Electromechanical Level Measuring System
Operation Instruction

FineTek Co.,Ltd.
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08-EE300-B4-EK,09/01/2017

Warning

- Be sure to power off before wiring.
- Do not touch any wire terminal during power on to avoid from electrical shock and always keep the screw secured.
- While connect wire to terminal, check if it is in correct wiring diagram.
- Repairing, modifying, or taking apart of product will not be guaranteed.
- Avoid placing this product near any environment with explosion or flammable gas atmosphere concerns
- User should check the power supply is within operation range and keep from over range operation.
- Avoid from operating instrument near the flammable gas, liquid environment.
- Avoid from the vibration, high temperature exposure, high humidity, sunlight, high frequency machine operation environment.
- To get long life operation, it is suggested that install cooling system with your system.

Before Using This Product

- Check if the content is the order model you expect.。
- Avoid from shock, vibration or drop down the product.
- Suggest warm up time is over 30 minutes before operation, if user concerns accurate temperature compensation.

Product Mounting

- Should not mount at the place which is easy to freeze, dusty or enclosure with corrosion gas.
- Avoid from place the product at high fluctuation of temperature environment, keep away from high temperature environment (<55℃) .
- Check if any device will create high electric interference nearby, adopting appropriate isolation, grounding or filtering power line if necessary.

Contents

1. Instruction

Thank you for your purchasing for FineTek product. This user will introduce the product features, operations, maintenance and troubleshooting to help user get familiar with product, avoid from the possible dangerous use. Before operation, please carefully study the details of product. Extra support can find at www.fine-tek.com or directly contact our representative by telephone and facsimile. On line revision will issue at web site and not further inform. User can get newest support and download at www.fine-tek.com. In case of any unexpected problem, don't disassembly it by yourself or you will lose the product guarantee. Contact us, if you have any question that hard to be defined.

Symbol Instruction

Danger It indicates for wrong operation that has possible chance to cause disaster or danger to user.

Attention It indicates for wrong operation that has possible chance to cause damage on equipment .

Wrong operation will get electric shock.

Away from flammable materials or keep environment in electrical safety.

Forbidden operation

2. Guarantee

All FineTek products will get one year guarantee in regular operation. Product within guarantee period will get service and no charge for any nominal fee. User finds any defect during delivery process or not be broken by wrong operation that can ask return or replace. In maintenance, user has the obligation to send all complete parts back to FineTek in well carefully package. Over range operation, over charge or any abnormal operation will excess out the guarantee range. Product not in guarantee period and condition will charge necessary fee for the repair or replace.

Things below will not in guarantee coverage and will be charged service fee:

- Expire the guarantee date.
- Not properly use according to operation manual.
- Irresistible environment effects or natural disaster (earthquake, flood disaster, fire, lighting stroke, hurricane)
- Human-made damage (scratch, cutting, throwing down, hammering) or abnormal operation (over power range, over ambient condition, over range operation, corrosion, watering, electric charge), non-proved third-party device connection or expend, replace non-proved components or module.

Maintenance Guarantee: All the products will get six months guarantee service since repair or replace components. During six months, any fault caused in same will be serviced in free charge.

2.1 Product Features

Company	Address	Telephon	Fax
Taipei Headquarters (Taiwan)	No.16, Tzuchiang St., Tucheng Industrial Park, New Taipei City 23678	+886 2 2269 6789	+886 2 2268 6682
Taichung Sales office (Taiwan)		+886 4 2465 2820	+886 4 2463 9926
Kaohsiung Sales office (Taiwan)		+886 7 333 6968	+886 7 536 8758
Fine automation Co., Ltd. (China)	No. 451, Duhui Road, Zhuanqiao Township, Minhang District, Shanghai City 201109	+86 021 64907260	+86 021 6490 7276
Aplus FineTek Sensor Inc. (US Office)	355 S. Lemon Ave, Suite D, Walnut, CA 91789	1 909 598 2488	1 909 598 3188
FineTek GmbH (Germany Branch)	Frankfurter Str. 62, OG D-65428 Ruesselsehim, Germany	+49 (0)6142 17608 0	+49 (0)142 17608 20
FineTek Pte Ltd. (Singapore Branch)	No. 60 Kaki Bukit Place, #07-06 Eunos Techpark 2 Lobby B, Singapore 415979	+65 6452 6340	+65 6734 1878
FineTek Co., Ltd. (Indonesia Branch)	Ruko Golden 8 Blok H No.40 Gading Serpong, Tangerang, Indonesia	+62 (21) 2923 1688	+62 (21) 2923 1988

