

CE MARKING

CE Marking and EU Directives

- “CE” of CE Marking stands for “Conformite Europeenne (in French)” or “European Community” in English. In Europe, the biggest market in the world was born as EC on January 1, 1993. (The name of EC changed to EU in November, 1993.) EU nations had conventionally established their individual national standards or regulations and guaranteed the quality or safety of their products. However, this constituted barriers to trade. So, in order to realize maximum benefit of forming EU, harmonization work on national standards and certification systems was carried out and EU directives were promulgated. CE Marking, an identifying mark, indicates that the products comply with the requirements of the relevant EU Directives. The products with CE Marking can be freely imported into or exported from each European country.

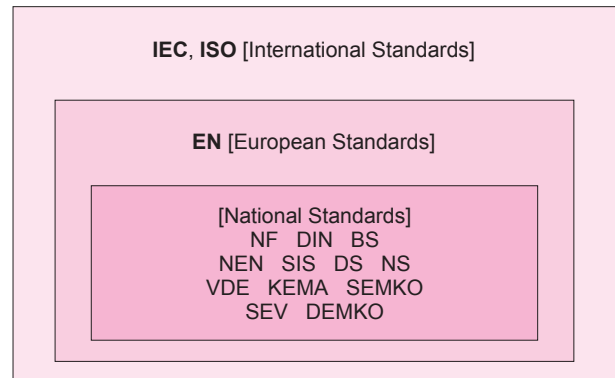
EU Directives related to Panasonic Electric Works SUNX products

- The main EU Directives related to Panasonic Electric Works SUNX products are “Machinery Directive”, “EMC Directive”, “Low Voltage Directive” and “R&TTE Directive”.

Name of Directive	Outline	Date of enforcement
Machinery Directive	The purpose of this directive is to ensure supply of equipment which does not harm human health or safety provided that the equipment is correctly installed, maintained and used as intended. It lays down the essential safety requirements for this purpose. Except for one part, it applies mainly to industrial machinery, such as, machine tools, injection molding machines and automation machines.	January 1, 1995 Date of enforcement for safety components: January 1, 1997
EMC Directive	It prohibits sale of electrical / electronic equipment which does not conform to EMC (Electromagnetic Compatibility) requirements. It necessitates two conditions: harmful electromagnetic waves should not be emitted (EMI: electromagnetic immunity), and malfunction should not occur due to electromagnetic waves (EMS: electromagnetic susceptibility). It applies to all products incorporating electrical / electronic circuits.	January 1, 1996
Low Voltage Directive	It requires each country to regulate the sale of electrical equipment used at AC 50 to 1,000 V or DC 75 to 1,500 V (relatively low voltages) to products which meet the Essential Requirements. After this directive, each country is laying down laws that allow only those products which conform to the standards to be sold. It applies to almost all general household electrical equipment, office machines and components.	January 1, 1997
R&TTE Directive	Either directly or indirectly the terminal connected to public lines and device receiving transmissions, Facsimiles (FAX), modems and other wireless devices are included under this category. When orders for more detailed technology are desired, standards will be set to shared technology standards called CTR or EN. In this case, low voltage instruction EMC instructions cannot be carried out, so R&TTE's special field settings will be used.	April 8, 2000

EN (European Standards)

- EN stands for “Norme Europeenne (in French)” or “European Norm” in English. CEN / CENELEC member countries approve EN standards by voting. Although EN standards are the common standards for Europe, the contents agree with IEC standards which are the international standards. With the formation of EU, EN standards are being accepted as the common safety standards.



Panasonic Electric Works SUNX's follow-up of EN / IEC Standards

- Panasonic Electric Works SUNX pursues the compliance of its products to EN / IEC standards to support the compliance of customer's machinery · electrical apparatus to EU directives.

FOREIGN SPECIFICATIONS OVERVIEW

International Standards

IEC standard (International Electrotechnical Commission)

By promoting international cooperation toward all problems and related issues regarding standardization in the electrical and electronic technology fields, the IEC, a non-governmental organization, was started in 1906, for the purpose of realizing mutual understanding on an international level. To this end, the IEC standard was enacted for the purpose of promoting international standardization.

North America

UL (Underwriters Laboratories Inc.)

