

ID550 WEIGHING CONTROLLER

OPERATION MANUAL



BASIC APPLICATION VERSION

2018/01
Rev. 1.10

Version Change Log

Version	Changes	Time
V0.1	1st Version	2010/11
V0.2	Add Over/Under	2011/03
V0.3	Add 4-20mA Analog Output Option	2011/06
V0.4	IN4 assigned for Print MODBUS can control OUT6	2011/11
V0.5	Add Fill completely OUT	2012/06
V0.6	Add Free Calibration, F1.7 block	2012/10
V1.07	Add MODBUS-RTU3/MODBUS-RTU4	2012/01
V1.09	Add F3.8 Modbus-RTU floating decode order	2016-11-19
V1.10	Change some details	2018-01-27

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1 Introduction

ID550 is a panel mount housing process weighing terminal, Target to industry process weighing, filling, packaging and blending system applications, it is very easy to build a master/slave controlling system via **RS232/485** serial port with touch screen and PLC host devices.

Standard Features Overview

- 24VDC power input, not more than 3W power consumption
- One analog load cell platform I/F(up to 6x350 ohm load cells)
- Up to 100,000 Display Division
- Up to 200Hz weight updating speed

- One RS232/485 serial port for
 - Continuous weight output
 - Demand Input/Output
 - MODBUS-RTU slave, up to 50Hz visit access speed

- Target Controller
 - Simple setpoint comparator
 - Sequence controller
 - Under/OK/Over Classify

- Calibration
 - 2-point Calibration
 - 3-point Calibration
 - Free Calibration

- Option Board
 - 4-20mA analog output option
 - 4I/6O I/O option

- IP65 panel housing





- **Operating Environment**
Operating Temperature: -10°C~40°C
Humidity: 10%RH~95%RH non-condensing

2 Keypad and Menu




2.1 Keypad



Keypad Description:

Key	Description
	[[Zero]] key. In setup mode, ESC/Exit Setup Key
	[[Tare]] key. In weighing mode, Tare scale and in Net mode. In Setup mode, up switch key or increase digit key.
	[[Clear]] key., In Net mode, clear tare weight and go back to gross mode, In setup mode, right switch key
	[[Print]] key. In weighing mode, Print weight through serial port in assignment print format In setup mode, enter key to accept change

2.2 Menu & Setup

Press both  and , enter setup mode, press  can switch every Function blocks.

[tArgEt] → [1] Scale Calibration Block → [2] Scale Application Block → [3] Serial Port Application Block → [4] Analog Output Option Block → [6] Target Control Block → [11] Maintenance Block

2.2.1 [tArgEt]

[F6.1] assigned as 0, None application mode:

[otoL] Zero tolerance range value

[F6.1] assigned as 1 or 2, working in simple setpoint mode or full setpoint mode:

[SP1] Setpoint Target Value
[SP2] Setpoint Fine Value
[SP3] Setpoint Spill Value
[HtoL] Setpoint upper tolerance value (+Tol)
[LtoL] Setpoint lower tolerance value (-Tol)
[otoL] Zero tolerance range value
[Str] Full Setpoint start working checking value

[F6.1] assigned as 3 (Over/Under/OK mode):

[SP1] Under limit value
[SP2] Over limit
[otoL] Zero tolerance range value

2.2.2 [1] Calibration Block

[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

[1.3] Linear Calibration Mode

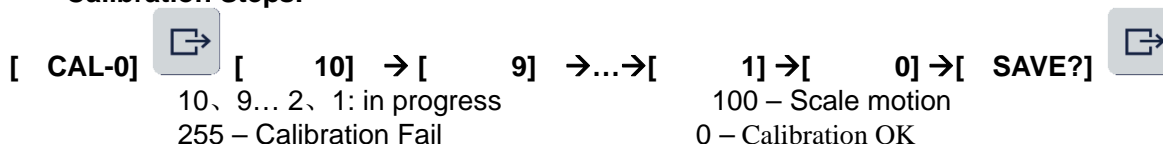
0 - Disable, just support [1.4] (zero point adjustment) and [1.6] (End point Calibration)

1 - Enable, support [1.4] (zero point adjustment), [1.5] (Middle point Calibration) and [1.6] (End Point Calibration)

2 - Free Calibration

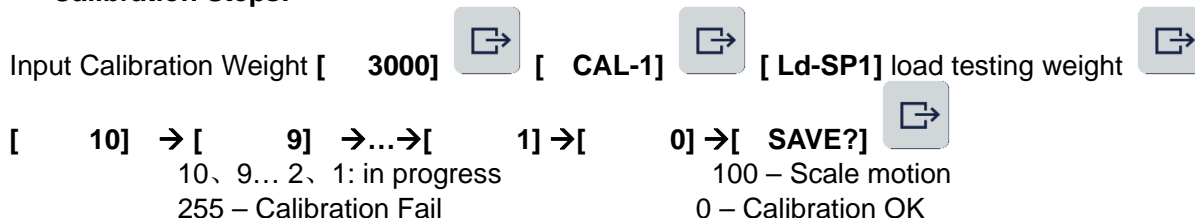
[1.4] Zero Point Adjustment (CAL-0)

Calibration Steps:



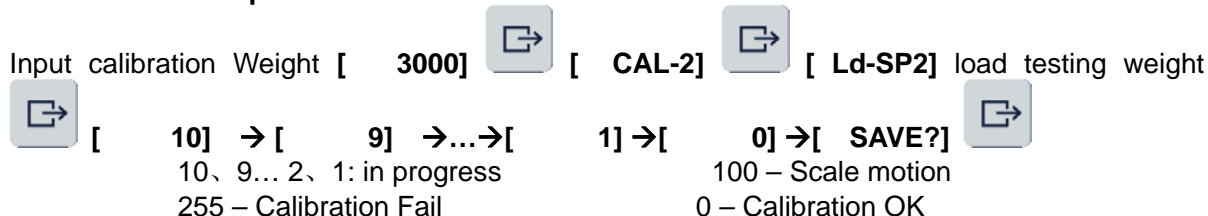
[1.5] Middle Point Calibration (CAL-1)

