GM8895
User's Manual

GM8895-VER-120102

48019050211001

110605070006

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Website：http://www.szgmt.com

Foreword

All of staffs from Shenzhen General Measure Technology Co., Ltd appreciate that you buy GM8895 Remote Display. In order to ensure your installation and wiring correctly, and take full of advantage on capability and function of the remote display, please read the user's manual seriously and keep it properly for reference in the future.

CONTENT

1. General Instructions..... 1
1.1 Function features..... 1
1.2 Front panel illumination..... 1
1.3 Specification..... 2
2. Installation and Wiring..... 3
2.1 Installation..... 3
2.2 Open Remote Display..... 4
2.3 Inside Structure Diagram..... 5
2.4 Power/Communication Terminals Connection..... 6
2.4.1 Power Cable Connection..... 6
2.4.2 Communication Terminals Connection..... 6
3. Application Illumination..... 8
3.1 Mirror Display Function..... 8
3.2 Communication Address Setting..... 8
3.3 Communication Mode Setting..... 9
3.4 Wireless Communication Function..... 10
3.5 Red&Green lights output control function..... 11
4. Working Mode..... 12
4.1 Normal Display Mode..... 12
4.2 Mirror Display Mode..... 13
5 .Communication Protocols..... 14
6. Hanging Board Dimension Diagram..... 32

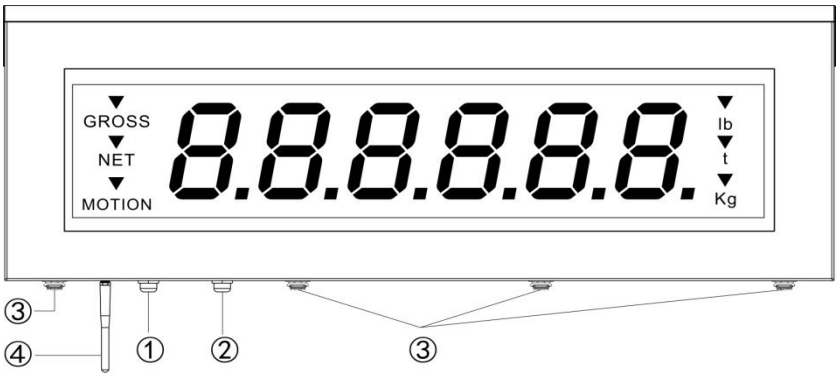
1. General Instructions

GM8895 Remote Display is one of our independent innovation instrument for end show, which is used with various electronic weighing instruments at wide application:**AD-4321**、**AD-4323**、**TOLEDO & Fairbanks R2500**、**Rinstrum, UMC600**、**GSE50 series**、**GSE60 series**、**WI-125**、**WI-127**、**DF1500** and so on**.**

1.1 Function features

- Detachable sunlight shelter to ensure clear vision in sunlight
- Dustproof and Waterproof housing – IP65, Easy installation
- RS232/RS485/current loop communication terminals
- Wireless Communication Function
- Mirror Display mode

1.2 Front panel illumination



P 1-1

① Waterproof Signal Communication Input: connect communication lines with remote display (NOT used for wireless mode).

② Waterproof Power Cable Input: Connect power cable with remote display.

③ Lock Buckle: Lock front and back board of remote display.

④ Wireless Communication Sign Receiver: Receive weighing data from the indicator in wireless communication (optional function).

Main display: Display weighing data, including decimal point and minus sign.

Weight unit

lb： Weight unit is pound.

t ： Weight unit is ton.

Kg：Weight unit is kilogram.

Status light

GROSS: Light for gross weight.

NET: Light for net weight.

MOTION: Light for motion.

1.3 Specification

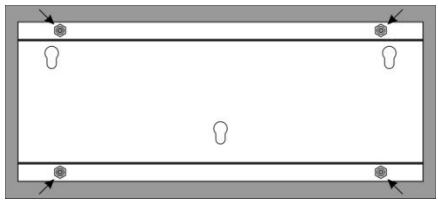
Specification	
Temperature	-10~40℃
Max Humidity	95%R.H
Power Supply	AC90V~260V 50~60Hz
Communication interface	RS232/485; 0~20mA current loop; Wireless（915MHz）
Dimension	900×280×106（mm）(without sunlight shelter)
Dimension	903×296×257（mm）(with sunlight shelter)

2. Installation and Wiring

2.1 Installation

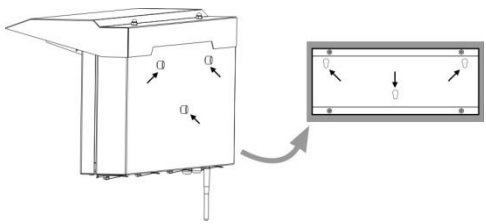
User can fix Remote Display on wall or strong metal stand according to actual application. The following instruction is to fix on wall for example.

1. Fix hanging board on wall **(**Suggesting using M6 dilatants bolts to fix hanging board). Please refer P29 Hanging Board Dimension Diagram.



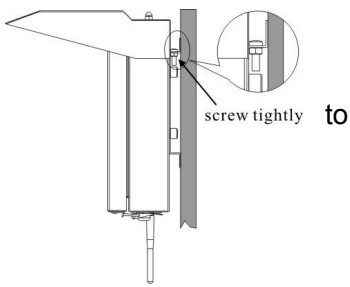
P 2-1

2. Put Remote Display on the hanging board fixed on wall.



P 2-2

3. Ensure Remote Display to be hanged firmly, and then screw tightly fix Remote Display on hanging board.



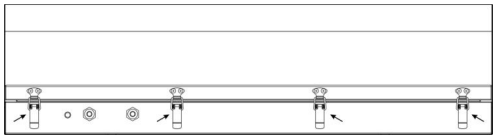
to

P 2-3

2.2 Open Remote Display

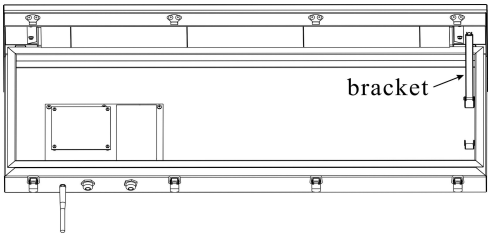
Please open Remote Display as following instruction before connecting power cable /communication terminals or related operation, and then begin to run.

