

LST300

Compact ultrasonic level transmit

Measurement made easy

Introduction

Liquid level measurement has never been easier.

LST300 is the most advanced compact level instrument available. With class leading accuracy and specification typically only found on expensive remote sensor units, LST300 changes the way the world looks at compact ultrasonic transmitters.

LST300 features high temperature range, corrosion resistant design, metal housing, intrinsic safety, advanced diagnostics, false echo filtering and even real time on-screen graphic echo view. The LST300 can be installed in areas where compact instruments were never an option.

LST300 solves many liquid level challenges in liquid storage tanks and liquid processes in a wide range of industries, including:

- Water and wastewater
- Chemical and petrochemical
- Power
- Paper and pulp
- Mining and metals
- Food and beverage



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1 Safety

1.1 General information and notes for the reader

Read these instructions carefully prior to installing and commissioning the device.

These instructions are an important part of the product and must be kept for future reference.

These instructions are intended as an overview and do not contain detailed information on all designs for this product or every possible aspect of installation, operation and maintenance.

For additional information or if specific problems occur that are not discussed in these instructions, contact the manufacturer.

The content of these instructions is neither part of any previous or existing agreement, promise or legal relationship nor is it intended to change the same.

This product is built based on state-of-the-art technology and is operationally safe. It has been tested and left the factory in perfect working order from a safety perspective. The information in the manual must be observed and followed in order to maintain this state throughout the period of operation.

Modifications and repairs to the product may only be performed if expressly permitted by these instructions. Only by observing all of the safety instructions and all safety / warning symbols in these instructions can optimum protection of both personnel and the environment, as well as safe and fault-free operation of the device, be ensured. Information and symbols directly on the product must be observed. They may not be removed and must be fully legible at all times.

1.2 Intended use

This device is intended for the following uses:

- To measure distance to a liquid surface (directly, using time-of-flight through air)
- To measure the level of liquids in tanks (indirectly, using distance measurement and tank dimensions).
- To measure volumetric flow (indirectly using distance measurement and tank dimensions).
- To measure the volume (indirectly using distance measurement and tank dimensions).

Using these products as intended involves observing the following points:

- Read and follow the instructions in this manual.
- Observe the technical ratings.

1.3 Improper use

The following are considered to be instances of improper use of the device:

- Measuring the level of bulk solids.
- Measuring in a medium other than air, for example in the presence of heavy gas vapors.
- Use as a climbing aid, for example for mounting purposes
- Use as a support for external loads, for example to support the tank, etc.
- Addition of material, for example by painting over the name plate or welding/soldering on parts.
- Removal of material, for example by spot drilling the housing.

1.4 Target groups and qualifications

Installation, commissioning and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator to do so. The specialist personnel must have read and understood the manual and comply with its instructions.

The operators must strictly observe the applicable national regulations with regards to installation, function tests, repairs, and maintenance of electrical products.

1.5 Warranty provisions

Using the device in a manner that does not fall within the scope of its intended use, disregarding this manual, using underqualified personnel, or making unauthorized alterations releases the manufacturer from liability for any resulting damage. This renders the manufacturer's warranty null and void.

1.6 Operator liability

Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given. Any deviation from these instructions will transfer the complete liability to the user.

1.7 Technical limit values

Particular attention must be paid to the limit values listed in the sections relating to ex relevant specifications (see Section 4, page 10):

- The data for the signal inputs and outputs of the transmitter
- The permissible temperature data and limit values

1.8 Plates and symbols

1.8.1 Safety/warning symbols and note symbols



DANGER – Serious damage to health/risk to life

This symbol in conjunction with the signal word "DANGER" indicates an imminent electrical hazard. Failure to observe this safety information will result in death or severe injury.



WARNING – Bodily injury

This symbol in conjunction with the signal word "WARNING" indicates a potentially dangerous situation. Failure to observe this safety information may result in death or severe injury.

Ce symbole en conjonction avec le mot de signal "AVERTISSEMENT" indique une situation potentiellement dangereuse. Le non respect de cette consigne de sécurité peut entraîner la mort ou des blessures graves.



CAUTION – Minor injuries

This symbol in conjunction with the signal word "CAUTION" indicates a potentially dangerous situation. Failure to observe this safety information may result in minor or moderate injury. The symbol may also be used for property damage warnings.



NOTICE – Property damage

This symbol indicates a potentially damaging situation. Failure to observe this safety information may result in damage to or destruction of the product and/or other system components.



