ	Assigned by System
	IO Address	Assigned by System
	FIFO	64byte (Hardware), 16C750 Compatible
	Signal	RS-232: TxD,RxD,RTS,CTS,DTR,DSR,DCD,GND RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+, TxD-, RxD+, RxD-, GND 2 Wire RS-485: Data+, Data-, GND
	Baud rate	75bps to 921.6Kbps
	Data bit	5,6,7,8
	Stop bit	1,1.5,2
	Parity	None, Even, Odd, Space, Mark
	Flow Control	RTS/CTS(Hardware) XON/XOFF(Software)
	ESD Protection	Embedded 15KV ESD Protection
	RS-485 Direction	SUNIX AHDC/CS™ Technology
	Select RS-422/485	RS-422/485 Auto Detect and Switch
Driver Support		Linux 2.4 / 2.6, SCO OpenServer 5.06 / 5.07, Windows 2000 / XP (32-64bit) / 2003 (32-64bit) / Vista (32bit) , DOS
Regulatory Approvals		CE, FCC class B
Environment	Operation Temperature	0°C to 70°C
	Operation Humidity	5% to 95%RH
	Storage Temperature	- 40°C to 85°C
Connection Cable		DB44 Male to DB9/DB25 Male (2/4 ports) 40/100cm
Dimensions		68.5 x 110 mm (Low Profile & Standard)
WARRANTY		5 years

PCI / 104 Cards

Serial Interface		RS-422/485	
Model		**IPC-B2002**	**IPC-B2004**
Product			
Description		Industrial 2-port RS-422/485 PCI / 104 Card	Industrial 4-port RS-422/485 PCI / 104 Card
Serial Communication	**Interface**	PCI / 104	
	No. of Port	2 ports	4 ports
	Max No. of System	4 pcs	
	BUS	32-bit PCI / 104	
	Connector Type	Pin Header	
	IRQ	Assigned by System	
	IO Address	Assigned by System	
	FIFO	64byte (Hardware), 16C750 Compatible	
	Signal	RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+, TxD-, RxD+, RxD-, GND 2 Wire RS-485: Data+, Data-, GND	
	Baud rate	75bps to 921.6Kbps	
	Data bit	5,6,7,8	
	Stop bit	1,1.5,2	
	Parity	None, Even, Odd, Space, Mark	
	Flow Control	XON/XOFF (Software)	
	ESD Protection	Embedded 15KV ESD Protection	
	RS-485 Directional	SUNIX AHDC/CS™ Technology	
	Select RS-422/485	RS-422/485 Auto Detect and Switch	
Driver Support		Linux 2.4 / 2.6, SCO Open Server 5.06 / 5.07, Windows 2000 / XP (32-64bit) / 2003 (32-64bit) / Vista (32bit) , DOS	
Regulatory Approvals		CE, FCC class B	
Environment	**Operation Temperature**	0 °C to 70 °C	
	Operation Humidity	5 % to 95 % RH	
	Storage Temperature	- 40 °C to 85 °C	
Connection Cable		5 x 2 Pin Header to DB9 Male (30cm)	
Dimensions		90.17 x 95.89 mm	
WARRANTY		5 years	

PCI / 104 Cards

Serial Interface		RS-422/485	
Model		**IPC-B2002SI**	**IPC-B2004SI**
Product			
Description		Industrial 2-port RS-422/485 PCI / 104 Card with Surge & Isolation	Industrial 4-port RS-422/485 PCI / 104 Card with Surge & Isolation
Serial Communication	Interface	PCI / 104	
	No. of Port	2 ports	4 ports
	Max No. of System	4 pcs	
	BUS	32-bit PCI / 104	
	Connector Type	Pin Header	
	IRQ	Assigned by System	
	IO Address	Assigned by System	
	FIFO	64byte (Hardware), 16C750 Compatible	
	Signal	RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+, TxD-, RxD+, RxD-, GND 2 Wire RS-485: Data+, Data-, GND	
	Baud rate	75bps to 921.6Kbps	
	Data bit	5, 6, 7, 8	
	Stop bit	1,1.5, 2	
	Parity	None, Even, Odd, Space, Mark	
	Flow Control	XON/XOFF (Software)	
	ESD Protection	Embedded 15KV ESD Protection	
	Surge Protection	Circuit Damage Protection of 600W Peak Per IEC 61000-4-5	
	Isolation	2.5 KV Isolation Protection for all signal and power	
	RS-485 Directional	SUNIX AHDC/CS™ Technology	
	Select RS-422/485	RS-422/485 Auto Detect and Switch	
Driver Support		Linux 2.4 / 2.6, SCO OpenServer 5.06 / 5.07, Windows 2000 / XP (32-64bit) / 2003 (32-64bit) / Vista (32bit) , DOS	
Regulatory Approvals		CE, FCC class B	
Environment	Operation Temperature	0 °C to 70 °C	
	Operation Humidity	5 % to 95 % RH	
	Storage Temperature	- 40 °C to 85 °C	
Connection Cable		5 x 2 Pin Header to DB9 Male (30cm)	
Dimensions		90.17 x 95.89 mm (W x D)	
WARRANTY		5 years	

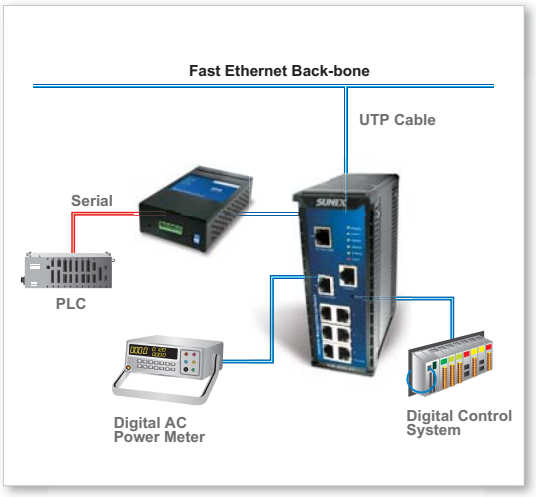
Industrial Ethernet Switches

- Managed Ethernet Switches Introduction & Features
- Gigabit Managed Redundant Ethernet Switches
- Managed Redundant Ethernet Switches
- Lite-Managed Redundant Ethernet Switches
- Unmanaged Ethernet Switches

Ethernet Switches *The Extending Management*

Introduction

Recently, Ethernet is being employed on a wider basis in factory automation, it is imperative that Ethernet deliver these same characteristics. Industrial Ethernet switches were designed for environments that are not favorable to commercial switches. This can include environments with temperature extremes, high vibration and severe electrical noise.



SUNIX has listened to the market and has responded by introducing its latest generation of Industrial Ethernet infrastructure products. SUNIX Ethernet Switches (ESW Series) are designed focus on Ethernet deployment in automation applications and specially developed for industrial Ethernet applications with all concerns for industrial environments taken into consideration. The advanced management features, ELITE-Ring™ (communication redundancy technology), easy configuration and robust mechanical form factors enable quick Ethernet installation for factory, transportation, building and utility automation applications. Redundant power inputs and relay output alarm provide the possibility to build an on-site alarm system. SUNIX switches are ideal for any application where performance demands are highest, environments are harsh and operations are nonstop.

To meet the variety of performance & application requirements, SUNIX offer three major categories of Switches. Feel free to consult with SUNIX to get the best possible solution to suit your application needs.

- **SNMP Managed Ethernet Switches**
- **Lite-Managed Ethernet Switches**
- **Un-managed Switches**

SUNIX Tech Forum

Deterministic Ethernet

The most important requirement in Industrial applications is that the network should be deterministic, which means resilient to any hardware and software failovers. SUNIX switches are designed and made for 24/7 continuous operations with absolute resilience. With RSTP, ELITE Ring, Ring Coupling, and Dual Homing technology, the switches will automatically select an alternative route to transmit the data within 10ms if the original route has been blocked and notify the administrator simultaneously.
Most importantly, the security of your data is never at any risk. Furthermore, ESW series always remains operational from the disturbance of vibration, impact of shock, and environment of hazardous temperature (-10 ºC ~70 ºC). SUNIX enables you to build up a network that is stable, secured and deterministic.

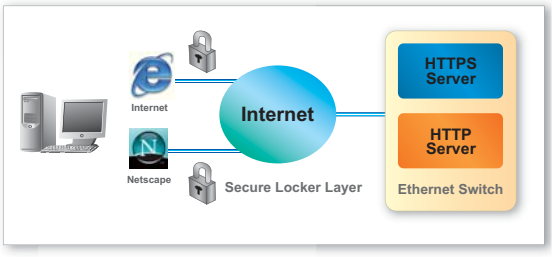
Management SUNIX Commander PRO (Windows Utility)

SUNIX managed switches come with the convenient Windows based utility. It can configure multiple devices at the same time, which give an upper hand to other management tools, such as WEB, CLI, and SNMP. This utility can not only discover the switches connected in the LAN but can managed them same time via group IP settings, group firmware upgrade, group configuration backup/restore.

Auto-Topology map is the unique feature that outclassed the competition. This feature provides you instant network map on your screen with all the basic switch details. An alarming event can also be noticed on the map by color change and blinking.

Secured Web Access

SUNIX managed switches can be managed via web interface. To provide maximum security of the web access, we implement HTTPS (Hypertext Transfer Protocol over Secure Socket Layer) and SSH (Secure Shell). HTTPS protocol is built into browser that encrypts and decrypts user page requests as well as the pages that are returned by the web server. SUNIX also supports SSH console. The SSH connection can secure all the configuration commands you sent to the switches. SSH is a client/server architecture in which Switch is the SSH server. PC must install SSH client first to perform management functions



Command Line Interface (CLI)

The Command Line Interface (CLI) is most famous among the network administrators specially having background from Telecommunication networks. The user interface to the switch's embedded software system. A CLI is used whenever a large vocabulary of commands or queries, coupled with a wide (or arbitrary) range of options, can be entered more rapidly as text than with a pure GUI. CLI is also beneficial to people with visual disability, since the commands and feedbacks can be displayed using Refreshable Braille displays.

Fiber Optics for Bandwidth, Distance Extension And Total Immunity

Implementing fiber optics to Switches allows not only distance extension but for harsh environments it provides total immunity against EMI/RFI interferences and enhanced security along with higher communication bandwidth. Thus device server with fiber optics can be used without risk in hazardous environments with no EMC emission, no ground loops, and immunity against lightening and high voltage. To enhance the communication solution, deployment of fiber optic is best choice.
Fiber optics also provides dedicated bandwidth solution without any variation thus enhancing the network performance. Now you can extend your networks without limitation, just use the fiber ports of the Switch and no place is out of reach.

Communication Redundancy

Always active network is critical for industrial applications. RSTP & STP are the standard functions to provide resilience to corporate or commercial network, but when we talk about mission critical and/or industrial networks, these two standards merely come near to the requirements. Industrial networks required the technology that can secured their every bit of data over the network. Equipment providers keep developing technologies to meet the requirements. SUNIX leads the way by offering the shortest recover time (less than 10ms) in case of any node failure. SUNIX engineers achieved this remarkable target to display their grip and understanding of the technology, and commitment for exceeding the customer's requirement.

SUNIX ELITE-Ring meets up the fastest failover time in the world, less than 10 milliseconds in a ring topology.

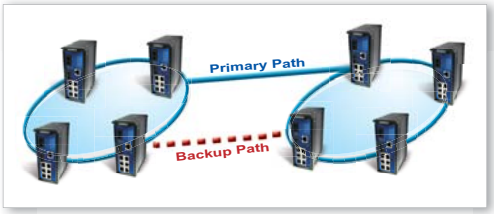
SUNIX Managed switches are equipped with ELITE-Ring™ feature, which provides Industrial Networks with high-speed communication redundancy. ELITE-Ring employs a ring structure of either copper or fiber optic cable or combination of both. Ring Coupling and Dual Homing are additional features that enhanced the network reliability.

ELITE-RING™

Redundancy is always a primary consideration for developing secure and reliable industrial networks. SUNIX Managed Switches are equipped with ELITE-Ring™ feature which provides Industrial Networks with high-speed communication redundancy. A network of up to 300 switches can recover in less than 10ms. ELITE-Ring™ employs a ring structure of either copper or fiber optic cable or combination of both by using two ports of each switch in a ring network.

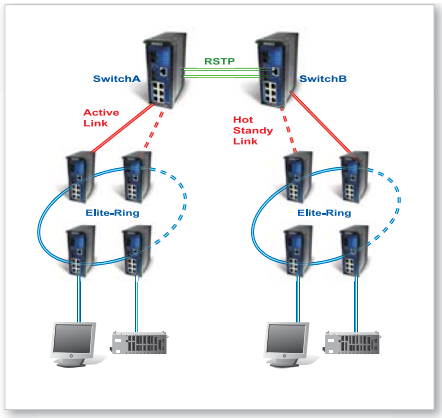
RING COUPLING

It may not be convenient to connect all devices in the system as a big redundant ring within a network since some devices could be located in a remote area. The ring coupling function of ELITE-Ring can separate distributed devices into separate smaller redundant rings.



DUAL HOMING

In LANs, dual-homing is a network topology that adds an additional reliability by allowing a device to be connected to the network by way of two independent connection points (points of attachment). One access point is the primary operating connection, and the other is a standby or back-up connection that is activated in the event of a failure of the operating connection.



A dual-homing switch, with two attachments into the network, offers two independent media paths and two upstream switch connections. Loss of the Link signal on the operating port connected upstream indicates a fault in that path, and traffic is quickly moved to the standby connection to accomplish a fault recovery.

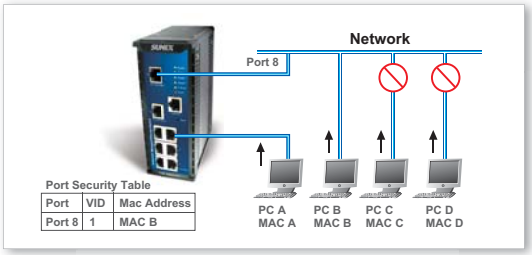
- **RECOVERY TIME BASE-ON SWITCH A/B RSTP RECOVERY TIME**
- **UNINTERRUPTED DATA-FLOW**
- **PERMANENT LINK CONNECTIVITY**
- **USER FRIENDLY INTERFACE WITH SIMPLE CONFIGURATION**

Port Trunking

Port Trunking allows users to group multiple Ethernet ports to increase the linking bandwidth. The aggregated ports can be treated as one physical port so that the bandwidth is higher than the individual single Ethernet ports. The member ports of the same trunk group ban balance the loading and backup for each other. This feature is usually used when higher bandwidth is needed for the backbone network. SUNIX Managed switches meet the IEEE802.3ad standard, which means compatible to work with non-industrial backbone core switches.

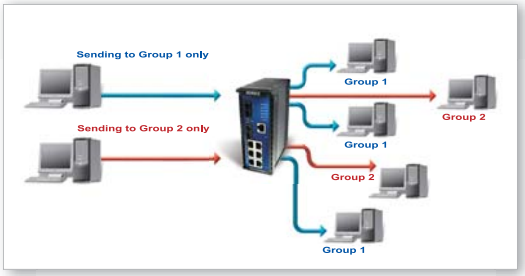
Port Security

To enhance the security to access the switch's management, port security feature provided in the managed switches. It is also known as Port and MAC binding. The users can permit specific MAC address(es) to the specific port(s) by add the MAC and Port binding entry/entries to the port security table. Once activated, only PC with the available MAC address can access the network through the switch. The PCs with other MAC address will be denied for any access.



IGMP Snooping

With IGMP snooping, multicast traffic of a group is only forwarded to ports that have members of that group. IGMP Snooping generates no additional network traffic, allowing you to significantly reduce multicast traffic passing through your switch.



VLAN

Support Interoperable IEEE Standard - 802.1Q and GVRP, thus keep consistent VLAN group cross switch.

1. Open IEEE802.1Q protocol
2. Open trunk link
3. Setup access link

QoS / ToS

The primary goal of QoS is to provide traffic priority including dedicated bandwidth, controlled jitter and latency (required by some real-time and interactive traffic), and improved loss characteristics.

Port Mirroring

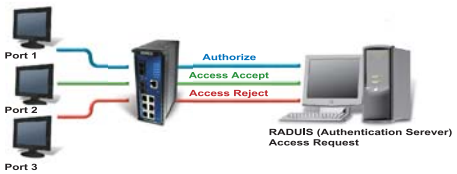
It allows you to monitor traffic on your network by copying traffic from monitored ports to the mirror port.

Port Trunking

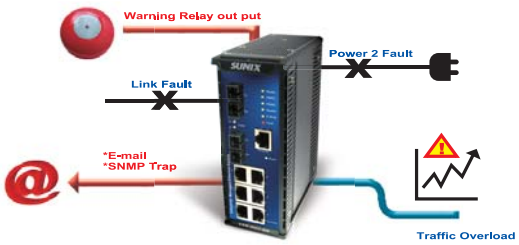
Port Trunking is a method which specifies how to create a single high-speed logical link that combines several low-speed physical links.

RADIUS

RADIUS is the authentication, authorization, and accounting protocol that per-port configuration to control user use network resource enhanced the security for an unauthorized access.



Warning by E-mail and Relay Output



Warning by Email

Switch Event	Port Event
Cold Start	Link-on
Power Transition (on.....off)	Link-off
ELite Ring Staus Changed	
Authentication Failure	

Warning by Relay Output

Switch Event	Port Event
Power Failure	Port Link Down/Brolen

Gigabit Managed Ethernet Switches

Model		ESW-5162-GP	ESW-5242-GP
Product			
Description		Industrial 16-port 10/100Base-TX + 2-port Gigabit Combo Managed Switch	Industrial 24-port 10/100Base-TX + 2-port Gigabit Combo Managed Switch
Interface	Total Ports	18 ports	26 ports
	10/100 RJ45 Ports	16 ports	24 ports
	10/100/100 RJ45 Ports	2 ports	2 ports
	1000SX/LX Ports	2-port	2-port
Communication	Standards	IEEE802.3, IEEE802.3u, IEEE802.3z, IEEE802.3ab, IEEE802.3ad, IEEE802.3x, IEEE802.1d, IEEE802.1w, IEEE802.1p, IEEE802.1Q, IEEE802.1x	
	Transmission Speed	10/100/1000 Mbps	
	Transmission Distance	RJ45 up to 100m; Fiber from 2km to 80km	
Network Control & Management	Diagnostics	Alarm Relay Output, Alarm LED, E-mail Warning, Port mirroring, SNMP Traps	
	Configuration	Web browser, Telnet, Serial Console, SNMP, SUNIX Commander Pro (Windows utility)	
	Redundancy	SUNIX's ELITE-Ring with recovery time less than 10ms, STP and RSTP	
	VLAN	IEEE802.1Q Tagged VLAN and Port based VLAN	
	Security	IP Security, MAC based Security, RADIUS Server	
	Traffic Control	Rate Limiting, Port Lock, IP address, DHCP, TFTP, SNTP, QoS/ToS	
	Device Management	Broadcast Storm Protection and Port break Alarm	
Power	Redundancy	Dual Power Inputs (Terminal Block & DC Jack type)	
	Connectors	6-pin Removable Terminal Block + DC Jack	
	Inputs	12~48VDC (24VDC)	
	Consumption	18 Watts Maximum	
Protection	ESD	4000VDC (Ethernet Ports)	
	Surge	2000VDC (Power)	
	Reverse Power	Present	
Mechanical	Dimensions	280 x 44 x 440 mm (D x W x H)	
	Enclosure	IP30 Aluminium	
	Mounting	Rackmount (2U)	
Environment	Operating Temperature	0° to 70°C	
	Operating Humidity	5% to 95%RH	
	Storage Temperature	-10° to 85°C	
Certifications	Safety	UL60950, UL508, CAN/CSA-C22.2 No.60950	
	Hazardous Location	UL/cUL Class1, Div 2	
	EMC	FCC Part 15, CISPR (EN55022) Class A, CE	
	Shock	IEC60068-2-27	
	Free-fall / Vibration	IEC60068-2-32 / IEC60068-2-6	
WARRANTY		5 Years	

Note: Please check the availability for fiber transceiver for different long-haul distances.

