HOKUSHIN TELNEX Co., Ltd.

Company Profile Service/Business Outline

Total support for various ICT needs of customers

Overview

Company name : HOKUSHIN TELNEX Co., Ltd.

Headquarters :	Kanazawa	3-47, Kobashimachi, Kanazawa, Ishikawa 920-0844 Japan +81-(0)76-252-3232
Branch:	Fukui	3-7-11,Softpark Fukui,Maruokacho,Sakai,Fukui 910-0347 Japan +81-(0)776-67-3220
	Toyama	27, Kurosaki, Toyama, Toyama 939-8214 Japan +81-(0)76-422-3800
	Komatsu	42-1,Futsumachi-So, Komatsu, Ishikawa Japan +81-(0)761-43-1670
	Tohoku	4-1-18 Nakano,Miyagino-ku, Sendai,Miyagi 983-0013 Japan +81-(0)22-290-3739
	Tokyo	3F Takanawa JEBL, 2-16-37 Takanawa,Minato-ku,Tokyo 108-0074 Japan +81-(0)3-6721-9400
Facility Division:	Osaka	3-11-3 Bandai,Sumiyoshi,Osaka,Osaka 558-0055 Japan +81-(0)6-6310-2730
Established:	1966 February 26	
Capital Stock:	90 million yen (100% subsidiary of HT Holdings K.K.)	
Board Member:	Representative Executive	Masaru Boda
	Executive Director	Noboru Chujyo, Teruo Yabe, Shintaro Yamashita, Yoshikatsu Takeda
	Auditing Officer	Hirokatsu Iwaki
Employees:	58(Full-time employees)	
Major Clients and partners:	Fukui bank, Hokkoku Bank, The Kanazawa Shinkin Bank, financial divisions of insurance and security companies, public offices, Komatsu Ltd., NTT, Fujitsu, Japan Atomic Power Company, Hokuriku Denwa Kouji, Sakai Ovex group, Elle-Rose group, Ishikawa Prefecture Music Hall, Jupiter Telecommunications, Kintetsu Cable Network, Cable TV Kishiwada, Tsuzuki Denki, Netone Systems, ORIX Facilities, and more…	
Dealerships:	Fujitsu, Nippon Telegraph And Telephone West, NEC Networks & System Integration, KDDI, Murata Machinery, Hochiki, NTT docomo, Panasonic System Solutions Japan, TOA, Sharp Marketing Japan, Dodwell B・M・S, Okamura Corporation	
Member Organizations:	ITCA Hokuriku Branch (auditor-secretary), ISA (commissioner), Kanazawa Association of Corporate Executives (executive board member), Kanazawa Chamber of Commerce and Industry, Kanazawa-Hojinkai, Softpark Fukui Cooperative association (auditor-secretary), Fukui Association of Information & System Industry (commissioner), Fukui Chamber of Commerce and Industry	
Main banks:	Fukui bank, Hokkoku Bank, The Kanazawa Shinkin Bank, MUFG Bank, First Bank of Toyama, Notokyouei Shinyoukinko, The Fukuho Bank, Hokuriku Bank	

Services:

- Contract work for the installation of rail track and civil engineering telecommunication systems.
- Contract work for the installation of telecommunications equipment, power supply systems, and wiring.
- Manufacture, repair, processing and distribution of telecommunications related equipment.
- Distribution, installation, support, maintenance, and development of software for computers and peripherals.
- Planning, construction, and support/maintenance for internal telephone installation.
- Design and installation of electrical work.
- Construction and support for fire suppression and security systems.
- Sale and repair of consumer electronics.
- Installation and support services to cable television broadcasting facilities and peripherals.
- Managing the design and construction of building projects.
- Survey, planning, design, construction, and contract work for building and plumbing projects.
- Contract worker dispatch agency compliant with the Worker Dispatch Laws.
- A fee-charging employment agency compliant with the Employment Security Act.
- Related services and investments to those listed above.

Group Company: HT ELETEC Co., Ltd. , HT SYSTEM Co., Ltd. , Outstanding Technology Co., Ltd.

ISO9001/14001 ISO/IEC27001

History

1966 February	Separated from Hokuriku Denwa Kouji's PBX construction department. Established Hokushin Denwa Setsubi Co., Ltd. with capital of 10,000,000yen
1974 July	Increased capital to 20,000,000yen
1976 June	Opened Toyama temporary branch-office
1979 January	Opened Fukui Sales office
1992 April	Toyama temporary branch-office changed to Toyama sales office
1993 April	Increased capital to 40,000,000yen
1994 November	Changed company name to HOKUSHIN TELNEX Co., Ltd.
1996 April	Opened Komatsu Sales office
December	Increased capital to 60,000,000yen
1998 July	Opened Kanazawa Sales office
1999 April	Increased capital to 90,000,000yen Changed Fukui sales office to Fukui branch
2000 June	Changed Kanazawa sales office to Kanazawa branch
2003 April	Changed Kanazawa branch to headquarters
2004 September	Certified ISO9001: 2000 certification
2005 April	Separated the Kanazawa head office from the headquarters
August	Opened Reinan Sales office
2006 September	Started general worker dispatch business
2007 May	Changed Toyama sales office to Toyama branch
2009 March	Certified ISO27001 certification
2011 May	Opened Tohoku Sales office
2015 April	Opened Tokyo Sales Department
May	Opened Hirakata Sales office
2018 May	Merged Reinan Sales Office with Fukui Branch
2019 March	Opened Facility Division Osaka Branch