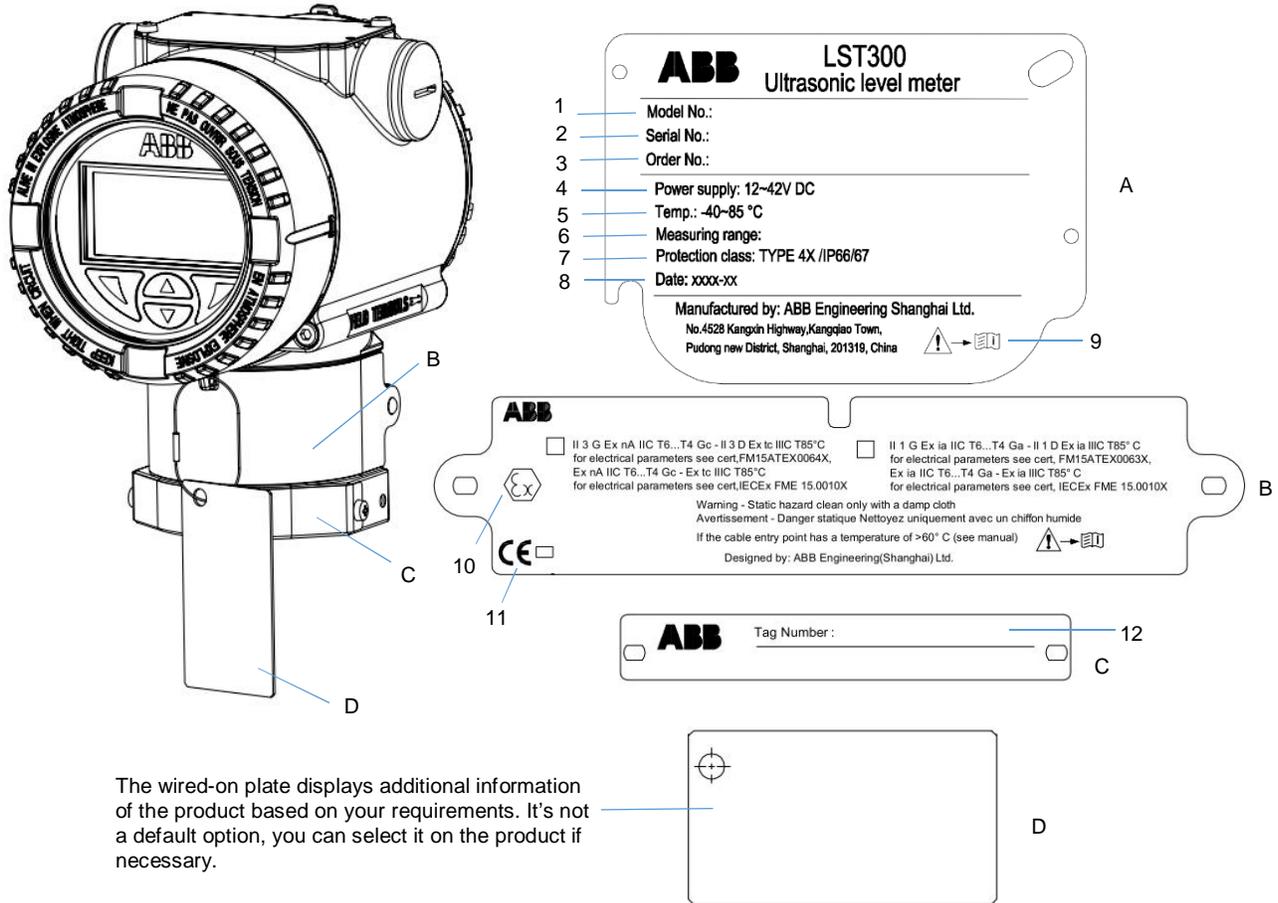
IMPORTANT (NOTE)

This symbol indicates operator tips, particularly useful information, or important information about the product or its further uses. The signal word "IMPORTANT (NOTE)" does not indicate a dangerous or harmful situation.



IMPORTANT (NOTE)

The name plates shown here are only examples. The name plates attached to the device may be different to what you see here.



The wired-on plate displays additional information of the product based on your requirements. It's not a default option, you can select it on the product if necessary.

Fig. 1-1: Product labels for LST300

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Model number 2. Serial number for identification by the manufacturer 3. Order number 4. Power supply 5. Ambient temperature 6. Measuring range 7. Protection type according to EN 60529 8. Year/Month of manufacture | <ul style="list-style-type: none"> 9. Alarm sign (Read the instruction before using it) 10. Ex mark (example) 11. CE mark with notified body number responsible for ABB Shanghai 12. Tag number B. Certification plate C. Tag plate D. Wired-on plate |
|--|--|

