

ID551PN WEIGHING CONTROLLER

OPERATION MANUAL



2017/03
Rev 1.00

Contents

Chapter 1 Introduction	4
1.1 Overview.....	4
Chapter 2 Keypad and Setup Menu.....	5
2.1 Keypad	5
2.2 Top Menu.....	6
2.3 Setup.....	6
2.3.1 1#Channel Scale.....	6
2.3.2 2#Channel Scale.....	8
2.3.3 3#Channel Scale.....	9
2.3.4 4#Channel Scale.....	11
2.3.5 Serial Port.....	12
2.3.6 Network Configuration	13
2.3.7 Maintenance	14
Chapter 3 Serial Port Application	15
3.1 Serial Port and Ethernet continuous output weight format.....	15
3.2 Continuous output A/D Code format	16
3.3 Demand Input / Output.....	16
3.4 MODBUS-RTU1 & MODBUS-TCP1 Data Format	18
3.5 MODBUS-RTU2 & MODBUS-TCP2 Data Format	22
3.6 PROFINET Data Format	24
Chapter 4 Hardware.....	26
4.1 Interface Specification	26
4.2 Housing Size.....	27
Appendix 1 Calibration.....	28
Appendix 2 Display Message & Error Code.....	29

Change Log

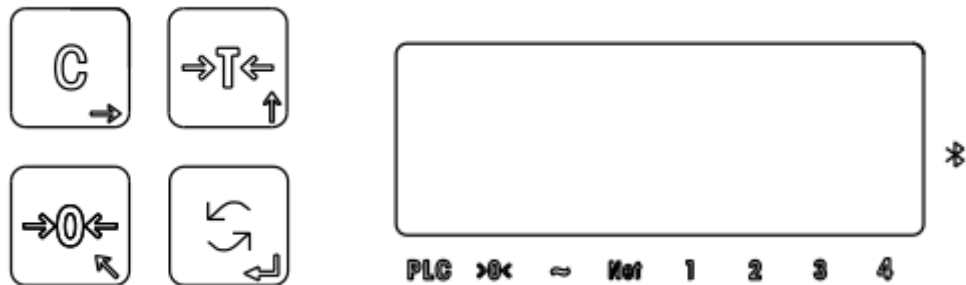
Version	Change	Date
V1.00	1 st Version	2017/03

Chapter 1 Introduction

1.1 Overview

- Four analog load cell I/F, support up to eight 350 Ohm load cells
- Up to 150,000 display Division
- **200Hz** weight updating speed
- 6-bit LED segment display
- One serial ports
 - RS232 /RS485
- 100M LAN port
 - TCP, MODBUS-TCP
- Support PROFINET, Dual network, Switch function
- Pushbutton Zero, Auto Zero
- Pushbutton Tare
- Motion Checking
- Keyboard Lock / UnLock
- MODBUS、PROFINET remote calibration function
- Calibration
 - 2-point Calibration or Cal-Free Calibration
 - Local Calibration or Remote Calibration (via MODBUS-RTU,MODBUS-TCP, PROFINET PLC communication)
- Support PC software and Andriod phone APP for parameters upload, download and save, and calibrate scale, weight display.
- **Power In** : 85-264VAC, 49-61Hz
- **Operating Environment**
 - Operating Temperature: -10°C~40°C
 - Humidity: 10%RH~95%RH, non-condensing

Chapter 2 Keypad and Setup Menu

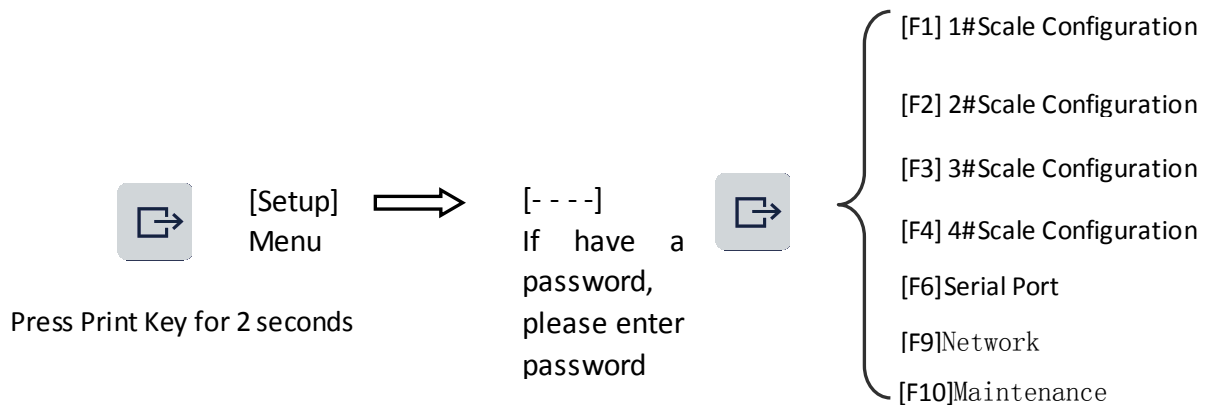


2.1 Keypad

Key	Operation	Set Menu	Key	Operation	Set Menu
	Zero	Go back to the previous menu and exit		Clear Key	Reduce key, right key, and select the last parameter
	Tare	Add key, left key, and select the next parameter		Short press switch display channel, long press enter setting menu	Confirm input value. Confirm exit

Cursor indication	Functionality
PLC	Indicates the communication status of ModbusRTU、ModbusTCP、Profinet flicker: offline, light: ModbusRTU、ModbusTCP、Profinet. At least one communication is normal
>0<	Light: Scale in center of zero($\pm 1/4$ division)
~	Light: Scale in motion mode
Net	ON: Scale in Net Mode
1、2、3、4	The current display and indicator represent channel number
	Not bright: no Bluetooth module installed flicker: Bluetooth waiting for connection light: Bluetooth Connected

2.2 Top Menu



2.3 Setup

2.3.1 1#Channel Scale

[1.1] Increment Size

0 (0.001), 1 (0.002), 2 (0.005), 3 (0.01), 4 (0.02), 5 (0.05),
6 (0.1), 7 (0.2), 8 (0.5), 9 (1), 10 (2), 11 (5),
12 (10), 13 (20), 14 (50), 15 (100)

[1.2] Capacity

Sets the maximum weighing of the scales, with default value 60

[1.3] Calibration Mode

2-P: two point calibration mode ,Only support [1.4] (Zero Point)& [1.6] (End Point)

CALFrE: calibration without weighing added

[1.4] Zero Point Adjustment

See appendix 1.