Calibration Steps:



[1.6] End Point Calibration (CAL-2)

Calibration Steps:



[F 1.7] CalFree Block

Only work when [F 1 . 3] = 2

[F 1.7.1] Load Cell Capacity

Input the load cell capacity

[F 1.7.2] Number of total load cells

Input total number of load cells in this scale

[F 1.7.3] Number of working load cells

Input the number of working load cells in this scale

[F 1.7.4] Load Cell Sencitivity

Input the sencitivity of load cell, in general is 2.00000mV/V, but the the input sencitivity should be adjusted for actual condition,in general, It is 2mV/V or 3mV/V, but the actually value will be about 2mV/V or 3mV/V

CalFree Example:

One scale with 100kg x 4 , load cell sencitivity is 2.0mV/V, afterjunction box,which will be 92mV/V; Refer below steps for CalFree calibration:

- 1) Configure [F1.1] increment size,
- 2) Configure [F1.2] for scale capacity, 400kg or less than 400kg
- 3) Configure [F1.3] = 2(CalFree)
- 4) Do Zero Point Calibration in [1.4]
- 5) [F1.7.1] load cell capacity:100
- 6) [F1.7.2] Number of total load cells: 4
- 7) [F1.7.3] Number of working load cells: 4

- 8) [F1.7.4] Load Cell Sencitivity: 2.00000mV/V
- 9) Add a testing weight, such as 10kg
- 10) Check what is the weight is shown, such as 9.8kg
- 11) Actual Load Cell Sencitivity after JBOX is $2.00000 * (9.8/10) = 1.96000$
- 12) Input 1.9600 to [F1.7.4]
- 13) CalFree complete.

2.2.3 [2] Scale Application Block

- [2.1] **Filter**
0 – Low ,1,2,3,4– High
- [2.2] **Adapt Filter**
0 – Disable 1 – Enable
- [2.3] **Pushbutton Zero Range**
0 – Disable Pushbutton Zero
1 - $\pm 1\%$, 2 - $\pm 2\%$, 10 - $\pm 10\%$
- [2.4] **Auto Zero Range**
0 – Disable Auto Zero
0.1~9.9 – Enable Auto Zero, Auto Zero range is $\pm(0.1\sim 9.9)d$
- [2.5] **Motion Checking Range**
0 - No motion Checking
0.1~9.9 – Enable Motion Checking, when scale change above $(0.1\sim 9.9)d$, scale in motion
- [2.6] **Under Zero Blank Checking**
0 – No Under Zero Blank Checking
1 – when scale weight below zero point 9d, scale is under zero blank
- [2.7] **Over Capacity Blank Checking**
0 – No Over Capacity Blank Checking
1 – When scale weight above scale capacity 9d, scale is over capacity blank
- [2.8] **Pushbutton Tare**
0 – Disable
1 – Enable

2.2.4 [3] Serial Port Communication Block

- [3.1] **Serial Port Application**
0-NONE – No Application
1-CNT – Continuous Output Weight in Continuous output format
2-DNT1 – Demand Input / Single line print display weight output
3-DNT2 – Demand Input / Single line print gross, net and tare weight output
4-DNT3 – Demand Input / three lines print gross, net and tare weight
5 – MODBUS RTU1 6 - MODBUS RTU2
7 – MODBUS RTU3 8 - MODBUS RTU4

[3.2] Baud Rate

- 0 - 1200
- 1 - 2400
- 2 - 4800
- 3 - 9600
- 4 - 19200
- 5 - 38400
- 6 - 57600

Continuous Output Rate	
Baud Rate	Output Rate
1200	10Hz
2400	10Hz
4800	20Hz
9600	40Hz
19200	50Hz
38400	66Hz
57600	100Hz

[3.3] Data Size and Parity

- 0(8,n,1) – 8 bits data size, none parity
- 1(7,o,1) – 7 bits data size, ODD parity
- 2(7,e,1) – 7bits data size, EVEN parity

[3.4] Checksum Output

- 0 – Disable, no checksum output in continuous output and print output
- 1 – Enable, with checksum output in continuous output and print output

[3.5] MODBUS Node Address

Input Range: 1 ~ 255

[3.6] MODBUS Response Interval Time

Input Range: 0 ~ 80 ms, typical is 12 ms.

[3.8] MODBUS Floating Decode Order

- 0 - 3412
- 1 - 1234

2.2.5 [4] 4-20mA Analog Output Option**[4.1] Output Weight Source**

- 0 – None Weight Source
- 1 – Display Weight
- 2 – Gross Weight
- 3 – Net Weight
- 4 – Absolute Display Weight
- 5 – Absolute Net Weight