1.9 Product Material

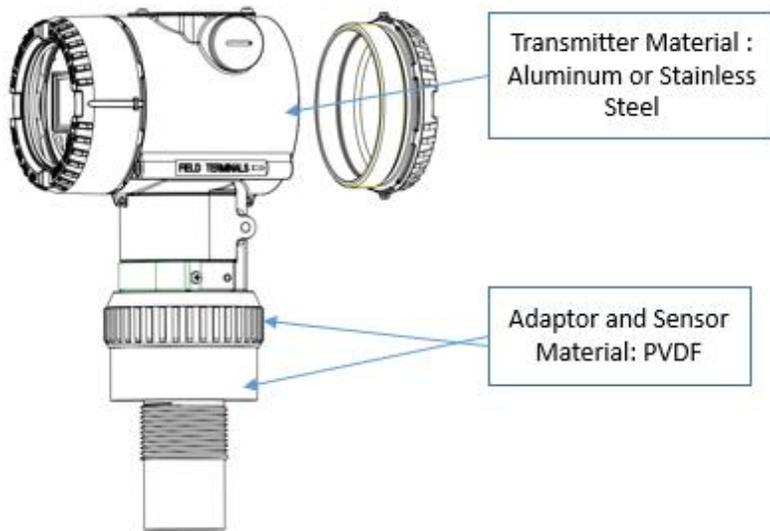


Fig. 1-2 Product Material

2 Mounting



WARNING

For installation in Hazardous Areas, i.e. areas with dangerous concentrations of e.g. gases or dusts that may explode if ignited, the installation must be carried out in accordance with relative standards either EN 60079-14 and/or with local authority regulations, for the relevant type of protection adopted.

In order to ensure operator safety and plant safety it is essential that installation is carried out by suitable trained personnel according to the technical data provided in the specification for the relevant model. To find out the "Operative limits" please refer to the dedicated chapter of the instruction manual and datasheets.

The transmitter should not be installed where it may be subjected to mechanical and thermal stresses or where it may be attached by existing or foreseeable aggressive substances. ABB cannot guarantee that a construction material is suited to a particular process fluid under all possible process conditions. Fill fluids and wet parts materials selection is under user's full responsibility.

Pour l'installation dans des zones dangereuses, à savoir les zones avec des concentrations dangereuses de par exemple gaz ou des poussières qui peuvent exploser en cas d'inflammation, l'installation doit être effectuée conformément aux normes relatives soit EN 60079-14 et / ou aux prescriptions des autorités locales, pour le type de protection adopté.

Afin d'assurer la sécurité de l'opérateur et de la sécurité de l'usine, il est essentiel que l'installation est effectuée par un personnel qualifié appropriés selon les données techniques fournies dans le cahier des charges pour le modèle concerné. Pour connaître les «limites opératoires" s'il vous plaît consulter le chapitre dédié du manuel d'instructions et les fiches techniques.

L'émetteur ne doit pas être installé là où il peut être soumis à des contraintes mécaniques et thermiques ou où il peut être fixé par des substances agressives existants ou prévisibles. ABB ne peut garantir que matériau de construction est adapté à un fluide de processus particulier dans toutes les conditions de processus possibles. Remplissez les fluides et les matériaux des pièces humides sélection est sous l'entière responsabilité de l'utilisateur.

2.1 Installation safety instructions

Details of any damage that has occurred in transit must be recorded on the transport documents. All claims for damages must be submitted to the shipper without delay and before installation.

2.2 Installation requirements

An LST300 level transmitter can be installed in many applications you need. Consider the following installation conditions:

- Ensure the instrument is installed within recommended temperature and pressure ratings.
 - The sensor must be installed as perpendicular as possible to the liquid surface being measured.
 - Avoid installing the instrument in a location where vibration may be present during operation.
 - Mount with a clear line-of-sight to the target surface.
 - If installed in a cylindrically shaped vessel, ensure that the sensor is installed just above the lowest point in the tank. This allows measurements to be taken as the tank approaches empty.
 - Use the mounting kit to raise the instrument above the highest point in the tank.
 - Close the unit after wiring in order to maintain ingress protection.
 - Loosen the cable gland when opening or closing the terminal cover, so as not to twist the cable inside the instrument.
-



NOTICE – Property damage

Potentially adverse effect on housing ingress protection

If the gasket (O-ring) is seated incorrectly or damaged, this may have an adverse effect on the housing ingress protection. Before closing the housing cover, check the gasket (O-ring) for any damage and replace if necessary. Check that the gasket is properly seated when closing the housing cover.

3 Electrical connections

Before installation, ensure the LST300 is not plugged in to any power supply.

Installation engineers must statically discharge themselves or use a wrist strap before connecting cables to LST300.

Check the LST300 power supply to ensure that it does not exceed the permitted range (12 to 42 V DC).

When the terminal cover of the LST300 is open, protect the inside of the transmitter against the ingress of dust and moisture.



WARNING – Bodily injury
Not recommend for hot plugging power

The LST300 does not recommend hot plugging power (4 – 20mA with Hart).

Shut down the power supply before connecting the LST300 to the power supply.

Le LST300 ne recommande pas la puissance chaude de bouchage (4 - 20 mA avec Hart).

Arrêtez l'alimentation avant de connecter le LST300 à l'alimentation.



NOTICE – Property damage
Material damage due to electrostatic discharge

An open cover does not provide contact protection. Touching conductive components can damage electronic components (in some cases beyond repair) due to electrostatic discharge. Do not touch conductive components. LST300 connections have ESD 4 kV protection for contact and 8 kV for air in accordance with IEC 61000-4-2. ABB strongly recommends using a wrist strap or to discharge electrostatic charge before connecting cables to the LST300.