This is a non-profit testing organization formed in 1894 by a coalition of U.S. fire insurance firms, which tests and approves industrial products (finished products). When electrical products are marketed in the U.S., UL approval is mandated in many states, by state law and city ordinances. In order to obtain UL approval, the principal parts contained in industrial products must also be UL approved parts.

UL approval is divided into two general types. One is called "listing" (Fig. 1), and applies to industrial products (finished products). Under this type of approval, products must be approved unconditionally. The other type is called "recognition" (Fig. 2), and is a conditional approval which applies to parts and materials.



Sensors with specifications of DC power of less than 30 V

The UL mark is present on UL certified DC power supply sensors with less than 30 V under the conditions that they are only used with the circuits in ① and ②.

① Limited voltage current circuit in accordance with UL 508
A circuit whose power is supplied by secondary coil of an insulating transformer that meets the following conditions

- Maximum voltage (with no load): 30 Vrms (42.4 V peak) or less and
- Maximum current: a. 8 A or less (including when short-circuited) or
b. limited by circuit protector (such as fuse) with the following ratings

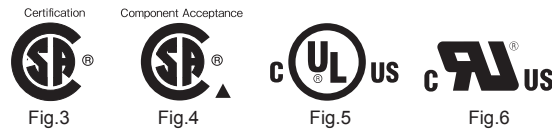
No load voltage (V peak)	Max. current rating (A)
0 to 20	5.0
Above 20 to 30	100 peak voltage

② A circuit using max. 30 Vrms (42.4 V peak) or less (Class-2 circuit), whose power is supplied by Class-2 power supply unit in accordance with UL 1310 or Class-2 power supply unit in accordance with UL 1585

CSA (Canadian Standards Association)

This was established in 1919 as a non-profit, non-governmental organization aimed at promoting standards. It sets standards for industrial products, parts, and materials, and has the authority to judge electrical products to determine whether they conform to those standards. The CSA is the ultimate authority in the eyes of both the government and the people in terms of credibility and respect. Almost all states and provinces in Canada require CSA approval by law, in order to sell electrical products. Approval is called "certification", and products and parts which have been approved are called "certified equipment", and display the mark shown in Fig. 3. The mark shown in Fig. 4 is called the "Component Acceptance" mark,

and indicates conditional approval which is applicable to parts. The C-UL mark shown in Fig. 5 (finished products) and Fig. 6 (parts) indicates that the product has been tested and approved in UL laboratories, based on UL and CSA standards, through mutual approval activities.



FDA (Food and Drug Administration)

Since Radiation Control for Health and Safety Act was established in 1968, manufacturers who sell laser products in the U.S.A. are obliged to follow the relevant regulations and their products must comply with the requirements of the Act enforced by FDA.

Europe

EN standard

[European Standards/Norme Europeennee (France)/Europaishe Norm (Germany)]

Abbreviation for European Standards. A unified standard enacted by CEN/CENELEC (European Standards Committee/European Electrical Standards Committee). EU and EFTA member nations employ the content of the EN standards into their own national standards and are obligated to abolish those national standards that do not agree with the EN standards.

ENEC mark

The ENEC mark, approved by certifying authorities in Europe, is for electronic products. It can be displayed when a product is compliant with the European safety standard (EN standard). Device switches that display the ENEC mark can be freely distributed in the European Economic Area.



Germany

VDE (Verband Deutscher Elektrotechniker)

The VDE laboratory was established mainly by the German Electric Technology Alliance, which was formed in 1893. It carries out safety experiments and passes approval for electrical devices and parts. Although VDE certification is not enforced under German law, punishment is severe should electrical shock or fire occur; therefore, it is, in fact, like an enforcement.



TÜV (Technischer Überwachungs-Verein)

TÜV is a civilian, non-profit, independent organization that has its roots in the German Boiler Surveillance Association, which was started in 1875 for the purpose of preventing boiler accidents. A major characteristic of TÜV is that it exists as a combination of 14 independent organizations (TÜV Rheinland, TÜV Bayern, etc.) throughout Germany. TÜV carries out inspection on a wide variety of industrial devices and equipment, and has been entrusted to handle electrical products, as well, by the government. TÜV inspection and certification is based mainly on the VDE standard. TÜV certification can be obtained from any of the 14 TÜVs throughout Germany and has the same effectiveness as obtaining VDE certification.