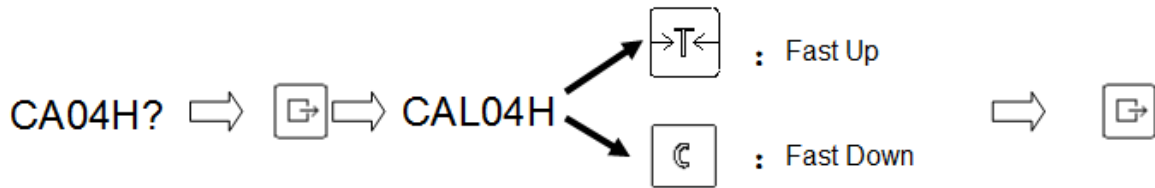
[4.2] 4mA output weight

When scale reach input weight value, Analog output option output 4mA

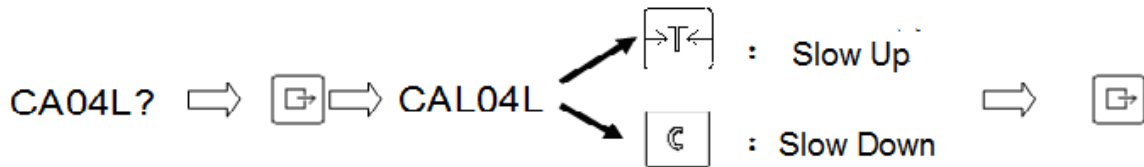
[4.3] 20mA output weight

When scale reach input weight value, Analog output option output 20mA

[4.4] 4mA Output Adjustment**[4.4.1] 4mA Output Fast Adjustment**

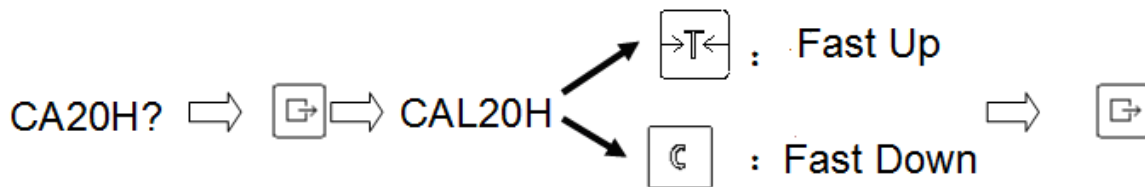


[4.4.2] 4mA Output Slow Adjustment

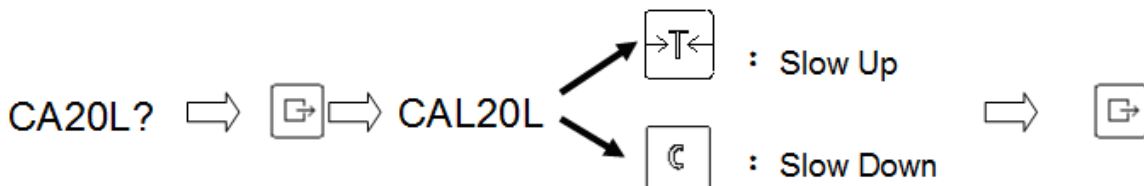


[4.5] 20mA Output Adjustment

[4.5.1] 20mA Output Fast Adjustment



[4.5.2] 20mA Output Slow Adjustment



[4.6] Load Analog Output Default Value

2.2.6 [6] Target Application Work Mode

[6.1] Target Application Mode

- 0 – Disable
- 1 – Simple Setpoint
- 2 – Sequence Setpoint
- 3 – Over/Under/OK

[6.2] Output Mode

	Fast Feed	Fine Feed
0 - Ft+Fd : Fd	Both Fast Feed(Ft) and Fine Feed(Fd) Active	Fine Feed(Fd) Active
1 - Ft : Fd	Fast Feed(Ft) Active	Fine Feed(Fd) Active
2 - Ft : Ft+Fd	Fast Feed(Ft) Active	Both Fast Feed(Ft) and Fine Feed(Fd) Active

※※ if Fine Feed Weight Value (SP2) is 0, system will be 1-speed feeding(Fine Feed)

- [6.3] **Start Checking Value**
0 – No Start Checking Value Checking >0 With Start Checking Value Checking
- [6.4] **Start Auto Tare**
0 – No Auto Tare before Feeding 1 – with Auto Tare before Feeding
- [6.5] **Auto Spill Adjustment Mode**
0 – Disable 1 – Enable
- [6.6] **Auto Spill Adjustment Factor**
0 – Auto Spill Adjustment with internal ruler
1~100 – Auto Spill Adjustment with input factor
- [6.7] **Reserved**
- [6.8] **Drain Time**
0~99 x 0.1S

2.2.7 [11] Maintenance Block

- [11.1] **A/D I/F Raw Counts**
Through this code to check load cell, and ADC circuit inside, in general, about 100 when no any load on load cell, about 33000 when full load on load cell
- [11.2] **I/O Input (IN4 ~ IN1)**
0000(left to right) point to IN4, IN1, IN2, IN1, 0 - OFF, 1 - ON
0001: IN1 is ON, IN2, IN3, IN4 are OFF
- [11.3] **I/O Output (OUT6 ~ OUT1)**
000000(left to right) point to OUT6, OUT5, OUT4, OUT3, OUT2, OUT1,
0 - OFF, 1 - ON
001001: OUT1 and OUT4 are ON, OUT2、OUT3、OUT5、OUT6 are OFF
- [11.A]
- [11.A.1]: **View zero point calibration raw counts**
- [11.A.2]: **View range point calibration raw counts**
- [11.A.3]: **View range point calibration weight**
- [11.A.4]: **View and edit zero point calibration raw counts**
- [11.A.5]: **View and edit range point calibration raw counts**
- [11.A.6]: **View and edit range point calibration weight**

