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# WEB BASE SMART POWER MONITORING / CONTROL SYSTEM

Touch Web Sever - Info U

TWS-InfoU

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**LS**<sup>®</sup> ELECTRIC

# Touch Web Server - Info U



## Enjoy the freedom of time and space in the Web environment

You don't need to stay at the electric room anymore! - Beyond time and space, this outstanding web-based system helps to monitor everything at anytime and anywhere. You have been passionate enough! It's time to leave for your free time and space!

## Web Base Smart Power Monitoring / Control System outline

The fast changing internet plays an important role in the means of information delivery. It has not only enabled one-way communication, but also it has been developing itself into a two-way communication tool. In accordance with a current need of an integrated operation system that can systematically manage various tasks in industrial automation systems and power control equipment, such development in the internet environment is now all welcomed in the industrial internet infrastructure, as the most appropriate environment for establishing a web-based system.

## TWS(Touch Web Server) outline

It is a touch type smart power monitoring and control system using LS InfoU, which is excellent in scalability and compatibility, stable, simple user interface and advanced graphic technology, and supports various network methods. In addition, as it is web-based, it provides the best system environment in terms of convenience, time and space when constructing Client / Server. It is possible to establish the optimal power monitoring and control system by connecting the network with various relays of LS.

- **Intuitive integrated usage environment**

- Provide various communication drivers and support physical layer and logical layer for tag

- **XGT InfoU Panel PC**

- All in One products with the perfect combination of hardware and software
- Provides high reliability considering harsh industrial sites

- **Open structure**

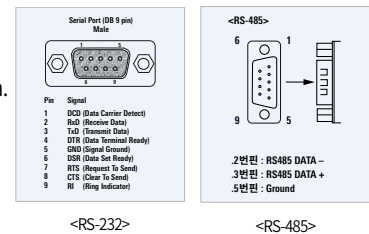
- Stable system operation with redundant system support
- Various communication interfaces such as RS232, RS485, Ethernet and Wireless LAN(option)





## Serial Communication

Two built-in serial ports are compatible with RS-232C, RS-422 or RS-485. Each mode can be selected by the software program. These ports link and communicate with Demand Controllers, Digital Integrated Protection & Measurement Equipment (GIPAM) and Digital Integrated Metering & Control Equipment (GIMAC).



## Ethernet Communication

Two independent Ethernet ports enable communication with other Ethernet devices, data transmission to upper systems and internet connection.



## LCD Display

Panel PC screen can select 12"~24" size, High resolution color LCD shows power status in the electric power system, protection equipment data through graphs.



## Touch Screen

The touch screen panel enables a user to control all functions without any other input devices.



## Graphic Monitoring

Various graphs show data related to the power system through the web browser.



## Point Monitoring

All registered points are clearly monitored without extra engineering works.



## Trend Analysis

Data can be saved every 1 sec maximally and therefore changing trends are monitored in real time. Also it has trend recording function that records and analyzes data every 1 minute.



## Alarming (optional)

If an event occurs in on-site equipment, it sends an alarm to related users and records the event for the error analysis. Alarming is also available through SMS.



## Reports

Daily, monthly and yearly reports analyze power usage or peak power patterns. Report files can be opened and printed via Microsoft Excel.



