

## Safety Precautions


⚠ Pressure transmitter should be installed by professional engineers or qualified technical personnel, product specifications and important information provided on the label should be carefully read before installation and wiring operations.

⚠ Pressure transmitter is powered by an external power supply, the power supply circuit should comply with energy-limiting circuit by relevant standards, and pay attention to the high voltage circuits there may exist.

⚠ The maximum static pressure overload has been stated on the product label, the process maximum pressure should not exceed the full span of sensor.

⚠ Using pressure transmitter in hazardous areas, installation, use and maintenance should also comply with the operation manual and relevant requirements of national standards.

## Label

Pressure transmitter	2016/05/26
SN: LMP633-NSN-S403GF-N1-F-4H28 NB: 1606-011-010-1-A9800 IN: 0 ~ 20kPa   OUT: 4 ~ 20mA	
1 OP: 30kPa ACC0.5%	
2 SUPPLY: 24VDC	
U: 28VDC LI: 100mA PI: 0.7W	4 ExiaIICT4 Ga GYB16, 1953X
5 Ci: 0.04uF Li: 1.8mH	RED: + BLK: -

## Important information

- Static pressure overload
- Power supply
- Signal outline type
- Explosion proof mark
- Intrinsic safety equipment parameters
- Certificate

⚠ Please note! Exceeding static pressure overload will cause damage to the instruments, even lead to burst and casualties.

## Product usage

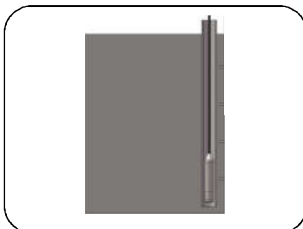
### Container level measurement



Submersible level transmitter is mounted on the top of the vessel and is used to measure the height of the liquid in the vessel

⚠ Must ensure that the tank connect to the atmosphere directly to avoid measurement error caused by static pressure inside the container and damage caused by overload pressure.

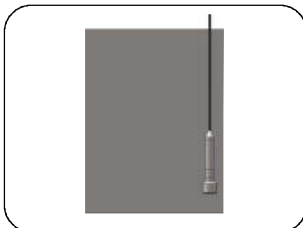
### Protection sleeve



Submersible Level Transmitter should be integrally mounted in the protective sleeve to avoid the impact on the level transmitter from fast flowing medium. Protection casing should be above the level surface, to avoid the influence on measurement accuracy from surface disturbances.

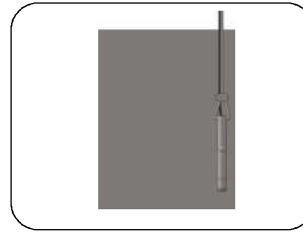
Level transmitter probe should be higher than the bottom at least 20cm, to avoid the blockage of impurities and sand.

### Counter weight



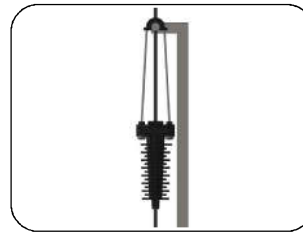
It is unable to install the protective tube in some fast flowing areas, so the counterweight can be used to fix the level transmitter. The counterweight can be used to fix the level transmitter for big density media also.

## Wire rope supporting



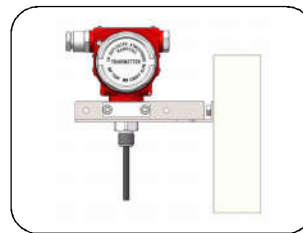
For products with more than 50 meters cable, the wire rope and cable bundled multi-point should be used to strengthen the level transmitter support.

## Clamps installation



Clamps can be used to fix and support the entire product for direct cable connection level transmitter. Cable outlet should be of sufficient length, preferably directly connected to the control room, or use the adapter junction box for cable adapter, avoid bare connections in the field environment, leading into the liquid.

## Brackets installation-panel bracket



fluid in junction box in high humidity environment.

Brackets can be used to fix and support the entire product with terminal box type level transmitter. Generally the installation location of the junction box at least 1.5 meters above the ground. When the installation is in the underground, manufacturers supporting cable should be used to connect to the control device, to avoid the condensation

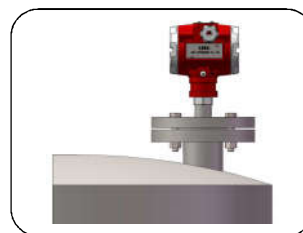
## Brackets installation-pipe bracket



fluid in junction box in high humidity environment.