3 Serial Port Application

3.1 MODBUS-RTU

3.1.1 MODBUS-RTU1

MODBUS-RTU1																						
Register	Description		R/W																			
40007	0	0 = gross Mode, 1 = Net Mode	R																			
	1	0 = Positive Weight 2 = Negative Weight																				
	2	1 = Under Zero Blank or Over Capacity Blank																				
	3	1 = Scale in Motion																				
	4	F6.1=1,2: Fast Feed Output: 0 - OFF, 1 - ON																				
		F6.1=3: Under Output: 0 - OFF, 1 - ON																				
	5	F6.1=1,2: Fine Feed Output: 0 - OFF, 1 - ON																				
		F6.1=3: Over Output: 0 - OFF, 1 - ON																				
	6	F6.1=1,2: Out of Tolerance: 0 - OFF, 1 - ON																				
		F6.1=3: OK:0 - OFF, 1-ON																				
	7	0 - Out of Zero Tolerance, 1 - In Zero Tolerance																				
8-10	<table border="1"> <thead> <tr> <th>Bit10</th> <th>Bit9</th> <th>Bit8</th> <th>Weight Decimal Position</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> <td>XXXXXX</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>XXXXX.X</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>XXXX.XX</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>XXX.XXX</td> </tr> </tbody> </table>		Bit10	Bit9	Bit8	Weight Decimal Position	0	0	1	XXXXXX	0	1	1	XXXXX.X	1	0	0	XXXX.XX	1	0	1	XXX.XXX
Bit10	Bit9	Bit8	Weight Decimal Position																			
0	0	1	XXXXXX																			
0	1	1	XXXXX.X																			
1	0	0	XXXX.XX																			
1	0	1	XXX.XXX																			
11-14	Reserved																					
15	0 - Weight Data illegal, 1 - Weight Data OK																					
40008	Display Weight, 16 bit integer, add decimal point according to 40007.8~10		R																			
40009	Target Value	(Target->SP1)	R/W																			
40010	Fine Feed Value	(Target->SP2)	R/W																			
40011	Spill Value	(Target->SP3)	R/W																			
40012	Upper and Lower Tolerance	(Target->LtoL)	R/W																			
40013	Zero Tolerance Value	(Target->otoL)	R/W																			
40014	Start Limit Checking Value	(Target->str)	R/W																			
40015	Start Auto Tare Mode	[6.4]	R/W																			
40016	Auto Spill Mode	[6.5]	R/W																			
40017	Auto Spill Factor	[6.6]	R/W																			
40018	Spill Adjustment Range	[6.7]	R/W																			
40019	Drain Time	[6.8]	R/W																			
40020	Application Mode	[6.1]	R/W																			
	0 - None, 1 - Simple Setpoint, 2 - Sequence Setpoint 3 - Over/Under																					

MODBUS-RTU2		
Register	Description	R/W
40008	Target Value in Division (Target->SP1)	R/W
40009	Fine Value in Division (Target->SP2)	R/W
40010	Spill Value in Division (Target->SP3)	R/W
40011	Upper Tolerance (+Tol) Value in Division (Target->HtoL)	R/W
40012	Lower Tolerance (-Tol) Value in Division (Target->LtoL)	R/W
40013	Zero Tolerance Value in Division (Target->otoL)	R/W
40014	Start Auto Tare Mode [6.4]	R/W
40015	Start Limit Checking Value In Division [Str]	R/W
40016	Auto Spill Mode [6.5]	R/W
40017	Auto Spill Factor [6.6]	R/W
40018	Setpoint Output Mode [6.2]	R/W
40019	Drain Time [6.8]	R/W
40020	Calibration Command 0->1 : Zero Adjustment 0->2 : Middle Point Calibration 0->3 : End Point Calibration	R/W
40021	Scale Capacity [1.2]	R/W
40022	Middle Point Calibration Test Weight	R/W
40023	End Point Calibration Test Weight	R/W
40024	Increment Size Index [1.1] 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
40025	Calibration Mode [1.3] 0 – 2 Points Calibration 1 – 3 Points Calibration	R/W
40026	Pushbutton Zero Range Index [2.3] 0 – Disable Pushbutton Zero 1 - ±1% 2 - ±2%, 3 - ±10%	R/W
40027	Filter [2.1] 0 – Low Filter 1 – Middle Filter 3 – High Filter	R/W
40028	Motion Checking [2.5] 0 - Disable Motion Checking (1 ~ 99) x0.1d – Motion Checking is allowed	R/W
40029	Application Mode: [6.1] 0 – None, 1 – Simple Setpoint 2 – Sequence Setpoint, 3 – Over/Under/OK	R/W

3.1.3 MODBUS-RTU3

MODBUS-RTU3																							
Register	Description		R/W																				
40001	0	0 = gross Mode, 1 = Net Mode	R																				
	1	0 = Positive Weight 2 = Negative Weight																					
	2	1 = Under Zero Blank or Over Capacity Blank																					
	3	1 = Scale in Motion																					
	4	Keypad Print Flag Bit: 1- Print Completely																					
	5~6	Reserved																					
	7	0 – Out of Zero Tolerance, 1 – In Zero Tolerance																					
	8-10	<table border="1"> <thead> <tr> <th>Bit10</th> <th>Bit9</th> <th>Bit8</th> <th>Weight Decimal Position</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> <td>XXXXXX</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>XXXXX.X</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>XXXX.XX</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>XXX.XXX</td> </tr> </tbody> </table>		Bit10	Bit9	Bit8	Weight Decimal Position	0	0	1	XXXXXX	0	1	1	XXXXX.X	1	0	0	XXXX.XX	1	0	1	XXX.XXX
	Bit10	Bit9		Bit8	Weight Decimal Position																		
	0	0		1	XXXXXX																		
0	1	1	XXXXX.X																				
1	0	0	XXXX.XX																				
1	0	1	XXX.XXX																				
11-14	Reserved																						
15	0 –Data not Valid, 1 –Data OK																						
40002	Display Weight, 16 bit integer, add decimal point according to 40001.8~10		R																				
40003	0	1- OUT6 ON, 0 – OUT6 OFF	R/W																				
	1~6	Reserved																					
	7	0->1 Clear 40001.4																					
	8~10	Reserved																					
	11	0->1 Pushbutton Zero Scale																					
	12	0->1 Pushbutton Tare Scale																					
	13	0->1 Clear Scale																					
14~15	Reserved																						