[1.6] End-Point Calibration

See appendix 1.

[1.7] CalFree Block

[1.7.1] Load Cell Capacity

Input the load cell capacity

[1.7.2] Number of total load cells

Input total number of load cells in this scale

[1.7.3] Number of working load cells

Input the number of working load cells in this scale

[1.7.4] Load Cell Sensitivity

Input the sensitivity of load cell, in general, It is 2mV/V or 3mV/V

[1.7.5] Sensitivity calibration

A test weight is loaded to calibrate the sensor sensitivity, and the method reference End Point

[1.8] Filter

0(lowest), 1, 2, 3, 4, 5,18, 19(Highest)

[1.9] Pushbutton Zero Range

0 – Disable Pushbutton Zero

2, 5, 10, 20, 30, 40, 50: zero scale range is 2%, 5%, 10%, 20%, 30%, 40%, 50% of capacity

[1.10] Motion Check [3.0d]

0 –Disable motion check

0.1~9.9 –Enable motion check

[1.11] Auto Zero Range

0 –Disable Auto Zero

0.1~9.9 - 0.1d - 9.9d, Enable

When set to >0, the auto zero tracking is within $\pm 10d$

[1.12] Auto Zero Speed

0 – Disable Auto Zero

0.1~9.9 - Enable Auto Zero, Speed is **(0.1~9.9)d/second**

[1.13] Tare

0 – Disable Tare

1 – Enable Tare

[1.14] Application Mode

0 – Weight mode

1 –Dynamometry mode

[1.A]

[1.A.1]] : View zero adjustment ADC code

[1.A.2]] : View span adjustment ADC code

[1.A.3]] : View span adjustment weight value

[1.A.4]] : Change or Enter zero adjustment ADC code

[1.A.5]] : Change or Enter span adjustment ADC code

[1.A.6]] : Change or Enter zero adjustment weight value

2.3.2 2#Channel Scale

[2.1] Increment Size

0 (0.001), 1 (0.002), 2 (0.005), 3 (0.01), 4 (0.02), 5 (0.05),
6 (0.1), 7 (0.2), 8 (0.5), 9 (1), 10 (2), 11 (5),
12 (10), 13 (20), 14 (50), 15 (100)

[2.2] Capacity

Sets the maximum weighing of the scales, with default value 60

[2.3] Calibration Mode

2-P: two point calibration mode ,Only support [2.4] (Zero Point)& [2.6] (End Point)

CALFrE: calibration without weighing added

[2.4] Zero Point Adjustment

See appendix 1.

[2.6] End-Point Calibration

See appendix 1.

[2.7] CalFree Block

[2.7.1] Load Cell Capacity

Input the load cell capacity

[2.7.2] Number of total load cells

Input total number of load cells in this scale

[2.7.3] Number of working load cells

Input the number of working load cells in this scale

[2.7.4] Load Cell Sensitivity

Input the sensitivity of load cell, in general, It is 2mV/V or 3mV/V

[2.7.5] Sensitivity calibration

A test weight is loaded to calibrate the sensor sensitivity, and the method reference End Point

[2.8] Filter

0(lowest), 1, 2, 3, 4, 5,18, 19(Highest)

[2.9] Pushbutton Zero Range

0 – Disable Pushbutton Zero

2, 5, 10, 20, 30, 40, 50: zero scale range is 2%, 5%, 10%, 20%, 30%, 40%, 50% of capacity

[2.10] Motion Check

0 –Disable motion check

[3.0d]

0.1~9.9 –Enable motion check

[2.11] Auto Zero Range

0 –Disable Auto Zero

0.1~9.9 - 0.1d - 9.9d, Enable

When set to >0, the auto zero tracking is within $\pm 10d$

[2.12] Auto Zero Speed

0 – Disable Auto Zero

0.1~9.9 - Enable Auto Zero, Speed is **(0.1~9.9)d/second**

[2.13] Tare

0 – Disable Tare

1 – Enable Tare

[2.14] Application Mode

0 – Weight mode

1 –Dynamometry mode

[2.A]

[2.A.1] : View zero adjustment ADC code

[2.A.2] : View span adjustment ADC code

[2.A.3] : View span adjustment weight value

[2.A.4] : Change or Enter zero adjustment ADC code

[2.A.5] : Change or Enter span adjustment ADC code

[2.A.6] : Change or Enter zero adjustment weight value

2.3.3 3#Channel Scale

[3.1] Increment Size

0 (0.001), **1** (0.002), **2** (0.005), **3** (0.01), **4** (0.02), **5** (0.05),
6 (0.1), **7** (0.2), **8** (0.5), **9** (1), **10** (2), **11** (5),
12 (10), **13** (20), **14** (50), **15** (100)

[3.2] Capacity

Sets the maximum weighing of the scales, with default value 60

[3.3] Calibration Mode

2-P: two point calibration mode ,Only support **[3.4]** (Zero Point)& **[3.6]** (End Point)

CALFrE: calibration without weighing added

[3.4] Zero Point Adjustment

See appendix 1.