Certificated License

Certificated License

Construction (Telecommunication)
Certificate of the License Granted No.:(TOKU)18082

Construction (Firefighting facility/Electrical)
Certificate of the License Granted No.:(HAN)18082

License certificate for genera worker dispatching undertakings Han:17-300055

Hokuriku 3 prefectures
Ministry of Land, Infrastructure, Transport and Tourism
Ministry of Finance,Ministry of Internal Affairs and Communications, Others

Eligibility for bid participation
Manufacturer qualification

Employee Qualifications

Electrician : First/Second-Class

Electrical work operation and management engineer : First/Second -Class

Fire defense equipment officer's qualification Class A Group 3,4 Class B Group 4,7

Analog and Digital Installation Technician

Certificate of qualification for managing engineer / Telecommunication

Construction Accountant : First/Second-Class

Management System

Category	Registration	
Quality Management System (QMS) **Environmental Management System (EMS)** **Information Security Management System (ISMS)**	Headquarters (Ishikawa, Kanazawa)	Construction, maintenance, sales and network communication design for electrical and telecommunications system
	Fukui Branch (Fukui, Sakai)	Construction, maintenance, and sales for electrical telecommunications system
	Toyama Branch (Toyama ,Toyama)	Construction, maintenance, and sales for electrical and telecommunications system
	Komatsu Branch (Ishikawa, Komatsu)	Construction and maintenance of electrical and telecommunications system
	Tohoku Office (Miyagi, Sendai)	Construction, maintenance, and sales for electrical and telecommunications system

Fundamental policy

1. Quality declaration (ISO9001)
"Enhancing quality and ensuring safety" is a proof of customer satisfaction and trust, and contributes to society through further technological improvements and human resource development.
We will build a company that can be dedicated.

2. Environmental declaration (ISO14001)
"Preventing pollution and complying with laws and regulations at our company and customers" is a response to environmental issues as a member of society. We will build a company that can contribute to an environment-oriented society by continually improving our management system.

3. Information security declaration (ISO27001)
"Establishing an information security system" is an indispensable element for building and maintaining customer communication networks. An information security system that incorporates prevention of unauthorized access to information and prevention of leakage based on risk analysis based on customer requirements
By building, we will build a company that can contribute to society.

Hokushin Telnex Co., Ltd. President & Representative Director
Masaru Boda

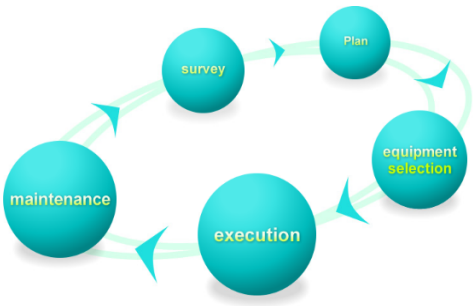
ISO9001/14001 ISO/IEC27001

IP Network

IP networks refer to information and communications sent via IP = (Internet protocol). Network is a collective term of telecommunications connecting LAN (Local Area Network) to WAN (Wide Area Network) or LAN to LAN. LAN is a network connecting a relatively confined area such as within same building or a private network within a company.
ISDN and Frame Relay & Cell Relay were used as networking standards in the past, but Wide Area Ethernet and IPVPN network are the standard to meet the requirements of the large volume of data usage within the network recently.
Due to the recent proliferation of high-speed broadband internet access and the resulting fall in prices, the number of companies who decide to employ network solutions with VPNs is increasing.

We provide fully featured IP network solutions using both WAN and LAN infrastructure based on customers' use cases.
Please feel free to contact us for any concerns such as negotiation with carriers (network providers), provisioning planning, and selecting network equipment through various OEMs.

Network Integration & Solution
BY HOKUSHIN TELNEX

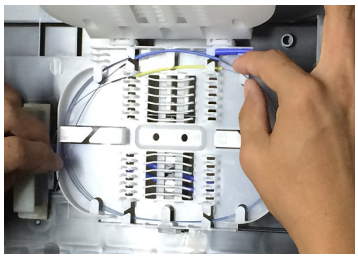


Current and Previous Customers

- SINCOL Co., Ltd.
- Genky Stores,Inc.
- Liquor World Hana
- Apple Logistics Co., Ltd. Kiramekino Center

Fusing Optical Cables

Optical cables are mainly used for long distance, outside, and factory site applications. The picture shows how optical cables are fused together.



Metering LAN Cables

Metering with an analyzer how much transmission loss happens in installed LAN cables in a facility to meet a standard transmission rate.

Installation of Network Equipment

Installing routers and switches onto a 19-inch rack.

Configuration of Network Equipment

Configuring routers and switches.

