Automatic Checkweigher

User's Manual

Model no.:C401A-60K

Our company reserved the right to update user's manual without additional notice to make perfect for customers. Thus please visit our website or contact with our service person to get update information.

Website：http://www.szgmt.com.cn

Contents

1.Information

C401A-60K Automatic checkweigher are suitable for those applications where heavier loads need to weighed, such as food, beverage, chemical, packaging industries and logistics application.

Its well-specified standard design can match with most user's requirements for wide range of weighing capacity and various packaging size.

1.1.Characteristics

- Bag or case weighing up to 60kgs
- High visibility 10inch TFT screen with graphic user interface
- 1,000,000pcs weight value for production statistics
- Suitable for integration in almost any production line
- Excellent accuracy, especially with flexible packaging
- Weigh products precisely without inputting various setting
- Fast and simple to make product identification
- Continuously variable belt speed control
- Automatic measuring time adjustment
- Various monitoring facilities

1.1.1.Machinery

- Belt approved for food processing (FDA)
- Designed for control of packaged and unpackaged goods
- Easy integration in existing production lines
- Anti-vibration legs with height adjustment
- Strong mild steel structure, stainless steel(optional)
- Rapid change of belts
- Adjustable belt speed

1.1.2.Electric parts

- Heavy duty conveyor components, high quality electronics
- Automatic weighing compensation and zero tracking
- Statistics programs for evaluation
- Based on 32 bit high speed CPU
- Data storage and data printout ready
- Multi-product memory(100)
- Access protection by password
- Buzzer and Lamp alarming

1.2 Intended use

- The device can be used for checking the weight of packaged foodstuffs or goods.
- It can be used in industrial or commercial fields.
- It can be used in potentially explosive areas.
- The goods to be checked must be fed to the scales via the device transport belt.
- The packages need to be fed continuously to the device with regular intervals between the packages.
- The packages must be positioned on the centre of the belt when they are transported over the scales.

1.2.1. Operating conditions

Do not install or commission equipment until the operating conditions have been fulfilled:

- Power supply: 180-260VAC, 50Hz±10%
- Temperature: -10~40℃
- Maximum humidity: 90% R.H without dew
- Vibration-free installation area

Vibrations can affect measurements made by the scales. During production, avoid, for example, fork-lift truck activity near the device.

- Align horizontally

To ensure the precision of the scales, it is of absolute necessity that the device is aligned horizontally.

- Draft

Drafts can affect the measurements made by the scales. If required, use the hood over the weighing belt.

- Air convection

Free air convection must be able to form around the unit in order to avoid inadmissible heating.

- Electrical charge

Packages may not be charged electrically when being transported to the transport belts.

- Trained personnel:

Only trained personnel can maximize the performance of the device and avoid risks.

- Written permission for changes:

Modifications to the devices require our prior written consent.

Please contact us or our competent customer service points if you have any doubts concerning the practical application of these conditions.

1.2.2. Warning notics

- Conveyor belts

Do not place any objects on the transport belts and do not use the transport belts as a storage facility.

- Rotating parts

The belt drive contains rotating parts. To avoid body part, hair or clothing being caught and pulled into the machine, follow the instructions below:.

1) Wear closely fitting clothes.
2) Do not wear necklaces, ties, or similar accessories.
3) Wear a hair net if you have long hair.

- Warranty:

We do not accept any liability for damages resulting from:

1) Non-compliance with our operating conditions and user's manual.
2) Unauthorized installation.
3) Defective electrical installation by the customer.
4) Structural changes to our equipment.
5) Incorrect operation.
6) Backup not executed.
7) Natural wear and tear.

Note: Guarantee is not given if defects/damage occur as a result of utilization by person we have not authorized.

Check that our products are handled correctly and repeat training if necessary.

2. Installation

2.1. Outward appearance

P1 Checkweigher

1. Tower Light
2. 10 " touch screen
3. Electric control box
4. Joint box for load cells
5. Adjustable support
6. Power switch
7. Weighing belt
8. Photoelectric switch
9. Load cell cover
10. Electronic motor cover

2.2. Specification:

Model no.	C401A-60K
Capacity	1～60Kg
Devision	2g（0.002Kg）
Converter	5～55Hz
Belt width	600mm
Platform width	710mm
Platform length	S-1000mm；L-1200mm
Belt speed	6～66m / minute
Product size	L：S-100～800mm；L-100～1000mm
	W：max. 600mm
Display	10inch colorful touch screen (16：9)
Memory	100pcs products
Communication	ModBus RTU、RS485、TCP/IP、USB
Input	6 low level
Output	8 relay output
Protection	IP30
Temperature	0℃～40℃
Humidity	≤ 90%RH without dew
Power supply	AC90～230V，50/60Hz，less than 1000VA
Control box size	320mm(L) x 105mm(W) x 420mm(H)
Checkweigher size	1100/1300mm(L) x 968mm(W) x 450/600/750±30mm(H)
Accuracy	±4g（≤40pcs/minute）±8g（40～60pcs/minute）
Material	Platform：Stainless steel；Others：Carbon steel

2.3. Machinery

1) Users need release the screws on load cells for weighing application;
2) Adjust the weight platform in level no more than 0.5 oblique degree；
3) Lock the foot screws to ensure the checkweigher stability;
4) Put the checkweigher about 10mm between the front input and back output;
5) Keep the input, weight platform and output in same height.

Note: Users can install the controller box on both side of the checkweigher.

2.4. Electronic parts

Please put through photoelectric switches, load cells and tower lights, then connect with input and output, serial port and electronic motor, then power on.

