

UNI900B

Belt scale controller

Instruction manual

(Edition: BC06.20.36)

LONGTEC

Process weighing expert

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Carried Standard Certificaton:

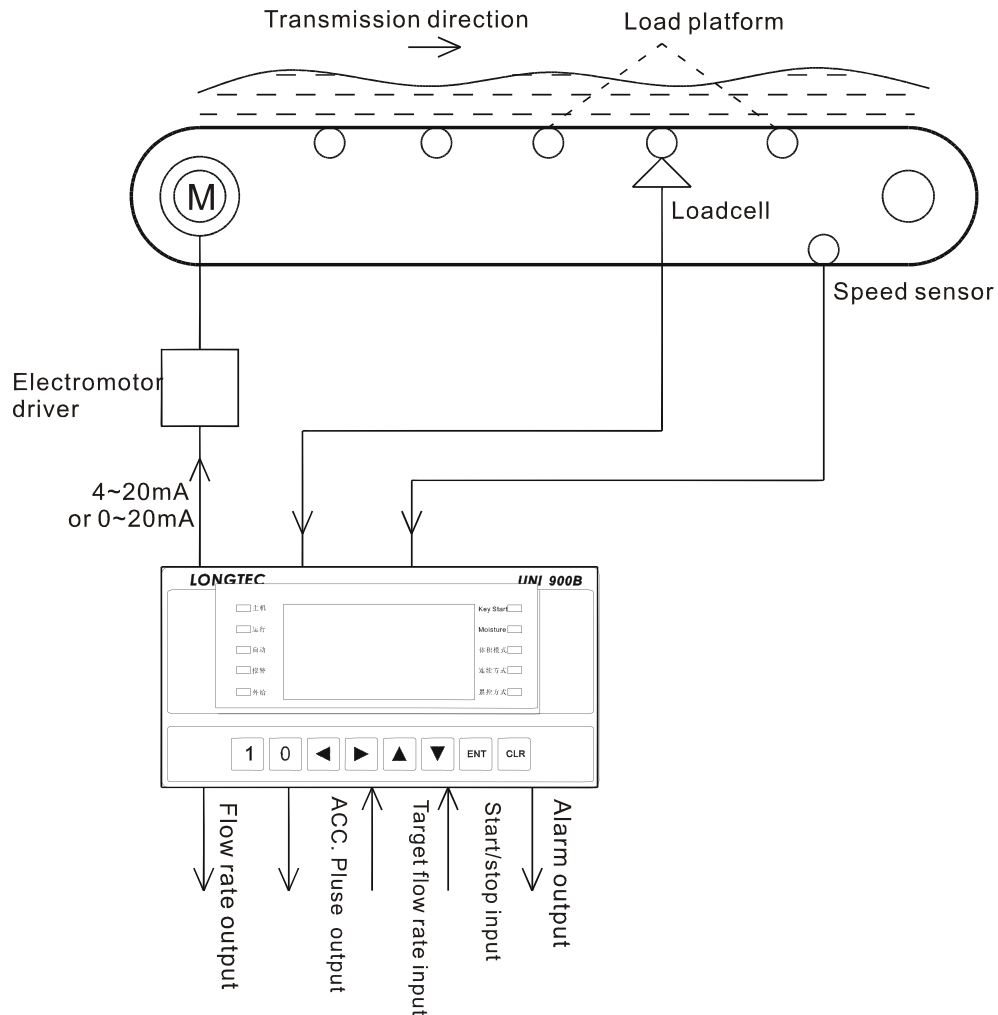
The products according to the requirement of the Q/CLGK2 – 2009,we promised the quality of strictly,which is consistent with the standards.

Note:

- ◆ Observe the instruction manual carefully before using the weighing indicator for the first time, where you can find answers for many questions existing in the site operation.
- ◆ Check whether the other accessories of the weighing system match.
- ◆ Equip with the installation and repairing tools as possible: the mini-type minus screw driver, digital multi-meter, load cell simulator (mV signal generator).
- ◆ Avoid being exposed to direct sun shine, sudden change of temperature, vibration and physical shocks.
- ◆ UNI900B would work in the best state when temperature is approx. 20°C (68°F) and relative humidity is approx. 50%.
- ◆ When installing, use a power line to ground UNI900B and make sure it is well contacted. It is banned to connect the ground cord of UNI900B to that of others.
- ◆ Tested by EMC (electromagnetic compatibility), with high anti-interference ability. But as the analog output of sensors and input/output of RS232/RS485 interface are sensitive to electronic noise, it is banned to bundle the referred signal wires and power wires together and take the signal wires far away from the AC power of instruments or other equipments. It is also needed to shorten signal wires or coaxial cables as possible.
- ◆ The accuracy of weighing system is codetermined by multi elements, such as selection of load cells, installation, scale body, signal connection, power, rather than just by one of them.
- ◆ In case of short circuit, an individual power is needed for analog output, which means that its common terminal of the power cannot be connected with other common terminals or shielded wires.
- ◆ Shielded wires of load cells, signal/excitation wire and ground wire cannot make a loop, otherwise the input of the instrument may not be stable.
- ◆ Make sure the instrument is well grounded; otherwise the display of instrument may not be stable.

1. Overview

1.1 Belt Scale Principle



Belt scale controller uses calculation of integral to figure out the flow rate and accumulation of the material that is conveyed by the belt, after receiving weight and speed signal from the weighing load cells and the speed load cells. Meanwhile it can use driving device to control the speed of the belt or the feeding amount to control the flow rate of the instrument, so that dynamic measurement and continuous proportioning can be realized.

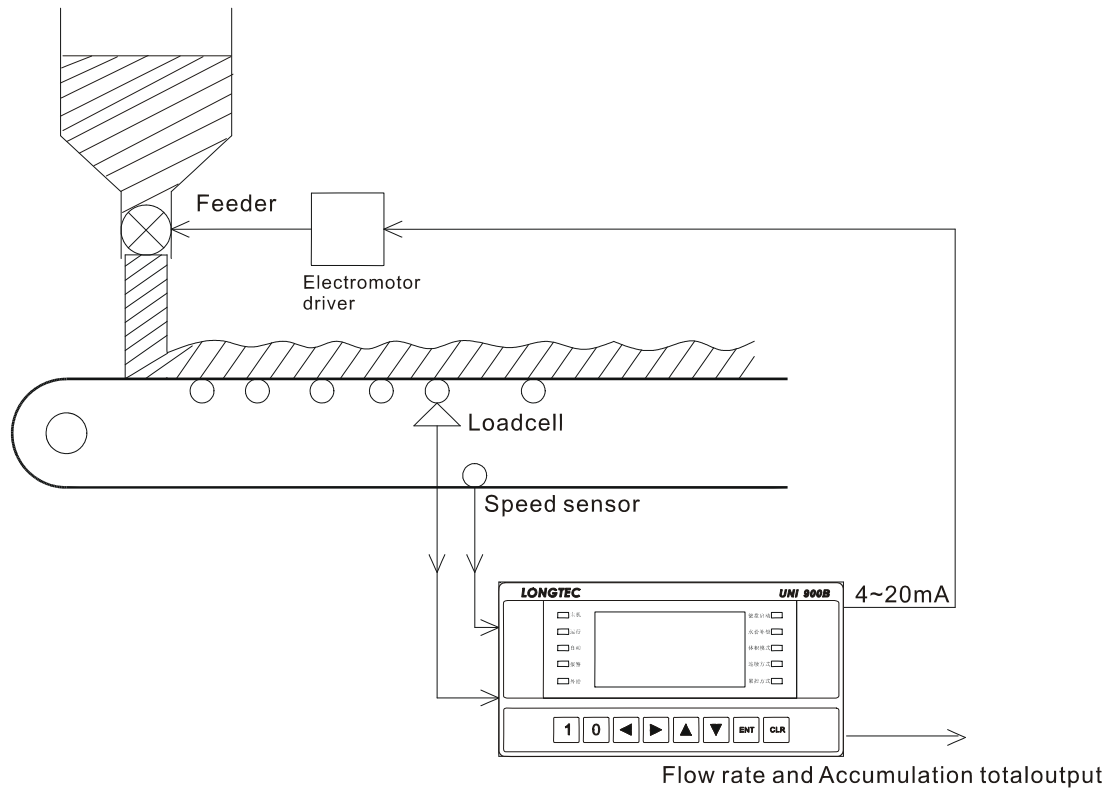
1.2 Introduction

The UNI900B controller is specially designed for the belt scale, which is of high accuracy, high reliability, and high performance. It adopts 32-bit ARM chip as its CPU, and chooses industrial components and bonding process production, with various kinds of anti-jamming measures. High-Voltage Pulse test, high voltage with gas gap discharging test, high voltage with contact discharging test, and high and low temperature test are adopted. It is of high reliability, of advanced control algorithm, easy to be operated, of strong adaptive ability and provides various kinds of extended modules. Its prominent advantages are as follows.

1. The design of the meter takes electromagnetic compatibility (EMC for short) into account, whose shell is Aluminum alloy, having electromagnetic shielding and with anti-jamming ability, well sealed.
2. User-friendly display is provided, with vacuum fluorescent lattice display (VFD). It could be easily operated without operation manual.
3. Switch input port (DI), switch output port (DO), analog 4-20mA output port (AO) can be all customized, with high reliability as well as convenience and flexibility.
4. It is interchangeable. When changing a new one whose hardware is the same as the old one, you just need to set the calibration coefficient and 5 kinds of data of the linear calibration of the feeder's output of the new one as the same of the old one, and it can be used without repeated calibration.
5. Multi-UNI900B can make up of a mini-type control system through CAN bus. They and the loss-in-weights of UNI900A serious can also make up of a mini-type control system.
6. UNI900B adopts model control and increment type digital PID control, which could improve the system's control accuracy and reaction speed, and make sure it is more stable at the same time.
7. Up to 5 points for calibration, this could compensate nonlinear change of belt tension and improve measurement accuracy.

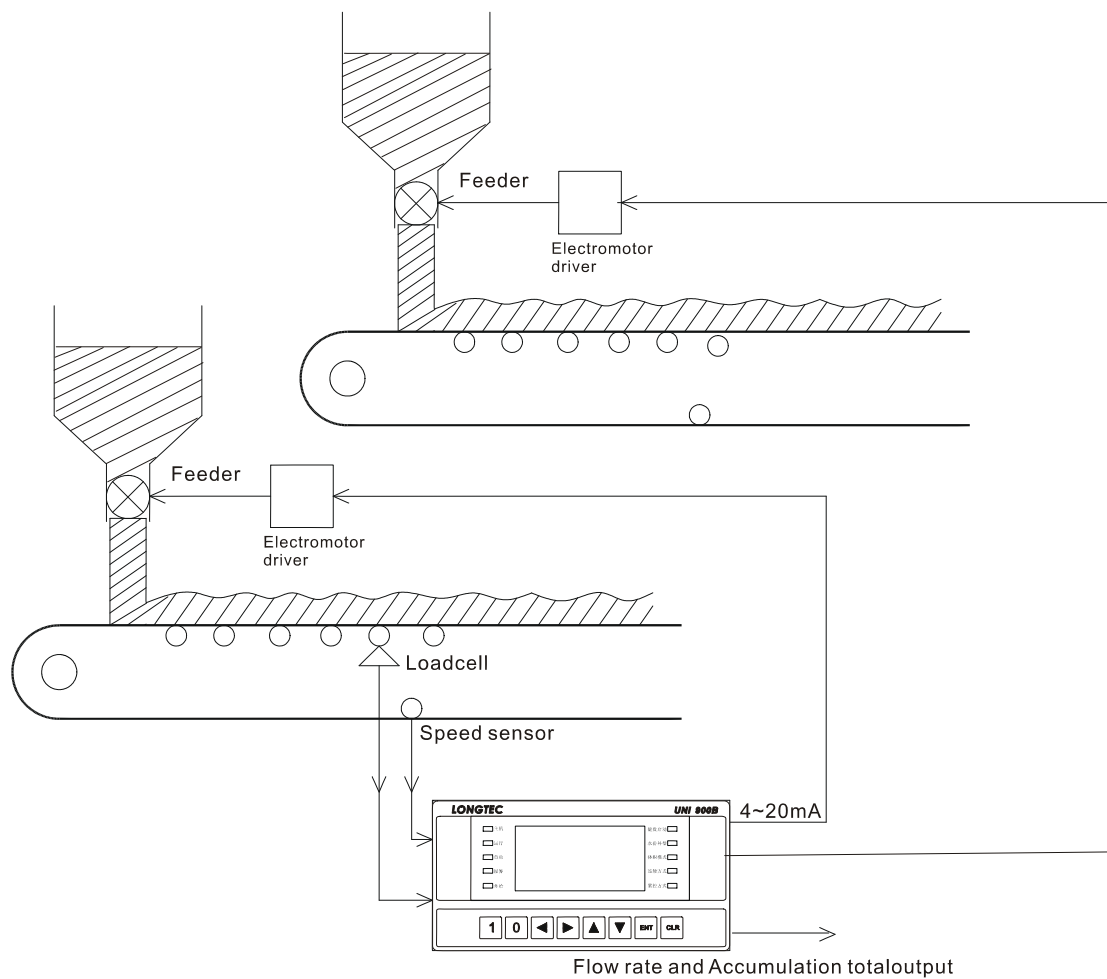
1.3 Brief Block Diagram of UNI900B System

1.3.1 Single Control Mode



Single UNI900B is used to control one belt scale or one belt feeder, which is the most commonly used mode. It has various kinds of control methods, including volume control and accumulation control.

1.3.2 Single Master/Slave Control Mode



Single master/slave control can realize one UNI900B controller to control two feeders at the same time. One feeder is the master which accurately controls the flow rate of one kind of material, while another feeder is the slave which controls the feed according to the given proportion, so that it can feed two kinds of material proportionally. If you choose extended analog output interface, it can feed three kinds of material proportionally at the most.

2. Specifications

2.1 General

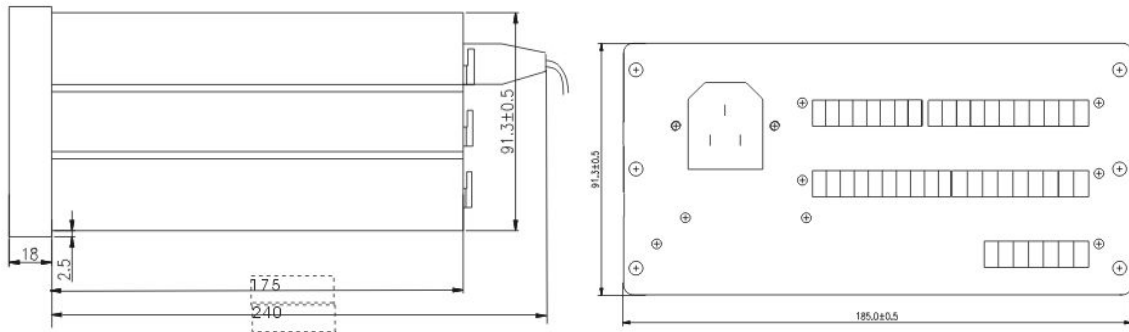
- | | |
|------------------------------------|--|
| 1. Power supply | : AC 207V \sim 253, 50/60Hz |
| 2. Power consumption | : \approx 18 W |
| 3. Operating temperature | : -5 $^{\circ}$ C \sim 65 $^{\circ}$ C (23 $^{\circ}$ F \sim 137 $^{\circ}$ F) |
| 4. Humidity | : \leq 90% Relative humidity (non-condensation) |
| 5. Weight | : \approx 2.7kg |
| 6. Analog input channel | : 1 Channel (AI) |
| 7. Analog output channel | : 3 Channels (AO1, AO2, (AO3 optional)) |
| 8. Switch input channel | : 8 Channels |
| 9. Switch output channel | : 8 Channels, Relay output, it is at most 2A for every channel and at most 4A in all for all channels when driving resistance load |
| 10. Communication output channel | : RS232/RS485 (Modbus RTU) |
| 11. Communication extended channel | : CAN (DeviceNet, CANOPEN), Profibus DP bus, CC-Link, Modbus TCP/IP, AB company industrial Ethernet, serial communication for printer (optional) |
| 12. Speed signal channel | : Max. 3 kHz (pulse input), 12V (power supply) |

2.2 Analog Part

- | | |
|--------------------------------|---|
| 1. Load cell type applicable | : All kinds of strain gauge load cells |
| 2. Input voltage | : DC 10V \pm 5%, Max. 250mA |
| 3. Output sensitivity | : 0.3 μ V /d \sim 0.3mV /d |
| 4. Input resistance | : The resistance between each terminal can not less than 100M Ω at DC 500V |
| 5. Zero point adjustable range | : 0.3mV \sim 15.0mV |
| 6. Input voltage range | : 0.3mV \sim 30.0mV |
| 7. Temperature coefficient | : \leq (0.0008% of the reading + 0.3 division)/ $^{\circ}$ C |
| 8. Non-linear deviation | : \leq 0.005% of F.S |
| 9. Sample method | : Delta-sigma |
| 10. Sample speed | : Max. 200times/second |
| 11. Internal resolution | : 1/16,000,000 |
| 12. Pressure proof | : When the voltage between every output terminal (including common, earth, relay output, analog output) is at DC 500V, it can resist pressure in 1 minute; while the voltage between every power input terminal (including common, earth, optoelectronic coupled input, analog input) is at AC1500V, it can resist pressure in 1 minute. |

3. Dimensions and Installation

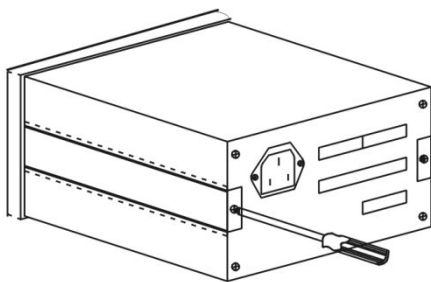
3.1 Dimensions



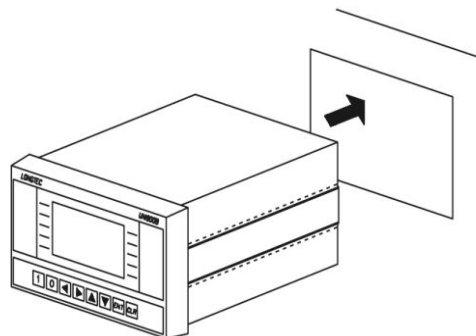
3.2 Mounting

Open the package, and remove the two mounting bars on both sides by a screwdriver.