1. Loose four lock buckles (location as following diagram).



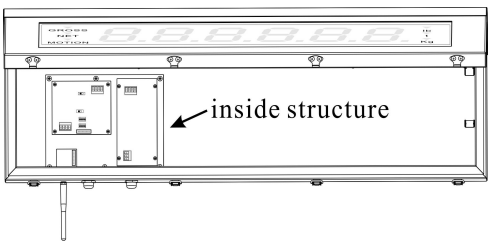
P 2-4

2. Open the front panel of Remote Display, install built-in bracket in Remote Display to support front panel.



P 2-5

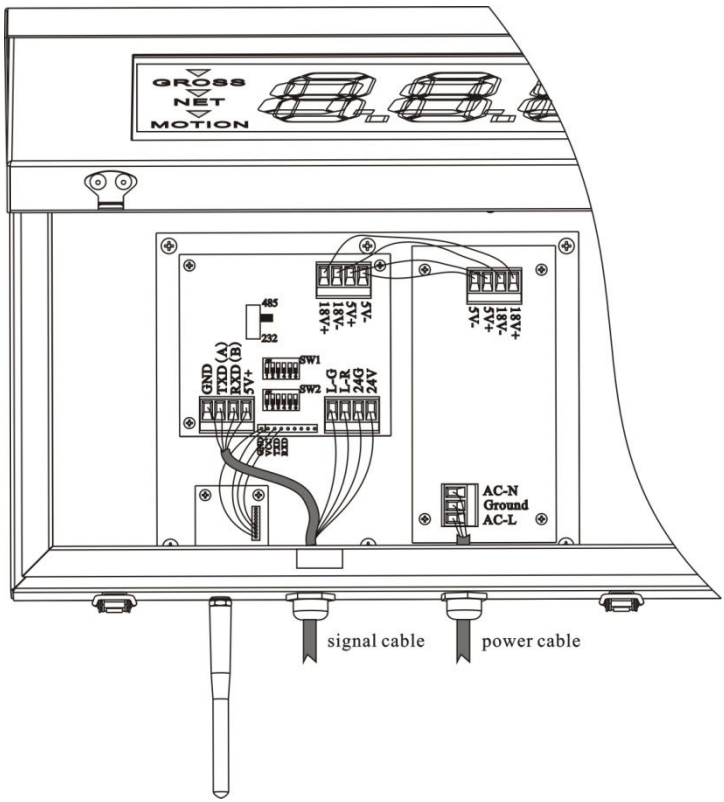
3. The left area is for these electric circuit boards, now begin to connect power cable / communication terminals or operate correlatively.



P 2-6

2.3 Inside Structure Diagram

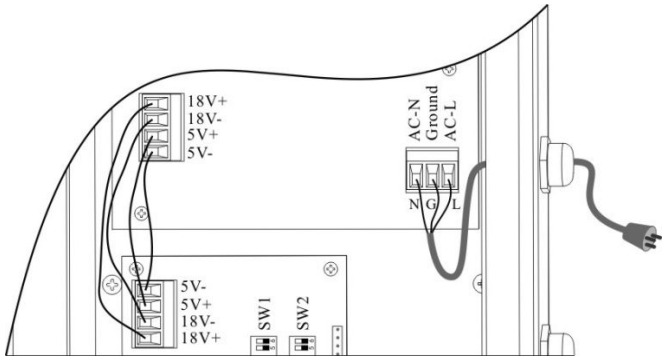
GM8895 Remote Display inside structure and its connection diagram are following:



P 2-7

2.4 Power/Communication Terminals Connection

2.4.1 Power Cable Connection



P 2-8

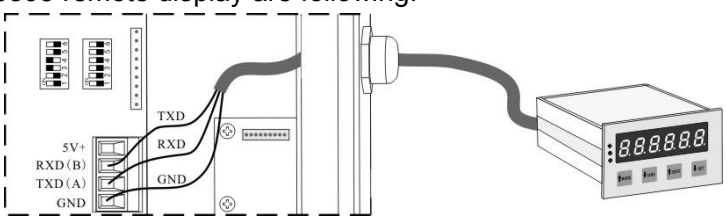
N：Null wire　G：Ground wire　L：Live wire

2.4.2 Communication Terminals Connection

The connection between the indicator and GM8895 remote display are different according to different communication mode. Please refer Chapter 3.3 (P9) for communication mode.

（1）RS232 communication mode

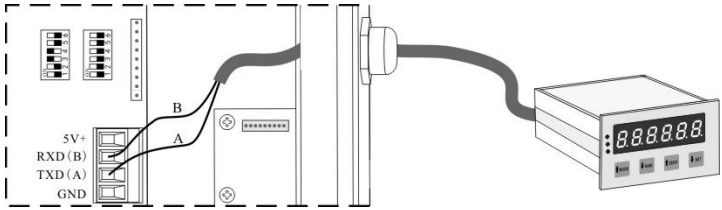
The connection diagram between weighing the indicator and GM8895 remote display are following:



P 2-9

（2）RS485 communication mode

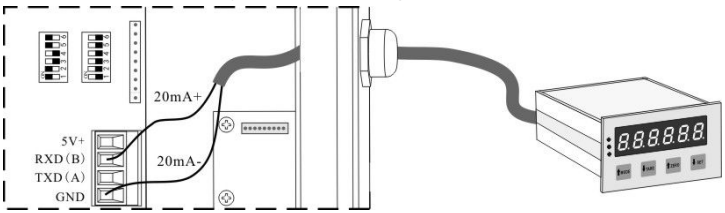
The connection diagram between weighing the indicator and GM8895 remote display are following:



P 2-10

（3）0～20mA Electric current loop

The connection diagram between weighing the indicator and GM8895 remote display are following:



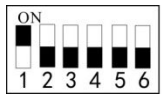
P 2-11

3. Application Illumination

3.1 Mirror Display Function

With this function, weighing data can be displayed in reversed format to suit special requirement.

Push SW2 switch（blue switch）D1 to ON, Then power on again, weighing data will be displayed in reversed format.



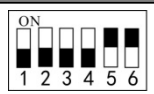
SW2

3.2 Communication Address Setting

Through D3、D4、D5、D6 of SW2 switch (blue switch) to set communication address, after setting, power on again. Near number side is defined 0, and near “ON” side is defined 1. Please restart GM8895 to make new setting effect. The address table:

D3	D4	D5	D6	Display Address
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
…	…	…	…	…
1	1	1	1	15

For example: If present SW2 switches are same as right Diagram, the current remote Display address is “3”.



SW2

When Remote Display address is “0”, it works in single communication mode, and address is meaningless for communication; while the address is not “0”, it works in multiple communication mode, and address should be matched when communication.

3.3 Communication Mode Setting

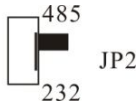
Set desirable serial communication mode by adjusting SW1 and JP1, JP2 location on main board. After setting finished, please restart GM8895 to make new setting effect.

（1）RS232 mode

Push SW1 switches (red switch) D3 and D4 to ON, others to OFF. And push JP2 switch to 232 side.

（2）RS485 mode

Multiple communications can be preceded by RS485 mode, which means more GM8895 remote displays can be connected in one 485 communication net, but display weighing data separately.

