VETEK

ALL YOU NEED FOR WEIGHING

Technical Manual

VC Series

Counting Scales

Contents

SECTION1. SPECIFICATIONS

1.1 General Specifications

Measuring System : strain gauge load cell system
Accumulation function : accumulate times and accumulate total weight
Limit Function : user can input low limit and low limit by numeric keyboard, 3 checkweighing alarm mode selectable.
Display : Hi/M+ window and low/total window: 12.5mm digits high LCD
Weight window: 16.5mm digits high LCD
Attached EL backlight
Power Supply : 12VDC/500mA with power switch
Optional lead acid battery (6V/1.3A)
Communication: Optional RS-232 port

1-2. Standard Models

Model	VC-30	VC-60	VC-150	V-300	V-600
Capacity	30kg	60kg	150kg	300kg	600kg
Min division	2g	5g	10g	20g	50g
Pan size	355mmx455mm	355mmx455mm 420mmx520mm	355mmx455mm 420mmx520mm	420mmx520mm 600mmx800mm	420mmx520mm 600mmx800mm
Stabilisation Time	1 Seconds typical				
Operating Temperature	0°C - 40°C / 32°F - 104°F				
Load cell drive voltage	5V/150mA				
Load cells	Up to four 350 ohms cells				

SECTION 2. UNPACKING & INSTALLATION

2. 1. Unpacking

Unpack the container carefully. Examine the packaging and the device for any damage, and report it to the shipper if there is any. Try to keep the scale upright. Check for enclosures as follows:

- ✓ Scale platform
- ✓ Stainless steel pan
- ✓ Weighing indicator
- ✓ AC Adapter
- ✓ Operation manual
- ✓ Ni-MH battery (optional)

Note :

1. If any items are missing or any damage is discovered immediately notify your place of purchase or a dealer.
2. Keep box and shock absorber pad after installation. They are required for transportation.

2. 2 Installing the scale

The pillar is attached to the base using a bracket that must first be attached to the base frame using the 4 bolts supplied. The Pillar is secured to the bracket using 2 set screws. The cable from the base to the indicator module is run through the tube, out through the plastic support at the top. Excess cable can be stored within the tube.

The VC Series comes with a stainless steel platform packed separately. Place the platform in the base.

Attach the indicator module to the pillar by sliding it over the bracket with the flanges engaged in the groves on the base. Attach the cable from the base to the connector on the rear of the indicator.

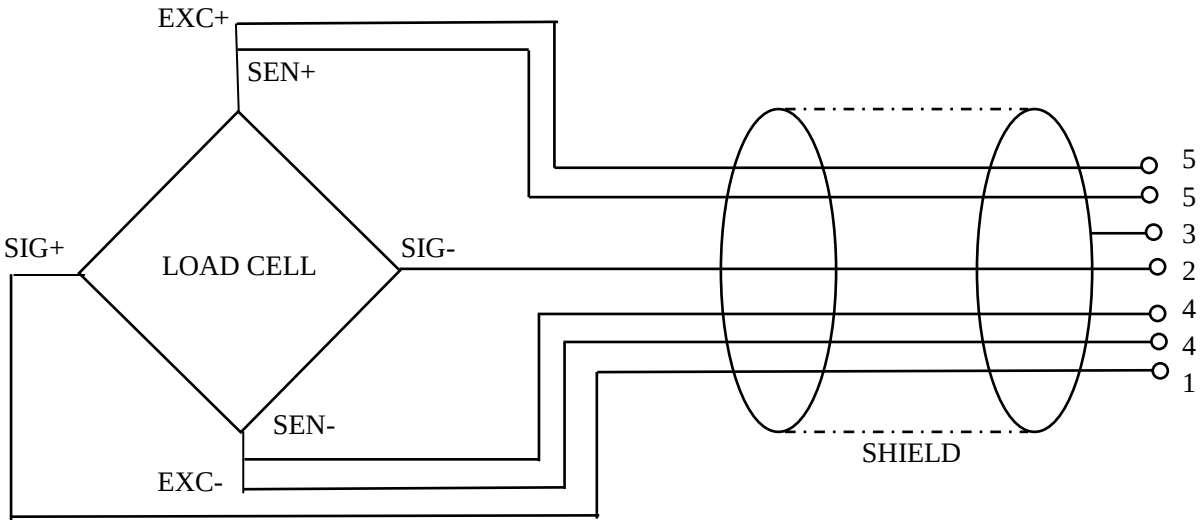
2. 3 To Level the Scale

Level the scale by adjusting the four feet. The scale should be adjusted such that the bubble in the spirit level is in the centre of the level and the scale is supported by all four feet. If the scale rocks readjust the feet.