3.1.4 MODBUS-RTU4

MODBUS-RTU4			
Register	Description		R/W
40001	0	0 = gross Mode, 1 = Net Mode	R
	1	0 = Positive Weight 2 = Negative Weight	
	2	1 = Under Zero Blank or Over Capacity Blank	
	3	1 = Scale in Motion	
	4	Keypad Print Flag Bit: 1- Print Completely	
	5~6	Reserved	
	7	0 – Out of Zero Tolerance, 1 – In Zero Tolerance	
	8-14	Reserved	
	15	0 –Data not Valid, 1 –Data OK	
40002/40003	Display Weight, 32 bit Floating Point (Byte Order: 3412)		R
40004	0	1- OUT6 ON, 0 – OUT6 OFF	R/W
	1~6	Reserved	
	7	0->1 Clear 40001.4	
	8~10	Reserved	
	11	0->1 Pushbutton Zero Scale	
	12	0->1 Pushbutton Tare Scale	
	13	0->1 Clear Scale	
14~15	Reserved		

3.2 Serial Port Continuous Output Format

Data	S T X	S W A	S W B	S W C	XXXXXX	XXXXXX	C R	C H K
	A	B	C	D	E	F	G	H

※

A – STX: ASCII 02H

B – SWA: Scale Status Byte A

C – SWB: Scale Status Byte B

D – SWC: Scale Status Byte C

E – Display Weight, 6digits without decimal

F – Tare Weight, 6 digits with decimal

G – CR: ASCII 0DH

H – CHK(Checksum),Checksum is used to detect errors in the transmitted of data, Checksum is defined as the 2’s complement of the seven low order bits of the binary sum of all characters preceding the checksum character, including the STX and CR characters

If CHK is enabled, output with 18 bytes, or output with 17 bytes.

SWA: Status Byte A																									
Bit																									
0	<table border="1"> <thead> <tr> <th>Bit2</th> <th>Bit1</th> <th>Bit0</th> <th>Weight Decimal Position</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> <td>XXXXX0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>XXXXXX</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>XXXXX.X</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>XXXX.XX</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>XXX.XXX</td> </tr> </tbody> </table>	Bit2	Bit1	Bit0	Weight Decimal Position	0	0	1	XXXXX0	0	1	0	XXXXXX	0	1	1	XXXXX.X	1	0	0	XXXX.XX	1	0	1	XXX.XXX
Bit2		Bit1	Bit0	Weight Decimal Position																					
0		0	1	XXXXX0																					
0		1	0	XXXXXX																					
0		1	1	XXXXX.X																					
1		0	0	XXXX.XX																					
1	0	1	XXX.XXX																						
1																									
2																									
3	<table border="1"> <thead> <tr> <th>Bit4</th> <th>Bit3</th> <th>Increment Size Factor</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>X1</td> </tr> <tr> <td>1</td> <td>0</td> <td>X2</td> </tr> <tr> <td>1</td> <td>1</td> <td>X5</td> </tr> </tbody> </table>	Bit4	Bit3	Increment Size Factor	0	1	X1	1	0	X2	1	1	X5												
Bit4		Bit3	Increment Size Factor																						
0		1	X1																						
1	0	X2																							
1	1	X5																							
4																									
5	Always 1																								
6	Always 0																								
7	Parity Bit																								

SWB: Status B	
Bit	
0	0 – Gross Weight Mode, 1 – Net Weight Mode
1	0 – Positive Weight, 1 – Negative Weight
2	1 – Under Zero or Over Capacity
3	1 – Motion
4	0 – lb Unit, 1 – kg Unit
5	Always 1
6	0 – Normal weighting status, 1 – Power Up in progress
7	Parity Bit

SWC: Status C	
Bit	
0	Always 0
1	Always 0
2	Always 0
3	Always 0
4	1 – x10 mode
5	Always 1
6	Always 0
7	Parity Bit

3.3 Demand Input / Print Output

Command	Description
P	Print Weight Output
Z	Zero Scale
T	Tare Scale
C	Clear Tare

3.4 Weight Print Output Format

3.4.1 Single-Line Display Weight

Single-Line Display Weight with Checksum									
Byte	1	2~8	9	10 ~ 11	12	13	14	15	16
Data	STX	DWT	SP	kg	SP	G/N	CR	CHK	LF

Single-Line Display Weight without Checksum							
Byte	1~7	8	9 ~ 10	11	12	13	14
Data	DWT	SP	kg	SP	G/N	CR	LF

3.4.2 Single-Line Gross, Tare and Net Weight

Single-Line Gross, Tare and Net Weight with Checksum									
Byte	1	2~8	9	10~11	12	13	14	15~21	22
Data	STX	GWT	SP	kg	SP	G	SP	TWT	SP
Byte	23~24	25	26	27	28~34	35	36~37	38	
Data	kg	SP	T	SP	NWT	SP	kg	SP	
Byte	39~41	42	43	44					
Data	NET	CR	CHK	LF					

Single-Line Gross, Tare and Net Weight without Checksum									
Byte	1~7	8	9 ~ 10	11	12	13	14~20	21	22~23
Data	GWT	SP	kg	SP	G	SP	TWT	SP	kg
Byte	24	25	26	27~33	34	35~36	37	38~40	
Data	SP	T	SP	NWT	SP	kg	SP	NET	
Byte	41	42							
Data	CR	LF							

3.4.3 Three-Line Gross, Tare and Net Weight Output

Three-Line Gross, Tare and Net Weight with Checksum										
Byte	1	2~8	9	10~ 11	12	13	14	15	16	17
Data	STX	GWT	SP	kg	SP	G	SP	CR	CHK	LF
Byte	18~24	25	26~27	28	29	30	31	32		
Data	TWT	SP	kg	SP	T	CR	CHK	LF		
Byte	33~39	40	41~42	43	44~46	47	48	49		

