

LST300_Terminals Description - with Wiring Suggestions



Electrical connection

Make sure no power supply for LST300 before installation.

Engineer must electrostatic discharge or use a wristband before connecting the cable to the LST300.

Ensure that the power supply is within the range (12-42 V DC)

When the terminal cover of LST300 is opened, the transmitter should be protected from dust and moisture.

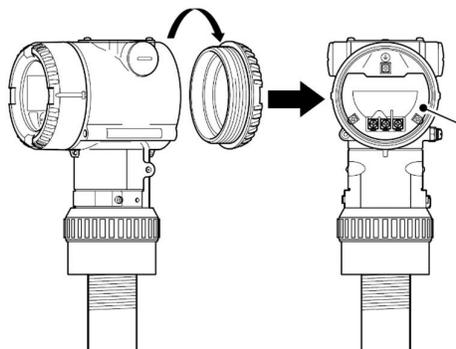


Figure 1. Cable Connection Area



Warning
-
Physical Injury

Hot swappable power supply is not recommended
Hot swap power supply (4 - 20 mA HART) is not recommend for LST300.
Please turn off the power supply before connecting the LST300 to the power supply.



Attention
-
Property Loss

Electrostatic discharge will cause material damage
Open caps do not provide contact protection, which means touching conductive devices can damage electronic devices (sometimes beyond repair) due to electrostatic discharge. Do not touch conductive devices.

According to IEC 61000-4-2 , the contact ESD protection voltage of LST300 connectors is 4 kV while the air ESD protection voltage is 8 kV. ABB strongly recommends using wristbands or electrostatic discharge before connecting cables to LST300.

Cable connection area

The wire is mounted on LST300 with a 1/2-14 NPT or M20 x 1.5 cable sealing sleeve. In order to maintain the NEMA 4X and IP 66/67 of the transmitter in the protection level, proper sealant (1/2in. NPT or M20 x 1.5 nut thread) should be coated on the thread of the cable sealing sleeve before the sealing sleeve is screwed into the outer covering.



Danger
-
**Serious
Damage to
Health/Life**

When installing LST300 measurement system in dangerous area, all national standards and specifications in installation instructions must be met, and specified cable sealing sleeve must be used.

- Do not tighten the end cap when the cable seal sleeve is tightened.
- Only a single cable is worn in the cable sealing sleeve. Wearing multiple cables will affect the entry protection performance of the transmitter.
- After terminal connection, make sure that the terminal cover is tightened.



Attention
-
**Property
Loss**

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Attention
-
**Important
Matters**

Before installing the transmitter in dangerous area, the red plug must be removed. The product has not passed the explosion-proof certification.

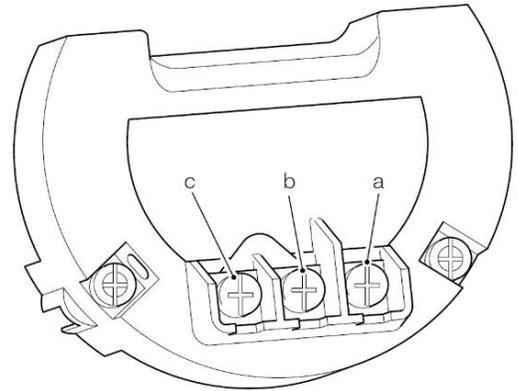


Figure 2. Terminals Introduction

- a Positive pole of power supply (+)
- b Negative pole of power supply (+)
- c Expansion table, short connection with negative pole in normal use (Ext)

DC power supply

As shown in Fig. 1, the LST300 is operated by a DC power supply connected to the terminal.

- First open the blind cover to connect the cable.
- Power supply voltage is 12 - 42 V DC, no surge protection. Power supply voltage is 12 - 42 V DC when the terminal of negative pole and expansion meter is short connected, surge protection.
- To better prevent electromagnetic interference, twisted pair cable is recommended.

Analog output

The LST300 has a 4-20 mA analog output for transmitting measurements and alarms.

- 20 mA output and power input are transmitted on the same wire.
- The output current is a process variable under normal conditions. It can also be used as fault protection or as a fixed value to indicate the alarm situation.
- Low alarm value can be configured in the range of 3.5 mA - 3.6 mA.
- The high alarm value can be configured in the range of 21 mA - 22.6 mA.
- The refresh frequency of 4 - 20 mA output is 0.2 seconds.

HART Communication

HART protocol is used for digital communication between process control system/PC, handheld terminal equipment and LST300. It can be used to send all equipment and measurement point parameters from transmitter to process control system or PC.

It also provides a way to reconfigure the transmitter. Digital communication utilizes alternating current (4 - 20 mA) superimposed on analog output, without affecting any instrument connected to the output.

- HART communication and power are transmitted on the same cable. No additional cables are required.
- HART communication requires an additional resistor.
- The minimum resistance of the resistor is 250 ohms. Resistors on power lines can cause voltage drop, which should be considered to ensure that the supply voltage for LST300 is higher than the minimum rated input voltage.
- The baud rate of HART communication is 1200.

Ground Connection

The LST300 needs to be grounded at the terminals, as shown in Fig. 2.

- LST300 has two ground connectors (PE). Effective grounding connection is needed to achieve optimal EMC protection.
- If LST300 is used in hazardous environments (Zone 1 and Zone 1 and Zone 2), all grounding must comply with explosion-proof requirements.

Terminal connection example

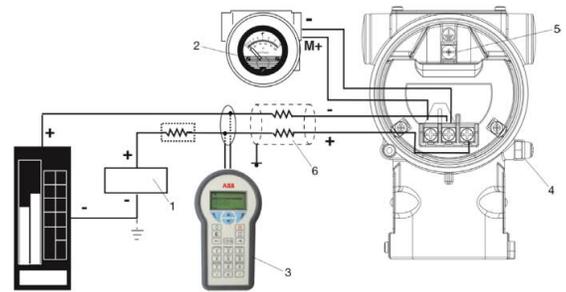


Fig. 3 Electrical Connection - HART Version

1. Power Supply
2. Remote Display
3. Handheld Terminal Equipment
4. External grounding connection
5. Internal grounding connection
6. Cable entrance



Warning

Explosion-proof transmitters must be repaired by the manufacturer or approved by qualified technical experts after repair. Please observe the relevant safety precautions before, during and after the repair work.

Wiring

Follow the following steps to connect the transmitter:

1. Remove the cover on one of the two electrical connection ports on the upper sides of the transmitter housing.
2. Install various adapters and bushings on the inch NPT internal threads of connection ports, if necessary, to conform to factory wiring (conduit) standards.
3. Remove the cover on the side of the field terminal.

For explosion-proof/fire-proof installation, the transmitter cover shall not be removed when the power supply is connected to the device.

4. Pass the cable through the open port. Connect the positive lead to the '+' terminal and the negative lead to the '-' terminal.

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Attention
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Important Matters

Do not connect the power supply to the test terminal, otherwise the test diode in the test connection will be damaged.

5. Block and seal electrical ports. Seal these openings after installation to prevent rainwater and corrosive steam and gas from entering the interior.
6. Install wiring with dripping ring whenever possible. When installing the drip ring, the bottom should be lower than the conductor pipe connector and the transmitter housing.
7. Rotate after installing the cover, so that the O-ring is loaded into the shell, and then continue to tighten manually until the metal part of the cover contacts with the metal part of the shell.