[3.6] End-Point Calibration

See appendix 1.

[3.7] CalFree Block

[3.7.1] Load Cell Capacity

Input the load cell capacity

[3.7.2] Number of total load cells

Input total number of load cells in this scale

[3.7.3] Number of working load cells

Input the number of working load cells in this scale

[3.7.4] Load Cell Sensitivity

Input the sensitivity of load cell, in general, It is 2mV/V or 3mV/V

[3.7.5] Sensitivity calibration

A test weight is loaded to calibrate the sensor sensitivity, and the method reference End Point.

[3.8] Filter

0(lowest), 1, 2, 3, 4, 5,18, 19(Highest)

[3.9] Pushbutton Zero Range

0 – Disable Pushbutton Zero

2, 5, 10, 20, 30, 40, 50: zero scale range is 2%, 5%, 10%, 20%, 30%, 40%, 50% of capacity

[3.10] Motion Check [3.0d]

0 –Disable motion check

0.1~9.9 –Enable motion check

[3.11] Auto Zero Range

0 –Disable Auto Zero

0.1~9.9 - 0.1d - 9.9d, Enable

When set to >0, the auto zero tracking is within $\pm 10d$

[3.12] Auto Zero Speed

0 – Disable Auto Zero

0.1~9.9 - Enable Auto Zero, Speed is **(0.1~9.9)d/second**

[3.13] Tare

0 – Disable Tare

1 – Enable Tare

[3.14] Application Mode

0 – Weight mode

1 –Dynamometry mode

[3.A]

[3.A.1] : View zero adjustment ADC code

[3.A.2] : View span adjustment ADC code

[3.A.3] : View span adjustment weight value

- [3.A.4] : Change or Enter zero adjustment ADC code
 [3.A.5] : Change or Enter span adjustment ADC code
 [3.A.6] : Change or Enter zero adjustment weight value

2.3.4 4#Channel Scale

[4.1] Increment Size

0 (0.001), 1 (0.002), 2 (0.005), 3 (0.01), 4 (0.02), 5 (0.05),
 6 (0.1), 7 (0.2), 8 (0.5), 9 (1), 10 (2), 11 (5),
 12 (10), 13 (20), 14 (50), 15 (100)

[4.2] Capacity

Sets the maximum weighing of the scales, with default value 60

[4.3] Calibration Mode

2-P: two point calibration mode ,Only support [4.4] (Zero Point)& [4.6] (End Point)

CALFrE: calibration without weighing added

[4.4] Zero Point Adjustment

See appendix 1.

[4.6] End-Point Calibration

See appendix 1.

[4.7] CalFree Block

[4.7.1] Load Cell Capacity

Input the load cell capacity

[4.7.2] Number of total load cells

Input total number of load cells in this scale

[4.7.3] Number of working load cells

Input the number of working load cells in this scale

[4.7.4] Load Cell Sensitivity

Input the sensitivity of load cell, in general, It is 2mV/V or 3mV/V

[4.7.5] Sensitivity calibration

A test weight is loaded to calibrate the sensor sensitivity, and the method reference End Point

[4.8] Filter

0(lowest), 1, 2, 3, 4, 5,18, 19(Highest)

[4.9] Pushbutton Zero Range

0 – Disable Pushbutton Zero

2, 5, 10, 20, 30, 40, 50: zero scale range is 2%, 5%, 10%, 20%, 30%, 40%, 50% of capacity

[4.10] Motion Check **[3.0d]**

0 –Disable motion check **0.1~9.9** –Enable motion check

[4.11] Auto Zero Range

0 –Disable Auto Zero

0.1~9.9 - 0.1d - 9.9d, Enable

When set to >0, the auto zero tracking is within $\pm 10d$

[4.12] Auto Zero Speed

0 – Disable Auto Zero

0.1~9.9 - Enable Auto Zero, Speed is **(0.1~9.9)d/second**

[4.13] Tare

0 – Disable Tare

1 – Enable Tare

[4.14] Application Mode

0 – Weight mode

1 –Dynamometry mode

[4.A]

[4.A.1] : View zero adjustment ADC code

[4.A.2] : View span adjustment ADC code

[4.A.3] : View span adjustment weight value

[4.A.4] : Change or Enter zero adjustment ADC code

[4.A.5] : Change or Enter span adjustment ADC code

[4.A.6] : Change or Enter zero adjustment weight value

2.3.5 Serial Port

[6.1] Node Address

The input range is 1 ~ 99, apply to MODBUS-RTU

MODBUS-RTU support 1 ~ 99

[6.2] Baud Rate

0 – Baud rate is **1200**, **1** – Baud rate is **2400**,

2 - Baud rate is **4800**, **3** - Baud rate is **9600**,

4 - Baud rate is **19200**, **5** - Baud rate is **38400**,

6 - Baud rate is **57600**, **7**- Baud rate is **115200**

[6.3] Data Size & Parity

0 - 8,N,1, 8 data bit, no parity. DFT

1 – 7,O,1, 7data bit, Even parity

2 – 7,E,1, 7 data bit, Odd parity

[6.4] Assignment

0-nonE–None

1-rtu1 MODBUS-RTU1 Communication format

2-rtu2 MODBUS-RTU2 Communication format

3-cnt Continuous Output Weight /support command C、 T、 Z

4-Acnt Continuous output filter code

[6.5] COM Type

0 – RS232

1 – RS485

[6.6] Modbus RTU Floating Format decoding order

0-3412, word swap

1-1234, normal order

2.3.6 Network Configuration

[F 9.1] IP Address

Default: **192.168.18.1** as below configured

[9.1.1] : 192 [9.1.2]: 168 [9.1.3]: 1 [9.1.4]: 10

[F 9.2] Submask

Default: **255.255.255.255** as below configured

[9.2.1] : 255 [9.2.2]: 255 [9.2.3]: 255 [9.2.4]: 0

[F 9.3] Gateway

Default: **192.168.0.1** as below configured

[9.3.1] : 192 [9.3.2]: 168 [9.3.3]: 1 [9.3.4]: 1

[F 9.4] LAN

0 – Disable

1 – TCP 1025 port continuous output

2 – TCP 1025 port continuous output, support command C、 T、 Z

[F 9.5] MODBUS-TCP

0 –Disable

1 – MODBUS-TCP1

2 – MODBUS-TCP2

[F 9.5.1] Modbus TCP Floating Format decoding order

0-3412, word swap

1-1234, normal order

[9.6] TCP/UDP Continue output frequency

Default : 20, Range: 1 -100, if set to 100, 100 times output per second.