3. Introduction

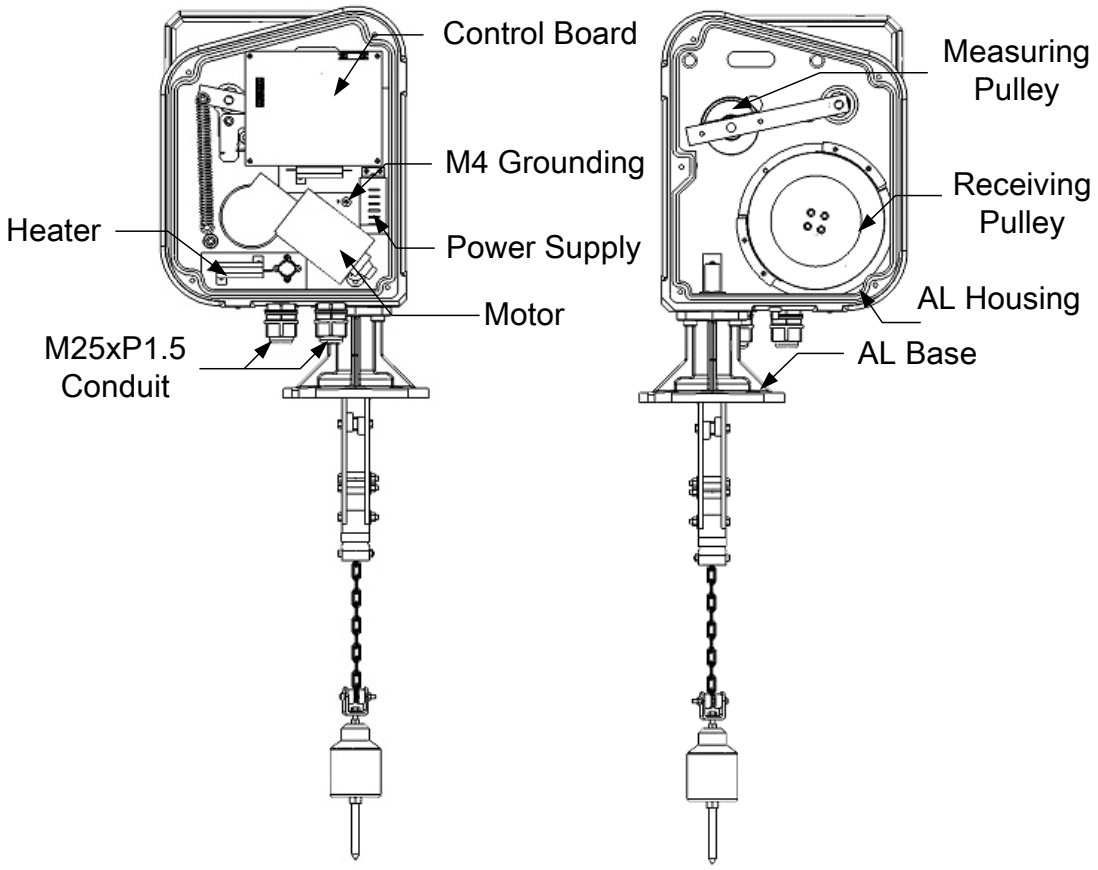
3.1 Product Features

- Measurements are independent on the variation of environment (sound waves, dust, capacitance, humidity and temperature, are suitable for various industrial applications.
- User-friendly operation and full functionalities with microprocessor control.
- Support dual level alarm (High / Low).
- High contrast characteristic LCM (Dot matrix 8 x 2).
- Analog output: 0-20mA / 4-20mA.
- Pulse output: Transistor output (NPN/PNP), Relay output(3A/250Vac, SPDT×2)
- Cable Break Alarm: System will detect automatically when cable is broken during operation.
- Sensing Weight Buried Alarm: System will detect automatically when the sensing weight is buried in the measured material.
- Four Detection Modes:
  I. Auto operation: in period, system will be waked up in certain time period depend on the pre-setting.
  II. Manual operation: User can operate system at front panel to set procedure any time.
  III. Intelligent (smart) operation: The EE300 will vary its detection frequency to shorten the measuring time while the detected material level is more far away from EE300. This function is especially useful while customer's storage or reservoir is subjected fast change in level (Ex: Pour in / Pour out), this smart function will decrease the possibility of weight head be buried or malfunction.
  IV. External trigger operation: Support external command to start on the system.
- Auto Return Setup: User can set the sensing level threshold and force the system return at the preset threshold value. This function is especially of service while the measured material in storage or reservoir is lower than the threshold level, which will be in prevention away of damaging facility.
- Material Fill-Up Protection: While user's facility is on pour into material status, the system will be trigged (By Fill-Up Protection Input) hold and return to its original to reduce the malfunction or weight head buried possibility.
- Maximum measuring range of 30m.
- RS485 communication protocol available.
- Versatile sensing weight structure satisfy customer's requirement.
- Froze Protect: Within the EE300, it supports a heat element to warm up the electric board within shell housing to guarantee it will work normally even under severe cold environment.

3.2 Principle

EE300 series Electro-Mechanical Level Measuring System consists of a sensing weigh, a cable wire, a pulley set with Hall sensor to count level distance, and a calculating electric board. While measuring, the drooping cable wire will drive the pulley set in rotation, where the Hall sensor will count the number of pulley rotation as an index. The electric board will calculate the pulse command sent to motor, and the actual drooping length can be transferred by pulse command and the rotation number of pulley. All data indicates at front panel and can be transferred to output.

3.3 Sketch & Drawing



Front View: Electric Board & Motor Rear View: Wiring Mechanism

3.4 Applications

Measurements are independent on the variation of environment (sound waves, dust, capacitance, humidity and temperature, are suitable for various industrial applications. Typically applications like metallurgical industry, mining, cement industry, power plant, ship manufacturing industry, chemical industry, feed industry, food industry etc.
Control process is compatible with the need of general power, pellet, lump or bulk material monitoring. Standard output can be further connected with customer's central managing system

4. Specifications

4.1 Technical Parameters

NO.	Category	Specification		
1	Power Supply	88~264Vac, 50/60 Hz		
2	Transistor Measuring Resolution	±3pulse(version with10mm/pulse)		
3	Relay Output Measuring Resolution	±1pulse(version with100mm/pulse)		
4	Measuring Speed	0.23m/s		
5	Analog Output	0/4-20mA ±1%		
6	Pulse Output	1. NPN / PNP 2. Relay (3A/250Vac)		
7	Display	LCD (Dot matrix , 8 X 2)		
8	Status LED	1.4 Lock (Fill-Up Protection) 2.4 RUN 3.4 Buried 4.4 Break 5.4 Auto 6.4 High Alarm 7.4 Low Alarm		(Red) On (Yellow) On (Red) Blink for 1 second (Red) Blink for 2 seconds (Blue) On (Red) On (Red) On
9	Ambient Temperature	-35℃ - 60℃		
10	Operating Temperature	-35℃ - 80℃		
11	Measuring Range	30m Max		
12	Protection Level	IP66		
13	Relay Output	SPDT 3A/250Vac X 3 (1.HI Alarm 2. LO Alarm 3.Buried、Break、Lock (Output mode as indicated)		
14	Anti-Dew Heater	Start heating <16℃ (prevent frostbite, prevent dew) 110/220Vac max. PF 96.8W		
15	Cable Break Detection	Yes		
16	Sensing Weight Buried Detection	Yes		
17	Manual/Auto Measuring Mode	Yes(0.1-99h)		
18	Motor Protection	Yes		
19	Malfunction Diagnosis Display	Yes		
20	Material Fill-Up Protection	Yes		
21	Communication Protocol (RS485)	Yes	Frame	C8N1.C8N2.C801.C8E1.C7N2. C701. C7E1.C702. C7E2.
			Baudrate	1200.2400.4800.9600. 11520. 14400.19200.28800.57600
22	Intelligent Start	Measuring interval is inverse proportional to medium level.		
23	Reset Output	Reset (3A/250Vac)		
24	Cable Wire	ø1.2mm		

4.2 Product Specifications

◎ Ordering information :

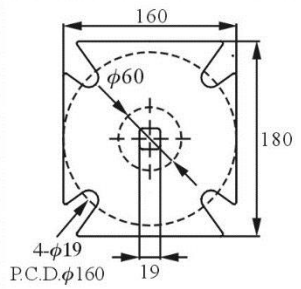
EE300-□-□□ □-□□

TEMPERATURE CONTROL

0:None

1:Yes

CONNECTION

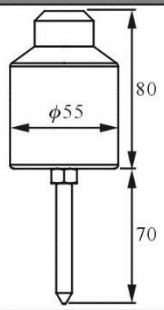
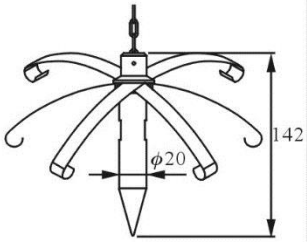
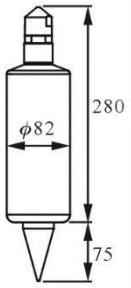
	00
Name	Standard
Type	

※Flanges For Standard Model :

4"x5kg/cm^2、4"x10kg/cm^2、4"x16kg/cm^2、4"x20kg/cm^2、4"x150Lbs

DN100 PN6 、DN100 PN10、DN100 PN16、DN100 PN25、DN100 PN40

SENSING WEIGHT TYPE

	A	B	C	D
Name	Aluminum Alloy	Stainless probe steel float type	Umbrella	Plastic Auto-Fall-Off
Type				

※Custom made is available for sensing weight

MEASURING RANGE (m)

02:2m(min.)

30:30m(max.)

◎ Power : 88~264Vac, 50/60Hz

◎ Power Consumption at Stand-by: 6VA

◎ Display : Characteristic LCM (Dot matrix, 8×2) with back light

◎ Analog Output : 0/4~20mA, support bi-direction arrangement (High level for maximum current output and low level for minimum current output, or vise verse.)