Brackets can be used to fix and support the entire product with terminal box type level transmitter. Generally the installation location of the junction box at least 1.5 meters above the ground. When the installation is in the underground, manufacturers supporting cable should be used to connect to the control device, to avoid the condensation

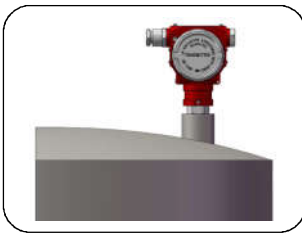
## Flange connection



manufacturers supporting cable should be used to connect to the control device, to avoid the condensation fluid in junction box in high humidity environment.

⚠ Ensure that the container is connected with atmosphere to avoid measurement errors by the static pressure in the container or the damages by the overpressure. The flange is used to secure and support submersible level transmitter in the top of the container, when the installation is in the underground,

## Thread connection



⚠ Ensure that the container is connected with atmosphere to avoid measurement errors caused by the static pressure in the container or the damages caused by the overload pressure.

⚠ Locking screw entire submersible level transmitter will follow the rotation.

The thread is used to secure and support submersible level transmitter in the top of

the container, when the installation is in the underground, manufacturers supporting cable should be used to connect to the control device, to avoid the condensation fluid in junction box in high humidity environment.

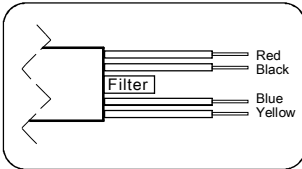
⚠ In order to avoid damage to the diaphragm, do not remove the package and cover before installation. Be sure to keep the protective cap properly.

⚠ The pressure transmitter must be installed and secured against collision or friction. At the same time to consider the medium flow conditions and other factors on the pressure transmitter fixed and measurement.

⚠ During installation or maintenance, the pressure transmitter should slowly sneak into the medium, to avoid damage to the diaphragm due to impact with the liquid surface.

## Electrical connection

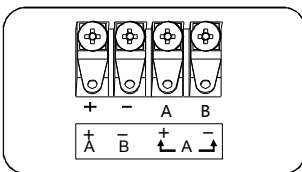
### Cable outlet



Label	Two wires	Three wires	Four wires	Modbus-RTU/RS485
Red	Power+	Power+	Power+	Power+
Black	Power-	Power-	Power-	Power-
Blue	Key-z	Signal+	Signal+	A+
Yellow			Signal-	B-

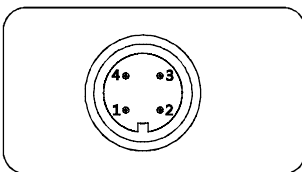
⚠ The reference pressure is the current atmospheric pressure for gauge pressure transmitter. Be careful. Avoid the filter dropping off and keep it dry.

### Module terminals- four terminals



Label	Two wires	Three wires	Four wires	Modbus-RTU/RS485
+	Power+	Power+	Power+	Power+
-	Power-	Power-	Power-	Power-
A	Key-z	Signal+	Signal+	A+
B		Signal-	Signal-	B-

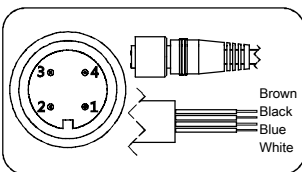
### Aviation plug, (M12\*1-4pin)



Label	Two wires	Three wires	Four wires	Modbus-RTU/RS485
1	Power+	Power+	Power+	Power+
2			Signal-	B-
3	Key-z	Signal+	Signal+	A+
4	Power-	Power-	Power-	Power-

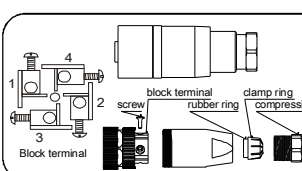
## Electrical connection accessories

### Aviation plug (with cable)



Label	Two wires	Three wires	Four wires	Modbus-RTU/RS485
1/Brown	Power+	Power+	Power+	Power+
2/White			Signal-	B-
3/Blue	Key-z		Signal+	A+
4/Black	Power-	Power-	Power-	Power-

### Aviation plug (without cable)



Label	Two wires	Three wires	Four wires	Modbus-RTU/RS485
1	Power+	Power+	Power+	Power+
2			Signal-	B-
3	Key-z	Signal+	Signal+	A+
4	Power-	Power-	Power-	Power-

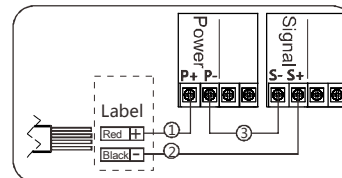
⚠ Key-z is the modified zero pressure terminal, suitable for products with two wires signal output. Please prevent Key-z terminal leading wire from short circuit with grounding wire (shielded cable).

⚠ Please note that the specific circumstances of the Signal outlet way was based on the information on the mark.

⚠ The minimum bending radius of the cable must meet the following requirements; static application is not less than 10 times the cable diameter, dynamic application of not less than 20 times the cable diameter.