[9.7] Profinet IP Address Clear

- 0** – After the power is restarted, the IP address is not cleared
- 1** – After the power is restarted, the IP address is 0.0.0.0

2.3.7 Maintenance

[F 10.1] The first channel code

[F 10.2] The second channel code

[F 10.3] The three channel code

[F 10.4] The four channel code

[F 10.5] Clear Profinet station name

Display "CLr N?" Indicates that not clear station name, press the key to switch "1-CLY?" or "0-CLY?"

Display "1-CLY?", Indicates that the station name exists, then restart.

Display "0-CLY?", Indicates that the station name does not exists, no need to clear

[F10.F]

[F10.F.1] Password

Default: 0000, no password ,If not 0000, you need to enter a password

[F10.F.2] Keyboard Lock

0 – Keyboard not locked

1 – Lock Keyboard

Under the keyboard lock state, only the Switch key is useful, Clear, Tare and Zero keys are useless

[F10.F.3] Display Lock

0 – Normal display

1 – Lock display

Under the Display lock state, Show no weight, show 2 horizontal lines

[F10.F.4] Display Switch Mode

0 –Manual Switch Channel

1 –Auto Switch Channel

Chapter 3 Serial Port Application

3.1 Serial Port and Ethernet continuous output weight format

Output Data	Start	1# Data	2# Data	3# Data	4# Data	END
Byte	0x02	15 bytes	15 bytes	15 bytes	15 bytes	0x0D

Data	SWA	SWB	SWC	XXXXXX	XXXXXX
Notice	A	B	C	D	E
Byte	1byte	1byte	1byte	6bytes	6bytes

■ Notice:

A – SWA: Status A B – SWB: Status B C – SWC: Status C
 D – Display Weight , 6 digits without decimal E – Tare Weight, 6 digits without decimal

SWA: Status A				
Bit				
0				
1				
2	Bit2	Bit1	Bit0	Decimal Point Location
	0	0	1	XXXXX0
	0	1	0	XXXXXX
	0	1	1	XXXXX.X
	1	0	0	XXXX.XX
	1	0	1	XXX.XXX
3	Bit4	Bit3	Build Code	
	0	1	X1	
	1	0	X2	
4	1	1	X5	
5	Always 1			
6	Always 0			
7	EVEN/ODD Parity bit			

SWB: Status B	
Bit	
0	0 –Gross, 1 –Net

1	Sign, Positive = 0, Negative = 1
2	Out of Range = 1 (Over capacity or Under Zero)
3	Motion = 1, Stable = 0
4	Always 1
5	Always 1
6	Always 0
7	EVEN/ODD Parity bit

SWC: Status C	
Bit	
0	Always 0
1	Always 0
2	Always 0
3	Always 0
4	Always 0
5	Always 1
6	Always 0
7	EVEN/ODD Parity bit

3.2 Continuous output A/D Code format

Output Data	Start	1# A/D Code	Separator	2# A/D Code	Separator	3# A/D Code	Separator	4# A/D Code	END
Data	0x02	7 bytes	comma	7 bytes	comma	7 bytes	comma	7 bytes	0x0D

■ **Notice:**

A/D Code is 7 bits ASCII Code, less than 7 bits, fill 0, the Separator is comma (0x2C)

3.3 Demand Input / Output

Both Serial Port & Ethernet can be configured demand input/output, below commands are supported.

Demand Input	
Demand character(2)	Description
NT	Tare Scale

NC	Clear Tare
NZ	Zero Scale

Description: The above N=1, 2, 3, 4 correspond to 1, 2, 3, 4 Scale. For example, "1T" is sent, 1# Scale perform Tare operations.

3.4 MODBUS-RTU1 & MODBUS-TCP1 Data Format

MODBUS-RTU1 & MODBUS-TCP1 – 1# Scale		
Register	Description	Operation
40001/2	1# Scale: Floating point display weight	R
40003/4	1# Scale: Gross Weight	R
40005	1#Scale Status Bit 0 – 0(Two point calibration mode) 1 (CalFree) Bit1 - 0 (Disable Tare) 1 (Enable Tare) Bit 7 – 1..... CalFree Error Bit 8 – In Center of Zero Bit 9 –Under Zero Bit 10 –Over Capacity Bit 11 –Net Bit 12 –Motion Bit 13 –Power Up Zero OK Bit 14 – Setup Mode Bit 15 –Weight Data OK	R
40006	1#Scale Demand: Bit 0 – 0-Disable 1-Enable MODBUS remote calibration Bit 1 - 0 (Unlock Keypad) 1(Lock Keypad) Bit 11 - 0->1 Trigger Pushbutton Zero Bit 12 - 0->1 Trigger Pushbutton Tare Bit 13 - 0->1 Trigger Pushbutton Clear Bit 14 - Bit 15 - 0->1 Trigger Scale Re-Init All	R/W
40007	1#Scale Calibration Demand: 0→1 Trigger Zero Point Calibration, 0→3 Trigger End Point Calibration Notice : Only on 2 point calibration mode, support End Point Calibration	R/W
40008	1#Scale Capacity, only input integer weights	R/W
40009	1#Scale Increment Size Index: 0 (0.001), 1 (0.002), 2 (0.005), 3 (0.01), 4 (0.02), 5 (0.05), 6 (0.1), 7 (0.2), 8 (0.5), 9 (1), 10 (2), 11 (5), 12 (10), 13 (20), 14 (50), 15 (100)	R/W
40010	1# Scale : Calibration Weight, only input integer weights	R/W