The scale must be level for proper operation. Use the 4 level adjusters located at the 4 corners of the scale main unit to adjust the horizontal position of the scale until the bubble of the bubble level lies within the red circle. Ensure that the scale sits solidly and does not wobble due to uneven adjustment.

2.4 Load cell connect

Load cell connect as below (5pin air connecter)



2.5 Performance Test

1. Connect the AC adapter at the rear of the scale, and then plug the cord to the power supply outlet

2. Press 

key. Quantity display will be show the weighing system software version and will show all display, segments and characters then will count down numbers 9 to 0 as a self test. During the self test press 

key to show the application software version.

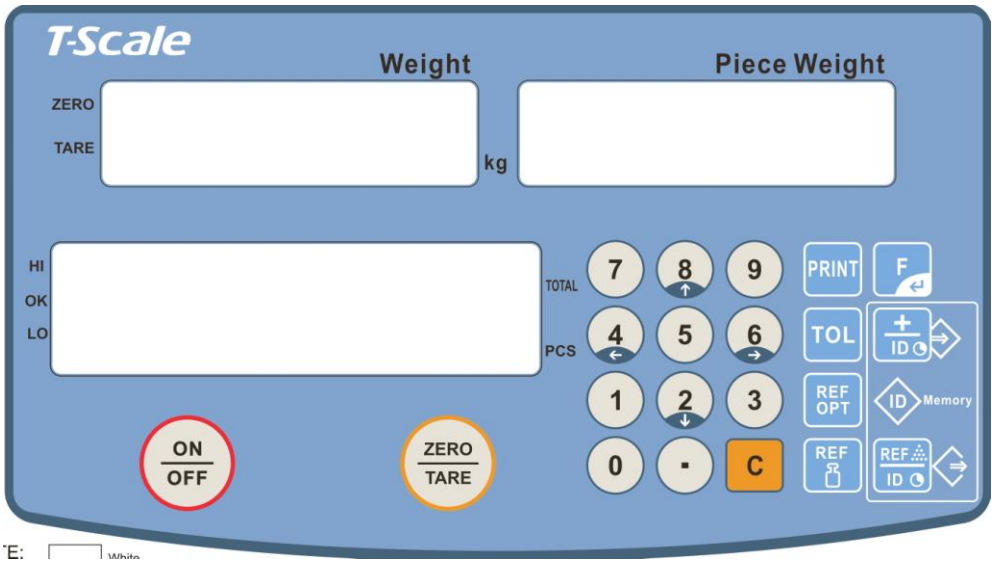
3. Verify that the display changes by touching the pan slightly, and that it returns immediately to the normal display by releasing pan.

2. 6 Installation precautions

The VC is a precision instrument and requires careful handling. Try to select a good, clean environment for installing the scale. The following factors may cause the scale to return inaccurate measurements.

1. Installation on a soft surface that may flex when objects are put on it or put on the scale.
2. Environments that have greatly varying temperature and humidity.
3. Environments subject to vibration or an unstable surface for installation of the scale.
4. Environments subject to air flow from heaters or other air conditioning units.
5. Environments subject to corrosive gases or large amounts of dust.
6. Environments subject to direct sunlight.

SECTION 3. OPERATION KEY FUNCTIONS



Key	Function
ON OFF	Turn On/Off
ZERO TARE	Taring (>2% Max), Zero Settings (<2% Max) In Settings, Change Menu Settings
PRINT	Calculate Weighing data through interface
TOL	Set High/ Low Limits
REF OPT	Reference Optimization
REF	Set Unit weight
F	Menu Function and Enter Key
+ ID	Accumulation Exit to the weighing mode
REF ID	Set Sample
C	Cancel
0 to 9	Numeric keys

SECTION 4 BEEP SIGNALS AND CONDITION SYMBOLS

VC signals you various messages by four different beep signals and four symbolic letter as shown as under. These signals and symbol tell you;
(a) instruction to the next operation, (b) warning for faulty operation,
(c) indication of unsuitable data, (d) indication of measuring condition.

4. 1 Messages by beep

Beep Signal Conditions
Short beep (one time) : Confirmation for pressing the key.
Long beep (one time) : Completion for set data storing.
Short beep (two times) : Warning for faulty key operation. (Try to re-input)
Short beep (three times) : Warning for miss key operation. (Stop the operation)
Long beep (continuously): in check weighing mode, when OK indicator on, beep will on, also when set low limit higher than high limit, beep also will on.