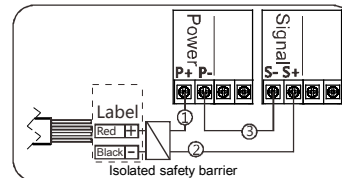
## Signal connection

### 4-20mA Two wire(cable)



- 1 Connect the positive power supply (P+) to the red wire of level transmitter;
- 2 Connect the positive signal module (S+) to the black wire of level transmitter;
- 3 Connect the negative signal module (S-) to the negative power supply (P-).

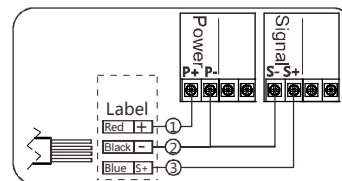
### Intrinsic safety 4-20mA Two wire(cable)



- 1 Connect the positive power supply (P+) to the red wire of level transmitter;
- 2 Connect the positive signal module (S+) to the black wire of level transmitter;
- 3 Connect the negative signal module (S-) to the negative power supply (P-).

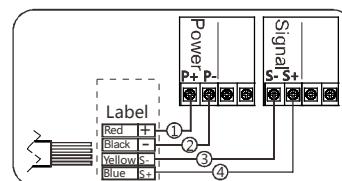
⚠ Please note! The signal connection of intrinsic safety instruments needs to refer to isolated safety barrier factory instructions.

### Three wire current/voltage signal(cable)



- 1 Connect the positive power supply (P+) to the red wire of level transmitter;
- 2 Connect the negative power supply (P-) to the black wire of level transmitter and the negative signal module (S-) to the negative power supply (P-);
- 3 Connect the positive signal module (S+) to the blue wire of level transmitter;

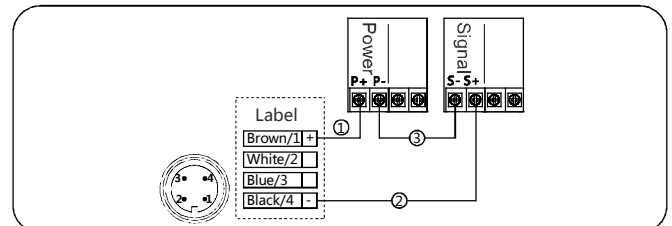
### Four wire current / voltage/digital signal(cable)



- 1 Connect the positive power supply (P+) to red wire of transmitter;
- 2 Connect the negative power supply (P-) to black wire of transmitter;
- 3 Connect the positive signal module (S+) to blue wire of transmitter;
- 4 Connect the negative signal module (S-) to yellow wire of transmitter;

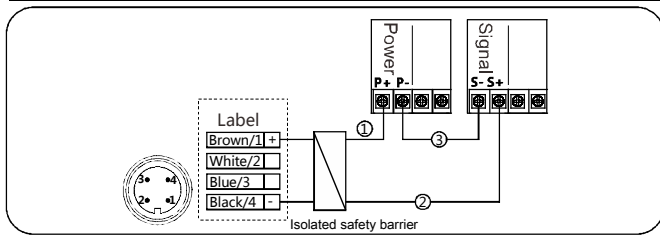
⚠ For Modbus-RTU/RS485 output signal, the connection methods of positive and negative power supply are same as above. Connect A+ to blue electron wire of pressure transmitter. Connect B- to yellow electron wire of the transmitter.

### 4-20mA two wires (aviation plug with cable)



- 1 Connect the positive power supply (P+) to the terminal 1/brown wire of pressure transmitter;
- 2 Connect positive signal module (S+) to the terminal 4/black wire of pressure transmitter;
- 3 Connect the negative signal module (S-) to the negative power supply (P-)

### 4-20mA two wires, intrinsic safety(aviation plug with cable)



- ① Connect the positive power supply (P+) to the terminal 1/brown wire of pressure transmitter;
- ② Connect the positive signal module (S+) to the terminal 4/black wire of pressure transmitter;
- ③ Connect the negative signal module (S-) to the negative power supply (P-)

⚠ Please note that the wiring should refer to the installation information provided by the isolated safety barrier manufacturer.

### Power supply

Independent linear direct-current power supply is suggest to be adopted for the power supply of pressure transmitter, over large resistive load will result in a large pressure drop, so it requires to calculate the all-in resistance of signal cable, display meter and other record and display equipment, to ensure the voltage provided to the pressure transmitter accord with normal operating requirements.

- Standard current signal output: 12-30VDC,
- HART current signal output: 16.5~55VDC,
- Intrinsic safety current signal output: 12~30VDC,
- Modbus-RTU/RS485 output: 5VDC/9-30VDC,
- 0.5~4.5VDC voltage output: 5VDC/6-15VDC.