◎ Relay Alarm: SPDT 3A/250Vac

◎ Operation Temperature: -35℃~ 80℃

◎Ambient Temperature: -35℃~ 60℃

◎ Wiring: M25×P1.5 Cable Glands

◎ Piping : 1/4”PT plug

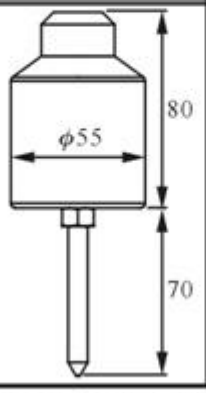
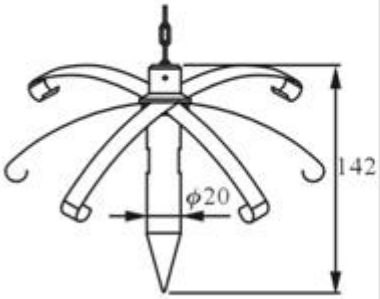
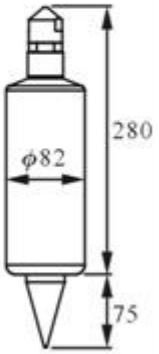
◎ Material: Body --- Aluminum , Cable Wire --- SUS 304 (Φ1.2mm)

◎ Flange : □180

◎ Measurement Range: 1~30m

◎ Total Weight: 13kg

◎ Sensing Weight Type :

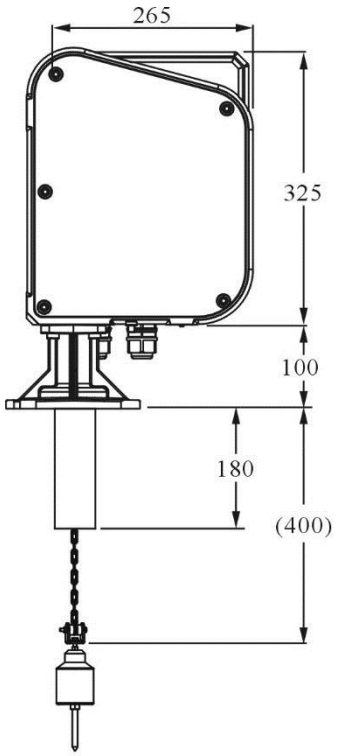
	A	B	C	D
Name	Aluminum Alloy	Stainless probe steel float type	Umbrella	Plastic Auto-Fall-Off
Type				

※Custom made is available for sensing weight

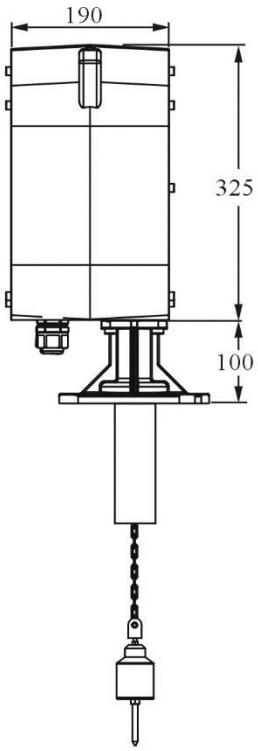
◎ Sensing Weights Materials & Application :

- Type A：Aluminum Alloy; Materials：AL6061, Application：For coarse bulk solids, e.g. coals, ores, fly ash or stones and granulates.
- Type B：Float sensing; Materials：Stainless For Liquid applications.
- Type C：Umbrella; Materials：Stainless For very light and loose bulk solids, e.g. flour or coal-dust.
- Type D：Plastic Auto-Fall-Off; Materials：HDPE; Maximum permissible temperature: +80°C, Application：For feed, coarse bulk solids, e.g. coals, ores or stones and granulates.

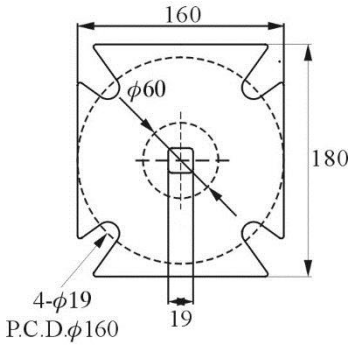
4.3 Product Dimension (unit: mm)



Front View

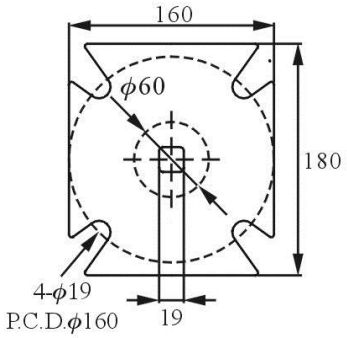


Side View



Top View

4.4 Flange Connection Type

	00
Name	Standard
Type	

5. Product Examination

5.1 Disassembly

5.1.1 Before disassembly, please carefully check if the product is in well package. Any package deformation or broken please capture photo as the witness of compensation.

5.1.2 Check all items are within the package, any item shortage or product broken will only be acceptable and compensated or replaced new one according to the witness of capture photo.

5.1.3 Any question please contacts us and provide status photo within 7-days after acceptance. FineTek guarantees after service and maintenance according the purchase order. Over 7-days, it is regarded as permit of well delivery.

5.2 Move & Delivery

5.2.1 The product should be move and delivery carefully and not be subject any press or Abnormal throwing down.

5.2.2 Don’t pull and drag the cable wire or hammer the weight head, it will damage product.

5.2.3 While install product at 3 m above ground, it is suggested to operate with hoist.

6. Installation

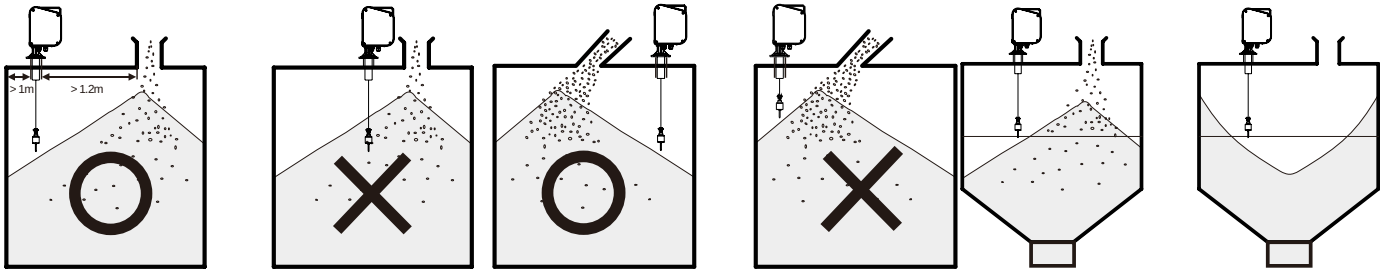
6.1 Location Selection

6.1.1 Installation position should be away from the inlet or outlet of reservoir at lease 1.2 m, and avoid from interfering with the conveying system to damage facility.

6.1.2 Reservoir or tank equipped with observation window is suggested; it will be benefit for maintenance in future. The install location should be away from the ladder, frame or any protrusion. The minimum distance between the EE300 center and tank wall should be 1m or more.

6.1.3 Must be located away from the inlets flow direction to avoid the cable and hammer being damaged by material or disconnected or buried.

6.1.4 The optimal position is at the average depth of measured material, it will generally locate at mountainside between the peak and bottom (the cone angle from by the pouring process), indicates below.



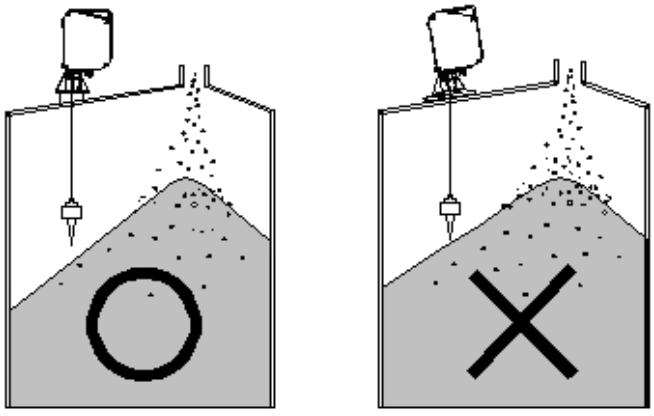
Attention

6.2 Install Instruction

6.2.1 During installation, the flange should be mounted at horizontal. Besides, the housing and cable wire should be keep vertical direction related to measured material level. It should be carefully check if the flange can let the wire cable move free and no rub against the body.