Standards & Regulations

- CAD Data
- Service Guidance
- Company Information
- Worldwide Sales & Service Network
- 3 Year Warranty
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FOREIGN SPECIFICATIONS OVERVIEW

England

■ **BSI (British Standards Institution)**

BSI was inaugurated in 1931 as an institution for issuing standards of measure, inspection and certifying industrial products. In England the inspection of electrical goods is arbitrary and certified goods can carry the BSI designated certification label.

■ **BEAB (British Electrotechnical Approvals Board for Household Equipment)**

BEAB is a non-profit organization established in 1960. Intended for electrical household goods that use regular power supplies and for some control components, BEAB is an acknowledged standard that is based on testing using the BS standard.



Denmark

■ **DEMKO (Danmarks elektriske materielkontrol)**

DEMKO was established for the safety of certain electrical goods and is based on the 1962 "Heavy Current Regulations" (Part B Appendix 601) that stipulates enforced testing and approval.



Norway

■ **NEMKO (Norges Elektriske Materielkontroll)**

By law in 1991, NEMKO was empowered to test and inspect electrical equipment for use in Norway. Products approved by NEMKO can display the mark shown as below.



Finland

■ **EI (Finnish Electrical Inspectorate) – commonly known as FIMKO (Finnish Electrotechnical Standards)**

Since its foundation in 1928, FIMKO has been concerned with electrical safety testing. As a government-recognized organization, it operates a qualification system based on the stipulations of EI-81 and issues certification. Some household electrical products and electrical and electronic office equipment require EI certification.



Sweden

■ **SEMKO (Svenska Elektriska Materielkontrollanstalten AB)**

SEMKO was jointly set up in 1925 by associations from the electrical power supply industry and fire insurance industry. It was officially approved by the Swedish government in 1935. SEMKO's mission is to test all electrical equipment used in households, offices, shops, schools, and other places for conformance with official safety requirements and to issue permits.



Switzerland

■ **SEV (Schweizerischen Elektrotechnischen Verein)**

This private organization for testing electrical products was established in 1903. SEV was recognized by the Swiss government in 1954. Since then, to be sold in Switzerland, designated electrical products and parts must receive SEV accreditation.



Austria

■ **OVE (Österreichischen Verbandes für Elektrotechnik)**

Founded in 1965, OVE certifies that electrical products and parts conform with legally stipulated safety standards. Approved products display the OVE mark.



Netherlands

■ **KEMA (N.V.tot Keuring van Elektrotechnische Materialen)**

KEMA was established in 1927 to deal with Dutch electrical safety codes. The KEMA mark, shown as below, is normally awarded to cables and cords with conforming PVC insulation materials and to qualified household electrical products.



China

■ **GB / Chinese national standard (Guojia Biaozhun)**

The Chinese national standard, called GB, under the direction of the national academy of inspection and quarantine headquarters the national standardization management committee publishes, manages, and creates the base standard of ISO and IEC. China revised the articles and standards involved to conform with the "People's republic of China article quality assurance law" and the "People's republic of China export article inspection policy" etc. when they became an associate nation of the WTO. Along with that the older standards (CCIB, CCEE) were unified, and released as the new system CCC (China Compulsory Certification) on May 1, 2002 and were more strictly enforced beginning in August 2003. Products that impact human health and safety, the well being of plant and animal life, as well as impact the ecological environment must comply with the regulations of the CCC and utilize the CCC mark. The 1st enforcement is applied to 19 categories, consisting of 132 products, detailed information can be found under the HS code. As a general rule the standard applied will be GB, and the certification mark below will be displayed.



FOREIGN SPECIFICATIONS OVERVIEW

South Korea

Korea's S-mark certification

Korea's S-mark certification is an optional certification system that was established by the Korea Occupational Safety and Health Agency (KOSHA) in November 1997 under Article 34-2 of the Korea Occupational Safety & Health Agency Act. Certification for safety is based on Article 34-2 of the Korea Occupational Safety and Health Agency Act. Its purpose is to improve safety and quality by providing a certification mark (S-mark) to products objectively recognized as safe through overall evaluations related to safety, reliability and the quality management abilities of products used in the industrial field.