### Grounding

- Using cable with shielded twisted-pair signal has the best effect. To avoid ground loop, shielded layer adopts single-end grounded.
- Transient resistance built-in module is effective only in the case of good grounding. Metal shell and internal grounding terminals are used to the nearest grounded directly.

### Cable protection system

#### Standard protection system



In order to avoid the liquid flowing along with the cable to flow into the terminal box or result in waterproof joint effusion, an U-shaped ring needs to be configured between pull box and pressure transmitter as the picture shows, and please ensure the U-shaped bottom is under the pressure transmitter. Considering the maintenance and replacement, enough cable length needs to be reserved.

#### Flexible explosion-proof tube protection system

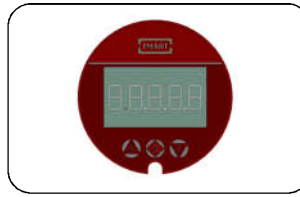


⚠ Using flame proof pressure transmitter in dangerous situations, please use metal flexible explosion-proof tube to connect the signal cable into pull box and lead to the safety zone.

### Intrinsic safety type

⚠ The signal connection of intrinsic safety instruments needs to refer to isolated safety barrier factory instructions.

### Field adjustment



It is convenient for range adjustment with LCD buttons, terminal box external buttons or software such as HART protocol. For detailed operation, please refer to instructions of display meter, HART protocol and so on.

⚠ Please make adjustment with caution. Not all types of pressure transmitters have adjustment function.

### Zero point adjustment

- Please make an adjustment after installation because the mounting position will affect zero setting.
- The vessel is absolutely empty (No pressure or medium on the measuring diaphragm, the vessel connect to the atmospheric air)
- Power connection please refer to "Keys operation manual-keyboard shortcuts- PV=0".
- Please set PV=0 after three weeks of installation to ensure the best accuracy set PV=0 each year.
- Zero point adjustment is only available for gauge pressure transmitter.

⚠ For products without keys, the key / z terminal ("3" pin "blue" wire) can be used for zero adjustment. After power-on, the terminals / leads are shorted to the power supply terminal / After the break can be.

⚠ Zero point adjustment is only available for gauge pressure transmitter.

### Full span adjustment

- Fill the vessel with medium (fill to the required level)
- The static pressure value should be within the minimum and the maximum pressure range.
- Power connection please refer to "Keys operation manual-keyboard shortcuts-full span adjustment"

### Factory resets

- Please refer to "Keys operation manual-keyboard shortcuts-factory resets"

### Maintenance

Requires no maintenance

### External cleaning

Please notice the following when cleaning:

- Use washing agent which will not damage to the instruments
- Prevent the process diaphragm from mechanical damage, eg: the mechanical damage caused by sharp objects.
- Mechanical cleaning of metal diaphragm(technical and teference) is prohibited.
- Do not point the nozzles to the diaphragm directly when doing internal cleaning by pressure washer.

## Transportation / storage

- Do not store at outside
- Keep dry and dust-free
- Do not expose to the corrosive medium
- Avoid solar radiation
- Avoid mechanical shock and vibration
- Storage temperature: -30~80°C
- Maximum relative humidity: 95%

## EMC statement

- EMC equipment instructions 2014/30/EU.
- CE mark suggests the instruments are in line with EU standards
- Users need to ensure the whole equipment conform to all the applicable standards.

## Retransport

- Keep clean of the pressure transmitter. Stay away from any dangerous medium!
- Please adopt proper package to avoid damage in transportation.

## Exception handing

- Measurement signal is abnormal which should judge the process pressure is abnormal, measuring system error or influence of installation environment or abnormal in the pressure transmitter, then analyze the reason and take corresponding measures.
- No signal output, process pressure changes but no measurement corresponding change, or change does not correspond, it may be an abnormal pressure transmitter, it needs to check the power supply voltage, wiring, power consumption and load resistance whether they meet normal operating requirements. Also need to check if there is leaks and pressure impulse line blockage, shut-off valve not turned on, etc.
- Signal output error is too big or it exceeds the normal range, need to check the power supply voltage, power consumption and load resistance whether they meet normal operating requirements, the measuring range setting, if adjustment is correct. Also need to check if there is leaks and pressure impulse line blockage, shut-off valve not turned on, rapid temperature fluctuations, etc.

## Depot repair

Please finish the following steps before the depot repair:

- Removal of all the residues which would be harmful to human health, such as inflammable, poisonous, cancerigenic and radioactive substances.
- ⚠ Do not return the instruments back if can not ensure the dangerous residues are removed, eg. the dangerous residues permeate into cracks or spread to the plastic.

## Discard disposal

- The instrument is not restrained of WEEE instruction 2002/96/EG and laws of relevant countries.
- Please pass the instrument to specialized recycling companies other than local recycling points.