Gigabit Managed Redundant

Model		ESW-8082-GT Series	ESW-8082-GP Series
Product			
Description		Industrial 8 ports 10/100Base-T(X) + 2 ports 10/100/1000Base-T(X) Ethernet Switch	Industrial 8 ports 10/100Base-T(X) + 2 ports 1000Base-SX / LX (SFP Type) Ethernet Switch
Total ports		10 ports	10 ports
Interface	10/100Base T(X)	8 ports	8 ports
	10/100/1000Base T(X)	2 ports	–
	1000Base FX	–	2 ports
Alarm Contact		1 Configurable Relay Outputs	
Cable Length	Multi-mode	–	50 / 125 μm: Standard 2 km
	Single-mode	–	9 / 125 μm: Standard 30 km
Network Control & Management	Standards	IEEE802.3, IEEE802.3ad, IEEE802.3u, IEEE802.3x, IEEE802.1p, IEEE802.1Q, IEEE802.1W	
	Redundancy	SUNIX's ELite Ring with recovery time less than 10ms, STP and RSTP	
	VLAN	IEEE802.1Q Tagged VLAN and Port based VLAN	
	SNMP	V1 / V2c / V3	
	IGMP Snooping	IGMP V1 /V2 / V3	
	RMON	RMON Group 1, 2, 3, 9	
	Security	IP Security, MAC based Security, RADIUS Server	
	Traffic Control	Rate Limiting, Port Lock, QoS/ToS	
	Configuration	Web browser, Telnet, Serial Console, SNMP, and Windows Utility	
	Diagnostics	Alarm Relay Output, Alarm LED, E-mail Warning, Port mirroring, SNMP Traps	
	Device Management	Broadcast Storm Protection and Port break Alarm	
Power	Redundancy	Dual Power Inputs	
	Connectors	7-pin Removable Terminal Block + DC Jack	
	Inputs	12~48VDC (24VDC)	
	Consumption	9 Watts Max	
Protection	ESD	4000VDC (Ethernet Ports)	
	Surge	2000VDC (Power)	
	Reverse Power	Present	
Mechanical	Dimensions	56.5 x 110 x 150 mm (D x W x H)	
	Enclosure	IP30 Aluminium	
	Mounting	DIN Rail and Wall Mountable	
Environment	Operation Temperature	Standard 0°C to 60°C / Extend -40°C to 80°C	
	Operation Humidity	5% to 95%RH	
	Storage Temperature	- 40°C to 85°C	
Certifications	Safety	UL60950, CAN/CSA-C22.2 No.60950	
	Hazardous Location	UL/cUL Class1, Div 2	
	EMC	FCC Part 15, CISPR (EN55022) Class A, CE	
	Shock	IEC60068-2-27	
	Free-fall / Vibration	IEC60068-2-32 / IEC60068-2-6	
WARRANTY		5 years	

Note : Please check the availability for fiber transceiver for different long-haul distances.

Model		ESW-8062-GM Series	ESW-8062-GS Series	ESW-8062-GT Series
Product				
Description		Industrial 6 ports 10/100Base-T(X) + 2 ports 1000Base-SX (Multi-Mode) Ethernet Switch	Industrial 6 ports 10/100Base-T(X) + 2 ports 1000Base-LX (Single Mode) Ethernet Switch	Industrial 6 ports 10/100Base-T(X) + 2 ports 10/100/1000Base-T(X) Ethernet Switch
Total ports		8 ports	8 ports	8 ports
Interface	10/100Base T(X)	6 ports	6 ports	6 ports
	10/100/1000Base T(X)	—	—	2 ports
	1000Base FX	2 ports	2 ports	—
Alarm Contact		1 Configurable Relay Outputs		
Cable Length	Multi-mode	50 / 125 μm: Standard 2 km	—	—
	Single-mode		9 / 125 μm: Standard 30 km	—
Network Control & Management	Standards	IEEE802.3, IEEE802.3ad, IEEE802.3u, IEEE802.3x, IEEE802.1p, IEEE802.1Q, IEEE802.1W		
	Redundancy	SUNIX's ELite Ring with recovery time less than 10ms, STP and RSTP		
	VLAN	IEEE802.1Q Tagged VLAN and Port based VLAN		
	SNMP	V1 / V2c / V3		
	IGMP Snooping	IGMP V1 /V2 / V3		
	RMON	RMON Group 1, 2, 3, 9		
	Security	IP Security, MAC based Security, RADIUS Server		
	Traffic Control	Rate Limiting, Port Lock, QoS/ToS		
	Configuration	Web browser, Telnet, Serial Console, SNMP, and Windows Utility		
	Diagnostics	Alarm Relay Output, Alarm LED, E-mail Warning, Port mirroring, SNMP Traps		
	Device Management	Broadcast Storm Protection and Port break Alarm		
Power	Redundancy	Dual Power Inputs		
	Connectors	7-pin Removable Terminal Block + DC Jack		
	Inputs	12~48VDC (24VDC)		
	Consumption	9 Watts Max		
Protection	ESD	4000VDC (Ethernet Ports)		
	Surge	2000VDC (Power)		
	Reverse Power	Present		
Mechanical	Dimensions	56.5 x 110 x 150 mm (D x W x H)		
	Enclosure	IP30 Aluminium		
	Mounting	DIN Rail and Wall Mountable		
Environment	Operation Temperature	Standard 0°C to 60°C / Extend -40°C to 80°C		
	Operation Humidity	5% to 95%RH		
	Storage Temperature	- 40°C to 85°C		
Certifications	Safety	UL60950, CAN/CSA-C22.2 No.60950		
	Hazardous Location	UL/cUL Class1, Div 2		
	EMC	FCC Part 15, CISPR (EN55022) Class A, CE		
	Shock	IEC60068-2-27		
	Free-fall / Vibration	IEC60068-2-32 / IEC60068-2-6		
WARRANTY		5 years		

Note : Please contact our sales team for fiber connector types (ST, SC), and various distance options availability for single mode fiber.

Managed Redundant

Model		ESW-8062-TX Series	ESW-8062-MM Series	ESW-8062-SS Series
Product				
Description		Industrial 8 ports 10/100Base-T(X) Ethernet Switch	Industrial 6 ports 10/100Base-T(X) + 2 ports 100Base-SX (Multi-Mode) Ethernet Switch	Industrial 6 ports 10/100Base-T(X) + 2 ports 100Base-LX (Single Mode) Ethernet Switch
Total ports		8 ports	8 ports	8 ports
Interface	10/100Base T(X)	8 ports	6 ports	6 ports
	100Base FX		2 ports	2 ports
Alarm Contact		1 Configurable Relay Outputs		–
Cable Length	Multi-mode	–	50 / 125 μm: Standard 2 km	
	Single-mode	–	–	9 / 125 μm: Standard 30 km
Network Control & Management	Standards	IEEE802.3, IEEE802.3ad, IEEE802.3u, IEEE802.3x, IEEE802.1p, IEEE802.1Q, IEEE802.1W		
	Redundancy	SUNIX's ELITE-Ring with recovery time less than 10ms, STP and RSTP		
	VLAN	IEEE802.1Q Tagged VLAN and Port based VLAN		
	SNMP	V1 / V2c / V3		
	IGMP Snooping	IGMP V1 /V2 / V3		
	RMON	RMON Group 1, 2, 3, 9		
	Security	IP Security, MAC based Security, RADIUS Server		
	Traffic Control	Rate Limiting, Port Lock, QoS/ToS		
	Configuration	Web browser, Telnet, Serial Console, SNMP, and Windows Utility,		
	Diagnostics	Alarm Relay Output, Alarm LED, E-mail Warning, Port mirroring, SNMP Traps		
	Device Management	Broadcast Storm Protection and Port break Alarm		
Power	Redundancy	Dual Power Inputs		
	Connectors	7-pin Removable Terminal Block + DC Jack		
	Inputs	12~48VDC (24VDC)		
	Consumption	9 Watts Max		
Protection	ESD	4000VDC (Ethernet Ports)		
	Surge	2000VDC (Power)		
	Reverse Power	Present		
Mechanical	Dimensions	56.5 x 110 x 150 mm (D x W x H)		
	Enclosure	IP30 Aluminium		
	Mounting	DIN Rail and Wall Mountable		
Environment	Operation Temperature	Standard 0°C to 60°C / Extend -40°C to 80°C		
	Operation Humidity	5% to 95%RH		
	Storage Temperature	- 40°C to 85°C		
Certifications	Safety	UL60950, CAN/CSA-C22.2 No.60950		
	Hazardous Location	UL/cUL Class1, Div 2		
	EMC	FCC Part 15, CISPR (EN55022) Class A, CE		
	Shock	IEC60068-2-27		
	Free-fall / Vibration	IEC60068-2-32 / IEC60068-2-6		
WARRANTY		5 years		

Note : Please contact our sales team for fiber connector types (ST, SC), and various distance options availability for single mode fiber.

Lite-Managed Ethernet Switches

Model		ESW-2050	ESW-2060
product			
Description		Industrial 5 ports 10/100Base-T(X) Lite-Managed Switch	Industrial 6 ports 10/100Base-T(X) Lite-Managed Switch
Interface	Total Ports	5 ports	6 ports
	10/100 RJ45 Ports	5 ports	6 ports
Communication	Standards	IEEE802.3, IEEE802.3u, IEEE802.3w, IEEE802.3x, IEEE802.1Q	
	Transmission Speed	up to 100Mbps	
	Transmission Distance	100m	
Network Control	Diagnostics	Alarm LED, E-mail Warning, System Log	Alarm Relay Output, Alarm LED, E-mail Warning, System Log
	Configuration	Web browser, SUNIX Commander Pro (Windows utility)	
	Redundancy	SUNIX's ELITE Ring™ with recovery time less than 10ms, STP and RSTP	
	VLAN	Port-based VLAN	
	Security	IP Security, MAC based Security	
	Device Management	None	
Power	Redundancy	Dual Power Inputs (Terminal Block & DC Jack type)	
	Connectors	3-pin Removable Terminal Block + DC Jack	7-pin Removable Terminal Block + DC Jack
	Inputs	9~30VDC (24VDC)	12~48VDC (24VDC)
	Consumption	7.5 Watts Maximum	
Protection	ESD	4000VDC (Ethernet Ports)	
	Surge	2000VDC (Power)	
	Reverse Power	Present	
Mechanical	Dimensions	25 x 64 x 102 mm (D x W x H)	106 x 52 x 144 mm (D x W x H)
	Enclosure	IP30 Aluminium	
	Mounting	DIN Rail and Wall Mountable	
Environment	Operating Temperature	-40°C to 70°C	
	Operating Humidity	5% to 95%RH	
	Storage Temperature	-40°C to 85°C	
Certifications	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge) Level 3, EN61000-4-3 (CS) Level 3	
	EMC	FCC Part 15, CISPR (EN55022) Class A	
	Shock	IEC60068-2-27	
	Freefall / Vibration	IEC60068-2-32 / IEC60068-2-6	
WARANTY		5 Years	

Note : ST and SC Type of fiber connectors are available.
Please check the availability for fiber transceiver for different long-haul distances

Lite-Managed Ethernet Switches

Model		ESW-2042MM	ESW-2042SS	ESW-2080
product				
Description		Industrial 4 ports 10/100Base-T(X) + 2 ports 100Base-FX (Multi Mode) Lite-Managed Switch	Industrial 4 ports 10/100Base-T(X) + 2 ports 100Base-FX (Single Mode) Lite-Managed Switch	Industrial 8 ports 10/100Base-T(X) Lite-Managed Switch
Interface	Total Ports	6 ports		8 ports
	10/100 RJ45 Ports	4 ports	4 ports	8 ports
	100FX Ports	2 ports (ST/SC)	2 ports (ST/SC)	–
Communication	Standards	IEEE802.3, IEEE802.3u, IEEE802.3w, IEEE802.3x, IEEE802.1Q		
	Transmission Speed	up to 100Mbps		
	Transmission Distance	RJ-45 = 100m; Fiber = 2km	RJ-45 = 100m; Fiber = 30km	100m, Fiber: up to 120km
Network Control	Diagnostics	Alarm Relay Output, Alarm LED, E-mail Warning, System Log		
	Configuration	Web browser, SUNIX Commander Pro (Windows utility)		
	Redundancy	SUNIX's ELite Ring with recovery time less than 10ms, STP and RSTP		
	VLAN	Port-based VLAN		
	Security	IP Security, MAC based Security		
	Device Management	–		Broadcast Storm Protection and Port break Alarm
Power	Redundancy	Dual Power Inputs (Terminal Block & DC Jack type)		
	Connectors	7-pin Removable Terminal Block + DC Jack		
	Inputs	12~48VDC (24VDC)		
	Consumption	7.5 Watts Maximum		
Protection	ESD	4000VDC (Ethernet Ports)		
	Surge	2000VDC (Power)		
	Reverse Power	Present		
Mechanical	Dimensions	25 x 64 x 102 mm (D x W x H)	106 x 52 x 144 mm (D x W x H)	
	Enclosure	IP30 Aluminium		
	Mounting	DIN Rail and Wall Mountable		
Environment	Operating Temperature	-40°C to 70°C		
	Operating Humidity	5% to 95%RH		
	Storage Temperature	-40°C to 85°C		
Certifications	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge) Level 3, EN61000-4-3 (CS) Level 3		
	EMC	FCC Part 15, CISPR (EN55022) Class A		
	Shock	IEC60068-2-27		
	Freefall / Vibration	IEC60068-2-32 / IEC60068-2-6		
WARANTY		5 Years		

Note : ST and SC Type of fiber connectors are available. Please check the availability for fiber transceiver for different long-haul distances

Unmanaged Ethernet Switches

Model		ESW-1050 Series	ESW-1041 Series	ESW-1080 Series	ESW-1062 Series
Product					
Description		Industrial 5 ports 10/100Base-T(X) Ethernet Switch	Industrial 4 ports 10/100Base-T(X) + 1 port 100Base-FX Ethernet Switch	Industrial 8 ports 10/100Base-T(X) Ethernet Switch	Industrial 6 ports 10/100Base-T(X) + 2 ports 100Base-FX Ethernet Switch
Total ports		5 ports	5 ports	8 ports	8 ports
Interface	10/100Base T(X), RJ45 ports	5 ports	4 ports	8 ports	6 ports
	100Base FX	–	1 port : Standard SC	–	2 ports : Standard SC
Alarm Contact		–		1 Configurable Relay Outputs	
Cable Length	Multi-mode	–	50 / 125 μm : Standard 2 km	–	50 / 125 μm : Standard 2 km
	Single-mode	–	9 / 125 μm : Standard 30 km	–	9 / 125 μm : Standard 30 km
Power	Redundancy	Dual Power Inputs			
	Connectors	Removable Terminal Block + DC Jack			
	Inputs	12~48VDC (24VDC)			
	Consumption	12V / 1A (12W)			
Protection	ESD	4000VDC			
	Surge	2000VDC (Power)			
	Reverse Power	Present			
Mechanical	Dimensions	30 x 68.5 x 105 mm (W x D x H)			
	Enclosure	IP30 Aluminium			
	Mounting	DIN Rail and Wall Mountable			
Environment	Operation Temperature	Standard 0°C to 60°C / Extend - 40°C to 80°C			
	Operation Humidity	5% to 95%RH			
	Storage Temperature	- 40°C to 85°C			
Certifications	Safety	UL60950, CAN/CSA-C22.2 No.60950			
	Hazardous Location	UL/cUL Class1, Div 2			
	EMC	FCC Part 15, CISPR (EN55022) Class A, CE			
	Shock	IEC60068-2-27			
	Free-fall / Vibration	IEC60068-2-32 / IEC60068-2-6			
WARRANTY		5 years			

Note : Please contact our sales team for fiber connector types (ST, SC). and various distance options availability for single mode fiber.

Industrial Device Servers

- IDS Introduction & Features
- Industrial Device Servers
- Industrial Device Server with PoE (Power over Ethernet) Function

IDS *Industrial Device Servers*

Introduction

SUNIX Serial over Ethernet Device Servers, IDS series, are designed to easily network your current RS-232/422/485 serial devices. It provides a convenient and economical solution not only to protect your current hardware investment, but also to ensure future network expandability. With IDS, you can centralize serial device and distribute the management hosts at the same time.

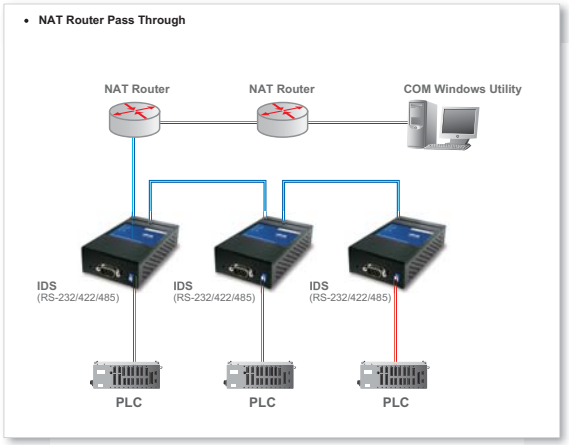
There are three types of Industrial Device Server for selection to match your application needs, including 4/2/1-port IDS. They provide a quick, simple and cost-effective way to allow you to access, manage, and configure remote facilities and equipment over the internet from anywhere in the world. The dual Ethernet ports provide networking redundancy.