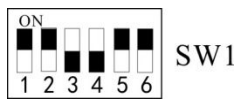


Push SW1 switches (red switch) D3 and D4 to ON, other to OFF. And push JP2 switch to 485 side.

（3）0～20mA current loop mode

Please run GM8895 Remote Display first, and then run connected weighing the indicator.

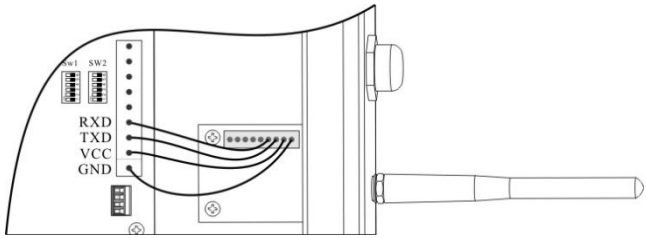
Put SW1 switches (red switch) D3 and D4 to OFF, others to ON.



3.4 Wireless Communication Function

（1）Wireless communication is a transmitter by point-to-point style, thus no cables connected between the indicator and GM8895 remote display to reduce site wiring.

（2）Within the range of visibility, the reliable transmission distance is >2500m when the height is greater than 2m from ground; Within the range of visibility, the reliable transmission distance is >2800m when the height is greater than 5m from ground.



P 3-1

1. For wireless communication, only 4 lines are necessary to connect, other 5 lines are reversed, please do NOT connect. See above diagram for details.
2. Suggest communicating by cables in no special requirement or sign-disturbed application.

Attention: SW2 switches (blue switch) D2 is reserved for manufactory, must be OFF at any case to ensure remote display run well.

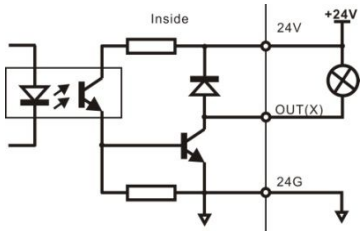
3.5 Red&Green lights output control function

GM8895 has 2 on/off data output interfaces to control the red&green lights.(Optional function)

Interface definition diagram:

Output	
L-G	Green light
L-R	Red light

GM8895 uses optoelectronic isolation technology to transfer the ON/OFF data. This needs 24V DC power supply that is provided from outside, through the **24V** (DC+) and the **24G** (DC-).The I/O signal input is low level effective.The output is open-collector output. The driving current can reach **1A.**



4. Working Mode

4.1 Normal Display Mode

1. When GM8895 remote display power on，it will run self-test at first. Main display twinkle numbers "**9.9.9.9.9.9.**" and "**0.0.0.0.0.0.**" at one second alternation.

P 4-1

2. When GM8895 remote display connects with the indicator properly, and can receives weighing data from the indicator, GM8895 will display the current weighing data within some time.

For example, if current weighing data is net weight 1980Kg, then remote display will show as following:

P 4-2

Note: if the connection is not correct, or present data haven't been received from the indicator, so GM8895 will show "------".

P 4-3

4.2 Mirror Display Mode

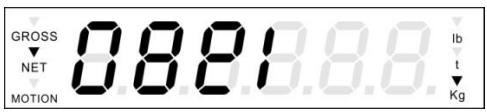
If Mirror Display switch is ON, all weighing value will be reversed on GM8895.

The following diagram indicates above mirror display:

1. P 4-1 corresponding mirror display as follows:

P 4-4

2. P 4-2 corresponding mirror display as follows:



P 4-5

3. P 4-3 corresponding mirror display as follows:

P 4-6

5. Communication Protocols

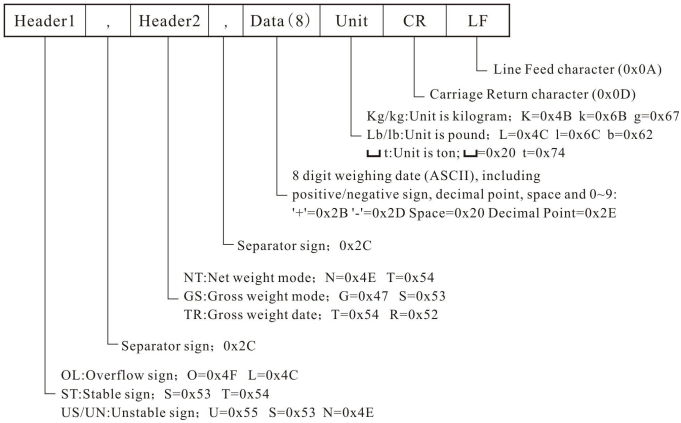
GM8895 Remote Display can connect with present famous weighing indicators, and can suit serial interface parameters (baud rate/communication protocol) automatically, which means it possess auto-recognized function for communication protocols of various weighing indicators. GM8895 remote display have three kinds communication modes: RS232/RS485, and 0~20mA current loop. Any communication mode can suit following communication protocols, and also can suit user-defined communication protocols.

Support baud rates: 2400/4800/9600/19200

The remote display is terminal display instrument connected with weighing equipment, so only the sign, numbers, decimal point and unit characters can be shown correctly, not to display text characters.

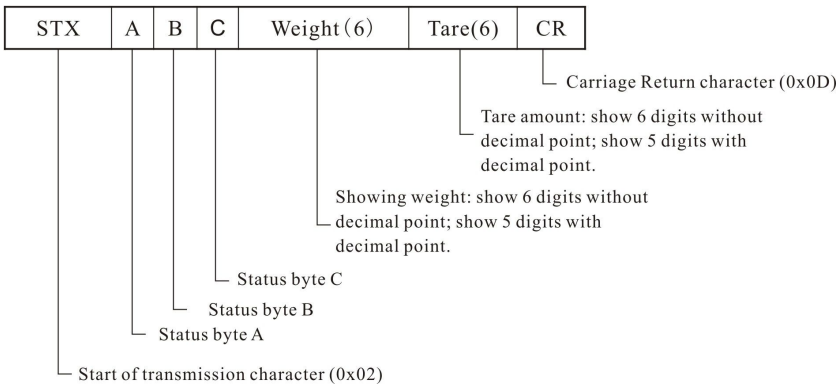
5.1 A&D-4321（AD-4323）

Data format:



5.2 TOLEDO & Fairbanks R2500

Data format:



Status byte A：

Bits0, 1, 2 indicate the position of decimal point; Bits3, 4 are the division factor.

bit	X00	X0	X	X.X	X.XX	X.XXX	X.XXXX	X.XXXXX
0	0	1	0	1	0	1	0	1
1	0	0	1	1	0	0	1	1
2	0	0	0	0	1	1	1	1

bit	division factor1	division factor 2	division factor 5
3	1	0	1
4	0	1	1
5		Always logic **1**	
6		Always logic **0**	
7		Odd/even bit	

Status byte B:

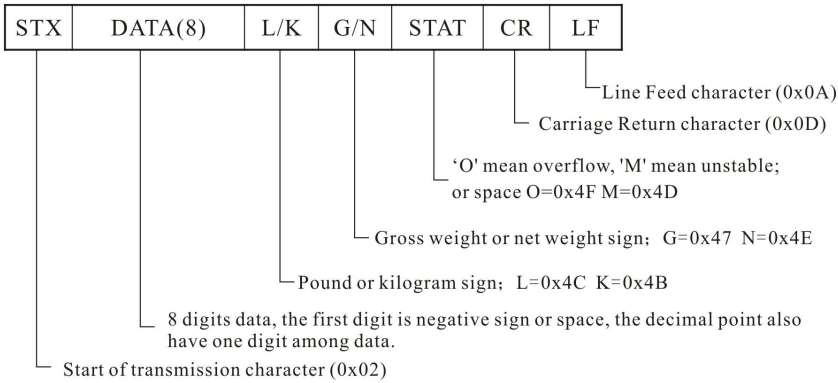
bit	Status	
0	Gross＝0	Net ＝1
1	+ ＝0	- ＝1
2	Normal ＝0	Overflow＝1
3	Stable ＝0	Unstable ＝1
4	Pounds (lb)＝0	Kilo Grams(kg)＝1
5	Always logic 1	
6	Normal ＝0	Power up=1
7	Odd/Even bit	

Status byte C:

bit	Status
0	Always logic **0**
1	Always logic **0**
2	Always logic **0**
3	Normal＝**0**　　Print enabled＝**1**
4	Always logic **0**
5	Always logic **1**
6	Normal＝**0**　　Tare enabled＝**1**
7	Odd/Even bit

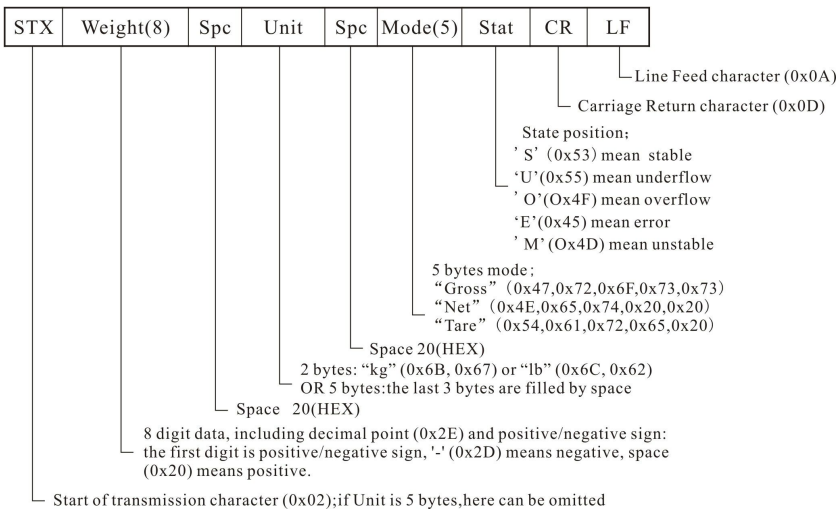
5.3 UMC 600

Data format:



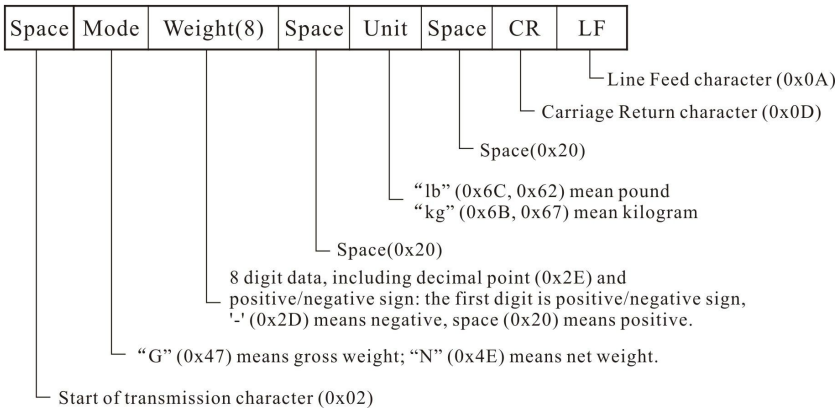
5.4 GSE 60 series (GSE 50 series)

Data format:



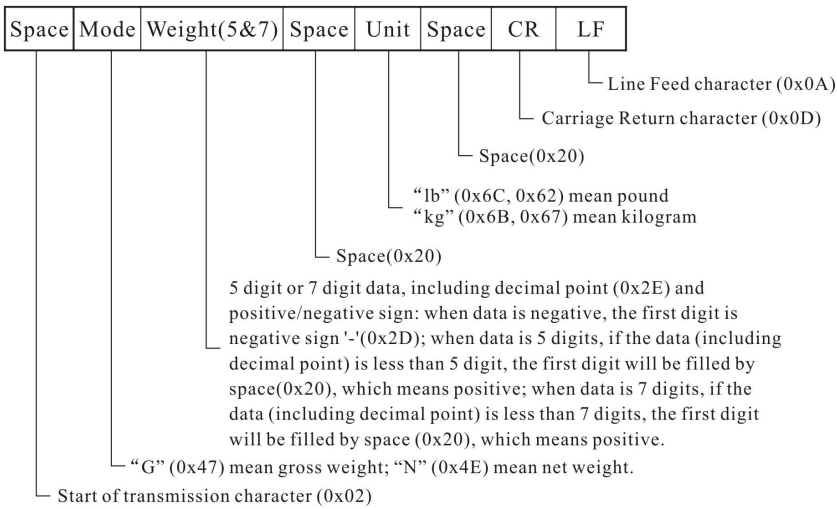
5.5 WI-125

Data format:



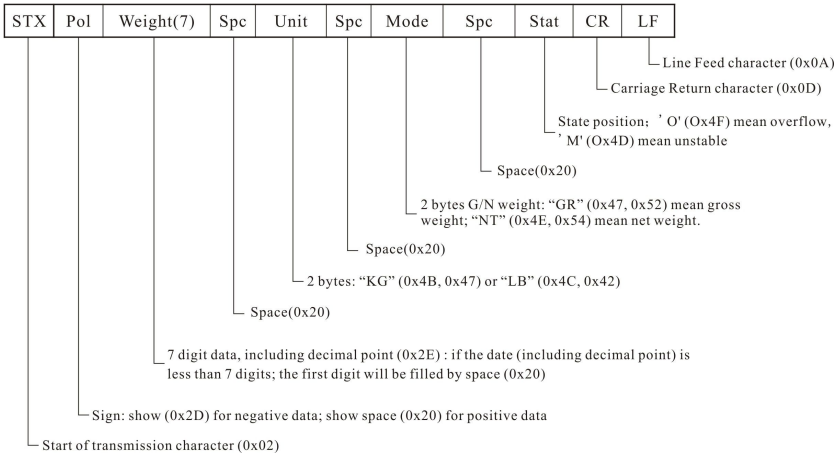
5.6 WI-127

Data format:



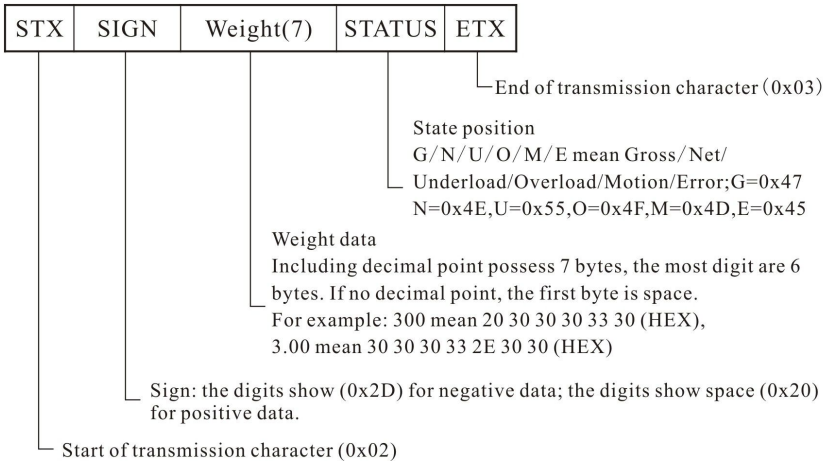
5.7 DF1500 series

Data format:



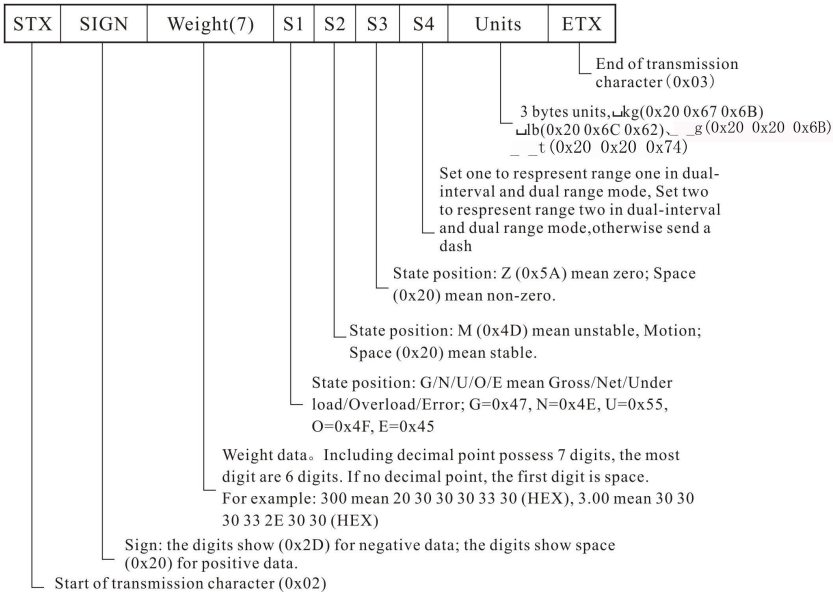
5.8 Rinstrum A protocol

Data format:



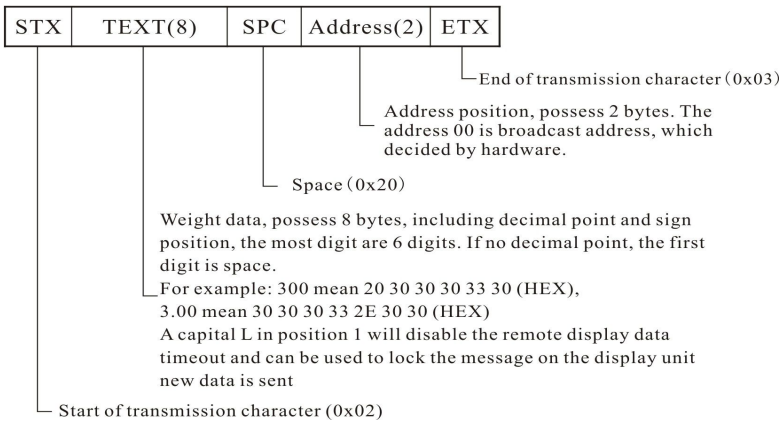
5.9 Rinstrum C protocol

Data format:



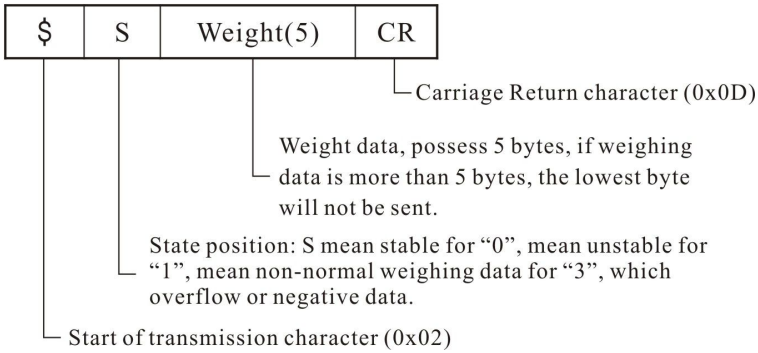
5.10 Rinstrum PC protocol

Data format:



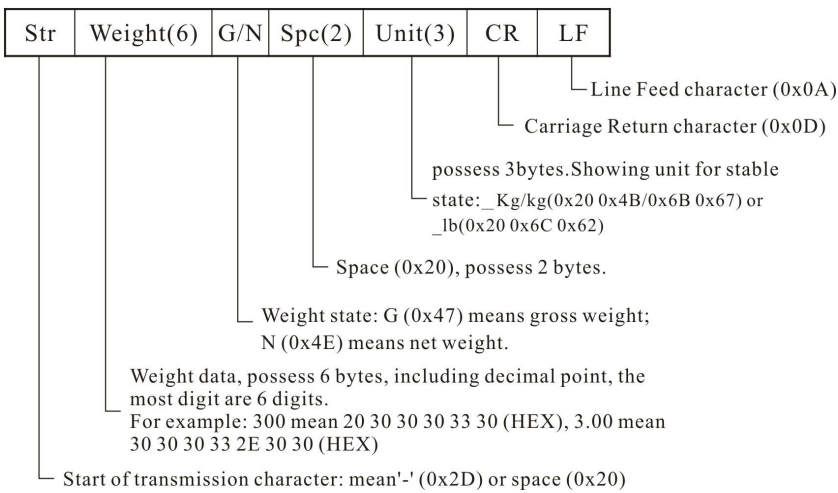
5.11 Bilanciai D800 Cb protocol

Data format:



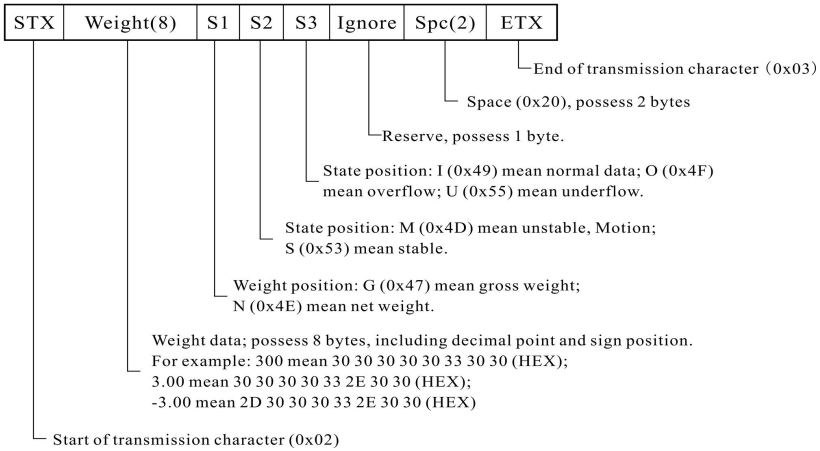
5.12 HBM WE2107 EOP 6 protocol

Data format:



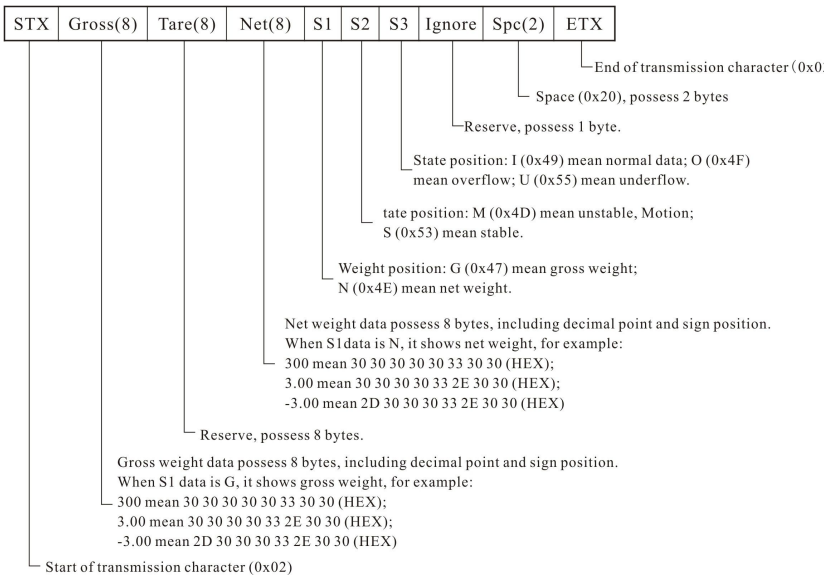
5.13 Gedge C2 protocol

Data format:



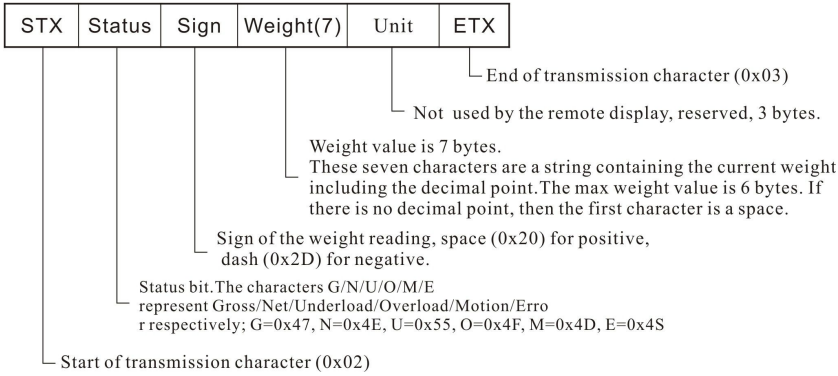
5.14 Gedge C3 protocol

Data format:



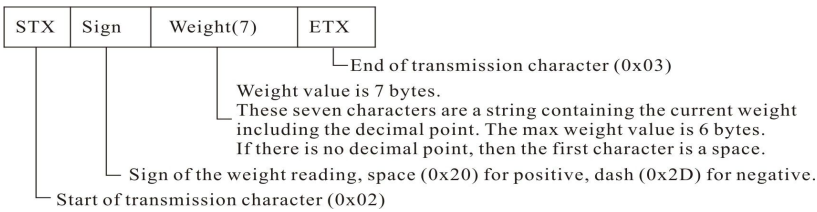
5.15 Protocol NO.1

Data format:



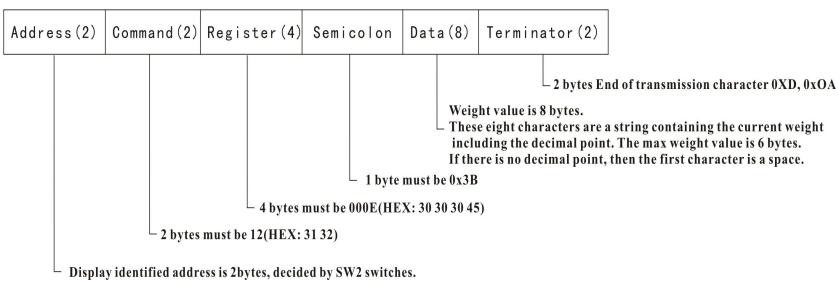
5.16 Protocol No.2

Data format:



5.17 Protocol No.3

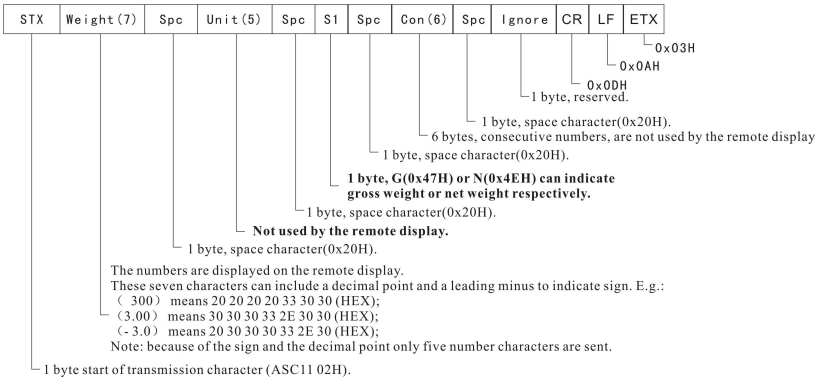
Data format:



Note: The display timeout is disabled, which means that the message will remain on the display until new data is sent.