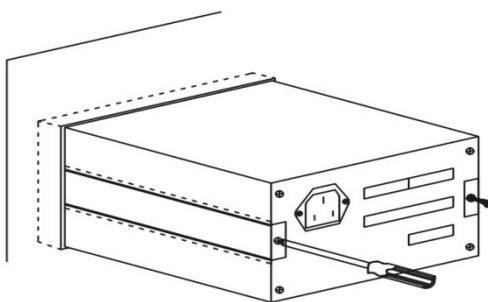
Step1



Step2

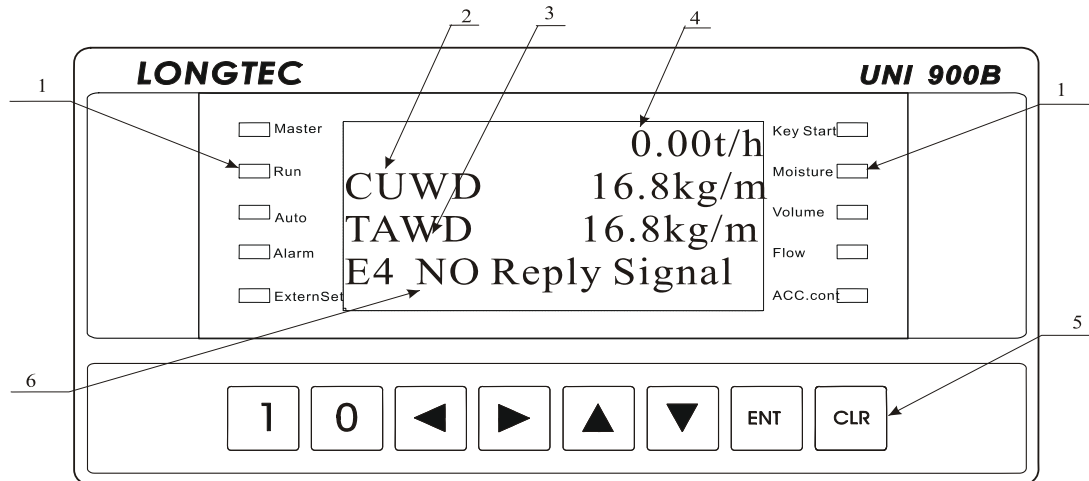


Step3



4. Appearance Description and Interface

4.1. Front Panel



1. Indicator light display area 2. First assistant display area
 3. Second assistant display area 4. Main display area 5. Key 6. Alarm display area











Note: This window is displayed in small font.

4.1.1 Indicator Light






Indicator light	Description
Master	Multi-UNI900B can make up of a mini-type control system; one of them is the master, and the others are the slaves. On: Master Off: Slave
Run	Measurement indication On: Running Off: Stop measurement
Auto	Control status indication On: Auto control Off: Manual control
Alarm	On: There are one or more than one alarms. Off: No alarm
Externse	On: Target flow is set by AI port, serial port or CAN bus. Off: Target flow is set by KEY.
Key start	On: Start and stop running by KEY Off: Start and stop running by DI ports, serial port or CAN bus.
Moisture	On: The effect to accumulation total and flow rate caused by moisture will be compensated. Off: No compensation
Volume	On: Running in volumetric mode Off: Running in weighing mode
Flow	UNI900B mainly has two production modes. 1. Continuous mode, it keeps running until the operator gets it stopped; 2. Accumulation control mode, it stops automatically when the accumulation amount comes up to the setting value.
Acc. control	

4.1.2 Key

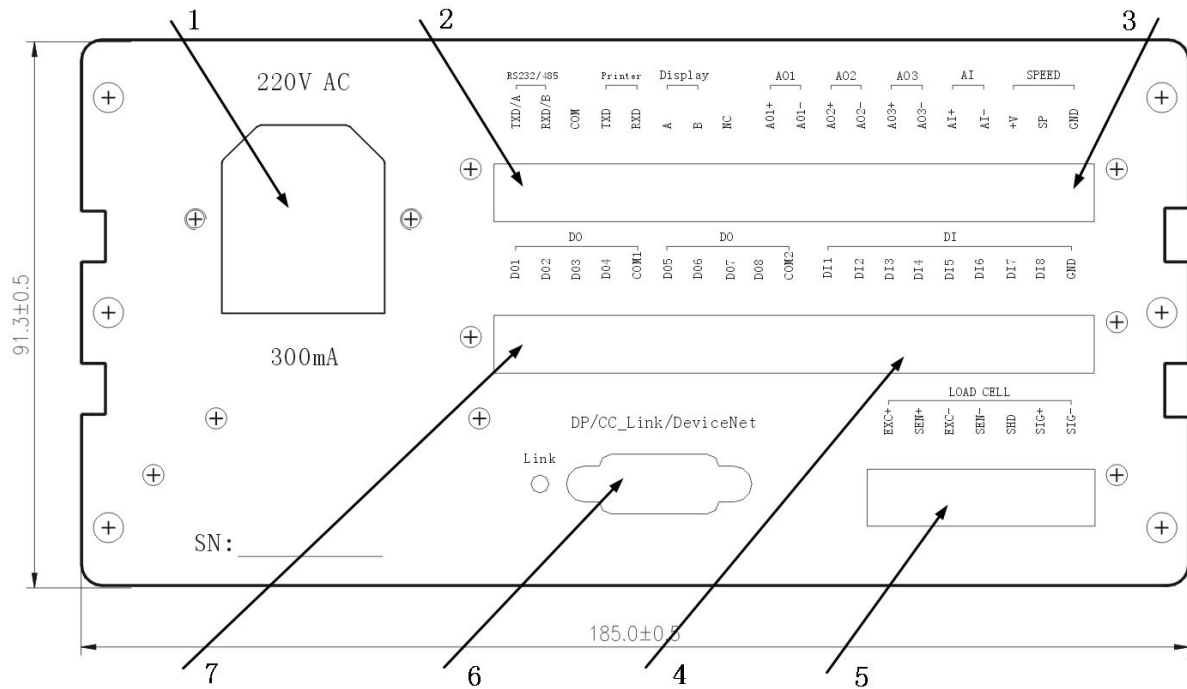
Keys are described from left to right.

No.	Key	Description
1	 RUN	Start measurement When selecting key input, it is effective and keep pressing  key for 2s to start. Otherwise, it is ineffective.
2	 STOP	Stop measurement When selecting key input, it is effective and keep pressing  key for 2s to start. Otherwise, it is ineffective.
3	 Left Shift	Left shift to select. In parameter setting, it is used to turn the setting bit to left.
4	 Right Shift	Right shift to select. In parameter setting, it is used to turn the setting bit to right.
5	 Up Shift	Up shift to select. In function setting, it is used to select the upper function; while in parameter setting, it is used to increase the value.
6	 Down Shift	Down shift to select. In function setting, it is used to select the next function; while in parameter setting, it is used to decrease the value.
7	 Enter	It is used to enter the function menu, valid in any mode.
8	 Clear	It is used to exit the current menu or cancel the setting.

4.1.3 Shortcut keys

1. On the standby screen, press ENT, and press  in 1~2 seconds, switch manual / automatic control quickly. And the second assistant display area turn to display analog output 1 automatically.
2. On the standby screen, when it displays analog output 1, and the instrument is on the weighing and manual control state, press  (left), its current ads 0.1mA. If you press this key continuously, its current increases quickly. Press  (right), its current subtracts 0.1 mA. If you press this key continuously, its current decreases quickly.
3. When on the menu “often”-“adjust control current manually”, and the instrument is on the weighing and manual control state, press  (left), its current ads 0.1mA. If you press this key continuously, its current increases quickly. Press  (right), its current subtracts 0.1 mA. If you press this key continuously, its current decreases quickly.

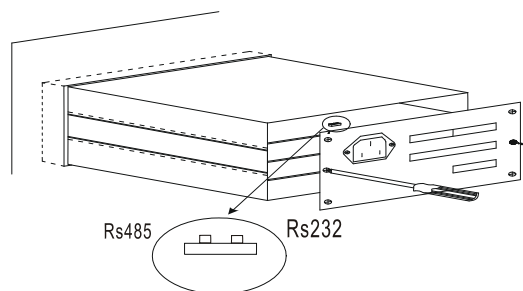
4.2 Rear Panel



1. Power input terminal: 220 VAC (containing two 300mA/250V fuses inside, time-lag 250V/200mA is original, common model 250V/300mA is user-owned)

2. Communication terminal (COMM)

- 1) RS232/RS485 Communication terminal (TXD/A, RXD/B, COMM)
- 2) RS485 Remote display terminal (optional, A, B, COMM). Such as large screen remote display.
- 3) RS232 Printer terminal (optional, TXD, RXD, COMM)
- 4) Specially use of NC, don't connect with hardware.



Note: There is a switch S1 near the internal output terminal RS232/RS485 for users to switch the communication between RS232 and RS485. Specific content please refer to the knowledge on the current board.

3. Analog input/output terminal (AI/AO)

- 1) 4~20mA analog output terminal (AO1+, AO1-, AO2+, AO2-, (AO3+, AO3- optional))
- 2) Analog input terminal (AI+, AI-)

3) Speed pulse input terminal (GND, SP and +V), SP is for the speed pulse input, and +V is for the output of 12VDC

4. Switch input terminal (DI)

8 switch input terminals (DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8), common terminal GND

5. Load cell connection terminal: EXC+, SEN+, EXC-, SEN-, SHD, SIG+, SIG-

6. Switch output terminal (DO)

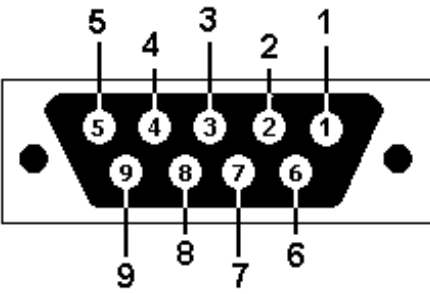
1) 4 switch output terminals (DO1, DO2, DO3, DO4), common terminal (COM1)

2) 4 switch output terminals (DO5, DO6, DO7, DO8), common terminal (COM2)

7. Communication extended board

It is optional. This part is board such as CAN、CC-Link、Profibus-DP、DeviceNET、Modbus TCP/IP etc.

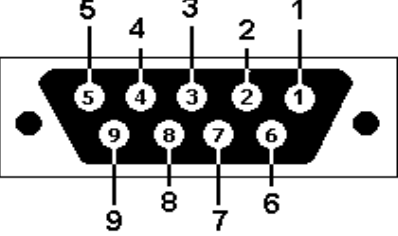
1. Profibus-DP or CC_Link. When using one of these two boards, the communication module occupies interface DP/CC_Link. It is 9 PIN D-SUB FEMALE. The definition of the pins are as follows:



PIN	Function
3	A, the signal is OK
4	RTS, be ready to send
5	GND, communication ground
6	+5V, communication power
8	B, signal-
others	NC, no connection

Notice: This definition is consistent with SIEMENS Profibus DP standard

2. CAN communication. Support DeciveNet protocol. It is 9 PIN D-SUB FEMALE. The definition of the pins are as follows:



PIN	Function
4	CAN_H
3	CAN_L
1	GND, communication ground
others	NC, no connection

4.3. Interface Connection

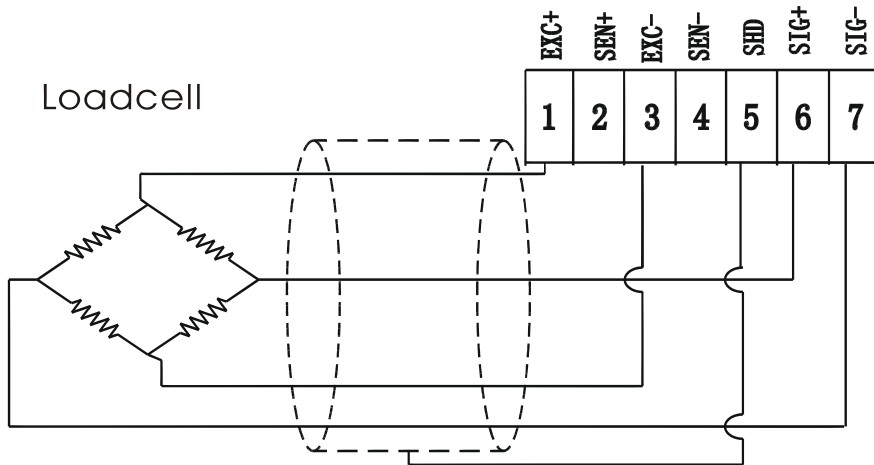
4.3.1 Load Cell Connection

Description of load cell terminals

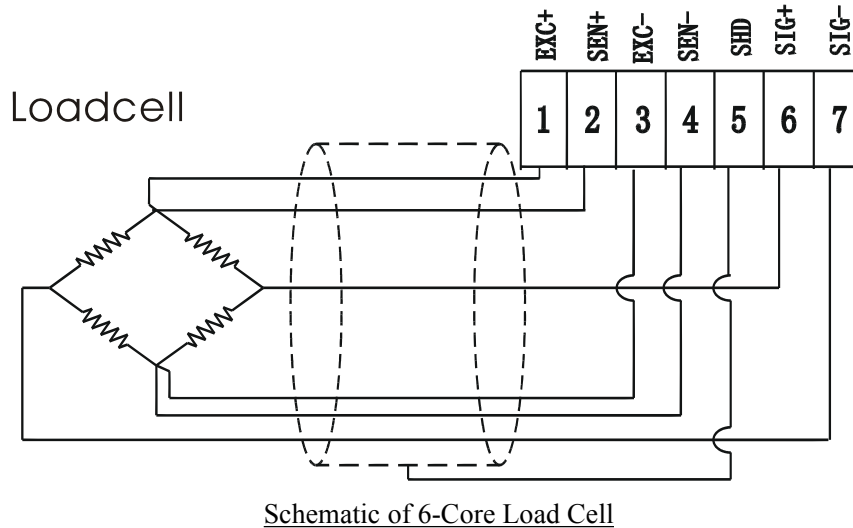
Terminal NO.	Description
EXC+	Excitation voltage output +
SEN+	Excitation voltage feedback+
EXC-	Excitation voltage output -
SEN-	Excitation voltage feedback-
SHD	shielding
SIG+	Signal input+
SIG-	Signal input-

Connecting method: When multi-load cells are used, a junction box is to be used to connect them in a parallel circuit and the final weighing signal is sent to the transmitter. The cable between junction box and weighing terminal must have metal shielding. Refer to the following table for the maximum length of the cable that could be connected at the weighing terminal.

Amount of 350Ω load cells	NO.24 Wire (m)	NO.20 Wire (m)	NO.16 Wire (m)
1	240	600	1200
3	60	180	300
8 (Maximum)	40	120	200



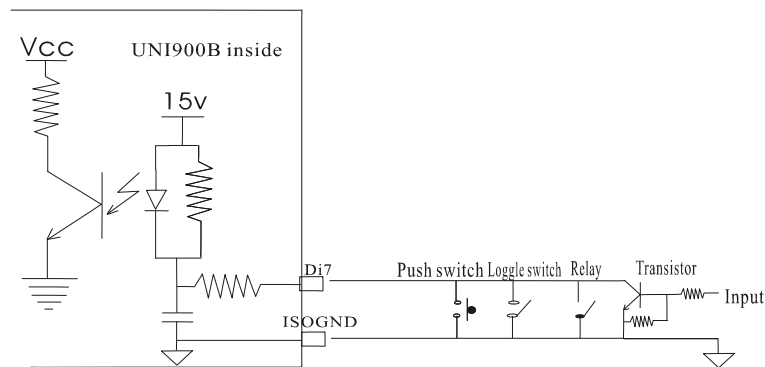
Schematic of 4-Core Load Cell



4.3.2 Input Control Interface

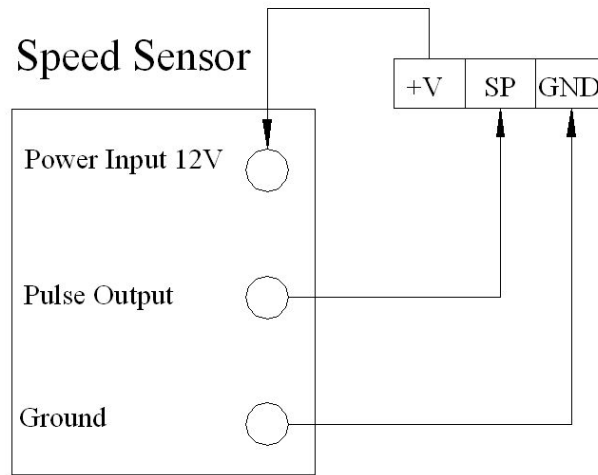
Input control interface contains 8 switch input ports, a speed input port and an analog current input port. The length of the cable connected between switch input interface and external equipment can't be more than 5m. And it is suggested that the cable should not be near the AC power and power lines. The input could be TTL as well as switch.

E.g. The following diagram is the circuit diagram for connecting external passive switch to switch input port of instrument by 3 kinds of switch inputs.



Note: There cannot be external voltage at the input port of meter. And the interval between on and off cannot be less than 10ms.