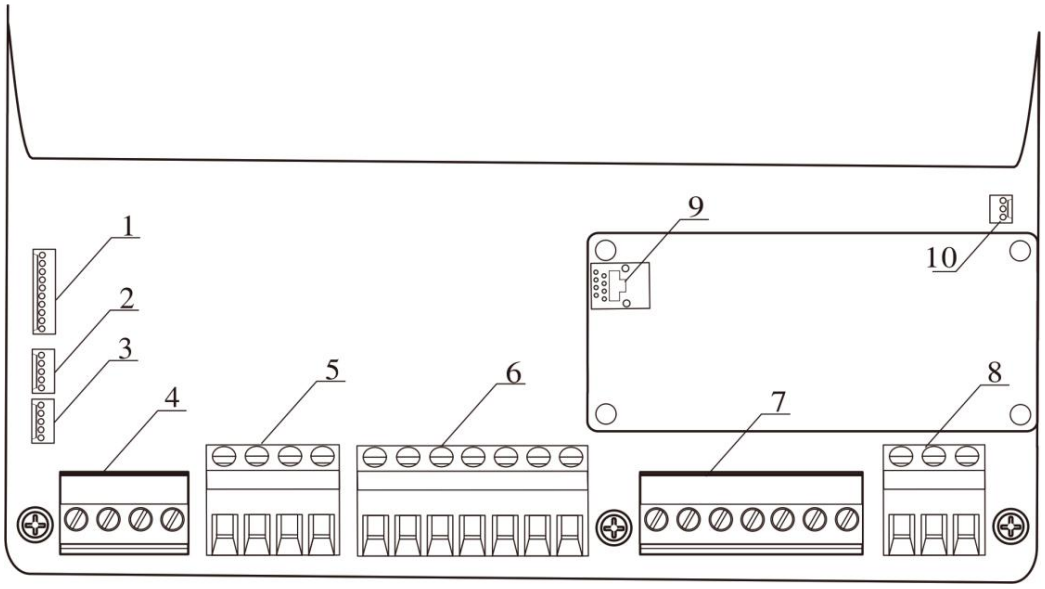
Note:

★The power must be off for any connection and check before power on again.

★Initial serial port is RS485，so 485(A) need connect with 485(A) or 485(+)，and 485(B) need connect with 485(B) or 485(-)

★I/O input Vil（DC0V), please do not connect with high voltage or VAC.

★Inside electric relay.



P2 Weighing controller board

No.	Function
1	Communication ports for touch screen
2	Self-defined output 5-8（connect with relay 2）
3	Self-defined output 1-4（connect with relay 1）
4	Checking photoelectric ports
5	Weighing state lights connection（from left to right turns: black, green, yellow and red）
6	Self-defined input 1-6
7	Load cell connection
8	RS-485 serial port
9	Ethernet Modbus TCP/IP
10	Converter connection

2.5. Communication connection

Photoelectric switch:

24V+：DC24V+

GND：DC24V-

PIN8：Input photoelectric signal at the end of the checkweigher

PIN7：Input photoelectric signal at the beginning of the checkweigher

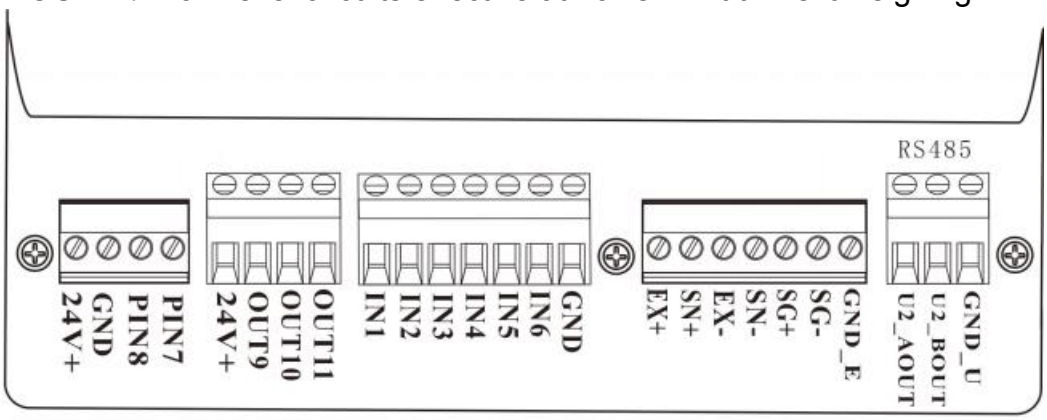
Alarm light：

24V+：DC24V+，max. 2VA

OUT9：Low-level circuits effective at upper limit till next weighing

OUT10：Low-level circuits effective at standard weight till next weighing

OUT11：Low-level circuits effective at Lower limit till next weighing



P2-3 Communication connection

Alarm light：

IN1：Input to run in stop state

IN2：Input to stop in running state

IN3：Clear alarm

IN4：Finish to reject at upper limit

IN5：Finish to reject at lower limit

IN6：None

GND：I/O input

Load cell：

EX+：Excitation+，SN+：Sense+，EX-：Excitation-，SN-：Sense-，

SG+： Signal+，SG-：Signal-

RS485：

U2_AOUT：RS485 communication A

U2_BOUT：RS485 communication B

GND_U：RS485 communication GND

2.6. Electronic connection

Relay connection define as follows:

P2-4 Relay connection

D1：Run
D2：Stop
D3：Reject in upper limit
D4：Reject in lower limit
D5：Standard weight instruction
D6：Unqualified weight instruction
D7：Alarm
D8：Finish batch times

Power and motor connection define as follows:

P2-4 Power and motor connection

Power output：

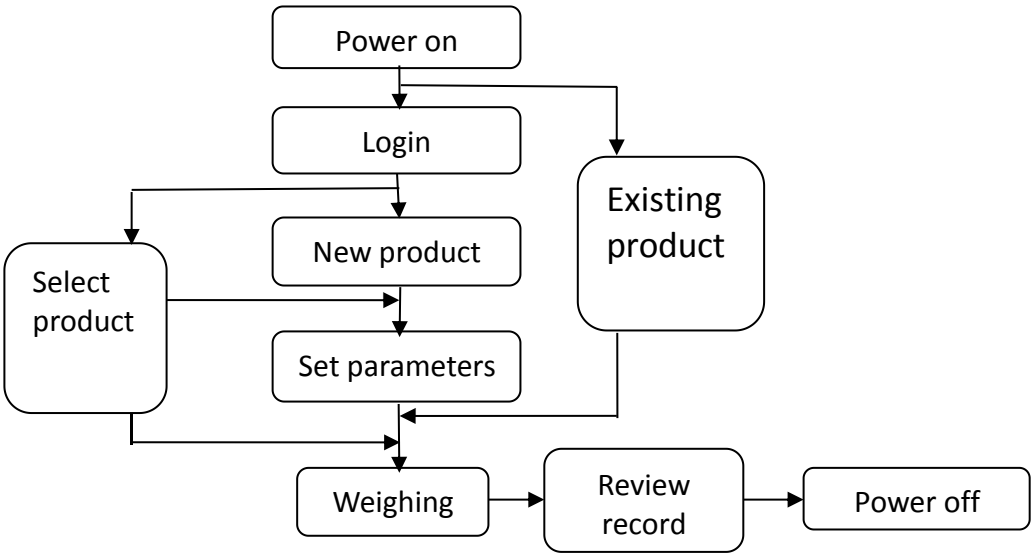
N：Neutral wire
G：Ground wire
L：Life wire

Converter output：

U：Connect with motor U port
V：Connect with motor V port
W：Connect with motor W port

3. Instruction of operation

3.1. Subsection



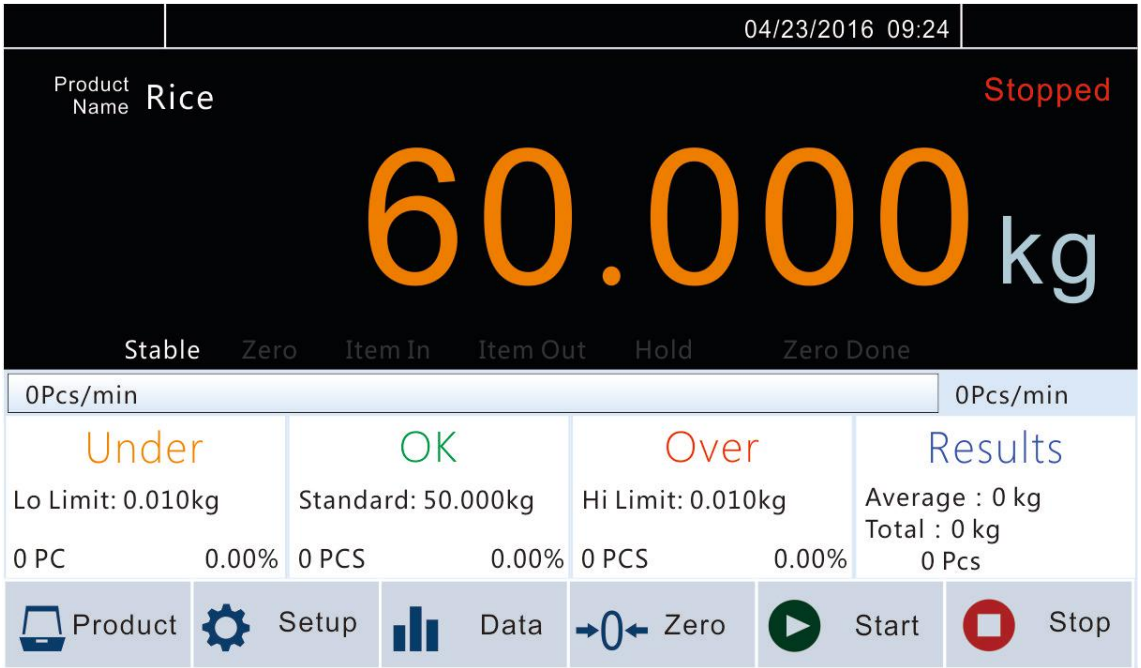
P3 Operation sketch

3.2. Daily operation

Main manu are used for daily operation to run or stop checkweigher, set parameters and display weighing result.

3.2.1. Switch on device

Please turn switch to "**1**" position after power is on, then the touch screen will display following initial interface:



P4 Initial interface

3.2.2. Zeroing

Please press “Zero” to make the weight display to be zero if some weight value are displayed on touch screen.

3.2.3. Start

Please press “Start” to run the checkweigher.

3.2.4. Stop

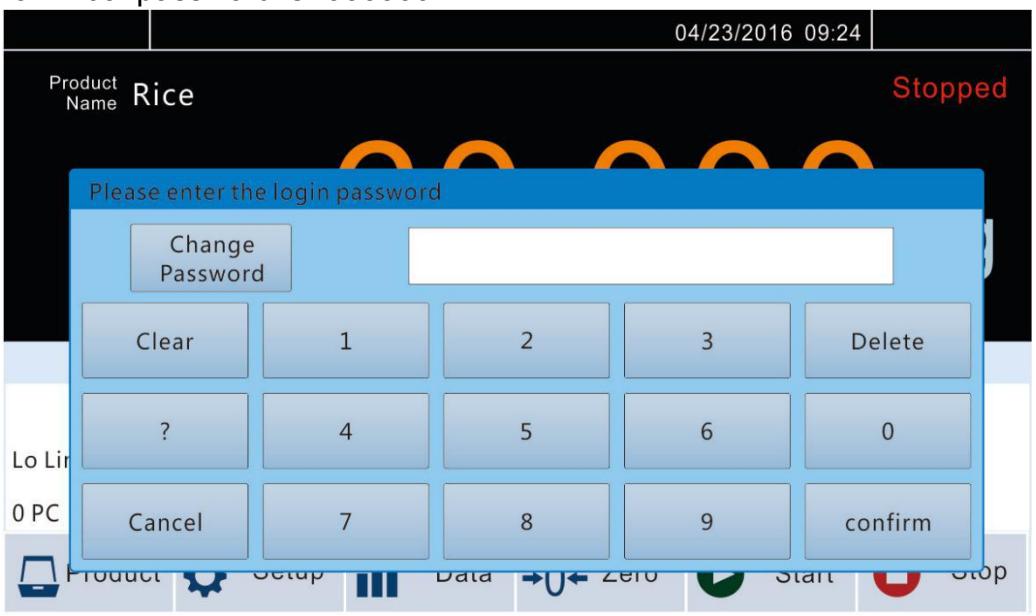
Please press “Stop” to stop the checkweigher.