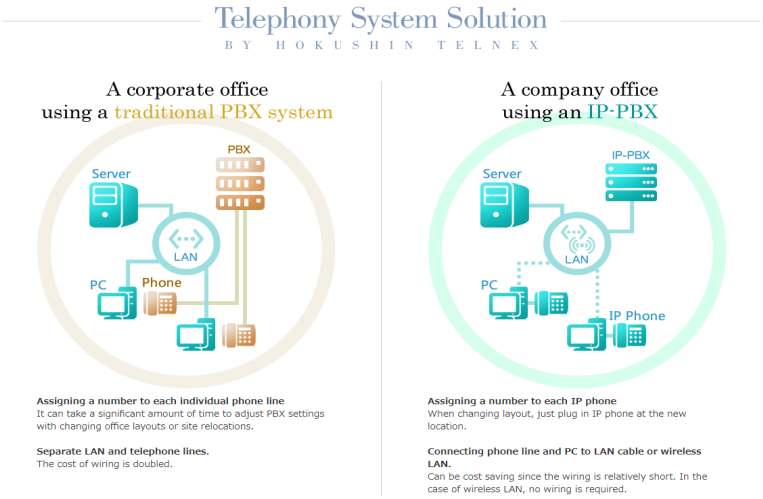
ISO9001/14001 ISO/IEC27001

Telephony System

Telephony is a telephone communication.
A telephone system with a private branch exchange which can be connected internally within an organization without using a public switched telephone network (PSTN/NTT network) is called an extension telephone. Large-scaled major companies apply PBX (Private Branch eXchange) to meet multi-function requirements like internal extension, ADSL, and private circuit connection. Smaller scaled companies apply key telephone system to serve an almost identical function as PBX. Since digital systems became standard, factories, large firms and hospitals began to use PHS (Personal Handy-phone System) as their internal extension system.

It is now being integrated with computer by applying CTI (Computer Telephone Integration) at places like call centers, can show customer information on an operator's terminal and update call-logs automatically with a data obtained by a numerical display. Recent days VoIP (Voice over Internet Protocol) is becoming popular as a means to make extension calls for free to meet TCO requirements. VoIP is a technology transmit one's voice over an IP (Internet Protocol) network.

This is a system which converts voice data to an IP packet, and transmits it alongside other data over LAN.
Internet phones and various other systems use this method.
More companies are now adopting PBX which uses an IP based switchboard due to the presence of high-speed broadband in the communication network.



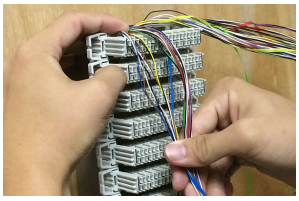
Recent Use Cases

- Fukui Bank, Ltd.
- Apple Logistics Co., Ltd. Kiramekino Center
- Sakai Ovex Group
- Kanakan Inc.
- Suzuki Auto Fukui
- Beniya, Awara Onsen

Mounting PBX
Mounting various PCB on installed PBX..

Program configuration on PBX
Adding customer specific programs and data to PBX system..

In house cable terminal
Thousands of cables are connected to switching equipment in large scale systems. This is how we consolidate and connect cables.