ID550 Weighing controller

Data	NWT	SP	kg	SP	NET	CR	CHK	LF
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Three-Line Gross, Tare and Net Weight without Checksum								
Byte	1~7	8	9~ 10	11	12	13	14	15
Data	GWT	SP	kg	SP	G	SP	CR	LF
Byte	16~22	23	24~25	26	27	28	29	
Data	TWT	SP	kg	SP	T	CR	LF	
Byte	30~36	37	38~39	40	41~43	44	45	
Data	NWT	SP	kg	SP	NET	CR	LF	

Description:

- STX** – ASCII 0x02
- SP** – Space (ASCII 0x20)
- kg** – two bytes unit characters, right alignment, such as “kg” or ‘ g’
- G/N** – ‘G’ – Gross Weight Flag, ‘N’ – Net Weight Flag
- G** – ‘G’ – Gross Weight Flag
- N** – ‘N’ – Net Weight Flag
- NET** – “NET” – Net Weight Flag
- CR** – ASCII 0x0D
- CHK** – CHK(Checksum),Checksum is used to detect errors in the transmitted of data, Checksum is defined as the 2’s complement of the seven low order bits of the binary sum of all characters preceding the checksum character, including the STX and CR characters
- LF** – ASCII 0x0A
- DWT** – 7 bytes display weight, right alignment, insignificant leading zeroes are replaced with spaces(ASCII 0x20) ,no decimal point in field, refer Table SWA
- GWT** – 7 bytes gross weight, right alignment, insignificant leading zeroes are replaced with spaces(ASCII 0x20) ,no decimal point in field, refer Table SWA
- TWT** – 7 bytes tare weight, right alignment, insignificant leading zeroes are replaced with spaces(ASCII 0x20) ,no decimal point in field, refer Table SWA
- NWT** – 7 bytes Net weight, right alignment, insignificant leading zeroes are replaced with spaces(ASCII 0x20) ,no decimal point in field, refer Table SWA

4 4-20mA Analog Output Option

4.1 4-20mA Analog Output

One channel 4-20mA option is supported, one 16-bit ADC embedded inside, output signal range is **0mA~ 25mA**, Details referring below analog output referring table.

Analog Output Source: (Setup Tree4.1):

- 1 – Display Weight 2 – Gross Weight 3 – Net Weight
4 – Absolute Display Weight 5 – Absolute Net Weight

Analog Output Referring Table		
Working Cases		Analog Output
	4mA Output Weight: 0 20mA Output Weight: 1000	
Scale Under Zero Blank		0mA
Less than 4mA output weight and more than 10% of analog output capacity	<-100	0mA
Less than 4mA output weight and not more than 10% of analog output capacity	-100 ~ 0	2.4mA~4mA
Equals to 4mA output weight value	0	4mA
More than 4mA output weight value and less than 20mA output weight value	0~1000	4mA~20mA
Equals to 20mA output weight value	1000	20mA
More than 20mA output weight value, but not more than 10% of analog output capacity	1000~1100	20mA~21.6mA
More than 20mA output weight value, but not more than 10% of output weight value	>1100	25mA
Scale over capacity blank		25mA
If Analog output source assigned with None (4.1=0) or Scale in Setup mode		25mA

4.2 Auxiliary Relay Output

Two auxiliary relay outputs (RO1, RO2) are available on 4-20mA option board

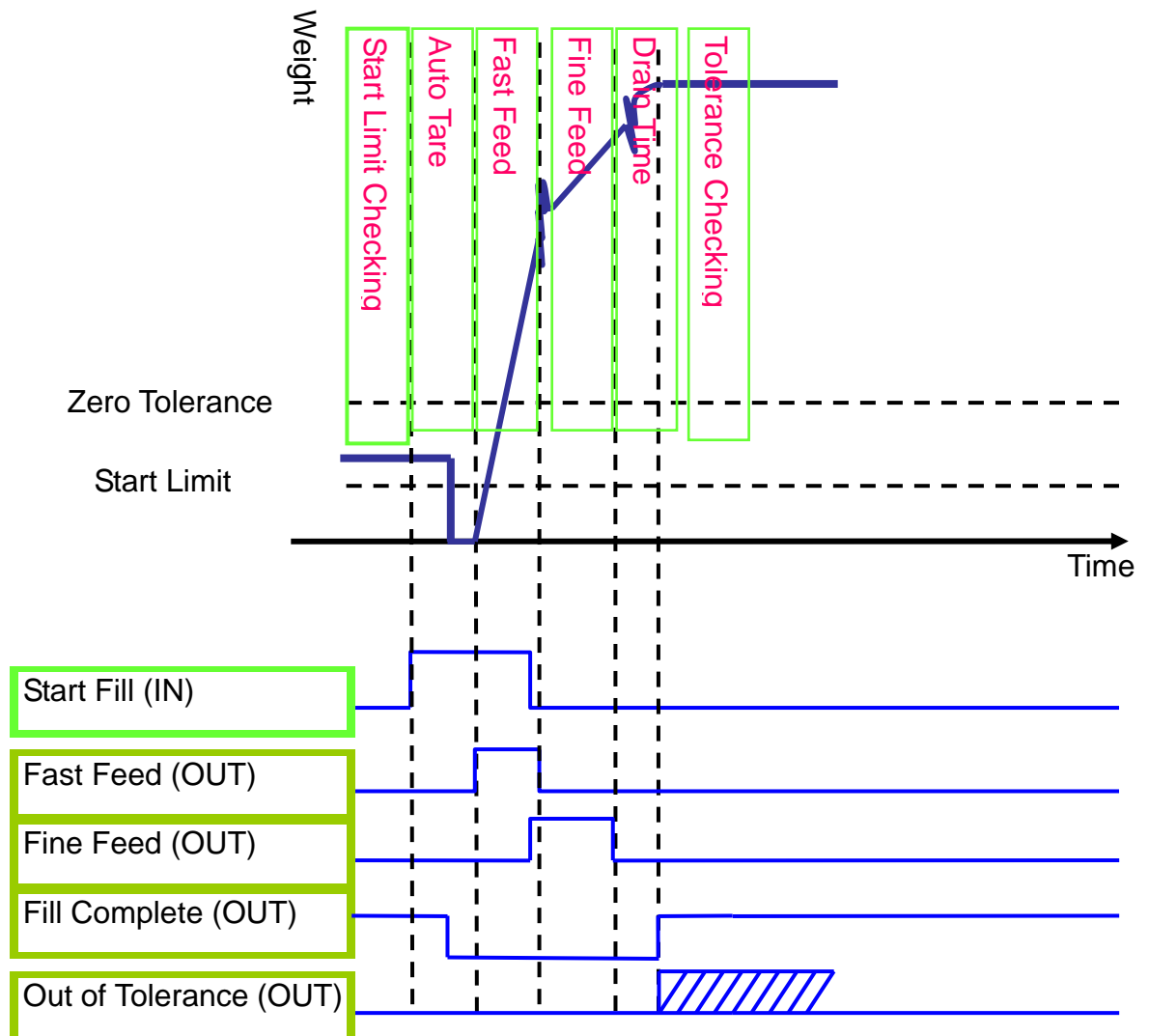
Signal	Application			
	None	Simple Setpoint	Sequence Setpoint	Over/Under
RO1	OFF	Fast Feed	Fast Feed	Under
RO2	OFF	Fine Feed	Fine Feed	Over