3.2.5. Power off

Please turn switch to “**0**” position, then break the power supply.

3.3. User load

Please press “Product” or “Set up” in initial interface to input 6 digits password which initial password is “000000”.



P5 Password

3.4. Production selection

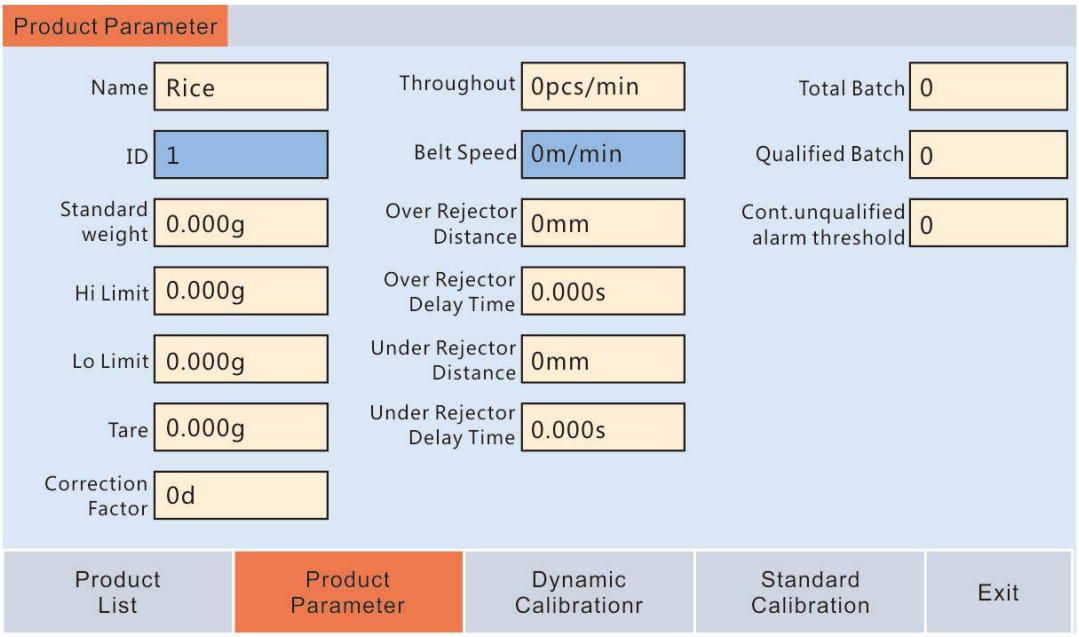
P6 Product list

3.4.1. Select products

Please press “Product” to enter “Product list” interface, then select target product and press “Select” to confirm, then press “Exit” to return main interface, and then press “Start” to run the checkweigher.

3.4.2. Add new products

Please press “Add” to enter “Product parameter” interface to set as follows:



P7 Product parameter

3.4.3. Revise parameters

Please select product ID in product list and press “Product parameter” to revise parameters.

★ Standard weight is net weight, High limit and Low limit as need, Tare is package weight.

★ Product ID will be automatically in turn and belt speed also is automatically showed by system, no need fill.

★ Correction factor will be calculated by system, so the user had better don’t change the value to avoid more difference with actual weight.

3.4.4. Delete products

Please select product in product list and press “Delete” to delete the product.

3.5. Parameter calibration

The user need proceed standard calibration and dynamic calibration on checkweigher to ensure weight value correct.

★ The user must calibrate in stop state and no any product on weighing belt.

★ The weighing platform should be empty in stable state, then press “Zero” to next after touch screen display “0” and “Stable” light is on.

P8 Standard calibration

3.5.1. Standard calibration

Please press “Standard Calibration” in product list to calibrate as display instruction on touch screen and press “Exit” to return main menu.

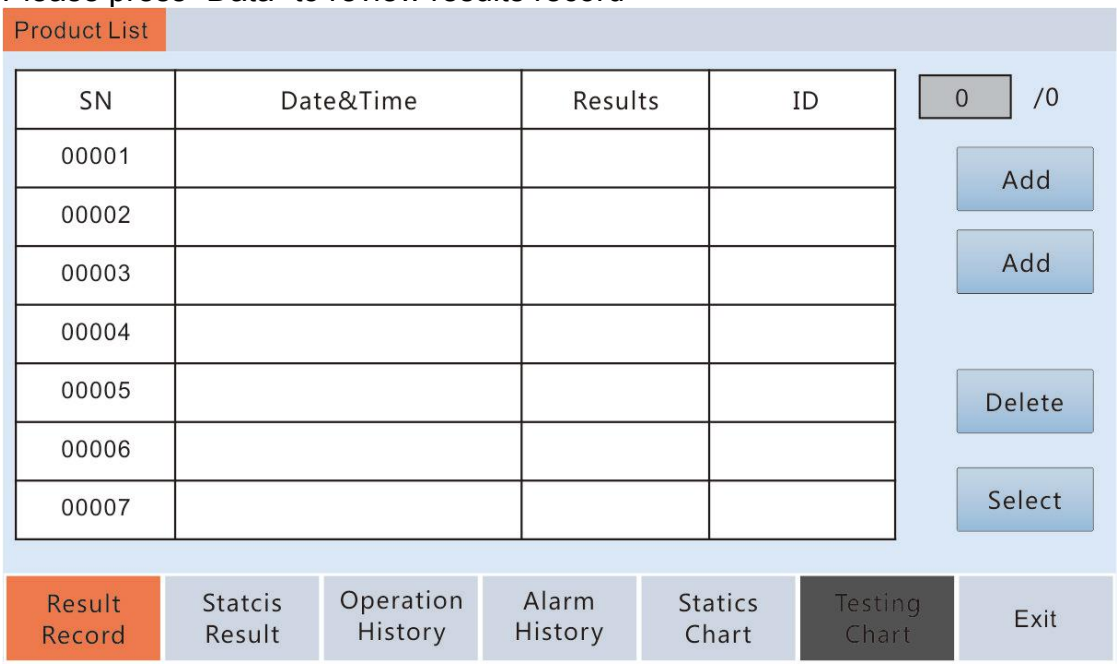
3.5.2. Dynamic calibration

Please press “Dynamic Calibration” in product list to calibrate as display instruction on touch screen and press “Exit” to return main menu.