3.1 Cable connection area

The electrical wiring is fitted to the LST300 using a 1/2-14 NPT or a M20x1.5 cable gland. To ensure the transmitter's NEMA 4X and IP 66/67 ingress protection rating is maintained, apply a suitable sealing compound to the cable gland threads before screwing the gland into the housing (1/2 in. NPT or M20x1.5 female thread).



Danger – Serious damage to health / risk to life

When installing the LST300 measuring system in hazardous areas, all national standards and the specifications in the safety instructions must be complied with and the specified cable gland must be used.



NOTICE – Property damage

- Do not screw the terminal cover on with the cable gland tightened.
 - Route a single cable only through the cable gland. Multiple cables will compromise the transmitter's ingress protection.
 - After connecting the terminals, ensure the terminal cover is tightened.
-



IMPORTANT (NOTE)

The red plugs are to be removed when the transmitter is installed in Hazardous area. They are not explosion proof certified products.

When transmitter is installed in Hazardous area, the cable glands used should be suitable for the users hazardous area classification.

To ensure the Type 4X and IP 67 degree of protection for transmitter according to Canadian Standard CSA, the conduit must be screwed into the housing ½" NPT female using a suitable sealing compound. The blanking plug has been sealed with Molykote DX, the use of any other sealing compound is done so at owners own risk.

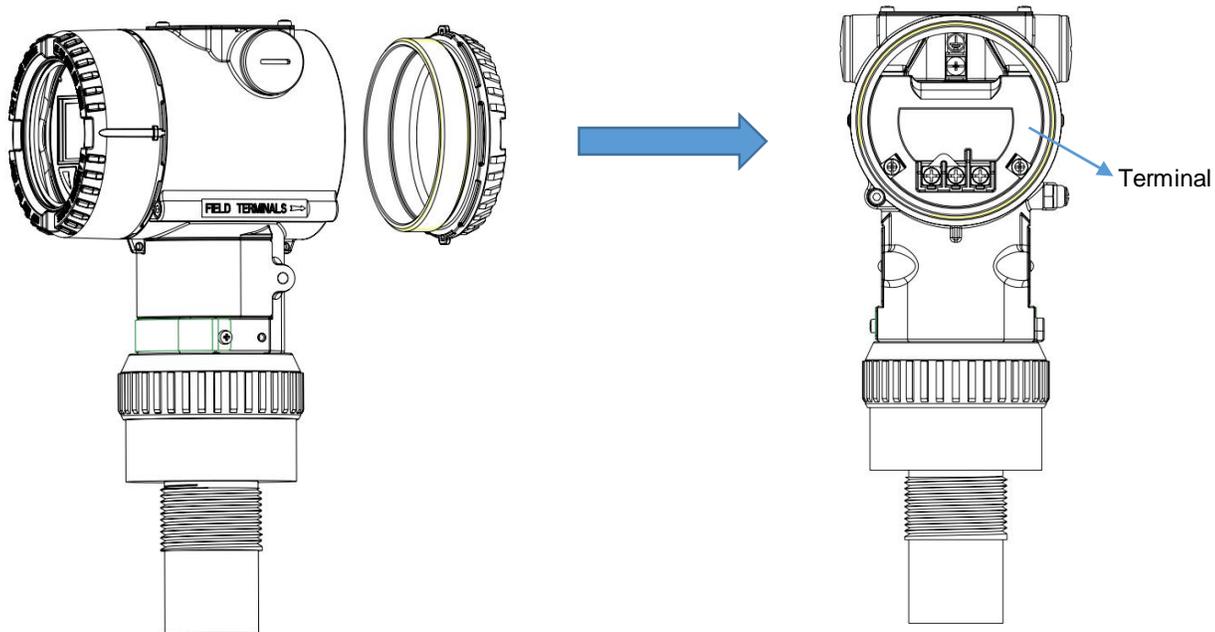


Fig. 3-1: Cable connection area

Terminal introduction	
3D	Pin configuration
<p>a - Positive polarity of power supply (+) b – Negative polarity of power supply (-) c – External meter, shorted with ' - ' for normal use.</p>	

3.1.1 DC power supply

The LST300 operates from a DC power supply that is connected to the terminals shown in Fig3-1.

- Open the blind cover first to connect the cable.
- The power supply voltage is 12 - 42 V DC without surge protect and 14 - 42V with surge protect.
- It's better using twist pairs for better performance to anti disturbance.

3.1.2 Analog output

LST300 has a 4 - 20mA analog output to transmit measurements and alarm.

- The 4 – 20mA is share the wires with power supply.
- The output current is the process variable during normal conditions. It can also be a fixed value as a failsafe or to indicate alarm conditions.
- The current output range of a valid signal is 4 - 20mA.
- The Low Alarm value is configurable in the range from 3.5 mA to 3.6 mA
- The High Alarm value is configurable in the range from 21 mA to 22.6 mA

- The refresh frequency of the 4 – 20mA output is 0.2 second.