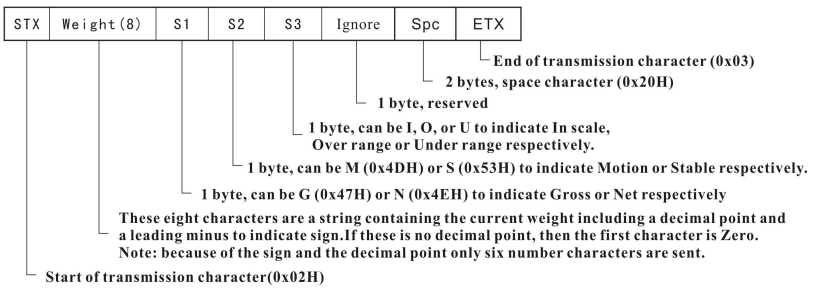
5.18 Protocol No.4

Date format:



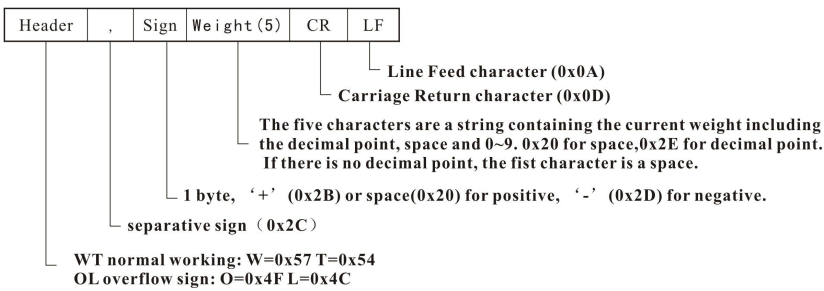
5.19 Protocol NO.5

Data format:



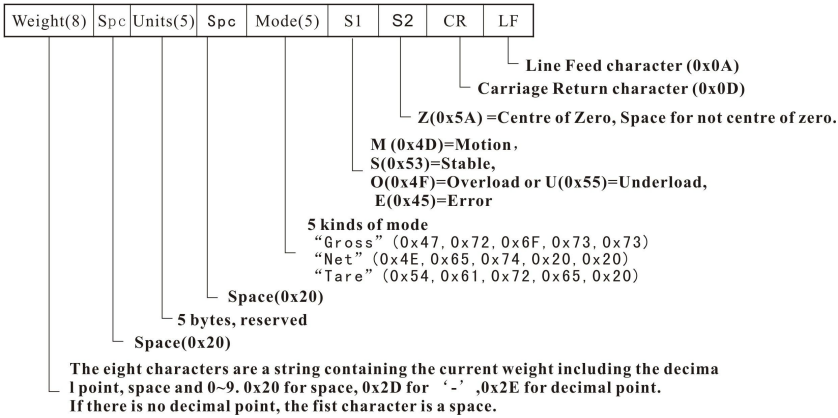
5.20 Protocol No.6

Data format:



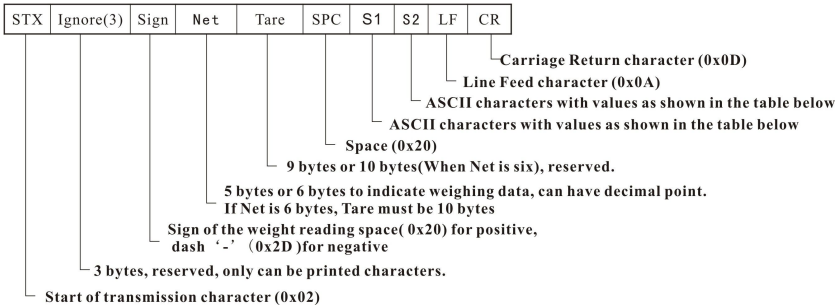
5.21 Protocol No.7

Data format:



5.22 Protocol NO.8

Data format:



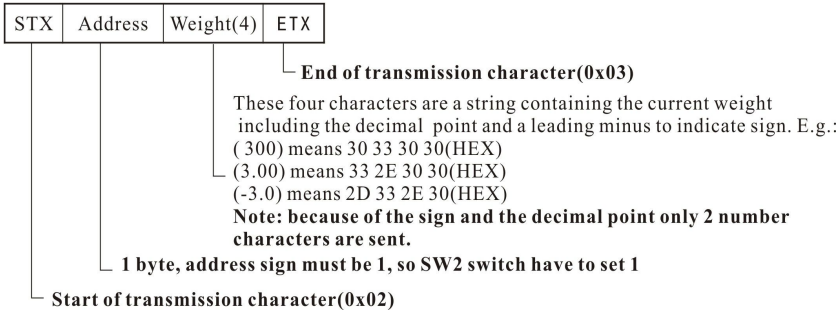
Status **S1** and **S2** are **0~F ASCII** code:

S1	S1 Status
0	Tare=0,preset Tare=1 Only used in Net mode.
1	Motion=0,Stable=1
2	Not COZ=0,COZ=1
3	Gross=0,Net=1

S2	S2 Status
0	Units=kg
1	Units=g
2	Units=T
5	Weight longer than string, Display will be blanked.

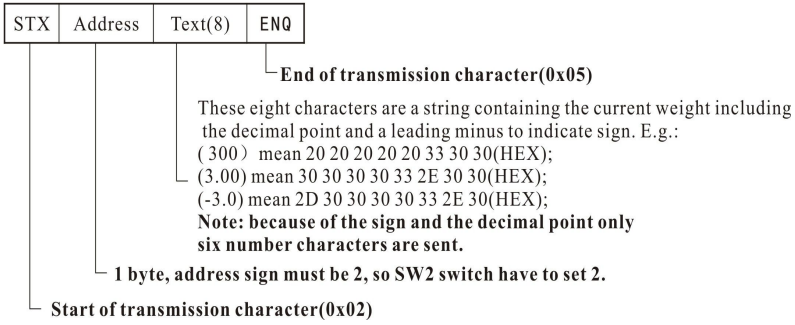
5.23 Protocol NO.9

Data format:



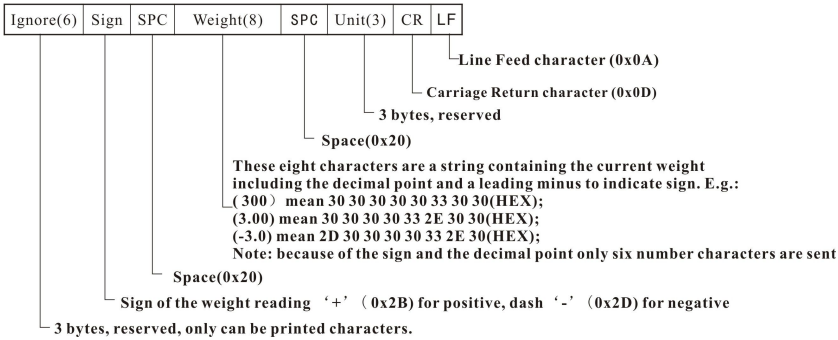
5.24 Protocol No. 10

Data format:



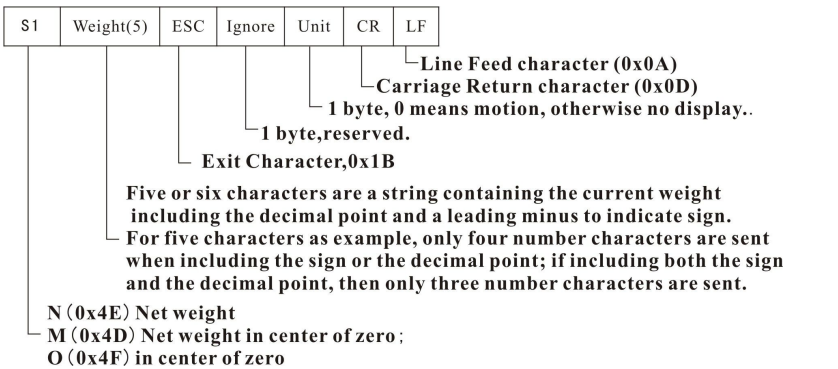
5.25 Protocol NO.11

Data format:



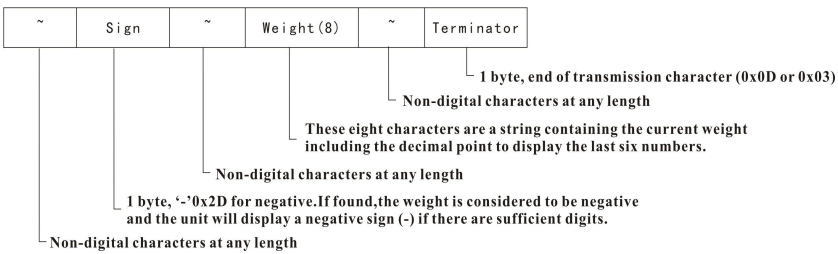
5.26 Protocol No.12

Data format:



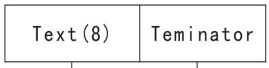
5.27 Protocol No. 13

Data format:



5.28 Protocol No. 14

Data format:

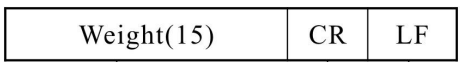


1 byte, end of transmission character (0x0D or 0x03)

These eight characters are a string containing the current weight including the decimal point and a leading minus to indicate sign. E.g.:
(300) mean 20 20 20 20 20 33 30 30(HEX);
(3.00) mean 30 30 30 30 33 2E 30 30(HEX);
(-3.0) mean 2D 30 30 30 30 33 2E 30(HEX);
Note: because of the sign and the decimal point only six number characters are sent.

5.29 Systec protocol

Data format:



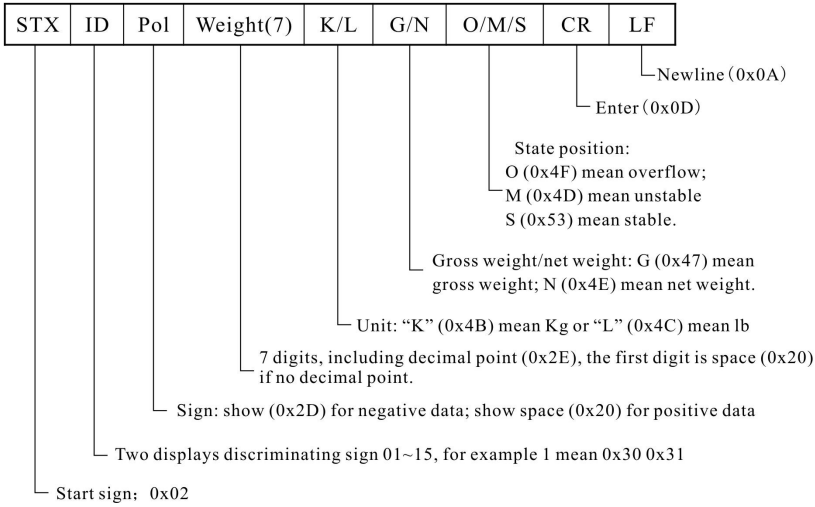
0x0A

0x0D

Weight data; possess 8 bytes, including weight data, state position, unit, decimal point and sign position. If present data are not full of 15 bytes, space will be filled.
For example: '123456789012345' (all are ASCII when sending data); ' S 10.98t';'SD 1098kg': S mean Scale Settled, stable; SD mean Scale in motion, unstable; the thirteenth byte always is space (0x20).

5.30 GM Multiple communication protocol

Data format:



Rinstrum PC protocol and GM Multiple communication protocol are used in multiple communication mode, which communication address setting refers to illumination P8.

5.31 Fidelity Protocol

Data format:

Header 1	,	Header 2	Sign	Data (7)	,	Unit	CR	LF

Here:

Header1:2bits

ST —— Stable sign，**S=0x53 T=0x54**

US——Unstable sign，**U=0x55 S=0x53**

, **——** Separator sign: **0x2C**

Header2：2bits

NT —— Net weigh mode，**N=0x4E T=0x54**

GS ——Gross weight mode，**G=0x47 S=0x53**

Sign —— the digits show (0x2D) for negative data and space (0x20) for positive data.

Data（7）—— 7 bits weight value including decimal point(**0x2E**). If there is no decimal point, then the first character is space.

Unit:2bits

kg——kilograms **k=0x6B g=0x67 ;**

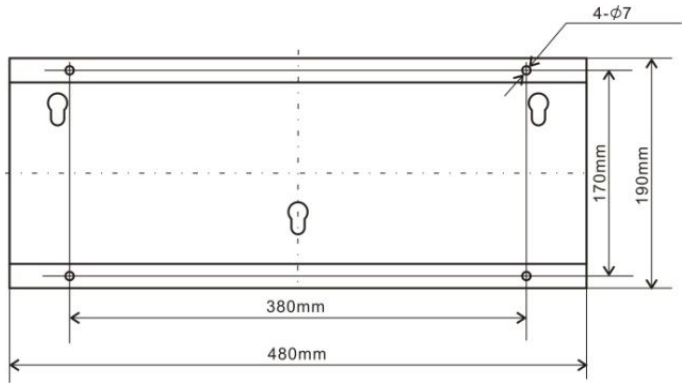
lb——pounds **l=0x6C b=0x62 ;**

t **——** ton **=0x20 t=0x74**

CR —— Carriage Return 0x0D

LF —— Line Feed 0x0A

6. Hanging Board Dimension Diagram



P 6-1