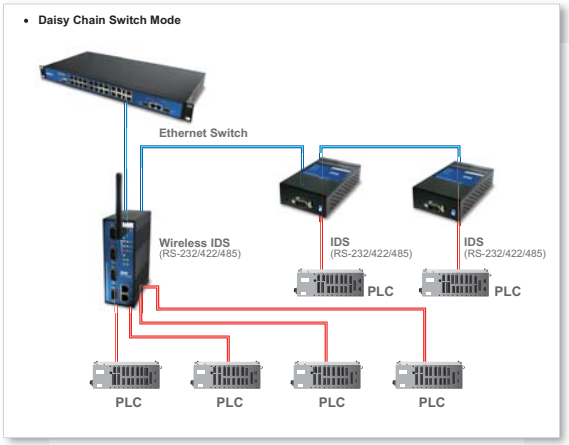
IDS Series serial device server can manage any type of serial devices such as card readers, measurement devices, or data acquisition terminals through serial consoles. IDS series device server eliminates the limitation of single host and transmission distance of traditional serial communications by creating access for multiple hosts over Ethernet. The compact size and various mounting options further create installation flexibility

Features

- **Support Ethernet redundancy and recovery time < 10ms**
- **Virtual COM driver for Windows NT/2000/XP/2003/VISTA , TTY for Linux**
- **IDS Tool, Windows utility for auto discovery, multiple device setting and monitoring**
- **NAT-pass through: User can manage IDS through NAT router**
- **Versatile serial operation options: Virtual Com, Serial tunnel, TCP server, TCP client, and UDP**
- **Switch Mode, daisy chain, support to reduce usage of switch ports**
- **Provides extreme security features WEP / WPA / WPA2 / 802.1X / Radius / TKIP highly**
- **Fixed TTY driver for Linux**
- **Event Warning by Syslog, Email, SNMP trap, Relay and Beeper**
- **Redundant Power Inputs: 12~48VDC**

Application



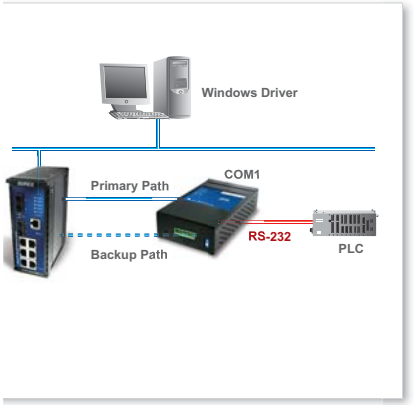


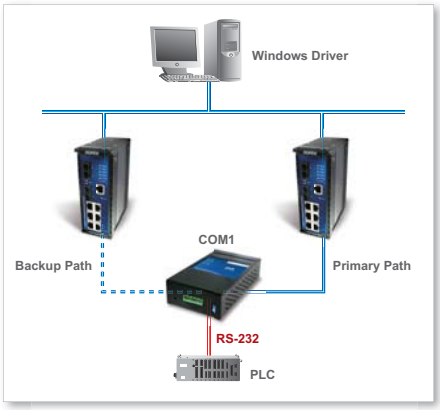
SUNIX Tech Forum

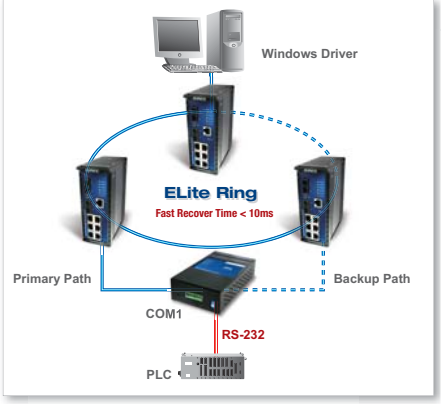
Redundancy

Network redundancy is the "KEY" for any system which protects your network that is highly integrated and a failure in the link can result in disastrous consequences. Even a few seconds interruption in industrial communication can result in thousands of dollars lost. This "KEY" opens the door of reliability and safety of the network. IDS series device servers offer this "KEY" function to increase the communication reliability via dual Ethernet redundant ports. When the primary path is down, the back up will recover the Ethernet connection within **10ms.**

IDS provides a device end redundant link solution by connecting two Ethernet ports to the same switch with two separate uplinks or two switches with different links.







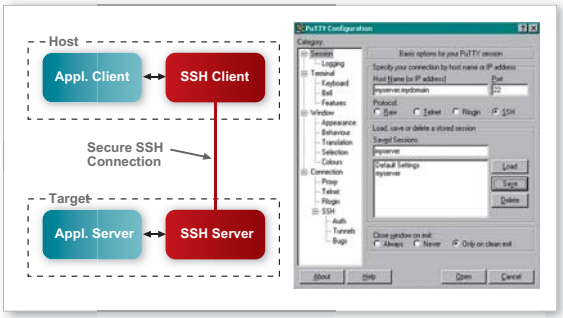
Network Security

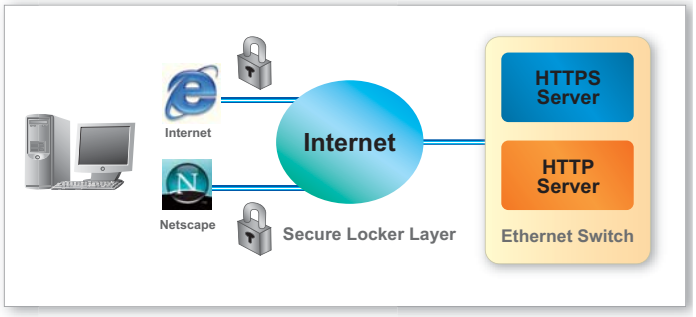
Protection of networks and their services from unauthorized modification, destruction, or disclosure, and provision of assurance that the network performs its critical functions correctly and there are no harmful side-effects. Network security includes providing for data integrity. There are couple of methods that provide maximum security to a network, such as SSL, SSH, WEP / WPA / WPA2 / 802.1X / Radius / TKIP.

HTTPS (Hypertext Transfer Protocol over Secure Socket Layer or HTTP over SSL) is a Web protocol built into browser that encrypts and decrypts user's page requests as well as the pages that are returned by the Web server. It is a security protocol that provides communication privacy over the Internet. By adapting HTTPS technology, encrypted data packets can be transmitted safely between the IDS and PC web browser, preventing unauthorized access.

The SSH technology enables users to securely login to remote host computers; it uses a client/server architecture to provide secure communications between two non-trusted ends.

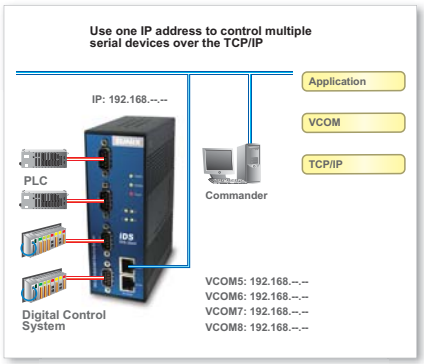
A SSH server can accepts or rejects incoming connection attempts from local client sides via a secure authentication mechanism with data encryption.

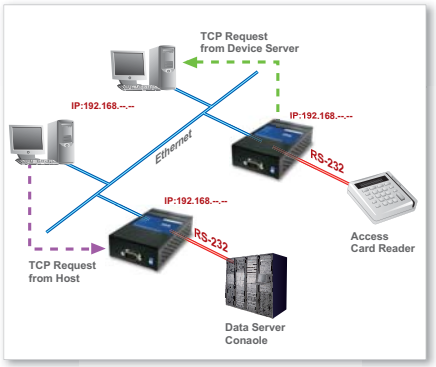




Up to 5 Simultaneous Connections

IDS series provides up to five simultaneous Virtual COM, TCP Server, TCP Client, TCP Tunnel and UDP connections. All the services are developed over the TCP/IP protocol stacks. You can easily connect to the serial devices over Ethernet and plan your serial to Ethernet applications.





Fiber Optics for Bandwidth, Distance Extension And Total Immunity

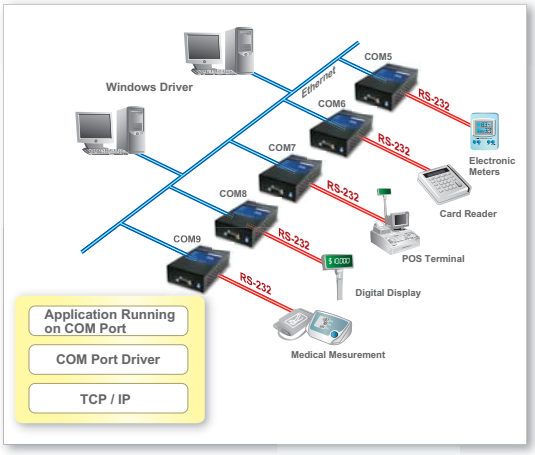
Implementing fiber optics to LAN allows not only distance extension but for harsh environments it provides total immunity against EMI/RFI interferences and enhanced security along with higher communication bandwidth. Thus device server with fiber optics can be used without risk in hazardous environments with no EMC emission, no ground loops, and immunity against lightening and high voltage. To enhance the communication solution, deployment of fiber optic is best choice.

Windows Virtual COM

After installing IDS Tools Windows utility, the serial port on the IDS can be accessed by the Windows as the virtual COM port. Users do not have to modify the existing program to upgrade the latency serial communications into serial over IP application.

Ease to Configure Different Mode at Each Port

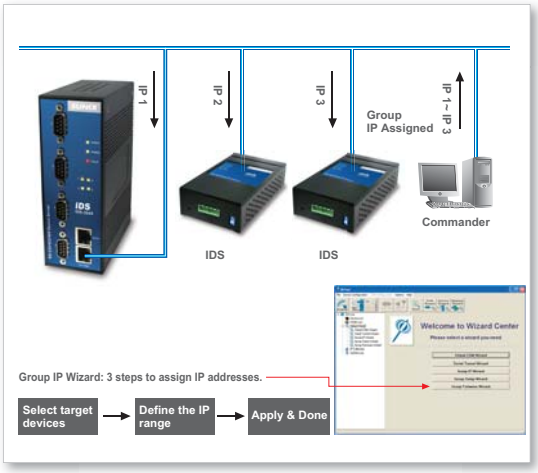
There are models of IDS series with four serial ports, and all of the serial ports can be configured with different serial interface type, such as RS-232, RS-422, 2-wire RS-485, or 4-wire RS-485. Not only this but each of the port can also be configured with different service modes, e.g. Virtual COM mode, TCP server, Client or UDP mode. All serials ports have independent settings and can work smoothly simultaneously.



Easy-to-Use Windows Utility and Smart Wizards

IDS Tool is known for its abundant features, user-friendly interface and smart setup wizards. The group setup wizard includes Virtual COM Wizard, Group Setup Wizard, Group Firmware Wizard, Serial Tunnel Wizard and Group IP Wizard.

- **Virtual COM Wizard: Three steps to configure all Virtual Com ports**
- **Group Setup Wizard: Copy specific configurations from one to other devices**
- **Group Firmware Wizard: Group update firmware to multiple device(s)**
- **Serial Tunnel Wizard: Couple devices to serial tunnels**
- **Group IP Wizard: Configure IP to multiple device(s)**



TCP / UDP Socket

You can also use TCP/UDP socket programs to control IDS serial port. IDS can be configured as TCP Server, to listen to TCP connection request, or as TCP Client, to actively request TCP connection to send data, or as UDP mode for multiple destination transmission.

Flexible Installation

IDS series have flexible mechanical design that helps users to install them either on DIN Rail or wall. It provides more convenience to users to fit the product according to their application requirements.

Industrial Device Server

Model		IDS-1011	IDS-2011	IDS-3010 (M/S)
Product				
Description		1-port RS-232 to 1-port 10/100TX LAN Device Server	1-port RS-422/485 to 1-port 10/100TX LAN Device Server	1-port RS-232/422/485 to 1-port 100FX (FIBER) LAN Device Server
Serial Communication	Number & Port Types	1 x RS-232	1 x RS-422/485	1 x RS-232/422/485
	Connector	DB9 M	5-pin terminal block	DB9 M
	Speed	110bps ~ 460.8Kbps		
	Serial Parameters	Data Bits: 5,6,7,8 Parity: odd, even, none, mark, space Stop Bits: 1, 1.5, 2		
	Flow Control	XON/XOFF, RTS/CTS, DTR/DSR		
	RS-232 Signals	TxD,RxD,RTS,CTS,DTR, DSR, DCD, RI, GND	—	TxD,RxD,RTS,CTS,DTR, DSR, DCD, RI, GND
	RS-422 Signals	—	TxD+, TxD-, RxD+, RxD-, GND	
	RS-485 (4-wire) Signals	—	TxD+, TxD-, RxD+, RxD-, GND	
	RS-485 (2-wire) Signals	—	Data+, Data-, GND	
	ESD	15KV Protection		
	Isolation	—		
LAN	10/100M Ports	1 x RJ-45 10/100Mbps (auto-negotiation)		
	100FX Fiber	—		Single / Multi Mode
	Protection	1.5KV Magnetic Isolation		
Software	Operation Mode	Virtual COM, TCP Server, TCP Client, UDP, Serial Tunnel		
	Protocols	ICMP, IP, TCP, UDP, DHCP, BootP, ARP / RARP, DNS, SNMP MIB II, HTTPS, SSL, SSH		
	COM Drivers	Windows NT / 2000 / XP / 2003 / Vista TTY Drivers For Linux		
	Configuration	Web Console, Serial Console, IDS Utility for Windows		
	Event Warning	Syslog, E-mail, SNMP trap, Beeper		
Power	Redundancy	Dual Power Inputs (Terminal Block & DC Jack type)		
	Connectors	3-pin Removable Terminal Block + DC Jack		
	Protection	Reverse		
	Consumption	7 Watts maximum		
	Input	12~48 VDC (12VDC)		
	Alarm Contact	—		
Certifications	EMI	FCC Part 15, CISPR (EN55022) Class A		
	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge) Level 3, EN61000-4-6 (CS) Level 3		
	Shock	IEC60068-2-27		
	Freefall	IEC60068-2-32		
	Vibration	IEC60068-2-6		
Environment	Operating Temperature	-10°C to 55°C		
	Operating Humidity	5% ~ 95%RH		
	Storage Temperature	-20°C ~ 85°C		
Mechanical	Dimensions	72 x 31 x 125 mm (W x D x H) (without connectors)		
	Enclosure	Metal (IP30 protection)		
	Mounting	DIN Rail and Wall Mount		
WARRANTY		5 years		

Note : All models are supplied without power adaptor

Model		IDS-3011	IDS-3012	IDS-3042
Product				
Description		1-port RS-232 to 1-port 10/100TX LAN Device Server	1-port RS-422/485 to 1-port 10/100TX LAN Device Server	1-port RS-232/422/485 to 1-port 100FX (FIBER) LAN Device Server
Serial Communication	Number & Port Types	1 x RS-232/422/485	1 x RS-232/422/485	4 x RS-232/422/485
	Connector	DB9 M	DB9 M	DB9 M
	Speed	110bps ~ 460.8Kbps		
	Serial Parameters	Data Bits: 5,6,7,8 Parity: odd, even, none, mark, space Stop Bits: 1, 1.5, 2		
	Flow Control	XON/XOFF, RTS/CTS, DTR/DSR		
	RS-232 Signals	TxD,RxD,RTS,CTS,DTR, DSR, DCD, RI, GND		
	RS-422 Signals	TxD+, TxD-, RxD+, RxD-, GND		
	RS-485 (4-wire) Signals	TxD+, TxD-, RxD+, RxD-, GND		
	RS-485 (2-wire) Signals	Data+, Data-, GND		
	ESD	15KV Protection		
LAN	10/100M Ports	1 x RJ-45	2 x RJ-45 10/100Mbps (auto-negotiation)	
	Redundancy	—	10ms (Redundant Dual LAN Ports)	
	Protection	1.5KV Magnetic Isolation		
Software	Operation Mode	Virtual COM, TCP Server, TCP Client, UDP, Serial Tunnel		
	Protocols	ICMP, IP, TCP, UDP, DHCP, BootP, ARP / RARP, DNS, SNMP MIB II, HTTPS, SSL, SSH		
	COM Drivers	Windows NT / 2000 / XP / 2003 / Vista TTY Drivers For Linux		
	Configuration	Web Console, Serial Console, IDS Utility for Windows		
	Event Warning	Syslog, E-mail, SNMP trap, Beeper		Syslog, E-mail, SNMP trap, Beeper, Relay
Power	Redundancy	Dual Power Inputs (Terminal Block & DC Jack type)		
	Connectors	3-pin Removable Terminal Block + DC Jack		6-pin Removable Terminal Block
	Protection	Reverse		
	Consumption	7 Watts maximum		
	Input	12~48 VDC (12VDC)		
	Alarm Contact	—		1 x Configurable Relay Output
Certifications	EMI	FCC Part 15, CISPR (EN55022) Class A		
	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge) Level 3, EN61000-4-6 (CS) Level 3		
	Shock	IEC60068-2-27		
	Freefall	IEC60068-2-32		
	Vibration	IEC60068-2-6		
Environment	Operating Temperature	-10°C to 55°C		
	Operating Humidity	5% ~ 95%RH		
	Storage Temperature	-20°C ~ 85°C		
Mechanical	Dimensions	72 x 31 x 125 mm (W x D x H) (without connectors)		52 x 106 x 144 mm (Wx DxH) (without connectors)
	Enclosure	Metal (IP30 protection)		
	Mounting	DIN Rail and Wall Mount		
WARRANTY		5 years		

Note : All models are supplied without power adaptor

Industrial Device Server With POE (Power Over Ethernet) Function

Model		IDS-2042P-I	IDS-3042P
Product			
Description		4-port RS-422/485 with 2.5KV Isolation to 2-port 10/100TX LAN Redundant PoE (PD in ETH2) Device Server	4-port RS-232/422/485 to 2-port 10/100TX LAN Redundant PoE (PD in ETH2) Device Server
Serial Communication	Number & Port Types	4 x RS-422/485	4 x RS-232/422/485
	Connector	5-pin terminal block	DB9 M
	Speed	110bps ~ 460.8Kbps	
	Serial Parameters	Data Bits: 5,6,7,8 Parity: odd, even, none, mark, space Stop Bits: 1, 1.5, 2	
	Flow Control	XON/XOFF, RTS/CTS, DTR/DSR	
	RS-232 Signals	—	TxD,RxD,RTS,CTS,DTR, DSR, DCD, RI, GND
	RS-422 Signals	TxD+, TxD-, RxD+, RxD-, GND	
	RS-485 (4-wire) Signals	TxD+, TxD-, RxD+, RxD-, GND	
	RS-485 (2-wire) Signals	Data+, Data-, GND	
	ESD	15KV Protection	
	Isolation	2.5KV	
LAN	10/100M Ports	2 x RJ45 10/100Mbps (auto-negotiation)	
	Redundancy	10ms (Redundant Dual LAN Ports)	
	Protection	1.5KV Magnetic Isolation	
Power Over Ethernet	PoE Port	ETH 2	
	Standard	IEEE802.3af compliant PD	
	Power Consumption	8 Watts maximum	
	Protection	Overload & Short Circuit	
	Isolation Voltage	1000 VDC min	
	Isolation Resistance	100000000 ohms min	
Software	Operation Mode	Virtual COM, TCP Server, TCP Client, UDP, Serial Tunnel	
	Protocols	ICMP, IP, TCP, UDP, DHCP, BootP, ARP / RARP, DNS, SNMP MIB II, HTTPS, SSL, SSH	
	COM Drivers	Windows NT / 2000 / XP / 2003 / Vista TTY Drivers For Linux	
	Configuration	Web Console, Serial Console, IDS Utility for Windows	
	Event Warning	Syslog, E-mail, SNMP trap, Beeper, Relay	
Power	Redundancy	Dual Power Inputs (Terminal Block)	
	Connectors	6-pin Removable Terminal Block	
	Protection	Reverse	
	Consumption	7 Watts maximum	
	Input	12~48 VDC (12VDC)	
	Alarm Contact	1 x Configurable Relay Output	
Certifications	EMI	FCC Part 15, CISPR (EN55022) Class A	
	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge) Level 3, EN61000-4-6 (CS) Level 3	
	Shock	IEC60068-2-27	
	Free-fall	IEC60068-2-32	
	Vibration	IEC60068-2-6	
Environment	Operating Temperature	-10°C to 55°C	
	Operating Humidity	5% ~ 95%RH	
	Storage Temperature	-20°C ~ 85°C	
Mechanical	Dimensions	52 x 106 x 144 mm (Wx DxH) (without connectors)	
	Enclosure	Metal (IP30 protection)	
	Mounting	DIN Rail and Wall Mount	
WARRANTY		5 years	

Note : All models are supplied without power adaptor

Wireless Solutions

- Wireless Introduction & Features
- Industrial Wireless Device Servers
- Wireless AP Introduction & Features
- Industrial Wireless LAN Access Point

Wireless Solutions

Introduction

The latest development in industrial device networking is the adoption of wireless technology for industrial applications. This is a very exciting development with potentially enormous benefits for system integrators and end users. Most industrial plants that deploy wireless are very satisfied with their first applications, and want to add more wireless throughout the plant. Ensuring performance, security, and reliability for many wireless applications can be complex, however. Industrial wireless application networks can provide ready access to reliable information about critical plant operations and physical assets from disparate applications, systems, and devices. Whether you are generating power, refining petroleum, processing chemicals, or manufacturing any other type of product, SUNIX can give you the confidence you need to choose wireless.