MODBUS-RTU1 & MODBUS-TCP1 – 2 # Scale		
Register	Description	Operation
40011/12	2# Scale: Floating point display weight	R
40013/14	2# Scale: Gross Weight	R
40015	2#Scale Status Bit 0 – 0(Two point calibration mode) 1 (CalFree) Bit1 - 0 (Disable Tare) 1 (Enable Tare) Bit 7 –CalFree Error Bit 8 – In Center of Zero Bit 9 –Under Zero Bit 10 –Over Capacity Bit 11 –Net Bit 12 –Motion Bit 13 –Power Up Zero OK Bit 14 – Setup Mode Bit 15 –Weight Data OK	R
40016	2#Scale Demand: Bit 0 – 0-Disable 1-Enable MODBUS remote calibration Bit 1 - 0 (Unlock Keypad) 1(Lock Keypad) Bit 11 - 0->1 Trigger Pushbutton Zero Bit 12 - 0->1 Trigger Pushbutton Tare Bit 13 - 0->1 Trigger Pushbutton Clear Bit 14 - Bit 15 - 0->1 Trigger Scale Re-Init All	R/W
40017	2#Scale Calibration Demand: 0→1 Trigger Zero Point Calibration, 0→3 Trigger End Point Calibration Notice : Only on 2 point calibration mode, support End Point Calibration	R/W
40018	2#Scale Capacity, only input integer weights	R/W
40019	2# Scale Increment Size Index: 0 (0.001), 1 (0.002), 2 (0.005), 3 (0.01), 4 (0.02), 5 (0.05), 6 (0.1), 7 (0.2), 8 (0.5), 9 (1), 10 (2), 11 (5), 12 (10), 13 (20), 14 (50), 15 (100)	R/W
40020	2# Scale : Calibration Weight, only input integer weights	R/W

MODBUS-RTU1 & MODBUS-TCP1 – 3 # Scale		
Register	Description	Operation
40021/22	3# Scale: Floating point display weight	R
40023/24	3# Scale: Gross Weight	R
40025	3#Scale Status Bit 0 – 0(Two point calibration mode) 1 (CalFree) Bit1 - 0 (Disable Tare) 1 (Enable Tare) Bit 7 – CalFree Error Bit 8 – In Center of Zero Bit 9 –Under Zero Bit 10 –Over Capacity Bit 11 –Net Bit 12 –Motion Bit 13 –Power Up Zero OK Bit 14 – Setup Mode Bit 15 –Weight Data OK	R
40026	3#Scale Demand: Bit 0 – 0-Disable 1-Enable MODBUS remote calibration Bit 1 - 0 (Unlock Keypad) 1(Lock Keypad) Bit 11 - 0->1 Trigger Pushbutton Zero Bit 12 - 0->1 Trigger Pushbutton Tare Bit 13 - 0->1 Trigger Pushbutton Clear Bit 14 - Bit 15 - 0->1 Trigger Scale Re-Init All	R/W
40027	3#Scale Calibration Demand: 0→1 Trigger Zero Point Calibration, 0→3 Trigger End Point Calibration Notice : Only on 2 point calibration mode, support End Point Calibration	R/W
40028	3#Scale Capacity, only input integer weights	R/W
40029	3# Scale Increment Size Index: 0 (0.001), 1 (0.002), 2 (0.005), 3 (0.01), 4 (0.02), 5 (0.05), 6 (0.1), 7 (0.2), 8 (0.5), 9 (1), 10 (2), 11 (5), 12 (10), 13 (20), 14 (50), 15 (100)	R/W
40030	3# Scale : Calibration Weight, only input integer weights	R/W

MODBUS-RTU1 & MODBUS-TCP1 – 4 # Scale		
Register	Description	Operation
40031/32	4# Scale: Floating point display weight	R
40033/34	4# Scale: Gross Weight	R
40035	4#Scale Status Bit 0 – 0(Two point calibration mode) 1 (CalFree) Bit1 - 0 (Disable Tare) 1 (Enable Tare) Bit 7 – CalFree Error Bit 8 – In Center of Zero Bit 9 –Under Zero Bit 10 –Over Capacity Bit 11 –Net Bit 12 –Motion Bit 13 –Power Up Zero OK Bit 14 – Setup Mode Bit 15 –Weight Data OK	R
40036	4#Scale Demand: Bit 0 – 0-Disable 1-Enable MODBUS remote calibration Bit 1 - 0 (Unlock Keypad) 1(Lock Keypad) Bit 11 - 0->1 Trigger Pushbutton Zero Bit 12 - 0->1 Trigger Pushbutton Tare Bit 13 - 0->1 Trigger Pushbutton Clear Bit 14 - Bit 15 - 0->1 Trigger Scale Re-Init All	R/W
40037	4#Scale Calibration Demand: 0→1 Trigger Zero Point Calibration, 0→3 Trigger End Point Calibration Notice : Only on 2 point calibration mode, support End Point Calibration	R/W
40038	4#Scale Capacity, only input integer weights	R/W
40039	4# Scale Increment Size Index: 0 (0.001), 1 (0.002), 2 (0.005), 3 (0.01), 4 (0.02), 5 (0.05), 6 (0.1), 7 (0.2), 8 (0.5), 9 (1), 10 (2), 11 (5), 12 (10), 13 (20), 14 (50), 15 (100)	R/W
40040	4# Scale : Calibration Weight, only input integer weights	R/W