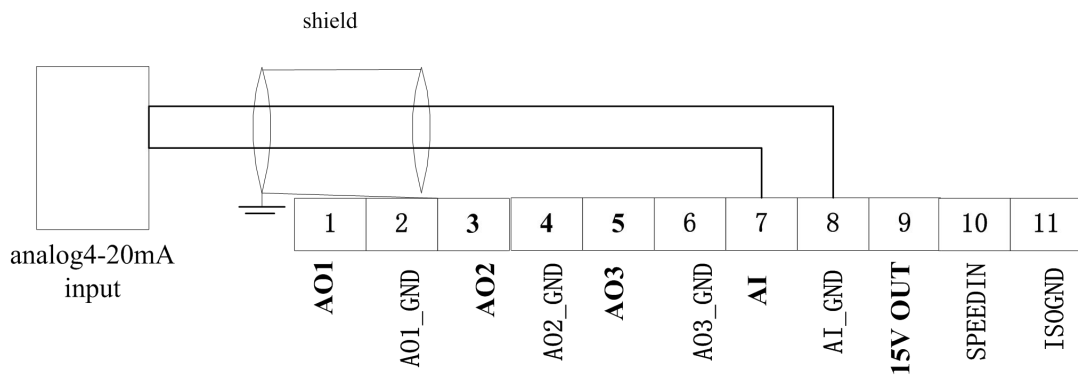
4.3.3 Speed Sensor



Connection Diagram of 3-core Speed Sensor

Both PNP and NPN pulse speed sensors could be connected to UNI900B directly by setting corresponding parameters.

4.3.4 Analog Input Connection



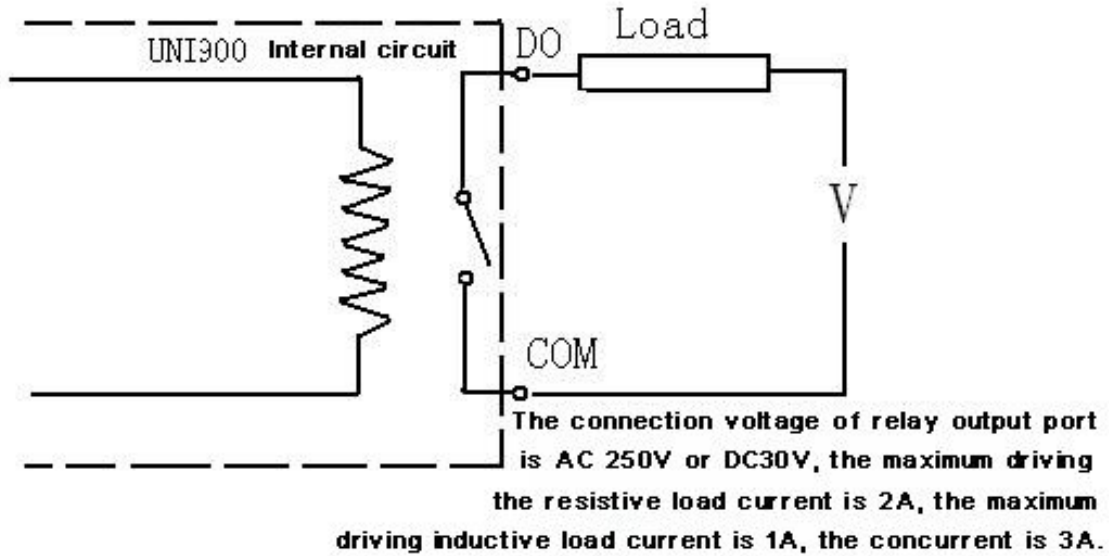
Schematic of Analog Input Connection

Standard configuration of UNI900B contains 1ch analog input terminal and 2ch analog output terminals. One more analog output terminal could be extended by an extended panel. Every channel of 4-20mA or 0-20mA is optional for users. There is a shield between every output/input, so that when one channel is destroyed, other channels will not be affected. Meanwhile the function of every channel can be customized by users which could realize redundancy configuration, and when one channel is damaged, others can replace it without changing the meter.

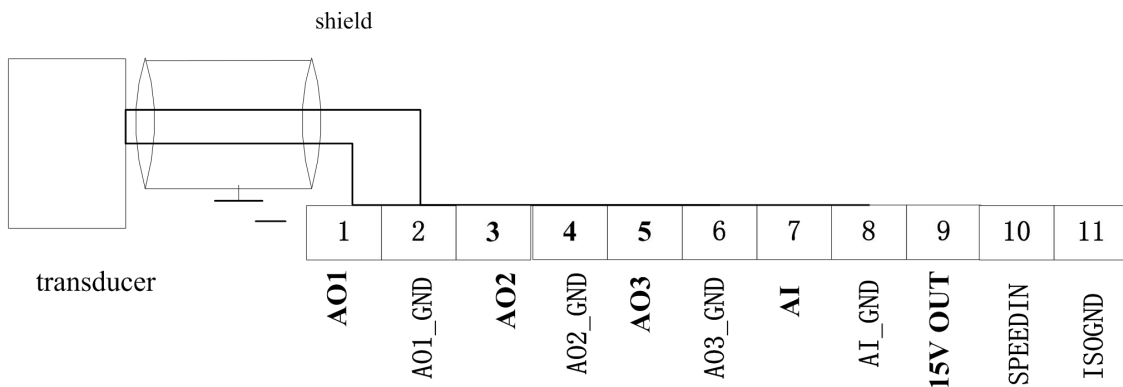
4.3.5 Output control port

It includes eight analog output ports, and all of them output ports connect with the relay. DO1, DO2, DO3, DO4, share a public terminal COM1. DO5, DO6, DO7, DO8 share a public terminal COM2. So the two group of analog output port can be separated. And DO1, DO2, DO3, the function of these three ports are fixed, the function of the other ports can be definite. More details please see 6.3.11.

The connection voltage of relay output port is AC 250V or DC30V, the maximum driving the resistive load current is 2A, the maximum driving inductive load current is 1A, the concurrent is 3A.



4.3.6 Transducer Connection

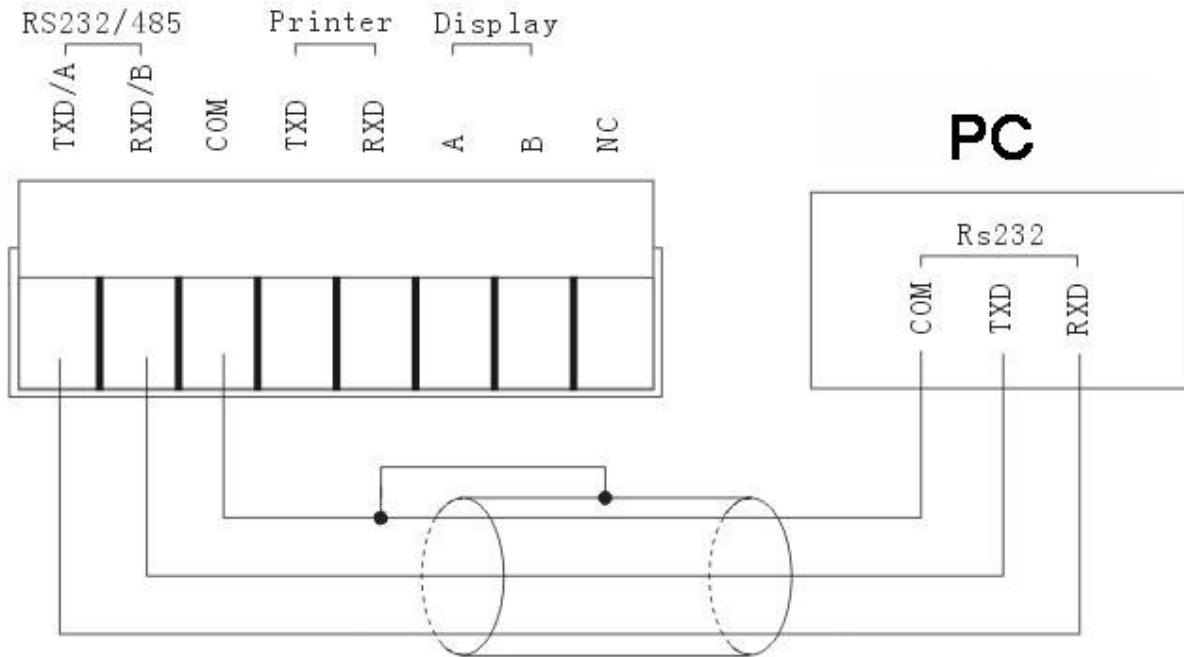


Schematic of Transducer Connection

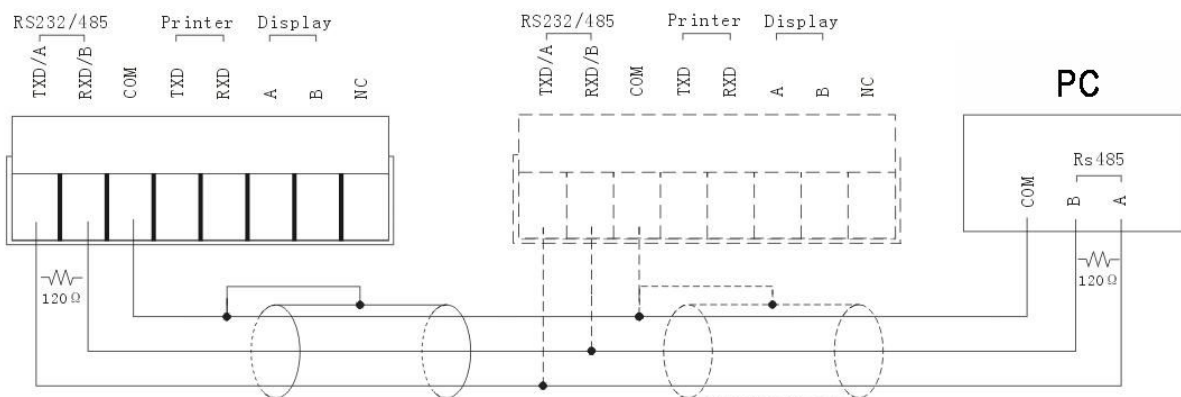
4.3.7 Communication Output Interface

UNI900B has standard configuration communication terminal (COMM) and optional communication terminal.

Common communication output port includes command communication port RS232/RS485, print port (Printer), and remote display port (Display). The connections are as follows:

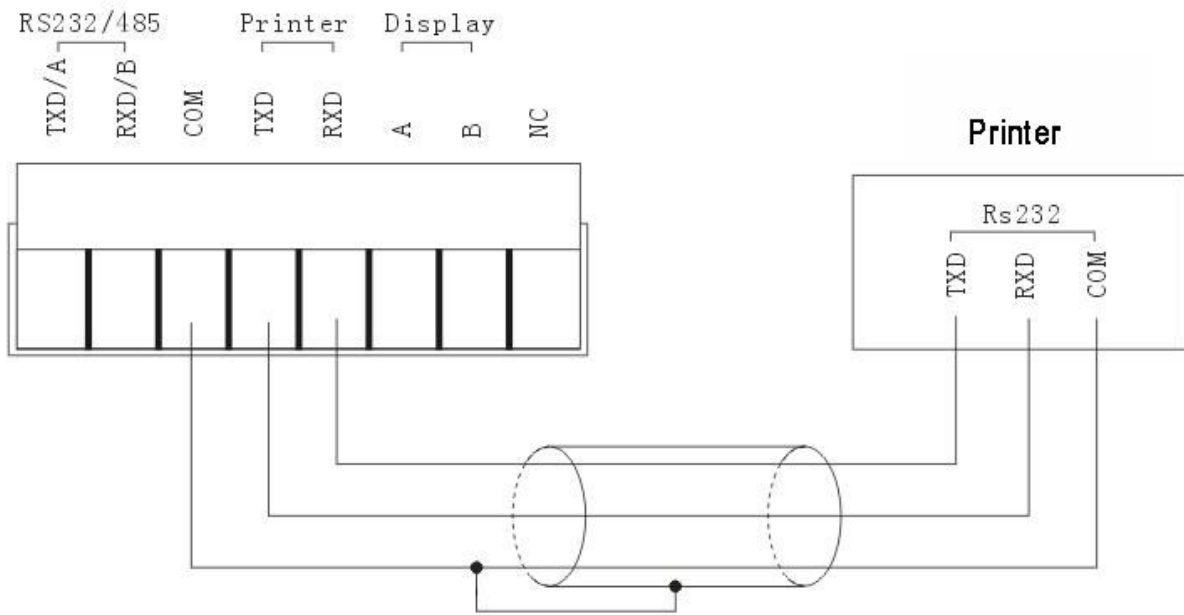


Connecting diagram of RS232 connection

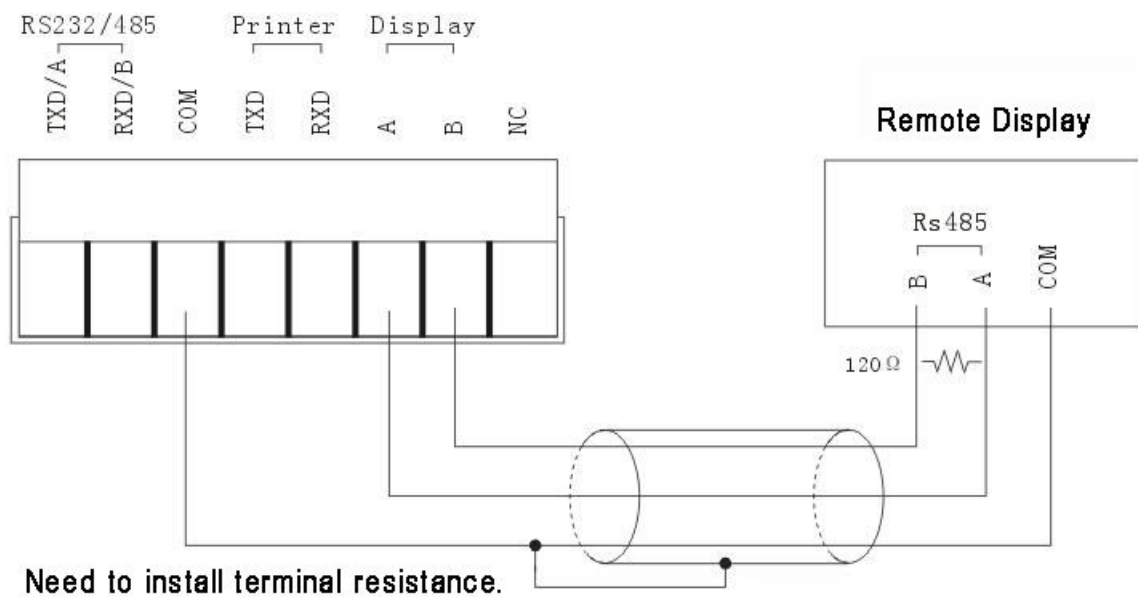


Both sides of RS485 need to install terminal resistance.

Connecting diagram of RS485 connection



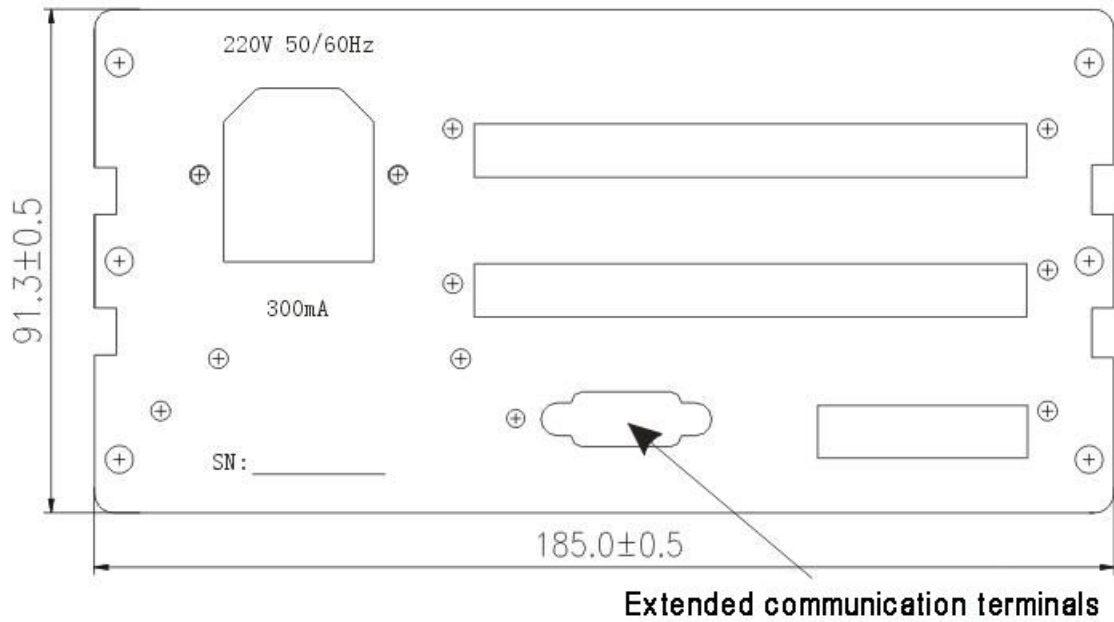
Connecting diagram of printer connection



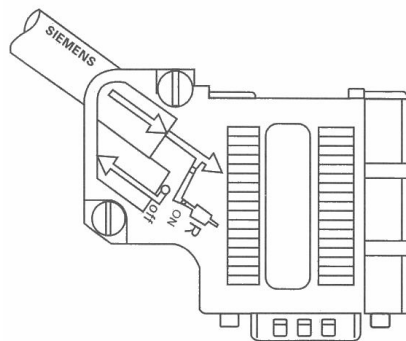
Need to install terminal resistance.