6.2.2 On demand, user may connect an extending tube to connect the flange. If you do that, keep it in mind that minimum diameter should not less that 4".

6.2.3 For leakage, FineTek suggests customer should use O-ring seal or washer between the flange connections and secure it indeed.



Attention

6.3 Caution

6.3.1 During installation, user should carefully check the cable wire is winded up well in pulley set and no fold, broken, or any abnormal compress on the cable wire.

6.3.2 The cable wire should put on the hole of weight head connect and be secured indeed by screwdriver.

6.3.3 Firmly secure the screws to fix the front cover and body, otherwise the dust or powder will pour into the electric board.

6.3.4 The opening portion for the weight head and cable wire must be larger than 104 mm.

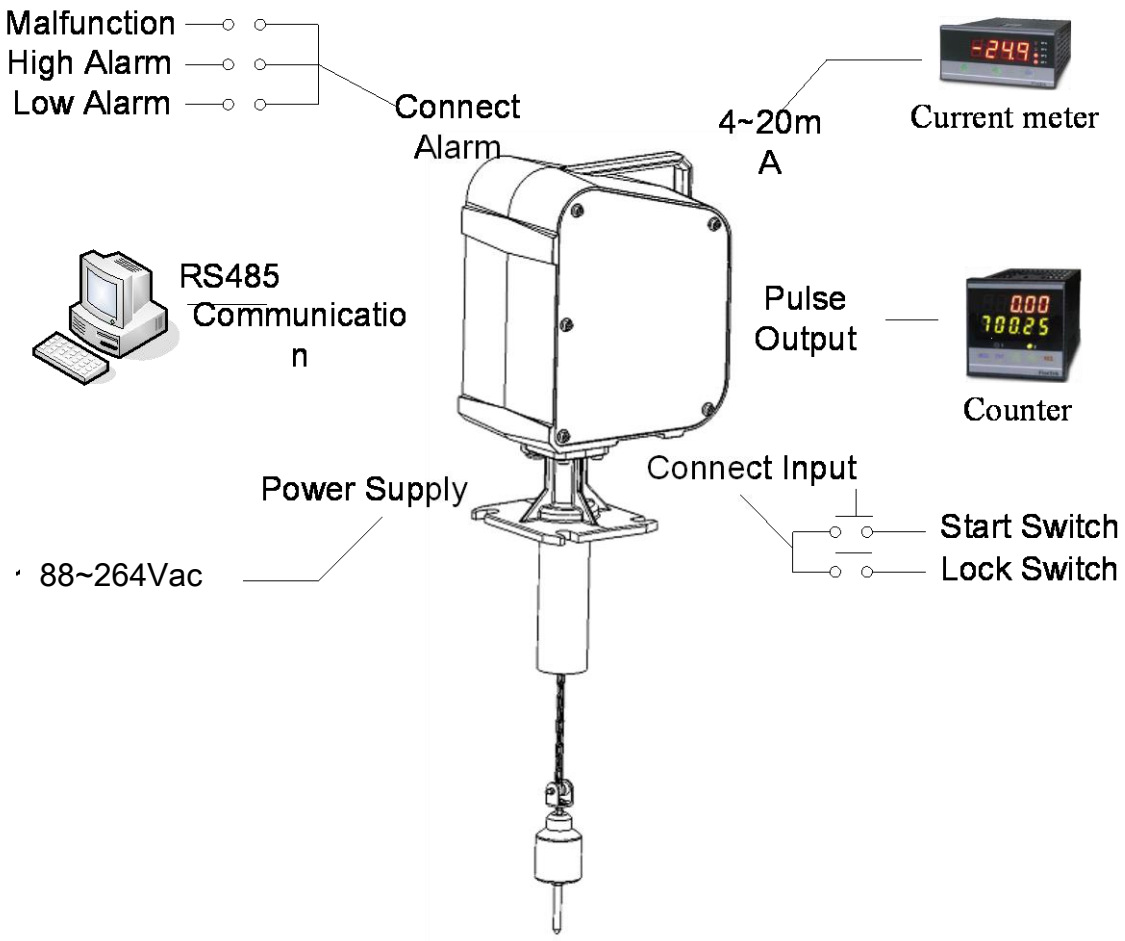
6.4 Wiring Instruction

6.4.1 FineTek suggests 0.75mm^2 non-twist multiple-cores isolated electric wire to connect with the terminal block. The power line should be separated with the signal lines. It should leave a flexible length of electric wire to avoid pull and drag the the electric board.

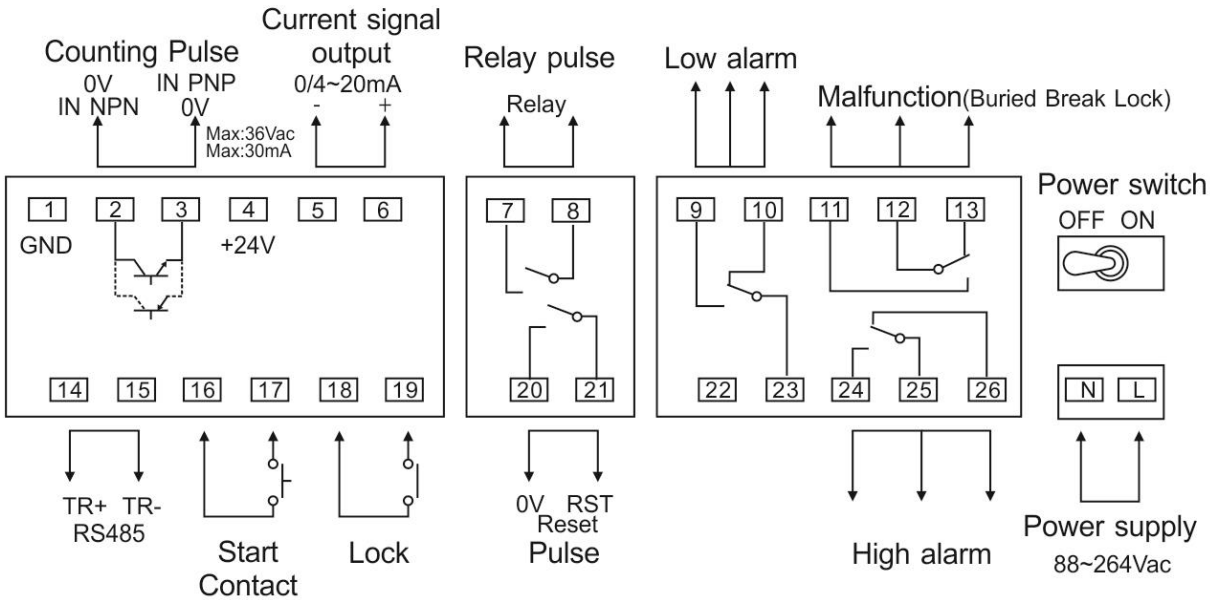
6.4.2  Peer off the skin of electric wire in appropriate length, not leave to much naked wire to avoid from the electric close.

6.4.3  All naked wire should be well welding and secure wellby terminal block. Wiring label should be clearly identified and in correct connect. The wiring diagram is below.