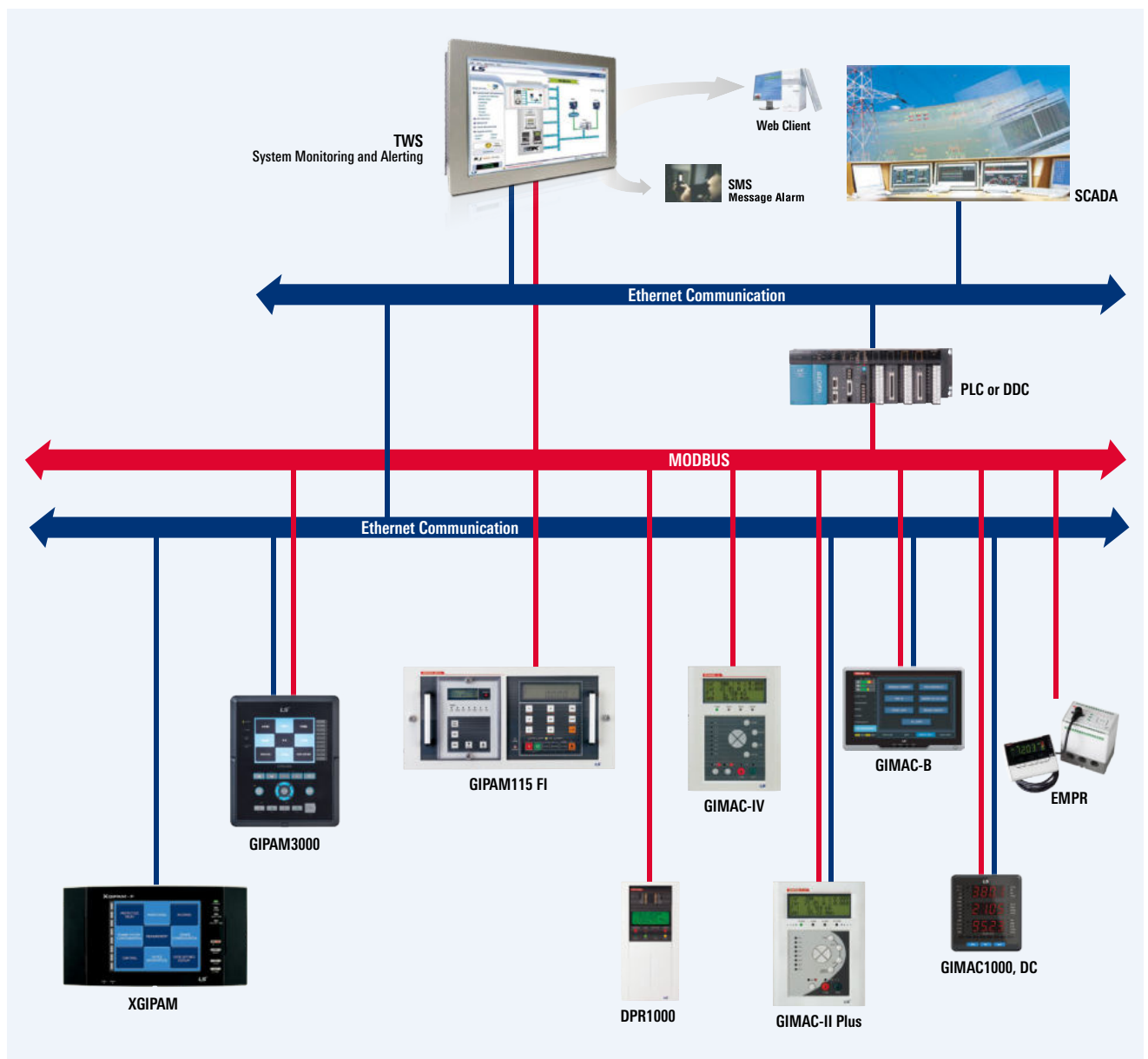
## Management Settings

Management settings include user setting for modifying users and user permissions, alarming policy for warning functions and management functions for network setting systems.



## Power Monitoring / Control System Configuration

- Via RS-232C or RS-485 communication, Demand Controllers, Digital Integrated Protection & Measurement (GIPAM) or Digital Integrated Metering & Control Equipment (GIMAC) sends data in real time.
- Multi users monitor the real time data through the internet.
- The real time data is saved in a flash disk, and if required, reports are submitted through the web.
- If an alarm occurs, the system saves the details about the event and related users check the details.
- Trends are recorded in real time, and if required, these trends are analyzed.
- Control components, such as the circuit breaker, can be controlled via the web.



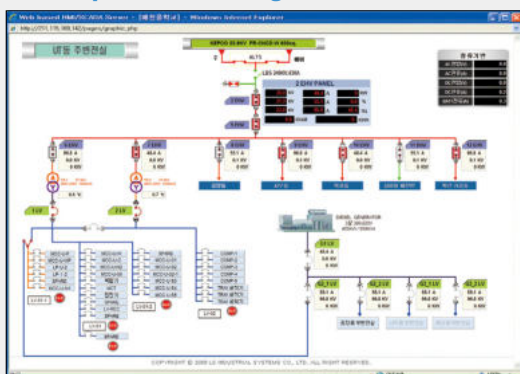
# Main features of the operating program