4. 2 Messages by symbolic letters

ZERO : zero indicator, when scale in zero point, this indicator will on.
TARE: tare indicator, after do tare operate, scale in net weight mode, this indicator will on
○: stable indicator, please only read data when this indicator on.
M: when enter factory mode, this indicator will no display.
Hi: when this indicator on, current weight more than high limit (only valid in check weighing mode)
OK: when this indicator on, current weight is between hi limit and low limit (only valid in check weighing mode)
lo: when this indicator on, current weight less than low limit (only valid in check weighing mode)
TOTAL: when this indicator on, quantity window data is total counts
LIGHT: unit weight too low, when unit weight less then 0.2d, this indicator will flash, scale will can't accept the unit weight, when unit weighing more than 0.2d and less than 2d, this indicator will light, scale will still accept the unit weight.
BUSY: write memory or calculate data
 : charging status display,
when use AC adapter directly, this indicator will blank
when charge battery, this indicator will blink
when full change(with AC adapter), this indicator will be full
when full battery (with out AC adapter), this indicator will be full
when low battery, this indicator will be half.

SECTION 5. OPERATION

5. 1 General instruction

1. When battery goes low, the indicator will be half automatically. It is the time to charge the battery with the AC power. If **VC** goes on being used without proper charging, the display window will show "**BAT LO**" every 10 minutes, and **VC** would be shut down automatically after 50 minutes of warning in order to protect the battery. Please charge the battery immediately, or **VC** cannot be used.
2. The battery symbol will blink when charge, after it change to full symbol, this means charge almost full, please go on charge battery around 1 hour to assure battery charge full.
3. Even you haven't use VC, please also charge battery every 3 month to protect the battery

5. 2 Basic operation

5. 2. 1 Zero the scale

When there is no item on the scale but reading is not zero, press the 

key to turn on ZERO indicator, When the weight goes over 2% of the full capacity, scale will do tare operate.

5. 2. 2 Tare

Put container on the platter, once the weight reading is stable (○ indicator turn on), press the 

key, the TARE indicator will be on and the container's weight will be deducted. When it is time to clear the TARE, take off the container, and press 

key again. The container weight must more then 2% of capacity, otherwise, scale will do zero operate.

.

5. 2. 3 Overload Warning

Please do not add item that is over the maximum capacity. When reading "O-Err" and hear beeping sound, remove the item on the platter to avoid damage to the load cell.

5. 3. Unit weight set

5.3.1 Sampling unit weight

In order to do parts counting it is necessary to know the average weight of the items to be counted. This can be done by weighing a known number of the items and letting the scale determine the average unit weight or by manually inputting a known weight using the keypad.

Weighing a sample to determine the Unit Weight

To determine the average weight of the items to be counted it will be necessary to place a known quantity of the items on the scale and then to key in the quantity being weighed.

The scale will then divide the total weight by the number of samples and display the average unit weight.

Zero the scale by pressing the 

key if necessary. If a container is to be used, place the container on the scale and tare as discussed earlier.

Place a known quantity of items on the scale. After the weight display is stable enter the quantity of items using the numeric keys followed by 

key. The number of units will be displayed on the "Quantity" display and the computed average weight will be shown on the "Piece Weight" display.

As more items are added to the scale, the weight and the quantity will increase.

If the scale is not stable, the calculation will not be completed. If the weight is below zero, the quantity display will show negative count.

When LIGHT (unit weight window) indicator flash, this means current unit weighing it too low for this specification scale, please try to use other specification scale, otherwise, you will can’t get accurate count data.

*if you input a incorrect data, press 

key to clear.

5.3.2 Entering a known unit weight

If the unit weight is already known then it is possible to enter that value using the keypad.

Enter the value of the unit weight using the numeric keys followed by pressing the 

key. The "Piece Weight " display will show the value as it was entered.

The sample is then added to the scale and the weight will be displayed as well as the quantity based upon the unit weight.

When LIGHT (unit weight window) indicator flash, this means current unit weighing it too low for this specification scale, please try to use other specification scale, otherwise, you will can’t get accurate count data.

*if you input a incorrect data, press 

key to clear.

5.3.3 resample

After completing the memorizing, you add the sample more and have new unit weight value. This is resample function.

Add some samples, press 

key. Weight, Unit weight and quantity displays light with beep, the memory is updated. Add the samples more and more repeating the above operation, then more precise average unit weight

value is memorized.

5.4 Accumulation.

5.4.1 normal accumulate counting

before do accumulation operate, please set unit weight, then load partial samples, quantity window will show current counts, after ○ indicator on, press  key, quantity windows will show current total weight (TOTAL indicator on) for 3 second, then return to normal count mode.
Please note, before you stare next accumulate, scale must return to zero.

5.4.2 Accumulation mode

When in normal count mode, press  key, scale will enter accumulation mode. Weight window will show current count value, unit weight will show new total weight, quantity window show current total weight (TOTAL indicator flash).