Connecting diagram of of large screen remote display connection

Extended communication terminals are as follows, can be extended to ProfiBus-DP、CC-Link、DeviceNet 、CAN or CANopen protocol。



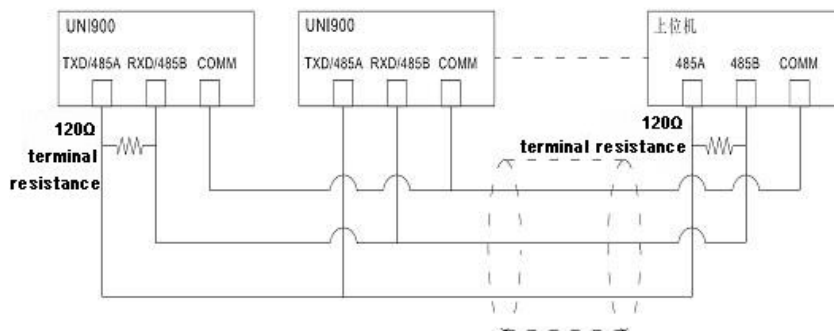
When communicate by ProfiBus-DP, use the SIEMENS 35° bus connector (The official order No. is 6ES7 972-0BA41-0XA0, the following picture is a sample.) If you use the SIEMENS 90° bus connector, the installation of connector will conflict with the sensor's terminal.



SIEMENS 35° bus connector

When communicate by CC_Link, the definition of pins is compatible with ProfiBus-DP. User needs to weld 9 pin D-BUS male. The definition please refers to 4.2 Rear Panel.

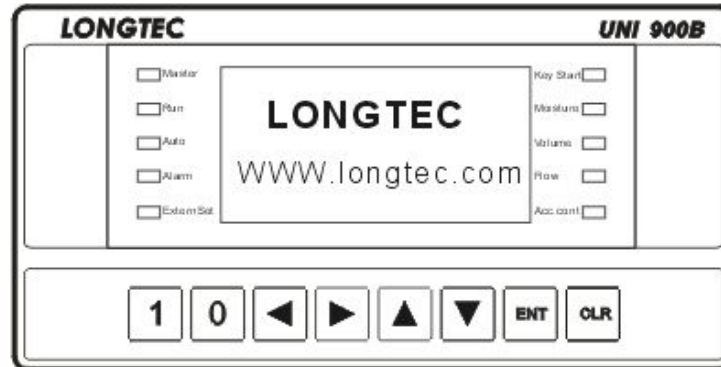
When communicate by DeviceNet, CAN and CANopen, The definition please refer to 4.2 Rear Panel. User needs to weld the terminals.



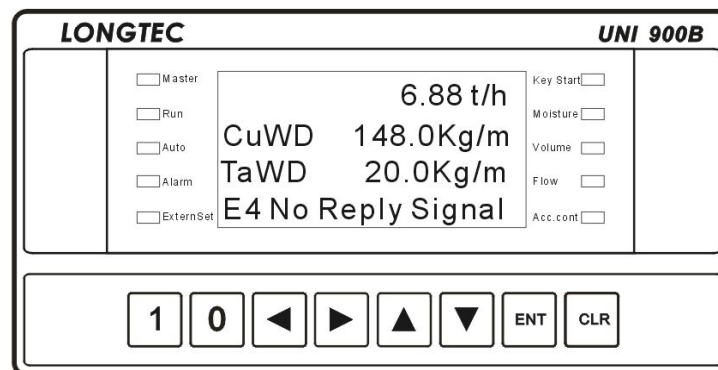
5. Screen Layout and Menu Setting

5.1 Main Display Layout

UNI900B will test itself once it is powered on and the display is as follows.



After 2s, standard window is displayed, just as follows.



All parameters can be referred in the first and second assistant display window by up/down shift key. Main display has two kinds of styles: 19 kinds of parameters can be displayed in small font; the before 17 of the 19 kinds of parameters can be displayed in large font.

5.2 General Message


Display		Descriptions
CUWD	xxxx.xx kg/m	Current weight density
TaWD	xxxx.xx kg/m	Target weight density
Tar.	xxxx.xx t/h	Target flow rate
Error	%	Deviation proportion between current flow and target flow
Speed m/s	xxx.xx m/s	Current belt speed
Pulse/s	xxxxx	Amount of current pulse per second
Signal	xx.xxxxmv	Current load cell signal
Tare	xxxxxmv	Tare value
Current Total	xxxxxxxx.xxkg	Accumulation total since the last zero clearing of current total of this production. Max. 10 trillion
History Total	xxxxxxxx.xx t	Accumulation total since the last manual zero clearing of history total. Max. 10 trillion
AO1 :	xx.xxmA	Value of analog output 1
Def:		Function definition of analog output 1
AO2:	xx.xxmA	Value of analog output 2
Def:		Function definition of analog output 2
AO3:	xx.xxmA	Value of analog output 3
Def:		Function definition of analog output 3
AI:	xx.xxmA	Value of analog input 1
Def:		Function definition of analog input 1
DI:	00000000	The status of DI1-DI8 from the left to right
DO:	00000000	The status of D01-D08 from the left to right
2009.2.8		The current date
09:28:29		The current time
General display 1	1 st line	Target flow rate; digital part of current flow
	2 nd line	Flow unit; current belt speed
	3 rd line	Current total and unit
General display 2	1 st line	Target flow rate; digital part of current flow rate
	2 nd line	Flow unit; current belt speed
	3 rd line	History Total and unit



5.3 Summary of Main Menu

“Para. Setting” and “CAL” have many subordinate menus, including most parameters, where users can set various parameters to realize control or target measurement.

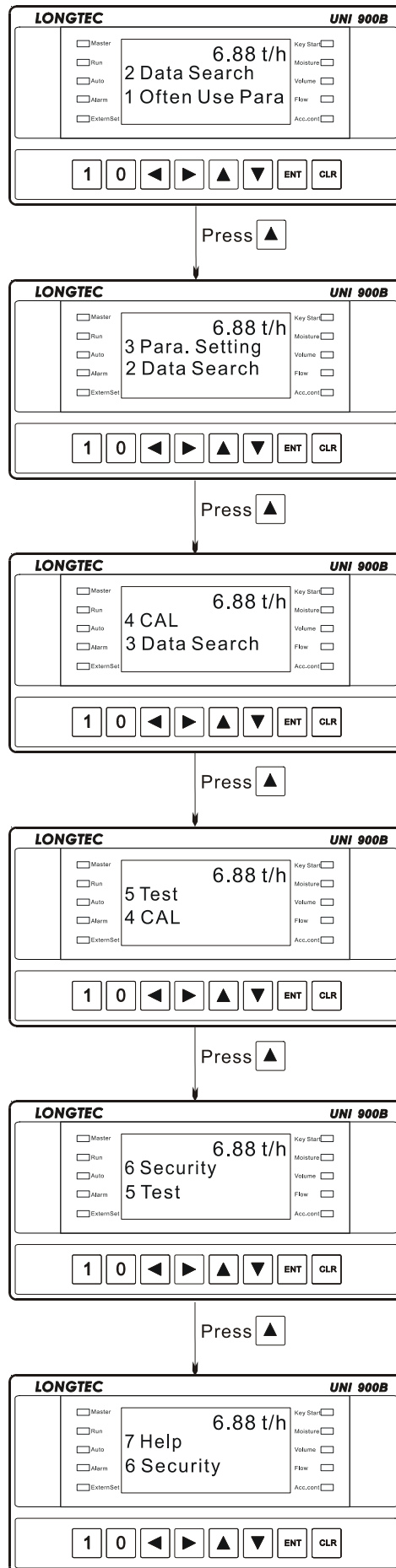
	Main menu	Description
1	Often Use Para	It contains target flow setting and common control parameter setting.
2	Para. Setting	Parameters can be read and changed. When inputting operator password, only part of menu can be read; while inputting administrator password, all content of menu can be read. After inputting correct password, it is not needed to input password again to enter menu in one minute.
3	CAL	Administrator password is needed to enter this menu. It is mainly used for filed calibration and factory calibration, including zero and range calibration, analog in/output calibration (it is done when leaving factory), feeder linear check and CAL Para setting.
4	Test	It is used for the test when leaving factory or on-site. Password is needed.
5	Security	“Security” is used to set operator password and administrator password, backup and restore parameters, and restore default setting. Administrator password is at the highest level, which can be used to set and change operator password as well as all parameters, while operator password only can be used to refer and change part of parameters but cannot used to change administrator password.
6	Help	Display instrument information such as version and code etc.
7	Data Search	Check production one work shift

Logon way to Main menu

When standard display screen is displayed, press “” key to enter the main menu, and press

“, ” to select the menu you need.

Steps:



6. Parameter Setting and Function Description

6.1 Often Use Para

Often Use Para Menu contains the parameters that users often need to use when debugging and setting, which is convenient.

Main menu	Sub-menu	Range	Description	Default
1 Often Use Para	0 Set Target Flow	0~9999t/h		0
	1 Control Mode	0, 1	0: Manual Cont. 1: Auto Cont.	0
	2 Manu Control AO	0~20mA	Set output circuit in manual control mode	4mA
	3 Auto.Cont.UpLim	0~20% FS	Auto max. adjustment of control current	1.0%FS
	4 Control Degree	1~9	The greater the value is, the faster the response is.	1

6.2 Data Search

It is used to refer accumulation each day/shift. There are two ways. One is sequence check, and the other is time section check.

Main menu	Sub- menu	Range	Description	Default
2 Data Search	0 Sequence Check		240-day production data could be referred.	
	1 TimeSectionCheck			
	2 Clear All Record	0, 1	0: No 1: Yes	

6.3 Para. Setting

Password is needed to enter the Para.Setting menu, and enter it again in 1 minute without password.

Different parameters can be referred or changed by inputting different password. When inputting administrator password, all parameters can be referred or changed in the sub-grade menu; while inputting operator password, only part of the parameters can be referred or changed.



Main menu	Sub-grade menu	Description
3 Para. Setting	0 Measure Para.	Both administrator password and operator password are ok.
	1 Control Para.	
	2 Flow Para.	
	3 ACC. Cont.	
	4 Zero Para.	
	5 Total Para.	
	6 Speed Para.	Need administrator password
	7 Weight Density	Need administrator password
	8 Communication	Need administrator password
	9 System Para.	Need administrator password
	10DI Port Define	Need administrator password
	11D0 Port Define	Need administrator password
	12AIAO Para.	Need administrator password
	13Alarm Para.1	Need administrator password
14Alarm Para.2	Need administrator password	

6.3.1 Measure Para.

The third level menu	Range	Description	Default
0 Weight Filter	8~256		32
1 Belt Length		Read only	10m
2 Effective platform length		Read only	1.000m
3 Tare		Read only	500
4 System CAL Para		Read only	1000000
5 Scale Angle	0~60 degree	Need administrator password	0

Note: Belt Length, Effective platform length, Tare and Systems CAL Para can be read only, which only can be set in “Key Para”, a sub-menu of the main menu “CAL”.

6.3.2 Control Para.

The third level menu	Range	Description	Default
0 Control Mode	0~1	0: Manual Cont. 1: Auto Cont.	0
1 Manual Control Mode	0~2	0: Key 1: DI 2: Serial port	0
2 Start-stop of Measurement Control Mode	0~2	Start/stop control way 0: Key 1: DI 2: Serial port When using the keys to control, start by pressing  for 2 seconds and stop by pressing  for 2 seconds .	0
3 Auto.Control Mode	0~1	0: PI Control 1: Mode Control “Mode control” could be used only when linear calibration is finished.	0
4 Auto.Control.Upper Limit	0~20%	Auto Control upper limit It is the percentage of max adjustable current relative to the full scale in the automatic control.(correlative control current is 4~20mA or 0~20mA)	1.0%FS
5 Control Degree	1~9	The greater the coefficient is, the faster the response is, and meanwhile the overshoot will increase.	1
6 MC. Range	0~100%FS	Model control range	10.0%FS
7 Start Stable Time	0~99s		0s
8 Start .AO.Style	0~1	Start control style 0: Fix Start AO 1: FlowCor. AO “FlowCorr. AO” (flow correlative AO) could be used when linear calibration is finished.	0
9 Flow Correlation	0~100.0%FS	The percentage correlative to the target flow e.g. 12mA is correlative to 100t/h	100%FS
10 Sys. Start Fixed AO	0-100%	System start fixed AO That is 4~20mA	50%
11 Cont. Over	0~100%FS	Upper limit of control current	100%FS
12 Cont. Under	0~90.0%FS	Lower limit of control current	0%FS
13 Production Style	0:Acc. Mode 1:Acc. Control 2:Volume Mode	It could be changed only when the machine is stopped and administrator password is needed. Generally, continuous mode is used; While accumulative control is required, accumulative mode is used; only while load	0

		cells are damaged and production is needed to go on, volumetric mode is used.	
14 Moisture Ratio	0~50.0%	Need administrator password	0%
15 Run End Delay	0~20s	After stop signal is given, as there is some delay caused by the mobility of material or system itself, a delay after measurement stop is needed for go on calculating accumulation to make sure it is accurate.	0s

6.3.3 Flow Para.

The third level menu	Range	Description	Default
0 Flow Unit	kg/s ~ t/h		t/h
1 Flow Dec.Point	1~5	1: 00000 = 0 Dec. Point; 2 0000.0 = 1 Dec. Point; 3 000.00 = 2 Dec. Point; 4 00.000 = 3 Dec. Point; 5 0.0000 = 4 Dec. Point.	0 Dec. Point
2 Flow Set Source	0: Key Control 1: AI Control 2: Serial port	When it is set by AI or serial port, target flow will not be saved.	0
3 FL.Out MAX.Range	0~999999	Flow output max. range Set the flow output value that the output of 20mA stands for.	1000t/h
4 FL.Out MIN.Range	0~999999	Flow output min. range Read only	0t/h
5 TaFL. AI Range	0~999999	Target flow input range Set the target flow value that AI input of 20mA stands for.	1000t/h
6 Flow Over	0~999999	In the course of system startup to stability, the alarm "Flow over" and "Flow under" will not be performed..	0
7 Flow Under	0~999999		0
8 Flow Drift Range	0~100.0%FS	The percentage of flow deviation relative to target flow. When flow deviation exceeds the setting value, alarm "H5" will be displayed in the secondary display area. If relative IO output is set, it will output. 0.0%FS: no drift alarm	0.0%FS
9 Flow Drift Cont.	0~1	0: Contine Cont. (Continuous Control , be controlled in any range) 1: Fix Cont (not be controlled in the range of deviation.)	0
10 Alarm Time (Alarm and stop time)	0~1800s	0= Cease calculation operation when no alarm of upper and lower limits for flow for a long time 1~1800=cease compulsive calculation when alarm of upper and lower limits for flow lasts for a certain period of time. The alarm time is invalid in debug state, At this point, the alarm level for flow limit in alarm parameters must be set as 'normal level'.	0

6.3.4 ACC. Cont.

It is available to be referred or changed only When production style in Control Para. Menu is ACC control.

The third level menu	Range	Description	Default
0 Target ACC.Cont.	0.1~9999999kg	Target accumulation Unit: kg	1000.0kg
1 Ta.ACC.Cont.Sel	0: Key 1: Communicate	Target accumulation control setting way	0
2 SlowFeedFreeFall	0.1-1000.0kg		10.0
3 SlowFeed coef.	0.0-10.0	Slow Feed Coefficient	0.0
4 FastFeedFreeFall	0.1-9999.9kg		20.0
5 Ta.ACC.Cont.Dec	0= No automatic clearing accumulation 1= automatic clear accumulation(includes the current and accumulation weight)	While accumulating, the mode to zero. Pay attention to the difference between it and "6.3.6 7 TotalClearMode"	1Dec
6 Curr. Ta.ACC.	Read only	Current Target Accumulation Read only; Unit: kg 1 decimal point.	0.0kg
7 ACC. Cont. Signal Type	0=The original control mode. Rising start. While producing, 0 means stop. 1=Pulse start. While producing, 0 means don't stop.	To DI, key or communication order is not affected by this value.	1
8 ACC. Cont. AO_H	0~100%FS	Accumulation control AO output fast.	0
9 ACC. Cont. AO_L	0~100%FS	Accumulation control AO output slow.	0

6.3.5 Zero Para.

The third level menu	Range	Description	Default
0 ZeroDead Enable	0~1	0: Disable 1: Enable	0
1 Zero Dead Band	0~1.0000mV		0.0000mV
2 Auto Tare Check	0~1	0: Disable 1: Enable	0

6.3.6 Total Para.

The third level menu	Range	Description	Default
0 Curr. Total Unit	kg	Only read	kg
1 Curr.Total Dec.	1~2	1: 0 Dec. Point 2: 1 Dec. Point 3: 2 Dec. Point 4: 3 Dec. Point	0 Dec. Point
2 Hist. Total Unit	kg,t	History Total Unit	t
3 Hist. Total Dec.	1~4	1: 0 Dec. Point 2: 1 Dec. Point 3: 2 Dec. Point 4: 3 Dec. Point	0 Dec. Point
4 Neg.Flow ACC, Cont.	0: No 1: Yes	Negative Flow Accumulation	1
5 ACC. Pulse Weight	1.0-999999.9kg		1000kg
6 ACC. Pulse Width	100-2000ms		100ms
7 TotalClearMode	0: Not Auto Clear 1: Clear/shift 2: Clear/Day	Current accumulation is cleared here.	0
8 Del.Curr.Total?	0~1	Delete Current Total? 0: No 1: Yes	0: No
9 Del.Hist.Total	0~1	Delete History Total? 0: No 1: Yes	0: No
10 Shift 1 Time		Need administrator password.	00:00:00
11 Shift 2 Time			08:00:00
12 Shift 3 Time			16:00:00
13 Print Setting	0: Not Print 1: Print/shift 2: Print/Day	Refer the attachment II for more information. Need administrator password.	0: Not print
14 Manual PrintMode	0: Time, Curre. ACC. (Time + Current accumulation) 1: Time, Hist.ACC. (Time + History accumulation) 2: Time, Two ACC. (Time + Current accumulation + History accumulation)		0
15 Printer Type	0=LQ—300K+II 1= SP series panel cgha		0

Note: 1.The printer fixed 19200 bite,8 data bits,1 stop bit, no check..