6.5 System Diagram



6.6 Connect Diagram

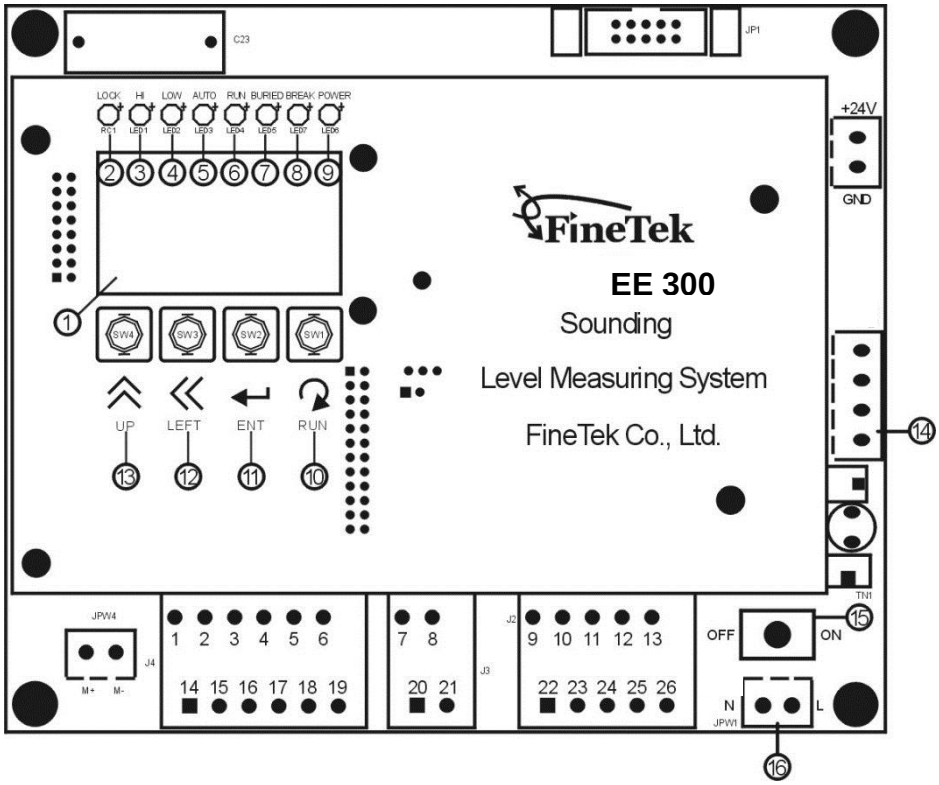


6.7 Connect Assignments

1.2.3.4	Transistor Output (GND、PNP、NPN、+24V)
5.6	Analog Output 0/4-20mA(AGND.AOUT)
7.8	Relay Output (COM2、NO2)
9.10.23	Low Alarm(NO3、NC3、COM3)
11.12.13	Buried、Break、Lock Alarm(NO5、COM5、NC5)
14.15	RS485(TR+、TR-)
16.17	Start Connect(RUN、GND)
18.19	LOCK(LOCK、LOCK+)
20.21	Reset Output(COM1、NO1)
24.25.26	High Alarm(NO4、COM4、NC4)

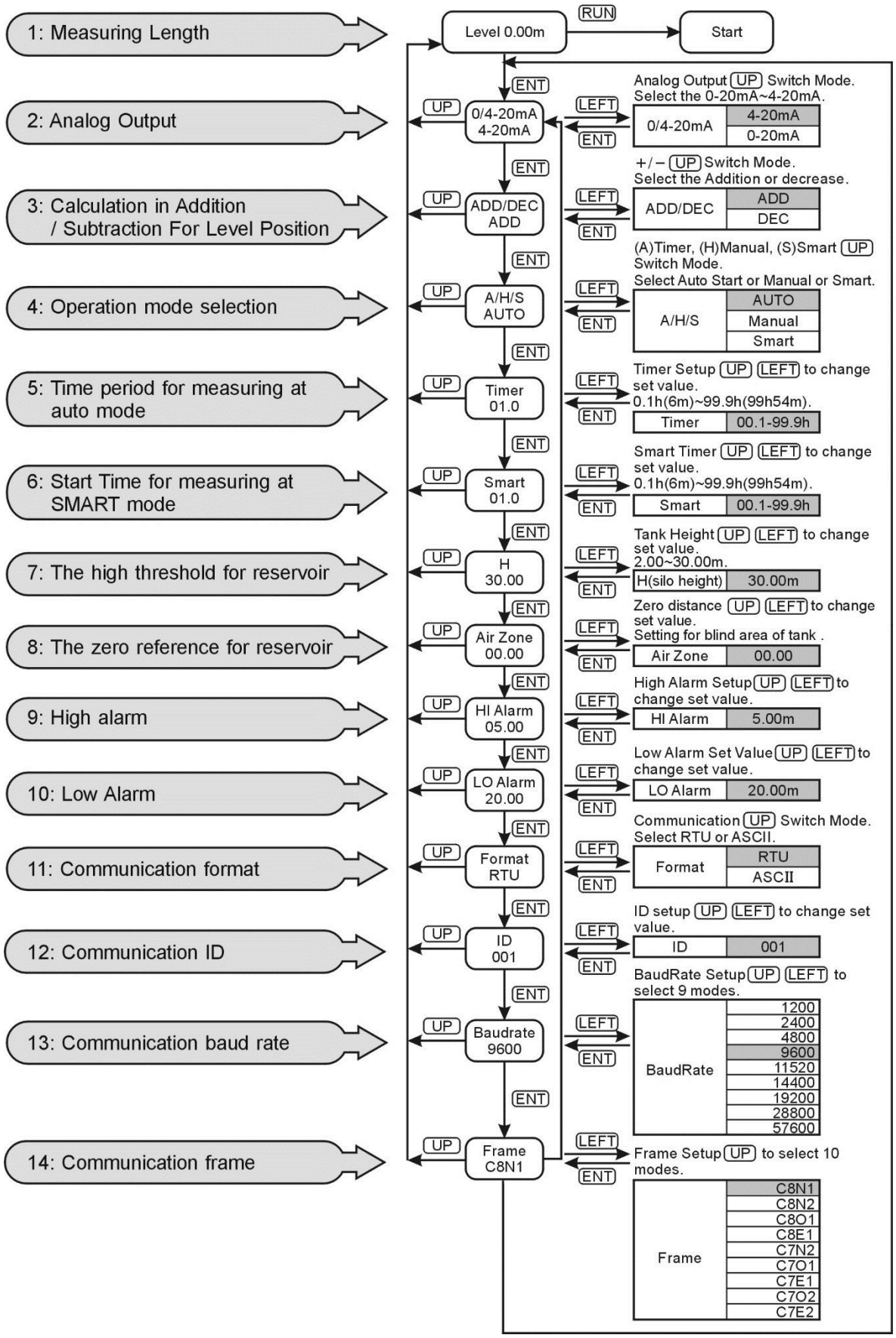
7. Operation

7.1 Panel



① Characteristic LCD (Dot matrix , 8 × 2), provides the status, level command and error message.
② Material Fill-Up Protection Indicator (LOCK), the EE300 will be turned off and hold LOCK indication while the reservoir is filling up procedure.
③ High Level Alarm Indicator (HI), light on if the material level excesses the preset high threshold.
④ Low Level Alarm Indicator (LOW), light on if the material level is below the preset low threshold.
⑤ Auto Start Indicator (AUTO), light on to indicate EE300 is in automatic operation mode.
⑥ Start Indicator (RUN), light on if the EE300 is in measuring period, and it turns light off status while the measurement completed.
⑦ Weight Head Buried (BURIED), blink light on /off in 1 sec period to warn operator, the LCD will show BURIED message.
⑧ Cable Break Indicator (BREAK), blink light on /off in 2 sec period to warn operator, the LCD will show BREAK message.
⑨ Power Indicator (POWER), “Light On” for power on and “Light Off” to indicate power off.
⑩ “Start”, start the operation.
⑪ “Enter”, acts as “confirm button” at setting mode and as “page select button” at menu mode.
⑫ “Shift”, acts as “decimal shift” while enter digits and as “enter button” at menu mode.
⑬ “UP”, acts as “Increment button” while enter digits and as “Escape button” at menu mode.
⑭ Terminal (H1.H2) for heater.
⑮ Power switch: to turn on , turn off power.
⑯ Power connector (L.N), accepts the power of 88~2640Vac, 50/60Hz。