## 01. Main page



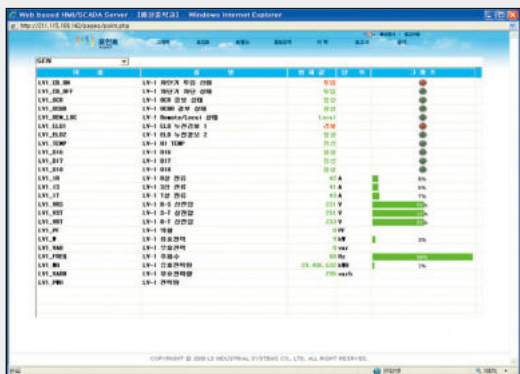
Once logged in, this main page will be shown.

## 02. Graphic monitoring



Real time graphic monitoring on the electric power system diagram

## 03. Point monitoring



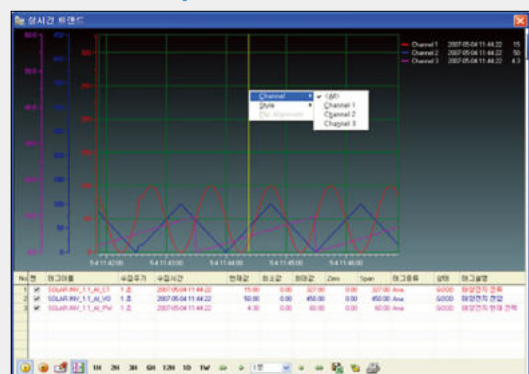
It shows measuring status with a table. With an available function, a user can adjust and output value. Also, a user can verify tagged0 information and change property, if authorized.

## 04. Mobile option



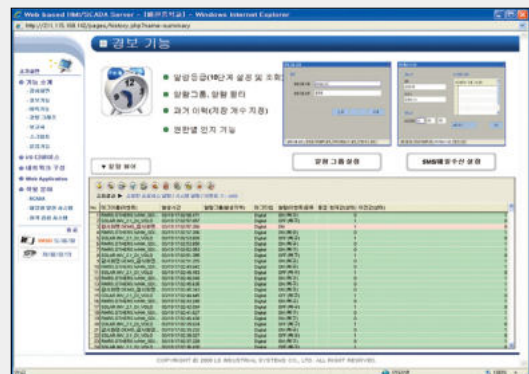
- Providing screen production function using mobile graphic editor
  - Provide Tag monitoring, user group overview and alarm monitoring function
  - Provide Client that operates in Android
- ※ Client App can be downloaded from Google Play Store.

## 05. Trend analysis



Maximally 8 points of on-site real time data can be traced and analyzed. Two main features of trend analysis are real time trend and trend history.

## 06. Alarm Summary



When the measured value in the field is out of the preset value, it generates an alarm and notifies the operator.

## 07. History

[illegible]

It consists of five histories - alarm history, control history, status history, access history and system history. Alarm history clearly shows alarmed events in order, and therefore a user can manage equipment efficiently.

## 08. Reports

Data is recorded every hour and it can produce daily, monthly or yearly reports. Reports can also be printed through MS Excel. Report forms can vary from on-site situations.

## 09. Management setting

[illegible]

## Personal information

Personal information, such as password setting, is essential for the operating system. Unless otherwise a user is an administrator, only personal information is accessible.

## 10. Accident Analysis

[illegible]

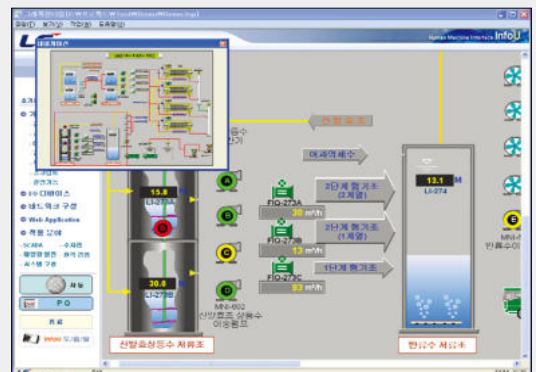
If you select the menu, it moves to the alarm history list and shows the alarm status of the tag.