In accumulation mode, after add sample and **O** indicator on, press  key, quantity window will show total count.

5. 5 Limit set and Comparing

5.5.1 Limit Set

Before use this function, pleas sure limit function must be set enable (see detail in parameter setting table), you can set either one point or two points limit.

Press  key. L ı-Lo appear at Weighing display, and low limit value shows that currently set at UNIT.W display, enter low limit value with numerical keys, press  key. Low limit set, and a beep will sound to sign. Then L ı-H ı appears at Weighing display, and high limit value shows that currently set at UNIT.W display, then advance to the high limit, enter high limit value with numerical keys, press  key. High limit set, and a beep will sound to sign. High limit set, and go back to working area.

5.5.2 Look up limit values

Press  key. L 1-Lo appears at Weighing display, and low limit value shows that currently set at Piece. W display. Press  key. L 1-H 1 appears at Weighing display, and high limit value shows that currently set at UNIT.W display. Press  key. Go back to working area.

In case that only one point (13.Pn. 1) is selected to set, low limit value shows after press  key at once go back to working area.

5.5.3 Comparing (how limit function work)

Suppose two limits have been set;
When the quantity is under the low value, it is ranked as " LO "
When the quantity is between the low value and the high, it is ranked as " OK "
When the quantity is over the high value, it is ranked as " HI "

Notes
Such settings as lower limit value >= Higher limit value will be error.
Comparative judgment condition;
At one point(13.Pn. 1) :
L O : v a l u e < lower limit.
OK: lower limit =< value.
At two point(13.Pn. 2) :
LO: value < lower limit
OK: lower limit =< value =< higher limit
HI : higher limit< value
We get beep sound in response to comparing result.
The condition is selectable by function set.

SECTION 6 FUNCTION SETTING AND CALIBRATE

6. 1 Enter function setting mode

1) Hold  key until LOW/TOTAL display shows " FSEt " . followed by F0 SEL

2) To change setting parameter, press  or  key

3) To confirm setting change and forward to the title, press  key.

To exit function setting mode and enter the normal weighing mode, press  key

Note 1: when in normal weighing mode, hold  key for 3 second, will enter backlight setting.

6. 2 Function Setting Table

Menu	Sub-Menu	Description
F0 SEL	1 SEL0	Limit check disable
	1 SEL1	Limit check for weighing
	1 SEL2	Limit check for counting
F1 Co	11 Co0	always judgment condition
	11 Co1	Judge only when the scale in zero
F2 Li	12 Li 0	Tolerance range will display above zero range
	12 Li1	Tolerance range will display always
F3 Pn	13 Pn 0	Limit point OK / LOW
	13 Pn 1	Limit point Hi / Ok / Low
F4 bU	14 bU0	Set buzzer disable
	14 bU1	Buzzer limit will be between the limits (OK)
	14 bU2	Buzzer limit will be beyond the limits
F5 Ao	2 Ao0	Automatic Zero Tracking off
	2 Ao1	Auto zero tracking 0.5d
	2 Ao 2	Auto zero tracking 1d
	2 Ao 3	Auto zero tracking 2d
	2 Ao 4	Auto zero tracking 4d
F6 AP	3 Ap0	Auto off disable
	3 Ap 1	Scale will be switched of after 3 minutes of inactivity
F7 AT	On	Auto Tare function On
	Off	Auto Tare functionoff
F8 UA	4 UA0	RS232 output disabled
	4 UA1	Continues data output
	4 UA2	Continues data output of stable weighing values
	4 UA3	One output for stable weighing, renewed output after stabilization
	4 UA4	ASK mode
	4 UA5	Standard Printer mode
	4 UA6	N/A
F9 bL	41 bL0	Baud Rate 1200
	41 bL 1	Baud Rate 2400
	41bL3	Baud Rate 4800

	41bL4	Baud Rate 9600
F10 PA	42 Pr0	No Parity
	42 Pr1	Odd parity
	42 Pr2	Even parity
F11 S0	Sd0 on	Auto print enabled on zero display
	Sd0 of	Auto print disabled on zero display
F12 AC	5 AC 0	Auto Accumulation
	5AC 1	Manual Accumulation by pressing 
F13 Bk	5 BkL0	Back light turned off
	5 BkL1	Automatic back light, when scale is working
	5 BkL2	Continues back light turned on
F14 ti	D m y	Date format: dd mm yyyy
	Y m d	Date format: yyyy mm dd

6.3 Technical Parameter

Turn on the scale and press  key during the self test. And when in the normal display

Press and hold  key until to display show FUNC and followed by F0 I Sn.

Press  or  key to change menu.