7.2 Commands Instruction



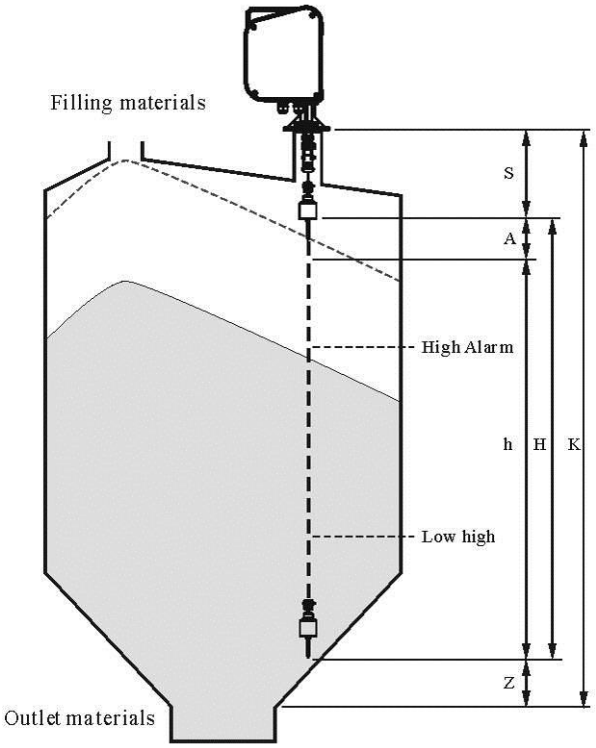
7.3 Communication

Address	Address	Type	Parameters	Act
0	0x0000	UINT16	Measuring h	R
1	0x0001	UINT16	0/4-20mA	R/W
2	0x0002	UINT16	Add/Dec	R/W
3	0x0003	UINT16	Auto/Manual/Smart	R/W
4	0x0004	UINT16	Timer	R/W
5	0x0005	UINT16	Smart	R/W
6	0x0006	UINT16	H	R/W
7	0x0007	UINT16	Air zone	R/W
8	0x0008	UINT16	Hi Alarm	R/W
9	0x0009	UINT16	Lo Alarm	R/W
10	0x000A	UINT16	Format	R
11	0x000B	UINT16	ID	R
12	0x000C	UINT16	Baudrate	R
13	0x000D	UINT16	Frame	R

7.4 Setting Procedure

Caution: While the reservoir or storage is empty, or the detect level is not sure, please don't start this EE300. Start EE300 while you got basic information about reservoir or storage. Always avoid from the weight head stuck by conveyer or stirred by any mechanism near inlet or outlet. Before setting, user should note that the measuring level should not excess the bottom of reservoir or storage, and not install EE300 accompany with any obstacle around.

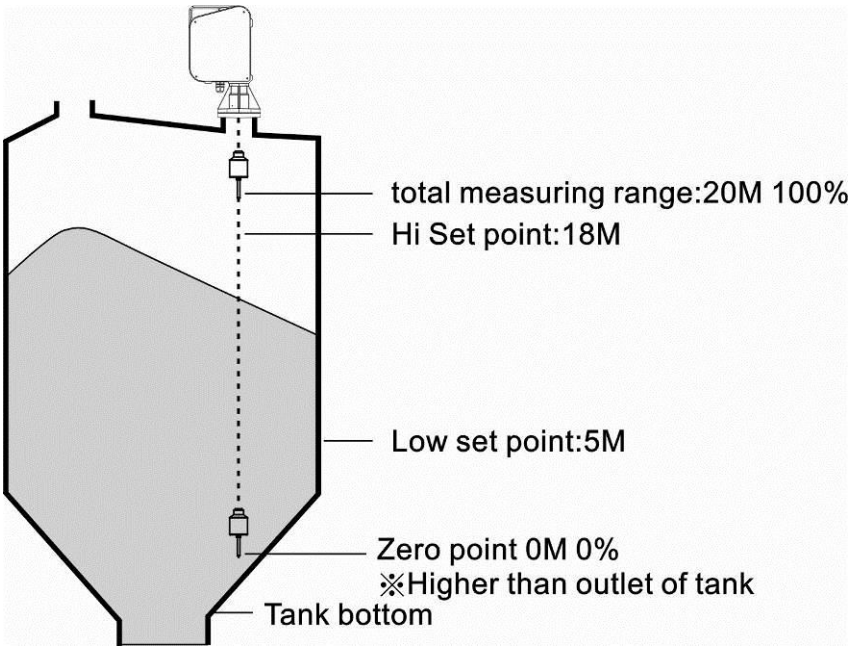
7.5 Definition



- K→Tank Height：distance between connecting flange to tank outlet
- S→Blind Distance：distance from connecting flange to the tip of the weight
- Z→Safety Distance：To avoid obstacle and prevent weight sliding into the outlet.
- H→Measuring Height：Full measuring range from drop and return with full pulse signal record.
- A→Air Zone(deadband)：Variation of tank capacity and real medium level. Default setting is 0.
- h→Effective measuring distance：distance will change according to A value and corresponds to 0/4~20mA output signal。
- Hi Alarm：High level alarm setup。
- Lo Alarm：Low level alarm setup。

7.6 Description of Auto Mode

Example:
Measuring level: 20m
High level alarm (HI):18m
Low level alarm (LO): 5m
Calculation Mode: Subtraction
Detection Mode: Auto
Timer: Time period for measuring at auto mode is 8 hrs



※Setting Procedure:

A. Continuous press "**ENT" till the page at "H", then press LEFT** to access into submenu; operates **LEFT** & **UP** to set value 20.00 and press **ENT to exit.**

B. Continuous press "**ENT" till the page at "Hl Alarm", then press LEFT** to access into submenu; operates **LEFT** & **UP** to set value 18.00 and press **ENT to exit.**

C. Continuous press "**ENT" till the page at "LO Alarm", then press LEFT** to access into submenu; operates **LEFT** & **UP** to set value 05.00 and press **ENT to exit.**

D. Continuous press "**ENT" till the page at "ADD/DEC", then press LEFT** to access into submenu; operates **UP** to set mode "DEC" and press **ENT to exit.**

E. Continuous press "**ENT" till the page at "A/H/S", then press LEFT** to access into submenu; operates **UP** to set "AUTO" and press **ENT to exit.**

F. Continuous press "**ENT" till the page at "Timer", then press LEFT** to access into submenu; operates **LEFT** & **UP** to set value 08.00 and press **ENT to exit.**

7.7 Description of Smart Mode

Smart mode operates the measurement according to the capacity and level of reservoir. In smart mode, the next measuring time period is depend on the current level distance measured. It is roughly a step by step (0.1 hr for each step), in quasi-linear relation, as indicated below. (Note: Timer value should be larger than Smart value).