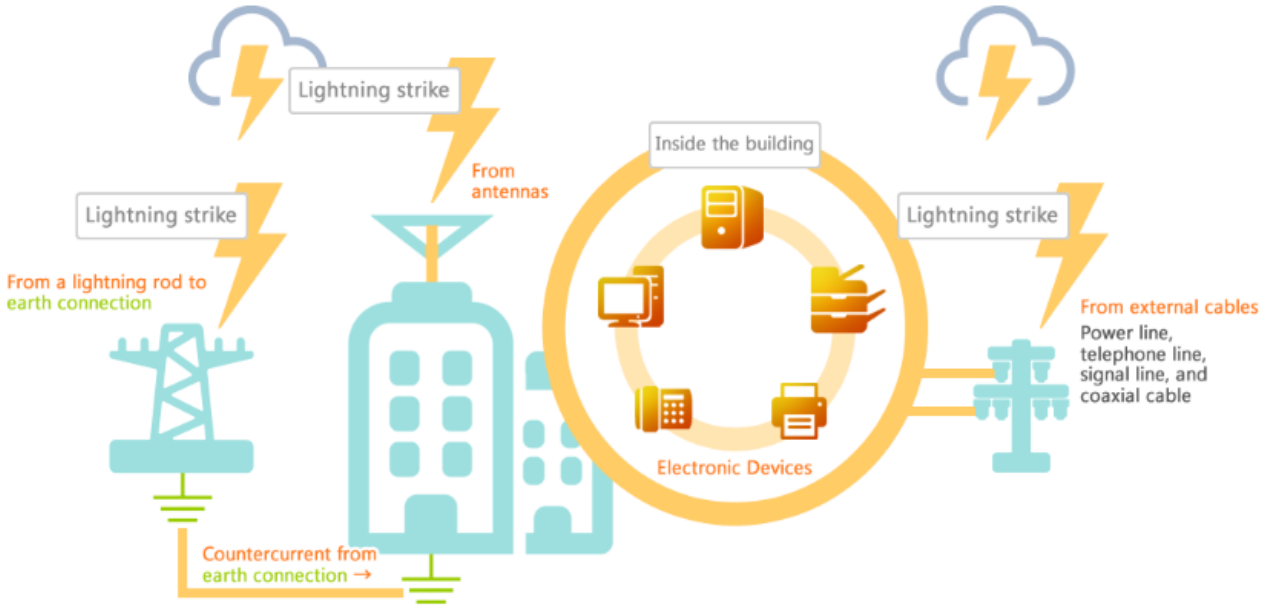
ISO9001/14001 ISO/IEC27001

Lighting Protection

It is said that about 50% of cases for hardware failure and system down-time is caused by abnormal voltage resulting from lightning strikes. IP networks, telephony systems and most IT systems which serve as a platform for IT society vulnerable to abnormal voltages.
Hokuriku in particular is well known worldwide as a lightning strike hotspot.
Our main systems, networks and telephony systems have often faced system down-time due to lightning.
Japan's Lightning Protection Standard was used to be behind the EU's. It has been reviewed based on International Standards and established as new JIS standard in 2004.

The act encourages the development of better lightning protection systems and it enables us to provide more reliable systems to our customers.
We, in cooperation with manufacturers will protect your important systems and electrical assets from lightning strikes to this new JIS standard.

How Lightning Causes Damage



Recent Use Cases

- Fukui Bank, Ltd.
- The Japan Atomic Power Company - Tsuruga Nuclear Power Plant
- Chubu Regional Police Bureau

LED lighting

LED (Light Emitting Diode) is a type of semiconductor device which emits light when electric current passes through it. After white LEDs were introduced to market, it quickly became an energy saving illuminating light source.
At our company, we distribute and construct eco-friendly, low power, long lasting LED lights for outdoor and high-ceiling applications.
Our strength is to have a capability to deliver a proposal directly from a site survey and from there move straight to construction. Also depending on circumstance, we are flexible to meet the customers' specific requirements in creating the perfect product such as added salt-resistance, anti-harmonic distortion systems, angle tuning, lens angle adjustment, color & temperature adjustment, applying diamond cuts. Our close partnership with the HT ELETEC Co., Ltd. enables us to be so flexible with our projects.
Please feel free to contact us.

LED Installation Steps

BY HOKUSHIN TELNEX

Recent Use Cases

- Fukui Prefectural University
- Fukui Prefectural Dinosaur Museum
- Fukui Prefectural Okuetsumeisei high school
- Fukui Bank, Ltd.
- Guest House Victoria
- UP GARAGE Corporation, Fukui Store
- Nouvelle Plaza Seki
- Car7 Development.Co.,Ltd.

GL100 series

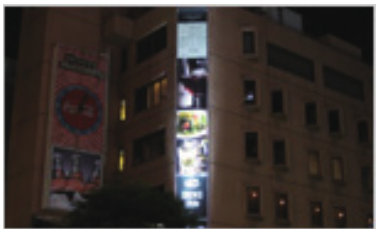
Uplighting for a signboard
Installed 40 degrees lens angle.
(power consumption 20W)
※This is 1/8 of electricity cost and equivalent brightness of 160W mercury light.

GL200 series

Uplighting for signboard
Installed 40 degrees lens angle.
(power consumption 43W x 4 units)
※This is 1/4 of electricity cost and equivalent brightness of a 160W mercury light.

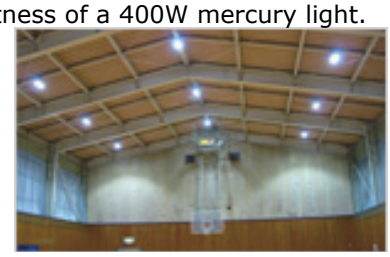
GL400 series

Overhead Lighting using 4 GL400 units for an arcade Installed 10 degrees lens angle.
(power consumption 70W x 4 units)
※This is 1/3 of electricity cost and equivalent brightness of a 200W mercury light.



GL500 series

Lighting for gymnastics hall.
Installed at 40- and 90-degree lens angles with diamond cut.
(power consumption 200W x 18 units)
※This is 1/3 of electricity cost and equivalent brightness of a 400W mercury light.