5 Setpoint Application

5.1 Simple Setpoint Mode

Display weight < [SP1] - [SP2] - [SP3]: fast feed process
 Display weight < [SP1] - [SP3]: fine feed process
 Display weight >= [SP1] - [SP3]: fill completed

5.2 Sequence Setpoint Mode



- 1) External Input to start feeding or stop feeding.
- 2) Set [6.3], Start Checking Value, before starting feed, gross weight must be more than this value, or it is cannot be started.
- 3) Set [6.4], after starting, the weight will be set to zero auto.
- 4) Set [6.5], [6.6], [6.8], open the self-study, the spill will be changed auto according to the feeding result.

5.3 Under/Over/OK Mode

Display weight < [SP1]: Under = ON, OK = OFF, Over = OFF
 Display weight > [SP2]: Under = OFF, OK = OFF, Over = ON
 [SP1] <= Display weight <= [SP2]: Under = OFF, OK = ON, Over = OFF

Hold Position 1: Gross weight < [SP1], Hold Position 1 output = **ON**, Gross weight > [SP2], Hold Position 1 output = **OFF**.

Hold Position 2: Gross weight < **[SP1]**, Hold Position 2 output = **OFF**, Gross weight > **[SP2]**, Hold Position 2 output = **ON**.

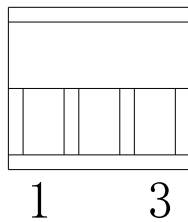
5.4 Zero Tolerance Output

Gross weight <= **[otoL]**: Zero Tolerance Output = ON.
Gross weight > **[otoL]**: Zero Tolerance Output = OFF.

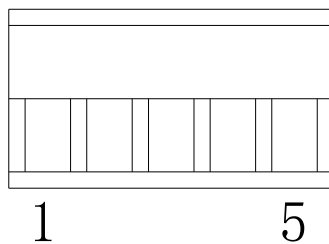
6 Harness Wiring Guide

6.1 Power Input I/F

PIN1 – GND of 24VDC, PIN3-24VDC.



6.2 Serial Port I/F

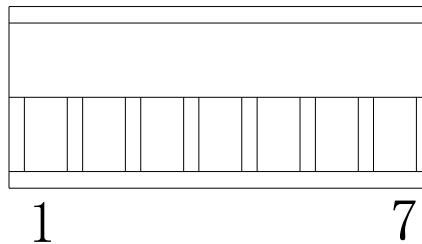


PIN	Signal	Description
1	TXD	RS-232 TXD
2	RXD	RS-232 RXD
3	GND	RS232 GND
4	RS485A	RS485 A
5	RS485B	RS485 B

※ RS232 support not more than 15 meters; RS485 support not more than 600 meters

6.3 Load Cell I/F

7-PIN COMBICON for load cell I/F as below:



PIN	Signal
1	+EXE
2	+SEN
3	+SIG
4	SHLD
5	-SIG
6	-SEN
7	-EXE

Load Cell I/F

※ When connect to 4-wired load cell, make sure short connect +SEN to +EXE, -SEN to -EXE.