Why?

The convenience of being able to connect devices without the use of wires has led to the unprecedented success of wireless technologies in the consumer markets. Based on this success, applications using the same technologies are beginning to appear in various other settings as well, including in industrial environments. Wireless technologies offer a number of key benefits to businesses, including mobility, flexibility, wider coverage, and cost savings.

In a factory area, stationary systems can be connected over a wireless network to mobile subsystems or robots to achieve a connectivity that would otherwise be impossible. Furthermore, wireless technology can make it much easier and simpler to gain temporary access to plant machinery for diagnostic or programming purposes.

Standards

A wireless local area network (WLAN) is a LAN that does not rely on cables. WLANS provide robust wireless network connectivity for associated clients up to 100 meters away from the access point.Today's WLANs are based on IEEE 802.11 standards and are referred to as Wi-Fi networks. The 802.11b standard, which operates in the 2.4 GHz frequency band at 11 Mbps, was the first commercially successful WLAN technology. As wireless technology matured, a higher transmission rate of 54 Mbps was achieved with 802.11g, which operates in the 2.4 Ghz band, and 802.11a, which operates in the 5 Ghz frequency band. Today, it is common for dual-band Wi-Fi access points and client network adapters to support various combinations of 802.11a, b, and g.

Every application has its own, unique requirements, but certain considerations are common across most wireless applications, like transmission range, data rate, reliability, and security. WLAN technology is ideal for applications where a network infrastructure is already in place, and is typically used when wireless Ethernet/Internet access is required at high data transfer speeds. A new WLAN installation requires careful study and tuning to achieve the desired benefits. In general, use WLAN technology when you need higher bandwidth, you have access to a nearby network infrastructure, and you need a high degree of control and customization.

	IEEE 802.11b	IEEE 802.11g	EEE 802.11a
Bandwidth	11Mbps	54Mbps	54Mbps
Frequency	2,4GHz	2.4GHz	5GHz
Distance	300m (outdoor) 45m (indoor)	300m (outdoor) 45m (indoor)	Limited range 20m (indoor)
Spread Spectrum	DSSS	OFDM	OFDM
Deployment	Highest Market Share	Becoming mainstream	Not much deployment

AD-HOC Mode

Ad-hoc mode is comprised of WLAN-capable devices that are able to automatically locate and communicate with each other. Ad-hoc mode does not require an access point and is therefore the cheapest method of setting up a wireless network.

Ad-hoc mode is fast and easy to set up. It is an acceptable method for establishing a temporary, short-range wireless network.

Infrastructure Mode

Logically, an infrastructure network is the wireless equivalent of the Ethernet hub. A fundamental aspect of infrastructure mode is that wireless clients cannot talk directly to each other; they must communicate through the network behind the access point.

Most WLAN applications use infrastructure mode, where wireless clients only communicate with an access point that is connected to a network backbone. The clients use this access point to gain access to the network behind it.

Security

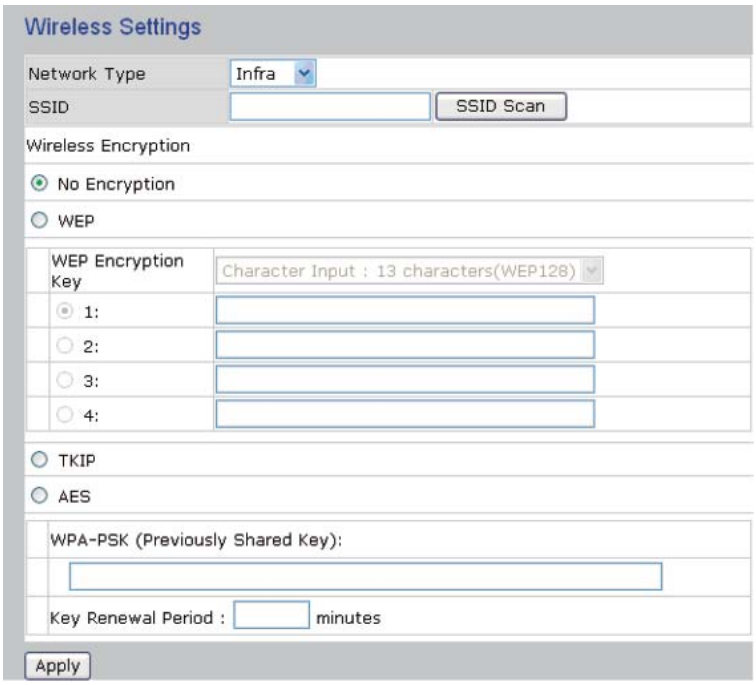
A compatible wireless card can receive wireless data transmissions from your WLAN well beyond your walls. Operating an unsecured WLAN network creates an opportunity for outsiders to eavesdrop on your network traffic or to enter your network to access your computers and files. For this reason, security is a critical matter for WLAN installations.

There are two main forms of security that require attention for WLANs:

Authentication: Wireless stations that attempt to connect to the network should be verified as authorized users before access is granted.

Encryption: Data exchanged between the access point and wireless station should be encrypted to protect against interception and eavesdropping.

Typically, both authentication and encryption methods are combined in what is commonly called a security profile.



The following four methods are currently available for WLAN security: WEP, WPA, WPA2, and 802.1x.

WEP

Wired Equivalent Privacy (WEP) provides a basic level of security to prevent unauthorized access to the network and protect wireless data. Static shared keys (fixed length alphanumeric strings) are used to encrypt data and are manually distributed to all wireless stations that want to use the wireless network.
WEP has been found to be seriously flawed and is not recommended for a high level of network security. For more robust wireless security, most access points support Wi-Fi Protected Access (WPA or WPA2) for improved data encryption and user authentication.

WPA

Wi-Fi Protected Access (WPA) is a stronger security method that was created in response to the flaws discovered in WEP. It was intended as an intermediate measure until further 802.11i security measures were developed.
When implemented with authentication methods such as RADIUS and VPN, WPA is considered secure enough for all but the most sensitive enterprise applications. For most home and small business use, an effective level of security can be obtained by using WPA with a pre-shared key (PSK) that is shared by all users.

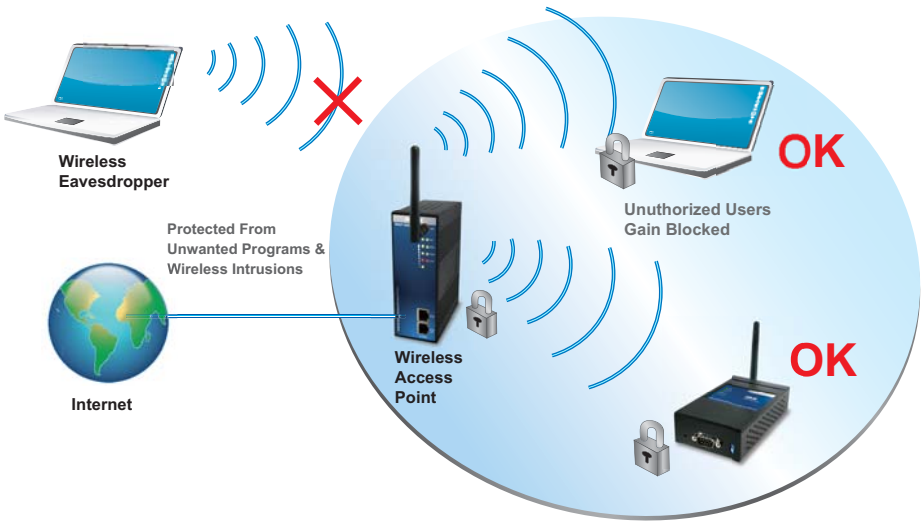
WPA2

WPA2 is the second generation of WPA. The primary difference between WPA and WPA2 is the technology used for data encryption. WPA uses Temporal Key Integrity Protocol (TKIP) for data encryption, while WPA2 uses Advanced Encryption Standard (AES), a stronger encryption technology suitable for industries that require highly secure networks.

802.1X

802.1X is an authentication method that prevents unauthorized users from entering the network. It is used with WPA to form a complete WLAN security system.

On many wireless systems, users either log into individual access points, or can freely enter the wireless network but cannot get further without additional authentication. 802.1X makes users authenticate to the wireless network itself, not to an individual AP, and not to some other level like VPN. This is more secure, as unauthorized traffic can be denied right at the AP.



Industrial Wireless Device Servers

Model Name		IDS-1011W	IDS-2011W	IDS-3011W
Product				
Description		1-port RS-232 to 802.11 b/g WLAN & 1-port 10/100TX LAN Device Server	1-port RS-422/485 to 802.11 b/g WLAN & 1-port 10/100TX LAN Device Server	1-port RS-232/422/485 to 802.11 b/g WLAN & 1-port 10/100TX LAN Device Server
Serial Communication	Number & Port Types	1 x RS-232	1 x RS-422/485	1 x RS-232/422/485
	Connector	DB9 M	5-pin terminal block	DB9 M
	Speed	110bps ~ 460.8Kbps		
	Serial Parameters	Data Bits: 5,6,7,8 Parity: odd, even, none, mark, space Stop Bits: 1, 1.5, 2		
	Flow Control	XON/XOFF, RTS/CTS, DTR/DSR		
	RS-232 Signals	TxD,RxD,RTS,CTS,DTR, DSR, DCD, RI, GND	—	TxD,RxD,RTS,CTS,DTR, DSR, DCD, RI, GND
	RS-422 Signals	—	TxD+, TxD-, RxD+, RxD-, GND	
	RS-485 (4-wire) Signals	—	TxD+, TxD-, RxD+, RxD-, GND	
	RS-485 (2-wire) Signals	—	Data+, Data-, GND	
	ESD	15KV Protection		
LAN	10/100M Ports	1 x RJ-45 10/100Mbps (auto-negotiation)		
	Protection	1.5KV Magnetic Isolation		1.5KV Magnetic Isolation
Wireless	Modulation	802.11b:CCK,DQPSK, DBPSAK, 801.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM		
	Radio Frequency	DSSS		
	Antenna Connector	Reverse SMA		
	Frequency Band	America/FCC: 2.412~2.462 GHz (11 channels) Europe CE/ETSI: 2.412~2.472 GHz (13 channels)		
	Transmission Rate	802.11b – 11Mbps / 802.11g – 54Mbps		
	Transmission Power	16dBm		
	Receiver Sensitivity	-81dBm @ 11Mbps, PER < 8% -64dBm @ 54Mbps, PER < 10%		
	Wireless Security	SSID Broadcast disable		
	Encryption Security	WEP 64/128 bit; WPA, WPA2, 802.11i (Pre-shared Key (PSK) mode; 802.1X; TKIP		
	Network Mode	Client Mode		
Software	Operation Mode	Virtual COM, TCP Server, TCP Client, UDP, Serial Tunnel		
	Protocols	ICMP, IP, TCP, UDP, DHCP, BootP, ARP / RARP, DNS, SNMP MIB II, HTTPS, SSL, SSH		
	COM Drivers	Windows NT / 2000 / XP / 2003 / Vista TTY Drivers for Linux		
	Configuration	Web Console, Serial Console, IDS Utility for Windows		
	Event Warning	Syslog, E-mail, SNMP trap,Beeper		
Power	Redundancy	Dual Power Inputs (Terminal Block & DC Jack type)		
	Connectors	3-pin Removable Terminal Block + DC Jack		
	Protection	Reverse		
	Consumption	7 Watts maximum		
	Input	12~48 VDC (12VDC)		
	Alarm Contact	—		
Certifications	EMI	FCC Part 15, CISPR (EN55022) Class A		
	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge) Level 3, EN61000-4-6 (CS) Level 3		
	Shock	IEC60068-2-27		
	Freefall	IEC60068-2-32		
	Vibration	IEC60068-2-6		
Environment	Operating Temperature	-10°C to 55°C		
	Operating Humidity	5% ~ 95%RH		
	Storage Temperature	-20°C ~ 85°C		
Mechanical	Dimensions	72 x 31 x 125 mm (W x D x H) (without connectors)		
	Enclosure	Metal (IP30 protection)		
	Mounting	DIN Rail and Wall Mount		
WARRANTY		5 years		

Note : All models are supplied without power adaptor

Industrial Wireless Device Servers

Model Name		DS-2042W-I	DS-3042W
Product			
Description		4-port RS-422/485 with 2KV Isolation to 802.11 b/g WLAN & 2-port 10/100TX LAN Device Server	4-port RS-232/422/485 to 802.11 b/g WLAN & 2-port 10/100TX LAN Device Server
Serial Communication	Number & Port Types	4 x RS-422/485	4 x RS-232/422/485
	Connector	5-pin terminal block	DB9 M
	Speed	110bps ~ 460.8Kbps	—
	Serial Parameters	Data Bits: 5,6,7,8 Parity: odd, even, none, mark, space Stop Bits: 1, 1.5, 2	
	Flow Control	XON/XOFF, RTS/CTS, DTR/DSR	
	RS-422 Signals	TxD+, TxD-, RxD+, RxD-, GN	
	RS-485 (4-wire) Signals	TxD+, TxD-, RxD+, RxD-, GN	
	RS-485 (2-wire) Signals	Data+, Data-, GND	
	ESD	15KV Protection	
	Isolation	2.5KV (optional)	
LAN	10/100M Ports	2 x RJ-45 10/100Mbps (auto-negotiation)	
	Redundancy	10ms (Redundant Dual LAN Ports)	
	Protection	802.11b:CCK,DQPSK, DBPSAK, 801.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM	
Wireless	Modulation	DSSS	
	Radio Frequency	Reverse SMA	
	Antenna Connector	America/FCC: 2.412~2.462 GHz (11 channels)	
	Frequency Band	Europe CE/ETSI: 2.412~2.472 GHz (13 channels)	
	Transmission Rate	802.11b – 11Mbps / 802.11g – 54Mbps	
	Transmission Power	16dBm	
	Receiver Sensitivity	-81dBm @ 11Mbps, PER < 8% -64dBm @ 54Mbps, PER < 10%	
	Wireless Security	SSID Broadcast disable	
	Encryption Security	WEP 64/128 bit; WPA, WPA2, 802.11i (Pre-shared Key (PSK) mode; 802.1X; TKIP	
	Network Mode	Client Mode	
Software	Operation Mode	Virtual COM, TCP Server, TCP Client, UDP, Serial Tunnel	
	Protocols	ICMP, IP, TCP, UDP, DHCP, BootP, ARP / RARP, DNS, SNMP MIB II, HTTPS, SSL, SSH	
	COM Drivers	Windows NT / 2000 / XP / 2003 / Vista TTY Drivers for Linux	
	Configuration	Web Console, Serial Console, IDS Utility for Windows	
	Event Warning	Syslog, E-mail, SNMP trap, Relay, Beeper	
Power	Redundancy	Dual Power Inputs (Terminal Block & DC Jack type)	
	Connectors	6-pin Removable Terminal Block	
	Protection	Reverse	
	Consumption	7 Watts maximum	
	Input	12~48 VDC (12VDC)	
	Alarm Contact	1 x Configurable Relay Output	
Certifications	EMI	FCC Part 15, CISPR (EN55022) Class A	
	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge) Level 3, EN61000-4-6 (CS) Level 3	
	Shock	IEC60068-2-27	
	Freefall	IEC60068-2-32	
	Vibration	IEC60068-2-6	
Environment	Operating Temperature	-10°C to 55°C	
	Operating Humidity	5% ~ 95%RH	
	Storage Temperature	-20°C ~ 85°C	
Mechanical	Dimensions	52 x 106 x 144 mm (Wx DxH) (without connectors)	
	Enclosure	Metal (IP30 protection)	
	Mounting	DIN Rail and Wall Mount	
WARRANTY		5 years	

Note : All models are supplied without power adaptor

Wireless AP

Introduction

SUNIX Wireless Access Point is a reliable IEEE802.11b/g WLAN with 2-port LAN Access Point. It can be configured to operate in AP/Bridge/Repeater mode. Users are able to configure Wireless Access Point by Windows Utility or WEB interface via LAN port or WLAN interface. The wireless LAN solution with up to 54Mbps data transfer rate gives an easy way to connect hard-to-wire serial devices.

SUNIX Wireless Access Point also provides dual Ethernet ports in switch mode, so that users can use Daisy Chain to reduce the usage of Ethernet switch ports. In addition, SUNIX Wireless Access Point offers PoE (PD) feature on ETH2 which is fully compliant with IEEE802.3af specifications. Therefore, SUNIX Wireless Access Point is the best communication solution for outdoor wireless applications.

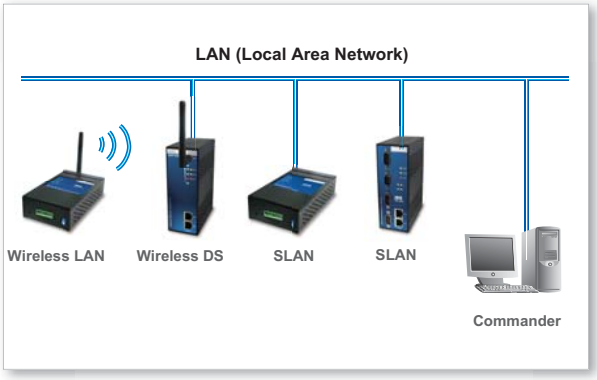
Features

- **WLAN interface support up to 54Mbps link speed**
- **Support WEP / WPA / WPA2 / 802.1X / Radius / TKIP high security capability**
- **Support AP / Bridge / Repeater mode**
- **Daisy Chain support to reduce usage of switch ports**
- **Support Redundant Power Inputs**
- **Fully Compliant with IEEE802.3af**
- **Secured Management by HTTPS and SSH**
- **Event Warning by Syslog, Email, SNMP Trap, Relay and Beeper**

Getting Wired Less

Though wireless is not for every thing, but if your application uses mobile equipment that is controlled over a network, or cabling installation is impossible for one or other reason, then wireless local area network (WLAN) is the right option. The IEEE802.11 standard paved the way to use radio frequency (RF) technology to send Ethernet packets on air. WLAN applications work as the same way as wired LAN over TCP/IP protocol.

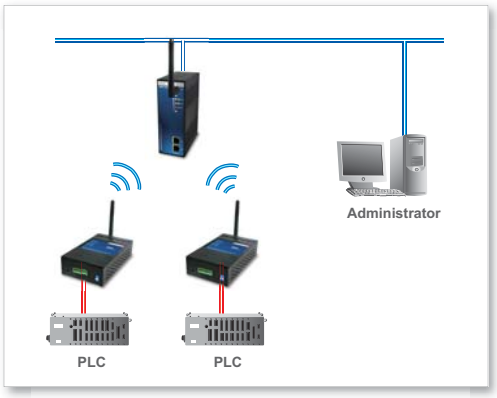
Wireless is easy to deploy, highly flexible, and cost-effective technique, which makes it ideal for many networking requirements.