2. After stop micro-printing, the setting of paper's line refers to "6.3.13 AIAO Para."

6.3.7 Speed Para.

The third level menu	Range	Description	Default
0 Speed Dec.	1-6	0-5 Dec. Point	1 Dec. Point
1 Speed Filter	1~256	The greater the speed is, the more stable the display is, while the response will be lower..	16
2 Speed Over	0~5.000m/s		0.0m/s
3 Speed Under	0~2.500m/s		0
4 Length/ Pulse	0.01~100cm/pulse	The length that corresponds to per pulse	1cm
5 Speed Source	0~1	0: InSet Pulse 1: External Pulse	0
6 InSet Speed	0.01~5.00m/s	Internal pulse speed	1.0m/s
7 Sp.Signal Style	low /high	Speed signal style Frequency<50: Low speed Frequency>50: High speed	High speed
8 SpeedDiscernTime	0.1s~9.9s	1s	1.0s
9 Zero Speed cont.	0~1	Zero speed control 0: Not limit (no limit to control current) 1: Limit to startAO (limit control current as startup AO) Need administrator password.	0
10 SpeedCont.Start	0~1	0: Switch Cont. 1: Speed Cont When speed is more than '0', measurement will start automatically. (Need administrator password)	0
11 SpeedSensorType	0~1	0: NPN 1: PNP Need administrator password.	0
12 SpeedInputRange	0.1-5.000m/s	When input a analog value as the belt's speed, 20mA of AI reflects the fastest speed.	5m/s

6.3.8 Weight Density

Sub-menu	The third level menu	Range	Description	Default
7 WD.Para	0 WD.Compute Style	0~1	Load computing style 0: Batch Belt 1: Carry belt	0
	1 Carry Belt Speed	0~5.000m/s	The speed of the belt which is carrying material.	1.000m./s
	2 WD.Over	0~1000.0kg/m		1000.0kg/m
	3 WD.Under	0~99.999kg/m		0.0kg/m
	4 WD.Out.Range	0~999.999kg/m	Load output range	999.999kg/m
	5 WD.Dec.Point	Read Only	Can be modified in “6.4.7 Key Para”.	1 Dec. Point
	6 Use Fix WD.?	0: No 1: Yes	For Volume Mode	0
	7 Fix WD.	0~999.999kg/m		10.0kg/m

6.3.9 Communication

The third level menu	Range	Description	Default
0 Address	1~125		1
1 Comm.Mode	0~9	Communication Mode 0: Time Send FL. (continuous mode, flow rate) 1: Command mode 2: Modbus 3: PWC_CAN mode 4: PWC_RS232/485 mode 5: LP.BC(For DP) 6: Continuous mode 1, accumulation (history acc., used for large screen) 7: Continuous mode 2, current flow (used for large screen) 8: Continuous mode 3, common information (user specifies procedures 1) 9: xBCD command (user specifies procedures 2)	2
2 Time Send Rate	0~3	0 2 = 2 times/s; 1 5 = 5 times/s; 2 10 = 10 times/s; 3 20 = 20 times/s。	2 times/s
3 Baud Rate	0~5	0 = 1200 Baud Rate; 1 = 2400 Baud Rate; 2 = 4800 Baud Rate; 3 = 9600 Baud Rate; 4 = 19200 Baud Rate; 5 = 38400 Baud Rate; 6 = 57600 Baud Rate; 7 = 115200 Baud Rate。	3:9600
4 Date Bit	0~1	0: 7 bit 1: 8 bit	1
5 Stop Bit	Read only	0: 1 bit 1: 1.5 bit 2: 2 bit	0
6 Parity Bit	0~2	0: NONE 1: ODD 2: EVEN	0
7 Com.Style	Read only	Communication style 0: RS232/485 1: DP slave	0
8 CAN Addr	0x80~0x8F 128~143	CAN Address PWC slave address Need administrator password.	128
9 CAN Baud Rate	0~7	0: 100K 1: 500K	0

		2: 800K 3: 1000K 4: 50k 5: 40k 6: 20k 7: 10k Need administrator password.	
While in communication mode 6/7, connect with large screen, set the baud rate of communication terminal 9600, 7 data bits, 1 stop bit and 1 parity bit.			

6.3.10 System Para.

The third level menu	Range	Description	Default
0 Display Rate	0~5	0: 0.5 time/s 1: 1 time/s 2: 2 times/s 3: 4 times/s 4: 10 times/s 5: 20 times/s。	4 times/s
1 Display Light	1~7	1: weakest 7: strongest	5 Level
2 Date		It is only can be modified by administrator.	
3 Time		It is only can be modified by administrator.	
4 Lock Key	0~1	It is fixed as “1” at present. After exiting the Para. Setting menu for 60s, it will lock automatically.	1: Enable
5 Key Voice	0~1	0: Disable 1: Enable	1
6 MainDisp.Content	0~1	Main Display Content 0: Flow 1: Weight Signal	0
7 Sec.Content	0~13 0: BL., Tar. FL. 1: TaR. FL.Drift 2: Speed, Puls 3: AD, Tare 4: Curr. ACC 5: Total ACC 6: AO1 7: AO2 8: AO3 9: AI 10: DI, DO 11: Date, Time 12: Often Para.1 13: Often Para.2	Secondary Display Content Option 12 th Common display 1: 1st line: Target flow; digital part of current flow 2nd line: Flow unit; current belt speed 3rd line: Current accumulation and unit Option 13th Common display 2: 1st line: Target flow; digital part of current flow 2nd line: Flow unit; current belt speed 3rd line: Total accumulation and unit	0
8 MainDisp.Style	0~1	Main Display Style 0: Small font 1: Big font	0
9 AO Style	0~2	0: 0/4~20mA 1: 0/1~5V 2: 0/2~10V	0
10 PID Adjust Time	0.5~20.0s	PID Adjustment Time	0.5s
11 PID Dead Band	0.00~20.00%FS	When flow deviation is not in the range,	0.00%FS

		PID adjustment will stop. 0: Dead zone adjustment is done in any range.	
12 Sec. Auto Roll	0~1	Secondary Display Roll 0: Key Control 1: Auto Roll (display in a circle every 3s automatically)	0
13 Flow rate saved	0~1	When the flow rate setting means is "2:serial command", whether the flow rate are saved into the indicator. 0=Yes,1=No. Need administrator password.	0

6.3.11 DI Port Define

UNI900B has eight switch input ports and one common terminal. The function of DI is fixed, while the other 7 ports' function can be customized which also could be defined as the same value.

The third level menu	Range	Description	Default
DI1 function	1	The AV in of the DI Port is fixed, other port can self-define one or more function. The definition of the function numbers are as follows.	1
DI2 function	0~12		0
DI3 function	0~12		0
DI4 function	0~12		0
DI5 function	0~12		0
DI6 function	0~12		0
DI7 function	0~12		0
DI8 function	0~12		0

Definition of function number

No.	Definition	Description
0	None	The input signal of this port is invalid.
1	Run /Stop	Start measurement control. It is only used when DI is used to control measurement.
2	Cen.Cont.Reply	Center Control Reply When host computer is ready, it will send a startup signal to belt scale. And the belt scale will not start measurement until receiving the signal. If there's no signal, the instrument will stop measurement.
3	Clr.Curr.Total:	Clear Current Total (C1) It is the current weight that accumulates after instrument is powered on.
4	ForceDischarge	Force to Discharge material The output control current is fixed as 20mA.
5	Belt Drift	
6	AUTO Cont. In	Auto Control Input
7	SysStartType1	Measurement Start Way 0=Communicate; 1=DI
8	SysStartType2	0=Key; 1=DI
9	SysStartType3	0=Key; 1=Communicate
10	Print	It is valid when rise edge and high level last more than 0.5s. Print request should be with interval of 20s or more.

11	Clr.Hist.Tota	Clear History Total It is the total weight that accumulates after the instrument starts or zero clearing is just finished till now.
12	Debug mode	1=When the indicator into a zone. If H1 loadcell input is oversize or undersize other alarm will stop,others' won't, even the flow rate alarm of upper and lower limits for flow for a long time.

6.3.12 DO Port Define

Switch output terminal DO includes 8 relay outputs; the 4 channels (DO1, DO2, DO3 and DO4) are segregated with the other 4 channels (DO5, DO6, DO7 and DO8). DO1, DO2, DO3 and DO4 use common terminal COM1, while DO5, DO6, DO7 and DO8 use common terminal COM2. The function of every port except DO1 port can be customized, so that if one is damaged, we just need to define another one as the function and connect it to the controller.

Sub-menu	The third level menu	Range	Description	Default
11DO Port Define	DO1 function	1	Output for start measurement	1
	DO2 function	0~20	The function of DO1 is fixed, while the other 7 ports' function can be customized which also could be defined as the same value.	0
	DO3 function	0~20		0
	DO4 function	0~20		0
	DO5 function	0~20		0
	DO6 function	0~20		0
	DO7 function	0~20		0
	DO8 function	0~20		0

Definition of function number

NO.	Definition	Description
0	None	The output signal of this terminal is invalid.
1	RUN	Start measurement control. It is only used when DI is used to control measurement.
2	WD. Over	Weight Density Over (load)
3	WD. Under	Weight Density Under (load)
4	Belt Moving	
5	Speed Over	
6	Speed Under	
7	Flow Over	
8	Flow Ok	The flow rate is between the upper limit value and the lower limit value.
9	Flow Under	
10	Flow Drift	
11	Cont. Over	Control Over
12	Cont. Under	Control Under
13	W.Signal Err	Weight Signal Error The input signal is too great or too little.

		In volumetric mode or with fixed load, the error of weight signal will be ignored.
14	Error	There is more than one errors. Note: upper/lower alarm is not output here.
15	Total Pulse	Total Pulse Output
16	SlowFeed	
17	FastFeed	
18	Ready	When the “WT.Serious Alarm” in the “Alarm Setting 1” is set as “1: limit to AO”, the error of load cells will be ignored. Even there is a serious error; the “Ready” will be also output.
19	DO output communication control	The Mv of DO depends on the communication command. When it is 1,DO is logic1, when it is 0,DO is logic0;
20	Flow rate alarm of upper and lower limits	Flow rate alarm of upper and lower limits

Note: In volumetric mode or with fixed load, the error of weight signal will be ignored.

6.3.13 AIAO Para.

UNI900B has at most 3 current control output ports, and one current control input port. Every port could be customized, while AO3 port could be used after extending an interface.

Sub-menu	The third level menu	Range	Description	Default
12AIAOSetting	0 AI Filter	1~256	The greater the filter coefficient is, the lower the response is.	32
	1 AI Ifunction	0~2	0: None 1: TargetFlow 2: Input the speed	1
	2 AO1 function	0~5	0: None	1
	3 AO2 function	0~5	1: Cont.AO.1 2: Cont.AO. 2	0
	4 AO3 function	0~5	3: Curr.Flow 4: Current WD 5: Output Acc. Speed 2.	0
	5 2Ch.Cont.Ratio	0~100%	2 Channel Control Ratio	0%
	6 AI Zero Select	0~1	0: 0mA, 1: 4mA	1
	7 AO1 Zero Select	0~1	0: 0mA, 1: 4mA	1
	8 AO2 Zero Select	0~1	0: 0mA, 1: 4mA	1
	9 AO3 Zero Select	0~1	0: 0mA, 1: 4mA	1
	10 Function Reserve			
	11 Micro-print paper's line	0~8	After stop micro-printing, set as follows“6.3.6 Total Para. 15 Printer Type =1”	0

6.3.14 Alarm Para.

Alarm of UNI900B has four levels, which decide the priority of different alarms. The higher level it is, the more preferential the alarm display is. The level of every alarm can customized according to the local operation. Particular description of alarm levels is as follows.

- 0: Ignore level Ignore the error, there is no display and output.
- 1: Indicate level The error is displayed without output.
- 2: Common level The error is displayed with corresponding IO output .
- 3: Serious level It is the highest level. The error is displayed and measurement is forced to stop.
Meanwhile all analog output will be changed to the least.

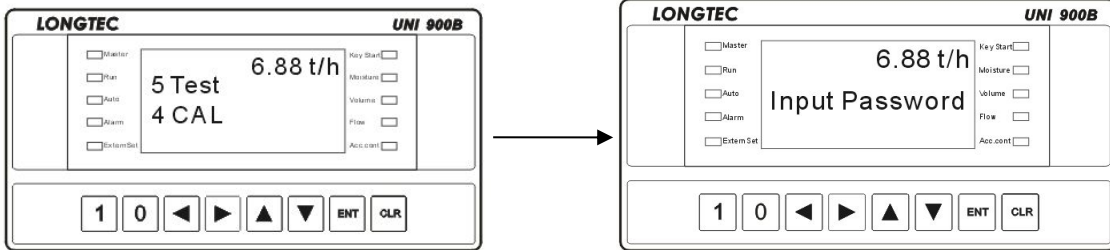
Sub-menu	The third level menu	Range	Description	Default
13Alarm Para.1	EA Memory Error	0~3		3
	EB RTC Error	0~3	Reading Time Clock Error	3
	E4 Reply Signal	0~3	Control Reply Signal	3
	E1 SignalLineErr	0~3		3
	H1 W.Signal Over	0~3	Weighing Signal Over	3
	L1 W.Signal Under	0~3	Weighing Signal Under	3
	H4 Flow Over	0~3		2
	L4 Flow Under	0~3		2
	H5 Flow Drift	0~3		2
	H6 Cont. Over	0~3	Control Over	2
	L6 Cont.Under	0~3	Control Under	2
	Extend Alarm1	Fixed as 0	Read only	0
	Extend Alarm2	Fixed as 0	Read only	0
	Control Response	0~1	0: Disable; 1: Enable Need administrator password.	0
	WT.Serious Alarm	0~1	Weighing Signal Serious Alarm 0: Stop, 1: Limit to StartAO Note: This function will be valid when the weighing signal is too greater or too little and it is in serious level. Need administrator password.	0
14Alarm Setting2	E7 Belt Drift	0~3		2
	H7 Speed Over	0~3		2
	L7 Speed Under	0~3		2
	H8 WD. Over	0~3		2
	L8 WD. Under	0~3		2

Description of alarm parameters

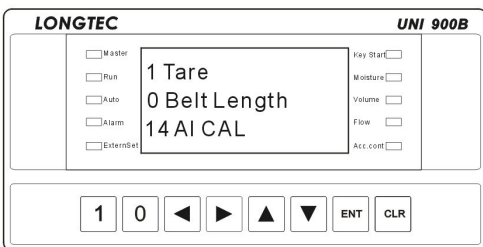
Symbol	Definition	Description	Default
#EA	Memory Error		Serious level
#EB	RTC Error		Serious level
#E4	No Reply Signal	When there is no control reply signal at any time, alarm #E4 will be displayed.	Serious level
#E1	SignalLineErr	When there is something wrong with load cell connection, alarm # E1 will be displayed.	Serious level
#E7	Belt Drift	When the belt is drifting, alarm # E7 will be displayed.	Common level
#H1	Signal Over	Max output voltage of load cell is 30mV. When the voltage is greater than 30 mV, alarm # E7 will be displayed. Use a multi-meter to check whether the wire connection is reversed or there is something wrong with load cells.	Serious level
#L1	Signal Under	Min input voltage of load cell is 0.05mV. When the input voltage is less than 0.05mv, alarm # L1 will be displayed.	Serious level
#H4	Flow Over	When the actual flow rate is greater than the setting value, alarm #H4 will be displayed.	Common level
#L4	Flow Under	When the actual flow rate is less than the setting value, alarm #L4 will be displayed.	Common level
#H5	Flow Drift	When the actual flow rate is greater than the setting deviation, alarm # H5 will be displayed.	Common level
#H6	Cont. Over	When the control adjustment is greater than the upper limit setting, alarm # H6 will be displayed.	Common level
#L6	Cont. Under	When the control adjustment is less than the lower limit setting, alarm # L6 will be displayed.	Common level
#H7	Speed Over	When the speed is greater than the upper limit setting, alarm # H7 will be displayed.	Common level
#L7	Speed Under	When the speed is less than the lower limit setting, alarm # L7 will be displayed.	Common level
#H8	WD.Over	When the load is greater than the upper limit setting, alarm # H8 will be displayed.	Common level
#L8	WD.Under	When the load is less than the lower limit setting, alarm # L8 will be displayed.	Common level

6.4 CAL

Press **ENT** to enter the standard menu, and press **▲** or **▼** to get the following display.

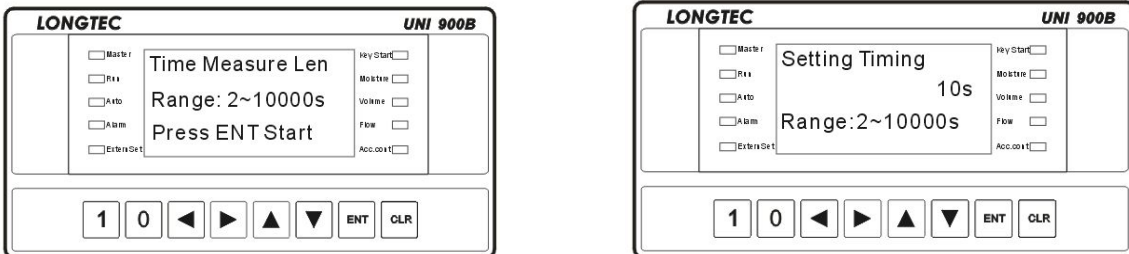


Input correct password and press **ENT** to enter CAL menu.