3.5 MODBUS-RTU2 & MODBUS-TCP2 Data Format

MODBUS-RTU2 & MODBUS-TCP2 – 1# 2#Scale		
Register	Description	Operation
40001/2	1# Scale: Floating point display weight	R
40003/4	1# Scale: gross weight	R
40005	1#Scale Status Bit 0 – 0(Two point calibration mode) 1 (CalFree) Bit1 - 0 (Disable Tare) 1 (Enable Tare) Bit 7 – CalFree Error Bit 8 – In Center of Zero Bit 9 –Under Zero Bit 10 –Over Capacity Bit 11 –Net Bit 12 –Motion Bit 13 –Power Up Zero OK Bit 14 – Setup Mode Bit 15 –Weight Data OK	R
40006	1#Scale Demand: Bit 0 – 0-Disable 1-Enable MODBUS remote calibration Bit 1 - 0 (Unlock Keypad) 1(Lock Keypad) Bit 11 - 0->1 Trigger Pushbutton Zero Bit 12 - 0->1 Trigger Pushbutton Tare Bit 13 - 0->1 Trigger Pushbutton Clear Bit 14 - Bit 15 - 0->1 Trigger Scale Re-Init All	R/W
40007/8	2# Scale: Floating point display weight	R
40009/10	2# Scale: Gross Weight	R
40011	2#Scale Status Bit 0 – 0(Two point calibration mode) 1 (CalFree) Bit1 - 0 (Disable Tare) 1 (Enable Tare) Bit 7 – CalFree Error Bit 8 – In Center of Zero Bit 9 –Under Zero Bit 10 –Over Capacity Bit 11 –Net Bit 12 –Motion Bit 13 –Power Up Zero OK Bit 14 – Setup Mode Bit 15 –Weight Data OK	R
40012	2#Scale Demand: Bit 0 – 0-Disable 1-Enable MODBUS remote calibration Bit 1 - 0 (Unlock Keypad) 1(Lock Keypad) Bit 11 - 0->1 Trigger Pushbutton Zero Bit 12 - 0->1 Trigger Pushbutton Tare Bit 13 - 0->1 Trigger Pushbutton Clear Bit 14 - Bit 15 - 0->1 Trigger Scale Re-Init All	R/W

MODBUS-RTU2 & MODBUS-TCP2 – 3# 4#Scale		
Register	Description	Operation
40013/14	3# Scale: Floating point display weight	R
40015/16	3# Scale: Gross Weight	R
40017	3#Scale Status Bit 0 – 0(Two point calibration mode) 1 (CalFree) Bit1 - 0 (Disable Tare) 1 (Enable Tare) Bit 7 – CalFree Error Bit 8 – In Center of Zero Bit 9 –Under Zero Bit 10 –Over Capacity Bit 11 –Net Bit 12 –Motion Bit 13 –Power Up Zero OK Bit 14 – Setup Mode Bit 15 –Weight Data OK	R
40018	3#Scale Demand: Bit 0 – 0-Disable 1-Enable MODBUS remote calibration Bit 1 - 0 (Unlock Keypad) 1(Lock Keypad) Bit 11 - 0->1 Trigger Pushbutton Zero Bit 12 - 0->1 Trigger Pushbutton Tare Bit 13 - 0->1 Trigger Pushbutton Clear Bit 14 - Bit 15 - 0->1 Trigger Scale Re-Init All	R/W
40019/20	4# Scale: Floating point display weight	R
40021/22	4# Scale: Gross Weight	R
40023	4#Scale Status Bit 0 – 0(Two point calibration mode) 1 (CalFree) Bit1 - 0 (Disable Tare) 1 (Enable Tare) Bit 7 – CalFree Error Bit 8 – In Center of Zero Bit 9 –Under Zero Bit 10 –Over Capacity Bit 11 –Net Bit 12 –Motion Bit 13 –Power Up Zero OK Bit 14 – Setup Mode Bit 15 –Weight Data OK	R
40024	4#Scale Demand: Bit 0 – 0-Disable 1-Enable MODBUS remote calibration Bit 1 - 0 (Unlock Keypad) 1(Lock Keypad) Bit 11 - 0->1 Trigger Pushbutton Zero Bit 12 - 0->1 Trigger Pushbutton Tare Bit 13 - 0->1 Trigger Pushbutton Clear Bit 14 - Bit 15 - 0->1 Trigger Scale Re-Init All	R/W

3.6 PROFINET Data Format

Under configuration, Support 6W(Single Scale mode), 12W (2 Scales mode), 18W (3 Scales mode), 24W (4 Scales mode)

Request: PLC→ ID551 –Floating Point (1#Scale)																
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
W0				Lock Key				S 7	S 6	S 5	S 4	S 3	S 2	S 1	S 0	R/ W
W1	Value_0									2 Words,32 bits floating point data, use QD to express						
W2	Value_1															
W3													Clear		Tare	Zero
W4	Reserved															
W5	Reserved															

W6-W11 is 2#Scale, W12-W17 is 3#scale, W18-W23 is 4#scale。

Instruction - Request: PLC→ ID551 –Floating Point(1#Scale)		
W0_1~W0_8	S0-S7 Read or Write Variable Index	When W0_0~W0_8 changes, and W0_0 is 1 (Write), will trigger a write command. If W0_0 is read operation, Read the corresponding variables in real time
W0_0	0 – Read; 1 –Write	
W0_9~W0_11	Reserved	
W0_12	1 – lock keypad, 0 –unlock keypad	
W0_13~W0_15	Reserved	
W1~W2	write variable's value to ID551 DWORD Format	
W3_0:	0->1 trigger Zero command	
W3_1:	0->1 trigger Tare command	
W3_2:	Reserved	
W3_3:	0->1 trigger Clear command	
W3_4~W3_15	Reserved	