## 11. Alarm summary

The screenshot shows the Windows Firewall Control Panel with the 'Public' network profile selected. The 'Network Location Settings' window is open, showing the 'Public' profile. The 'Public' profile is set to 'Public', and the 'Network Location Settings' window is open. The 'Public' profile is selected, and the 'Network Location Settings' window is open. The 'Public' profile is selected, and the 'Network Location Settings' window is open.

According to the alarm setting, which is set up on tagging, an alarm rings when a measured value is out of the range, and it reports the event on alarm to a designated user.

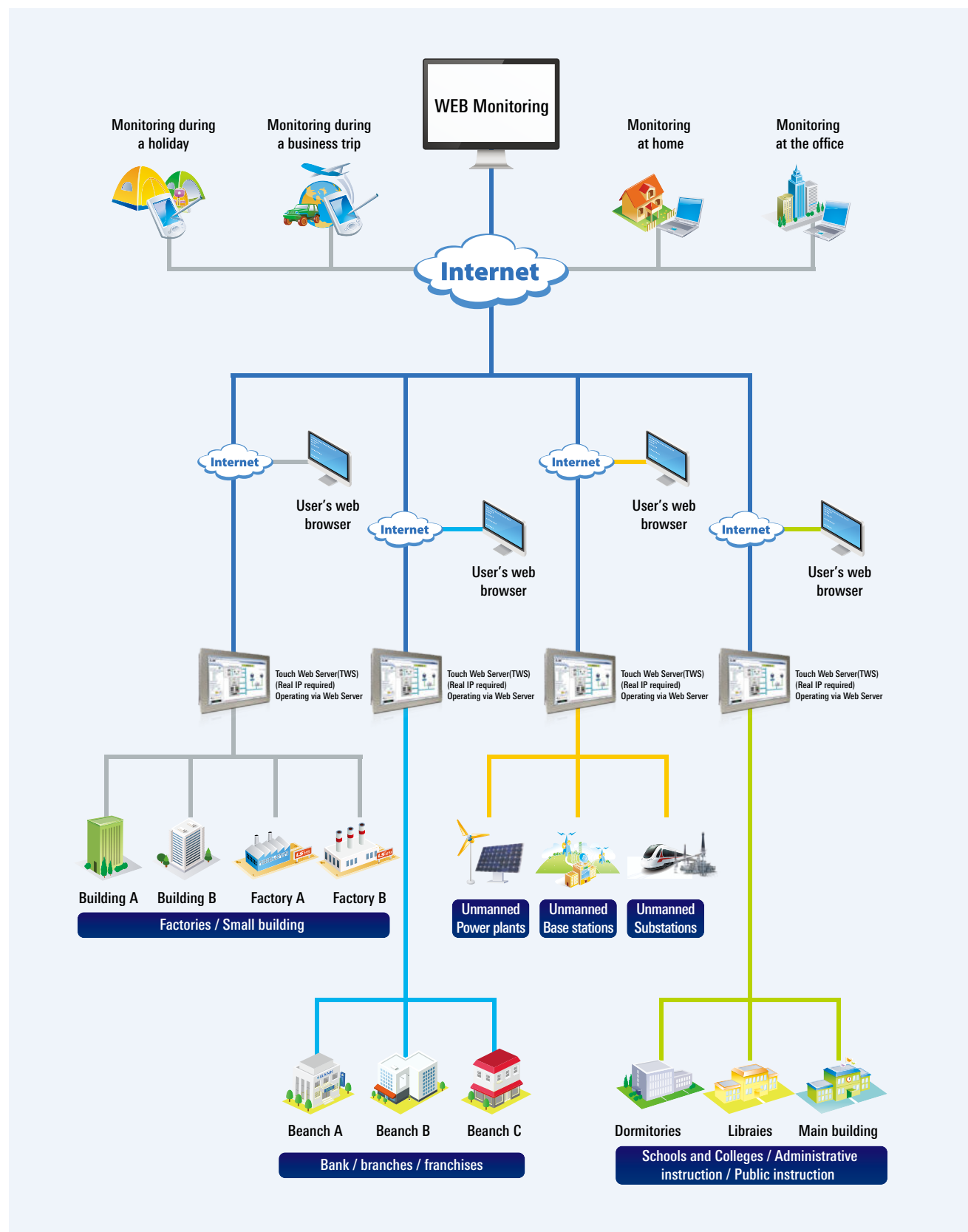
## 12. Navigation



You can easily check the location of the current screen and move to another location on the full-screen navigation screen.