Security Systems

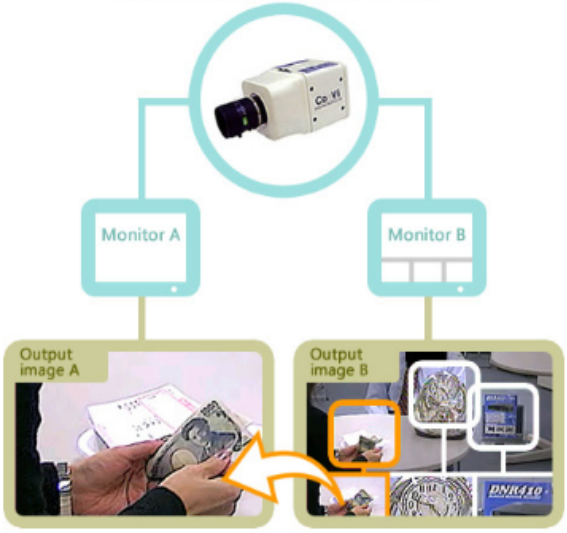
There are various security businesses in the world, we mainly provide store security systems.
It used to be the case that automatic security systems were the only option in stores,
but now it is possible to observe security footage at any time by recording and storing captured images on hard drives.
Since the advent of IP cameras, it is now possible to use your surveillance system with an IP network. It makes surveillance cameras easier to install on LAN networks within stores.
The technologies enable operators to check the status of their stores in real time remotely.
Recently HDD allow you to store large amounts of data, and due to continuing advances in compression technology, you can store more video data in easier to manage formats than ever before.

We provide the best security solution and equipment for financial facilities, supermarkets, and stores.

Network Integration & Solution
BY HOKUSHIN TELNEX

Unified management of multiple cameras

Zooming in at 3 points of a monitor at the same time



Pinpoint zoom
A full picture or 3 different points can be displayed with pinpoint zoom. The movie can be enlarged and displayed. It can reduce physical camera requirements and save cost.

Recent Use Cases

- Fukui Credit Union
- Genky Stores, Inc.
- Liquor World Hana

AVC/Conference Systems

AVC means Audio Visual Communications.
We provide high quality audiovisual services by supplying security cameras, projectors, audiovisual equipment, electronic blackboards, and other ICT tools.
Optimizing AVC brings beneficial effects to company activities. Conducting in-house meetings and training keeps up good mutual understandings and it improves PR. We can assist with hardware selection, wiring, installation, and maintenance, and can provide seamless service from pre to post-sales.
Communication tools are increasing in presence due to rapidly evolving business environs.
If the manager is handling multiple sites by himself/herself, they face communication challenges simply because of physical restrictions. The challenges continue with the efficiency in which information is shared from site to site.
It is well known that the cost of running meetings (travel cost, etc.) leads to an overall decline in their frequency, thus resulting in an overall lack of communication.
We solve these business challenges by installing web conference systems which functions irrespective of physical location. Web conference systems are high quality audiovisual meeting systems where people can attend remotely via their PC, or smart devices. We expect that the system will be utilized in academic fields where remote classrooms and lectures will become more and more common.
We expect further improvements to web conference systems with integration to AV systems bring more opportunities for their use in increasingly specific applications.

Recent Use Cases

- Fukui Credit Union　　Ceremony Hall Kenroku
- Hokkoku Bank, Ltd.
- Komatsu Ltd.

Substation Facility Service

"Substation facility" is the facility where electricity is received from the electric power substation and its voltage is adjusted for its intended use. As well as this, it prevents lightning incursion and automatically shuts down the system to minimize damages when current leakage occurs.
A substation facility consists of various apparatus, and it is placed in cubicle.
Risk of electricity outage and related damage in the facility increase by each component failure due to degradation with age.
It is difficult to identify faulty parts with general inspection and maintenance, periodic upgrades are highly recommended.

We install, upgrade, repair, plan, handle construction and associated paperwork at relevant government agencies. We provide the best substation facility solutions to the customer's needs.

Service

Service pole installation, temporary systems, upgrades, repairs, planning, and construction

We provide service pole solutions from planning to construction.
We provide the best solution for installation, temporary systems, upgrades, repairs, and expansion.

Cubicle : installation, upgradation, repairing, expansion, planning and construction

We provide high voltage substation solutions from planning to construction.
We provide the best solutions for installation, upgrades, repairs, and expansion.

Trunk Line Facility Construction

We install trunk lines from start to finish electing materials and power supply capacity calculations based on each individual use case.

Power Facility Construction

We provide upgrade services and power supply construction for power plates, instrument panels, and control panels

Light Facility Construction

We provide planning and construction services for distribution boards, illumination lights, and electric power outlets.

Application for Public Offices

We take care of all necessary paperwork for government agencies regarding the installation of substation facilities.
【Applications and Public Offices】
・Licensed electrical engineers
: consultation
・Electric power utility companies
: consultation and application
・Fire Departments
: consultation and application

Emergency Power Generation Systems

"Emergency Power Generator Systems" are facilities that generate electric power automatically when power supply from the grid is interrupted.
It ensures a power supply via a generator during power outages.
Installing an emergency power generator system can prevent blackouts which cause suspensions of services and stopped production lines. It enables businesses to continue as usual during outages.

We handle installation, upgrading, expansion, planning, construction, and all necessary paperwork.
We provide the best facility solution to suit the customer's needs.

Service

Emergency Power Generator Systems: installation, upgrades, repairs, expansion, planning, and construction

We provide services for emergency power generator systems from planning to construction.

Plumbing: underground tanks, inside tanks, service tanks

We provide plumbing services for various kinds of oil, fuel tanks, and facilities from planning to construction.

Removing black smoke and vibration control units

We provide support equipment to remove black smoke produced when generating emergency power.