Response: ID551 → PLC – Floating Point (1#Scale)																
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
W0	Data OK	Over Capacity	Under Zero	Data Bit 1	Net	Motion	W-FAIL	S7	S6	S5	S4	S3	S2	S1	S0	R/W
W1	Value_0								2 Words,32 bits floating point data, use ID to express							
W2	Value_1															
W3	Display Weight, Value_0								2 Words,32 bits floating point data, use ID to express							
W4	Display Weight, Value_1															
W5	Data Bit2							Key Locked								

W6-W11 is 2#Scale, W12-W17 is 3#scale, W18-W23 is 4#scale。

Instruction - Response: ID551 → PLC – Floating Point (1#Scale)		
W0_0	0 – Read ; 1 – Write	As same as the request from PLC
W0_1~8	S0-S7 Read or Write Variable Index	
W0_9	The result of Write operation 0 – success, 1- Fail (Reason: W_1,W_2 1 –Unable Write, 2 – Write error, 3 –Reserved)	
W0_10	Motion Output: 0 –Invalid, 1- valid	
W0_11	Net status: 0 - Gross, 1 - Net	
W0_12	Data Bit 1	
W0_13	1 – Under Zero	
W0_14	1 - Over Capacity	
W0_15	1 - Data OK	
W1/W2	write variable's value to ID551 DWORD Format	
W3/W4	Display Weight in DWORD Format	
W5_0~W5_7	Reserved	
W5_8	1 –lock keypad,, 0 –unlock keypad,	
W5_9~W5_14	Reserved	
W5_15	Data Bit 2	

A table of S0~S7 variables in floating

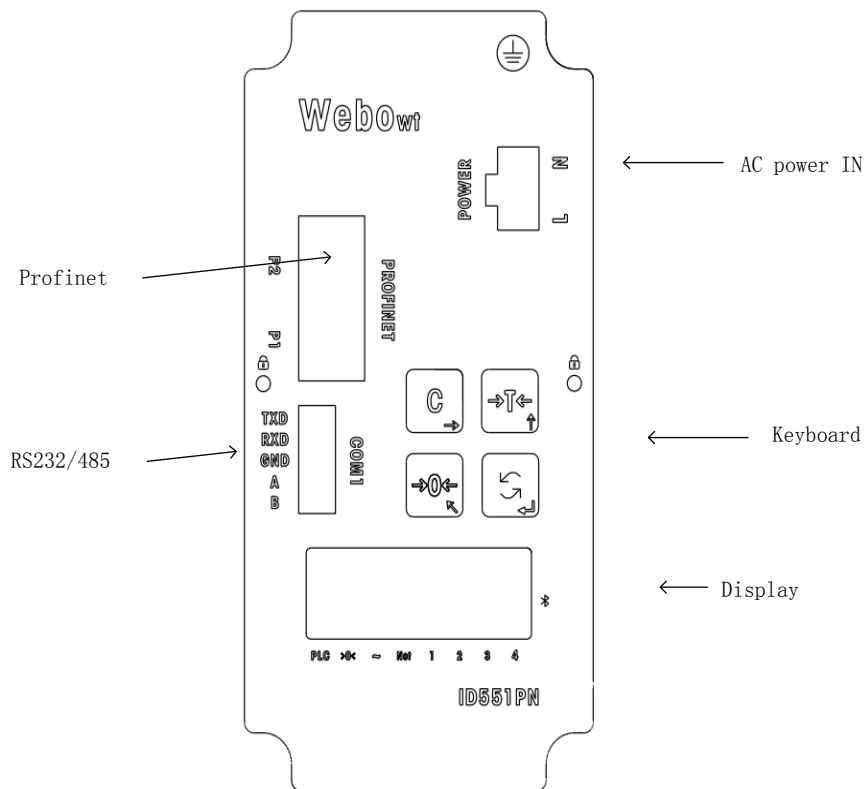
Index (Dec.)	Description	Operation (R/W)	Value
00	Net Weight	R	
01	Gross Weight	R	
02	Tare Weight	R	
05	Calibration Result	R	255 – Fail 100 – Motion 9..1 – In Progress 0 – OK
06	Demand to trigger Calibration	R/W	0->1 Zero-Point Calibration 0->3 End-Point Calibration
25	End Point Calibration Weight	R/W	

Chapter 4 Hardware

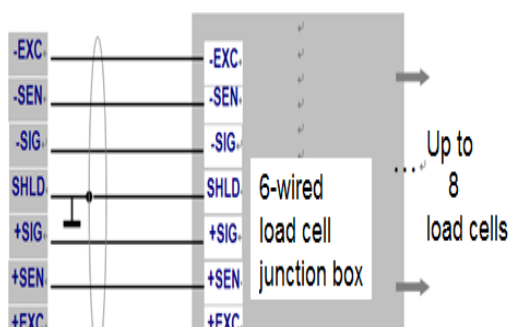
4.1 Interface Specification

Four switches are available on main board.

