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KIAN SANAT

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MANUAL

INTECONT PLUS
BELT SCALE CONTROLLER

PLEASE READ THIS MANUAL VERY CAREFULLY BEFORE OPERATING

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CAUTION
.This is not a toy. Keep out of reach of children;
.This controller is not an explosion proof device;
.This controller is not a water proof device;
.Do not open this controller, no user serviceable parts inside. Always contact supplier for service

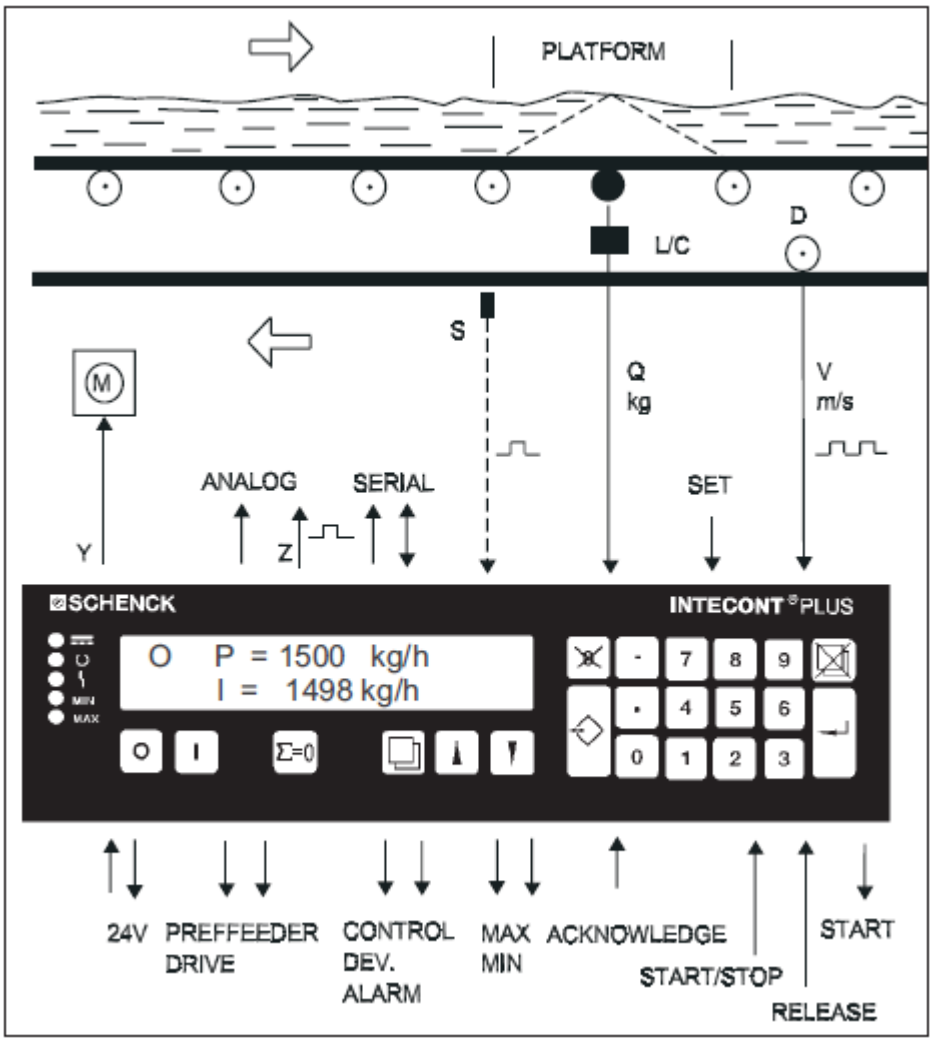
1. Introduction of Product

1.1 Abut us

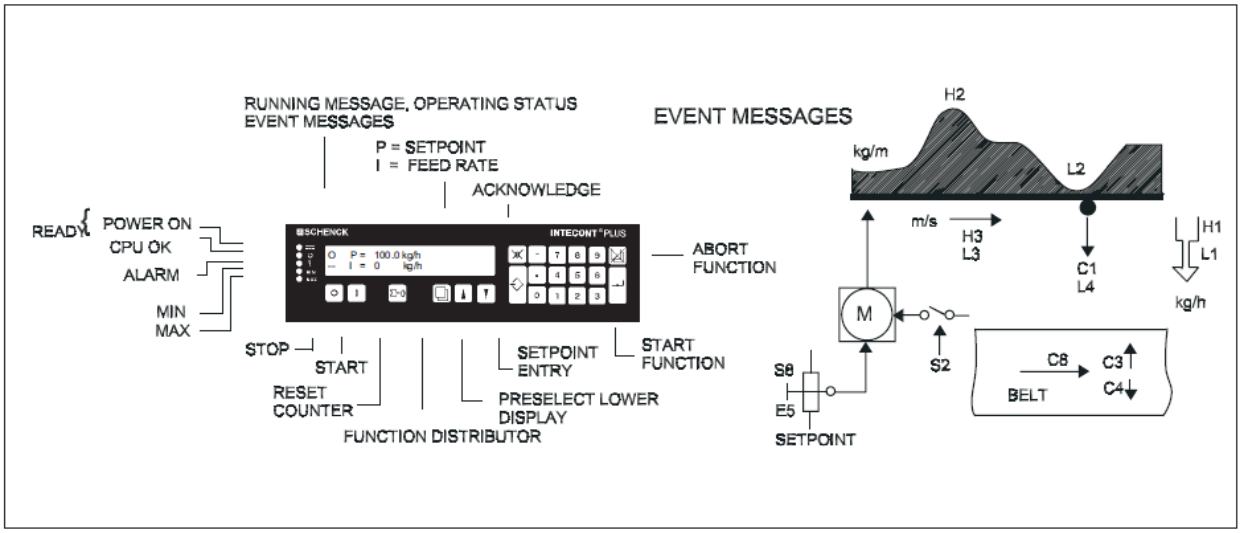
Kian sanat INTECONT PLUS series of belt scale controller provide outstanding functionality, flexibility and reliability through innovative design with the incorporation of state-of-the-art technology all on a common modular platform.

Each instrument model is designed for specific applications and is able to be upgraded with plug in boards making it suitable for the majority of production control and monitoring functions including providing valuable data which is essential in industry today in order to satisfy up-to-the-minute process requirements**.**

INTECONT PLUS belt scale controller adopts 32-bit microprocessor electronics with a 110x30mm VFD display and high speed ∑-A/D conversion method with max.100 times/s conversion speed .It can make up batching scale with load cell and other mechanical parts ,applied in high speed and high precision weighing control occasion.



1.2 Overview



Application

INTECONT PLUS is mainly apply to bulk measurement in various industries such as power generation, coal industry, metallurgy, mining, harbor, chemical and building material industry.

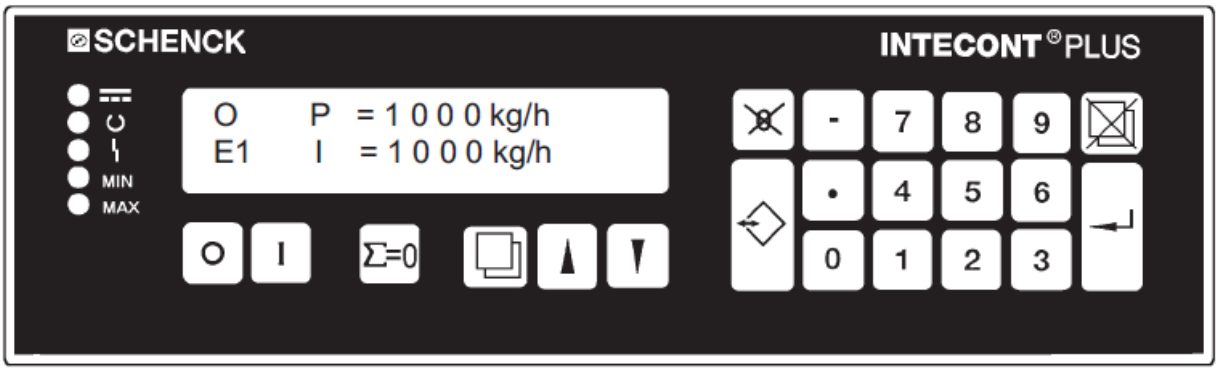
This manual applies to controlling systems equipped with conveyor belt.

1. Weigh feeder
   Control of feed rate via belt speed

2. Belt weigher with controlled pre feeder
   Control of feed rata via belt load

3. Belt weigher with constant load
   Control of belt load via belt speed

1.3 Display



VFD SCREEN
VFD display with 110x30mm height . 5x7 dot matrix with 6mm character height

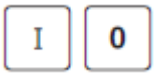
LEDs:

2 green and 3 red LEDs

Green LEDs : Ready
Red LEDs : Error or limit value message

Keyboard:

Flexible membranes with tactile touch



Start/stop

Preselect lower display, select functions

Reset counter

FUNC Enter system menu

DEL Acknowledge event message, delete input

ESC Abort function

ENT Start function,
Acknowledge input

DAT		Prepare input, e.g. of set point
0 9	Enter parameters	
— •	Enter sign and decimal point	

1.4 Measure Principle

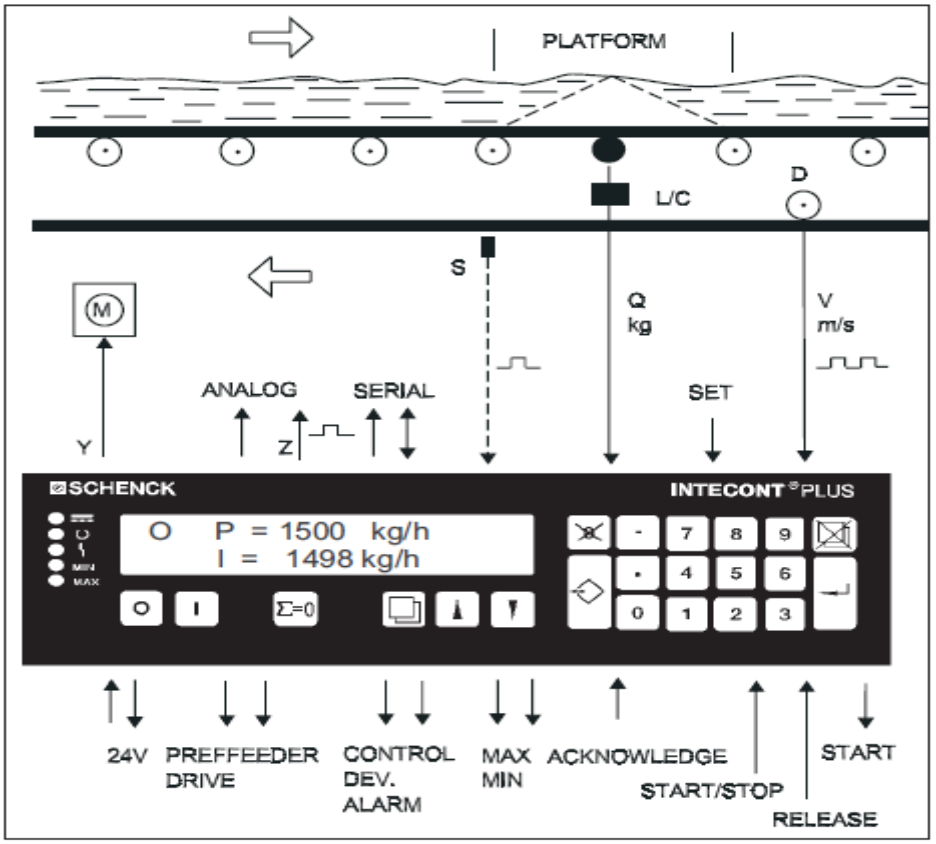
A weigh feeder is designed to continuously weigh the material amount transported on a conveyor belt.

Weighing continuously the belt load Q and conveyor belt speed V, multiplication of the two values results in feed rate I

$$I = Q \bullet V \bullet 3600$$

I in kg/h
Q in kg/m
V in m/s

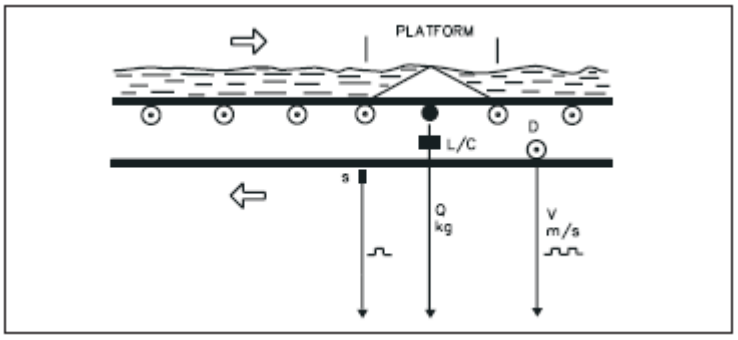
The sketch map as follows



2. Technical Data

2.1 Features

-Apply to quantitative filler machine, batching belt scale, electronic weighing belt scale, belt rate monitoring, etc.
-Language selection. English is default, second language can be Chinese
-Self-diagnostic will display any malfunction of the load cell, speed sensor, system parts as CPU, memory, display, etc.
-Digital electronics. Provide accurate, drift-free performance
-Strong anti-disturbance ability

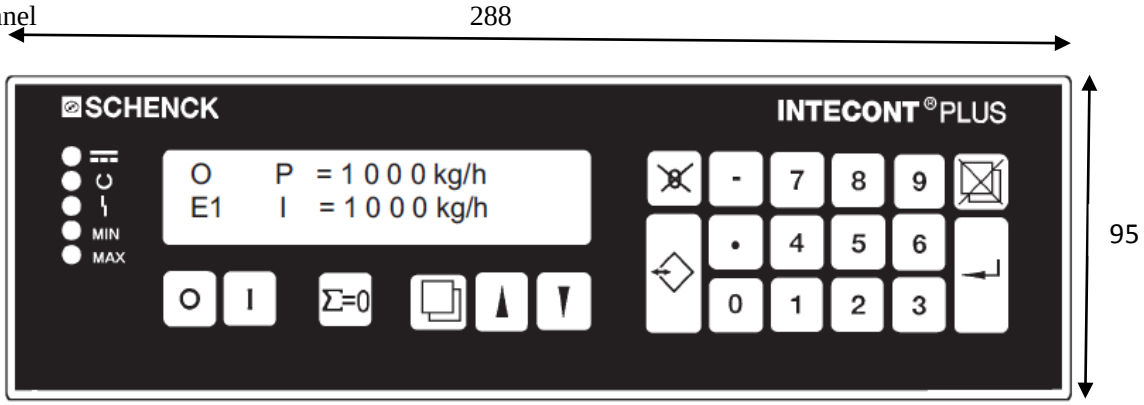


2.2 Parameters

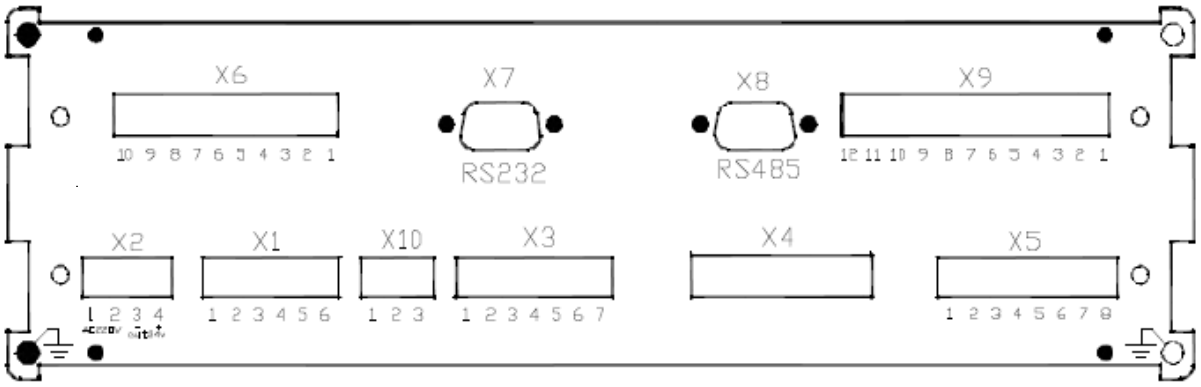
Model	INTECONT PLUS
Ext .Power supply	AC 220V (175-285V), 30W, 50Hz
Working temperature	-10-50℃
Humidity	≤90%RH
Dimension	288（W）x 190（D）x 95（H）mm
Weight	2.5 Kg linearity 0.01FS Accuracy 0.1% Tolerance 0- 99999900 t
Feed rate	0.0020-99999.9 t
Division	0.001kg、0.01kg、0.1kg、1kg、0.1t、1t…
Max.net signal input	≤30mV
Display	160*32 VFD Screen 110x30mm
Load cell excitation	DC 9V, 250mA Speed
sensor	DC ≤24V, 50mA Speed
pulse	0-3000Hz, 0-24V
Mod bus Interface:	RS232<=1.5m RS485<=1000m Default baud rate: 9600 (Baud rate and Communication farmat optional)
Analog Input	0-20mA, Long-distance setting the flow signal by DCS interface
Analog Output	0-20mA, 2 Ports 1 Port for measure signal (Flow, speed, load signal optional) 2 Port for control signal
Digital Output	Touch Capacity AC 220V, 3A
Digital Input	DC 24V, 4 routes Passive touch signal 1 route: external error acknowledge 2 route: external control for stop signal 3 route: external control for start signal 4 route: control for speed pulse input signal
Protected class	IP54

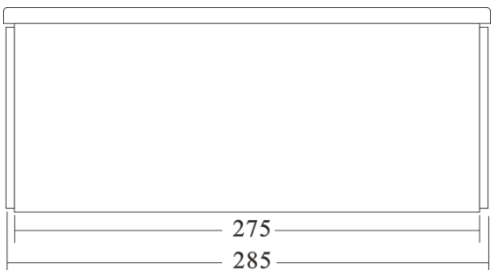
2.3 Panel size

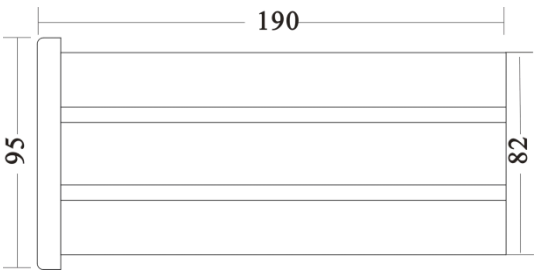
Front panel



Back panel



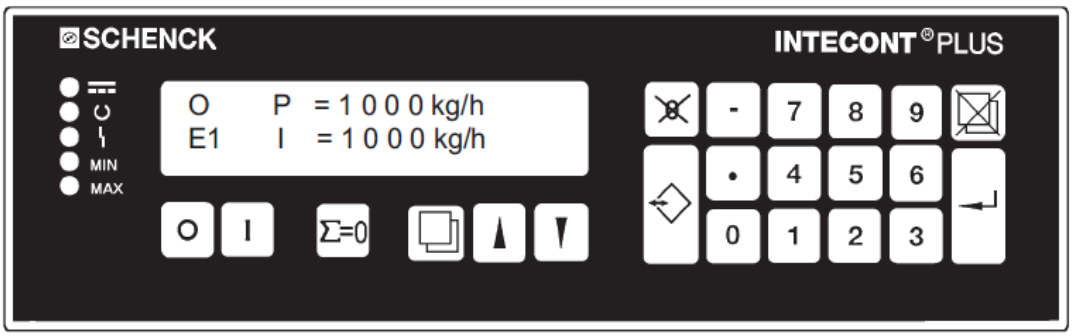




3. Operation

3.1 Define Display

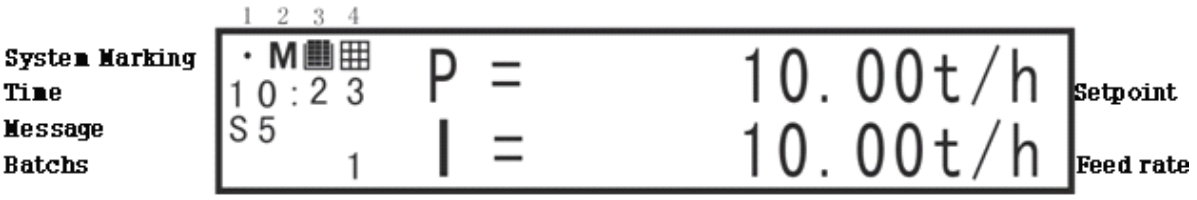
Display the dynamic parameter when the controller is running (▲ ▼ Select display)



- Zo — Totalizing counter (Amount feed) — kg or t
- Z_1 Z_2 Z_3 — Batch accumulate counter — kg or t
- Zb — Batch set point — kg or t
- Zi — Batch actual value — kg or t
- Zd — Batch residual amount — kg or t

  $Zd=Zb-Zi$

- I — Feed rate absolute — kg/h or t/h
  Material amount discharged from conveyor belt per unit time
- Ir — Feed rate/Nominal Feed rate ,feed rate relative — %
- P — Feed rate set point (nominal value) by keyboard — t/h or kg/h
- Pe — External analog signal set point by DCS interface — t/h or kg/h
- Pr — External set point for modification percentage ,relative set point — %
- Q — Belt load. Weight of material on one belt meter — kg/m
- Qr — Percentage for belt load. Belt load/nominal belt load — %
- V — Belt speed — m/s
- Xd — Deviation of feed rate — %



System Marking

"." Show the system is running when it flashes

"M" Gravimetric mode. The system is in testing weight status

"V" Volumetric mode. The system is in checkout status. If "V" flashes, the system is in start-span or stop-span status

" " when a batch have done in batching mode, it flashes and system will stop

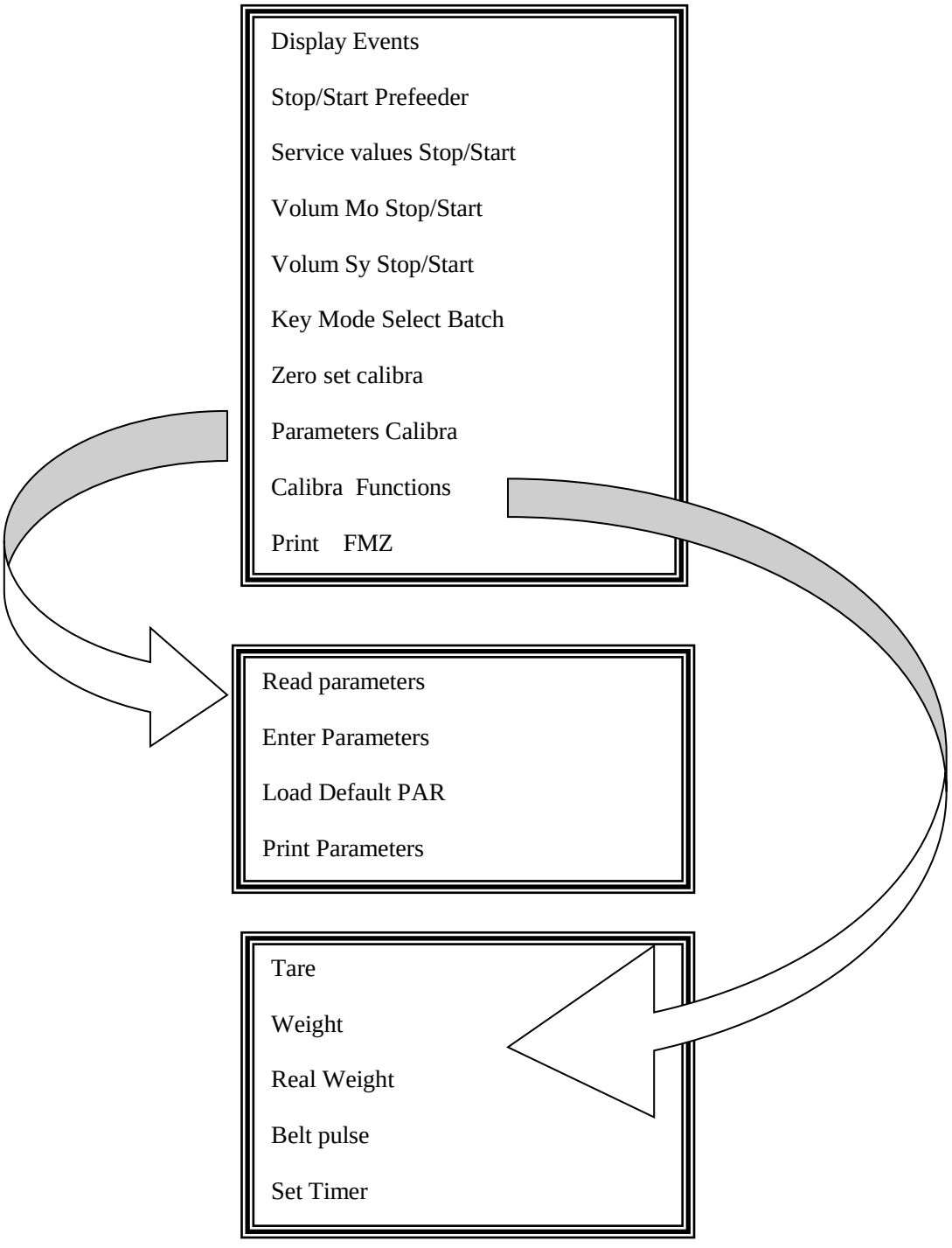
" " Keyboard mode start

B07 is selected as Keyboard mode absolutely ,stop/start keyboard function is invalid

" E." External set point mode. Control the System stop, start and the error message acknowledge will be due to the external digital signal(switch signal) set point like as the external current or voltage input. If B08 value is val, press the key and Pr= will occure. Pr is external set point for modification percentage , just a relative set point to modify the P value. Not the keyboard feed rate's function. At the same time, the back panel 's the X6 port 6 and 7 will be closed.

" S." Serial Port mode. System run by the serial port to control. Such as flow set point, system stop , system start, error message acknowledge and some parameter modification. But all dynamic parameter can be showed in main display with other mode when the B1 controller is running

3.2 System Menu



Menu function and operation

3.2.1 Display Events

All important scale functions are internally monitored. Errors are reported by event message. For troubleshooting details, see chapter “Event Messages”.

3.2.2 Stop/Start Pre feeder

The “Stop/Start Pre feeder” lets you start and stop material pre feeder. The pre feeder will run with the belt electric motor when pre feeder start. And they will both stop when system stop. But if the system is in “Span mode” (The related parameter R14 is non-zero), pre feeder will stop immediately, but the belt motor need a span time to stop.

3.2.3 Service values

The service table includes detailed system information. Call does not affect weighing functions. It includes hardware version, system time, belt drift parameter and so on. For troubleshooting details, see chapter “Service Values”.

3.2.4 Stop/Start Volum Mo

Volum Mo is just for the time in which B1 controller is checking. In this mode, drive motor for conveyor belt, or material pre feeder, is controlled in proportion to set point. Belt load is of no influence. At rated conditions, feed rate corresponds to entered set point. Set point is limited to the triple nominal feed rate. Setting programs “Zero Setting”, “Taring” and “Belt Circuit” are available only in Volumetric mode. And system marking “V” flashes.

3.2.5 Stop/Start Volum Sy

In contrast to Volumetric mode where the conveyor belt will directly run with the last speed of set point in Volumetric Synchronous Mode to save time for the
PID adjustment. Let the feed rate reach the set point quickly. If stop the Volum
Sy mode, the system speed will from the 0 to the set point gradually by the PID
adjustment
.

3.2.6 Stop/Start Key Mode

When parameter B07 selected as “Serial Port” or “Simulation” mode, we can select the “Start Key Mode” in main menu to set the feed rate and control the pre feeder’s start or stop just by the keyboard. It quite suited to the fieldwork and debugging. After completing the debugging, stop Key Mode, then B1 controller can return the “Serial Port” or “Simulation” Mode to control the system And the system marking is  “ ”.

3.2.7 Select Batch

Call the function, the controller feed with batch by batch. Main display will add the display of Zb, Zi, Zd parameter. When completing all the batch, system will pause and “  ” flashes. The batching value can be printed every a batch. If need to feed next a batch, just press “  ” to acknowledge event than start run is ok.

3.2.8 Zero set calibra

The zero setting program is designed to acquire the scale’s zero point error over one or multiple integer belt circuits. The acquired value is used to correct the current measuring result in normal mode. For troubleshooting details, see chapter “Zero Setting”

3.2.9 Parameters

Parameters are variable characteristics or data used to match B1 controller to the application. Read, modify all the parameters of system. If having the printer option card, B1 controller can print all the parameters. Details can see in chapter “Parameters”

3.2.10 Calibra Functions

Calibration as such is not required. After input of rated and calibration data, scale is calibrated.
Simply
call:

1. Setting program “Belt Circuit LB” determining the basis of one belt circuit for zeroing and taring programs
2. Taring program TW
3. Zero setting program for training. Zero point error should be small after taring.

Always observe the above order of sequence.

Two further checks should be effected:

1. Check using check weight
2. Check of belt speed

If something goes wrong:
our service department is always prepared to help. Maybe only some small error or maloperation is the cause of trouble. Check individual operations one by one.
Normally, the issue can be eliminated. Details can see in chapter “Calibra” .

3.2.11 Print FMZ

If having the printer option card, Z0, Z1, Z2, Z3 result can be printed.

3.2.12 Start/Stop Clear

The menu is in the “Calibration Function” of “System Menu”. In “Batching Mode”, B1 controller will automatically clear the belt material weight and zero check.

Normally power-off and close-down, than power-on , controller will also make a belt weight clear and zero check. When the B1 controller is in clearing the belt material weight and zero check status, can press “ ESC” key to exit immediately.

However , if the system is abort suddenly when it is running or it is in “Volumetric Mode” , the system will don’t clear the belt material weight or take a zero check after power-on again to ensure the zero point of belt and calibration in time.

The function is suited for having pre feeder occasion. When it work, pre feeder will be shuted. And just the drive motor for conveyor belt is run.

3.2.13 Start/Stop Span

Start Span

When the system start with parameter R13≠0, prefeeder and drive motor for conveyor belt will both run. At this time, system is in “Volumetric Mode” and PID adjustment is invalid. The speed will be same with last time(flow speed when PID
adjustment is invariant). When it reach the number of belt circle whice amount

to parameter R13 value, PID adjustment is valid, the system marking “V” turn to “M” in main display. It means the system turn to “Gravimetric Mode”. It’s overcome the case effectively that belt load is zero and prefeeder is lost
control when system start.

Stop Span

When system stop with R14≠0, pre feeder will stop immdiately. System marking “V” flashes and the material on conveyor belt will discharged completely when the number of belt circle come up to the R14 value.

3.3 Call System Menu

Call system menu

Call System Menu

Scroll the display into lower display field and acknowledge


Exit function distributor

Read parameters operation


Call system menu


Select “Parameters” menu


Acknowledge


Select the sub menu “**Read parameters**”


Acknowledge


Scroll through parameter blocks A, B…


Acknowledge and read parameter


Return to Previous Menu


Return to normal displays

Modify Parameters Operation


Call System menu


Select the “Parameters” Menu


Acknowledge selected


Select “**Enter Parameters**” menu


Acknowledge

Input the password 3.14159, acknowledge


Select parameter blocks

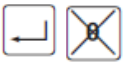

Acknowledge


Select parameter number


Acknowledge


Prepare input

Input value



Acknowledge e or Delete Digits

Exit and Return Previous Menu

Load Default Parameters

Call the system menu

Select “Parameters” menu

Acknowledge

Select sub menu “Load Default PAR”

Input the Password 3.95141, acknowledge selection

3.4 Basic Operation

There is no way out.

Who wants to B1 Controller into service has to work himself through the Operating manual.

To make learning easier, B1 Controller can be operated without mechanical equipment, load cells and speed sensor. Although no feed rate is displayed ,all operating functions can be performed.

1. Connect power supply and turn on, press 

(start key).

2. The upper two green LED report “Ready to Operate”, The turning point flashes in display window. It indicates the controller is in normal display.

3. Setting feed rate. Feed rate can be setted by keyboard input, external analog signal input and serial port input.

a) Keyboard Input Mode
When parameter B07 selected as “Keyboard Mode”, press the Prepare input key  twice continually . The display window display “P= t/h” , setting the value. Than press  to acknowledge input. If want to delete the digit ,press the key 

If want to abort, press key  please.

b)External Analog Signal Input
when parameter B07 selected as “Analog”, the feed rate is setted by the current or voltage of external analog signal. The start or stop of the controller by the external putton or PC(computer) to control

c)Serial Port Input
When the B1 controller and PC to form a system, the feed rate can be setted by the serial port

. 4. Clean the totalizing value

Press the reset key [Σ=0] , then press [▲][▼] key to select the counter which need to clean. Select the [↵] to acknowledge cleaning. If press key [⊠] to cancel the cleaning operation.

5. Check event messages

All important scale functions are internally monitored. Errors are reported by event message. Select the "Display Events". If having errors, it will be display in event messages.

6. Acknowledge Messages

If having the error event, first remove cause of fault and acknowledge message. Press the DEL [⊠] key, the B1 controller will clean the error code by the actua
case. If fault is remedied after acknowledgement, message automatically effaces.
If cause has not been removed yet, the error can't be clean and error event message is still available.

3.5 How to Operate Your B1 Controller

1) The meter has been set all parameters default when leaving factory , Flow ,load ,speed signal output and Control signal of Feeder rate output, Flow setting input have already been adjusted (if you need to adjust again, please consult part 11.5 Adjust).

2) When the meter install to the system, please verify the system first, please consult part six.

Please set the parameters of Block B and Block C according to the actual situation. For an example, the Actual Feed Rate (B02): 100t/h, Belt Cyc. Numb
(C02): 1, Belt Cyc. Time (the time of the belt runs one cycle, C03): 30S, Belt
Cyc Length (belt's actual length, C04): 10m, L/C Charac. Value (C05,read on the load cell label): 2mv/v, L/C Rated Cap (C06,read on the load cell label): 60kg, Eff.

Platf . Length (effective length of actual scale, C07): 1m, Lever Ratio (C08): 1, Ang le a (angle of installed scale, C09): 0, Check Weight (C10): 10kg. input the parameters above in the meter.

3) After checkout, please exit volumetric mode, then enter gravimetric mode, system marking show "M", press [I] , if there is not speed pulse signal input , circumgyrate marking will not run.

4) PID adjust, the defaults of R02(P_ Component), R03(I-Component) are both 0.2, when feeding the materiel uniformly, you can minish R02 and R03, to avoid the wave motion so big.

5) When you don't need to adjust PID to get a steady control output current, you can stop PID adjust(R26 PID Control set to stop), then control output current will be:

I control=(P/B02)*(R10-R09)+R09

P: flux setting B02: rating flux(Nom. Feed Rate) R09: Lower Limit R10: Upper Limit

Press [•] can switch the show of P and I.

6) If Flow setting input is voltage, connect X4(6,8),the effection of 0V is relative to 0mA current input, and 10V is relative to 20mA, change the values of R16 and R17 to accord with the actual need.

7) The marking is "E." on External set point mode, system will just run when external input X9(1,2) or

X9(3,4) is closed.

8) When X9(7,8) accumulative pulse output one pulse, the weight that pulse denotes rest with the value of B10, which can be chosen /kg, /t, /10t, /100t.

One) Output current checkout: turn off power, press  till turning on power, when a flash cursor just display on the screen, input 4.0020, the meter will display (C.Control(0mA)) on the fist row.

C.Control(0mA):

26

1) Control signal of Feeder rate output current checkout:

a. Connect port 11(GND) and port 12 of X9 to current meter, adjust the value of da(press  can change the value of da, press again will change right about, press  to plus 1, press  to minus 1), make sure the output current approach 0mA most, Press  enter to save, the meter will display (C.Control(20mA)) on the first row.

C.Control(20mA):

969

b. adjust the value of da, make sure the output current approach 20mA most, Press  enter to save, the meter will display (C.A-A(0mA)) on the first row.

C.A-A(0mA):

28

2) Flux output current checkout:

a. Connect port 9(GND) and port 10 to current meter, adjust the value of da, make sure the output current approach 0mA most, Press  enter to save, the meter will display (C.A-A(20mA)) on the first row.

C.A-A(20mA):

978

b. adjust the value of da, make sure the output current approach 20mA most, Press enter to save, the meter will display Continue? on the first row, press to exit.

Continue?

Two) Input control current checkout: turn off power, press till turning on power, when a flash cursor just display on the screen, input 4.0021 to begin flux setting input checkout, the meter will display (CAL.0 EX.4mA) on the fist row.

CAL.0 EX.4mA

12126

a. Between port 7 and port 8(GND) input 4mA current, wait until the value of da that display on the screen is steady, press enter to save, the meter will display (CAL.F.S EX.20mA) on the first r

CAL.F.S EX.20mA

52254

b. Between port 7 and port 8(GND) input 20mA current, wait until the value of da that display on the screen is steady, press enter to save, the meter will display Continue? on the first row., press to exit.

Continue?

4. Calibration

When the B1 controller with the scale(such as weigh feeder , belt scale) to form a weighing system, it run normally must before calibration. The weighing system's calibration and check weight, can be done by the calibration and taring function.

4.1 Condition of Calibration

1) Check Belt Speed, Belt Circuit Pulse Check, Tare Check, Zero Check, Totalizing Check must be in Volumetric Mode(System Marking V flashes). After completing the check, then return the Gravimetric Mode(System Marking M flashes). The weighing system return the normal weighing work state.

2) Input the parameter B block by the actual demand of the weighing system.
Input the parameter C block about the mechanical part of the scale. C03 is the parameter of belt cycle time. Measure time of one belt circuit as exactly as possible and enter value into Parameter C03

3) Make sure conveyor belt is running(Scale ON). The feed rate is setted to MAX
for keeping the belt speed is MAX

4.2 Check Belt Speed

1) Select the run-number of Belt Cycle Parameter C02 block

2) Measure the time of belt cycle accurately and calculate the belt speed. Then input the value into the B05 block. To be on the safe side, conduct various measurements and calculate mean value.

$$V=L/t$$

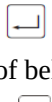
V: Speed measured L: The length of conveyor belt t: The time of a belt cycle

4.3 Check Belt Cycle Pulse

1) Call the system menu, select the Calibra Functions menu

2) Input the password: 3.14159

3) Select the Belt Pulse submenu

4) Press the  to acknowledge and start programme. Upper window displays the number of pu e in the time of belt running. Lower window displays the belt speed mean value.

5) Press the  to acknowledge result. The B1 will automaticlly to modify the parameter D06 and B04 value. If press the Abort key, the weighing system will abort and parameter D06 and B04 value not changed.

4.4 Tareing

1) Call the system menu, select the Calibra Functions menu

2) Input the password: 3.14159

3) Select the Tare sub menu

4) Press the  to acknowledge and start programme. Upper window displays the Amount of tare(Like as Zo). Lower window displays the percentage for load cell. Belt weight/nominal load cell.

5) Press the ↵ to acknowledge result. The B1 will automaticlly to modify the parameter D04 value. If press the Abort key, the weighing system will abort and the calibration is invalid.

Note: The conveyor belt must be without any load or material when traeing

4.5 Check For Point of Zero

Zero setting can get the deviation of zero point from basic tare in % of normal belt load. Taring program corrects basic tare during calibration. Zero setting is designed for calibrating the current test result.

1) Call the system menu, select the Zero set calibra menu

2) Press the ↵ to acknowledge and start programie. Upper window displays the Amount of the current zero point (Like as Zo). Lower window displays the deviation of zero point from previous zero setting operation in % of nominal belt load.

3) Press the ↵ to acknowledge running result. Tare is calibrated again. Press the ESC key to cancel calibration

4.6 Cumulation Check

The cumulation check is designed for checking and testing the weighing system with simulation way. And it is used to acknowledge the precision whether meet standard or not.

1) By the mechanism of scale, put a weight on the weightbridge. Then input the known value into the parameter C09 block

2) Call the system menu, select the “Calibra Functions” menu

3) Input the password: 3.14159

4) select the “Weight” sub menu

5) Press the ↵ to acknowledge and start programme. Upper window displays the Amount of weight(unit Like as Zo). Lower window displays the percentage for weight. Known value weight/actual testing value weight by KOR.

KOR=Known value/ actual testing value weight

- KOR value between 0.99 ~ 1.01, scale OK, no further action required
- KOR value between 0.95 ~ 1.05, please press the Enter key and KOR value will automaticlly be put into the D02 parameter as a new coefficient to calibration. You also enter KOR value into Parameter D02 manually
- KOR value <0.95 or KOR value>1.05. Multi-percent deviations suggest wrong data input (e.g. belt inclination not exactly known, lever arms) and/or mechanical faults (misalignment, distorsions). Please checking the weighing system again ,then take a cumulation check.

4.7 Check Using Material

Checks or calibrations with check weights cannot reproduce the actual circumstances to perfection. Highly accurate weighing results can be achieved only by various measurements with material and subsequent correction.

For correction, use Parameter D02. Always

observe the following items:
1. Make sure the route from platform to material collecting point is clean
2. Ensure that material diverters, if any, do not divert any material.

3. If feed screws or air slides are used between platform and collecting point, feeding starts approx. 30 min. before check measurement so that normal build- ups are given.

4. Set dedustings to a minimum.

5. Ensure that hoppers or vehicles used for transport of material to a legal-for-trade weigher are cleaned and weighed before every filling operation (tare).

Example:
Old value of Parameter D 02 = 1. Within 15 min. a material amount of W1 = 4.9 t is fed. Difference in counter reading W2 read on B1 Controller is 5.0 t. Ener computed value into Parameter D 02 .

D02 (new value)=D02 (old value)* (W2/W1) W1:
Measureing weight result by B1 controller
W2: The known value of materail

4.8 Linearization check

Normally belt load needs not be linearized. Linearization makes good sense only with strong belt load variations and simple mechanical weighing systems.

Calibration Using Check Weights:
1. Apply check weight Q1, start scale and call zero setting program.

2. Note result of zero setting program (lower display) and enter into Parameter Lin-I1 later. Abort program; do not overwrite result.

3. Enter into Parameter Lin-S1.

$$q1 = \frac{Q1}{L} \cdot \frac{100\%}{q0}$$

Q1 = Check weight	in kg	
L = Eff. platform length	in m	(Parameter C 06)
q0 = Nominal belt load	in kg/m	(Parameter D01)

4. Repeat steps 1...3 for residual linearization points gradually increasing check weight. Linearization must from the first point to start. If having points don’t need to linearized, it should be setted as bigger percentage compare with previous point with 100% normally

Calibration Using Check With Material:
1. Perform check with material using belt load q1.

2. Read off mean value of belt load q1 (a) from B1 controller. Enter value into Lin-I1.

3. Enter into Parameter Lin-S1.

$$\text{Lin-S}_1 = q1(a)\frac{Ms}{Ma}$$

Ms = Material amount fed in kg
Ma = Material amount read off from B1 in kg

4. Repeat steps 1...3 for residual linearization points gradually increasing check weight. Otherwise error message S6 will occure.

4.9 Set Time

Unlike the other programs, date and time can be changed in Start and Stop states of scale and be read off under SERVICE VALUES.

e.g. Date 2008/02/18 Time: 09:20:30

Input: Time 92030 Date: 80218

5. Service Values

The Service table includes detailed system information. Call does not affect weighing functions.

The parameters are divided into several combinations in capital letters. After the letter , it is the parameter's serial number. And parameter is divided into two kinds, Option and Input.

5.1 Parameter Overview

BLOCK A	Dialog Behaviour	Range	Default
A01	Language Unit	Chin/English	English
A02	Measure Units	SIS/CIA	SIS

BLOCK B	Rated Data	Range	Default
B01	Feed Rate Unit	Kg/h, t/h	Kg/h
B02	Actual Feed Rate	0.0020t/h-99999.9t/h	10.0 t/h
B03	Tacho Active	Yes/No	Yes
B04	Vs Character. Val	10.00 I/m ~ 100,000 I/m	10000.0 I/m
B05	Rated Speed	0.0100 m/s ~ 10.000 m/s	0.1000m/s
B06	VFD Brightness	40%, 60%, 100%	40%
B07	P-Source	Vol. Com. Ext	Vol
B08	Prel Ext. Active	YES, NO	NO
B09	WZ Active	YES, NO	Yes
B10	Z0 Unit	Kg, t, 10t, 100t	t
B11	Z0 Pulse dur	50ms-1000ms	50ms
B12	Z1 Unit	Kg, t, 10t, 100t	t
B13	Z1 Timer	0-240000	80000
B14	Z2 Unit	Kg, t, 10t, 100t	t
B15	Z2 Timer	0-240000	160000
B16	Z3 Unit	Kg, t, 10t, 100t	t
B17	Z3 Timer	0-240000	240000
B18	Timer Error	W1, W2, Ign, Alar	W2

BLOCK C	Enter Parameters	Range	Default
C01	Mains frequency	50Hz/60Hz	50Hz
C02	Belt Cyc. Numb	1-100(integer)	1
C03	Belt Cyc. Time	10-9999.0 s	30s
C04	Belt Cyc.Length		30.000m
C05	L/C Charac. Value	0.5~9.9999mV/V	2mv/V
C06	L/C Rated Cap	0.5~20000.0Kg	60.00Kg
C07	Eff. Platf .Length	0.1000~50.00m	0.5m
C08	Lever Ratio	0.0100~2.0000	1.0000
C09	Angle a	0.0~15.00degr	0.0
C10	Check Weight	1.000~22000.0	10.0 Kg

BLOCK D	Cal.Result	Range	Default
D01	Nom. Belt Load	D01=B02/B05×3600 B02:t/h B05:m/s,D01:kg/m	27.78Kg/m
D02	Span Correction	0.5000~2.000	1.000
D03	Total Tare	No input possible	
D04	Basic Tare N	No input possible	
D05	Tare Correction	No input possible	
D06	Belt Cyc.velum	No input possible	

BLOCK E	Analog Output	Range	Default
E01	Output Select	I, Q, V	I
E02	Output MIN	0-20 mA	4 mA
E03	Output MAX	0-20 mA	20 mA

BLOCK F	Limit Values	Range	Default
F01	Limit Value MIN	Imin, Qmin, Vmin	Imin
F02	Limit Value MAX	Imax, Qmax, Vmax	Imax
F03	Value for I MIN	-10%~20%I	5%I
F04	Event Clas.I MIN	W1 W2 Ign A	W2
F05	Value for I.MAX	100%~200%I A	120%I
F06	Event Clas.I MAX	W1 W2 Ign A	W2
F07	Value for Q MIN	-10%~200%Q A	5%Q
F08	Event Clas.Q MIN	W1 W2 Ign A	W2
F09	Value for Q MAX	100%~200%Q A	120%Q
F10	Event Clas.Q MIN	W1 W2 Ign	W2
F11	Value for V MIN	-10~20.0%V	5%V
F12	Event Clas.V MIN	W1 W2 Ign	W2
F13	Value for V MAX	-10%~200%V	120%V
F14	Event Clas.V MAX	W1 W2 Ign	W2

BLOCK G	Filter Setting	Range	Default
G01	I Display delay	0.0~60.0s	3.0s
G02	I Analog Output	0.0~60.0s	3.0s
G03	I Interface	0.0~60.0s	3.0s
G04	Q Display	0.0~60.0s	3.0s
G05	V Display	0.0~60.0s	3.0s
G06	L/C Filter	0.0~60.0s	3.0s
G07	Belt Afterfl.Tim	0.0~60.0s	3.0s

BLOCK K	Inside Run	Range	A	Default
K01	Maintenance Elec	1~10000h	A	3000h
K02	Event Maint El	W1 W2 Ign		W2
K03	Maint Run>min	1~10000h		3000h
K04	EvMint.run	W1 W2 Ign		W2

BLOCK L	Transmit	Range	Default
L01	Protocal type	Mbus; Fbus; Dnet; JY50	Mbus
L02	Host Timeout	0~600s	10.0s
L03	Comm.Error Host	W1 W2 Ign A	W1
L04	Address	1~127	1
L05	Resolution	1~32767	4096
L06	Word Sequence	InLn; IyLn; InLy; IyLy	InLn
L07	Physics	R232; R485; R422	R485
L08	Baud Rate	4800; 9600; 19K2; 38K2	9600
L09	Format Data	8N1; 8N2; 8O1; 8E1	8N1

BLOCK Q	Event	Range	Default
Q01	Power Failure	W1,W2,Ign,Alar	W2
Q02	Memory Error	No input	W2
Q03	Tacho Input 1	W1,W2,Ign,Alar	W2
Q04	NO USE	W1,W2,Ign,Alar	W2
Q05	Namur Error GAI	W1,W2,Ign,Alar	W2
Q06	NO USE	W1,W2,Ign,Alar	A
Q07	Namur Er.IMP/Blt	W1,W2,Ign,Alar	W2
Q08	L/C Input	W1,W2,Ign,Alar	W1
Q09	NO Release	W1,W2,Ign,Alar	W1
Q10	L/C Input>MAX		
Q11	L/C Input>MIN		
Q12	Password active		
Q13	No input		

BLOCK R	Control	Range	Default
R01	Controller Type	Sta, Univers	Sta

R02	P-Component	0.000~1000.00000mA/%	0.mA/%0200
R03	I-Component	0.01~600.2	1.0s
R04	Contr.Dev.Filter	0.0~600.0s	3.0s
R05	Contr.Dev.Time	0.0~600.0s	20.0s
R06	Max.Contr.Dev	0.0~100%	5.0%
R07	Contr.Deviation	W1,W2,Ign,Alar	W1
R08	Controller lrd	W1,W2,Ign,Alar	W1
R09	Lower Limit	0~20mA	4mA
R10	Upper Limit	0~20mA	20mA
R11	Conter.Magn.Elev	0~20mA	20mA
R12	Position at Stop	0, R09	R09
R13	Start-up	0.00~2.00Uml	0.00Uml
R14	Clearamce	0.00~2.00Uml	0.00Uml
R15	NO USE	0~20.00mA	20.00mA
R16	Set point Range		
R17	Zero Set point	0~20.00mA	4mA
R18	Store	ON YES YES(A)	ON
R19	Volumeteric Mod	Qcst; Ycst	Qcst
R20	Bypass	0~20.00mA	0.00mA
R21	Set point Filt.T1	0~6000s	0.0s
R22	Set point Filt.T2	0~6000s	0.0s
R23	Set/Act Compar	W/X; X/W	W/X
R24	Set/Act Sources	I, Q	I
R25	Adaption 1	NO; V; 1/Q; 1/W	NO
R26	Adaption 2	NO; W	NO

BLOCK P	Linear ization	Range	Default
P01	Lin.start/stop	ON OFF	ON
P02	Lin-S1	0.01~1000.00%Q	20%Q
P03	Lin-II	0.01~1000.00%Q	20%Q
P04	Lin-S2	0.01~1000.00%Q	40%Q
P05	Lin-I2	0.01~1000.00%Q	40%Q
P06	Lin-S3	0.01~1000.00%Q	60%Q
P07	Lin-I3	0.01~1000.00%Q	60%Q
P08	Lin-S4	0.01~1000.00%Q	80%Q
P09	Lin-I4	0.01~1000.00%Q	80%Q
P10	Lin-S5	0.01~1000.00%Q	100%Q
P11	Lin-I5	0.01~1000.00%Q	100%Q
P12	LIN. Error	W1,W2,Ign,Alar	W2

BLOCK H	Additional Devic	Range	Default
H01	ZDO Active	Open/Close	Open
H02	ZDO Limit	0.0~10.0%Qe	1.0%Qe
H03	AUTO Zero Active	open/close	open
H04	Mean Limit Value	0.0~10.0%Qe	1.0%Qe
H05	Zeroing Limit	0.0~100.0%Qe	5.0%Qe

Note

1. Verion number: INTECONT PLUS
2. Equipment number: F-Nr.=G xxxx (Valid when the system authorized)
3. Option Card: V05
4. Date and time: xx-xx-xx xx:xx e.g.: 08-06-28 10:18
5. Relay out state: DA=01110010 1:on 0: off
6. Relay in state: DE=xxx 1:on 0: off
7. Power run time-EL=xxxxh (to monitor the parameter K01)
8. Last run time-ED=xx h, ED>0
9. Belt run time-ED=xxx h (to monitor the parameter K03)
10. Input frequency of tachometer-Tacho input: Tacho1: xxx Hz
11. Percentage for belt load. Belt load/nominal belt load(L/C&Rating percent) aw=xx.xxx%
12. Max belt load-QMAX=xxx
13. Min load section-TQ<Min=xx.x mA
14. Percentage for last tare. Last tare/nominal load. (Last tare rating per)T1=xx.x%
15. Simulate out current A-A=xx.xxx mA
16. Output current for control(Control sim.out cr) Y_out=xx.xxxmA
17. External input current for setting(Set val.sim.inp.cur) Set_in=xx.xxx mA
18. (Control meter values)SIDE=xx.xxx mA
19. System.coefficient(Sys.coefficient)x.xxxxxxxx
20. A/D value=xxxxxx.x

5.2 Details of Service Value

Block A: Dialog Behaviour

A01-Language
Selection holds for all displays, event messages and parameters.

A02-Units
Lets you change over displays and parameter inputs from SI units to American units.

Block B: Rated Data

B01 Feed Rate Units

Range: - - - - - - - t/h Default: - - - - - - - Kg /h

- - - - . - - t/h

- - - . - - - t/h

- - . - - - - t/h

- - - - - - - Kg /h

Determine feed rate display format for sertpoint and actual feed rate.

B02 Nominal Feed Rate

Range: 0.0020…99999.9 t/h Default: 10.0000 t/h

Reference for limit values and service display.

B03 Tacho Active

Range: YES Default: YES

NO

Select NO to deselect speed measurement.

B04 Charact. Val. vs

Range: 1.00…1000 000 I/m Default: 10 000.0 I/m

Number of speed transducer pulses per belt meter.

B05 Nominal Speed

Range: 0.0100…10.000 m/s Default: 0.1000 m/s

Reference value for limit values.

Entry the value of parameter table.

B07 P- Source

Range: Vol (keyboard) Default: Vol

Com(analog input)

Ext(serial interface)

Input feed rate setpoint by using keyboard or analog input or serial interface.

B08 Prel Ext. Active

Range: NO Default: NO

YES

Evaluate external setpoint in percent via keyboard.

Parameter is active only if B07 is set to ANALOG or SER.

B09 WZ Active

Range: YES Default: YES

NO

Select NO to deselect belt load measurement.

Internally acts the belt load computed from nominal values.

B10-Z0 Unit

Total batching values and pulse weighting for external counter.

B11-Z0 Pulse dur.

Length of external counter output pulse

B12-Z1 Unit

B13-Z1 Timer
The time of a batch for counter 1

B18-Timer Error
If a batch having a error, it will be reported by warning, ignore and alarming

Block C: Calibrating Data

C01 Mains Frequency

Range: 50 Hz Default: 50 Hz

60 Hz

To optimize interference suppression of mains frequency, amplifier measuring cycle is matched to mains frequency.

Do not change parameter while weigher is running.

C02-Belt Cyc. Numb
Determines run time of setting programs (Zero Setting, Taring, Weight Check, etc.).

C03-Belt Cyc. Time
Determines measuring time of calibration program "Imp/Belt". Normally, the time of one belt circuit is selected.

C04-Belt Cyc.Length
Load cell characteristic value(transmission factor)

C05-L/C Charac.Value
Load cell characteristic value(transmission factor)

C06-L/C Rated Cap
Total of load cells rated capacities. Pivots count load cells.

C07-Eff. Platf. Length
Effective length of weighing platform

C08-Lever Ratio
Angle of longitudinal scale axis if load cell is mounted vertically to belt.

C09-Ang le a
Angle of longitudinal scale axis if load cell is mounted vertically to belt.

C10-Check Weight
Material load on platform simulated through check weight.

Block D: Calibrat. Results

D01-Nom. Belt Load

Computed from nominal values. Reference for limit values and zero setting program
No entry possible. Default: 27.78 Kg/m
Computed from characteristic data B02 and B05.

D02-Span Correction
Range: 0.5000…2.0000 Default: 1.000

Use range correction of measuring system by check with material.

$$D02 = \frac{ActualValue}{MeanValue}$$

D03-Total Tare
Total tare = basic tare + tare correction

D04-Bassic Tare N
Result of taring program

D05-Tare Correction
Result of zero setting program
Every taring operation set Parameter D 05 to 0.

D06-Belt Cyc.velum
Result of basic calibration program "Imp/Belt". Determines run times of setting programs.
Divided by Parameter B 04 (Characteristic Value vs) belt length in m results.

Block E: Analog Output

E01-Output Select
Range: I (feed rate) Q
(belt load)
V (belt speed) Xd
(deviation)
Y (control magnitude) P
(setpoint)

Default: I
One of these values can be output in analog fashion
Output current for values I, Q, P and V of 100 %.

Note:
1) Maximum output current is 20 mA.
2) Minimum output current corresponds to elevation.
3) If scale is stopped, outputs for I, P and Xd are set to the elevation value.
With Q and V, measurement value is output.
4) With control magnitude Y, parameter is irrelevant

Block F: Limit Values

If measurement values exceed their MIN/MAX limits, a corresponding event message is output (L1... L3, H1... H3). Monitoring starts 10 s after start-up.

F01-Limit Value MIN
Acknowledge the limit value MIN source of event message

F02-Limit Value MAX
Acknowledge the limit value MAX source of event message

F03-Value for I MIN
Reference: Nominal feed rate B 02.

F04-Event Clas.I MIN
Range: WARNING 2, WARNING 1, IGNORE, ALARM
Default: WARNING 1

F05-Value for I MAX
Reference: Nominal feed rate B 02.

F06-Event Clas.I MAX
Range: WARNING 2, WARNING 1, IGNORE, ALARM
Default: WARNING 1

F07-Value for Q MIN
Reference: Nominal belt load D 01

F11-Value for V MIN
Reference: Nominal speed B 05

Block G: Filtrate Set

I = feed rate V = belt speed

G01-I Display delay
Feed rate display

G02-I Analog Output
Feed rate analog output

G03-I Interface
Serial interface of Feed rate

G04-Q Display
Belt load display

G05-V Display
Belt speed display

G06-L/C Filter
Applies to all functions and displays referring to belt load

G07-Belt Aferfi.Tim
The delay time of Z1,Z2,Z3 counter continue to totalization after scale stop

Block K: Inside run

K01-Maintenance Elec
Alerts you on maintenance work to be effected as a function of voltage ON-time.

K02-Event Maint.EL
The total of power ON-times exceeds time K01.
If a time interval has elapsed, message S4 is output.

K03-Maint.Run>min
Alerts you on maintenance work to be effected as a function of conveyor belt run time.

K04-Ev.Maint.run<min
The total of conveyor belt run times exceeds time K03. If a time interval has elapsed, message S3 is output.

Block L: Transmit

L01-Protocol type
Eligible protocol variants. Every protocol requires an optional interface card to be present. “COMP” identifies the compatible protocols.

L02-Host Timeout
If timeout value exceeds zero, a message from host system is expected to arrive during set time.

L03-Comm.Error Host
If no message is received during the time set by Parameter L02, event message S9 “Data Link Host” is output.

L04-Address
Slave address for Modbus protocol.

L05-Resolution
Resolution of data for nominal value in Modbus protocol (integer format).

L06-Word Sequence
Determines the word sequence within a data double word in the Modbus protocol.
“I” stands for IEEE-754 values (floating point values)
“L” stands for 4-byte integer values
“n” does not swap the word sequence; “y” does.

L07-Physics
Sets interface physics for Modbus

L09-Format Data
Modbus data format (data bits - parity bit - stop bits)

Block Q: Event

Q01-Power Failure
Scale does not start automatically regardless of event class.

Q02-Memory Error
Scale inoperable

Q03-Tacho Input 1
Input frequency exceeds 2700 Hz.

Q05-Namur Error GA1
Short-circuit or cable breakage. Namur errors set internal speed value to 0.
Frequency display (service value) is still active.

Q07-Namur Er.IMP/Blt
Namur errors set internal speed value to 0. Frequency display (service value) is still active.

Q08-L/C Input
1. Load cell not (or improperly) connected.
2. Analog-to-digital converter of measuring amplifier is in saturation (see Service Value wz).
3. Supply voltage is below 19V.

Q09-NO Release
No RELEASE input signal
Exception:
IGNORE always releases scale

Q10-L/C Input>MAX
Load on load cell exceeds 110 % of the total of load cell rated capacities (C 04). Full scale: approx. 115 % with CSD load cells 160% with HBM load cells

Q11-L/C Input>MIN
Load on load cell has fallen below 3% of the total of load cell rated capacities.

Q12-Password active
Non input value. After inputting the password, B1 display message S5, don't need input the password again in 2 minutes when repeat operation

Block R: Control

R01-Controller Type
Controller is designed for a speed-controlled weighfeeder. It is divided into two types: Standard and Univers

R02-P-Component KP Reference:
Nominal setpoint
Exception: KP = 0 results in an I controller

R03-I-Component TN

Setback time TN is the time during which the I component causes
the same control magnitude change as the P component.
Exceptions:
1.KP = 0 : I controller TN is the reciprocal of integration constant KI, i.e. big value = slow controller.
KI = 1/TN in %/(mA/s)
2. TN = 0 : P controller
I component is removed
3. KP=TN= 0 : Controller output = elevation

R04-Contr.Dev.Filter

Filter for display and analog output of deviation, not for monitoring.

R05-Contr.Dev.Time

See Parameter R 07

R06-Max.Contr.Dev

Ref. : Nomin: al feed rate B 02, or
Nominal belt load D 01
Details :See Parameter R 07

R07-Contr.Deviation

Maximum deviation exceeded. Actual feed rate inadmissibly differs from setpoint for a period longer than specified time.
There is no single cause:

1. Material handling error.
Material flows irregularly or cannot be easily discharged. Controller is temporarily limited.

2. Electronics fault.
Check external controller and motor cables. Check feed rate controller for proper setting (current limitation, speed range).

3. Calibration error.
Upon initial calibration, controller was set so critically that the slightest change to system characteristics can make system unreliable.
Action: Repeat this part of commissioning.

If deviation absolute value exceeds limit R06 for time R05, event message B2 (O08) is output. At 100% setpoint, effective threshold always corresponds to
Parameter R06. For smaller setpoints, decrease threshold using Parameter
Deviation Factor.
If it is 0 : effective threshold = R06 * setpoint/nominal value
If it is 1 : efective threshold = R06

R08-Controller lrd

Event message B3 “Controller Limited” is output if control magnitude reaches upper response threshold

R09-Lower Limit
Lower limit of controller control magnitude.

R10-Upper Limit
Upper limit of controller control magnitude. Upon inputs < 20.00 mA, limit depends on setpoint value.

R11-Conter.Magn.Elev
Elevation of control magnitude by a constant value. Elevation acts before control magnitude limitation. With setting R 09 = R 11, control magnitude cannot fall below elevation.

Control magnitude is output in the form of impressed current of 0...20 mA. At 500 ohmic load, 20 mA correspond to 10 V.

R12-Position at Stop
In Stop state of scale, control magnitude can either be set to 0 or to lower limit R09

R13-Start-up
Volumetric start-up cycle after start of scale. After set number of belt circuits, scale goes to Volumetric (uncontrolled) mode.

"V" flashes on display

R14-Clearamce
Volumetric clearance cycle after stop of scale. Material prefeeder immediately cuts off. After set number of belt circuits, belt stops.
Clearance mode should be used only if prefeeder is controlled by the B1 Controller.

"V" flashes on display

R16-Setpoint Range
Analog input value Ie for 100% setpoint (nominal value B 02). For details, see Parameter R 17.

R17-Zero Setpoint
Input value Ie for 0% setpoints. Values smaller than 0 % are limited to 0 %. You can also enter a voltage setpoint (0...10V). 10V corresponds to 20mA current.

R18-Store
The parameters below can be used only if R01 is set to UNIVERS. R01 = STANDARD resets Parameters R18-R26 to default.

Stores last controller value after scale stop. Value is used for next start.
NO : Reject
YES : Store
YES-A : Store only if scale has not failed due to Alarm. Alarms in Stop state of scale do not influence

stored value.

R19-Volumeteric Mode

Selects Volumetric mode
Qconst : V * Qconst acts as actual value. Scale
operates speed-controlled.
V = current belt speed

Qconst = stored value, nominal belt load, or last measurement value
Yconst : Controller cut off, only setpoint bypass R20 is active.

R20-Bypass

Proportional to preset setpoint, the control magnitude is additively superimposed by a value.

Parameter indicates bypass value for nominal setpoint.

R21-Setpoint Filt.T1

First-order filter in setpoint branch; does not act on bypass.

R22-Setpoint Filt.T2

Same as R21, but 2nd-order filter.

R23-Set/Act Compar

W-X : Controller receives. SET/ACT deviation.
X-W : Controller receives. ACT/SET deviation

R24-Set/Act Sources

I : Setpoint = Feed rate in accordance with Parameter B 07
Act. val. = Feed rate measured
Q : Setpoint = Nominal belt load Qo
Act. val. = Belt load measured
"Q" does not allow any of the sources specified by B 07 to be used for setpoint input.

Upper display read "Counter Z1".

R25-Adaption 1

Adaption on controller input.

R26-Adaption 2

Controller type FEED:R26 not accessible;
corresponds to R26 = OFF

Block P: Linearization

P01-Lin.start/stop

This function lets you linearize belt load measurement.
The 4 linearization points can be acquired through calibration with check weights or check using material.

Place points not needed, or measured, outside the measuring range or interpolate.

P02-Lin-S1
Reference: Nominal belt load (Parameter D01).
Linearization point 1: Actual belt load

e.g. check weight or result of material measurement

P03-Lin-I1
Reference: Nominal belt load (Parameter D01)
Linearization point 1: Belt load measured by B1 Controller

P04-Lin-S2
Linearization point 2: see P 02

P05-Lin-I2
Linearization point 2: see P 03

P06-Lin-S3
Linearization point 3: see P 02

P07-Lin-I3
Linearization point 3: see P 03

P08-Lin-S4
Linearization point 4: see P 02

P09-Lin-I4
Linearization point 4: see P 03

P10-Lin-S5
Linearization point 5: see P 02

P11-Lin-I5
Linearization point 5: see P 03

P12-Lin.Error
Monitoring for monotonously rising compensation takes place only if linearization is active.
1. Upon start of linearization
2. Upon change to parameter

Block H: Additional Devic

H01-ZD0 Active
Zero Point tracking function

H02-ZD0 Limit
The limit value for the Zero Point Tracking. Qe: Nominal load cell

6. Communication Protocol-Modbus

MODBUS is a network protocol of Main-Sub format. The meter is as slaves to call by the PC or host.

6.1 Communication Format

6.1.1 Read Data

Host (Send)

IDD	Read	Add of reg H	Add of reg L	No. of Reg H	No. of Reg L	CRC H	CRC L
XX	03	00	XX	00	XX	CRC_H	CRC_L

Meter (Passback)

IDD	Read	No. of bytes	Word H	...	Word L	CRC H	CRC L
XX	03	XX	XX	...	XX	CRC_H	CRC_L

.

6.1.2 Write date

Host (Send)

IDD	Write	Add of reg H	Add of reg L	No. of reg H	No. of reg L	No. of bytes	Word H	...	Word L	CRC H	CRC L
XX	10	00	XX	00	XX	XX	XX	...	XX	CRC_h	CRC_L

Meter (Passback)

IDD	Write	Add of reg H	Add of reg L	No. of reg H	No. of reg L	CRC H	CRC L
XX	10	00	XX	XX	XX	CRC_h	CRC_L

Note:
If the register address of sending to meter is error or CRC check having wrong, there are no data to return of the meter.

6.2 Command Operation

6.2.1 Read-only Command

Address	Code	Byte Count	Attribute	Description
0031	0	4	Bit	The bit for Event
	Alarm_H Alarm_M Alarm-L			Message
0033	SYS_status DJ-status	2	Bit	System and relay message
0034	FMZ1_H	4	Long int	Batch accumulate Counter Z1(High bits)
0036	FMZ1_L	4	Float	Batch accumulate Counter Z1(Low bits)
0038	FMZ2_H	4	Long int	Batch accumulate Counter Z2(High bits)
0040	FMZ2_L	4	Float	Batch accumulate Counter Z2(Low bits)
0042	FMZ3_H	4	Long int	Batch accumulate Counter Z3(High bits)
0044	FMZ3_L	4	Float	Batch accumulate Counter Z3(Low bit)
0046	Zd	4	Float	Batch residual amount
0048	Zi	4	Float	Batch actual value
0050	I	4	Float	Actual feed rate
0052	Q	4	Float	Belt load
0054	V	4	Float	Belt speed

Note
1. The accumulate value to represent by 1 long integer and 1 float. e.g.
SHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL

S: Sign bit
S=0: Positive number S=1: negative number

H: Hexadecimal digits for the integer
L: Hexadecimal digits for the decimal part of 0-0.999999.

Bit Address

B	Va	Alarm_H			Alarm_M			Alarm_L			SYS_status		DJ_status	
		Name	funct ion	co de	Name	Functi	Co	Name	Func -tio	cod	Name	Func -tion	Name	Func -tion

7	0				Load cell	Normal		Feed Rate <Imin	NO					
	1					Error	C1		YES	L1				
6	0	External STOP Key	Relea -se		Speed Pulse	Normal		Belt Load< Qmin	NO		Volum Metri c Mode	Stop	Belt Motor to Start Light relay	Non - output
	1		Non-releas	S2		Exceed	C2		YES	L2		Start		output
5	0	System run time	normal		Feed Rate> Imax	NO		Belt Speed <Vmin	NO		Speed Test?	NO	Pre-Feede r To start Relay outpu t For	Non-output
	1		spill	S3		YES	H1		YES	L3		YES		output
	0		Norma		Belt Load	NO		Empty To Load cell	NO	Pre- feede r		Stop		Non-Output
4	1	Meter run time	Spill	S4	>Qmax	YES	H2		YES	L4	Volumetric synchronous	Start	Relay Error	Output
3	0		Invalid		Belt Speed >Vmax	NO		Power Norm				Stop	Belt Motor Drive	Non-output
2	1	Linearization Input password	valid	S5		YES	H3		Erro	E1		Start	The relay	output
	0		Right		Over-Load f	NO		Speed Sensor	Norm		Batch To run	Stop	Relay For alarm	Non-Output
	1		Error	S6	Load cell	YES	H4		Erro	E2		Start		output
1	0	Analog signal Input	Invalid		Actual Feed Rate	NO							Belt MAX For Relay outpu t MIN For	Non-Output
	1		Valid	S7	Out of tolera	YES	H5							output
	0				Output For	NO								Non-output

0	1				Contr Up to Limit value	YES	H6			Relay outpu t	output

6.2.2 Read-Write Command

Address	Byte Count	Attribute	Description
0000	2	int	Speed mode: 1 external 0 analog
0001	4	float	Rated Feed Rate
0003	2	Unsign int	Belt Cyc. Numb
0004	4	float	Belt Cyc. Time
0006	4	float	Belt length
0008	4	float	Rang of zeropoint track
0010	2	int	Baud rate: 0: 4800, 1: 9600, 2: 19200, 3: 38400
0011	2	int	Device address IDD
0012	4	float	Feed Rate Setpoint
0014	4	float	Batch setpoint Zb
0016	4	float	P value setting (0~2)
0018	4	float	I value setting (0~2)
0020	4	Long int	Totalizing counter (High bits, setting it to 0 means to clear totalizing counter, setting it to other data is noneffective)
0022	4	float	Totalizing counter (Low bits)
0024	2	int	Feeder: 1: start, 0: stop
0025	2	int	Prefeeder: 1: start, 0: stop
0026	2	int	Volumetric Mode: 1: start, 0: stop
0027	2	int	Volumetric Synchronous Mode: 1: start 0: stop
0028	2	int	Batching Mode: 1: start 0: stop
0029	2	int	Event count: setting it to 0 means to clear
0030	2	int	Batch completed symbol: 1: batch completed, 0: clear symbol

7. Event Messages

7.1 System Messages S

S1 : Memory Error
Program and parameter memories are checked in cycles. If an error is detected, scale is normally inoperable.

S2 : No Release
No external RELEASE signal. Scale cannot start.

S3: Maint.STR-Meter
Total ON-times of conveyor belt(Parameter K03, K04). Total ON-times of conveyor belt and measurement exceed set limit. Perform requisite service work, if necessary. Acknowledgement of message does not influence time intervals.

S4: Maintenance Int.Elec
the maintenance time for controlling the meter maintenance(Parameter K01, K02). The B1 controller power supply has been switched on for a set time.

Perform requisite service work, if necessary. Acknowledgement of message does not influence time intervals.
Parameter : K 01, K 02

S5: Input password valid
Operation of controlling the B1 controller is valid

S6: Linearization
Linearization for belt load measurement improperly set. Message is output only if linearization function is active.

Action: Check relevant parameters to see if preset curve features plateaus or turning points.

S7: Start the clearance of conveyor belt

7.2 Electrical System E

E1: Power Failure
Power failed or cut off.
It is possible that totalization has stopped during this time. Action : Acknowledge message

E2: Namur Err Tacho (GA1 Error)
Short circuit or breakage in speed transducer cable. Scale is inoperable. Action :
Check speed transducer cable. Deselect speed measurement for a short time
Parameter: Q05

E3: Reserved

E4: Numur Err Belt Sensor
Short circuit or breakage in belt sensor cable. (Belt sensor is available only on scales using automatic belt influence compensation BIC.)

Action : Check sensor cable
Parameter: Q07

7.3 Calibration C

C1: L/C Input
1. Load cell cable broken, not (or improperly) connected
2. Supply voltage too low

Action : Check cabling. If OK, check load cell amplifier.

C2: Tacho Input
Speed transducer output frequency exceeds 2700 Hz, most probably due to subsequent change of belt speed (e.g. gearbox).

Action : Check speed transducer for proper dimensioning. If need be, measure pulse frequency using oscillograph.

7.4 Maximum H

H1 : I > MAX
Current feed rate exceeds set limit value.
Action : Normally none, unless message H4 is additionally available or system specific limits have to be observed.
Parameters : F05

H2 : Load > MAX
Current belt load exceeds set limit value. Normally, weighfeeder is designed for +33% maximum belt load variation.

This is critical only with small setpoints (minimum admissible drive speed possibly exceeded down).
Action : Normally none, unless message H4 is additionally available or system specific limits have to be observed.

Parameters : F09

H3 : V > MAX
Current belt speed exceeds set limit value.

Action : System-specific unless C2 is additionally available. Parameters :F13

H4 : L/C Input > MAX
Scale overloaded. Errors in measurement can occur.

Action : Check material infeed (belt load excessive). Parameter :
Q10

H5: Actual feed rate exceeds set limit value
Parameter: R06

H6: Output of Control have up to limit value
Parameter: R10

7.5 Minimum L

L1 : I < MIN
Current feed rate has fallen below set limit value. Error in measurement possibly out of tolerance.
Action : System-specific unless L4 is additionally available. Parameters : F08

L2 : Load < MIN
Current belt load has fallen below set limit value. Normally, weighfeeder is designed for +33% minimum belt load variation.

This is critical only with small setpoints (maximum admissible drive speed possibly exceeded down).
Action : see L1
Parameters : F07

L3 : V < MIN
Current belt speed has fallen below set limit value.
Action : Check to see if belt is running.
Parameters : F11

L4 : L/C Input < MIN or Belt Load is Empty
Scale underloaded; errors in measurement possible.
Action : Check mechanical weighing system, weighed idler alignment, and load cell cable.
Parameter : Q11

7.6 Signal Lamps

Warning 1(W1)
Display permanent and underscored. Totalization continues. Once occure, clear the events must by the manual operation and having memory function.

Warning 2(W2)
The events to be clear by the automatic operation. Non-memory function.

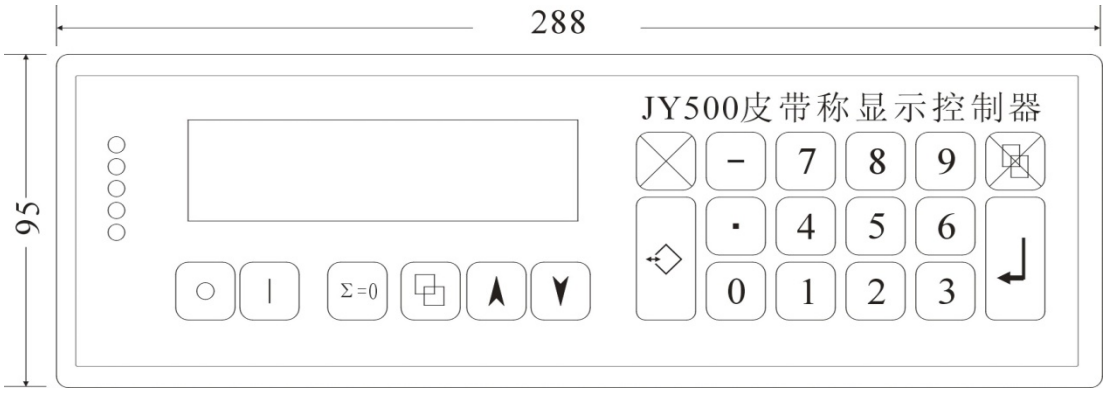
Ignore(Ign)
No monitoring of events, save MIN/MAX messages and deviation via contact outputs and signal lamps.

Alarm(Ala)
Display flashing. And the weighing system stop. Start:
First remove cause of fault and acknowledge message.
Acknowledgement:
If cause has not been removed yet, flashing stops, underscores are deleted, but message is still available.
If fault is remedied after acknowledgement, message automatically effaces.

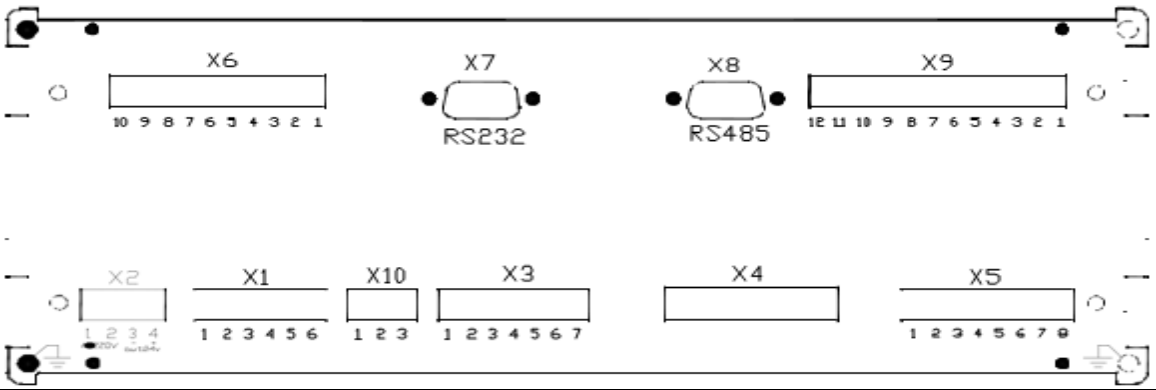
If several events occur at the same time, the most significant event is displayed first.
Priority: Alarm, Warning 1, Warning 2, sequence of event list.

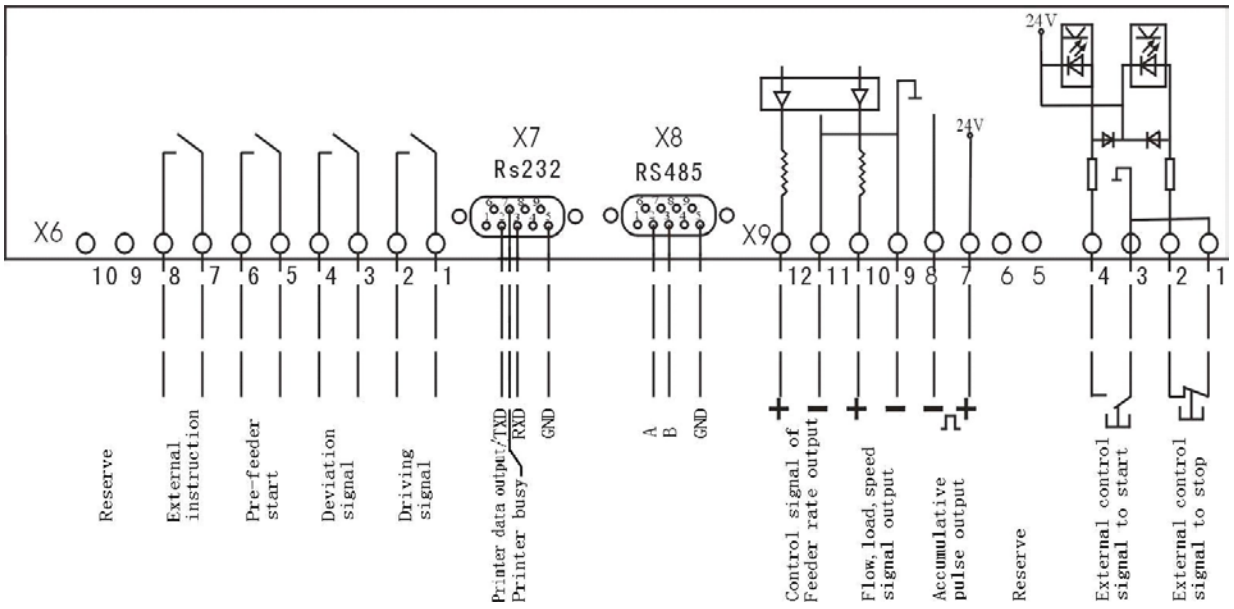
8. Connection Diagram

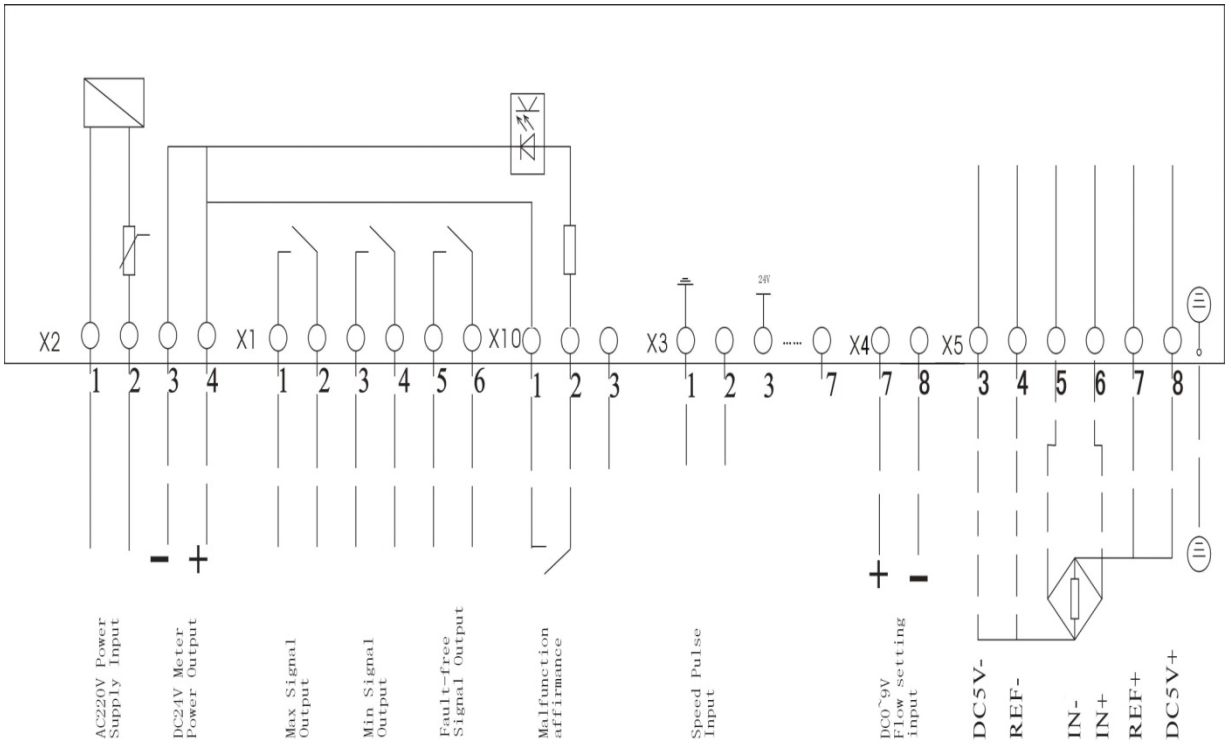
Front panel



Back panel




X6
10 9 8 7 6 5 4 3 2 1
X7
Rs232
X8
RS485
X9
12 11 10 9 8 7 6 5 4 3 2 1
24V
24V
Reserve
External instruction
Pre-feeder start
Deviation signal
Driving signal
Printer data output/TXD
Printer busy/RXD
GND
A
B
GND
Control signal of Feeder rate output
Flow, load, speed signal output
Accumulative pulse output
Reserve
External control signal to start
External control signal to stop


X2
1 2 3 4
X1
1 2 3 4 5 6
X10
1 2 3
X3
1 2 3 7
X4
7 8
X5
3 4 5 6 7 8
24V
AC220V Power Supply Input
DC24V Meter Power Output
Max Signal Output
Min Signal Output
Fault-free Signal Output
Malfunction affirmance
Speed Pulse Input
DC0~9V Flow setting input
DC5V-
REF-
IN-
IN+
REF+
DC5V+

X1：

TERMINAL	FUNCTIO N	INTERFACE STANDARD
1，2	Max Signal Output: closed is valid	Passive Touch
3，4	Min Signal Output: closed is valid	Passive Touch
5，6	Fault-free Signal Output:switching off is valid	Passive Touch

X2：

TERMINAL	FUNCTIO	INTERFACE STANDARD
1 2	Power Supply Input	AC 220V MAX200mA
3 4	Meter Power Output [-] Meter Power Output [+]	DC 24V

X3:

TERMINAL	FUNCTIO	INTERFACE STANDARD
1，2	Speed Pulse Input：port 1 [-] Port 2 [+]	
3	24V	
4~7	Reserve	

X4：

TERMINAL	FUNCTIO	INTERFACE STANDARD
1~5	Reserve	
6	Flow setting input[+]	[DC]0~10V（Optional）
7	Flow setting input[+]	0~20mA（Optional）
8	Flow setting input[-]	CO M

X5：

TERMINAL	FUNCTIO	INTERFACE STANDARD
1，2	Reserve	
3	Weighing load cell Power-bridge current [-]	DC 10V [-]
4	Weighing load cell Compensating Signal [-]	REF [-]
5	Weighing load cell Input Signal [-]	IN [-]
6	Weighing load cell Input Signal [+]	IN [+]
7	Weighing load cell Compensating Signal [+]	REF[+]
8	Weighing load cell power-bridge current [+]	DC 10V [+]

X6：

TERMINAL	FUNCTIO	INTERFACE STANDARD
1，2	Driving signal：closed is valid	Passive Touch
3，4	Deviation signal output：closed is valid	Passive Touch

5，6	Pre-feeder start to ouput:closed is valid	Passive Touch
7，8	External instruction： closed is valid	Passive Touch
9，10	Reserve	Passive Touch

X7：

TERMINAL	FUNCTIO	INTERFACE STANDARD
2	TXD/Printer data output	RS232
3	RXD	RS232
5	GND	
7	Printer busy	

X8：

TERMINAL	FUNCTIO	INTERFACE STANDARD
2	A Terminal	RS485
3	B Terninal	RS485
5	GND	

X9：

TERMINAL	FUNCTIO	INTERFACE STANDARD
1，2	External control signal to stop: Closed is valid	Passive touch input
3，4	External control signal to start： closed is valid after'stop' broken	Passive touch
5，6	Reserve	
7，8	Accumulative pulse output	MAX 300 mA（DC24V）
9 10	Flow,load,speed signal output [-] Flow,load,speed signal output [+]	0~20 mA [DC]
11 12	Control signal of Feeder rate output [-] Control signal of Feeder rate output [+]	0~20 mA [DC]

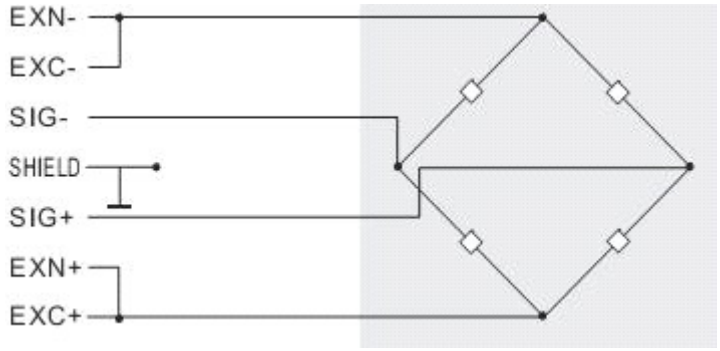
X10：

TERMINAL	FUNCTION	INTERFACE STANDARD
1，2	Malfunction affirmance：closed is valid	

Load Cell Connection

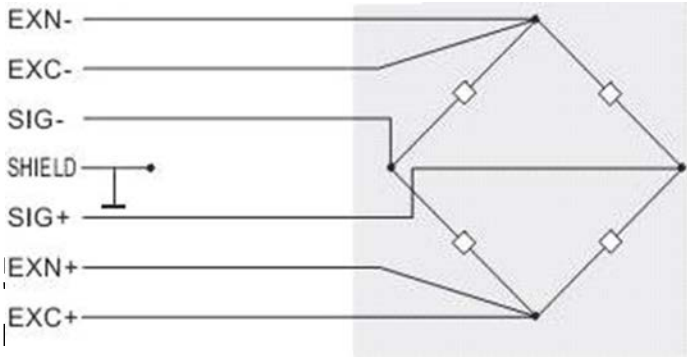
Four-Wire Connection

Load cell



Six-Wire Connection

Load cell



If something goes wrong:
our service department is always prepared to help. Maybe only some small error or maloperation is the cause of trouble. Check individual operations one by one. Normally, the issue can be eliminated.

Contact us

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