KCC mark, certification for the Korea EMC/RF/Telecom

It is a certification system implemented based on Article 46 and 57 of the Radio Waves Act enacted by Korea Communications Commission. The purpose is to eliminate industrial accidents which are triggered by malfunction of equipment resulting from communication failure relevant to electromagnetic wave emitted from electric/electronic equipment or external radio wave, as well as to protect the domestic radio wave environment.

In association with the change in South Korean governmental organizations on February 2008, KCC (the Korea Communications Commission), which combined the former MIC (Ministry of Information and Communication) and KBC (Korean Broadcasting Commission), started covering certifications for EMC and wireless and wire telecommunications, instead of MIC. Also, the MIC mark was changed to the KCC mark with this change.



Korean KC mark: a new Korea inspection system

In South Korea, a new inspection system embarked on 2009, Jan, 1st. As the result of revisions to the Industrial Safe and Health Act of South Korea, presses, cutters, cranes, lifts, pressure vessels, rollers, injection molders, high altitude scaffolding and press and cutter protection equipment were added to the mandatory inspection items in accordance with Paragraph 2, Article 34 of the act. Thus, it is required to obtain the inspection certificate for those items and to put the national unified mark, Korea Certification (KC) mark, on them.



Shipping Regulations

Lloyd (LR) (Lloyd's Register of Shipping)

The headquarters is in the U.K, and the regulations are determined through the English Lloyd's Register. The regulations detail the temperature and vibration regulations when using electronics for UMS (unattended ship). For international shipping, standard shipping vessels will be used. There is no particular need to display product inspection authorizations.

DNV (DET NORSKE VERITAS)

Since the Norwegian shipping committee was founded in 1864, they have been carrying out certifications of ship class and type as a major shipping committee. In Japan, from about 30 years ago an international shipping class committee was formed to inspect automated machines and equipment used in the shipping business.

NK (Nippon Kaiji Kyokai)

These are the regulations of the Class NK. If the equipment and automated machines used in the shipping business pass the Class NK safety inspection they will be authorized. When mounting the authorized equipment and machines on the ships, you can skip all or a part of the tests to be performed at the manufacturing facility.

Japan

JIS (Japanese Industrial Standard)

It is a Japanese law based on the Manufacturing standardization law. JIS applies to the development, production, distribution and use of all manufactured products other than food or farms. The Manufacturing standardization law oversees the JIS system as well as the JIS mark display regulations. JIS mark display system regulates the content of quality as detailed in JIS regulations, and products that conform to JIS regulations will be afforded a JIS mark. Lately the JIS standardization process is being consistent with ISO and IEC regulations as well.



Standards & Regulations

CAD Data
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CAD Data Service Guidance

Panasonic Electric Works SUNX provides CAD data service in order to reduce the amount of time customers spend on designing as much as possible.

Please download and use CAD data from our website (<http://www.panasonic-electric-works.net/sunx>).

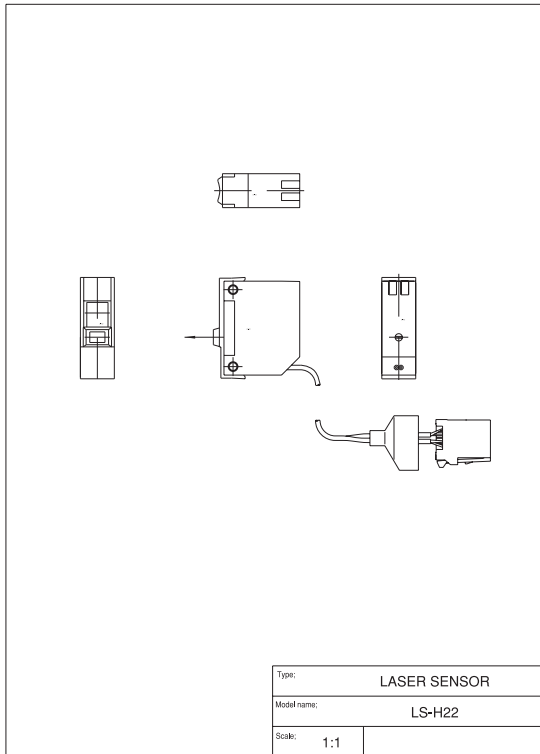
CAD data specifications

1 2D CAD

- DXF

About data

- Data for each product has been saved as one file.
 - *Data is mainly about the main bodies only, but some data includes products with a combination of a main body and mounting brackets.
- Each product data has been basically created using three orthographic views. However, some data has been created using four or five orthographic views in case the mounting positions are hard to understand.
- The scale that has been input uses the actual sizes in all cases.
- For products with beam axes and limited sensing fields, such as photoelectric sensors, the center is indicated with marks, such as an arrow.