P9 Dynamic calibration

4. Review record

Please press “Data” to review results record



P10 Results record

4.1. Results record

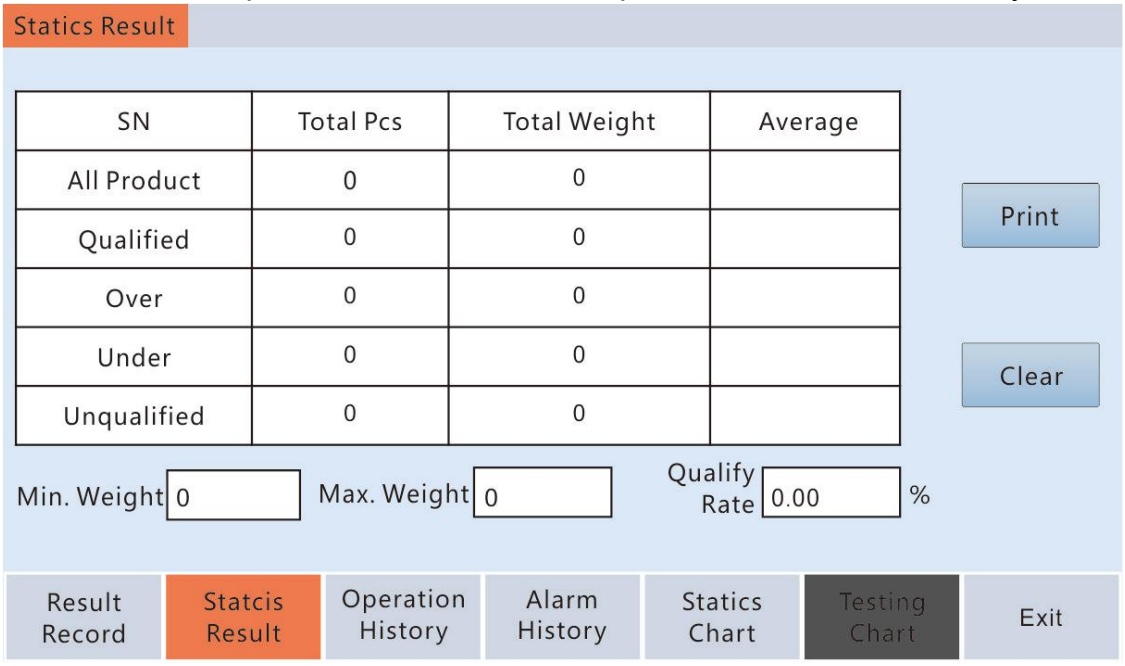
The user can review Date&Time, Results and product ID and also can export data to USB by pressing “Export” ； press “Clear” to delete all of results；press “Page down” or “ Page up” to review.

★ Please export or delete some results to review fast.

4.2. Statistics result

The user can review “Statics Result” and also can “Print” or “Clear” them.

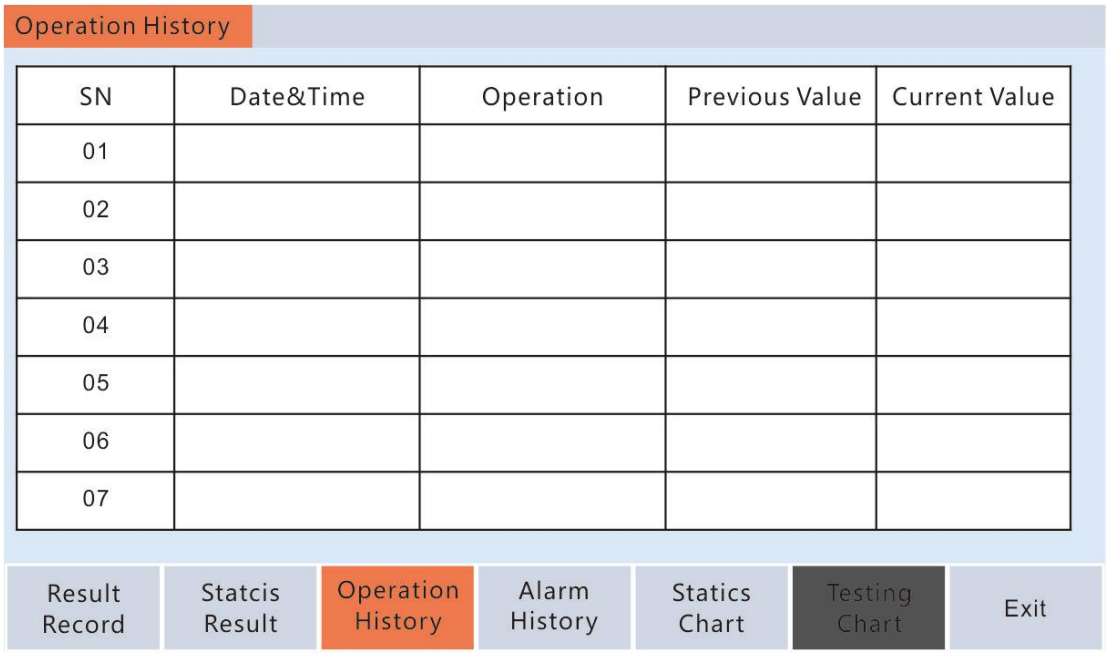
★ Please delete previous results for a new product to calculate correctly.