3.1.3 HART communications

The HART protocol is used for digital communication between a process control system / PC, a handheld terminal, and LST300. It can be used to send all device and measuring point parameters from the transmitter to the process control system of PC. Conversely, it also provides a means of reconfiguring the transmitter. Digital communication utilizes an alternating current superimposed on the analog output (4 – 20mA) that does not affect any meters connected to the output.

- The HART sharing the cable with power supply and no need to connect new wires.
- An extra resistor is need for HART communication. The minimum value of resistor is 250OHM. Series the resistor in power line will cause voltage drop. So the power supply need to plus this voltage drop.
- The baud rate of HART is 1200.

3.1.4 Grounding

Transmitter housing should be grounded or earthed in accordance with national and local electrical codes. Ground connection is mandatory for surge protector equipped devices in order to ensure proper functioning.

Protective grounding terminals (PE) are available outside and/or inside the housing of the transmitter. Both ground terminals are electrically connected and it up to the user to decide which one to use. The most effective transmitter case grounding method is direct connection to earth ground with impedance equal or less of 5 ohm.

The LST300 requires a ground connection to the terminal shown in Fig. 3-2.

- The LST300 provides two connector for ground (PE). An effective ground connection is needed for optimum EMC protection.
- All grounding must comply with anti-explosion regulations if the LST300 transmitter is to be used in hazardous environments (Zone 0 Div 1 and Zone 2 Div 2).

3.1.5 Electrical connections

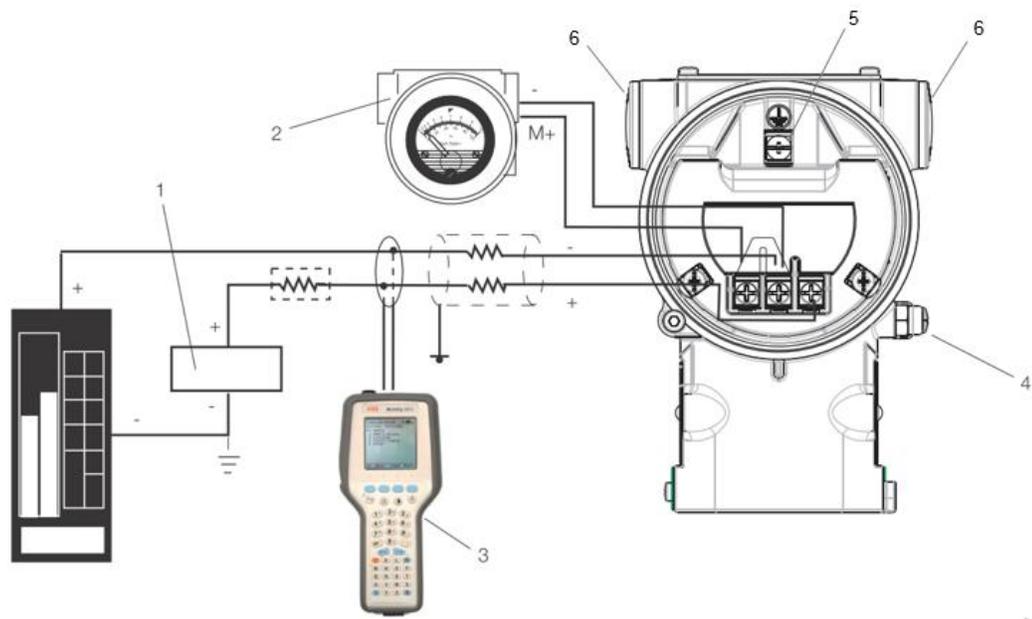


Fig. 3-2: Electrical connection – Hart version

1. Power supply 2. Remote display 3. Handheld terminal 4. External ground connection 5. Internal ground connection 6. Cable entry

**WARNING**

Explosion-proof transmitter must be either repaired by the manufacturer or approved by a certified expert following repair work. Observe the relevant safety precautions before, during and after repair work.

Émetteur-déflagrant doit être soit réparé par le fabricant ou approuvé par un expert agréé suite à des travaux de réparation. Respectez les précautions de sécurité nécessaires avant, pendant et après les travaux de réparation.

3.1.6 Wiring

Follow these steps to wire the transmitter:

- Remove the cap from one of the two electrical connection ports located at both sides in the upper part of the transmitter housing.
 - These connection ports have a ½ inch internal NPT threads. Various adaptors and bushings can be fitted to these threads to comply with plant wiring (conduit) standards.
 - Remove the housing cover of “field terminals”, side. In an Explosion-Proof installation, do not remove the transmitter covers when power is applied to the unit.
 - Run wiring through the open port and connect the positive lead to the + terminal, and the negative lead to the – terminal.
-

**IMPORTANT (NOTE)**

Do not connect the power across the Test terminals. Power could damage the test diode in the test connection.

- Plug and seal the electrical ports. Make sure that when the installation has been completed, these openings are properly sealed against entry of rain and corrosive vapors and gases.
- If applicable, install wiring with a drip loop. Arrange the drip loop so the bottom is lower than the conduit connection and transmitter housing.
- Put back the housing cover, turn it to seat O-ring into the housing and then continue to hand tighten until the cover contacts the housing metal-to-metal.