2 3D CAD

- IGES
- STEP
- Parasolid

About data

Standard positions (positions of the original point)

- The sensing standard position is regarded as the origin of the 3D data ($x=0, y=0, z=0$).
- For products that do not perform sensing, the origin is selected arbitrarily.

Simplifying shapes

- Some of the details in shapes have been simplified to reduce the volume of dimensional data. Basically, unnecessary parts have been simplified when considering layouts.
- Threads of screws and bolts have been simplified and created as a nominal diameter cylinder; then they have been colored pink. In addition, screw heads are indicated in a cylindrical shape.
- Small fillets, chamfering, and drafts are not indicated.
- Some of the connector pin shapes are not indicated.
- Chamfering, holes, etc. of terminal tips are not indicated.
- Nameplates and logos are not indicated.

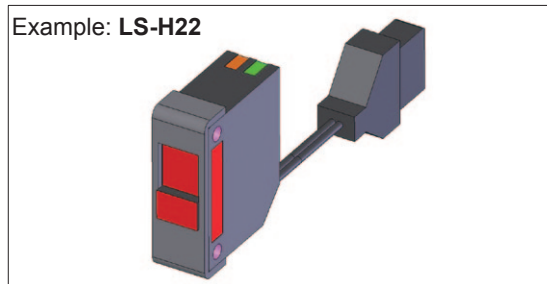
Data colors (excluding STEP data)

- Data was created using similar colors to those of the actual products.
 - (Information may be lost or changed according to applications you use.)
- Transparent areas have a degree of transparency of 50 %.
- For indicators, the colors that appear when they actually turn on have been used. However, standard colors are used for indicators that have one or more colors when they turn on.
- Screws are colored in pink.
- STEP data does not have color information.