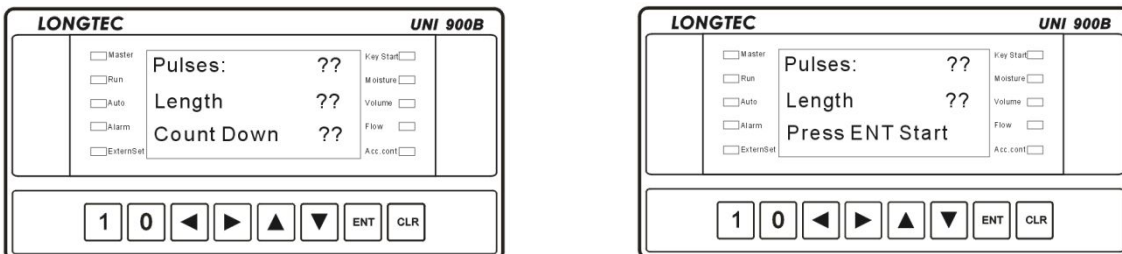


6.4.1 Belt Length

In CAL menu, press **▲** or **▼** to select “Belt Length” and press **ENT** to enter it.



Step 1: Input measurement time by pressing **ENT**, **◀**, **▶**, **▲** or **▼** and press **ENT** to start.






Step 2: Testing

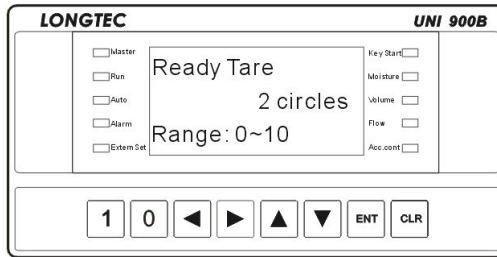
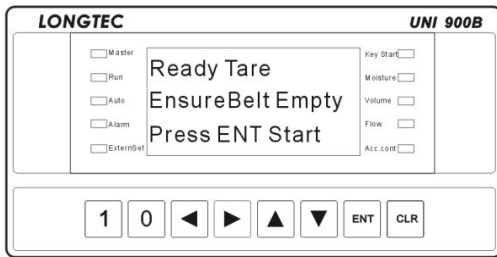
Step 3: Press **ENT** to confirm it and it will exit automatically.

Summary description


Sub-menu	The third level menu	Range	Description
0 Belt Length	Edit Belt Length	0.01~999.99m	
	Time Measure Len	2-10000s	
	Manual Measure		

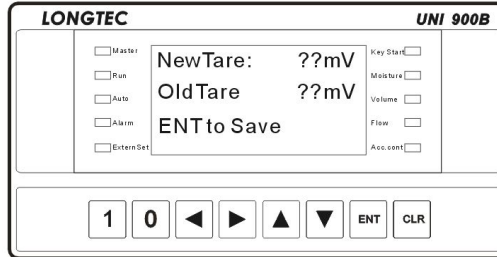
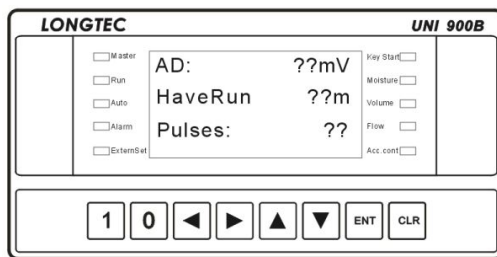
6.4.2 Tare

In CAL menu, press  or  to select “Tare” and press  to enter it.



Step 1: Press  to be ready for tare.




Step 2: Input circles and press  to start.

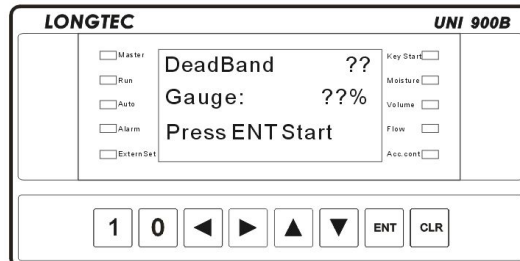
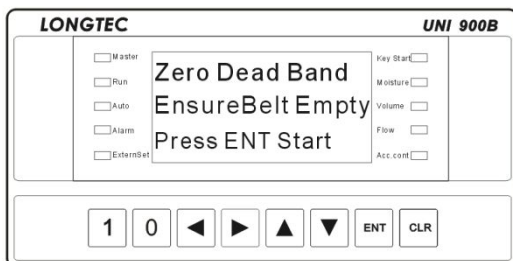


On tarring

Step 3: Press  to save it and exit.

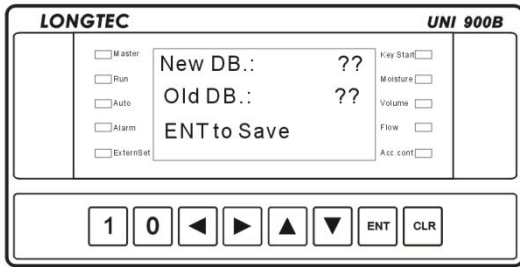
6.4.3 Zero Dead Band

In CAL menu, press  or  to select “Zero Dead Band” and press  to enter it.



Step 1: Press  to start test.

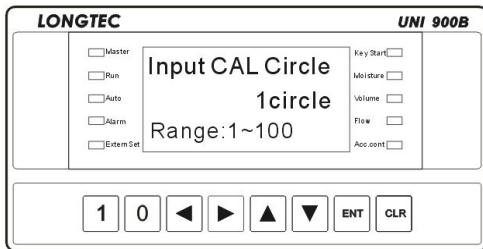
Testing.....



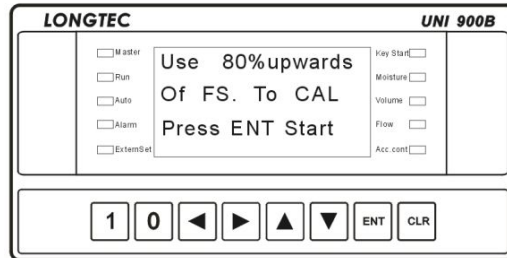
Step 2: Press to save it and exit.

6.4.4 Material CAL

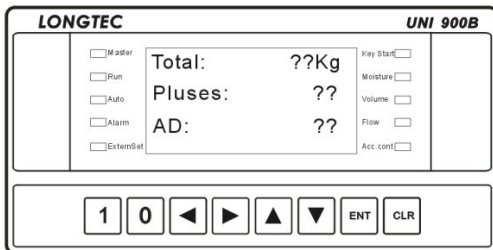
In CAL menu, press or to select “Material CAL” and press to enter it.



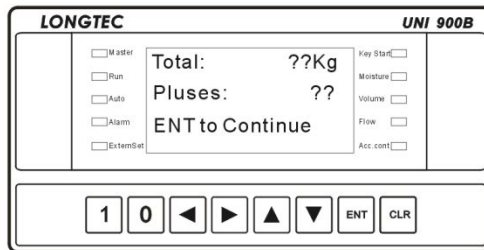
Step 1: Press to input circles.



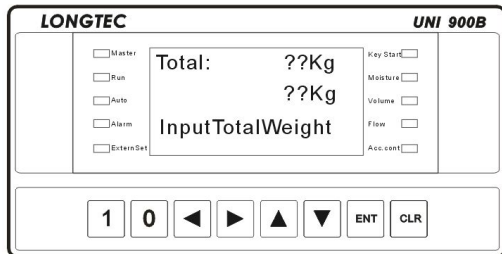
Advice is available by pressing .



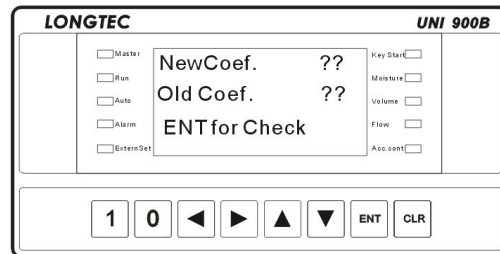
Testing.....



Step 2: Press to continue.



Step 3: Input actual weight of the material which has flew over the weighing belt.






Step 4: Press to check it and exit.

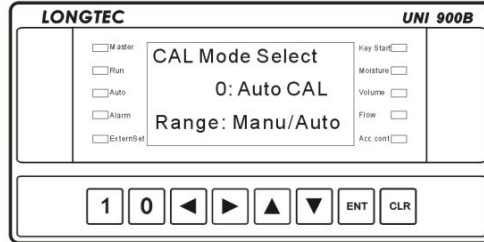
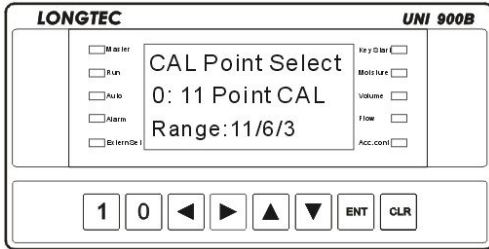
6.4.5 CablePoise CAL, Hang Poise CAL, Material Check


The steps are the same as those of “Material CAL”.

Sub- menu	Steps	Range	Description
4 CablePoise CAL	Input CAL Circle	1~100 circle	
	Poise Standard	5~200kg/m	Input the standard of cable poise, and press <input type="button" value="ENT"/> to start.
	Enter to Continue		When calibration circles are finished, press <input type="button" value="ENT"/> to confirm it.
	InputActualTotal		
	ENT to Save		Press <input type="button" value="ENT"/> to save and exit.
5 Hang Poise CAL	Input CAL Circle	1~100	
	Hang Poise Mass		Input the standard of hang poise, and press <input type="button" value="ENT"/> to start.
	Enter to Continue		When calibration circles are finished, press <input type="button" value="ENT"/> to confirm it.
	InputActualTotal		Press <input type="button" value="ENT"/> , and input actual weight, and press <input type="button" value="ENT"/> again to confirm it.
	ENT to Save		Press <input type="button" value="ENT"/> to save and exit.
	Note: The weight of hang poise should be 30%~100% of normal load.		
6 Material Check	Input CAL Circle	1~100 circle	
	On CAL		The instrument is displaying pulses, multi volt value and average load.
	Enter to Continue		When calibration circles are finished, press <input type="button" value="ENT"/> to confirm it.
	InputActualTotal		Press <input type="button" value="ENT"/> to save and exit.
	Display drift and average load		Press <input type="button" value="CLR"/> to exit.

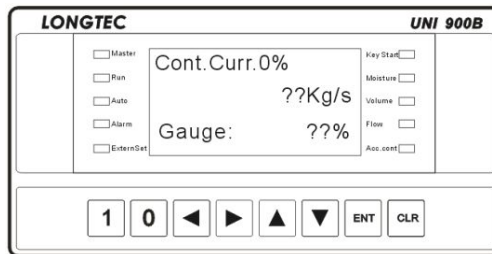
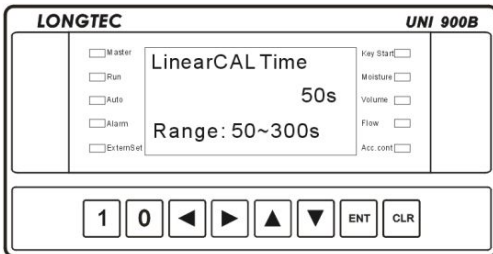
6.4.6 FeederLineCAL, ManagerLineCAL



In CAL menu, press  or  to select “FeederLineCAL” and press  to enter it.



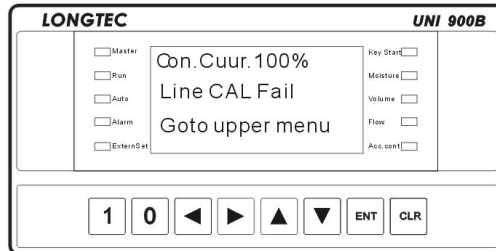
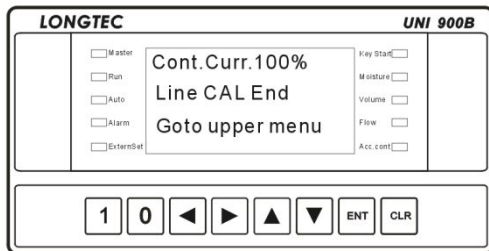
Step1: Press  to select CAL points.

Step2: Press  to select manual/auto.





Step 3: Press  to change time and press  to enter linear CAL.

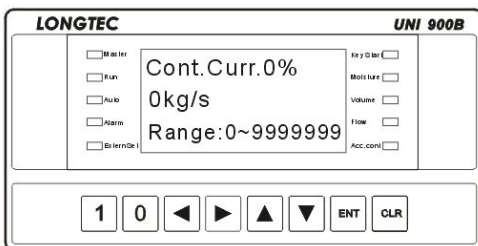
Step 4: Testing.....






Linear CAL is end.


Line CAL failed.

In CAL menu, press  or  to select “ManagerLineCAL” and press  to enter it.



Press  to change parameters, and press  to confirm it or press  to go on changing.

Steps Description

Sub-menu	Steps	Range	Description	Default
8 FeederLineCAL	CAL Point Select	11/6/3		3 points
	CAL Mode Select	0~1	0: Manual 1: Auto	0
	LinearCAL Time	50~300 s		50
	Cont.Curr.0%		In manual control mode, press  to enter the next step; while in auto control mode, the instrument will finish the linear calibration automatically.	
	Cont.Curr.10%			
	Cont.Curr.20%			
	Cont.Curr.30%			
	Cont.Curr.40%			
	Cont.Curr.50%			
	Cont.Curr.60%			
	Cont.Curr.70%			
	Cont.Curr.80%			
	Cont.Curr.90%			
Cont.Curr.100%				
9 ManagerLineCAL	Cont.Curr.0%			0
	Cont.Curr.10%			0
	Cont.Curr.20%			0
	Cont.Curr.30%			0
	Cont.Curr.40%			0
	Cont.Curr.50%			0
	Cont.Curr.60%			0
	Cont.Curr.70%			0
	Cont.Curr.80%			0
	Cont.Curr.90%			0
	Cont.Curr.100%			0

6.4.7 Key Para

Sub-menu	Steps	Range	Description	Default
10 Key Para	0 Belt Length	0.1~999.999m		10.000m
	1 Eff.Platf.Length	0.1~99.999m	Effective Platform Length	1.000m
	2 Tare	0.05~15.000mV		0.0500mV
	3 Sys.CAL Coef.	3350~33333333	System CAL Coefficient	100000
	4 Decimal	0=0.1kg, 1=0.01kg, 2=0.001kg, 3=0.0001kg, 4=1kg	It will affect the accumulated maximum display decimal.	0.1kg
	5 Weighing index		0= 1,1= 2,2= 5.	0
	6 BeltLoad_1	0~999.999kg/m	They are non-linear calibration parameters. 1. Every load must be input in accordance with the order from little to great. If the load of some a point is '0', this point and the ones after this point will be ignored. 2. The interval between every compensation point must be more than 10% of full scale.	0
	7 Drift_1	-50.0~50.0%		0%
	8 BeltLoad_2	0~999.999kg/m		0
	9 Drift_2	-50.0~50.0%		0%
	10BeltLoad_3	0~999.999kg/m		0
	11Drift_3	-50.0~50.0%		0%
	12 BeltLoad_4	0~999.999kg/m		0
	13 Drift_4	-50.0~50.0%		0%
	14 BeltLoad_5	0~999.999kg/m		0
15 Drift_5	-50.0~50.0%	0%		

Note:

1. Every time after Material CAL, CablePoise CAL or Hang Poise CAL is finished, the load of the first point will be set as '0' automatically to close linear compensation function.
2. The default of the first point is '0', meaning to close linear compensation function.

Steps of linear compensation:

1. As a general calibration method, firstly finish tare CAL and capacity calibration.
2. Enter material CAL menu, take a test of flow rate of some points and note down the testing data including average load and deviation etc.
3. Enter Key Para menu, and input the non-linear compensation data of at most 5 points,. Refer to the above table for more rulers.

E.g. If there are two chain codes, 2-point linear compensation can be done.

1. Make the belt running without anything, and do tare CAL.
2. Take the two chain codes do CablePoise CAL.
3. Take the two chain codes do material CAL and note down average load and deviation which are 80kg/m and 0% respectively.
4. Take one chain code do material CAL and note down average load and deviation which are 39kg/m and 0.5% respectively.
5. In "Key Para" menu, input the following data.

4 BeltLoad_1	39.0kg/m
5 Drift_1	0.5%
6 BeltLoad_2	80.0kg/m
7 Drift_2	0.0%

Set other points as '0'.

6.4.8 AI/AO CAL

AI/AO CAL (Analog in/output port calibration) menu is used by manufacturer. Before UNI900B leaves the factory, analog port of AO1, AO2, AO3 and AI have been calibrated by high precision instruments.

Sub-menu	The third level menu	Range	Description	Default
11 AO1 CAL	AO1_00mA CAL			
	AO1_02mA CAL			
	AO1_04mA CAL			
	AO1_06mA CAL			
	AO1_08mA CAL			
	AO1_10mA CAL			
	AO1_12mA CAL			
	AO1_14mA CAL			
	AO1_16mA CAL			
	AO1_18mA CAL			
	AO1_20mA CAL			
12 AO2 CAL	AO2_00mA CAL			
	AO2_02mA CAL			
	AO2_04mA CAL			
	AO2_06mA CAL			
	AO2_08mA CAL			
	AO2_10mA CAL			
	AO2_12mA CAL			
	AO2_14mA CAL			
	AO2_16mA CAL			
	AO2_18mA CAL			
	AO2_20mA CAL			
13 AO3 CAL	AO3_00mA CAL			
	AO3_02mA CAL			
	AO3_04mA CAL			
	AO3_06mA CAL			
	AO3_08mA CAL			
	AO3_10mA CAL			
	AO3_12mA CAL			
	AO3_14mA CAL			
	AO3_16mA CAL			
	AO3_18mA CAL			
	AO3_20mA CAL			
14 AI CAL	AI_00mA CAL			
	AI_02mA CAL			
	AI_04mA CAL			
	AI_06mA CAL			

	AI_08mA CAL			
	AI_10mA CAL			
	AI_12mA CAL			
	AI_14mA CAL			
	AI_16mA CAL			
	AI_18mA CAL			
	AI_20mA CAL			

6.4.9 Operation Instruction and Common Error

1. When the system is on system calibration, testing or security management, the function of 'Run/Stop' is invalid, which means UNI900B will not accept any Run/Stop signal.
2. The operator just can handle the 0~8th menu of CAL menu, while the administrator can handle all menus of CAL menu.
3. Common error
 - 1) CE Can'tCAL InRun
When it is running, the 8th ~14th calibration cannot be done.
 - 2) CF CAL Need Run
When it is not running, the 0 ~ 6th calibrations cannot be done.
 - 3) CD Fix W.D
When it is fixed load, the 1~6th calibration cannot be done.