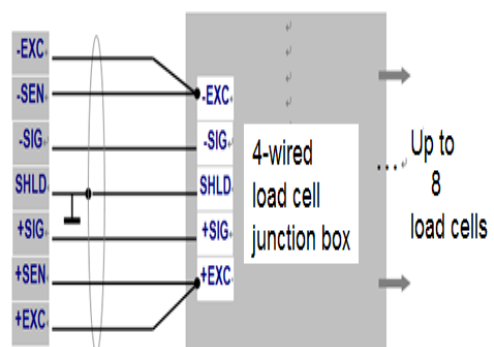
SW-1	ON - W&M Sealed ON, Calibration is Disabled
	OFF - W&M Sealed OFF, Calibration is Enabled
SW-2	Reserved, keep OFF
SW-3	ON - Load Factory Default Values
	OFF - Normal, keep OFF for normal use
SW-4	Reserved, keep OFF



6-line Load Cell Connect

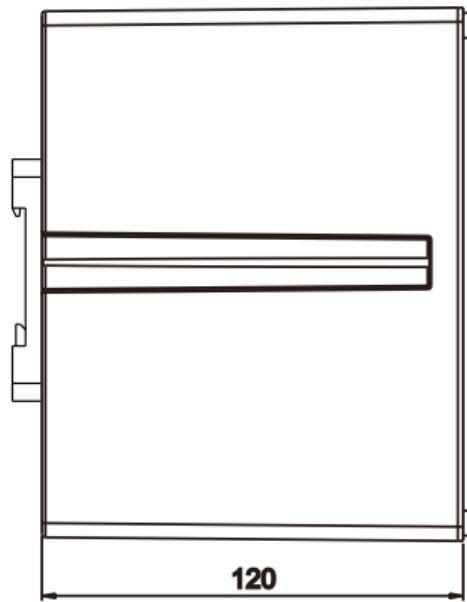
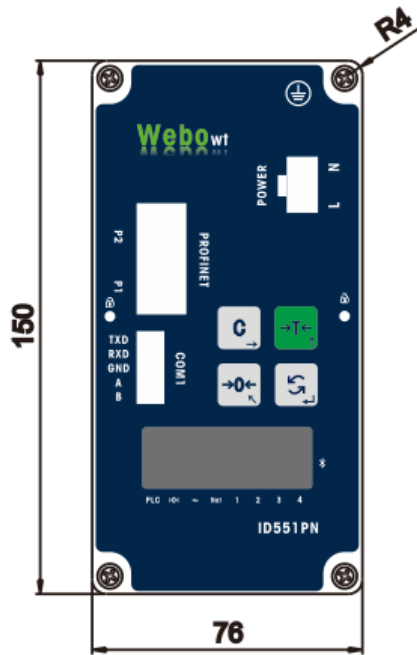
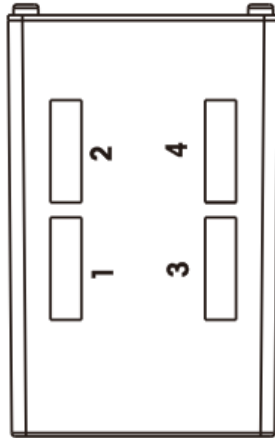


4-line Load Cell Connect



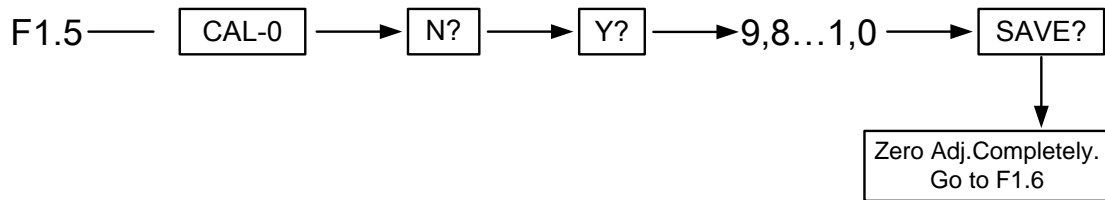
4.2 Housing Size

DIN Rail Housing



Appendix 1 Calibration

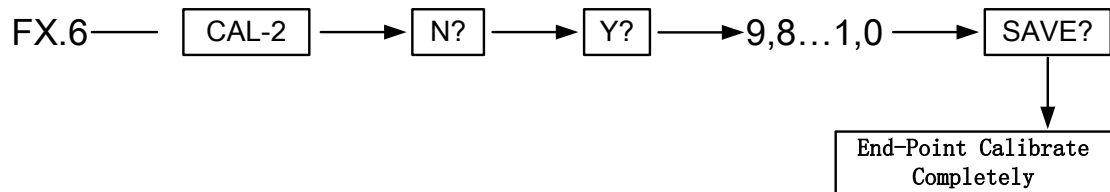
Zero point calibration:



X is 1,2,3,4, corresponding to the 4 channel.

10、9... 2、1: Calibration 100 –Calibration Motion 200 –Seal lock, Disable Calibration
 255 –Calibration Fail 0 –Calibration Done



Range point calibration (2-P)



X is 1,2,3,4, corresponding to the 4 channel.

10、9... 2、1: Calibration 100 –Calibration Motion 200 –Seal lock, Disable Calibration
 255 –Calibration Fail 0 –Calibration Done

Appendix 2 Display Message & Error Code

Display Message & Error Code	Description
CAL_2	Set Span Calibration
CAL_0	Set Zero Calibration
CAL_35	Calibration Fail, Check load cell cable or if scale is stability
CAL_D	Calibration Done
CALF-E	Factory CalFree Calibration data error, have to back to factory for Factory Calibration again.
-EEE	Power Up Zero Fail for below zero too much
EEE	Power Up Zero Fail for above zero too much
EE - 10	E2PROM hardware error
EE - 11	E2PROM data error
EE – 100	Tare failed, Disable Tare
EE – 101	Tare failed for scale in motion
EE – 102	Tare failed out of tare range
EE - 105	Zero failed for Zero is disabled
EE - 106	Zero failed for scale in motion
EE - 107	Zero failed out of zero range
EE – 108	No keys allowed for keypad is locked
EE - 109	PLC option board start failed.
EE - 111	ADC Init failed, please re-power, or contact factory.
EE - no	The product key does not match, please contact the manufacturer
--	Lock Display, change F10.F.3 to recover display weight
SEALEd	Seal lock, disable change weight parameters and weight calibration, Toggle switch to enable seal
	Over capacity blank, weight is above scale capacity 9.9d
	Under zero blank, weight is under zero 50d