6.4 Input / Output Option

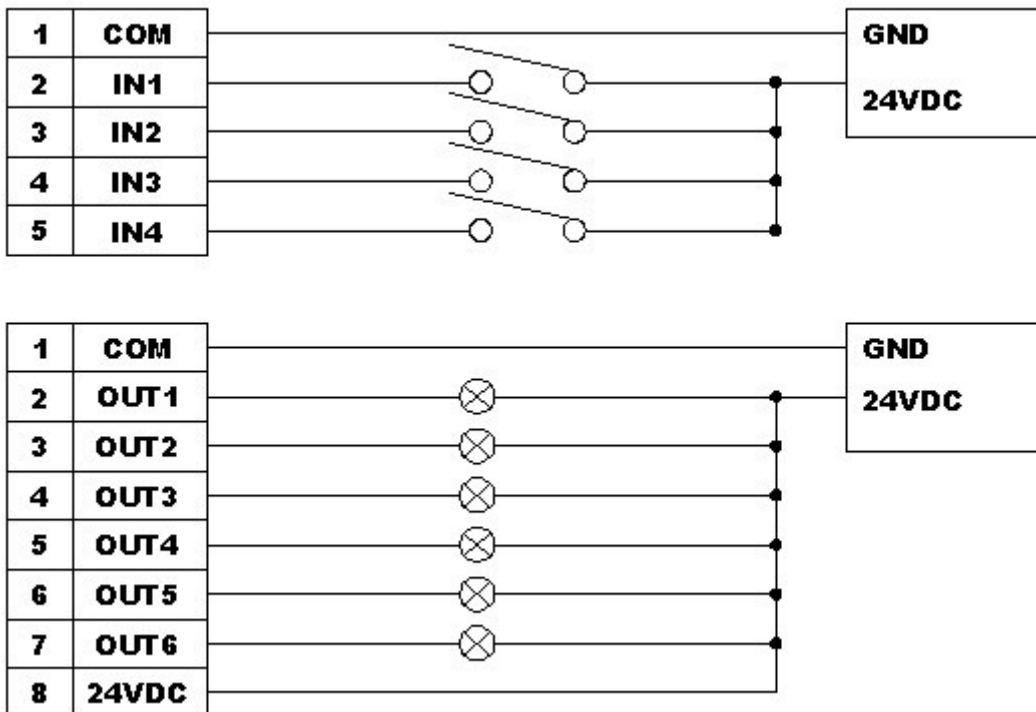
6.4.1 Input

PIN	Signal	Application Mode			
		None	Simple Setpoint	Sequence Setpoint	Over/Under
1	COM	Common GND			
2	IN1	Clear	Clear	Start Setpoint	Clear
3	IN2	Tare	Tare/Zero	Abort Setpoint	Tare
4	IN3	Zero	Reserved	Tare/Zero	Zero
5	IN4	Print	Print	Clear	Print

6.4.2 Output

PIN	Signal	Application Mode			
		None	Simple Setpoint	Sequence Setpoint	Over/Under
1	GND(24VDC)	GND of 24VDC			
2	OUT1	Gross Mode	Fast Feed	Fast Feed	Under
3	OUT2	Net Mode	Fine Feed	Fine Feed	Over
4	OUT3	Motion	Out of Tolerance		OK
5	OUT4	Zero Tolerance			
6	OUT5		Motion	Fill completely	Hold Position 1
7	OUT6	Controlled via Modbus Host	> Start Limit		Hold Position 2
8	24VDC	24VDC			

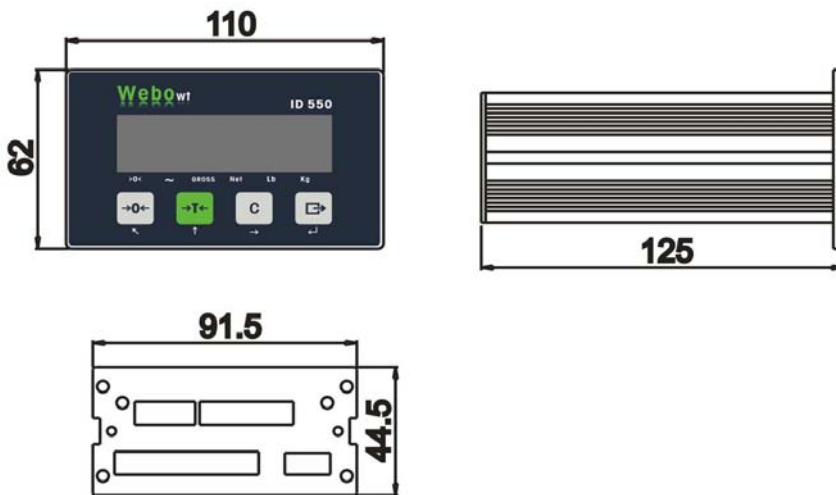
6.4.3 Harness Connection



6.4.4 4-20mA Option I/F

PIN	Signal	Application Mode			
		None	Simple Setpoint	Sequence Setpoint	Over/Under
1	4-20Ma				
2	GND(4-20mA)				
3	n/c				
4	RO1	OFF	Fast Feed	Fast Feed	Under
5	RO1				
6	n/c				
7	RO2	OFF	Fine Feed	Fine Feed	Over
8	RO2				

7 Housing



8 Appendix 1

Factory Default Value		
SP1	Target Value	0
SP2	Fine Value	0
SP3	Spill Value	0
LtoL	Lower Tolerance	0
HtoL	Upper Tolerance	0
otoL	Zero Tolerance	0
Str	Start Checking Value	0
1.1	Increment Size	3000
1.2	Capacity	9 - 1
1.3	Calibration Mode	0 – 2-point calibration
2.1	Filter	1 – Middle Filter
2.2	Adapt Filter	0 – Disable
2.3	Pushbutton Zero	2 - $\pm 2\%$
2.4	Auto Zero	0 – Disable
2.5	Motion Checking	3.0d
2.6	Under Zero Range	0 – Disable
2.7	Over Capacity Range	1
2.8	Pushbutton Tare Mode	1 – Enable
3.1	Serial Port Application	2-CNT – Continuous Output
3.2	Baud Rate	1 – 9600
3.3	Data Size & Parity	2(7,e,1) – 7 data bit, EVEN Parity
3.4	Checksum	0
3.5	MODBUS Node Address	1
4.1	4mA Output Weight	0
4.2	20mA Output Weight	3000
6.1	Target Application Mode	1 – Simple Setpoint
6.2	Output Mode	0 - Ft+Fd : Fd
6.3	Start Checking Value	0
6.4	Start Auto Tare	0
6.5	Auto Spill Mode	0
6.6	Auto Spill Factor	0
6.7	Auto Spill Range	0
6.8	Drain Time	0