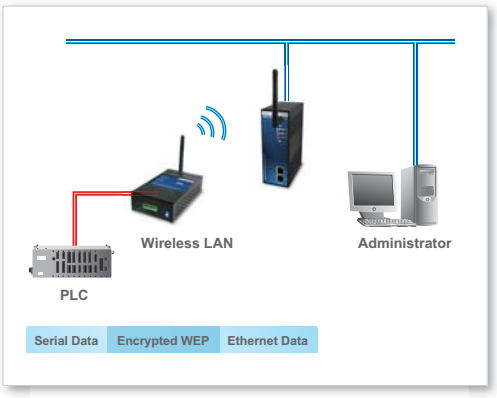


Wireless Networking Modes

There are two major methods to configure a wireless LAN; Ad-hoc mode and Infrastructure mode. In Ad-hoc mode, stations use peer-to-peer transmission to transfer data from station to station. There is no requirement of AP (Access Point) to a wired network. It is the most convenient and cost-effective setup.

Infrastructure mode requires an AP, which can be use by itself to set up a WLAN, or connect WLAN to a wired LAN, so all communication goes through the Wireless AP.





Wireless & Safety

Data safety is the biggest concerns critics have for the wireless LAN since the data is transmitted by radio waves. SUNIX provides the best security features like WPA and WEP to guarantee the confidentiality of data. SUNIX wireless products offer complete suit of WPA (WPA-PSK, TKIP and IEEE802.1X) encryption for secured WLAN.

Redundancy

Communication redundancy is provided by offering two Ethernet ports, which means communication without any lost of data bit. In case of failure, the backup path will be activated in less than 10ms to keep the communication continuous.

Dual DC power inputs with AC power adaptor option means avoiding any failure due the power outage. SUNIX products mean the quality and features that keeps your mission critical industrial networks running without any failure.

POE SUPPORT

WAP-5000 series supports PD at ETH2 and converts the electrical power up to 8 Watts. This feature is fully compliant with IEEE802.3af specification and provides 1KV isolating protection. This PD feature enables AP to speed up the installation of equipment and extend the range of layout to a maximum of 100 meters without additional power source. Therefore, WAP-5000 series is the best WLAN AP solution for PoE (PD) applications such as IP cameras and/or VOIP.

Industrial Wireless LAN Access Point

Model		WAP-5002	WAP-5002P
Product			
Description		Industrial 802.11b/g Wireless LAN Access Point with 2-port RJ45 LAN	Industrial 802.11b/g Wireless LAN Access Point with 2-port RJ45 LAN (1-port PoE PD)
Wireless	Modulation	802.11b:CCK,DQPSK, DBPSAK 801.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM	
	Radio Frequency	DSSS	
	Antenna Connector	Reverse SMA	
	Frequency Band	America/FCC: 2.412~2.462 GHz (11 channels) Europe CE/ETSI: 2.412~2.472 GHz (13 channels)	
	Transmission Rate	802.11b – 11Mbps / 802.11g – 54Mbps	
	Transmission Power	16dBm	
	Receiver Sensitivity	-81dBm @ 11Mbps, PER < 8% -64dBm @ 54Mbps, PER < 10%	
	Wireless Security	SSID Broadcast disable	
	Encryption Security	WEP 64/128 bit; WPA, WPA2, 802.11i (Pre-shared Key (PSK) mode; 802.1X; TKIP	
	Network Mode	AP, Bridge, Repeater	
LAN	10/100M Ports	2 x RJ45 10/100Mbps (Switch Mode)	2 x RJ45 10/100Mbps (1-port PoE)
	Protection	1.5KV Magnetic Isolation	
Power Over Ethernet	PoE Port	—	ETH 2
	Standard	—	IEEE802.3af compliant PD
	Power Consumption	—	8 Watts maximum
	Protection	—	Overload & Short Circuit
	Isolation Voltage	—	1000 VDC min
	Isolation Resistance	—	100000000 ohms min
Software	Protocols	ICMP, IP, TCP, UDP, DHCP, BootP, ARP / RARP, DNS, SNMP MIB II, HTTPS, SSL, SSH	
	Configuration	Web Console, SSH Console, Utility for Windows	
	Status Monitoring	Associated wireless clients (AP mode), Current DHCP mappings, System event log (local log, remote syslog, SNMP trap), Wireless link status monitor (AP Client mode)	
	Port Security	MAC based access control, IP filtering, DHCP server disable, static DHCP mapping	
	DHCP	DHCP Client / DHCP Server	
	Alarm Notification	Link down/Power down alarm by Relay, Output/SNMP Trap/System Log	
Power	Redundancy	Dual Power Inputs (Terminal Block)	
	Connectors	6-pin Removable Terminal Block	
	Protection	Reverse	
	Consumption	6 Watts maximum	
	Input	12~48 VDC (12VDC)	
	Alarm Contact	1 x Configurable Relay Output	
Certifications	EMI	FCC Part 15, CISPR (EN55022) Class A	
	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge) Level 3, EN61000-4-6 (CS) Level 3	
	Shock	IEC60068-2-27	
	Freefall	IEC60068-2-32	
	Vibration	IEC60068-2-6	
Environment	Operating Temperature	-10°C to 55°C	
	Operating Humidity	5% ~ 95%RH	
	Storage Temperature	-20°C ~ 85°C	
Mechanical	Dimensions	52 x 106 x 144 mm (Wx DxH) (without connectors)	
	Enclosure	Metal (IP30 protection)	
	Mounting	DIN Rail and Wall Mount	
WARRANTY		5 years	

Note : All models are supplied without power adaptor

Industrial Media Converters

- Media Converter Introduction & Features
- Fiber Media Converters
- Ethernet Media Converters
- Serial Media Converters

Media Converters *Distance Extension With Higher Immunity*

Introduction

The media converters have incorporated SUNIX advanced technologies such as the RS-422/485 auto identify & switch, AHDC/CS™(Auto Hardware Direction Control / Carrier Sense) technology, and auto baud rate detection feature. SUNIX media converter, a specialized equipment for industrial application which can effectively protect your equipment from lightning, electrostatic discharges, high voltage, and ground voltage damage, with features like Surge Protection, Optical Isolation Protection, and Reverse Power Protection. Fiber Ethernet media converters not only extends the distances but also provide features like Link Fault Signaling, which allows application to react to the situation.

Special Mechanical for Harsh Environments

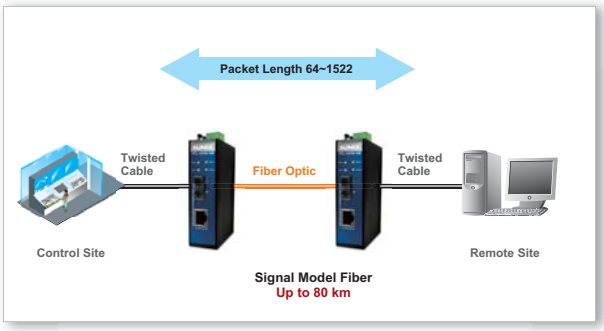
SUNIX designed the converters especially for applications in harsh environment and required to work non-stop. The quality of industrial converter is constantly being tested by rugged conditions, such as high or low temperature conditions, impact, vibration, or corrosion. To cope with demanding industrial environments, the metal case is rigid, shock-proof, and conforms to IP30 design. The compact design with DIN Rail and Wall mount options to adjust any type of installation requirements.

Auto Baud Rate Detection

SUNIX Media Converters are equipped with the capability to automatically detect the baud rate for the serial interfaces, thus making no more manual settings and hassle free installation. Moreover, no need to worry if needs to change any serial device, which works on different baud rate than the earlier one.

Application

Serial to fiber media conversion is the key requirement for users who need to extend the RS-232/422/485 transmission distance and increase networking capability. The fiber converters can extends the communication distance up to 80KM and at the same time providing the best solution for an immune, insulated, reliable, and maintainable transmission media.



Features

- **Redundant power inputs with reverse power protection**
- **RS-422 and RS-485 Auto Detect and Switch technology**
- **SUNIX AHDC/CS™technology for RS-485 2-wire signal direction control**
- **Extends distances up to 80KM**
- **Benefits of Fiber optics including higher bandwidth, speed, immunity and data integrity**
- **Redundant power 12~48 VDC terminal block & 12 VDC Jack input**

Fiber Media Converters

Model		FTS-6011 Series	FTD-6011 Series	FTC-6011 Series
Product				
Description		RS-232 to fiber Media Converter	RS-422/485 to fiber Media Converter	RS-232/422/485 to fiber Media Converter
Interface	Serial Port	RS-232 x 1	RS-422/485 x 1	RS-232/422/485 x 1
	Fiber Port	Standard Fiber SC x 1		
Cable Length	Multi-modes	50 / 125 μm : Standard 2 km		
	Single-modes	9 / 125 μm : Standard 30 km		
Communication	Serial Baud Rate	75 bps up to 921.6 Kbps		
	RS-232 Signals	TxD,RxD,GND	–	TxD,RxD,GND
	RS-422/485 Signals		RS-422: TxD+, TxD-, RxD+, RxD-,GND 4 Wire RS-485: TxD+,TxD-,RxD+, RxD-,GND 2 Wire RS-485: Data+, Data-, GND	
	RS-485 Directional	–	SUNIX AHDC / CS™ Technology	
	Select RS-422/485	–	DIP Switch	
Power	Redundancy	–	Dual Power Inputs	
	Connectors	3-pin Removable Terminal Block + DC Jack		
	Consumption	1A @ 12 VDC		
	Input	12~48VDC (24VDC)		
Protection		Embedded 15KV ESD protection		
Power Reverse		Present		
Casing		Aluminum (IP30)		
Mounting Options		DIN Rail and Wall Mountable		
Alarm Contact		1 Configurable Relay output		
Regulatory Approvals	EMC	FCC Part 15, CISPR (EN55022) Class A, CE		
	Safety	UL60950, CAN/CSA-C22.2 No.60950		
	Shock / Vibration	IEC60068-2-27, IEC60068-2-32 / IEC60068-2-6		
Environment	Operation Temperature	Standard 0 °C to 60 °C / Extend - 40 °C to 80 °C		
	Operation Humidity	5% to 95%RH		
	Storage Temperature	- 40°C to 85°C		
Dimensions		30 x 68.5 x 105 mm (W x D x H)		
WARRANTY		5 years		

Note : Please contact our sales team for fiber connector types (ST, SC).

Ethernet Media Converters

Model		FTL-1218H-G Series	FTL-1218H Series
Product			
Description		10/100/1000 Base-T(X) to 1000Base-SX / LX Media Converter	10/100Base-T(X) to 100Base-FX Media Converter
Interface	Serial Port	RJ45 x 1	
	Fiber Port	Standard Fiber SC x 1	
Cable Length	Multi-modes	50 / 125 μm: Standard 2 km	
	Single-modes	9 / 125 μm: Standard 30 km	
Ethernet		Gigabit	10/100 Base-T(X)
Power	Redundancy	Dual Power Inputs	
	Connectors	5-pin Removable Terminal Block + DC Jack	
	Consumption	1A @ 12 VDC	
	Input	12~48 VDC (24 VDC)	
Protection	Power Reverse	Present	
Casing		Aluminum (IP30)	
Mounting Options		DIN Rail and Wall Mountable	
Alarm Contact		1 Configurable Relay output	
Regulatory Approvals	EMC	FCC Part 15, CISPR (EN55022) Class A, CE	
	Safety	UL60950, CAN/CSA-C22.2 No.60950	
	Shock / Vibration	IEC60068-2-27, IEC60068-2-32 / IEC60068-2-6	
Environment	Operation Temperature	Standard 0 °C to 60 °C / Extend - 40 °C to 80 °C	
	Operation Humidity	5% to 95%RH	
	Storage Temperature	- 40°C to 85°C	
Dimensions		30 x 68.5 x 105 mm (D x W x H)	
WARRANTY		5 years	

Note : Please contact our sales team for fiber connector types (ST, SC).

Serial Media Converters

Model		STD-1914A Series	STD-1914SA Series	STD-1918H Series	STD-1918H-SI Series
Product					
Description		RS-232 to RS-422/485 compact size Media Converter	RS-232 to RS-422/485 compact size Media Converter with Surge	RS-232 to RS-422/485 Media Converter	RS-232 to RS-422/485 Media Converter with Surge & Isolation
Communication	Port 1	RS-232 (DB9) Female		RS-232 (DB9) Female	
	Port 2	RS-422/485 (4pin Terminal Block)		RS-422/485 (9-pin Terminal Block)	
	Distance	1.2km (RS-422/485)			
	Baud Rate	50 bps up to 460.8Kbps			
	RS-232 Signals	TxD,RxD,RTS,CTS,GND			
	RS-422/485 Signals	RS-422: TxD+, TxD-, RxD+, RxD-, GND 4 Wire RS-485: TxD+,TxD-,RxD+, RxD-,GND 2 Wire RS-485: Data+, Data-, GND			
Power	Redundancy	–		Dual	
	Connectors	DC Jack		3-pin Removable Terminal Block + DC Jack	
	Consumption	20mA @ 5V		1A @ 12VDC	
	Input	5V		12~48VDC (24VDC)	
Protection	Isolation	–		–	2.5KV
		ESD : 15KV ESD	Surge : 400W for RS-422/485 meets IEC6001-4-5	ESD : 15KV ESD	Surge : 400W for RS-422/485 meets IEC6001-4-5
	Power Reverse	–		Present	
Casing		Plastic		Aluminum IP30	
Regulatory Approvals	EMC	FCC Part 15, CISPR (EN55022) Class A, CE			
	Safety	–		UL60950, CAN/CSA-C22.2 No.60950	
	Shock / Vibration	IEC60068-2-27, IEC60068-2-32 / IEC60068-2-6			
Environment	Operation Temperature	0 °C to 60 °C		Standard 0 °C to 60 °C / Extend - 40 °C to 80 °C	
	Operation Humidity	5% to 95%RH			
	Storage Temperature	- 20°C to 85°C		- 40°C to 85°C	
Dimensions		46 x 76 x 23 mm (D x W x H)		30 x 68.5 x 105 mm (D x W x H)	
WARRANTY		5 years			

Industrial Modbus I/O Modules

- Modbus I/O Modules Introduction & Features
- Digital Input / Output Modules
- Analog Input / Output Modules

Modbus I/O Modules *The Best Choice For Your SCADA Applications*

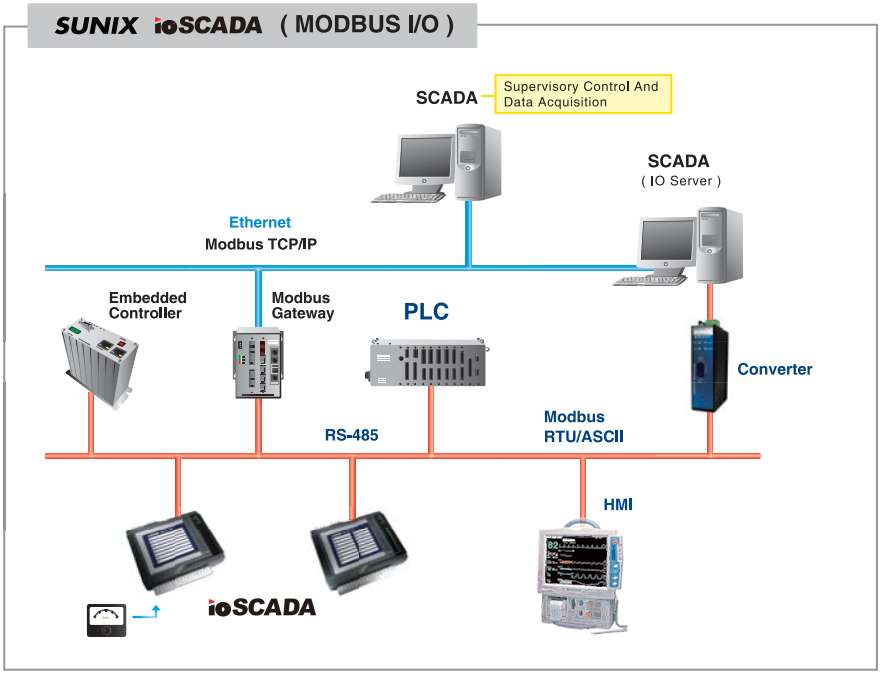
Introduction

SUNIX ioSCADA SM series is a series of industrial Modbus I/O. It supports standard Modbus (RTU & ASCII) protocol. Type of SUNIX ioSCADA modules include Digital Input, Digital Output, Analog Input, Analog Output and Counter/Frequency Input meet with most industrial automation applications. SUNIX ioSCADA series are different to traditional I/O modules used in laboratory, SUNIX ioSCADA offers great performance in Electric Power Plant, Steel Manufacturer and Petrochemical Plant, which are harsh environment and require high immunity against noise, more efficient, real-time response, long MTBF (Mean Time Between Failure), high reliability and excellent measure precision. SUNIX ioSCADA are ideal for DCS, PLC and SCADA system applications.SUNIX ioSCADA within convenience DIP Switch for setting RS-485 ID address and Serial parameters , no need to configure by any utility software. The modules are also embedded with RS-485 terminator. The RS-485 network support 4,000 feet without network repeater.

The compact design enables DIN Rail installation. The slide-in cover design that helps user to keep track of the I/O structure. SUNIX ioSCADA SM series not only for Data Acquisition but also include special control function such as I-to-O, ON/OFF Latch, Max./Min. Lock, ON/OFF Delay Timer, TCP Control and Ramp Control in order to coordinate with SCADA system.

The ioSCADA modules work as independent controller while offering the data collection and control functions. Hence making them perfect choice for SCADA & DCS applications at the industrial grade environments.

Applications



Features

- **Support Dual Watchdog – Hardware & Communication**
- **Support Standard Modbus RTU & Modbus ASCII Protocol**
- **High Noise Immunity with meeting Class A , IEC61000-4-4 EFT Level 3 and IEC61000-4-2 ESD Level 3**
- **Provide easy Windows® Configuration Utility**
- **Built-in 3-way Isolation Protection**
- **RS-485 Terminal Resister**
- **Convenience DIP Switch for setting RS-485 ID addresses and parameters**
- **Nonvolatile Reprogrammable Memory**
- **User friendly LED display for immediate signal status**
- **Reset to default factory settings via DIP switch**
- **Accurate and reliable data acquisition**
- **Remote Inputs and Output modules**
- **Analog, Digital and Counter channels**

SUNIX Tech Forum

SUNIX ioSCADA SM series is a series of industrial Modbus I/O. It supports standard Modbus (RTU & ASCII) protocol. Type of SUNIX ioSCADA modules include Digital Input, Digital Output, Analog Input, Analog Output and Counter/Frequency Input meet with most industrial automation applications. SUNIX ioSCADA series

Bridging I/O Signals Over RS-485

The ioSCADA series makes possible to control remote digital and analog devices over RS-485 interface. All ioSCADA product line I/O modules provide a RS-485 interface with the possibility to set the protocol type (Modbus ASCII or RTU). RS-485 is the most popular wiring standard for many industries. The device address (from 1 to 63) and the baud rate (115200 bps). The whole series is protected against isolation and voltage; a built in watch dog circuit ensures continuity of operation even in case of strong electrical noise.

Configuration Independence

Each input signal can be independently configured with the option of various modes for both Digital and Analog signals. It helps to obtain accurate data acquisition that suits to desired application.

Windows Based Management Utility

The utility developed to monitor and configure ioSCADA's I/O signals remotely. It automatically detects the installed ioSCADA units within the network. You can select the unit to manage the input and output devices.