# Configuration Example

## TWS - Info U System





## Main Equipment in Power Control & Monitoring System



### Demand Controller

It controls the load of power consumer so that each power consumer can maintain its power consumption under a presetting amount.



### GIPAM Series

(Digital Integrated Protection & Measurement Equipment)

It is an integrated protection and measurement equipment that protects various incoming/feeder equipment. It also works as a measurement, monitoring and controlling device, communicating with TWS.



### GIMAC Series

(Digital Integrated Metering & Control Equipment)

Installed in a switch board, it measures various electrical quantities and automatically checks and controls power factors. It also monitors and controls circuit breakers, and transmits these electrical quantities to TWS.



### GIMAC-B

(Energy Meter for MCCB)

LS's energy meter is a meter for monitoring power in each branch of low-voltage switchboards and distribution boards in buildings and factories.

It provides high-speed Ethernet communication to monitor the load and monitor the power quality.



### S-EMPR

(Smart Electronic Motor Protection Relay)

S-EMPR (Smart Electronic Motor Protection Relay)

The MMP series of low voltage motor protection relays are capable of energy monitoring as well as motor protection and power measurement and control functions.

# Panel PC NTP KF Series

## Panel PC with the latest Intel 6th generation Core CPU

- Intel 6th Core i3/i5 Skylake CPU
- SSD 128GB/256GB, DDR4L 4GB/8GB
- Low power eco-friendly products to minimize energy consumption
- Fanless design for low heat and low noise
- Easy wiring via wireless connection (optional)
- Wide product lineup from 12" to 24"



## NTP-KF Series

Features		XPC-NTP12KF	XPC-NTP15KF	XPC-NTP17KF	XPC-NTP24KF
Display	Size	12.1"	15"	17"	24"
	Resolution	1,024x768 (4:3)		1,280x1,024 (4:3)	Full HD 1,920x1,080 (16:9)
	Brightness	350cd/m²	300cd/m²	350cd/m²	300cd/m²
System	CPU	Intel 6th Core i3 Skylake CPU (≤ 1,000 Tag), i5 CPU (1,000 Tag <)			
	Memory	DDR4L 4GB (≤ 1,000 Tag), 8GB (1,000 Tag <)			
	Storage	SSD Flash Disk 128GB (≤ 1,000 Tag), 256GB (1,000 Tag <)			
	O/S	Window 10 IoT Enterprise (KOR/ENG) 64bit			
Interface	Serial	5 CH. (4xRS232, 1xRS485 or 422)	4 CH. (3xRS232, 1xRS485 or 422)	5 CH. (4xRS232, 1xRS485 or 422)	
	Ethernet	2 CH. 10/100/1000Mbps			
		Wireless LAN (Option)			
	USB	5 CH. (4xUSB3.0 / 1xUSB2.0)			
	HDMI	1 CH. (Max. resolution 4,096x2,160)			
	VGA	1 CH. (Max. resolution 1,920x1,200)			
	Audio	1 CH. (Line out)			
Weight (kg)		6	8.6	10	11.7
Temperature	Operation	0°C ~ 50°C			
	Storage	-20°C ~ 60°C			
Humidity		0°C ~ 90% Noncondensing			
Size(mm)	Dimensions	350x258x87	381x335x117.3	438x356x109.3	608x392x118.5
	Panel cut	329x237	355x309	410x348	592x376
IP grade		IP65 (for oversea type)			
Control Power		AC100~240V, DC12/24V (Option)			
Power Consumption		DC12V/10A(120W) or DC24V/5A(120W) (Option)			

TWS	MINIFEMS	WEB	□INCH	KF	□P	IP65, EXP
	Model name	Software type	Panel PC LCD size	Panel PC type	Software Tag	IP grade
			12 12.1 inches		150 150 Tag	
			15 15 inches		500 500 Tag	
			17 17 inches		1000 1,000 Tag	
			24 24 inches		2000 2,000 Tag	
					MAX Unlimited Tags	





#### Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.  
Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.



- According to The WEEE Directive, please do not discard the device with your household waste.



[www.ls-electric.com](http://www.ls-electric.com)

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