4 Ex relevant specifications

4.1 Meter design for general purpose, Ex protection code is Y0



IMPORTANT (NOTE)

For the application in US and Canada, when the temperature under rated conditions is higher than 60°C at the entry point or 60°C at the branching point of the conductors, must select the accessory such as cable, gland or conductors in conduit with minimum temperature specification of 60°C.



IMPORTANT (NOTE)

The devices may only be operated in explosive areas if the housing covers have been fully closed.



WARNING

Static hazard clean only with a damp cloth.

Avertissement – Danger statique Nettoyez uniquement avec un chiffon humide.



IMPORTANT (NOTE)

“Y0” digit means general purpose.

Supply power terminals

UB = 12 to 42 V DC

Operation temperature ranges:

– The ambient operating temperature range of the LST300 is between –40 °C and 85 °C (–40 °F and 185 °F)

Pollution degree 3 (see IEC 60664-1) must not be exceeded for the macro environment of the device. The devices conform to degree of protection IP66 / IP67. If the device is installed as intended, this requirement is met by the housing as standard.

4.2 Meter design for NEPSI non sparking, ATEX/IECEX energy limited (Zone 2 /22), cFMus division 2, Zone 2/22

Meter design for NEPSI Non Sparking, Ex protection code is C5.

Meter design for ATEX/IECEX energy limited (Zone 2/22), Ex protection code is E5.

Meter design for cFMus, division 2. Zone 2/22, Ex protection code is F3.



IMPORTANT (NOTE)

For the application in US and Canada, when the temperature under rated conditions is higher than 60°C at the entry point or 60°C at the branching point of the conductors, must select the accessory such as cable, gland or conductors in conduit with minimum temperature specification of 60°C.



IMPORTANT (NOTE)

The devices may only be operated in explosive areas if the housing covers have been fully closed.

**WARNING**

Static hazard clean only with a damp cloth.

Avertissement – Danger statique Nettoyez uniquement avec un chiffon humide.

**IMPORTANT (NOTE)**

“C5” digit means customer choose NESPI non sparking method of protection on product.

Dedicated check box to be marked by manufacturer.

**IMPORTANT (NOTE)**

“E5” digit means that customer choose ATEX or IECEx Non Sparking method of protection on product.

Dedicated check box to be marked by manufacturer.

**IMPORTANT (NOTE)**

“F3” digit means that customer choose FM US or FM C Non incendive method of protection on product.

Dedicated check box to be marked by manufacturer.

NEPSI approval design for China:

Ex nA IIC T6...T4 Gc DIP A22 T_A85°C- T135°C

for electrical parameters see cert,GYJXXXXXX

EC type-examination certificate FM15ATEX0064X**Designation:**

II 3 G Ex nA IIC T6...T4 Gc - II 3 D Ex tc IIIC T85°C-T135°C

for electrical parameters see cert,FM15ATEX0064X

Certificate of conformity IECEx FME 15. 0010X**Designation:**

Ex nA IIC T6...T4 Gc - Ex tc IIIC T85°C-T135°C

for electrical parameters see cert,IECEx FME 15.0010X

FM approval design for the USA and Canada:

CL I, ZONE 2 AEx/Ex nA IIC T6...T4

NI CL I/DIV 2/GP ABCD,

DIP CL II, III/DIV 2/GP EFG

Supply power terminals

Um = 42 V DC

Operation temperature ranges:

– The ambient operating temperature range of the LST300 is between –40 °C and 85 °C (–40 °F and 185 °F)

– Depending on the temperature class as detailed in the tables below.

Entity Parameters for L2 Display:

Temperature Class – Gas	Temperature Class – Dust	Ambient Temp. Limitation
T4	T135 °C	-40 ~ 60 °C
T4	T135 °C	-40 ~ 60 °C
T5	T100°C	-40 ~ 56 °C
T6	T85 °C	-40 ~ 44 °C

Entity Parameters for L7 Display:

Temperature Class – Gas	Temperature Class – Dust	Ambient Temp. Limitation
T4	T135 °C	-40 ~ 85 °C
T4	T135 °C	-40 ~ 70 °C
T5	T100°C	-40 ~ 40 °C
T6	T85 °C	-40 ~ 40 °C

Entity Parameters for L0 Display:

Temperature Class – Gas	Temperature Class – Dust	Ambient Temp. Limitation
T4	T135 °C	-40 ~ 85 °C
T4	T135 °C	-40 ~ 70 °C
T5	T100°C	-40 ~ 56 °C
T6	T85 °C	-40 ~ 44 °C

The devices must be installed in a protected environment in accordance with the specific conditions on the test certificate. Pollution degree 3 (see IEC 60664-1) must not be exceeded for the macro environment of the device. The devices conform to degree of protection IP66 / IP67. If the device is installed as intended, this requirement is met by the housing as standard.

When connected to the line supply / not connected to the line supply, the electrical circuits must not exceed overvoltage category III / II.