Watchdog for Communication Safety

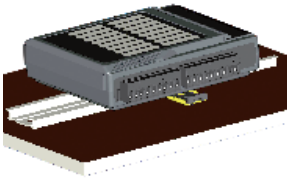
The ioSCADA devices are equipped with a built-in watchdog timer that monitors the Modbus communication status. If communication between the remote I/O device and host PC or PLC is interrupted for a defined period of time, the communication watchdog will activate safe status to reset all output channels to user-defined settings. The watchdog ensures the safety of field devices operations when communication is a problem.
ioSCADA modules are also come with hardware watchdog to protect the system from collapse in case of hardware failure.

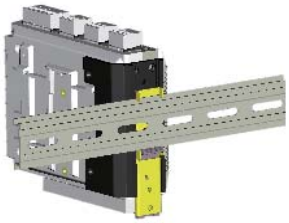
SCADA Software Compatibility

ioSCADA series is based on standard Modbus protocol, which makes ioSCADA compatible with most SCADA software, such as LabView, Wonderware, Citect, and Intellution.

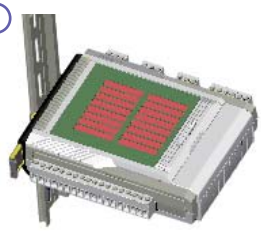
• Panel / DIN Rail mounting options - a full-length design and a horizontal type

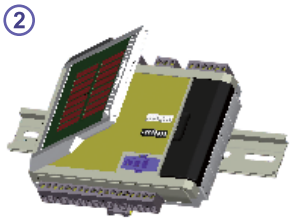
① 

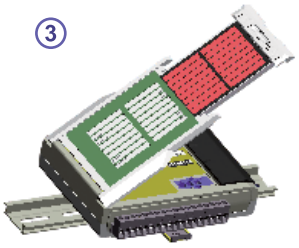
② 

③ 

• Writable, Flip & Slide-out back panel.

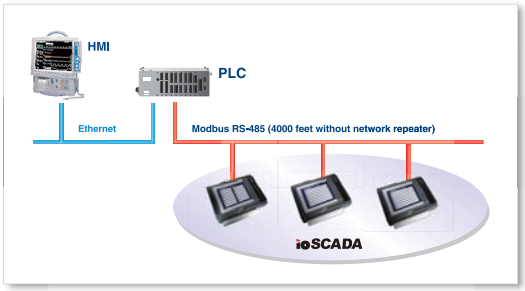
① 

② 

③ 

Communication Interface

- **Serial Interface :** RS-485 (Data+, Data-, COM)
- **Protocol :** Modbus-RTU/ASCII
- **Baud Rate :** 1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, or 115.2k bps (Default 115.2k bps)
- **Parity :** none,
- **Data Bits:** 8
- **Stop Bits :** 1
- **Module Addressing :** 1 to 63, selectable. (Default address 1)
- **Network Distance :** 4000 feet without network repeater

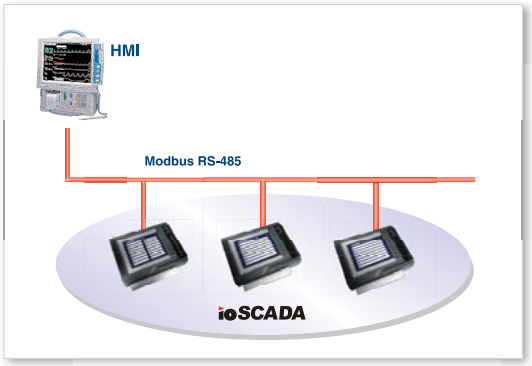


Protection

- **Hardware and Communication Watchdog Timer**
- **Network Isolation Voltage :** 3000 Vrms
- **Over Voltage Protection :** 70 Vdc/Vp-p

Supported Modbus Commands

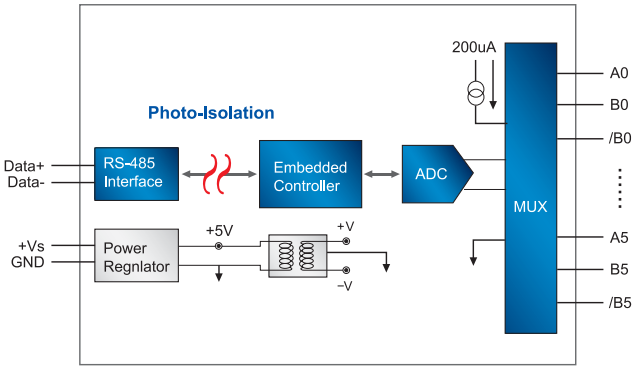
- Read Coil (Output) Status
- Read Input Status
- Read Input Registers (MAX 48 WORDS/MSG RTU, 24 WORDS/MSG ASCII)
- Read Holding Registers (MAX 48 WORDS/MSG RTU, 24 WORDS/MSG ASCII)
- Force Single Coil (Output)
- Preset Single Register (Output)
- Force Multiple Coils (Output)
- Preset Multiple Registers (MAX 48 WORDS/MSG RTU, 24 WORDS/MSG ASCII)
- Report Slave ID
- Command Exception support
- Broadcast Command support
- Loop back Command



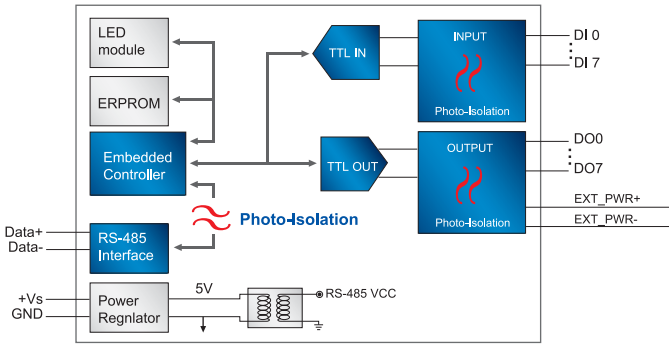
3-Way Isolation Protection

- **Provide RS-485 Isolation :** 3000 Vrms
- **Provide Field Side to Logic Side isolation:** 3000 Vrms

RS-485 Isolation

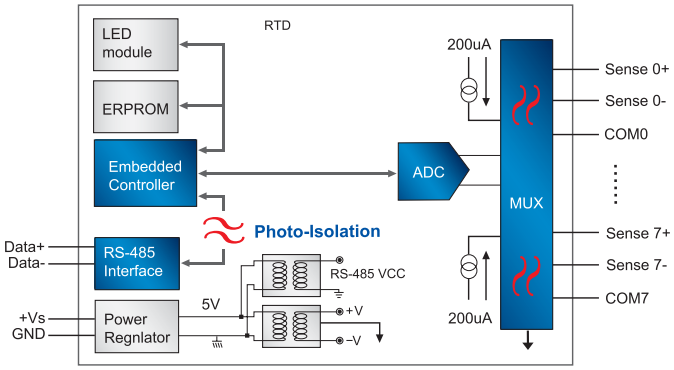


Field Side to Logic Side Isolation



- **Provide Channel-to-channel Isolation**

Chanel-to-channel Isolation



Environment

- **Operating temperature :** -30 to 75 °C
- **Storage temperature :** -45 to 85 °C
- **Relative humidity :** 5 to 90%, non-condensing

Electromagnetic Compatibility

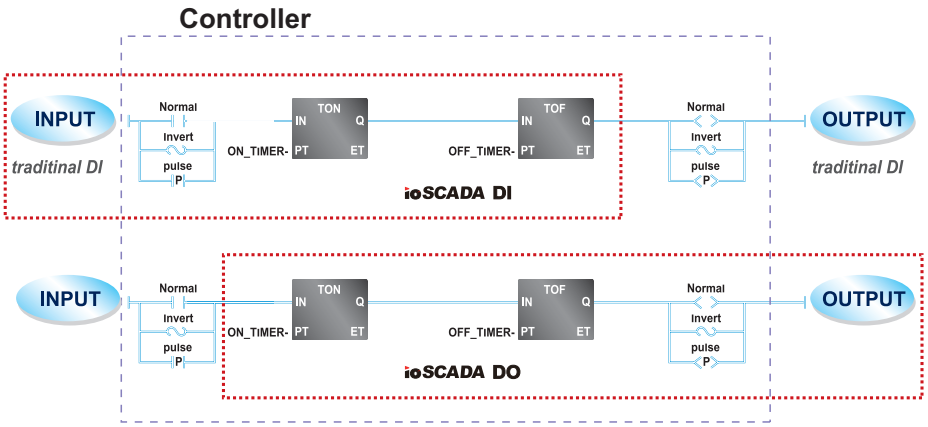
CE Compliant

- **Electrical Fast Transient Immunity (EFT)**
  IEC61000-4-4 Level 3 (power, signal lines)
- **Electrostatic Discharge (ESD) Immunity**
  IEC61000-4-2 Level 3 (8KV/4KV air/direct discharge)
- **Surge Immunity**
  IEC61000-4-5 (0.5KV)

EFT Level

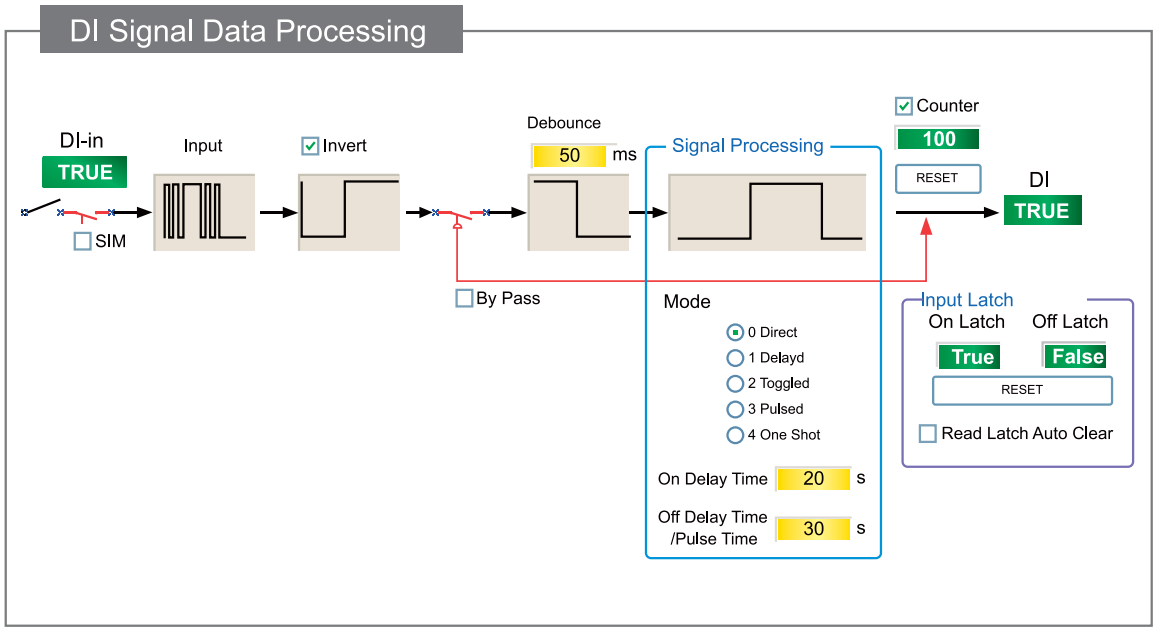
	Level	IO Signal
	1	0.25 kv
	2	0.5 kv
Class A	3	1 kv
Class B	4	2 kv

The different between ioSCADA and Traditional I/O

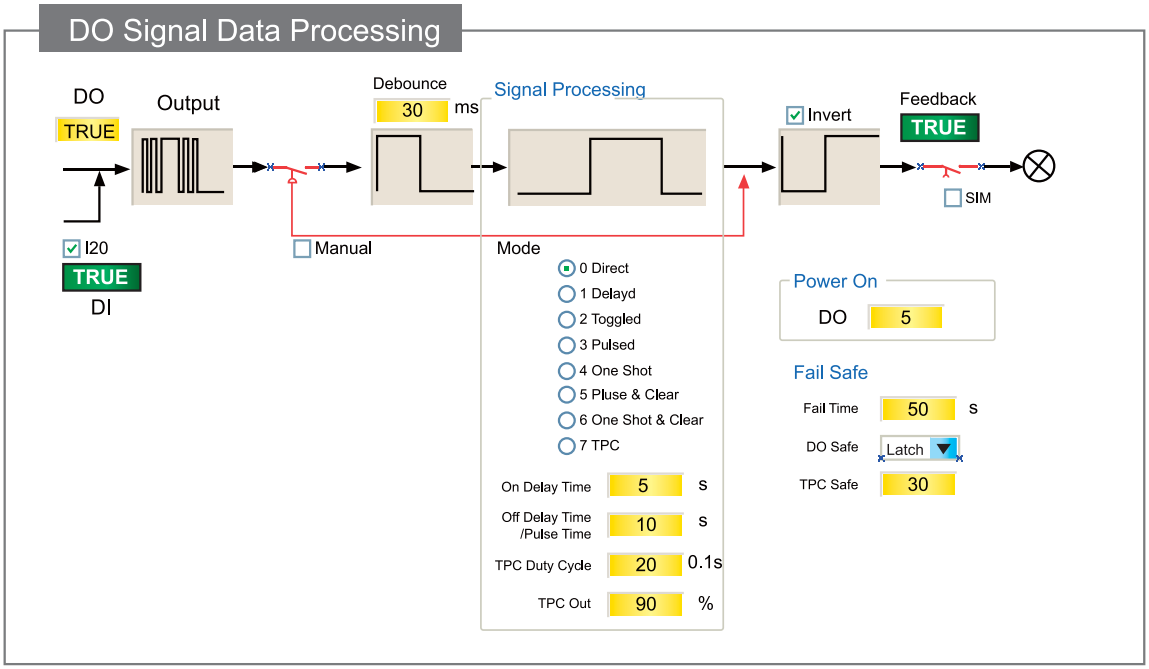


SUNIX ioSCADA Signal Data Processing Types

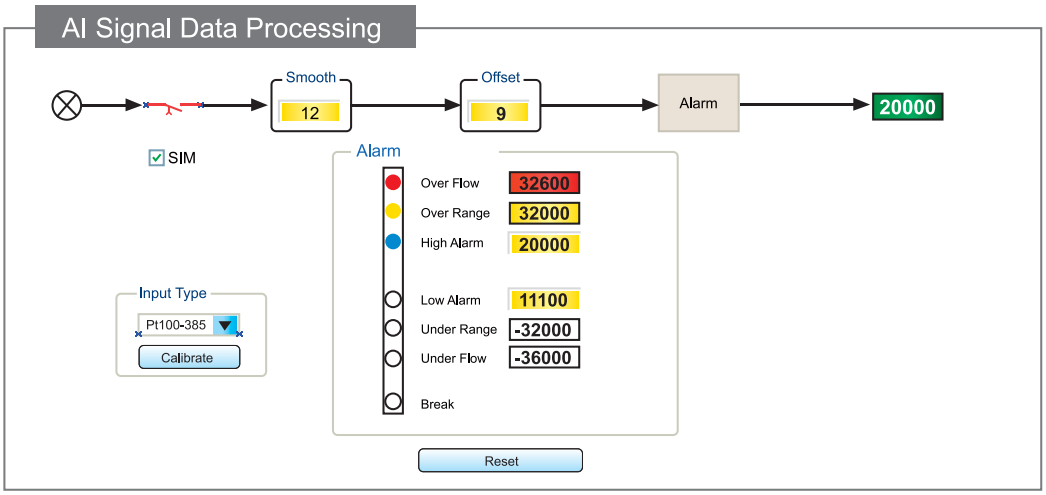
DI : Debounce, Invert, On latch, Off latch, ON delay, Off delay, Pulse, One Shot, Counter (300 Hz)



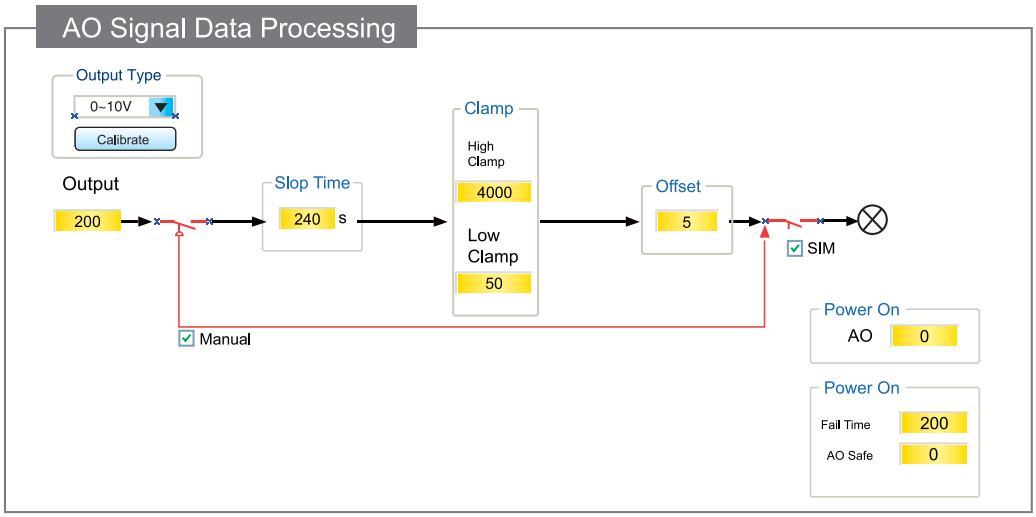
DO : Fail safe, Debounce, Pulse output, ON delay, Off delay, One Shot, TPC



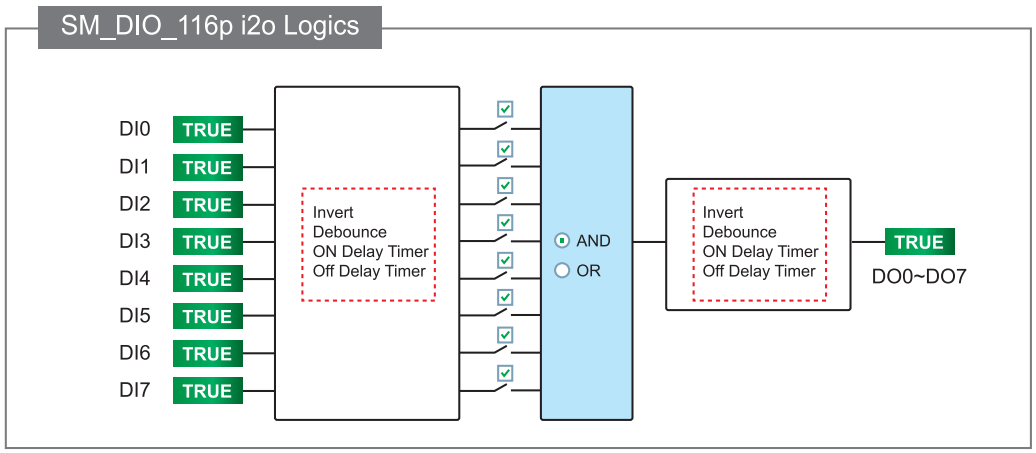
AI : Smoothing, Maximum, Minimum, High / Low alarm, Over/Under range, Over / Under flow, Break



AO : Fail safe, Ramp Control (10H), Output Clamp



Intelligent i2o Control Logic



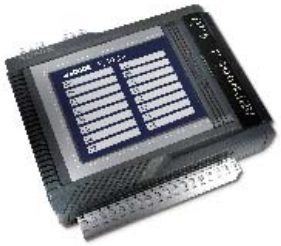
ioSCADA Common specification:

Communication Interface	
Protocol	Modbus-RTU/ASCII protocol, RS-485 (3-Wire)
Baud Rate	1200,2400, 4800, 9600, 19.2k, 38.4k, 57.6k, or 115.2k baud.
Module Addressing	1 to 63, selectable. Default address 1
Network Distance	4000 feet without network repeater
MAX Nodes	Nodes Supports up to 63 modules without the use of a network repeater
FRAME	Data Bits 8 Parity none, Stop Bits 1
Watchdog	Communication Failure
Network Isolation Voltage	3000 Vrms
Over Voltage Protection	70 Vdc/Vp-p
Supported Modbus Commands	
Function Code	Description
1	Read Coil (Output) Status (0x)
2	Read Input Status (1x)
4	Read Input Registers (3x)
3	Read Holding Registers (4x)
5	Force Single Coil (Output) (0x)
6	Preset Single Register (4x)
8	Loopback Command
15	Force Multiple Coils (Outputs) (0x)
16	Preset Multiple Registers (4x)
17	Report Slave ID
	Command Exception support
	Broadcast Command support
Isolation Voltage	
RS-485 Isolation	3000 Vrms
Field Side to Logic Side isolation voltage	3000/ 5000 Vrms (Analog/Digital)
Channel-to-channel Isolation	YES
Environment	
Operating temperature	-30 to 75 °C (-20 to 60 °C for SM_CNT_102)
Storage temperature	-45 to 85 °C
Relative humidity	5 to 90%, noncondensing
Electromagnetic Compatibility	
Electrical Fast Transient Immunity (EFT)	IEC61000-4-4 Level 3(power, signal lines)
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2 Level 3/2 (8KV/4KV air/direct discharge)
Surge Immunity	IEC61000-4-5 (0.5KV COMM.).