Menu	**Sub Menu**	**description**	
F 0 iSn	**Xxxxx**	**To check the internal counts**	
F1 Gru	**Xxxxx**	**Gravity settings**	
	Si g ra	**To select single range operation**	
		DeSc	To set decimal points. Options: **0 , 0.0 , 0.00 , 0.000 , 0.0000**
		inc	To set increment Options: **1 , 2 , 5 , 10 , 20 , 50**
		Cap	Set Capacity
		Cal	Calibration
		To select dual range Note: Once active second division (div 2), Then second division will work until display return to zero	

P2 d M	**Dual ra**	**Deci**	To set decimal points. Options: **0 , 0.0 , 0.00 , 0.000 , 0.0000**	
		inc	**Di v 1**	**To select first division** **Options: 1 , 2 , 5 , 10 , 20 , 50**
			Di v 2	**To select second division** **Options: 1 , 2 , 5 , 10 , 20 , 50**
		Cap	**Cap 1**	**To select first capacity**
			Cap 2	**To select second capacity**
		Cal	Calibration	
	Dual in	**To select dual interval** **Note:** First interval will active in CAP 1 Second interval will active in CAP 2		
		Deci	To set decimal points	
		inc	**Di v 1**	**To select first division** **Options: 1 , 2 , 5 , 10 , 20 , 50**
			Di v 2	**To select second division** **Options: 1 , 2 , 5 , 10 , 20 , 50**
		Cap	**Cap 1**	**To select first capacity**
			Cap 2	**To select second capacity**
		Cal	Calibration	

SECTION 7. CALIBRATION

Select technical parameter CAL mode and select desired setting Linear (linear calibration) and nonLin (Normal Calibration)

7.1 Normal Calibration: nonLin

- Enter the function by pressing 

, display will be shown 

- Make sure there are no loads on the platform and wait few seconds for stable indicator on.
- Display will be show 

- Load the standard calibration mass weight on the platform and wait few seconds for display stability.
- Display will be show 

After the calibration the display will start a self test. Remove the load from platform during the test. Display will come to weighing mode automatically.

If display will be shown any error or incorrect value, repeat the procedure again.

7.2. Linear Calibration

The linearity deviation caused by the performance of the weighing unit. The digital linearization function can reduce the linearity deviation using weighing points during the zero and capacity. Up to three weighing points can be specified.

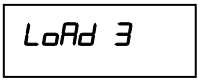
Enter the function by pressing 

, display will be shown 

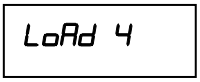
- Make sure there are no loads on the platform and wait few seconds for stable indicator on.

- Load the first calibration mass weight on the platform (mass weight should be1/4 of the max capacity) and wait few seconds for to show display

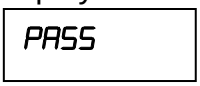
- Load the second calibration mass weight on the platform (mass weight should be2/4 of the max capacity) and wait few seconds for to show display.



- Load the third calibration mass weight on the platform (mass weight should be3/4 of the max capacity) and wait few seconds for to show display



- Load the fourth calibration mass weight on the platform (mass weight should be4/4 of the max capacity) and wait few seconds for to show display



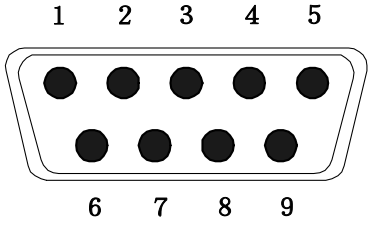
After the calibration the display will start a self test. Remove the load from platform during the test. Display will come to weighing mode automatically.

If display will be shown any error or incorrect value, repeat the procedure again.