4.3 Meter design for NEPSI intrinsic safety, ATEX/IECEx intrinsic safety (Zone 0 /20), and cFMus division 1, Zone 0/20

Meter design for NEPSI intrinsic safety, Ex protection code is C6.

Meter design for ATEX/IECEx intrinsic safety (Zone 0/20), Ex protection code is E6.

Meter design for cFMus division 1, Zone 0/20, Ex protection code is F4.



IMPORTANT (NOTE)

For the application in US and Canada, when the temperature under rated conditions is higher than 60°C at the entry point or 60°C at the branching point of the conductors, must select the accessory such as cable, gland or conductors in conduit with minimum temperature specification of 60°C.

**IMPORTANT (NOTE)**

The devices may only be operated in explosive areas if the housing covers have been fully closed.

**WARNING**

Static hazard clean only with a damp cloth.

Avertissement – Danger statique Nettoyez uniquement avec un chiffon humide.

**IMPORTANT (NOTE)**

“C6” digit means that customer choose NEPSI Intrinsically Safe method of protection on product.

Dedicated check box to be marked by manufacturer.

**IMPORTANT (NOTE)**

“E6” digit means that customer choose ATEX or IECEx Intrinsically Safe method of protection on product.

Dedicated check box to be marked by manufacturer.

**IMPORTANT (NOTE)**

“F4” digit means that customer choose FM US or FM C Intrinsically Safe method of protection on product.

Dedicated check box to be marked by manufacturer.

NEPSI approval design for China:

Ex ia IIC T6...T4 Ga Ex iaD 20 T85° C- T135°C
for electrical parameters see cert, GYJXXXXXXX

EC type-examination certificate FM15ATEX0063X**Designation:**

II 1 G Ex ia IIC T6...T4 Ga - II 1 D Ex ia IIIC T85° C -T135°C
for electrical parameters see cert, FM15ATEX0063X

Certificate of conformity IECEx FME 15. 0010X**Designation:**

Ex ia IIC T6...T4 Ga - Ex ia IIIC T85° C- T135°C
for electrical parameters see cert, IECEx FME 15.0010X

FM approval design for the USA and Canada:

IS/Sec. Intrinsic (Entity) CL I,
ZONE 0 AEx/Ex ia IIC T6...T4
CL I/DIV 1/GP ABCD IS - CL II,III DIV 1/GP EFG
IS Control Drawing number: 3KXL065035U0009

Supply power terminals

See the table below

Operation temperature ranges:

- The ambient operating temperature range of the LST300 is between -40 °C and 85 °C (-40 °F and 185 °F)
- Depending on the temperature class as detailed in the tables below.

Entity Parameters for L2 Display:

Temperature Class – Gas	Temperature Class – Dust	Ambient Temp. Limitation	Input				
			Current Limitation	Voltage Limitation	Power Limitation	Ci	Li
T4	T135 °C	-40 ~ 60 °C	100mA	30V	0.75W	17nF	10uH
T4	T135 °C	-40 ~ 60 °C	160mA	30V	1W		
T5	T100°C	-40 ~ 56 °C	100mA	30V	1.4W		
T6	T85 °C	-40 ~ 44 °C	50mA	30V	0.4W		

Entity Parameters for L7 Display:

Temperature Class – Gas	Temperature Class – Dust	Ambient Temp. Limitation	Input				
			Current Limitation	Voltage Limitation	Power Limitation	Ci	Li
T4	T135 °C	-40 ~ 85 °C	100mA	30V	0.75W	13nF	10uH
T4	T135 °C	-40 ~ 70 °C	160mA	30V	1W		
T5	T100°C	-40 ~ 40 °C	100mA	30V	1.4W		
T6	T85 °C	-40 ~ 40 °C	50mA	30V	0.4W		

Entity Parameters for L0 Display:

Temperature Class – Gas	Temperature Class – Dust	Ambient Temp. Limitation	Input				
			Current Limitation	Voltage Limitation	Power Limitation	Ci	Li
T4	T135 °C	-40 ~ 85 °C	100mA	30V	0.75W	17nF	10uH
T4	T135 °C	-40 ~ 70 °C	160mA	30V	1W		
T5	T100°C	-40 ~ 56 °C	100mA	30V	1.4W		
T6	T85 °C	-40 ~ 44 °C	50mA	30V	0.4W		

The devices must be installed in a protected environment in accordance with the specific conditions on the test certificate. Pollution degree 3 (see IEC 60664-1) must not be exceeded for the macro environment of the device. The devices conform to degree of protection IP66 / IP67. If the device is installed as intended, this requirement is met by the housing as standard.

When connected to the line supply / not connected to the line supply, the electrical circuits must not exceed overvoltage category III / II.

4.4 Meter design for NEPSI combined C5 + C6, ATEX/IECEX combined E5+ E6, and cFMus, combined F3 + F4.

Meter design for NEPSI combined C5 + C6, Ex protection code is C7.

Meter design for ATEX/IECEX combined E5 + E6, Ex protection code is E7.