Application for Public Offices

We take care of all necessary paperwork for government agencies regarding the installation of substation facilities.
【Applications and Public Offices】
・Licensed electrical engineers
: consultation
・Electric power utility companies
: consultation and application
・Fire Departments
: consultation and application

Power Supply Facility Service

"Power Supply Facility Services" is a system which acts as a backup power supply in case of power outages or emergencies and regulates the power supply and allows equipment and systems to continue to function stably.

The main options for power supply facilities are uninterruptible power systems (UPS) and DC power supply units (RECT). Power supply facilities for office use cases, data centers, financial markets, and other places have enough capability to control workload itself, but it enhances the ability to make operation more stable by combining the supply with emergency power generator systems.

However, when switching over workload to other power supply while upgrading or repairing, workloads must be halted or continue in an unstable manner whilst the backup is not working properly. Even in unstable power supply circumstances, we can provide a method of switching power sources to upgrade and repair power supply facilities with a stable power supply by Non-interruptible switching method.

We take care paper works to apply necessary procedure at public offices to install, upgrade, and expand power supply facilities. We provide the best facility solution to the customer's needs.

Service

Non-interruptible switching

We switch over live cables to UPS loading apparatus with no interruptions to the power supply.

UPS, RECT and secondary batteries

We provide a comprehensive service from installation to testing. We handle all necessary paperwork regarding applications to government agencies.

Air Conditioner Unit

We provide air-conditioning solutions from planning to construction, including selecting suitable hardware with an air-conditioning load calculation.

Planning and Construction for distribution boards, branching boards, and other boards.

We provide planning and construction for distribution boards, branching boards, and other types of boards.

Application for Public Offices

We take care of all necessary paperwork for government agencies regarding the installation of substation facilities.
【Applications and Public Offices】
・Licensed electrical engineers
: consultation
・Electric power utility companies
: consultation and application
・Fire Departments
: consultation and application

Due to expansion of the communication network, PCs and smartphones are now part of our daily life. Their usage is not only at work or at house, but at all times; the environment has drastically changed.
Upgrading and installing new antenna facilities and communication station facilities are required.

We take care of all necessary paperwork to government agencies regarding the installation, upgrade, and expansion of communication station facilities. We provide the best facility solution to the customer's needs for facilities and its buildings.

Service

Communication Station Facilities Construction

We provide services in planning and construction along with applications to government agencies for communication station facilities and buildings.

Expansion, upgrade, and repair of facilities

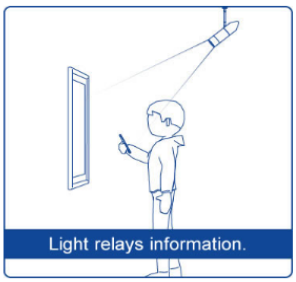
We expand, upgrade and repair existing facilities and buildings based on the customer need.

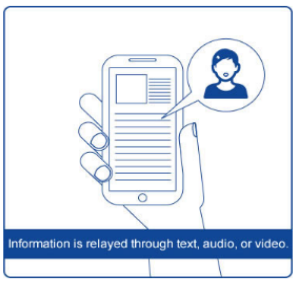
Engineering survey and report, and applications

We provide engineering survey, seismic diagnosis and applications to government agencies.

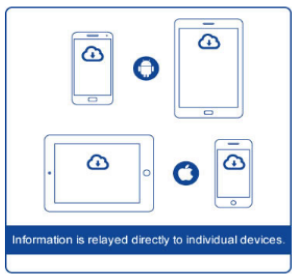
Lpis(**L**ighting **P**rotocol for **I**nformation **S**ystem) is Visible Light ID Cross Language Guidance System. and Visible Light ID Lighting is a technology that uses LED lighting as a wireless transmission method not dependent on radio signals. As it is not dependent on radio signals to send information Wi-Fi is not required for implementation, and the system is impervious to ambient radio and electrical noise. Unlike Wi-Fi networks, if a device is out of range of the transmission lights, others don`t have access to the information on the network. This means that intrusion or unwanted access to other networks via the guidance system from outside or long-range is not possible.

How Lips works





When a smartphone or tablet's camera receives light from an LED light source with an ID Transmission Board installed, information programmed to that light source will be displayed on the device screen. Text, audio, and video can all be relayed in this way.



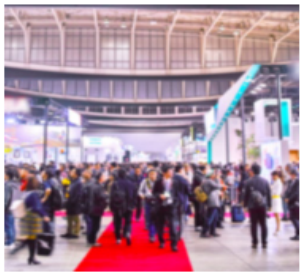
Using the onboard language settings of the receiving device the system can automatically customize its display language for a specific device.
By Simply downloading the guidance app onto their personal device users can begin to browse content.
The guidance app is available for Android and iOS.

Useful in a variety of environments and situations

Art Museums and Galleries

History Museums and Aquariums

Office Tours and Factory Tours



Art Shows and Product Displays

Amusement Parks

Shopping Malls

ISO9001/14001 ISO/IEC27001

CL-TXMOD is ID transmission module for Lpis. This is a module substrate that can be easily build a visible light ID.