SECTION 8　RS-232 COMMUNICATION

8. 1 Hardware connect

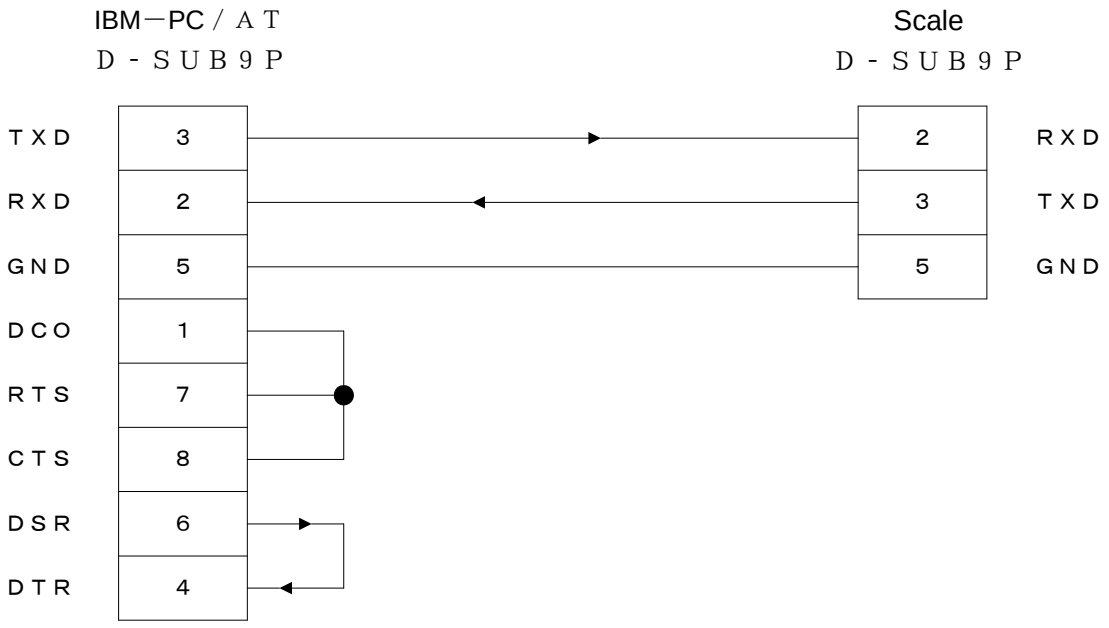
Pin No.	Signal	In/Output	Functions
1	EXT.TARE	Input	External tare※2
2	RXD	Input	Receiving data
3	TXD	Output	Transmission data
4	DTR	Output	HIGH level with power “on”
5	GND	—	Signal　ground
6	—	—	—
7	—	—	—
8	—	—	—
9	GND	—	Signal ground



D-SUB 9-pin male connector：rear panel

Note:　Tare from outside of the scale is available by connecting the INPUT line and SIGNAL GROUND by a transistor switch or a relay contact. Max 15V while “OFF” SINK 20mA while “ON”. Tare (Zero adjusting) when it is connected.

connection with IBM-PC／AT



8. 2 Interface specification

Transmission method : Serial Data Transmission , Random Access
Transmission speed : 1200/2400/4800/9600bps
Transmission Code : ASCII code, 6/7-bit
Signal level : Base on EIA RS-232C
HIGH level : Data logic “0” +5 to +15V
LOW level : Data logic “1” -5 to -15V
Contents of a Word : 6/7-bit word based on ASCII standard character codes,
1 start bit, 2 stop bits, 0/1 parity bit.
Parity bit : Nil, or an even parity, or an odd parity

8. 3 Output data format

8.3.1 Data format

By changing the function settings of a scale, the following 2 format is selectable.

① 7-digit format (4. if. 2)

This is standard format.

② 6-digit format (4. if. 2)

This effective digit is 6-digit. (Effective digit of data can be 7 digit in VC series. In this case, the smallest digit can be cut off or an error occurs if 6-digit format is set up.

＊ The setting of output data format can not be controlled from external devices.

8.3.2 7-digit format

Consists of 15 words, including terminators ; CR = 0DH，LF＝0AH. Parity bit can be added under this format.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P1	D1	D2	D3	D4	D5	D6	D7	D8	U1	U2	S1	S2	CR	LF

8.3.3 6-digit format

Consists of 14 words, including terminators ; CR＝0DH，LF＝0AH. Parity bit can not be added under this format.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
P1	D1	D2	D3	D4	D5	D6	D7	U1	U2	S1	S2	CR	LF

6-digit data format is the same as 6-digit data format except additional D8.

8.3.4 Polarity (P1 = 1 word)

P1	Code	Contents
＋	2BH	Data is 0 or positive
－	2DH	Data is negative
△	20H	Data is 0 or positive

(△： Space)

8.3.5 Data (D1 to D7 ： 7 words under 6-digit data format）
(D1 to D8 ： 8 words under 7-digit data format)

D＊	Code	Contents
0～9	30H～39H	Data 0 to 9 (Max. 6 digits under 6-digit format) (Max. 7 digits under 7-digit format)
．	2EH	Decimal point （position is unfixed） ＊In the case of an integral number, it can be omitted and space (SP) can be outputted to the smallest digit instead.
△	20H	Space ; Leading zero suppression

8.3.6 Units (U1,U2 = 2 words) ＊Based on ASCIIcode

U1	U2	Contents	Symbol	U1	U2	Contents	Symbol
K	G	Kilogram	kg	△	G	gram	g
M	G	Milligram	mg	P	C	Quantity	(PCS)

8.3.7 Judgment result / Type of data (S1 = 1 word)）

S1	Code	Contents	Judgment results
L	4CH	Short(LO)	(Limit function is set and Quantity data output only)
G	47H	Proper(OK)	
H	48H	Exceed(HI)	
U	55H	Unit weight	Type of data
T	54H	Total weight	
p	70H	Lower limit value	
q	71H	Upper limit value	
△	20H	No judgment/No set of type of data (Pieces and weight)	

8.3.8 Status of data (S2 = 1 word)

S2	Code	Contents
S	53H	Data stable
U	55H	Data unstable
E	45H	Erroneous data （All data unreliable except S2 when 「0-Err」、「U-Err」 displays）
△	20H	No specified status

＊ In the case of data (Unit weight, Total value) which is not related to the measurement condition of Stable/Unstable, “S” “U” are outputted, but it is no meaning.

8. 4 Control of a scale by command

By sending command to a scale from external devise, A scale can be controlled from outside.。The following 11 items are Control command.

① Tare (T)
② Output control setting (O 0～O 9)
③ Weight value output demand (W 1)
④ Quantity output demand (C 1)
⑤ Unit weight output demand (C 2)
⑥ Total value output demand (C 3)
⑦ Unit weight value setting (C A)
⑧ Lower limit value output demand (L 1)
⑨ Lower limit value setting (L A)
⑩ Upper limit value output demand (L 2)
⑪ Upper limit value setting (L B)

8.4.1 Transmission procedure of command

① Transmit command to a scale from external devise
Command transmission is free from output timing from a scale, because the system is full duplex.

② If the command is properly received, the scale transmits acknowledgment or the demanded data by transmission command. If the command is erroneous or the received command is no effective, the scale transmits non-acceptance. When the scale indicates quantity on the display properly, the response is transmitted in 1 second after transmission of the command.
When the command is received in such operation of the scale as settings of unit weight, judgment values, function parameters, or in calibration, the command is done after the operation and then the response is transmitted.

③ When the command is transmitted from external devise, do not transmit next command until the response from a scale is received.

8.4.2 Command format

Consists of Command, Address parameter, Value parameter and terminators ; CR = ODH，LF = 0AH. It is connected with “,”(code 2CH) between command and each parameter.

Command＜，Address parameter＞＜，Value parameter＞（CR,LF）

There is a possibility that the part in parentheses ＜＞ may not exist depending on the kinds.

(1)Command

Consists of 2 words (ASCII code)

1	2
C1	C2

(2)Value parameter

①Unit weight value setting

7 pieces of number and one decimal point(「.」：2EH)

1	2	3	4	5	6	7	8
N!	N2	N3	N4	N5	N6	N7	N8

（N1 to N8： number‧ decimal point）

②Lower limit & Upper limit value setting

Polarity （「＋」：2BH，「－」：2DH） and a number

1	2	3	4	5	6	7	8
P1	N1	N2	N3	N4	N5	N6	N7

（P1: polarity「+」,「-」）

（N1 to N7：number‧ decimal point）

8.4.3 Reply output

(1)Reply output format

Consists of 5 words, including terminator(CR＝0DH，LF＝0AH)

1	2	3	4	5
A1	A2	A3	CR	LF

(2)Relay output list

A1	A2	A3	Code			Contents
A	0	0	41H	30H	30H	Proper completion
E	0	1	45H	30H	31H	Command error (Wrong command received)、
E	0	2	45H	30H	32H	Value format error(Too much digit, No data, etc.)
E	1	0	45H	31H	30H	The set unit weight value is error、No memory of unit weight
E	1	2	45H	31H	32H	Limit function is not under operation

8.4.4 Tare (Zero adjustment)command

Command				Contents	ParameterAddress ‧ Value	Response
C1	C2	Code				
T	△	54H	20H	Tare(Zero adjustment) command	Nil	A00:Proper completion E01:Tare disable due to error of weight value

8.4.5 Output control setting

Command C1	Command C2	Code		Contents	Parameter Address· Value	Response
O	0	4FH	30H	No output （Able to input command）	Nil	A00： Proper completion
O	1	4FH	31H	Continuous output		
O	2	4FH	32H	Continuous output when stable （No output when unstable）		
O	3	4FH	33H	One output each time pressings a key		
O	4	4FH	34H	Auto output		
O	5	4FH	35H	One output when stable （Stop when unstable）		
O	6	4FH	36H	One output when stable （Continuous output when unstable）		
O	7	4FH	37H	One output after pressing a key when stable		
O	8	4FH	38H	Instant one output		
O	9	4FH	39H	One output after stable		

Note1: Output control by "O 0" to "O 7"and output control by function setting of a scale work same. With regard to a supplement and notice of each operation, refer to " 7. Function settings of a scale"

"O 8, O 9"command means the data demand command to a scale.

Note2: When the set each condition works properly, the data , which is set in the function setting of a scale (41. da.), is transmitted.

Note3: After carrying out "O 0" to "O 9" command, the condition is kept until next command is inputted. However, in the case that it is tuned off and on again, output control becomes the initial value (Function set value).

8.4.6 Data output demands

Command C1	Command C2	code		Contents	Parameter Address	Parameter Value	Response
W	1	57H	31H	Weight value output	Nil	Nil	Weight value data
C	1	43H	31H	Quantity value output			Quantity value data
C	2	43H	32H	Unit weight value output			Unit weight value data
C	3	43H	33H	Total value output			Total value data
L	1	4CH	31H	Lower limit value output			Lower limit value data
L	2	4CH	32H	Upper limit value output			Upper limit value data

8.4.7 Data setting

Command				Contents	Parameter		Response
C1	C2	Code			Address	Value	
C	A	43H	41H	Unit weight value setting	Nil	Unit weight value	A00:Proper completion E10:Set value is lighter than the countable unit weight
L	A	4CH	41H	Lower limit value setting		Lower limit value	A00: Proper completion E02:Value is not an integer
L	B	4CH	42H	Upper limit value setting		Upper limit value	A00: Proper completion E02:Value is not an integer

8.4.8 Limit function check

Command				Contents	Parameter		Response
C1	C2	Command			Address	Value	
L	9	4CH	39H	Quantity limit function is checked if it is worked properly.	Nil	Nil	A00:Proper completion E12:Limit function is not worked

8.4.9 Command sample

①	T△(CR)(LF)	Tare
②	O 1 (CR)(LF)	Setting constant output *1
③	O 0 (CR)(LF)	Stopping output
④	O 8 (CR)(LF)	Outputting data *1
⑤	W 1 (CR)(LF)	Output weight value
⑥	C 1 (CR)(LF)	Output quantity value
⑦	C 2 (CR)(LF)	Output unit weight value
⑧	C A , 1 2 . 3 4 5 6 7 (CR)(LF)	Set unit weight 12.34567g.
⑨	L A , + 0 0 0 1 0 0 0 (CR)(LF)	Set Lower limit value as +1000pcs.
⑩	L 9 (CR)(LF)	Check if limit function works.

SECTION 9 TROUBLE SELF CHECKING

Symptoms	Causes and remedy
No display appears	* AC adapter is not connected, or the ON/OFF key is OFF. - Connect the AC adapter. * Battery has been consumed (with battery option). - Charge the battery.
Display is unstable	* Affected by a wind or oscillation. - Check the location and the response speed. * The installation base is unstable. - Check the base. * Weighing pan or tare touches something. - Check around.
Displayed value is not correct.	* Tare is not reduced.(Wrong taring operation) . * Unit is not level. * Span has changed by effect of G gravity due to the relocation in a distance. - Calibrate the scale. * Sensitivity of electronic circuit has changed due to the transportation or the time lapse. - Calibrate the scale. * Weighing pan is contacting the dust cover or the like. * Weighing objects are contacting with the wind-shield. * Power voltage is not enough for the unit. * Weighing objects are non-uniform. * Weighing objects included foreign matters or some irregular material. * Sampling operation is some fault. * Weighing mechanism is something wrong.
Wrong linearity.	* Characteristics have changed, or mechanism adjustment has changed by some reason. - Contact our service representative.
Unavailable weigh up to the capacity.	* Gross load weight exceeds the scale capacity. Weighing range = Full weighing range － Tare value.
o-Err appears	* Weighing range has changed by some damage on the weighing mechanism. - Contact our service representative.
u-Err appears.	* Something contacts the weighing pan to lift it.
b-Err appears.	* Electronic error, by a static electricity or a noise. - Contact our service representative.

SECTION 10 MESSAGE

10. 1 ERROR MESSAGE

Error code	describe
o-Err	Overload
U-Err	Under error of minus load
b-Err	When an internal memory changes carelessly
1-Err	When a standard weight is less than 10% of the capacity at the time of the calibration by the external weight
2-Err	At the time of failure when a display error exceeds 0.4% at the time of the calibration by the external weight. When out of order.
L-Err	When the piece weight is ligher than the countable piece weight (piece weight less than capacity/60,000)

10. 2 Other Message

message	describe
FUnC	At the time of the call of various functions and calibration function
CAL	At the time of the start of the calibration by the external weight
on 0	Under the zero point directions at the time of the calibration by external weight, and adjustment
on FS	Under the amount directions of capacity at the time of the calibration by the external weight, and adjustment
StoP	When a key is pushed and stopped during calibration When the key is pushed during sampling