6.5 Test

Test Menu is for debugging personnel and users to check whether every port is ok. Before using test function, make sure all output ports of the instrument are cut from any external equipment.

Password is needed to enter test menu. (**Note:** When instrument is at the state of testing, the function of “Run/Stop” cannot be used, which means UNI900B will not accept any Run/Stop signal.)

Testing contents	Description
Test DIDO	DI1-DI8 and DO1-DO8 correspond to the order of DI and DO from the left to the right. Press ENT in the DIDO test menu, and the instrument will output ‘1’ and ‘0’ in a cycle, which stands for “closed” and “open” respectively. Use a multi-meter to check whether the outputs are closed or not so as to check whether the switch output is ok or not. The method is to use a short wire to connect the input port to the corresponding earth, and then to check the port is “1”, which means there is input signal.
Test AO1, AO2, AO3	Adjust the multi-meter to the current file, and connect the pen to the ports needed to be checked, and then press ENT. AO1, AO2, AO3 will output 0mA, 4mA, 8mA, 12mA, 16mA, 20mA automatically in a circle. Check whether the outputs of the multi-meter corresponds to the displays of the instruemnt, so as to know whether the output ports AO1, AO2, AO3 can work well or not.
Test AI	When testing AI, input an external current signal of 0~20mA by AI port, and check whether the displayed current on the instrument corresponds to the actual input current, so as to know whether the input port AI can work well or not.
Test Key	Timing for 10s and exit automatically.
Test Ex.Speed	Test External Speed When testing, external pulse signal is displayed.
Test Printer	Press ENT, check whether the printer outputs ‘ printer test ok’

6.6 Security

UNI900B has two kinds of password; one is operator password, and the other is administrator password. Administrator can set all parameters while operator only can set part of the parameters.

Sub-menu	The third level menu	Description	Default
1 EditOperator PWD	1. Operator old PWD 2. New Ope. PWD 3. ReInput PWD 4. PWD changed OK, back to the main display	Note: Both operator password and administrator password are valid.	1
2 Edit AdvUser PWD	1. Advuser old PWD. 2. New AdvUser. PWD. 3. ReInput PWD. 4. PWD changed oK, back to the main display		2
3 Para. Backup	1. InputAdvUserPWD 2. Backup Para.?	Make a backup of the current parameters. Need administrator password	
4 Para Restore	1. InputAdvUserPWD 2. Restore Para.?	Restore the latest Backup. Need administrator password	
5 Default Value	1. InputAdvUserPWD 2. Restore Default?	Restore the default setting. Need administrator password	
6 Program download		It can be used only by testers in our company, it is prohibition to users.	

Note:

1. The administrator password of 8155062 is always valid.
2. At the state of security management, the function of “Run/Stop” cannot be used, which means UNI900B will not accept any Run/Stop signal.

6.7 Help

Sub-menu	The third level menu	Description
Help	Alarm Check	Display the number of the current alarm. Press ENT to check the reason.
	Version:	
	Machine Code	

7. Communication

UNI900B has 4 communication modes.

Mode 0	Time Send FL (continuous mode, flow rate)
Mode 1	Command mode
Mode 2	ModBus
Mode 3	LongtecPWC
Mode 4	PWC_RS232/485 mode
Mode 5	LP.BC(For DP)
Mode 6	Continuous accumulation output(for large screen)
Mode 7	Continuous current accumulation (for large screen is different from mode 0)
Mode 8	Continuous mode 3, common information

7.1 Mode0: Time Send FL (continuous mode, flow rate)

Mode 0, flow rate: 12345.6Kg/s GR LF, given the length of the package is Len.

The communication output of mode 0 adopts variable-length package. All data except the parity byte are expressed with ASCII code.

Specific format

No.	1~Len-5	Len-4	Len-3	Len-2	Len-1	Len
Content	ASCII	unit	Parity	Parity	CR	LF
Description	If it is negative, there is a '-' before the number.	D=kg/s, E=kg/m, F=kg/t, G=t/s, H=t/m, I=t/h	Check byte		End mark	

7.2 Mode1: Command Mode

Command has two kinds of orders. One is read command R: RX; and the other is written command W: WX.

7.2.1 Read Instruction R

The read command sent from the host computer is unified as 10 bytes.

No.	Definition	Description
1	Read command	'R'
2	Command word	Capital letter
3	High bit of address	16 hex, range: 0x01~0x40, it is expressed with ASCII.
4	Low bit of address	E.g. address 0x1F, then the 3 rd byte= '1' =0x31, the 4 th byte= 'F' =0x46.
5	Parameter 1	It is blank when there is no parameter.
6	Parameter 2	
7	Check word	There are two steps: accumulation and check. Sum the 2 nd ~6 th byte to get check sum, and respectively process the higher 4 bits and the lower 4 bits. e.g. if the check sum is 0x3d, then the 7 th byte='3'=0x33, and the 8 th byte='D'=0x44
8		
9	CR	End mark
10	LF	

Reply command: Communication reply of mode 2 adopts variable-length package and all data are expressed with ASCII.

No.	Definition	Description
1	Reply command	'B'
2	Command word	The format is the same as the 2 nd byte of the read command received.
3	High bit of address	16 hex, range: 0x01~0x40, it is expressed with ASCII. E.g. address 0x12, then the 3 rd byte= '1' =0x31, the 4 th byte= '2' = 0x32.
4	Low bit of address	
5	Sign bit	Sign bit. When the number is positive or zero, it is '+'; While the number is negative, it is '-'. If sign is not needed, it is blank. In RF command, the sign bit is the 6 th byte.
6~Len-5	Data	It is expressed with ASCII.
Len-4	Unit	If data is without unit, it will be blank.
Len-3	Check word	There are two steps: accumulation and check. Sum the 2 nd ~ Len-4 byte to get check sum, and respectively process the high 4 bits and the low 4 bit. E.g. if the check sum is 0x3d, then the Len-3 byte = '3' = 0x33, and the Len-2 byte = 'D' = 0x44.
Len-2		
Len-1	CR	End mark
Len	LF	

The following is Read instruction set, which takes the NO. 1 instrument as the example and set check byte as the reply.

Read instruction

Input instruction	Description
RC01 <CR><LF>	Read the current flow rate
RF01 <CR><LF>	Read the target flow rate
RA01 <CR><LF>	Read mill volt value
RN01 <CR><LF>	Read the running status of UNI900B
RD01 <CR><LF>	Read the current accumulation
RE01 <CR><LF>	Read the total
RH01 <CR><LF>	Read DI
RI01 <CR><LF>	Read DO
RV01 <CR><LF>	Read the speed of the belt
RQ01 <CR><LF>	Read weight density
RJ1 <CR><LF>	Read the target control accumulation

Specific description of instruction

1. RC01 <CR><LF>

Read the current flow rate

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'C'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	When the number is positive or zero, it is '+'; While the number is negative, it is '-'.
6~Len-5	Flow data	The unit and decimal point of the current flow returned by this command are the same as the value displayed on instrument.
Len-4	Unit	'D'=kg/s, 'E'=kg/m, 'F'=kg/h, 'G'=t/s, 'H'=t/m, 'I'=t/h
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

2. RF01 <CR><LF>

Read the setting flow

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'F'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	When the number is positive or zero, it is '+'; While the number is negative, it is '-'.

6~Len-5	Flow data	The unit and decimal point returned by the set flow are the same as that returned by setting command, but may be different from the value displayed on instrument.
Len-4	Unit	'D'=kg/s, 'E'=kg/m, 'F'=kg/h, 'G'=t/s, 'H'=t/m, 'I'=t/h,
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

3. RA01 <CR><LF> Read mV value

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'A'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	'+'
6~Len-7	data	mV value. It is expressed with ASCII.
Len-6	Unit	'M'=mV
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

4. RN01 <CR><LF> Read running state

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'N'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Reserved	Blank
6	Measuring state	'S'=Run, 'T'=Stop, 'E'=ready to stop
7	Weight alarm	'H'= HH weight, 'h'= H weight alarm, 'l'= L weight, 'L'= LL weight alarm, 'blank'= No alarm
8	Flow alarm	'h'=High, 'K'= OK, 'l'=Low, 'blank'= No alarm
9	Flow drift	'D'= Flow drift alarm, 'blank'= No alarm
10	Reserved	Blank
11	Reserved	Blank
12	Weighing alarm	'H'= high weighing signal, 'L'= Low weighing signal, 'blank'= No alarm
13	Reserved	Blank
14	Reserved	Blank
15	Reserved	Blank

16	Check word	End mark
17		
18	CR	
19	LF	

5. RH01<CR><LF>

Read DI

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'H'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Reserved	Blank
6	DI1	'1'=DI input is 1, '0'=DI input is 0.
7	DI2	
8	DI3	
9	DI4	
10	DI5	
11	DI6	
12	DI7	
13	DI8	
14	Reserved	Blank
15	Check word	
16		
17	CR	End mark
18	LF	

6. RI01 <CR><LF>

Read DO

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'I'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Reserved	Blank
6	DO1	'1'=DO output is 1, 0'=DO output is 0.
7	DO2	
8	DO3	
9	DO4	
10	DO5	
11	DO6	
12	DO7	
13	DO8	
14	Reserved	Blank

15	Check word	
16		
17	CR	End mark
18	LF	

7. RD01 <CR><LF> Read the current total

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'D'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	When the number is positive or zero, it is '+'; While the number is negative, it is '-'.
6~Len-5	Data	The current total
Len-4	Unit	'G'=g, 'K'=kg, 'T'=T.
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

8. RE01 <CR><LF> Read history total

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'E'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	When the number is positive or zero, it is '+'; While the number is negative, it is '-'.
6~Len-5	Data	The history total
Len-4	Unit	'G'=g, 'K'=kg, 'T'=T.
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

9. RV1 <CR><LF> Read belt speed

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'V'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	'+'
6~Len-5	Data	Belt speed

Len-4	Unit	'M'=m/s
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

10. RQ1 <CR><LF> Read load

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'Q'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	'+'
6~Len-5	Data	Load
Len-4	Unit	'K'=kg/m
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

11. RJ01 <CR><LF> Read accumulative target flow

NO.	Definition	Description
1	Reply command	'B'
2	Command word	'J'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	'+'
6~Len-5	Data	Accumulative control target flow
Len-4	Unit	'K'=kg
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

7.2.2 Write Instruction W

Written command is unified as 18 bytes.

NO.	Definition	Description
1	Written command	'W'
2	Command word	Capital letter
3	High bit of address	16 hexes range: 0x01~0x40, it is expressed with ASCII.
4	Low bit of address	E.g. address 0x1F, then the 3 rd byte= '1' =0x31, the 4 th byte= 'F' =0x46.
5	Sign bit	When the number is positive or zero, it is '+'; While the number is negative, it is '-'.
6	Write data	
7		
8		
9		
10		
11		
12		
13		
14	Unit	
15	Check word	There are two steps: accumulation and check. Sum the 2 nd ~14 th byte to get check sum, and respectively process the high 4 bits and the low 4 bit. e.g. if the check sum is 0x3d, then the 15 th byte='3'=0x33, and the 16 th byte='D'=0x44
16		
17	CR, 0x0D	End mark
18	LF, 0x0A	

The reply of write command is the same as the replay of read command except that the 2th byte is changed as a small letter.

The following is written instruction set, which takes the NO. 1 instrument as the example and set check byte as the reply

Setting command:

1. WF Write the target flow rate
2. WD Clear the current accumulated total
3. WJ Write the target accumulated total

Control command:

4. WS Write the start command
5. WT Write the stop command

Specific description

1. WF

Set target flow

NO.	Definition	Description
1	Written command	'W'
2	Command word	'F'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	When the number is positive or zero, it is '+'; While the number is negative, it is not accepted.
6	Target flow data	'1'
7		'2'
8		'3'
9		'.'
10		'4'
11		'5'
12		'6'
13		'7'
14	Unit	'D'=kg/s, 'E'=kg/m, 'F'=kg/h, 'G'=t/s, 'H'=t/m, 'I'=t/h
15	Check word	There are two steps: accumulation and check. Sum the 2 nd ~14 th byte to get check sum, and respectively process the high 4 bits and the low 4 bit. e.g. if the check sum is 0x3d, then the 15 th byte='3'=0x33, and the 16 th byte ='D'=0x44
16		
17	CR	End mark
18	LF	

Replay: It corresponds to the replay of read command RF, changing the 2nd byte into small letter.

NO.	Definition	Description
1	Replay command	'B'
2	Command word	'f'
3	High bit of address	'0'
4	Low bit of address	'1'
5	Sign bit	'+'
6~Len-5	Flow data	When communication is successful, the setting value will get according to the unit and decimal point setting of WF; While communication is unsuccessful, the current flow will output according to the unit and decimal point setting of the instrument.
Len-4	Unit	'D'=kg/s, 'E'=kg/m, 'F'=kg/h, 'G'=t/s, 'H'=t/m, 'I'=t/h
Len-3	Check word	
Len-2		
Len-1	CR	End mark
Len	LF	

2. WJ Set accumulative control target flow

NO.	Definition	Description
-----	------------	-------------

1	Written command	'W'	
2	Command word	'J'	
3	High bit of address	'0'	
4	Low bit of address	'1'	
5	Sign bit	When the number is positive or zero, it is '+'; While the number is negative, it is not accepted.	
6	Accumulative target flow	'1'	Max 3 decimal points Range: 0~9999999kg
7		'2'	
8		'3'	
9		'4'	
10		'5'	
11		'6'	
12		'.'	
13		'7'	
14	Unit	'K'=kg	
15	Check word	There are two steps: accumulation and check. Sum the 2 nd ~14 th byte to get check sum, and respectively process the high 4 bits and the low 4 bit. e.g. if the check sum is 0x3d, then the 15 th byte='3'=0x33, and the 16 th byte='D'=0x44	
16			
17	CR	End mark	
18	LF		

Replay: It corresponds to the replay of read command RJ changing the 2nd byte into small letter.

3. Clear current total

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Definition	'W'	'D'	'0'	'1'													CR	LF
Description	Command		Address		Blank										Check word	End mark		

Replay: It corresponds to the replay of read command RD, changing the 2nd byte into small letter.

4. Start measurement

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Definition	'W'	'S'	'0'	'1'													CR	LF
Description	Command		Address		Blank										Check	End		

Replay: It corresponds to the replay of read command RN, changing the 2nd byte into small letter.

5. Stop measurement

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Definition	'W'	'T'	'0'	'1'													CR	LF
Description	Command		Address		Blank										Check		End	

Replay: It corresponds to the replay of read command RN, changing the 2nd byte into small letter.

7.3 Mode2: Modbus

MODBUS protocol is a kind of master-slave network communication protocol. And the instrument is used as a slave controlled by the host system.

The data format is RTU. It supports function code of 03, 06, and 16. And for function code 16, it only can support two registers are written in at the same time.

Set the 'communication mode' as 'Modbus' in the 'communication menu' when using Modbus protocol. The meter's protocol is written according to the standard Modbus protocol of Modicon Company. The definition of every bit is as follows.

- 1 start bit
- 8 data bits, the minimum valid bit will be sent out at first (LSB)
- 1 check bit, it is not used when there is no parity.
- 1 stop bit when there is 1 check bit, 2 stop bits when there is no check bit.

7.3.1 Attention

1. The Modbus module of SIEMENS PLC is only support 1 stop bit. Therefore, when UNI900B communicates with SIEMENS PLC by Modbus, it is needed to set all the check bits of SIEMENS PLC and UNI900B to be odd/even parity.
2. The Parameter memorizer of UNI900B can be cleared at most 200,000 times. When writing the parameters from the PLC or the host machine to the instrument by serial port, pay attention to the writing times and avoid writing the parameters frequently.