Example:

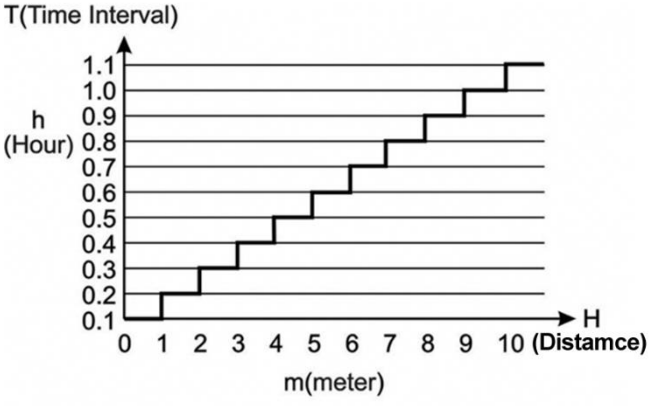
Timer=1.1h、**Smart**=0.1h、**H**=10m

Measuring time at next, t=(Smart+(A/H)×(Timer-Smart))

Where the **Timer** is the maximum standby time to detect, **Smart** is the minimum standby time to detect, A is the measuring level distance, H is the High Alarm value. T is the next measuring time since this measurement.

Ex: A is10m, the next start detect time is 0.1+1×1=1.1h

A is 1m, the next start detect time is 0.1+0.1×1=0.2h



Time Interval And Measuring Range Comparison Table

8. Maintenance

8.1 Regular Maintenance

- Regular check the secure of each part and examine if the screw, screw nut is loose. For each half year, opern the cover and brush the dust clogged up electric board.
- Check the cable wire if it is in crotched, folded, or broken. Replace the cable wire according to EE300 original specification if necessary.

8.2 Cable Wire Replacement

Attention

Cutting appropriate cable wire length (Φ1.2mm, in length of measurement level distance+900mm) and put on the cable wire through the hole of wind pulley. Then put on the cable wire through the hole and guide the calbe wire along the hub of pulley. Use nipper to secure the cable wire with ring connector (2.0mm^2 hole).

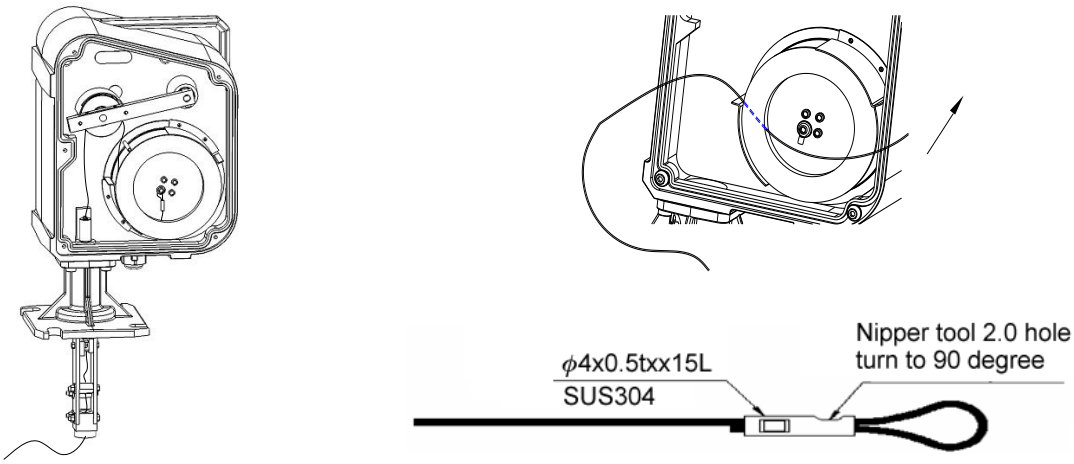


Fig.1

Encircle the cable wire on the M5 screw and mount a washer between the screw nut and cable wire then secure the M5 screw by screwdriver. Same procedure is operated again for another M5 screw.

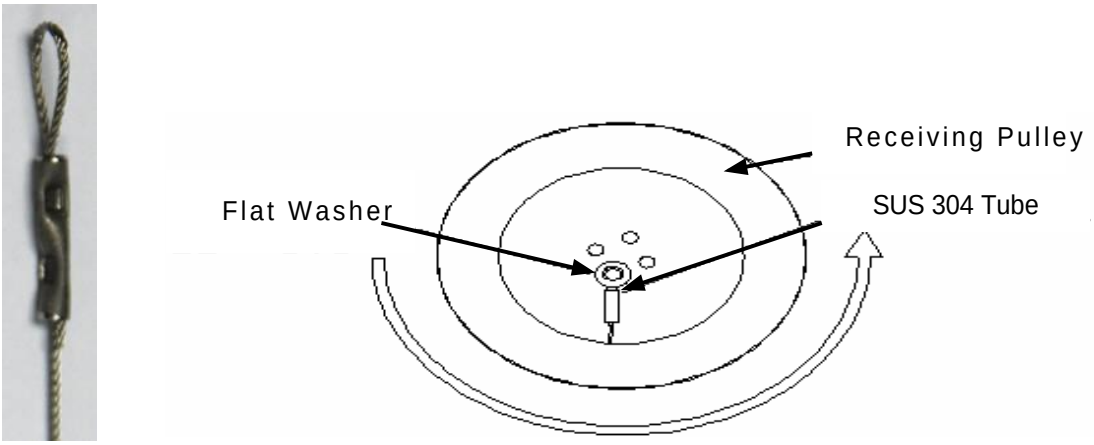


Fig.2

- Put on the cable wire through the hub of pulley and put it out of the EE300 body, leave the free end of cable wire along with border of reservoir or safety region.

- With groove, pull and guide the cable wire smoothly by one hand and turn on power. Winding up the cable wire in slow and smooth, till the cable wire leave 0.5-1m length outside then turn off power. The reminder of cable wire length outside is prepared to connect with weight head.

- Put on the cable wire and fix the “Cone Shape Stop” on it. Then put on the cable forward and backward through the tube connector and form ring wire at the end of tube connector. Handle the tube connector and press it by nipper to fix the cable wire. At least three nip points operated around the tube connector, each nip separates 3mm distance and rotates 180° each other. (Fig.3)

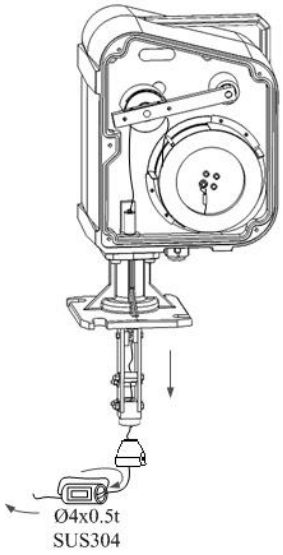
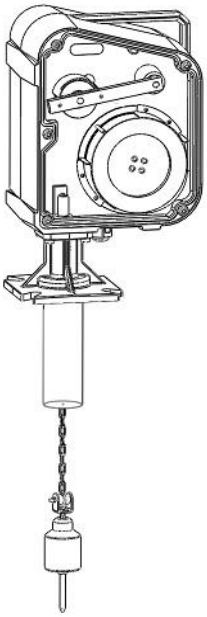
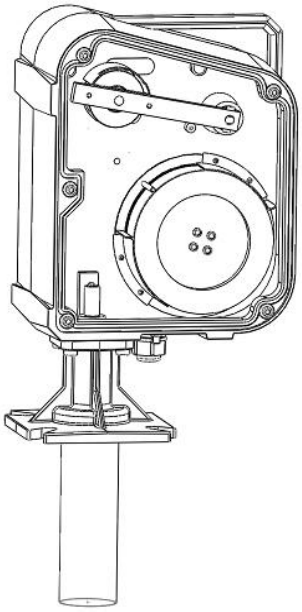