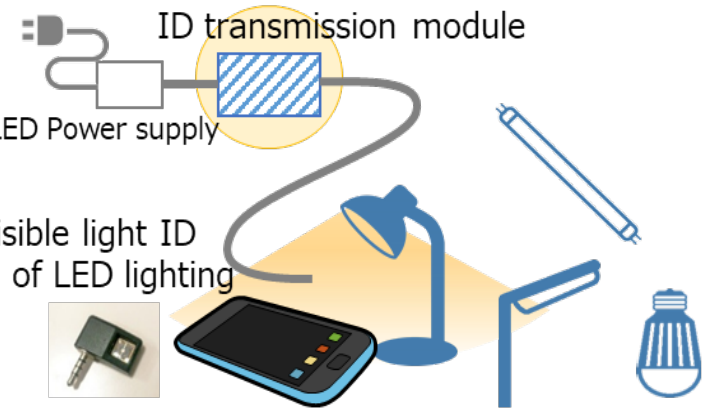
*Built-in visible light ID modulation circuit, Built-in visible light ID modulation circuit, able to configure an easy community light corresponding ID transmission lighting connected between the power supply and the LED.

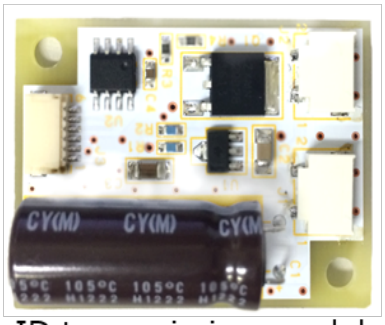
*Support wide range of power supply voltage. In addition the power supply voltage by combining the separate external drive circuit, it can extend the LED current.

*Provide Data transmission for ID operation tailored to the application as option.

How CL-TXMOD works

How to use





ID transmission module

Introduction example

O2O (department navigation, ad delivery)
Smart Cart
Museum, Showroom of the exhibition guide

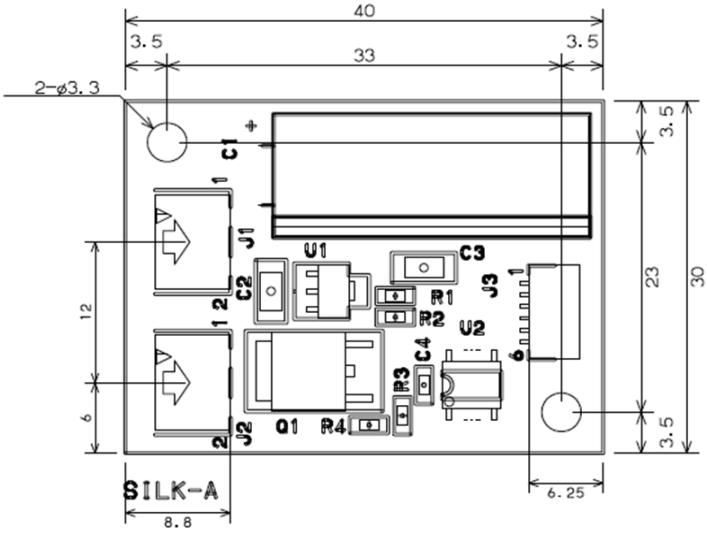
Cooperation of the store application
(Such as point function etc..)

Advertising in response to the sales floor,
coupon delivery
(Information can be obtained and come to
a specific department)

A terminal attached to the cart
Understanding of customer flow line,
induction to the sales floor

*) Commulight (ID lighting) license, terminal-side license an application will be needed for making system

Model number	**CL-TXMOD**
Power Supply Voltage	**14 - 100V**
LED Current	**1A (max)**
Power Consumption	**70mW max : 100V input**
ID length	**16bit or 128bit (CR-1222)**
Size	**30 x 40 x 12 mm**
Connection	**LEA connector x 2 (JST)**
*** Specifications are subject to change for improvement**	