7.3.2 Address Description (Read only)

Address	Bit	Description
40001	Higher 16 bits	Instantaneous flow rate (floating point number) ,the unit is kg/s, 4 decimal points
40002	Lower 16 bits	
40003	Higher 16 bits	Instantaneous flow rate (the display value, floating point) , the unit is decided by the register 40103
40004	Lower 16 bits	
40005	Higher 16 bits	Current mill volt (an integer of 32 bits, 4 decimal points, the unit is mV.
40006	Lower 16 bits	
40007	Hi-hi 16 bits	Current accumulation (an integer of 32 bits, 1 decimal point, unit is 'kg'.)
40008	Higher 16 bits	
40009	Lower 16 bits	
40010	Lo-lo16 bits	Accumulative total (an integer of 32 bits, 2 decimal points, unit is 't')
40011	Hi-hi 16 bits	
40012	Higher 16 bits	
40013	Lower 16 bits	
40014	Lo-lo16 bits	Current weight density (an integer of 32 bits, 3 decimal points, unit is 'kg/m³')
40015	Higher 16 bits	
40016	Lower 16 bits	
40017		Current belt speed (an integer of 16 bits, 3 decimal points, unit is 'm/s')
40018		Read DI: bit0~bit7 is corresponding to DI1~DI8, bit8~bit15 are not used.
40019		Read DI: bit0~bit7 is corresponding to DO1~DO8, bit8~bit15 are not used.
40020	Alarm	
	Bit0	High limit control
	Bit1	low limit control
	Bit2	Flow rate over
	Bit3	Flow rate under
	Bit4	Flow deviation
	Bit5	Speed over
	Bit6	Speed under
	Bit7	Weight density over
	Bit8	Weight density under
	Bit9	Weighing signal is too great
	Bit10	Weighing signal is too small
	Bit11	Belt drift
	Bit12	No center control reply.
	Bit13	
Bit14		
Bit15		

40021	Running status	
	Bit0	Measuring status
	Bit1	0=Stop ; 1=Run ; 2=ready stop
	Bit2	On calibration (The instrument cannot start / stop signal)
	Bit3	On testing (The instrument cannot start / stop signal)
	Bit4	On security management (The instrument cannot receive start / stop signal)
	Bit5~Bit15	Those bits are set as 0. The function is reserved.
40022		Reserve
40023	Bit0	0= Not in a linear calibration; 1=Linear calibrating.
	Bit1	Linear calibration error code: 0= Succeed to calibrate ; 1=Failed to calibrate.
	Bit2	0=Have been confirmed; 1= Single point calibration is waiting for confirmation(Be valid in manual calibration.)
	Bit4~ Bit7	The current calibration point: 1~11=The point X is on the calibration.
40024	Higher 16 bits	Instantaneous flow of linear calibration.(Floating point)
40025	Lower 16 bits	The unit is fixed to kg/, four digits after the decimal point.
40026	Higher 16 bits	Instantaneous flow of linear calibration.(Meter display value, integral)
40027	Lower 16 bits	The unit and decimal depends on 40101、40102.
40028	Bit0	1 =tare, 0=no tare。
	Bit1~bit5	Wrong number
	bit6	
	Bit7	0=confirmed 1=waiting for confirmation after tare
40029	Higher 16 bits	the plus number in the tare and calibration, integral.
40030	Lower 16 bits	
40031	Bit0	1 = load tarring, 0=no load calibrating.
	Bit1~bit5	Mark the wrong number
	bit6	0=the weight of load weight. 1=after weigh, waiting for input the load weight.
	Bit7	0=confirmde 1=after load calibration, a new coefficient comes out, waiting for confirmation.
40032	Higher 16 bits	The former tare weight. Fixed four digits after the decimal point.
40033	Lower 16 bits	32bits signed integral.
40034	Higher 16 bits	The new tare weight. Fixed four digits after the decimal point.
40035	Lower 16 bits	32bits signed integral.
40036	Higher 16 bits	The accumulation in load calibration. Integral, fixed one digit after the
40037	Lower 16 bits	decimal point. The unit is kg.
40038	Higher 16 bits	No former calibration coefficient in load calibration.
40039	Lower 16 bits	32 bits integral (unsigned number).
40040	Higher 16 bits	A new calibration coefficient in load calibration.

40041	Lower 16 bits	32 bits integral(unsigned number).
40042	Higher 16 bits	Current accumulation(32 bits integral, unit is kg, the decimal is the same as load value)
40043	Lower 16 bits	

Note:

1.Current accumulative total and historical accumulative total are 64-bit data. The higher 32 bits is used for the data that is more than 10 0,000, 000, while the lower 32 bits is used for the data that is less than 100,000,000.

E.g.

Historical accumulative total =123, 1000, 2000 meaning 1231000200.0kg,

Then H32=123 (algorism), L32=10002000.0 (algorism)

2. Wrong number in calibration

Wrong NO.			
3	Error_C3	Heavier than the weighing signal.	
4	Error_C4	Lighter than the weighing signal.	
8	Error_C8	When input sensitive is smaller than0.25uV/ interval, please exchange a new sensor with a higher sensitive or a lower interval value.	
13	Cd	When the load is fixed, no calibration.	
14		[CE]When producing, no calibration.	
15		[CF]Calibrate when start to produce. When calibrate the belt and others, the machine must be running.	

7.3.3 Address Description (read and write)

Address	Bit	Description
Flow rate parameter		
40101		Flow rate unit, 16 bits integer Range: 0=Kg/S, 1=Kg/m, 2=Kg/h, 3=T/s, 4=T/m, 5=T/H
40102		Flow rate decimal point, 16-bit integer Range: 1=0 decimal, 2=1 decimal, 3=2 decimal, 4=3 decimal, 5=4 decimal
40103	Higher 16 bits	Target flow rate(the display valve, floating point), at most 4 decimal points
40104	Lower 16 bits	
40105	Higher 16 bits	Flow rate over (the display valve, floating point)
40106	Lower 16 bits	
40107	Higher 16 bits	Flow rate under (the display valve, floating point)
40108	Lower 16 bits	
40109		The range of flow rate deviation, an integer of 16 bits,1 decimal point) Range: 0~100.0%
Control parameter		
40121		Control mode: 0: Manual control 1: Auto control
40122		Control current AO , an integer of 16 bits, 2 decimal points, Range: 0~100.00% At least 1 channel AO port must be set as control current output.
40123		Reserved
40124		Auto Control Up Limit adjustment t (in the control, the percentage of the max adjustable control current relative to full scale (relative control current 4-20mA or 0-20mA)), an integer of 16 bits,1 decimal point Range: 0~20%
40125		Feedback degree: 1~9
40126		Control over, an integer of 16 bits,1 decimal point Range: 0~100%FS
40127		Control under, an integer of 16 bits,1 decimal point Range: 0~100%FS
Belt speed		
40181		Speed over, an integer of 16 bits, 3 decimal points, unit is 'm/s'. Range: 0.001~5.000m/s
40182		Speed under, an integer of 16 bits, 3 decimal points, unit is 'm/s'. Range: 0~2.500m/s
40183		Internal pulse speed, an integer of 16 bits, 3 decimal points, unit is 'm/s'. Range: 0.01~5.00m/s

Note:

1. All target flow rate, up limit flow rate, low limit flow rate and current flow rate use the same setting of flow rate unit and decimal point. When writing parameters, the unit of the flow rate must be in accord with that of instrument, while the decimal point written in can be different from that of instrument.

E.g. Given the unit of current flow rate is '5=T/h', setting value of decimal point is '2=1 decimal point'. Read command 03 reads out the floating point number of 40103 and 40104 is 23.4, which means the target flow rate is 23.4T/h; Here, you can use written command 16 to write the floating point number 123.456 in 40103 and 40104, so that the target flow rate will be 123.5 as 123.456 is rounded as 123.5.

2. As to the 32-bit variable, the command 06 for writing single register cannot be used. Otherwise, there is an error code 03.

E.g.

As to the target flow rate, the command 16 can be used while the command 06 can't be used. Besides, the register 40102 and 40103 must be written in at the same time.

3. As to the command 16 which would write many a registers, the instrument just support 2 registers at most, besides, those two registers just can be used by one variable. Otherwise, there is an error code 03.

E.g.

As to target flow rate, you must use command 16 to write the 40102 and 40103 at the same time. If you use command 06 just to write 40102, there will be an error code 03. If you use command 16 to write 40101 and 40102, there will also be an error code 03.

The 2nd and 3rd attention are the requirements to the PLC developer, which means that just one variable can be written at every Modbus communication.

7.3.4 Address Description (Write only)

Address	Bit	Description	
40401		1 = start measurement, 0 = stop measurement	
40402		1 = clear the current accumulative total, 0 = Don't clear	
40403		1 = clear the historical accumulative total number, 0 = Don't clear	
40410 Linear calibration	Bit0	1 = Start to linear calibrate	
	Bit1	1 = Single point linear calibrate(manual cal.)	
	Bit2	1 = exit calibration	
	Bit3~bit11	reserve	
	Note: Start to linear calibrate only when weighing stops and the instrument is on the standby screen.		
40411	Bit0	1 = control current increase 05mA	When both Bit0、 bit1 are 1, bit0 is priority.
	Bit1	1 = control current AO decrease 0.05mA	
	Bit2~bit15	reserve	
	Note	Only when weighing, and the control is manually.	
40412 (校皮)	Bit0	1 = start to tare.	
	Bit1	1 = confirm the tare	
	Bit2	1 = exit the tare	
	Bit3~bit7	reserve	
	Bit8~bit9	the cycle of tare=1~100.	
	Note	Only when weighing, and the control is manually.	
40413	Bit0	1 = start to calibrate	
	Bit1	1 = confirm the calibration coefficient.	
	Bit2	reserve	
	Bit3	1 = exit the cal.	
	Bit4~bit7	reserve	
	Bit8~bit15	the cycle of cal. =1~100.	
	Note	Only when weighing, and the control is manually.	
40414 Calibration 2	Bit0	reserve	
	Bit1	reserve	
	Bit2	1 = confirm the load weight input(now stop weighing, and wait for input the weight)	
	Bit3		
	Bit4~bit7		
	Bit8~bit15= higher 8 bit		
40415	Lower 16 bit		

7.3.5 Error Message

If there is an error, the slave will send the database about the error to the master. The feature of the database is to set the highest bit of the function code as “1”, meaning that the function code which is more than 127 is an error function code.

The format of the error code is as follows.

Address code: 1 bit

Function code: 1bit (the highest bit is 1.)

Error code: 1 bit

CRC code: 2bits.

The instrument responds and sends the following error code.

No.	Standard Modbus	Description
01	ILLEGAL FUNCTION	Invalid function code
02	ILLEGAL DATA ADDRESS	The indexing address is invalid. The common error is that the sum of data address and register number exceeds the range.
03	ILLEGAL DATA VALUE	The data sent here does not agree with the specification of slave.
09		Because of parameter conflict or condition insufficiency, the Modbus command cannot be accepted.

7.4 DP Module Setting

When using DP module, the communication setting of port is fixed as follows: 38400 baud rate, 8 data bits, 1 stop bit and no check byte, which cannot be changed at present.

7.5 Attention

The Parameter memorizer of UNI900B can be cleared for at most 200,000 times. When writing parameters from PLC or host machine to the instrument by serial port. Please pay attention to the writing times and avoid writing parameters frequently.

Attachment I Type of the Printer

This instrument supports the serial port stylus printer LQ-300K+II in Chinese of EPSON company. The serial port setting is 19200 baud rate, 8 data bits, and 1 stop bit.

Attachment II Description of Shift Output

There are three kinds of modes to control printing.

0. No print

1. Print every day automatically

Print the daily output of the last day at the beginning of the first shift every day.

2. Print every shift automatically

Print the output of the previous shift at the beginning of the next shift.

Attention: If the power is off at the shift time, the current data is not memorized. But the historical accumulation total has memorized the data. Besides, at the beginning of the production every day, if there is that very day record, it will be read out and the machine will go on producing at the base of that. If there is no record, the machine will create a new record.

E.g. 1: Shift time is as follows.

Shift time 1 00: 00: 00 Shift time 2 08: 00: 00

Shift time 3 16: 00: 00

Print every shift time automatically:

On January 14, 2009 at 00: 00: 00 The output of the 3rd shift on January 13, 2009 is printed.

On January 14, 2009 at 08: 00: 00 The output of the 1st shift on January 14, 2009 is printed.

On January 14, 2009 at 16: 00: 00 The output of the 2nd shift on January 14, 2009 is printed.

Print every day automatically:

On January 14, 2009 at 00: 00: 00 The daily output on January 13, 2009 is printed.

E.g. 2:

Shift time 1 00: 00: 00

Shift time 2 12: 00: 00

Shift time 3 16: 00: 00

Print every shift time automatically:

On January 14, 2009 at 08: 00: 00 The output of the 3rd shift on January 13, 2009 is printed.

On January 14, 2009 at 12: 00: 00 The output of the 1st shift on January 14, 2009 is printed.

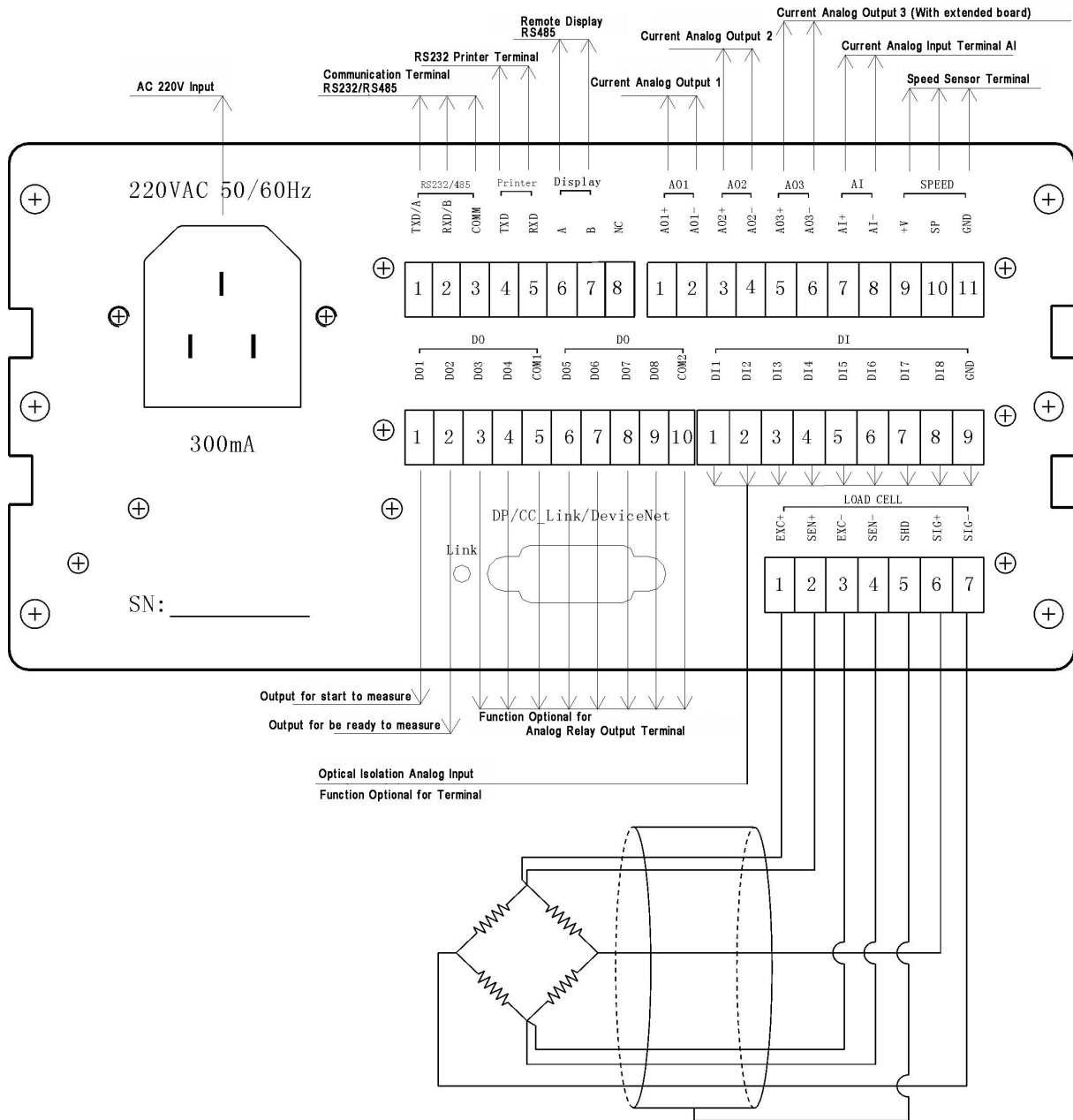
On January 14, 2009 at 16: 00: 00 The output of the 2nd shift on January 14, 2009 is printed.

On January 15, 2009 at 08: 00: 00 The output of the 3rd shift on January 14, 2009 is printed.

Print every day automatically:

On January 15, 2009 at 08: 00: 00 The daily output on January 14, 2009 is printed.

Attachment III UNI900B Wiring Diagram



Attachment IV ASCII Character

<ACK>	06H	T	54H
<ENQ>	05H	U	55H
<CR>	0DH	V	56H
<LF>	0AH	W	57H
0	30H	X	58H
1	31H	Y	59H
2	32H	Z	5AH
3	33H	a	61
4	34H	b	62
5	35H	c	63
6	36H	d	64
7	37H	e	65
8	38H	f	66
9	39H	g	67
A	41H	h	68
B	42H	i	69
C	43H	j	6A
D	44H	k	6B
E	45H	l	6C
F	46H	m	6D
G	47H	n	6E
H	48H	o	6F
I	49H	p	70
J	4AH	q	71
K	4BH	r	72
L	4CH	s	73
M	4DH	t	74
N	4EH	u	75
O	4FH	v	76
P	50H	w	77
Q	51H	x	78
R	52H	y	79
S	53H	z	7A

Attachment V Other Common Error

Symbol	Definition	Description	Default
#S3	Linear CAL Err	Linear Calibration Error When doing linearly feeder calibration, it doesn't meet the condition: the greater the output of AO is, the greater the flow rate is.	Indicate level
#S6	AI Error	The input of AI is less than 4mA or more than 20mA calibrated.	Indicate level
#S7	Comm.Err	Communication Error There is an error in the communication. Please check the serial port setting of the lower machine and instrument.	Indicate level
#S9	Flow Lim.Err	Flow rate Higher/Lower Limit Error There is a conflict between the setting values of flow rate high/low limit.	Indicate level
#SA	Free Fall Err	Free Fall Setting Error There is a conflict between the setting value of fast and slow free fall.	Indicate level
#SB	W-Lim.Err	Weight Limit Error There is a conflict between the setting values of weight density (load) under/over.	Indicate level
#SC	Flow Set Over	The setting value of the parameters relative to flow rate cannot exceed 9999t/h.	Indicate level
#SD	Cont.Lim Err	Control Limit Error On measurement, the control current output cannot exceed the higher/lower limit value.	Indicate level
#SE	Speed Limit Err	Speed Limit Error On measurement, the current speed cannot exceed the higher/lower limit value.	Indicate level
#SF	Para. Set Err	Parameter Setting Error In non-linear parameter setting, the load must satisfy the order from little to great.	Indicate level
#E6	Ext.Input Err	External Input Error When selecting external manual/auto control, there is no corresponding DI. There is no manual or auto control input or there are neither two inputs at the same time.	Indicate level

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