P11 Statics Result

4.3. Operation history

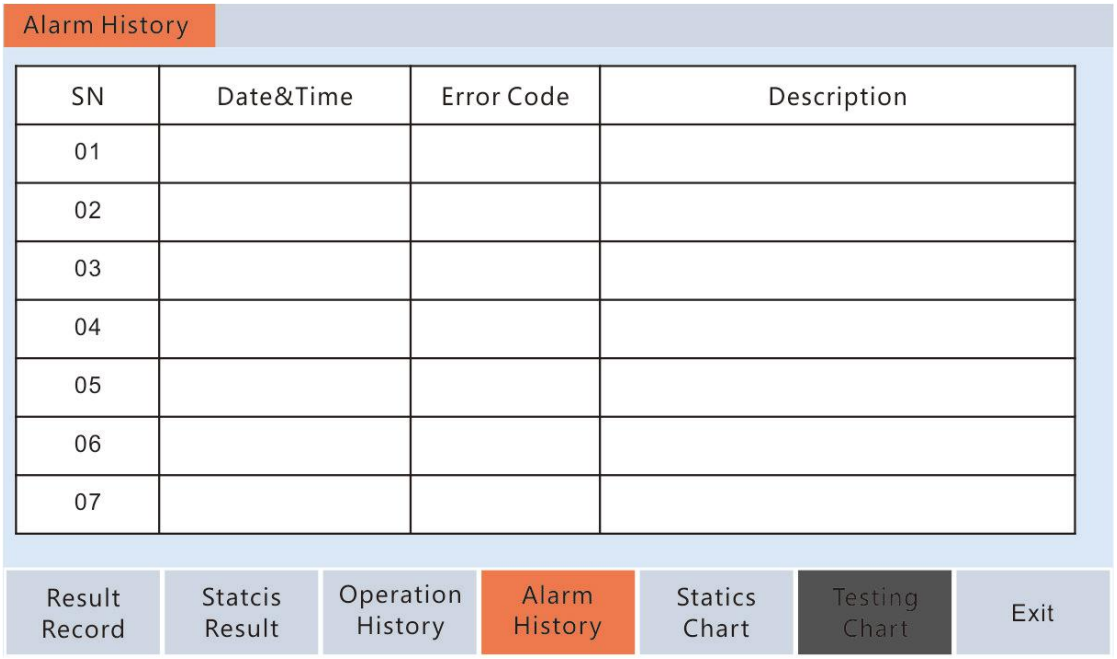
Please press“Operation History”to view operation, previous and current value.



P12 Operation history

4.4. Alarm history

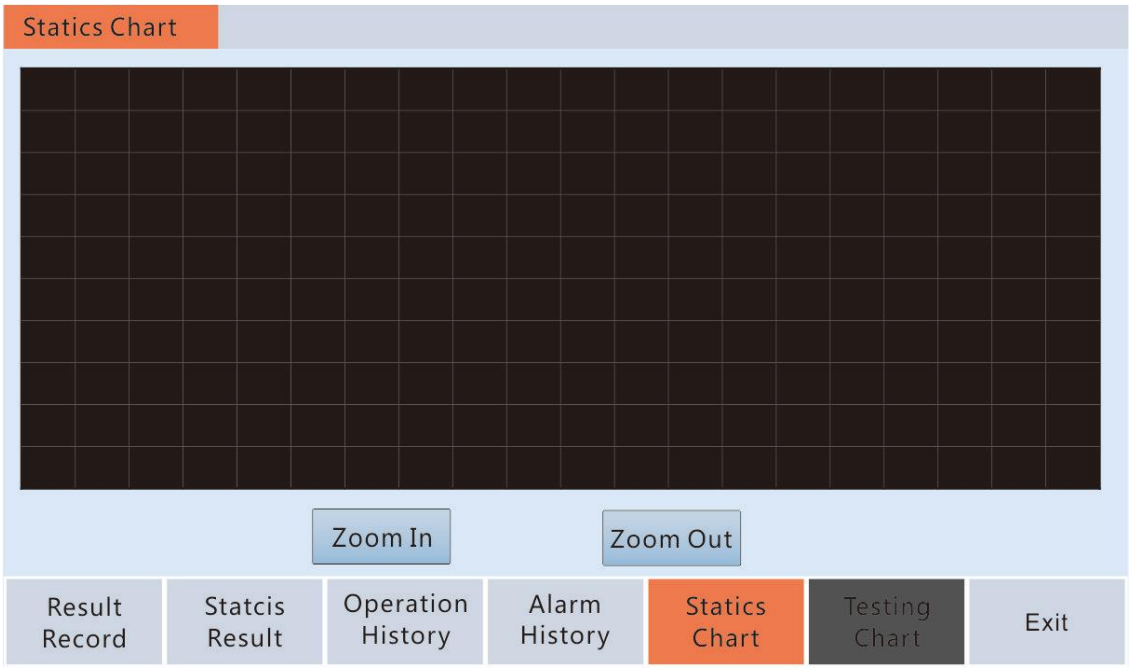
Please press “Alarm History ” to view Date&Time, Error Code and Description.



P13 Alarm history

4.5. Statistics chart

Please press “Statics Chart” to view weight detail chart.