Fig.3

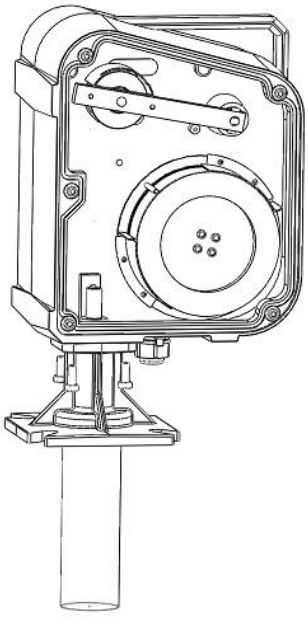
8.3 Replacement Dust Mechanism



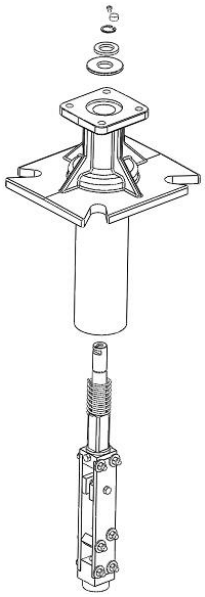
Step1: Remove the Cable Wire



Step2: Remove the Sensing Weight



Step3: Remove the Screws



Step4: Replacement dust mechanism, Retaining Rings, magnet,

Screw and Washer

8.4 Sensing Weights Replacement

Attention

- Regular type and claw type sensing weights: Follow the instruction below to assemble the sensing weights(Fig.8 & Fig.9)

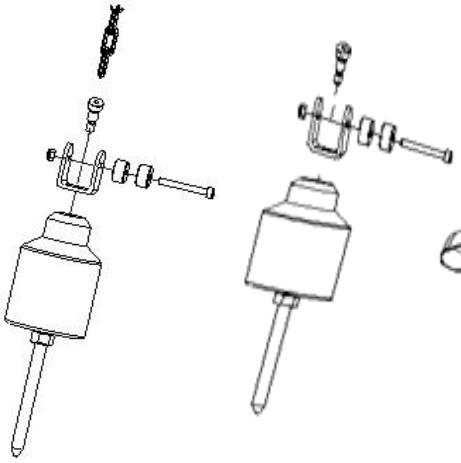


Fig.8

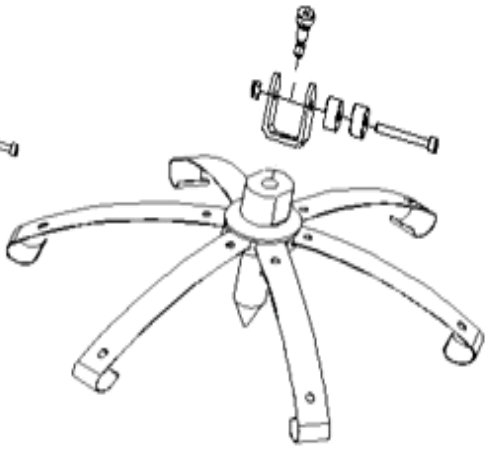


Fig.9

- Plug the tube connector into the cone shape stop, then fill the measured material up to 0.7±0.1kg in the bottle. Socket the bottle into the “cone shape stop” and feel a lock act (Fig.10).
- While completed all the assembly, turn on power to wind the cable wire and keep EE300 In standby.

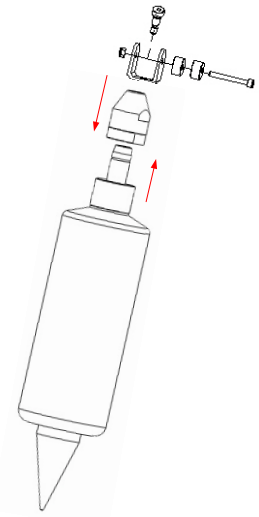


Fig.10

9. Troubleshooting

Issue	Possible Reason	Examination	Solution
No display (black screen) Indicators don't light	Screen saver program is executed	Push one of three buttons "ENT", "LEFT", "UP" to act the display	Push "ENT", "LEFT", "UP" to act and make LCM bright Push "RUN" to start the measurement
	No power input or no power on switch	Power switch status and power line connector	Turn on power
	Wire broken	Check the voltage at power input	Replace wire or provide correct power
	Construction mistake or circuit short	Check fuse on electric board	Replace fuse
	Power supply failure	Check the voltage of secondary power supply is 24 VDC	Replace power supply module or contact FineTek
With display but not execute detection	External trigger wire broken (16, 17)	Check if RUN command can act or not	Repair wire at terminal 16,17
	Motor wire broken	Check the wire condition with motor	Replace motor wire or contact FineTek
	High pressure in reservoir or storage, made the weight head can't droop down	Observe if gas or dust eject from EE300	Check the cover secure and fix the screw, or contact FineTek
	Dust inside the housing, blocking and affect the movement of sliding rod.	Checking the housing for dust and sliding rod.	Cleaning the housing and remove dust, forbid to use any lubrication oil.
	Firmware failure	Restart it and get it normal, but it will fail randomly.	Contact FineTek
Host is uncontrolled, continually releasing or receiving wire	Short circuit happened in terminal 16 &17	Check terminal 16 & 17 for resistance value	Check wiring and remove short circuit
	It was influenced by other induced voltage nearby.	Check every wire for if any unstable voltage.	Use shielded cable and make sure it grounded well
Sensing weight only going down 20~25cm and back to standby	Magnet on sliding rod got off, can't sense position and system forces it to	Check magnet on top of sliding rod is completed or not	Contact FineTek

	come back		
Measurement result is quite different from actual result	There are damages in wire, inadvertently touch the switch as in measurement	Check whole wire if any obvious damage	Replace with new wire
	Impacted by filling materials as in measurement	If material filling protection function is connected	Start the protection function and avoid measurement as filling materials
Indicator Message: Broken	Cable Wire Broken	Check the cable wire	Replace cable wire and weight head
	Cable wire derail the hub of pulley	Check the pulley and cable wire	Reassembly cable wire and pulley follow instruction at section 8.2 & 8.3
	Low Alarm circuit close	Cable wire & weight head, pulley are in normal	Contact FineTek
Indicator Message: Buried	Weight Head was buried	Check if the weight head was buried by observation window or dismounting the flange	Stop fill in materials and wait the restart automatically
	Magnet on sliding rod got off, can't sense receiving position and keep receiving with no stop.	Check magnet on top of sliding rod is completed or not	Contact FineTek
	Relay switch for buried is malfunctioned	Steel wire and weight are normal in good condition.	Contact FineTek if same problem after reboot.
	Materials stuck on weight, too heavy to cause wrong signal.	Check the weight if it becomes too heavy.	Remove all the materials attached on weight and wire.
Indicator Message: KNOT	Cable stuck on the receiving pulley, can't work normally	Cable winded and stuck on the receiving pulley	Disassembling the receiving pulley and release the wire, power on again and the cable will be received
	The flexstrip cable is not connected.	The flexstrip cable was pulled out and not connected	Plug in the flexstrip cable and turn off the power. Restart the EE300
	The motor cable is not connected.	The motor cable was pulled out and not connected	Plug in the flexstrip cable and turn off the power. Restart the EE300
Indicator Message: Broken & Buried	The flexstrip cable is not connected well or components damaged.	Check and plug in the flexstrip cable well and reboot to back to normal	Contact FineTek if same problem after reboot.