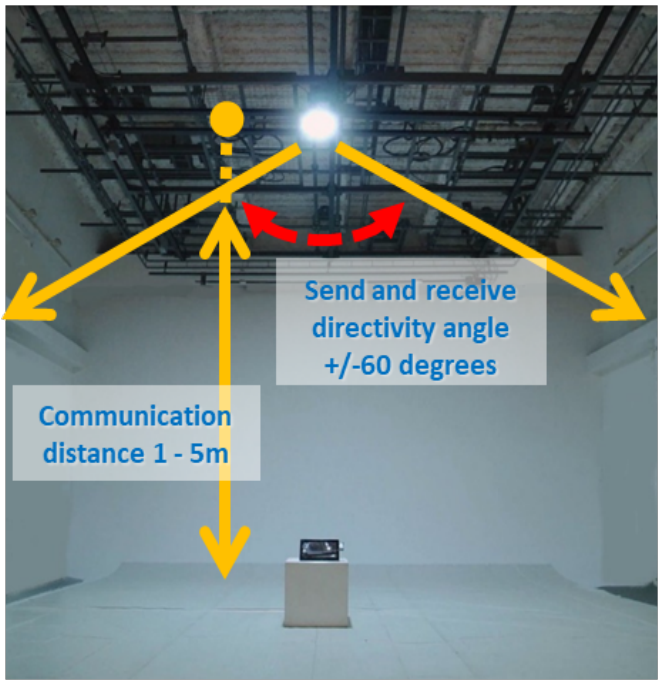


ISO9001/14001 ISO/IEC27001

Optical Wireless LAN System

- Optical(Visible Light /Infrared) wireless LAN system is the bidirectional wireless communication system without using radio waves.
- This system has electromagnetic compatibility (EMC), so achieves wireless communication in the environment can not use radio waves. (Radio quiet zone)
- Power plant, Communication facilities, Data center, Near the precision equipment, Medical facilities.
- And this system also achieves stable communication in the strong electromagnetic noise such as the factory using welders.
- As another feature, the light is easy to control communication area.
  So Optical wireless LAN system enables high-security communication against network sniffing.

System feature



Access point (Visible Light/Infrared) LED light

Inverse FUJI-shape (Visible light)

(Infrared)

Round shape(Visible light)

USB adapter

Specification (Access point: INTL05)

VLC Function	Medium	Visible/Infrared LED
	Modulation	OFDM
	Network Bandwidth	90M bps(Logical maximum speed)
	Field of View	+/- 60 degrees
Network Interface	Protocol	100 Base-TX
	Connector	RJ-45
LED lamp Function	Total luminous flux	1440lm
	Distribution of luminous intensity	$2\theta^{1}/_{2}$=130 degrees
	Color rendering index	Ra>=70
Structure	Dimensions	Diameter=330mm, Hight=140.5mm
	Weight	2.75Kg
Power	Input voltage	AC100 - 240V
	Power consumption	50W

Specification (USB Adapter:INT5-ADPT)

VLC Function	Medium	Infrared LED
	Modulation	OFDM
	Network Bandwidth	90M bps(Logical maximum speed)
	Field of View	+/- 60 degrees
Network Interface	Protocol	USB 3.0
	Connector	USB Type A
Structure	Dimensions	72 x 37.5 x 15mm
	Weight	35g
Power	Input voltage	5V (USB bus power)
Software	Supported OS	Windows8,8.1 and 10

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ISO9001/14001 ISO/IEC27001

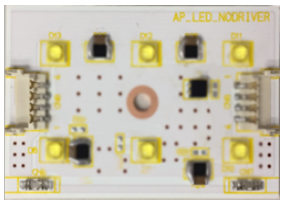
The INT05 series is board modules for lighting incorporation that is a component of the function necessary for development of VLC wireless LAN access point (lighting). This series consists of the following module group. By combining these into products, development of the optical communication part becomes unnecessary, and Optical wireless LAN products can be developed for a short period of time at low cost.

Module Name	Model number
LED module	INT05-LEDA INT05-LEDB INT05-LEDC
PD module	INT05-PD
Modem module	INT05-MODEM

Optical Wireless LAN (Access Point) modules

LED module

LED and Driver module

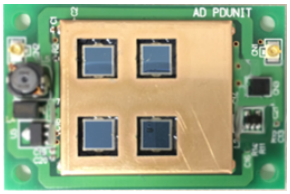


LED without Driver module

Outline	**35mm x 52.5mm 1 Screw hole: Metric screw(M3)**
Total luminous flux	**280 lm/1 module**
Color	**White (cool white)**
Power-supply voltage	**DC 24V (Maximum DC at connection 96 V (4 connections))**
Power consumption	**3.4W**

The transmit signal from the modem module is superimposed on the LED. By linking modules, the strength of the transmitted signal can be adjusted according to the usage environment. In addition, illuminance adjustment is possible by using only a module without driver.

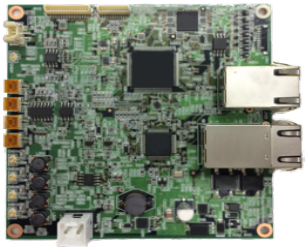
Photo detector module



Outline	**35mm x 52.5mm 4 Screw holes: Metric screw(M3)**
Power-supply voltage	**Supplied from modem module**
Power consumption	**0.8W**

VLC Wireless LAN Receives optical signals from terminal adaptor and converts them into electric signals. It can be used by connecting to the modem module and it can be used more than one depending on usage environment such as communication distance.

Modem module



Outline	**100mm x 100mm 4 Screw holes: Metric screw(M3)**
Power-supply voltage	**DC24 - 48V**
Wire I/F	**100Base-TX x 2 ports (Redundant connection/ Daisy wiring possible)**
Speed	**Up to 90 Mbps (physical layer) * Actual communication speed varies depending on the communication situation.**

As an interface function between Ethernet and visible light communication, It modulate and demodulate data by a method suitable for visible light communication. Two ports of LAN port are provided and feed wiring · Redundant configuration is possible.

Module incorporation example

40 W Type Fluorescent Light. This is an example of a product incorporating 16 LED modules and 4 photo detector modules into the illumination size.

※ Specifications are under development and subject to change without notice.