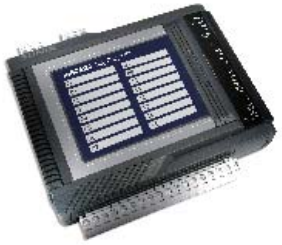
Digital Input / Output Modules

Model		SM_DI_116P
Product		
Description		16 Channels 24VDC Digital Input Module
Channels		16 sourcing input
Input Resistance		4.7K ohms, typical
Input Signal Voltage Range		0 to 35 V DC, maximum
Input Current		5.1 mA, typical at 24V DC.
Digital logic levels :	OFF state	< 4 VDC
	ON state	>10 VDC Input
Input Response Time		1 ms max
Maximum reverse voltage		35 VDC
Maximum Input current		10 mA
Fast Mode count feature		300 Hz
Isolation (Field Side to Logic Side)		5K Vrms
Common ground		1 for 16 Channels
Watch Dog		Hardware
Power Requirements		10 to 30 Vdc
Wiring		I/O Cable 16 to 24
Digital Input Function Block		
On Delay timer		0 to 65535 s , 1s resolution
Off Delay timer		0 to 65535 s , 1s resolution
Input Debounce		0 to 65535 ms, 5ms resolution
Input Invert		YES
Pulse Generator		Duration- 0 to 65535 s , 1s resolution
Pulse Counter		300Hz
ON/OFF Latch		YES
Simulation		YES
Input Toggle		YES
Timer Accuracy		1%

Relay Output Modules

Model	SM_DO_116
Product	
Description	16 Channels Power Relay Output Module
Output Channels	16
Relay Type	Form A, Normal Open
Contact Rating	5A @250VAC 5A @30VDC
Max. output current per channel	2A
Max. output current (entire module)	8A
Common Ground	1 for 16 Channels
Minimum OFF resistance	1000 Meg Ohm @500 Vdc
Minimum On resistance	30m Ohm @6 Vdc 1A
Output Response Time	10ms , MAX, measured from receipt of force coil command to gate transition of the output MOSFET.
Min. Life	1A 1*10^5 ops.
Line Voltage	Max 30Vdc, Max 250Vac
Life Mechanical	2*10^7 ops
Watch Dog	Hardware & Communication
Power Requirements	10 to 30 Vdc
Digital Output Function Block	
Output Sequence ON timer	0 to 65535 s , 1s resolution
Output Sequence Off timer	0 to 65535 s ,1s resolution
Output Invert	YES
Pulse Output	0 to 65535 s ,1 s resolution
TPC Output	0 to 100 (%),
Duty cycle	1 to 3000 (0.1 to 300s)
Atuo/Man bumpless	YES
Fail Safe (Comm. Watch Dog)	0 to 65535 s
Power on output	YES
I to O	No
Timer Accuracy	1%

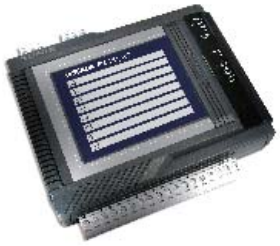
Digital Input / Output Modules

Model		SM_DIO_116P
Product		
Description		16 Channels 24VDC Digital Input / Output module
Input Channels		8 sourcing input
Output Channels		8 sourcing outputs
Input Resistance		4.7K ohms, typical
Input Signal Voltage Range		0 to 35 V DC, maximum
Input Current		5.1 mA, typical at 24V DC.
Digital logic levels :	OFF state	< 4 VDC
	ON state	>10 VDC Input
Input Response Time		1 ms max
Maximum reverse voltage		35 VDC
Maximum Input current		10 mA
Fast Mode count feature		300 Hz
Isolation (Field Side to Logic Side)		5K Vrms
Input Common ground		1 for 8 Channels
Output On Resistance		0.28 ohms maximum
Continuous output current		500 mA max
Supply voltage Range		10 to 35V DC, maximum
Output Response Time :	Force Coil	Output updates within 10 ms (max) of receipt of a command
Output protection		Fuse (4A)
Output Common Ground		1 for 8 Channels
Maximum lamp load		5W @24Vdc
Maximum inductive load		0.2 H (3 Amp load at 24 VDC)
Max. OFF state leakage current		100 nA
Typical ON voltage (@ 1 Amp)		1V
Output Protection against inductive loads		YES
Output Principle of Operation		Non-latching
Watch Dog		Hardware & Communication
Power Requirements		10 to 30 Vdc
Wiring		I/O Cable 16 to 24 AWG

More... (see the next page)

Digital Input Function Block	
On Delay timer	0 to 65535 s , 1s resolution
Off Delay timer	0 to 65535 s , 1s resolution
Input Debounce	0 to 65535 ms, 5ms resolution
Input Invert	YES
Pulse Generator	Duration- 0 to 65535 s , 1s resolution
Pulse Counter	300Hz
ON/OFF Latch	YES
Simulation	YES
Input Toggle	YES
Timer Accuracy	1%
Digital Output Function Block	
Output Sequence ON timer	0 to 65535 s , 1s resolution
Output Sequence Off timer	0 to 65535 s ,1s resolution
Output Invert	YES
Pulse Output	0 to 65535 s ,1 s resolution
TPC Output	0 to 100 (%),
Duty cycle	1 to 3000 (0.1 to 300s)
Atuo/Man bumpless	YES
Fail Safe (Comm. Watch Dog)	0 to 65535 s
Power on output	YES
I to O	YES
Timer Accuracy	1%

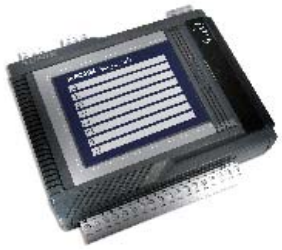
Relay Output Modules

Model	SM_DO_108
Product	
Description	8 Channels Relay Output Module
Output Channels	8
Relay Type	Form A, Normal Open
Contact Rating	5A @250VAC 5A @30VDC
Max. output current per channel	2A
Minimum OFF resistance	1000 Meg Ohm @500 Vdc
Minimum On resistance	30m Ohm @6 Vdc 1A
Output Response Time	10ms , MAX, measured from receipt of force coil command to gate transition of the output MOSFET.
Min. Life	1A 1*10 ^ 5 ops.
Line Voltage	Max 30Vdc, Max 250Vac
Life Mechanical	2*10 ^ 7 ops
Watch Dog	Hardware & Communication
Power Requirements	10 to 30 Vdc
Wiring	I/O Cable 16 to 24 AWG
Digital Output Function Block	
Output Sequence ON timer	0 to 65535 s , 1s resolution
Output Sequence Off timer	0 to 65535 s ,1s resolution
Output Invert	YES
Pulse Output	0 to 65535 s ,1 s resolution
TPC Output	0 to 100 (%),
Duty cycle	1 to 3000 (0.1 to 300s)
Atuo/Man bumpless	YES
Fail Safe (Comm. Watch Dog)	0 to 65535 s
Power on output	YES
I to O	No
Timer Accuracy	1 %

Current / Voltage Analog Input Modules

Model		SM_AI_108i
Product		
Description		8 Channels Current / Voltage Input Module
Input Channel		8 differential
Input Range		±20mA, 4 to 20mA, ±10V, ±5V, 1 to 5V
Resolution		16 bit (1 part in 32,000.)
Input accuracy		(@25° C) ±0.05% of input range.
Ambient Temperature Effect		Better than ±0.005% of input span per °C, or ±1.0uV/°C, whichever is greater
Noise Filter		50/ 60Hz Auto
Noise Rejection :	Normal mode	60dB @ 60Hz, typical.
	Common mode	88dB @ 60Hz, typical.
Input Filter Bandwidth		-3dB at 1.5Hz, typical.
Input Conversion Rate		140 ms (per channel)
Current Input Resistance		250 ohm
Voltage Input Impedance		380K ohm
Over voltage protection (voltage inputs only)		60 V AC
Over current protection (current inputs only)		300 mA
Watch Dog		Hardware
Power Requirements		10 to 30 Vdc
Wiring		I/O Cable 16 to 24 AWG
Analog Input Function Block		
Offset adjust		-128 to 127
Input Smoothing		1 to 255
Latch Max. Value		YES
Latch Min. Value		YES
High/Low Alarm		YES
Over/Under Range Alarm		YES
Over/Under Flow Alarm		YES
Break Alarm:		YES

Universal Analog Input Module

Model		SM_UI_108i
Product		
Description		8 Channels Universal Analog Input Module
Input Channel		8 differential
Input Range		±20mA, 4 to 20mA, ±10V, ±5V, 1 to 5V , ±100mV, +/-500mV, Thermocouple types (J, K, T, R, S, E, B, N)
Input accuracy		(@25° C) ±0.05% of input range. (a/v/mA)
Resolution		Thermocouple input: 0.1°C (0.18°F) ,others 16 bit (1 part in 32,000.)
Ambient Temperature Effect		Better than ±0.005% of input span per °C, or ±1.0uV/°C, whichever is greater
Noise Filter		50/ 60Hz Auto
Noise Rejection :	Normal mode	60dB (A/V/mV)@ 60Hz, typical
	Common mode	88dB (A/V/mV)@ 60Hz, typical
Input Filter Bandwidth		-3dB at 1.5Hz, typical
Input Conversion Rate		140ms (per channel)
Current Input Resistance		250 ohm
mV and Voltage Input Impedance		100K ohm
Overvoltage protection (voltage inputs only)		60 V AC
Overcurrent protection (current inputs only)		300 mA
External cold-junction compensation		YES
Thermocouple Break Detection		YES
TC Input impedance		20 M ohm
TC Input bias current (break)		200 uA typical
TC Overvoltage protection		±15 V
Reference-junction accuracy		0.15 °C @0~70 °C, 0.5 °C @-20~0 °C
Watch Dog		Hardware
Power Requirements		10 to 30 Vdc
Wiring		I/O Cable 16 to 24 AWG

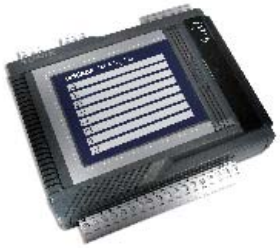
More... (see the next page)

Analog Input Function Block	
Offset adjust	-128 to 127
Input Smoothing	1 to 255
Latch Max. Value	YES
Latch Min. Value	YES
High/Low Alarm	YES
Over/Under Range Alarm	YES
Over/Under Flow Alarm	YES
Break Alarm	YES

Input Range & Accuracy

TC	°C Range (°F Range)	Accuracy
J	-210 to 1200 °C (-346 to 1712 °F)	±0.1°C
K	-200 to 1372 °C (-328 to 2502 °F)	±0.1°C
T	-260 to 400 °C (-436 to 752°F)	±0.1°C
R	-50 to 1768 °C (-58 to 3214°F)	±0.3°C
S	-50 to 1768°C (-58 to 3214°F)	±0.5°C
E	-200 to 1000°C (-328 to 1832°F)	±0.1°C
B	260 to 1820°C (500 to 3308°F)	±0.5°C
N	230 to 1300°C (-382 to 2372°F)	±0.1°C

RTD Analog Input Module

Model		SM_RTD_108i
Product		
Description		8 Channels RTD Analog Input Module
Input Channel		8 differential
Input Type		PT100,PT1000,Cu50, Cu100,Ni120
Ambient Temperature Effect		Better than ±0.005% of input span per °C, or ±1.0uV/°C, whichever is greater
Noise Filter		50/ 60Hz Auto
Noise Rejection :	Normal mode	60dB @ 60Hz, typical
	Common mode	90dB @ 60Hz, typical
Input Filter Bandwidth		-3dB at 1.5Hz, typical
Input Conversion Rate		140 ms (per channel)
RTD Break Detection		YES
Excitation Current		200 uA DC typical, all types
Lead-Wire Compensation		Inherent for 3-wire RTD
Maximum lead resistance		25 ohms per lead (Pt), 10 ohms per lead (Cu). 20 ohms per lead (Ni)
Watch Dog		Hardware
Power Requirements		10 to 30 Vdc
Wiring		I/O Cable 16 to 24 AWG

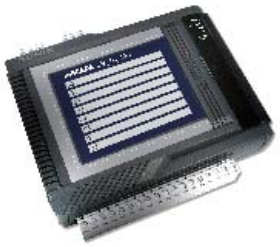
Analog Input Function Block

Offset adjust	-128 to 127	High/Low Alarm	YES
Input Smoothing	1 to 255	Over/Under Range Alarm	YES
Latch Max. Value	YES	Over/Under Flow Alarm	YES
Latch Min. Value	YES	Break Alarm	YES

Input Range & Accuracy

Input Type	Alpha	Input Range	Resolution	Accuracy
Pt 100 ohm	.00385	-200 to 850°C	0.1°C	±0.1°C
Pt 100 ohm	.003902	-200 to 850°C	0.1°C	±0.1°C
Pt 100 ohm	.003916	-200 to 850°C	0.1°C	±0.1°C
Pt 100 ohm	.00392	-200 to 850°C	0.1°C	±0.1°C
Pt 100 ohm	.003926	-200 to 850°C	0.1°C	±0.1°C
Pt 200 ohm	.00385	-200 to 850°C	0.1°C	±0.1°C
Pt 500 ohm	.00385	-200 to 850°C	0.1°C	±0.1°C
Pt 1000 ohm	.00375	-200 to 850°C	0.1°C	±0.1°C
Pt 1000 ohm	.00385	-200 to 850°C	0.1°C	±0.1°C
Ni 120 ohm	.00672	-80 to 260°C	0.1°C	±0.2°C
Cu 100 ohm	.00427	-100 to 260°C	0.1°C	±0.2°C
Cu 50 ohm	.00427	-100 to 260°C	0.1°C	±0.2°C

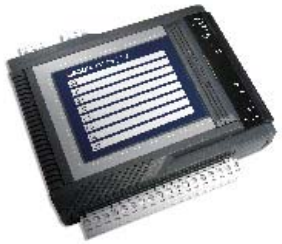
Thermistor Analog Input Modules

Model		SM_TH_108i
Product		
Description		8 Channels Thermistor Analog Input Module
Input Channel		8 differential
Input Type		10K Type II,10K Type III
Input Range		-45 °C to 140 °C
Resolution		0.1°C (0.18°F)
Accuracy		± 0.5°C (0.18°F)
Ambient Temperature Effect		Better than ±0.005% of input span per °C, or ±1.0uV/°C, whichever is greater
Noise Filter		50/ 60Hz Auto
Noise Rejection :	Normal mode	60dB @ 60Hz, typical
	Common mode	90dB @ 60Hz, typical
Input Filter Bandwidth		-3dB at 1.5Hz, typical
Input Conversion Rate		140ms (per channel)
Break Detection		YES
Excitation Current		200 uA DC typical, all types
Lead-Wire		2-wire
Watch Dog		Hardware
Power Requirements		10 to 30 Vdc
Wiring		I/O Cable 16 to 24 AWG
Analog Input Function Block		
Offset adjust		-128 to 127
Input Smoothing		1 to 255
Latch Max. Value		YES
Latch Min. Value		YES
High/Low Alarm		YES
Over/Under Range Alarm		YES
Over/Under Flow Alarm		YES
Break Alarm		YES

Current / Voltage Analog Output Module

Model	SM_AO_102i
Product	
Description	2 Channels Current / Voltage Analog Output Module
Output Channel	2 differential
Output Range	0 to 20mA,4 to 20mA, 0 to 10V
Resolution	12 bit (1 part in 4095)
Output accuracy	(@25° C) ±0.1% of output range
Ambient Temperature Effect	Better than ±0.005% of input span per °C, or ±1.0uV/°C, whichever is greater
Response Time	10 ms typical into 500 ohms, for measurement to reach 98% of the final
Maximum Output Current	20.5 mA DC typical
Current Output Compliance	10.5 V typical
Current Output Load Resistance Range	0 to 500 ohms typical
Maximum Output Voltage	10. 5V DC typical
Voltage Output Current(Votage mode)	0 to 10.5 mA DC maximum
Voltage Output Impedance	1K ohm
Output Short Circuit Protection	Included
Watch Dog	Hardware & Communication
Power Requirements	10 to 30 Vdc
Wiring	I/O Cable 16 to 24 AWG
Analog Input Function Block	
Offset adjust	-128 to 127
Slop Output	Slop time (0 to 65535 s)
High/Low Clamp	YES
Auto/Man bumpless	YES
Fail Safe (Comm. Watch Dog)	0 to 65535 s
Power on output	YES

Current / Frequency Intput Module

Model		SM_CNT_102
Product		
Description		2 Channels Current / Frquency Input Module
Output Channel		2
Relay Output Channels		4
Input Ranges		0 to 10,000Hz
Resolution		0 to 10,000Hz input range: 1Hz
Pulse counter		1 pulse
Minimum Input Pulse Width		50μS
Counting Rate		10KHz maximum counting rate (50uS ON and 50uS OFF for 100 uS period or 10KHz)
Input Impedance		4.7K ohms, typical
Digital logic levels :	OFF state	< 4 VDC
	ON state	>10 VDC
Output Relay Type		Form A,Normal Open
Contact Rating		5A @250VAC 5A @30VDC
Max. output current per channel		2A
Max. output current (entire module)		8A
Minimum OFF resistance		1000 Meg Ohm @500 Vdc
Minimum On resistance		30M Ohm @6 Vdc 1A
Output Response Time		10ms , MAX, measured from receipt of force coil command to gate transition of the output MOSFET
Min. Life		1A 1*10^5 ops
Line Voltage		Max 30Vdc, Max 250Vac
Life Mechanical		2*10^7 ops
Watch Dog		Hardware & Communication
Power Requirements		10 to 30 Vdc
Wiring		I/O Cable 16 to 24 AWG
Operating Temperature		-20 ~ 60°C

Digital Input Function Block

On Delay timer	NO	Pulse Generator	NO	Simulation	YES
Off Delay timer	NO	Pulse Counter	10K HZ	Input Toggle	NO
Input Debounce	NO	ON/OFF Latch	NO	Timer Accuracy	NO
Input Invert	YES				