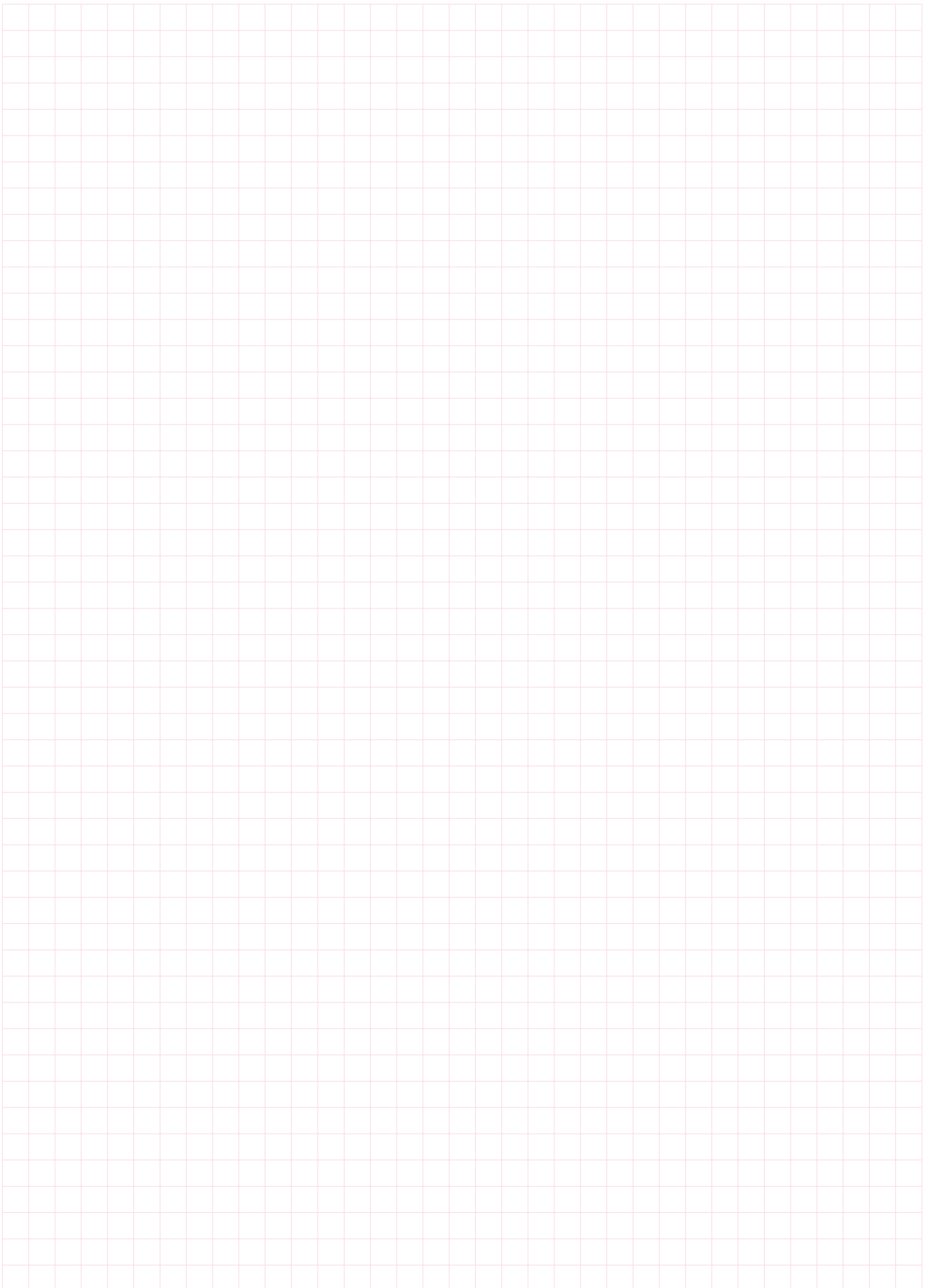
CAD data dimensional values

- Excluding the dimensions described in the dimensional outline drawings of the specification sheets, catalogs, and other resources, we do not guarantee that the geometric dimensions and the dimensions of the actual product will correspond.

Example: LS-H22



MEMO



COMPANY INFORMATION

- Company Name Panasonic Electric Works SUNX Co., Ltd.
- Established October 3, 1969
- Capital 3.1 billion yen (3,155 million yen)
- Head Office 2431-1, Ushiyama-cho, Kasugai, Aichi 486-0901, Japan



DEVELOPMENT AND PRODUCTION BASE

■ Panasonic Electric Works SUNX Co., Ltd.



2431-1, Ushiyama-cho, Kasugai,
Aichi 486-0901, Japan
Telephone: +81-568-33-7211

Our core research and development facility for sensors,
laser markers, PLCs, image processors, and other devices
·ISO 9001 ·ISO 14001 ·OHSAS 18001

■ Panasonic Electric Works SUNX Tatsuno Co., Ltd.



300 Katayama, Tatsuno-cho, Tatsuno,
Hyogo 679-4123, Japan
Telephone: +81-791-63-0511

Development and manufacture of FA components, and custom products
·ISO 9001 ·ISO 14001 ·ISO / TS 16949

■ Panasonic Electric Works SUNX Kyushu Co., Ltd.



15220-1 Kaseda-Takeda, Minamisatsuma,
Kagoshima 897-0002, Japan
Telephone: +81-993-52-7721

Development and manufacture of sensors and optical fiber units
·ISO 9001 ·ISO 14001

■ Panasonic Electric Works SUNX Shanghai Co., Ltd.



T52-3 No.1510 Chuan Qiao Road,
Jin Qiao Export Processing Zone,
Pu Dong New Area, Shanghai 201206, China
Telephone: +86-21-5032-3800

Manufacture of PLCs, inverters, human machine
interfaces, FA components, and other devices
·ISO 9001 ·ISO 14001

■ Panasonic Electric Works SUNX Suzhou Co., Ltd.



No. 97, Huoju Road, Suzhou New District,
Jiangsu, China
Telephone: +86-512-6843-2580

Development and manufacture of sensors and laser markers
·ISO 9001 ·ISO 14001