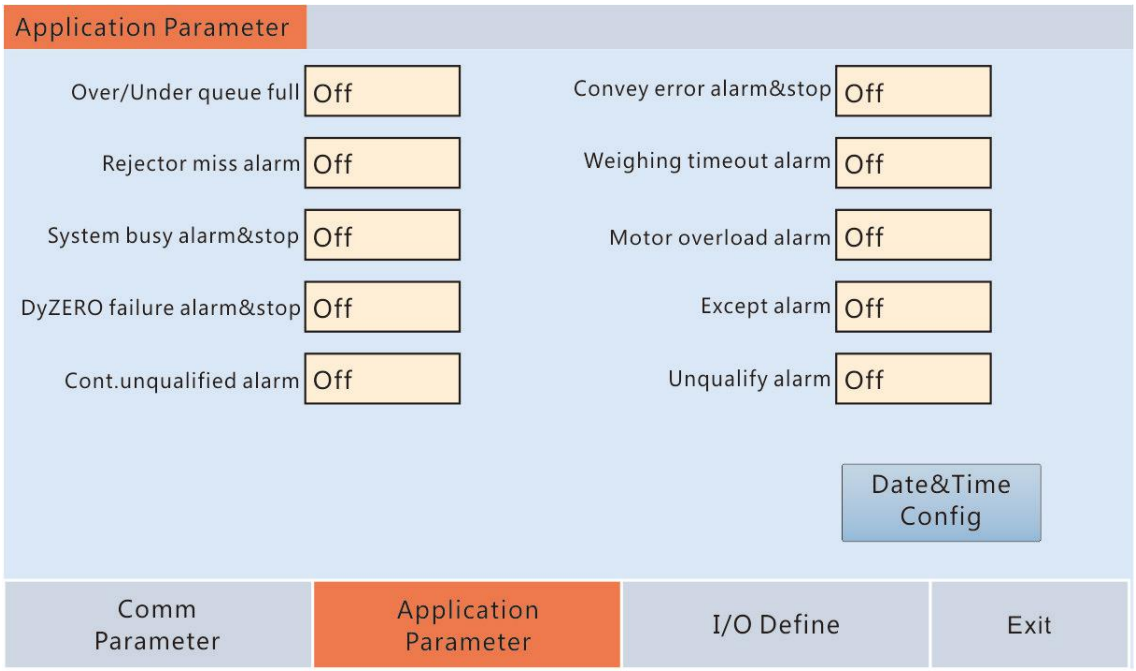
P14 Statistics chart

5. Communication and I/O

5.1. Parameters

Please press “Set up” to set communication parameters（**RS485** or **TCP/IP**） to communicate with host computer or printer.

★ModBus address



P17 Communication parameter

5.1.1. ModBus

The checkweigher can communicate with host computer by RS485，optional ModBus-RTU and print，but data form 7-E-1 is fixed to print, not communicate byModBus-RTU

No.	Range	Explanation
Scale no.	1～245	Checkweigher ID
Mode	ModBus-RTU; print	Communication mode and function
Baud rate	9600；15200；38400；57600；115200	Communication speed
Data form	7-E-1(print）;8-E-1;8-N-1;	Communication form
DWord Type	High in the front；Low in the front	Easy communication

★ If host computer communicate with more checkweighers, checkweigher ID should not be same, which max. value is 245.

5.1.2. Ethernet

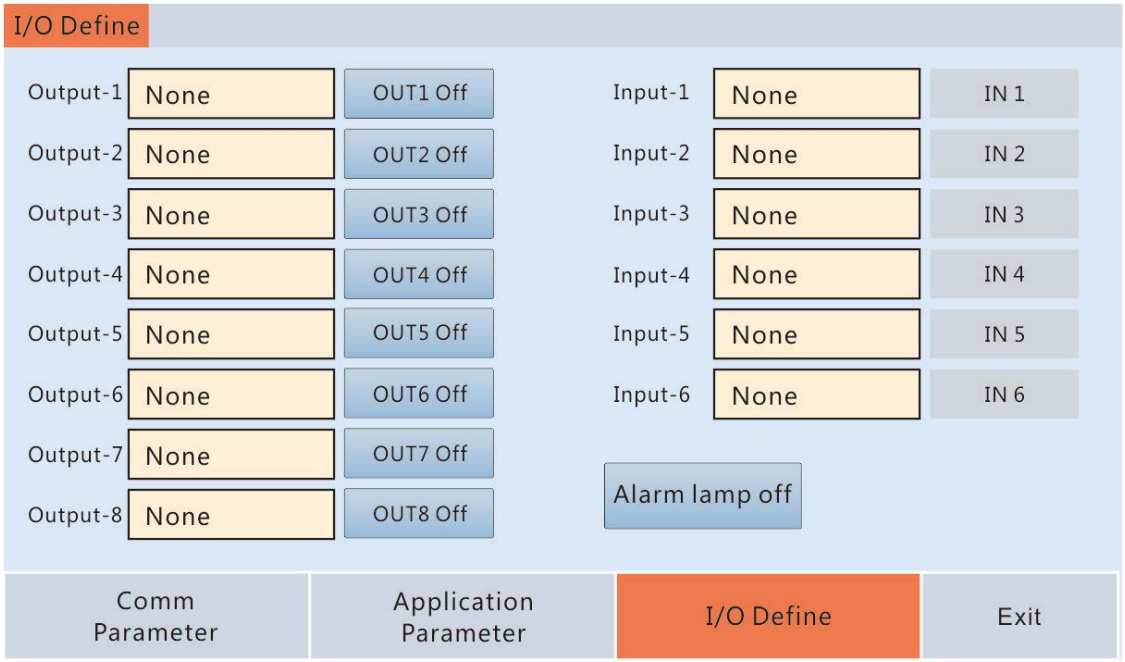
The user can set ID no. and IP address to communicate checkweigher with other equipment by TCP/IP, which IP address on checkweigher and host computer should be in same section.

★ Host computer also can communicate with more checkweighers by changing port no, which max. value is 65535.

5.1.3.MAC address

MAC address can’t be changed, which means checkweigher identifier code.