Meter design for cFMus, combined F3 + F4, Ex protection code is F8



IMPORTANT (NOTE)

For the application in US and Canada, when the temperature under rated conditions is higher than 60°C at the entry point or 60°C at the branching point of the conductors, must select the accessory such as cable, gland or conductors in conduit with minimum temperature specification of 60°C.

**IMPORTANT (NOTE)**

The devices may only be operated in explosive areas if the housing covers have been fully closed.

**WARNING**

Static hazard clean only with a damp cloth.

Avertissement – Danger statique Nettoyez uniquement avec un chiffon humide.

**IMPORTANT (NOTE)**

“C7” digit means that customer choose NEPSI Non Sparking or Intrinsically Safe method of protection on product.
Dedicated check box to be marked by manufacturer or customer.

**IMPORTANT (NOTE)**

“E7” digit means that customer choose ATEX or IECEx Non Sparking or Intrinsically Safe method of protection on product.

Dedicated check box to be marked by manufacturer or customer.

**IMPORTANT (NOTE)**

“F8” digit means that customer choose FM US or FM C Non incendive or Intrinsically Safe method of protection on product.

Dedicated check box to be marked by manufacturer or customer.

**IMPORTANT (NOTE) – Note for transmitter with combined approval.**

Before installation of the Transmitter, the customer should permanent mark his chosen Protection Concept on the safety label. The transmitter can only be used with according to this Protection Concept for the whole life. If two or more types of protection box (on safety label) are permanent marked, the transmitter must be removed from hazardous classified locations. The selected Type of Protection is allowed to be changed only by manufacturer after a new satisfactory assessment.

NEPSI approval design for China (Non Sparking):

Detailed information see chapter 4.2

NEPSI approval design for China (Intrinsically Safe):

GYJXXXXXX

Detailed information see chapter 4.3

EC type-examination certificate FM15ATEX0064X**Designation:**

II 3 G Ex nA IIC T6...T4 Gc - II 3 D Ex tc **IIC T85°C- T135°C**

for electrical parameters see cert,FM15ATEX0064X

Detailed information see chapter 4.2

Certificate of conformity IECEx FME 15. 0010X**Designation:**

Ex nA IIC T6...T4 Gc - Ex tc IIC **T85°C- T135°C**

for electrical parameters see cert,IECEx FME 15.0010X

Detailed information see chapter 4.2

EC type-examination certificate FM15ATEX0063X

Designation:

II 1 G Ex ia IIC T6...T4 Ga - II 1 D Ex ia **IIIC T85° C- T135°C**
for electrical parameters see cert, FM15ATEX0063X
Detailed information see chapter 4.3

Certificate of conformity IECEx FME 15. 0010X

Designation:

Ex ia IIC T6...T4 Ga - Ex ia **IIIC T85° C- T135°C**
for electrical parameters see cert, IECEx FME 15.0010X
Detailed information see chapter 4.3

FM approval design for the USA and Canada (Non Incendive):

CL I, ZONE 2 AEx/Ex nA IIC T6...T4
NI CL I/DIV 2/GP ABCD,
DIP CL II, III/DIV 2/GP EFG
Detailed information see chapter 4.2

FM approval design for the USA and Canada (Intrinsically Safe):

IS/Sec. Intrinsic (Entity) CL I,
ZONE 0 AEx/Ex ia IIC T6...T4
CL I/DIV 1/GP ABCD IS - CL II,III DIV 1/GP EFG
IS Control Drawing number: 3KXL065035U0009
Detailed information see chapter 4.3

4.5 Specific Conditions of Use

1. When the manufacturer of the equipment has not identified the type of protection on the label (option a = E7 or F8), the user shall, on installation, mark the label with the type of protection used.
2. The painted surface of the LST300 may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust, or oil. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in IEC TR60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
3. For type of protection "n", provision shall be made external to the equipment, to provide the transient protection device to be set at a level not exceeding 140 % of the peak rated voltage value of 42 V.
4. For option d (housing material) equals A1 or B1 the enclosure contains aluminium and is considered to present a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction.

5 Commissioning

5.1 Preliminary checks prior to start-up

Before beginning the commissioning procedure, ensure:

- The power supply is OFF.
- The power supply is within the specified range (12 to 42 V DC).
- The pin assignment matches the connection diagram.
- The transmitter is correctly grounded.
- The transmitter is within temperature limits.
- The transmitter is installed in a location free of vibration.
- The terminal cover is sealed.

ABB Engineering (Shanghai) Ltd.
No.4528, Kangxin Highway, Pudong New District
Shanghai 201319
P.R.China
Tel: +86 (0) 21 6105 6666
Fax: +86 (0) 21 6105 6677

ABB Inc.
Process Automation
125 E. County Line Road
Warminster PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183
measurement@us.abb.com

ABB Limited
Process Automation
Howard Road St. Neots
Cambridgeshire PE19 8EU
Germany
Tel: +44 (0) 1480 475321
Fax: +44 (0) 1480 217948

www.abb.com/level

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Sales



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