Digital Output Function Block

Output Sequence ON timer	NO	TPC Output	NO	Power on output	YES
Output Sequence Off timer	NO	Duty cycle	NO	Alarm Output	NO
Output Invert	YES	Atuo/Man bumpless	0 to 65535 s	Timer Accuracy	NO
Pulse Output	NO	Fail Safe (Comm. Watch Dog)	YES		

Power Adapter Specifications

Part Number: 1ASD-B212V10UF9500

Inputs

Power Input: 100-240VAC, 50-60Hz
Plug Type: AC/DC Adaptor (US)

Outputs

Power Output: 12VDC @ 1A
Connector: Concentric Barrel Type

Connector's Outer Diameter: 5.5 ± 0.3mm
Connector's Inner Diameter: 2.1 ± 0.3mm
Dimensions
(W) 34 x (L) 75 X (H) 43 mm
Cord Length: 1830mm

Operating Temp: 0 ~ 80°C
Safety: UL/cUL Certified

Part Number: 1ASD-B212V10EF9500

Inputs

Power Input: 100-240VAC, 50-60Hz
Plug Type: AC/DC Adaptor (EU)

Outputs

Power Output: 12VDC @ 1A
Connector: Concentric Barrel Type

Connector's Outer Diameter: 5.5 ± 0.3mm
Connector's Inner Diameter: 2.1 ± 0.3mm

Dimensions

(W) 34 x (L) 75 X (H) 43 mm
Cord Length: 1830mm

Operating Temp: 0 ~ 80°C
Safety: UL/cUL Certified

Part Number: 1ASD-B212V10BF9500

Inputs

Power Input: 100-240VAC, 50-60Hz
Plug Type: AC/DC Adaptor (UK)

Outputs

Power Output: 12VDC @ 1A
Connector: Concentric Barrel Type

Connector's Outer Diameter: 5.5 ± 0.3mm
Connector's Inner Diameter: 2.1 ± 0.3mm

Dimensions
(W) 34 x (L) 75 X (H) 43 mm
Cord Length: 1830mm

Operating Temp: 0 ~ 80°C
Safety: UL/cUL Certified

Part Number: 1ASD-B212V10NF9500

Inputs
Power Input: 100-240VAC, 50-60Hz
Plug Type: AC/DC Adaptor (Australia)

Outputs
Power Output: 12VDC @ 1A
Connector: Concentric Barrel Type

Connector's Outer Diameter: 5.5 ± 0.3mm
Connector's Inner Diameter: 2.1 ± 0.3mm

Dimensions
(W) 34 x (L) 75 X (H) 43 mm
Cord Length: 1830mm

Operating Temp: 0 ~ 80°C
Safety: UL/cUL Certified

Part Number: 1ASD-B212V15KF9500

Inputs
Power Input: 100-240VAC, 50-60Hz
Plug Type: AC/DC Adaptor (Korea)
Outputs
Power Output: 12VDC @ 1A
Connector: Concentric Barrel Type

Connector's Outer Diameter: 5.5 ± 0.3mm
Connector's Inner Diameter: 2.1 ± 0.3mm

Dimensions
(W) 33.5 x (L) 75 X (H) 43 mm
Cord Length: 1830mm

Operating Temp: 0 ~ 105°C
Safety: UL/cUL Certified

Industrial Multi-Port Serial Card

Universal PCI	
IPC-P2002	2 Ports RS-422/485 Universal PCI serial card - Low profile
IPC-P2002SI	2 Ports RS-422/485 Universal PCI serial card with 600W Surge and 2.5KV Optical Isolation - Low profile
IPC-P2004	4 Ports RS-422/485 Universal PCI serial card - Low profile
IPC-P2004SI	4 Ports RS-422/485 Universal PCI serial card with 600W Surge and 2.5KV Optical Isolation- Low profile
IPC-P2008	8 Ports RS-422/485 Universal PCI serial card - Low profile
IPC-P2008I	8 Ports RS-422/485 Universal PCI serial card with 600W Surge and 2.5KV Optical Isolation
IPC-P3004	4 Ports RS-232/422/485 Universal PCI serial card - Low profile
IPC-P3008	8 Ports RS-232/422/485 Universal PCI serial card - Low profile
PCI Express	
IPC-E2002	2 Ports RS-422/485 PCI Express serial card - Low profile
IPC-E2002SI	2 Ports RS-422/485 PCI Express serial card with 600W Surge and 2.5KV Optical Isolation- Low profile
IPC-E2004	4 Ports RS-422/485 PCI Express serial card - Low profile
IPC-E2004SI	4 Ports RS-422/485 PCI Express serial card with 600W Surge and 2.5KV Optical Isolation- Low profile
IPC-E2008	8 Ports RS-422/485 PCI Express serial card - Low profile
IPC-E2008SI	8 Ports RS-422/485 PCI Express serial card with 600W Surge and 2.5KV Optical Isolation
IPC-E3004	4 Ports RS-232/422/485 3-in-1 PCI Express serial card
IPC-E3008	8 Ports RS-232/422/485 3-in-1PCI Express serial card
PCI / 104	
IPC-B1008	8 Ports RS-232 PC/104 serial card
IPC-B2002	2 Ports RS-422/485 PCI/104 serial card
IPC-B2002SI	2 Ports RS-422/485 PCI/104 serial card with 600W Surge and 2.5KV Optical Isolation
IPC-B2004	4 Ports RS-422/485 PCI/104 serial card
IPC-B2004SI	4 Ports RS-422/485 PCI/104 serial card with 600W Surge and 2.5KV Optical Isolation
IPC-B2008	8 Ports RS-422/485 PCI/104 serial card

Industrial Ethernet Switch

Gigabit Managed Redundant Ethernet Switch	
ESW-5242-GP	Industrial 24-port 10/100Base-T(X)+ 2-port Gigabit Combo Managed Switch
ESW-5162-GP	Industrial 16-port 10/100Base-T(X) + 2-port Gigabit Combo Managed Switch
ESW-8082-GT	Industrial Gigabit Managed Ethernet Switch with 8 10/100TX+2 10/100/1000BaseTX, RJ45 connector
ESW-8082-GT-E	Industrial Gigabit Managed Ethernet Switch with 8 10/100TX+2 10/100/1000BaseTX, RJ45 connector, - 40~80°C
ESW-8082-GP	Industrial Gigabit Managed Ethernet Switch with 8 10/100T(X)+2 1000SX/LX, SFP(mini-GBIC) ports
ESW-8082-GP-E	Industrial Gigabit Managed Ethernet Switch with 8 10/100T(X)+2 1000SX/LX, SFP(mini-GBIC) ports, -40~80°C

Managed Ethernet Switch	
ESW-8062-TX	Industrial Managed Redundant Ethernet Switch with 8 10/100BaseT(X), RJ45 connector
ESW-8062-MMC	Industrial Managed Redundant Ethernet Switch with 6 10/100T(X)+2 100SX Multi mode Fiber, SC connector
ESW-8062-MMT	Industrial Managed Redundant Ethernet Switch with 6 10/100T(X)+2 100SX Multi mode Fiber, ST connector
ESW-8062-MMC-E	Industrial Managed Redundant Ethernet Switch with 6 10/100T(X)+2 100SX Multi mode Fiber, SC connector, -40~80°C
ESW-8062-MMT-E	Industrial Managed Redundant Ethernet Switch with 6 10/100T(X)+2 100SX Multi mode Fiber, ST connector, -40~80°C
ESW-8062-SSC	Industrial Managed Redundant Ethernet Switch with 6 10/100T(X)+2 100LX Single mode Fiber, SC connector
ESW-8062-SST	Industrial Managed Redundant Ethernet Switch with 6 10/100T(X)+2 100LX Single mode Fiber, ST connector
ESW-8062-SSC-E	Industrial Managed Redundant Ethernet Switch with 6 10/100T(X)+2 100LX Single mode Fiber, SC connector, -40~80°C
ESW-8062-SST-E	Industrial Managed Redundant Ethernet Switch with 6 10/100T(X)+2 100LX Single mode Fiber, ST connector, -40~80°C
ESW-8062-GMC	Industrial Gigabit Managed Redundant Ethernet Switch with 6 10/100T(X)+2 1000SX Multi mode Fiber, SC connector
ESW-8062-GMT	Industrial Gigabit Managed Redundant Ethernet Switch with 6 10/100T(X)+2 1000SX Multi mode Fiber, ST connector
ESW-8062-GMC-E	Industrial Gigabit Managed Redundant Ethernet Switch with 6 10/100T(X)+2 1000SX Multi mode Fiber, SC connector, -40~80°C
ESW-8062-GMT-E	Industrial Gigabit Managed Redundant Ethernet Switch with 6 10/100T(X)+2 1000SX Multi mode Fiber, ST connector, -40~80°C
ESW-8062-GSC	Industrial Gigabit Managed Redundant Ethernet Switch with 6 10/100T(X)+2 1000LX Single mode Fiber, SC connector
ESW-8062-GST	Industrial Gigabit Managed Redundant Ethernet Switch with 6 10/100T(X)+2 1000LX Single mode Fiber, ST connector
ESW-8062-GSC-E	Industrial Gigabit Managed Redundant Ethernet Switch with 6 10/100T(X)+2 1000LX Single mode Fiber, SC connector, -40~80°C
ESW-8062-GST-E	Industrial Gigabit Managed Redundant Ethernet Switch with 6 10/100T(X)+2 1000LX Single mode Fiber, ST connector, -40~80°C
ESW-8062-GT	Industrial Gigabit Managed Ethernet Switch with 6 10/100T(X)+2 10/100/1000BaseT(X), RJ45 connector
Lite - Managed Ethernet Switch	
ESW-2050	Industrial 5 ports 10/100Base-T(X) Lite-Managed Switch
ESW-2060	Industrial 6 ports 10/100Base-T(X) Lite-Managed Switch
ESW-2042MM	Industrial 4 ports 10/100Base-T(X)+ 2 port 100Base-FX (Multi Mode) Lite-Managed Switch
ESW-2042SS	Industrial 4 ports 10/100Base-T(X)+ 2 port 100Base-FX (Multi Mode) Lite-Managed Switch
ESW-2080	Industrial 8 ports 10/100Base-T(X) Lite-Managed Switch
Un-managed Ethernet Switch	
ESW-1050-TX	Industrial Un-managed Ethernet Switch with 5 10/100BaseT(X), RJ45 connector
ESW-1041-SSC	Industrial Un-managed Ethernet Switch with 4 10/100T(X)+1 port 100LX Single mode Fiber, SC connector
ESW-1041-SST	Industrial Un-managed Ethernet Switch with 4 10/100T(X)+1 port 100LX Single mode Fiber, ST connector
ESW-1041-MMC	Industrial Un-managed Ethernet Switch with 4 10/100T(X)+1 port 100SX Multi mode Fiber, SC connector
ESW-1041-MMT	Industrial Un-managed Ethernet Switch with 4 10/100T(X)+1 port 100SX Multi mode Fiber, ST connector
ESW-1080-TX	Industrial Un-managed Ethernet Switch with 8 10/100BaseT(X), RJ45 connector
ESW-1062-SSC	Industrial Un-managed Ethernet Switch with 6 10/100T(X)+2 port 100LX Single mode Fiber, SC connector
ESW-1062-SST	Industrial Un-managed Ethernet Switch with 6 10/100T(X)+2 port 100LX Single mode Fiber, ST connector
ESW-1062-MMC	Industrial Un-managed Ethernet Switch with 4610/100T(X)+2 port 100SX Multi mode Fiber, SC connector
ESW-1062-MMT	Industrial Un-managed Ethernet Switch with 4610/100T(X)+2 port 100SX Multi mode Fiber, ST connector

Industrial Device Servers

IDS	
IDS-1011	1-port RS-232 to 1-port 10/100TX LAN Device Server
IDS-2011	1-port RS-422/485 to 1-port 10/100T(X) LAN Device Server
IDS-3010(M/S)	1-port RS-232/422/485 to 1-port 100FX (FIBER) LAN Device Server
IDS-3011	1-port RS-232/422/485 to 1-port 10/100T(X) LAN Device Server
IDS-3012	1-port RS-232/422/485 to 2-port 10/100T(X) LAN Redundant Device Server
IDS-3042	4-port RS-232/422/485 to 2-port 10/100T(X)LAN Redundant Device Server
Device Server With POE	
IDS-2042P-I	4-port RS-422/485 with 2.5KV Isolation to 2-port 10/100T(X) LAN Redundant PoE (PD in ETH2) Device Server
IDS-2042P	4-port RS-232/422/485 to 2-port 10/100T(X) LAN Redundant PoE (PD in ETH2) Device Server
Wireless Device Server	
IDS-1011W	1-port RS-232 to 802.11 b/g WLAN & 1-port 10/100TT(X) LAN Device Server
IDS-2011W	1-port RS-422/485 to 802.11 b/g WLAN & 1-port 10/100T(X) LAN Device Server
IDS-3011W	1-port RS-232/422/485 to 802.11 b/g WLAN & 1-port 10/100T(X) LAN Device Server
IDS-2042W-I	4-port RS-422/485 with 2KV Isolation to 802.11 b/g WLAN & 2-port 10/100T(X) LAN Device Server
IDS-3042W	4-port RS-232/422/485 to 802.11 b/g WLAN & 2-port 10/100T(X) LAN Device Server
Wireless AP	
WAP-5002	Industrial 802.11b/g Wireless LAN Access Point with 2-port RJ45 LAN
WAP-5002P	Industrial 802.11b/g Wireless LAN Access Point with 2-port RJ45 LAN (1-port PoE PD)

Industrial Media Converter

Serial Converter	
STD-1914A	RS-232 to RS-422/485 Converter- Plastic
STD-1914SA	RS-232 to RS-422/485 Converter with Surge- Plastic
STD-1918H	RS-232 to RS-422/485 Converter
STD-1918H-E	RS-232 to RS-422/485 Converter ,-40~80°C
STD-1918H-SI	RS-232 to RS-422/485 Converter with 400W Surge and 2.5KV Optical Isolation
STD-1918H-SI-E	RS-232 to RS-422/485 Converter with 400W Surge and 2.5KV Optical Isolation ,-40~80°C
Fiber Converter	
FTS-6011-SSC	RS-232 to Single mode SC type Fiber Converter
FTS-6011-SST	RS-232 to Single mode ST type Fiber Converter
FTS-6011-MMC	RS-232 to Multi mode SC type Fiber Converter
FTS-6011-MMT	RS-232 to Multi mode ST type Fiber Converter
FTD-6011-SSC-E	RS-232 to Single mode SC type Fiber Converter,-40~80°C
FTD-6011-SST-E	RS-232 to Single mode ST type Fiber Converter,-40~80°C
FTD-6011-MMC-E	RS-232 to Multi mode SC type Fiber Converter,-40~80°C
FTD-6011-MMT-E	RS-232 to Multi mode ST type Fiber Converter,-40~80°C
FTD-6011-SCS	RS-422/485 to Single mode SC type Fiber Converter
FTD-6011-SST	RS-422/485 to Single mode ST type Fiber Converter
FTD-6011-MMC	RS-422/485 to Multi mode SC type Fiber Converter
FTD-6011-MMT	RS-422/485 to Multi mode ST type Fiber Converter
FTD-6011-SSC-E	RS-422/485 to Single mode SC type Fiber Converter ,-40~80°C

FTD-6011-SST-E	RS-422/485 to Single mode ST type Fiber Converter ,-40~80°C
FTD-6011-MMC-E	RS-422/485 to Multi mode SC type Fiber Converter ,-40~80°C
FTD-6011-MMT-E	RS-422/485 to Multi mode ST type Fiber Converter ,-40~80°C
FTC-6011-SSC	RS-232/422/485 Serial to Single mode SC type Fiber Converter
FTC-6011-SST	RS-232/422/485 Serial to Single mode ST type Fiber Converter
FTC-6011-MMC	RS-232/422/485 Serial to Multi mode SC type Fiber Converter
FTC-6011-MMT	RS-232/422/485 Serial to Multi mode ST type Fiber Converter
FTC-6011-SSC-E	RS-232/422/485 Serial to Single mode SC type Fiber Converter ,-40~80°C
FTC-6011-SST-E	RS-232/422/485 Serial to Single mode ST type Fiber Converter ,-40~80°C
FTC-6011-MMC-E	RS-232/422/485 Serial to Multi mode SC type Fiber Converter ,-40~80°C
FTC-6011-MMT-E	RS-232/422/485 Serial to Multi mode ST type Fiber Converter ,-40~80°C
Ethernet Converters	
FTL-1218H-MMC	Industrial 10/100BaseT(X) to 100BaseFX Multi mode SC type Fiber Converter
FTL-1218H-MMT	Industrial 10/100BaseT(X) to 100BaseFX Multi mode ST type Fiber Converter
FTL-1218H-SSC	Industrial 10/100BaseT(X) to 100BaseFX Single mode SC type Fiber Converter
FTL-1218H-SST	Industrial 10/100BaseT(X) to 100BaseFX Single mode ST type Fiber Converter
FTL-1218H-MMC-E	Industrial 10/100BaseT(X) to 100BaseFX Multi mode SC type Fiber Converter,-40~80°C
FTL-1218H-MMT-E	Industrial 10/100BaseT(X) to 100BaseFX Multi mode ST type Fiber Converter,-40~80°C
FTL-1218H-SSC-E	Industrial 10/100BaseT(X) to 100BaseFX Single mode SC type Fiber Converter,-40~80°C
FTL-1218H-SST-E	Industrial 10/100BaseT(X) to 100BaseFX Single mode ST type Fiber Converter,-40~80°C
FTL-1218H-GMC	Industrial 10/100/1000BaseT(X) to 1000BaseSX Multi mode SC type Fiber Converter - (Coming soon)
FTL-1218H-GMT	Industrial 10/100/1000BaseT(X) to 1000BaseSX Multi mode ST type Fiber Converter - (Coming soon)
FTL-1218H-GSC	Industrial 10/100/1000BaseT(X) to 1000BaseLX Single mode SC type Fiber Converter - (Coming soon)
FTL-1218H-GMT	Industrial 10/100/1000BaseT(X)to 1000BaseSX Single mode ST type Fiber Converter - (Coming soon)
FTL-1218H-GMC-E	Industrial 10/100/1000BaseT(X) to 1000BaseSX Multi mode SC type Fiber Converter,-40~80°C - (Coming soon)
FTL-1218H-GMT-E	Industrial 10/100/1000BaseT(X) to 1000BaseSX Multi mode ST type Fiber Converter,-40~80°C - (Coming soon)
FTL-1218H-GSC-E	Industrial 10/100/1000BaseT(X) to 1000BaseLX Single mode SC type Fiber Converter,-40~80°C - (Coming soon)
FTL-1218H-GMT-E	Industrial 10/100/1000BaseT(X) to 1000BaseSX Single mode ST type Fiber Converter,-40~80°C - (Coming soon)

Industrial Modbus I/O Modules

Digital Inut/Output Module	
SM_DI_116p	16 Channels 24VDC Digital Input (Sourcing)
SM_DIO_116p	16 Channels 24VDC Digital Input/Output (Sourcing)
SM_DO_116	16 Channels Power Relay Output (One Common)
SM_DO_108	8 Channels Power Relay Output
SM_CNT_102	2 Channels Pulse Counter/Frequency Input
Analog Inut/Output Module	
SM_AO_102i	2 Channels Current/Voltage Analog Output
SM_AI_108i	8 Channels Current/Voltage Analog Input
SM_TH_108i	8 Channels Thermister Analog Input
SM_UI_108i	8 Channels Universal Analog Input
SM_RTD_108i	8 Channels RTD Analog Input