5.2. Input/Output testing



P18 IO define

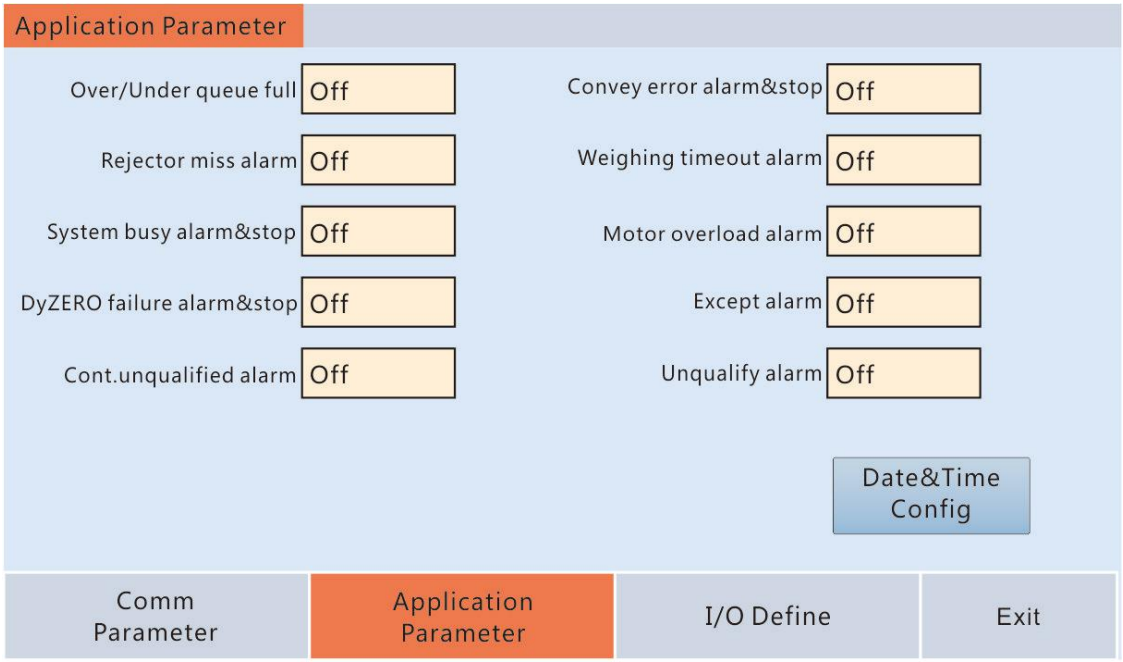
Please press “IO Define” to enter IO testing interface for 6inputs and 8outputs. Then press output 1-8 in turn to check. The user can press “Alarm lamp off” to see the lampl is bright or not. If not, please check the cable connection.

The user can test input by signal low level（**DC0V**）and **IN1-5** will bright. The user need test photoelectric input in main menu to see **Item In** and **Item Out** bright or not.

Input no.	Define	Output no.	Define
I1	Run	O1	Run
I2	Stop	O2	Stop
I3	Clear alarm	O3	Over rejection
I4	Finish over rejection	O4	Under rejection
I5	Finish under rejection	O5	Qualified
I6	None	O6	Unqualified
		O7	Alarm
		O8	Finish batch times

6. Stop alarm

Please press “Application parameter” to set alarm request, then the checkweigher will alarm automatically or stop, so the user need press “Clear Alarm” or input “Clear alarm” signal to start again. Alarm message will be stored in “Data”—“Alarm History”



P19 Application parameter

7. Attachment

1.ModBus address

★Other parameters occupy 2 registers except state parameters. The following list only show the first register address.

★The product ID on touch screen add 1 than the ID in the controller inside.

PLC add.	Module add.	Parm	Memo	
Main menu				
40001	0000	Module State 1	.0	1：weight positive overflow
			.1	1：load cell positive overflow
			.2	1：weight negative overflow
			.3	1：load cell negative overflow
			.4	1：weight 0：positive 1：negative
			.5	1：zero
			.6	1：stable
			…	reserve
			.12	1: stable state calibration
			.13	1：finish zero calibration
			.14	1：finish gain calibration
			.15	reserve
40002	0001	Module State 2	.0	1：run 0：stop
			.1	1：high limit
			.2	1：low limit
			.3	1：standard weight
			.4	1：over
			.5	1：under
			.6	1：OK
			.7	1：busy
			.8	1: IO testing
			.9	1：belt calibration
			.10	1: dynamic calibration
			.11	1: item in
			.12	1: item out
			.13	1: hold
			.14	1: zero
			…	reserve

40007	0006	weight	in stop：present weight； in running：weighing result
40539	0538	over ratio	
40541	0540	under ratio	
40551	0550	error	1：busy
			2：not reject in time
			3：continuous unqualified
			4：finish total batch times
			5：finish qualified batch times
			6：convey error
			9：motor overload
			10：dynamic zero failure
40563	0562	actual weighing speed	passed product quantity per minute on checkweigher
Product parameter			
40101	0100	ID	Read：present product ID； Write：write in new product ID
40103	0102	Standard weight	Product weight value < max.capacity
40105	0104	High limit	High limit value <Product weight value
40107	0106	Low limit	Low limit value <Product weight value
40109	0108	Tare	Package weight value
40111	0110	Throughout	Checking speed
40647	0646	Best speed	Actual best speed in running state
40113	0112	Correction factor	Correction factor range: XXX～255d
40215	0214	Total batches	Total production quantity range: 0～999999pcs
40217	0216	Qualified batches	Qualified product quantity range: 0～999999pcs
Statics result			
40501	0500	Qualified total pieces	
40503	0502	Qualified total weight	
40505	0504	Over total pieces	
40507	0506	Over total weight	

40509	0508	Under total pieces	
40511	0510	Under total weight	
40513	0512	Unqualified total pieces	
40515	0514	Unqualified total weight	
40517	0516	Total pieces	
40519	0518	Total weight	
40521	0520	Max.weight	
40523	0522	Min.weight	
40527	0526	Qualify rate	
40529	0528	Qualified average weight	
40531	0530	Over average weight	
40533	0532	Under average weight	
40537	0536	Total average weight	
Checkweigher state			
00001	0000	weight positive overflow	
00003	0002	weight negative overflow	
00005	0004	weight positive / negative signal	
00006	0005	Zero	
00007	0006	Stable	
00008	0007	Hold	
00011	0010	Qualify	
00012	0011	Under	
00013	0012	Over	
00014	0013	Busy	
00015	0014	Alarm	
00016	0015	Batches finished	
00031	0030	Start	
00032	0031	Zeroing	
00033	0032	Clear alarm	
00034	0033	Print	
00035	0034	Clear total	
00036	0035	Clear record	

2. Converter parameters

Model no: MITSUBISHI / FR-D720S-0.75K-CHT

Pr.79=0

Pr.340=10

Pr.117=2

Pr.118=96

Pr.119=0

Pr.120=2

Pr.121=9999

Pr.122=9999

Pr.123=9999

Pr.124=1

Pr.338=0

Pr.339=2

Pr.342=1

Pr.549=1

Pr.551=9999

3. Dimension: