Yamato

EDI-800/910 CONTROLLER

USERS MANUAL

Version 8

Yamato Scale Co., Ltd.

EDI–800/910

USERS MANUAL

RECORD OF ISSUE

VERSION	DATE	DESCRIPTION
No. 1	September 30, '96	
No. 2	November 10, '96	Chapter 5 Standard Input/Output Interface and Chapter 6 Optional Function are added.
No. 3	July 12, '99	Add to EDI-910
No. 4		
No. 5		
No. 6		
No. 7	May 10,'02	Add Function. Program Version 3.40
No. 8	May 20,'04	Add Function. Program Version 3.60
No. 9		
No. 10		

YAMATO SCALE CO., LTD.

PREFACE

This manual provides the instructions for operation, including parameter setting and initial calibration.

Before performing the operation or setting, please read this manual carefully and follow all operation and safety instructions to assure weighing accuracy and performance as well as prolonged trouble-free operation.

Be sure to keep this manual so that you may consult it any time you have a question in operation.

Please also be noted that this manual may be partially revised time to time to improve the machine performance or due to parts revision.

Please contact Yamato local representative for question on this manual. If you still have problems, please consult Yamato Japan at the address below.

Overseas Operation Department

Yamato Scale co., Ltd.

Saembacho 5-22, Akashi 673 Japan

Phone: 81- 78-918-5568

Fax: 81-78-918-5552

DANGER, WARNING AND CAUTION NOTICES

RECOGNIZE SAFETY INFORMATION

The **Safety Alert Symbol** brings your attention to **Danger, Warning and Caution notices.** When you see this symbol be alert to the potential for personal injury or damage to your machine.

The careful operation of your machine depends on everyone who operates, maintains, adjusts or works near it. Please read and understand these danger, warning and caution notices. Be sure you understand the following signal words which will be seen throughout this manual:

DANGER

Alerts you to an immediate hazard, which will always result in severe personal injury and possible death, if it is not avoided.

WARNING

Alerts you to a hazard which will result in a serious personal injury, or possible death in some cases, if not avoided.

CAUTION

Alerts to potential hazard which may result in a serious personal injury if not avoided. It also alerts against an unsafe practice that will permanently damage equipment or property.

IMPORTANT

Points out a proper use that will avoid damage to the machine, could result violation against the regulations of Weights and Measures or the prepackaging rules, or will extend life of machine parts.

NOTE

Suggestion as to how to use or adjust the machine for best product results.

BASIC RECOMMENDATION

CAUTION

1. Be sure to perform operation according to the instructions described in this manual.

WARNING

2. Maintenance and inspection work must be performed by qualified personnel, who has enough knowledge of both mechanical and electrical details.

ELECTRICAL SAFETY INFORMATION

DANGER

1. Never perform any changes of or additions to this instrument. Changes or additional work on this instrument performed unauthorized personnel is very dangerous or cause serious failure. Be sure to contact Yamato Japan if you require any change or addition work.

DANGER

2. Be sure to shut down power supply when you change any boards or parts of this instrument. It is very dangerous by electrical shook to carry out such work while power is on.

WARNING

3. Never interrupt ventilation through the ventilation windows on this instrument with cloth or others. This window is important to ventilation to prevent temperature increase.

DANGER

4. Never insert your hands, any materials contains wet parts or metal parts into this instrument. This may cause serious damage.

CAUTION NOTICES DURING INSTALLATION OR MAINTENANCE

DANGER

1. Do not locate this instrument in a combustible environment or near any explosive substance.

DANGER

2. Be sure to ground the earth terminal of this instrument. Otherwise electrical shock would result severe personal injury or possible death in some cases, if it not avoided.

PRECAUTIONS ON DISPOSAL

WARNING

This instrument contains the lithium battery.

When disposing the instrument, therefore, remove the lithium battery from the printed circuit board, and dispose it together with the other incombustible waste with either + terminal or – terminal insulated.

Never attempt to heat the lithium battery or to throw it in a fire.

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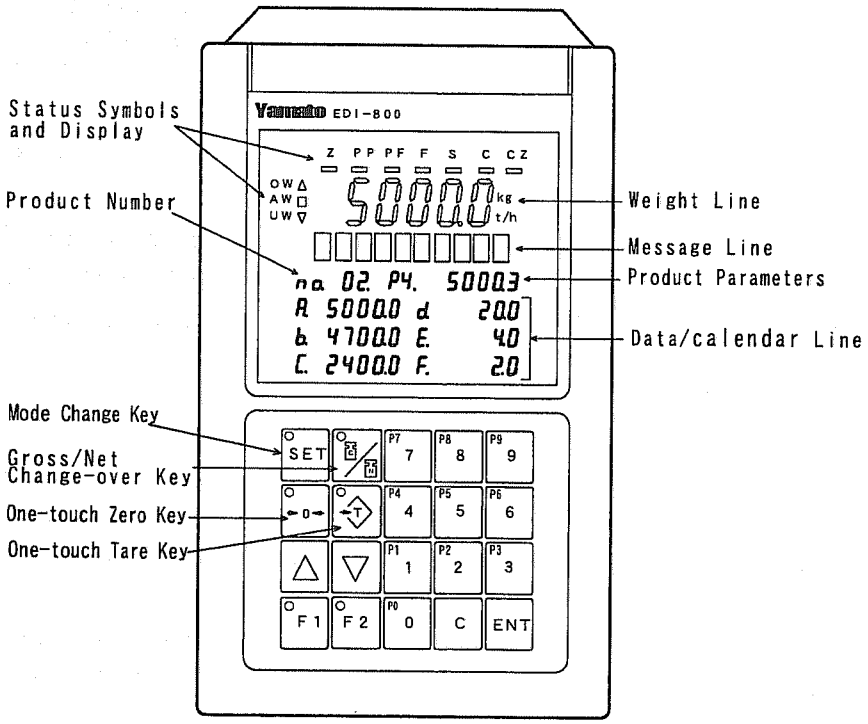
CONTENTS

Chapter-1 MACHINE DESCRIPTION

1.1 Front Panel Layout



(1) Status Symbols

Z: Stands for "ZERO VICINITY" and will light when the gross weight comes below this value.

PP: Stands for "PRIOR PRE-FINAL" and will light when the net weight comes above this value. Then the product flow will slow down from Full Feed to Mid Feed.

PF: Stands for "PRE-FINAL" and will light when the net weight comes above this value. Then product flow will slow down further from Mid Feed to Dribble Feed.

F: Stands for "FINAL" and will light when the net weight comes above this value, which is set to Dribble Compensation amount below Target Weight.

S: Stands for "SETTLED" and will light when the weight reading comes stable around the Target Weight. This lamp will light when the Settle Timer comes to time-up in the case that "Sequence Control Mode" is selected.

C: Stands for "COMPLETED" and will light when the data processing has been finished. This will be turned off when the Z (ZERO VICINITY) lamp lights after the product has been discharged or at next tarring process.

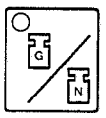
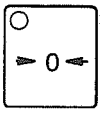
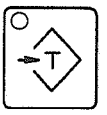
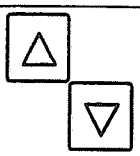
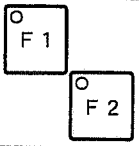
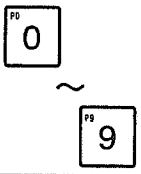
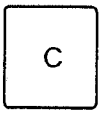
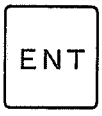
CZ: Stands for "CENTER ZERO" and will light when the gross weight comes to within ± 1/4 of the increment around the exact zero point.

OW: Stands for "OVERWEIGHT" and will light when Net weight is above Target Weight plus Upper Limit.

AW: Stands for "ALLOWABLE WEIGHT" and will light when the difference between Net weight and Target weight is within the range from Upper Limit to Lower Limit.

UW: Stands for "UNDERWEIGHT" and will light when Net weight is below the value Target Weight minus Lower Limit.

(2) Function Keys

KEY	NAME	FUNCTION
	**Mode Change Key**	To change the mode from "WEIGHING" to "SETTING", press this key. The key lamp (LED lamp) will light. To change the mode from "SETTING" to "WEIGHING", press this key again. Then the key lamp will be turned off.
	**Gross/Net Change -over Key**	Used to change-over the weighing between "GROSS" and "NET". To change "NET" to "GROSS", press this key. The key lamp will light. To change "GROSS" to "NET", press this key again. Then the key lamp will be turned off.
	**One-touch Zero Key**	To perform One-touch Zero, press this key. Note that this zeroing can be carried out within the preset limit. To clear this zeroing, press this key within 5 sec after pressing the CLEAR key "**C**". When the zero adjustment value is more than 1/4 of graduation, the LED arranged at the key top comes on.
	**One-touch Tare Key**	To perform One-touch Tare, press this key. Note that this tarring can be carried out up to the scale capacity. To clear this tarring, press this key within 5 sec after pressing the CLEAR key "**C**". When the Tare adjustment value is more than 1/4 of graduation, the LED arranged at the key top comes on.
	**Arrow Keys**	Used to move the blinking cursor for selecting an item.
	**F1** **F2**	Used to enter "-" of a numerical value, or clear the accumulated data, do AD self-diagnosis. Used to carry out special function.
	**Numerical Keys**	Used to enter a numerical value, or select a monitor display. Each key has a "P" number at its upper left corner, each of which identify a specific item to be monitored.
	**Clear Key**	Used to clear a entered value or a group of settings.
	**Enter Key**	Used to input a number or command into program.

(3) Weight Line (7 segments x 6 digits)

Used to display weight of product in the weigh hopper or other receiving device.

(4) Message Line (5 x 7 dots x 10 digits)

Used to show a message necessary to indicate the name or function of an selected item.

(5) Product Number (7 segments x 2 digits max.)

Used to display product No. The "no" is blinking when external setting for product No.

(6) Monitor Line (7 segments x 9 digits max.)

This line display the processed data based on the received weighing signals when one of the monitor keys (numerical keys) is pressed. Also an input value is displayed. The monitor key function will be given in **2. 3 "Weighing Status Display"** in "OPERATION" (Chapter 2).

(7) Data / Calendar Lines

Used to display product parameters, or calendar.

Product Parameters Line (5 digits x 6 items)

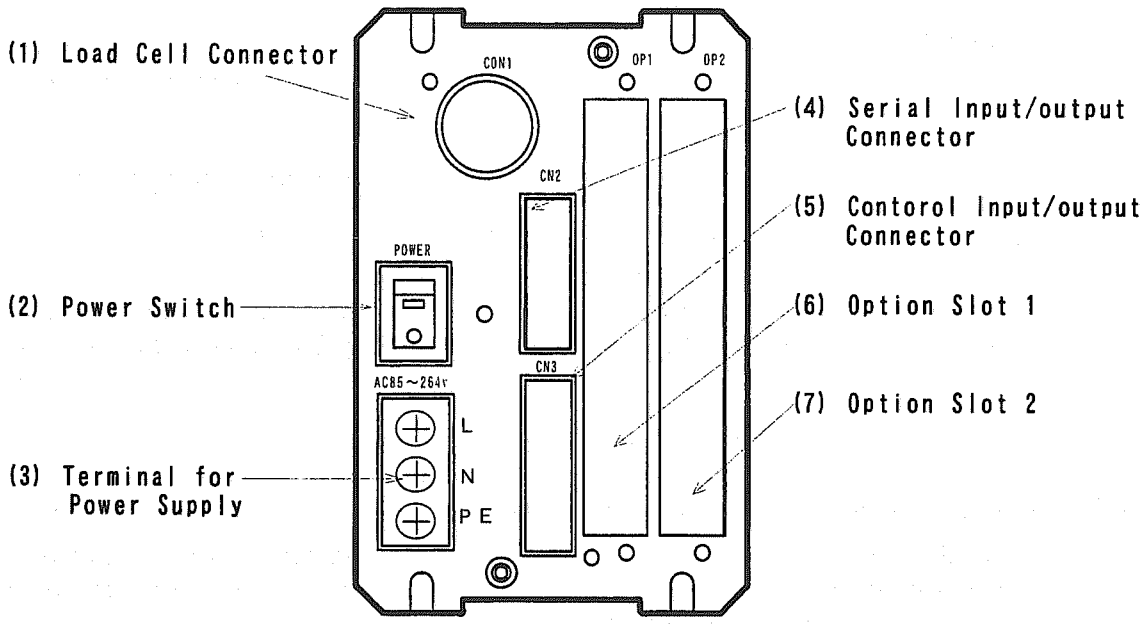
Used to display product parameters for the product No. currently selected. Symbols indicated mean as shown in the table below. The underline following a symbol indicates, when lights, that its item is set to through external device.

SYMBOL	SETTING ITEM	ABSOLUTE VALUE	RELATIVE VALUE	RATIO
A.	Target Weight	5 digits	—	—
b.	Pre-Final (PF)	5 digits	4 digits	2 digits (99 %)
C.	Prior Pre-Final (PP)	5 digits	4 digits	2 digits (99 %)
d.	Dribble Compensation	—	4 digits	—
E.	Upper Limit	5 digits	3 digits	2 digits
F.	Lower Limit	5 digits	3 digits	2 digits

Calendar Line (10 digits)

Used to display the date and the time.

1.2 Rear Panel



(1) Load Cell Connector (CON 1): Used to connect the Load Cell cable.

(2) Power Switch (POWER): Used to supply or shut down the Power to this instrument. To turn on it, press the upper part of the switch indicated with "—" mark.

(3) Terminal for Power Supply: Used to connect the power cable. Apply power of 85 to 264 V ac, 50/60 Hz, 1 Æ. Connect the earth line to the terminal PE.

CAUTION

Be sure to ground the earth terminal. (Grounding resistance must be below 100 W.)

DANGER

A qualified person who has both electrical and mechanical knowledge must perform grounding to avoid electrical shock, injury or death to using your instrument.

(4) Serial Input/output Connector (CN 2):

Used to connect cable for serial input and output. The number of its serial ports are three.

(5) Control Input/Output Connector (CN 3):

Used to connect cable for control input and output.

(6) Option Slot 1 (OP 1):

(7) Option Slot 2 (OP 2): Used to install optional board(s) if used.

Chapter-2 OPERATION

This chapter provides procedures for operation, including product setting.

2.1 Power ON

Press the "—" end of the Power Switch located on the rear panel. The power will be supplied to the system. Upon application of power, the screen will show the program version No. "Ver. X. XX" first and then the message of the currently selected Operation Level will appear.

Next, procedures for self-diagnosis will be automatically carried out and, when finished, the Operation Mode will be "WEIGHING" on Operator Level.

(1) Operation Levels

To prevent important parameters from being tampered by unauthorized person, operation of this system is divided into the following two levels, which are Operator and Supervisor Levels.

Operator Level:

In this level, operation is limited to the machine operation, product setting, setting of user parameters in ADDRESS setting, and initializing accumulated data.

Supervisor Level:

In this level, rest of the ADDRESS settings in addition to operation on Operator Level are allowed. (This system will be shipped with this level.)

(2) Self-diagnosis

The following are the items to be carried out as the self-diagnosis:

(1) Checking if offset of the A/D circuit is within a certain limit.

(2) Checking if span coefficient of the A/D circuit is within a certain limit.

(3) Checking if the exciting voltage to the load cell is proper.

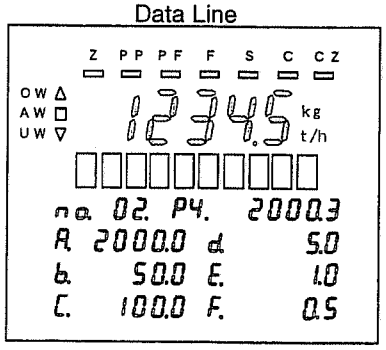
(4) Checking if the cable of the load cell is connected properly.

In the case when an error is found, its corresponding error message will appear and the "SYSTEM READY" signal will be turned off.

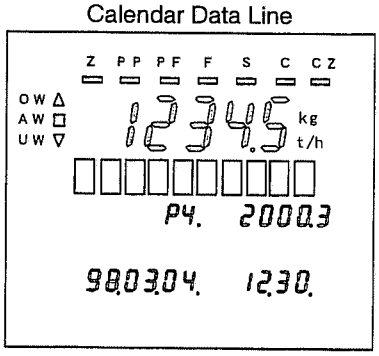
(3) Initial Display

The initial display will appear as shown in the illustration below when the system starts running properly after the first application of power.

Data Line



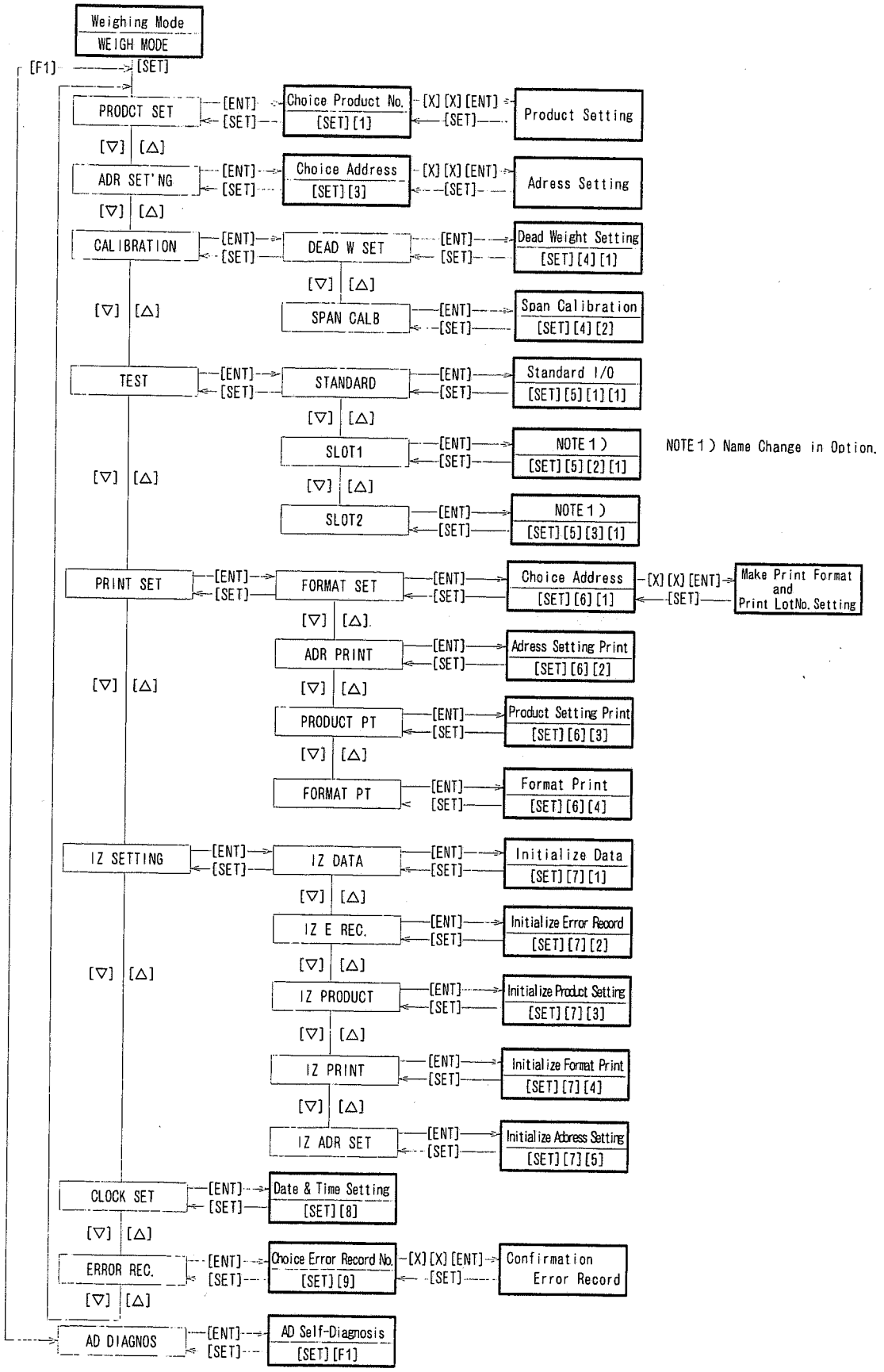
Calendar Data Line



Note 1: On EDI-800/910 is not displaying weighing mode, if you don't operate any key for ten minute, EDI-800/910 return to weighing mode automatically.

(4) How to Operate

There are displayed from weighing mode to operation item.



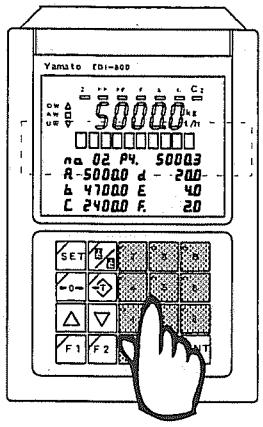
To select a monitor item, press the key of the desired item identified with "P"

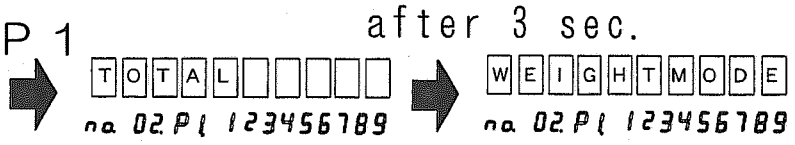
2.2 Weighing Status Display

When weighing data is received, weighing status will be displayed in the monitor line according to the results calculated based on the weighing data. The status will be displayed separately item by item as selected by 10-key with "P" number.

To select a monitor item, press the key of the desired item identified with "P" number. (Each monitor number is indicated on the each numerical key of the 10-key pad as "P" number, which is described in the Machine Description.)

Upon selected, the monitor item will appear in the message line and its data will be displayed in the monitor line as shown in the illustration below. (This example shows the monitor item P1 "TOTAL".)





The message will return to "WEIGHT MODE" after 3 sec weile the data of P 1 "TOTAL" will remain until other monitor number is selected.

The following table depicts weighing status to be displayed in the monitor line.

KEY No.	ITEM	MESSAGE	DISPLAY	DESCRIPTION
P0	Weighing Count (Max 4 digits)	COUNT	P0. XXX	The COUNT advances each time Weighing Data is received.
P1	Total (Max 9 digits)	TOTAL	P1.XXXXXXXXX	Each weight is accumulated to total during the operation of the currently selected Product No.
P2	Weighing Time (Max 4 digits)	WEIGH TIME	P2. XX. XX	Time from weighing command to actual weighing. This item is displayed only when "Sequence Control Weighing" is selected.
P3	Dribble Compensation (Max 4 digits)	DRBBL COMP	P3. XXXX	The value of currently applied dribble compensation.
P4	Average (Max 5 digits)	AVERAGE	P4. XXXXX	Average value calculated based on the accumulated weighing value.
P5	Range (Max 5 digits)	RANGE	P5. XXXXX	Difference between Max. and Min. of the weighing values.
P6	Standard Deviation (Max 6 digits)	S. D.	P6. XXX. XXX	Standard Deviation of the accumulated weighing data.
P7	Maximum Value (Max 5 digits)	MAXIMUM	P7. XXXXX	The maximum weighing value among accumulated data.
P8	Minimum Value (Max 5 digits)	MINIMUM	P8. XXXXX	The minimum weighing value among accumulated data.

P9	zero deviation (Max 6 digits)	ZEROCHAN GE	P9. XXXXXX	The zero deviation is displayed when the zero adjustment is executed. *1)
P10	deviation (Max 5 digits)	RELATIV WT	P10. XXXXX	Difference between the target weight and net weight. *3)
P11	Gross weight (Max 5 digits)	GROSS WEIT	P11. XXXXX	Gross weight
P12	Net weight (Max 5 digits)	NET WEIGHT	P12 XXXXX	Net weight
P13	One Touch tare (Max 5 digits)	MANU TARE	P13 XXXXX	One touch tare
P14	Fixed tare (Max 5 digits)	FIXED TARE	P14 XXXXX	Fixed tare
P15	Total tare (Max 5 digits)	TOTAL TARE	P15 XXXXX	Value that added One touch tare to Fixed tare
P19	Accumulated zero (Max 5 digits)	ACCMU ZERO	P19 XXXXX	Accumulated zero = Current zero – Zero at time of initial adjustment. *1)
P29	Individual zero (Max 5 digits)	EVERY ZERO	P29 XXXXX	Individual zero = Current zero – Last zero. *1)

*1) The accumulated zero and individual zero indicate the following respectively.
- Accumulated zero = Current zero – Zero at time of initial adjustment
- Individual zero = Current zero – Last zero

*2) For [10], press the [0] key two times.
[9] is displayed when the [9] key is pressed one time, [19] is displayed when it is pressed two times, and [29] is displayed when it is pressed three times.

*3) If the limiter value has been set at the internal setting address 17-1, it flashes when the deviation exceeds the value.

(1) Accumulated data by product:

These data(Weighing count, Total, Average, Range, Standard Deviation, Maximum Value, Minimum Value) administrations by product.

(2) How to clear the data:

① To clear the data of a particular Product No.

1) Select the Product No. as desired and change the operation mode to weighing.
2) Press the [F1] key and then press the [1] key. The accumulated data of the Product No. will be cleared.
3) The operation mode will return to Weighing after the clearing process has been finished.

② To clear the data of all the product numbers at one time;

Press the keys [SET], [7], [1], and [ENT] in order.

③ To initialize with an external signal;

Set the input signal of "ACCUMULATED DATA CLEAR" to "ON". The accumulated data of the currently selected Product No. will be cleared.

④ To clear the printing accumulated weighing data

To conduct printing accumulated weighing data, The accumulated data of the currently selected Product No. will be cleared.

2.3 *Product Setting - [SET], [1]*

Product No. set from 00 to 99, and the product setting shown from A to F.

This section provides the procedures for setting of Product No. and Product parameters. To help understanding of each Product parameter, outline of an Operation Cycle is described first.

(1) Typical Operation Cycle

The diagram below gives a typical operation cycle.

① Product starts feeding at the full flow rate (Full Feed).

② When product fed reaches a preset weight, for example 80 % of the Target Weight (PP - Prior Pre-Final Point), flow rate downs low (Mid Feed) and continues up to about 95 % for example.

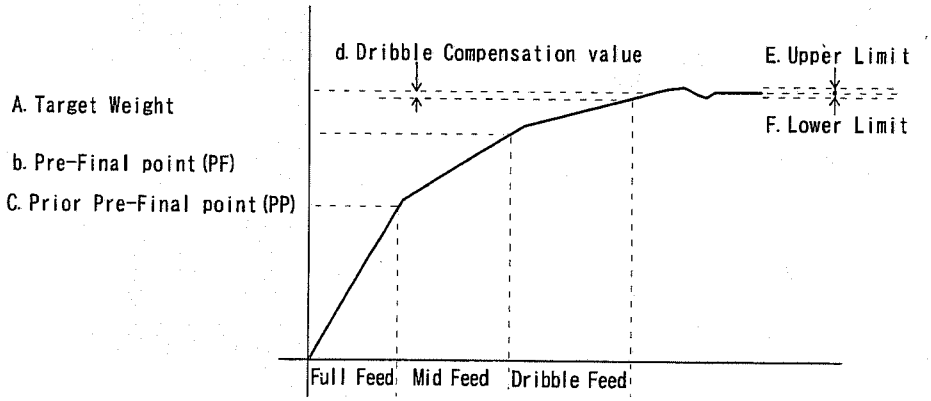
③ At this point (PF - Pre-Final Point) the remaining amount is fed in at further low rate (Dribble Feed) that allows for the precise stream cut-off.

④ When product fed reaches at the point Dribble Compensation value prior to Target Weight, the Dribble Feed is cut-off so that the total product amount fed may comes to close to the preset Target Weight.

⑤ The computer will judge the amount to Overweight (above the upper limit), Acceptable weight (between the upper limit and lower limit) or Underweight (below the lower limit). The above result will be indicated on the front panel.

⑥ Then the product will be discharged according to the judgment.

Product parameters are shown in the operation cycle diagram.



Note 1: There are two weighing methods; one is Simple Comparison Weighing and the other is Sequence Control Weighing, which is selected in Address Setting. (Refer to "Weighing Method" in Annex 1.) This manual provides the procedure mainly for Simple Comparison Weighing.

Note 2: Dribble Compensation value varies by adjusting the preset dribble compensation value in Sequence Control Weighing.

(2) How to change Product No.:

① Press the keys [SET], [1], [X], [X} and [ENT] in order; where {X] and [X] means to enter two digits for the new Product No. The Product No. will be changed to the entered number along with its product parameters.

② Press the key [SET] three times, the operation mode will return to Weighing.

(3) How to change product parameters:

① To change product parameters of a product No., select the product No. first, pressing the keys [SET], [1], [X], [X} and [ENT] in order; where {X] and [X] means to enter the number of the Product in two digits. ([2] and [5] in the example below.)

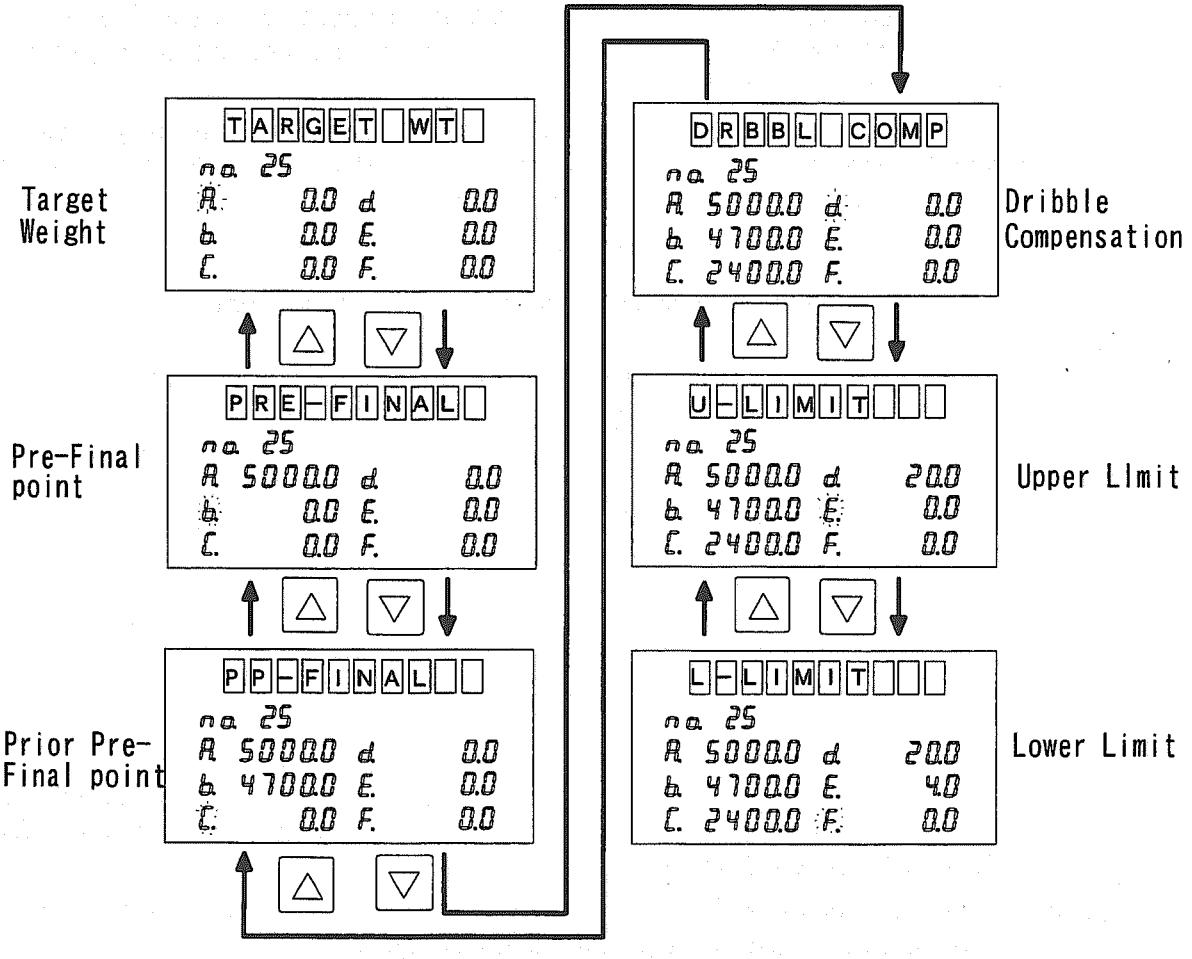
② As the product parameter of [A] (Target Weight) is blinking first, press [] or [] to move the blinking place (cursor) to the position of the item to be changed.

③ Enter the value (5000.0 for the target weight in the example below) and press the [ENT] key to set this value.

④ To cover all the six product parameters, repeat the above (2) and (3) procedures.

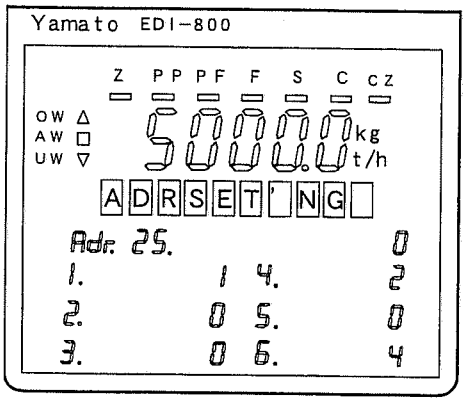
⑤ Press the key [SET] three times, the operation mode will return to Weighing.

The above procedures are shown in the illustration below.



2.4 *ADDRESS Setting - [SET], [3]*

In order to fulfill various requirements, ADDRESS Settings are provided as follows:



(1) How to change the ADDRESS Setting parameters:

To access one of the ADDRESS Setting parameters, press keys [SET], [3], [X], [X} and [ENT] in order; where {X] and [X] means to enter two digits for the address of the group of the parameters. (Adr: 25 in this example.)

Press [] or [] to move the blinking place (cursor) to the position of the item to be changed.

Enter the desired value and press the [ENT] key to set this value.

To cover other parameters, repeat the above (2) and (3) procedures.

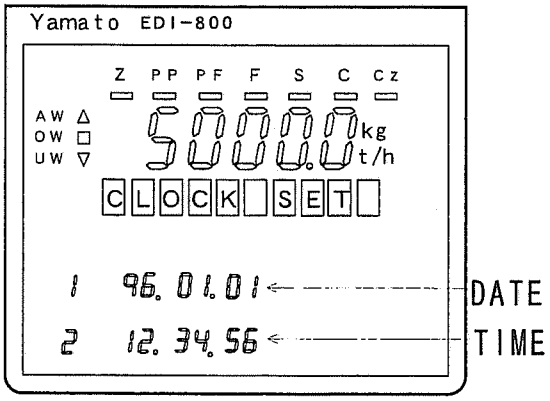
Press the key [SET] three times, the operation mode will return to the Weighing.

Please refer to the ANNEX 1 for ADDRESS Settings.

Please note that the word of "ADDRESS setting" comes from parameter setting after selecting specific ADDRESS, which is carried out on Supervisor Level.

IMPORTANT **Do not change ADDRESS Setting parameters arbitrarily. Otherwise the performance could be affected. Make sure that such change must be carried out by Supervisor or Engineer who has enough knowledge.**

2.5 Date and Time Setting - [SET], [8]



Date and Time are used to record errors and to print data. To set the clock inside, follow the procedures given here.

The format used is YY / MM / DD for date and HH / MM / SS for time in 24 hour system.

(1) How to change the Date:

① Press the keys [SET], [8] and enter [Y], [Y], [M], [M], [D], [D] in order. [Y], [Y] means two digits of year, [M], [M] two digits of month and [D], [D] two digits of day.

② Press the key [SET] three times to return to Weighing Mode.

(2) How to change the time:

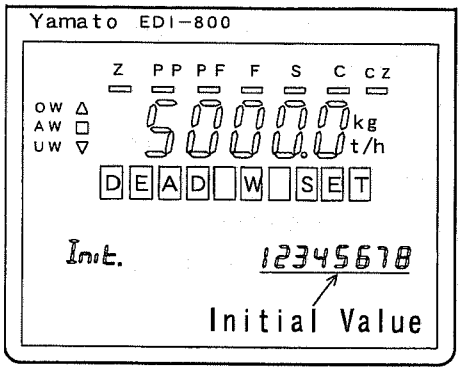
① Press the keys [SET], [8] and [], and enter [H], [H], [M], [M], [S], [S] in order.[H], [H] means two digits of hour in 24 hour system, [M], [M] two digits of minute and [S], [S] two digits of second.

② Press the key [SET] three times to return to Weighing Mode.

Chapter-3 INITIAL CALIBRATION

The Initial Calibration includes Dead Weight setting and Span Calibration. They should be carried out when the weighing system is installed and when dead weight has been changed remarkably. It is also recommended to perform them periodically, for example, once a year to maintain the high weighing accuracy.

3.1 Dead Weight Setting - [SET], [4], [1]



Dead Weight setting is carried out as follows:

(1) Press the keys, [SET], [4] and [1] in order. The Dead Weight setting page will be displayed as shown in the illustration left-hand. The value of the current dead weight is indicated in the Initial Value line along with the heading "***Init.***" (initial).

(2) Press the [C] key. The dead weight indication will be blinking for about 2 sec.

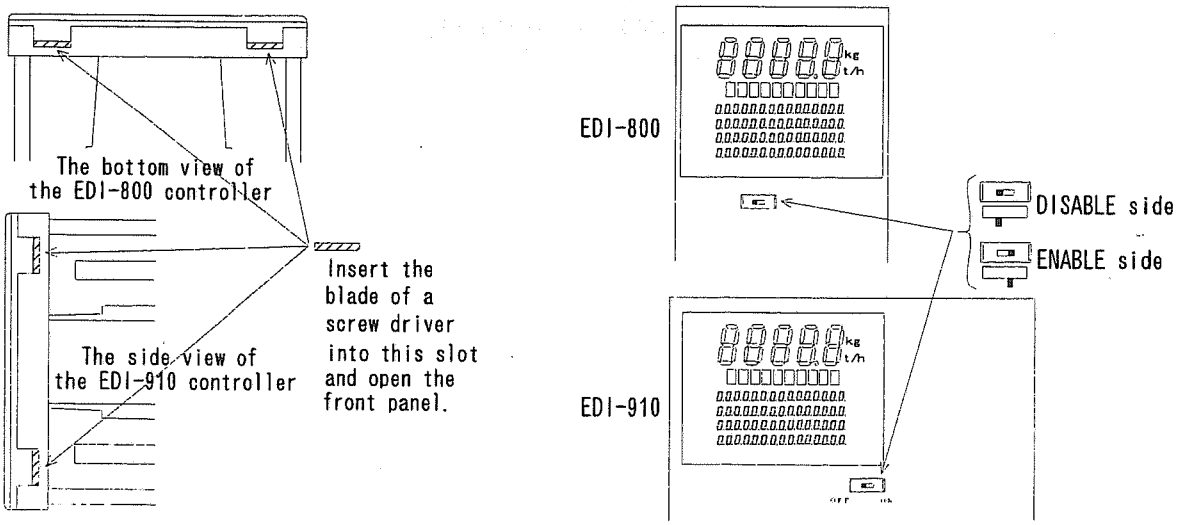
(3) Press [ENT] key while the indication is blinking. The Dead Weight setting will be performed. Then the new dead weight will be indicated in the Initial Value line.

(4) Press the key [SET] three times. The operation mode will be returned to Weighing.

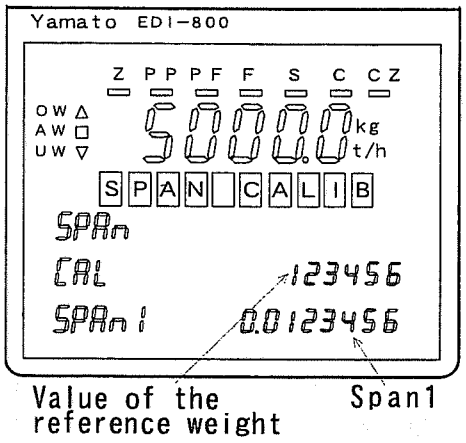
3.2 Span Calibration - [SET], [4], [2]

The span calibration must be carried out using calibrated weights as the reference weight. As mentioned it is recommended to perform periodically, of which interval can be changed depending on its condition. The procedures for the calibration is as follows:

(1) First, remove the front panel and set the slide-switch on the Display Board to the ENABLE (adjustment) side referring to the illustration below.



IMPORTANT **Be sure to restore the slide switch and the front panel when the span calibration has been finished.**



(2) Press the keys, [SET], [4] and [2] in order. The Span Calibration page will be displayed as shown in the illustration left-hand.

(3) Enter the value of the reference weight to be used using 10-key pad and press the [ENT] key . The entered value is indicated in the line of heading "***CAL***".

(4) Press the [] key to move the blinking cursor to the line of heading "***SPA n1***", where the current span coefficient will be indicated.

(5) Press the One-touch Zero key and confirm the weight display shows zero.

(6) Place the reference weight on the scale.

(7) Press the [C] key . The indicated current span coefficient will be blinking for two seconds.

(8) Press the [ENT] key while the indication is blinking. Span Calibration will be carried out and the new span coefficient will be indicated.

(9) Remove the reference weight from the scale and confirm that the weight display returns to zero. If not, repeat the Span Calibration again.

(10) Press the [SET] key three times. The operation mode will be returned to Weighing.

(11) Restore the slide switch on the Display Board and the front panel.

CAUTION

If the Span Calibration is not performed properly, it may cause poor accuracy in weighing. The personnel who has enough knowledge must perform the Span Calibration.

Chapter-4 ERROR CODE & MESSAGE

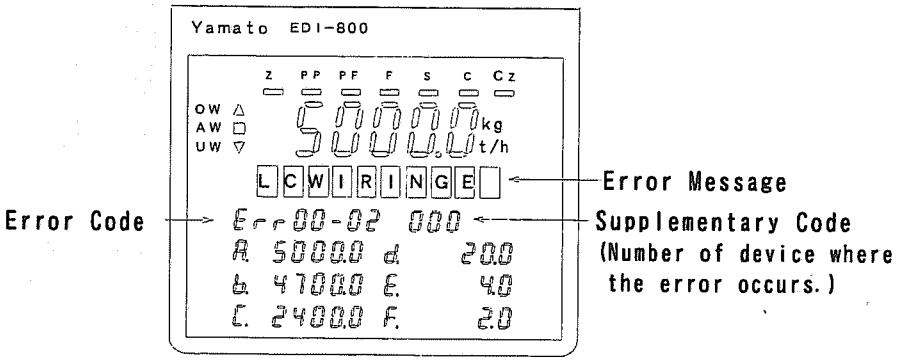
4.1 Error Codes and Messages

When a temporary error in operation such as wrong key action, etc. (Error Level C) occurs, a corresponding message will appear in the Message line and its error code will be indicated in Monitor line. These display are kept for about three seconds and then disappear.

When an error caused possibly by trouble of unit or circuitry, etc. (Error Level B and A) occurs, its error indication and message will be displayed. These error indication and message can be removed temporarily when the [C] key is pressed. If its cause did not removed within one minute, these error indication and message will be displayed again.

When a serious fault such that found at Self-diagnosis (Error Level A) occurs, the System Ready signal will be turned off.

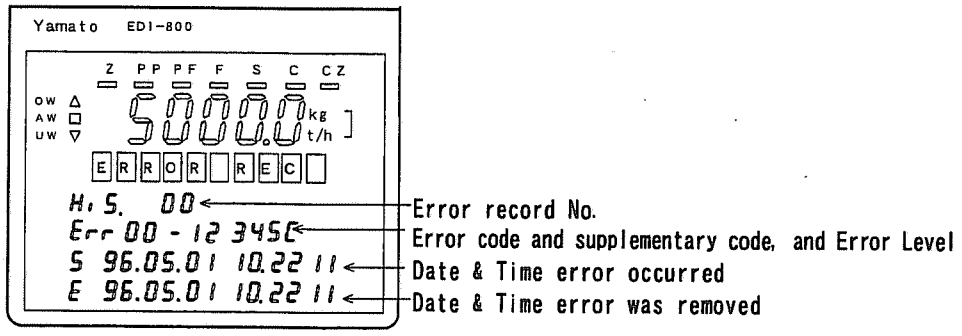
The illustration below shows an automatic operation page on which an error indication and message are displayed. (The error level will be indicated only on pages of the error record.)



Note: Refer to ANNEX 2 which describes the error codes and messages along with recommended actions.

4.2 Error Records - [set], [9]

To review the record of an error recently occurred, press the [SET] and [9] keys in order. The following error record will be displayed as shown in the illustration below.



- o To review the record of preceding or next error record number, press the keys [SET] and [9], then press the key [] or [].
- o To review the record of a given error record number, enter the error number (2 digits) and press the [ENT] key.
- ● Press the [SET] key three times, the operation mode will return to the Weighing mode.
- ● Press the keys [SET] ,[7]and[2],the error record clear.

Chapter-5 STANDARD INPUT/OUTPUT INTERFACE

5.1 Load Cell Connection

(1) Connector for Load Cell Cable (CON 1)

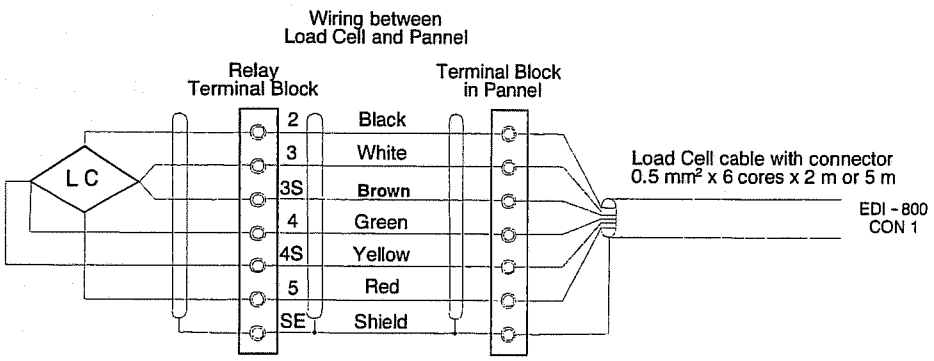
SIGNAL	FUNCTION	PIN No.	CABLE COLOR
2	- Signal	1	Black
3S	+ Sensing	2	Brown
3	+ Exciting	3	White
5	+ Signal	4	Red
4	- Exciting	5	Green
4S	- Sensing	6	Yellow
	NC	7	—
SE	Shield	8	—

(2) Dedicated Load Cell Cables with Connector (0.5 mm² x 6 cores)

SUPPLIER	MODEL No.	LENGTH
Yamato	EJ750 - 60	2 m
Yamato	EJ750 - 70	5 m

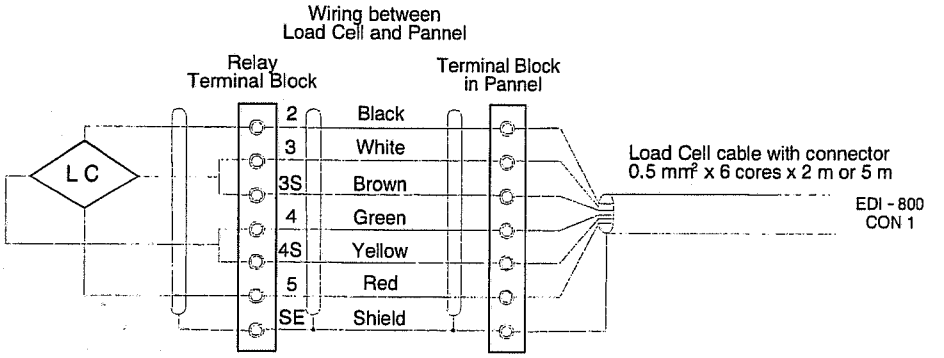
(3) Cable Connection

Remote sensing method with six wires is applied for Load Cell connection as shown in the illustration below. Six core shielded cable must be used and the conduit pipe for this cable should be located 300 mm or more apart from the other line.



Connection with 6 wire Load Cell

If four wire load cell is used, follow the wiring as show below.



Connection with 4 wire Load Cell

5.2 Control Input/Output

(1) Control Input/Output Connector (CN 3)

Functions for the control Input and output are set as shown in the table below.

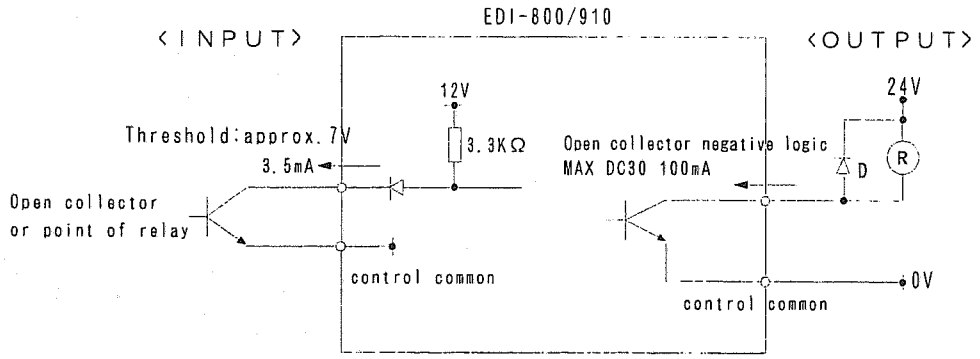
SIGNAL	FUNCTION Hold command	Pin No.	DEDICATED CABLE	
			Wire Color	Wire Mark
IN 1	Zero Memory	1	Blue	Red - 1
IN 2	Individual Print	2	Blue	Black - 1
IN 3	Tare Memory/Feed Command	3	Pink	Red - 1
IN 4	Tare Reset	4	Pink	Black - 1
IN 5	Weighing	5	Green	Red - 1
IN 6	Clearing Data*	6	Green	Black - 1
IN 7	Hold command (Printing Data*)	7	Orange	Red - 1
IN 8	Selection In or Ex**	8	Orange	Black - 1
COM	Common	9	Gray	Red - 1
COM	Common	10	Gray	Black - 1
OUT 1	System Ready	15	Green	Red - 2
OUT 2	Zero Vicinity	16	Green	Black - 2
OUT 3	Prior Pre-Final/Full Feed	17	Orange	Red - 2
OUT 4	Pre-Final/Mid Feed	18	Orange	Black - 2
OUT 5	Target WT/Dribble Feed	19	Gray	Red - 2
OUT 6	Overweight	20	Gray	Black - 2
OUT 7	Acceptable Weight	21	Blue	Red - 3
OUT 8	Underweight	22	Blue	Black -3
OUT 9	Scale Over	11	Blue	Red - 2
OUT 10	Tare Memory Finish	12	Blue	Black - 2
OUT 11	In Weighing (Weighing Finish)	13	Pink	Red - 2
OUT 12	Settled	14	Pink	Black - 2
OUT 13	On Hold	25	Green	Red - 3
OUT 14	Zero Error	26	Green	Black - 3
OUT 15	CPU in Operation	27	Orange	Red - 3
OUT 16	Alarm	28	Orange	Black - 3
COM	Common	23	Pink	Red - 3
COM	Common	24	Pink	Black - 3

Note (*): Data means accumulated weighing data.

Note (**): In or Ex means Internal or External signal to be selected.

(2) Dedicated cable with connector

NOTE1:It is necessary to add the surge killer to the relay.



NOTE2:Low level of open collector will lower up to 1.3V.

(3) Dedicated cable with connector

(AWG28, core wire diameter: 0.39 mm)

SUPPLIER	MODEL No.	LENGTH
Yamato	ER968 - 30	3 m
Yamato	ER968 - 50	5 m

(4) Function of the Control Input

SIGNAL	FUNCTION	DESCRIPTION
IN 1	Zero Memory	Performs zero correction and clears accumulated data.
IN 2	Individual Print	Sends individual print data in serial signal.
IN 3	Tare Memory/ Feed Command	Subtracts tare value to make net weight zero. Or, in sequence control, starts Product Feed including Full, Mid and Dribble Feed after tarring.
IN 4	Tare Reset	Clears subtracted tare value.
IN 5	Weighing	Advances weighing count and accumulates the weighing data. Weighing data will be kept held while this signal is ON. Or, in sequence control, the forced weighing is performed with this signal.
IN 6	Clearing Data	Clears weighing count and accumulated data of the currently selected product number.
IN 7	Hold command (Printing Data)	Weighing data will be kept held while this signal is ON. The function can be changed Printing Data.
IN 8	Selection In or EX	To carry out product setting externally, set this input signal to ON.
Layout by setting	Zero Reset	Clears zero correction value to show zero deviation from the initial zero setting.
	Sequence Reset	Perform reset of the product feed sequence in Sequence control.
	Request Data in serial	Requests to send weighing data in serial signal.
	Inhibit Key Operation	Key Operation will be inhibited while this signal is ON.
	Selection of Title Print	Title print data will be sent before printing individual data while this signal is ON.
	Sub-total print	Sub-total printing data will be sent in serial signal.
	Grand total print	Grand total printing data will be sent in serial signal.
	Red ribbon selection	Red ribbon code will be sent while this input signal is ON.
	Automatic dribble-comp.	capturing command: Fetches the net weight at the time, to compensate the dribble-compensation value.
	Serial signal input(1 ~ 3) compatible to EDI-700	Used as an input terminal(3 points) for case when the communication function(compatible to serial communication format-6 of EDI-700) is selected.

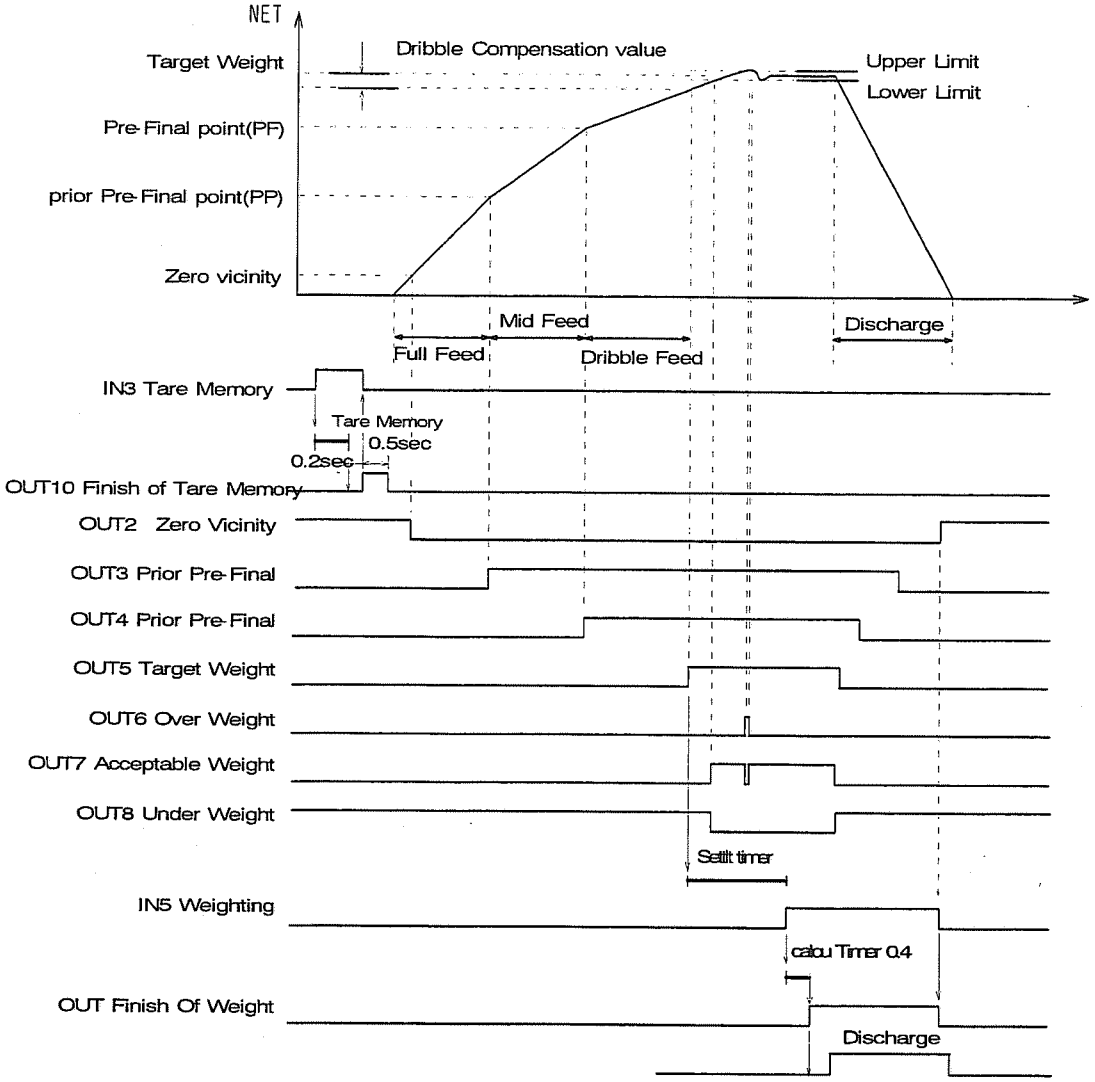
The function of control input(IN1~8) is applicable by changing it to the signal shown in the table "Layout by setting" at time of internal setting.

(5) Function of Output signal

SIGNAL	FUNCTION	DESCRIPTION
OUT 1	System Ready	Will be On when the system comes ready for operation after application of power. It will be OFF when a serious fault occurs.
OUT 2	Zero Vicinity	Will be ON when gross weight comes equal to or smaller than this value.
OUT 3	Prior Pre-Final/ Full Feed	Will be ON when net weight comes equal to or greater than preset Target Weight minus Prior Pre-Final value. Or, in sequence control, this will be ON from startin ofg product feed to its finish.
OUT 4	Pre Final/Mid Feed	Will be ON when net weight comes equal to or greater than preset target weight minus Pre-Final value. Or, in sequence control, this will be ON from starting of product feed to finish of Mid feed.
OUT 5	Target Weight/ Dribble Feed	Will be ON when net weight comes equal to or greater than preset Target Weight minus dribble compensation value. Or, in sequence control, this will be ON from starting of product feed to finish of dribble feed.
OUT 6	Overweight	Will be ON when net weight exceeds target weight plus upper limit value.
OUT 7	Acceptable weight	Will be ON when (TW + H Limit) ≥ Net WT ≥ (TW - L Limit)
OUT 8	Underweight	Will be ON when net weight is smaller than TW minus L Limit.
OUT 9	Scale Over	Will be ON when gross weight exceeds preset scale capacity.
OUT 10	Finish of Tare Memory	Will be ON for 0.5 second when tare memory has been finished.
OUT 11	In Weighing (Finish of Weighing)	Will be ON when gross weight is equal to or greater than preset "IN WEIGHING" value.
OUT 12	Settled	Will be ON while weighing signal is stable within the settle range for more than preset settle time.
OUT 13	on hold	Will be ON when weighing data is kept held with Hold command.
OUT 14	Zero Error	Will be ON when zero correction value exceeds allowable range or when zero tracking value comes to zero tracking limit (± 2 % of Scale capacity).
OUT 15	CPU in Operation	Will flash ON and OFF at interval of 500 ms when the CPU is in proper operation.
OUT 16	Alarm	Will be ON when error signal occurs. This output signal comes to OFF when C key is depressed. Refer to Annex ERROR CODE & TROUBLE SHOOTING for details.
Layout by setting	Finish of Weighing	Will be ON when weighing signal (hold command) is received and accumulating process is finished. This signal is kept ON while weighing signal (hold command) is ON.
	Weigh Hopper Upper Limit	Will be On when gross weight comes equal to or greater than the preset upper limit of the weigh hopper.
	Weigh Hopper Lower Limit	Will be On when gross weight comes equal to or smaller than the preset lower limit of the weigh hopper.
	Tare Subtracted	Will be ON when tare is subtracted.
	Upper/Lower limit	Will be ON when overweight or underweight.
	Weight error	Will be ON when zero tracking error, scale over or zero error.
	Positive logic signal	Positive logic signals of "Scale-over", "On Hold" and "Zero error
	Serial signal output(1-3) compatible to EDI-700	Used as an output terminal for case when the communication function(compatible to serial communication format-7 of EDI-700) is selected.
	Accumulated zero error	Turned on when the current zero exceeds the accumulated zero range during zero adjustment.
	Individual zero error	Turned on when the individual zero exceeds the individual zero range as compared with the last zero adjustment value during zero adjustment.
	Data strobe-0, 1	Used as a strobe signal for case when the BCD is output under cyclic mode, using the BCD option board(EV565F).

The function of control output(out9~16) is applicable by changing it to the signal shown in the table "Layout by setting" at time of internal setting.

(6) Simple comparison weighing timing chart



A) For simple comparison weighing, the weighing value(net weight) is compared with each setting, to turn on/off each signal.

B) When the net weight(IN5) is input, the weight display and BCD output are held, to execute the following processing.

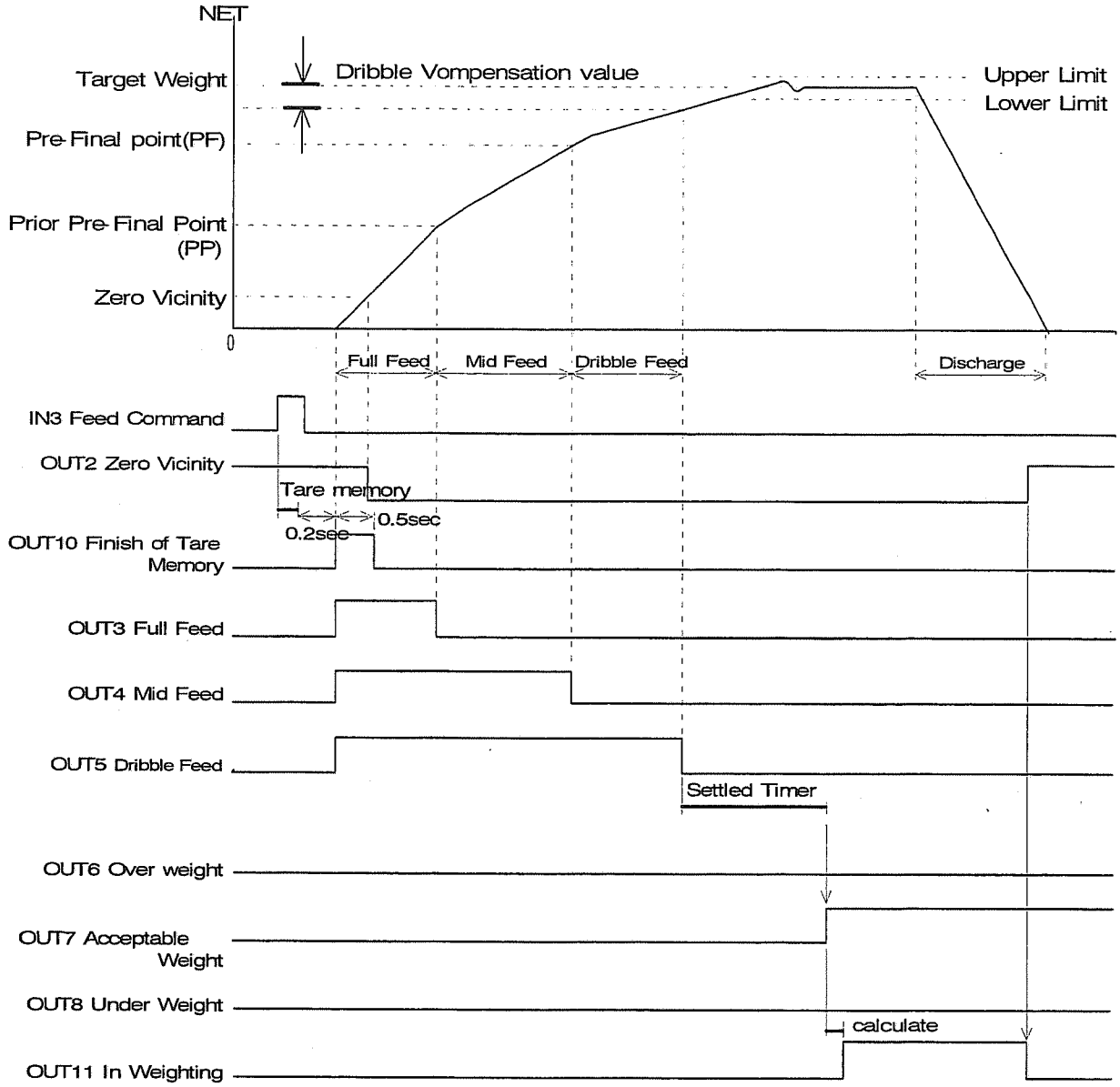
1. Increment of weighing counts
2. Addition of net weight to total area
3. Calculation of average value/range/standard deviation for net weight
4. Maximum value and minimum value of net weight

Note: For simple comparison weighing, the weighing time will not be monitored.

C) When the calculation processing is completed, the "Weighing finish"(OUT11) is turned on.

D) When the net weight(IN5) is turned off, the HOLD is reset, to turn off the "Weighing finish"(OUT11). In other words, the "Weighing finish" signal can be used as a "On hold" signal.

(7) Sequence control weighing timing chart



Sequence control weighing needs to use it weighing (the forced weighing IN5), sequence reset to other than an/the above signal.

A) When the feeding command(IN3) is input, the product setting value is checked.
If the "Gross weight" is smaller than the "Weighing capacity" in this case, the tare is memorized.In this case, the last "Over-weight", "Acceptable weight" and "Under-weight" signals are turned off.
the instruction are not able to input the feeding command, in the case that the measuring of the previous time is not ending. In this case, please input weighing (the forced weighing IN5) or the sequence reset.

B) After the tare memory has been completed, the "Tare memory finish" (OUT10) is turned on for 0.5 second.The "Tare memory finish" flag is also set to "Power interruption protection RAM".(The details are described later on.)

C) The output is executed under the following comparison conditions until the target weight is reached.

- "Full-feed"(OUT3): OFF when the following is established. "Net weight" ("Target weight" – "Prior pre-final target weight") setting value

- "Mid-feed"(OUT4): OFF when the following is established. "Net weight" ("Target weight" – "Pre-final target weight") setting value
- "Dribble-feed"(OUT5): OFF when following is established. "Net weight" ("Target weight" – "Dribble-comp.") setting value

For full-feed, mid-feed and dribble-feed, the output is held thereafter once the conditions are satisfied.After the feeding is changed from "Full-feed" to "Mid-feed", for instance, the mid-feed is held even of the full-feed output condition is established again.

D) After elapse of time set on the target weight settlement timer, the weight is determined for ""Over-weight", Acceptable weight" and "Under-weight".When the automatic dribble comp. function is provided, the net weight at the time is used for compensation data.

E) When the result of weighing is proved to be "Acceptable weight", the totalization processing is executed automatically, causing the "Weighing finish"(OUT11) to be turned on.This signal is turned off when the zero vicinity command or succeeding feed command is received.

F) If the "Net weight"(IN5) is turned on when the weighing value is "Over-weight" or "Under-weight", the same processing as that of "Acceptable weight" is executed.

G) When the sequence is reset, the weighing cycle is terminated forcibly, to wait until the feed command is turned on.

H) The "Over-weight" signal, "Acceptable weight" signal and "Under-weight" signal are held until the succeeding feed command is turned on.

I) When the "Hold function" is set for internal setting, the weight display and BCD output are held after elapse of time set on the target weight settlement timer. The HOLD is reset when the zero vicinity command or succeeding feed command is received. While the additional feed is executing, the HOLD is reset.

J) "Tare memory finish" flag
As a countermeasure not to allow the tare to be memorized again even if the feed command is turned on for case when any power interruption occurs during feeding, the "Tare memory finish" flag is memorized in the power interruption protective RAM.
If this flag has been set when the feed command is input, the tare is not memorized but the "Tare memory finish" signal is turned on for 0.5 second.
Timing to clear "Tare memory finish" flag
1. Termination of net weighing processing (including forced net weighing)
2. Zero vicinity
3. Sequence reset

K) While the feeding is executing (while the dribble feed output is turned on), the zero adjustment key and tare cancel key are invalidated.

L) Condition for status lamp ON

Zero vicinity:	Comes on when the following is established. "Gross weight" ≥ "Zero vicinity" setting.
Prior pre-final:	Comes on when the following is established. "Net weight" ≥ ("Target weight" – "Prior pre-final") setting value.
Pre-final:	Comes on when the following is established. "Net weight" ≥ ("Target weight" – "Pre-final") setting value.
Target weight:	Comes on when the following is established. "Net weight" ≥ ("Target weight" – "Dribble-comp") setting value.
Settled:	Comes on when the gross weight is settled.
Finish:	Comes on when the weighing is completed by acceptable weight or forced

weighing.

Over-weight: Comes on when the following is established after elapse of time set on target weight settlement timer. "Net weight" > ("Target weight" + "Upper-limit value") setting value.

Acceptable weight: Comes on when the following is established after elapse of time set on target weight settlement timer. ("Target weight" – "Lower-limit value") ≤ "Net weight" □ ("Target weight" + "Upper-limit value") setting value.

Under-weight: Comes on when the following is established after elapse of time set on target weight settlement timer.Net weight" < ("Target weight" + "Upper-limit value") setting value.

When the condition of prior pre-final, pre-final and target weight is satisfied once, the lamp is turned off. The lamps shown above are turned off upon reception of zero vicinity or succeeding feed command.

M) Display contents/display conditions of message area. When the sequence control calculation is executing, the status of sequence shown below is displayed at the message area.

message	display condition
WAIT F COM	Status ready to receive feed command
FULL FEED	During a full feed
MID FEED	During a mid feed
DRBBL FEED	During a dribble feed
WAIT STAB	During time set on target weight settlement timer
ADDNL FEED	During additional feeding(including automatic additional feeding)
OVERWEIGHT	If the "Net weighing" is turned on when the weight value is proved to be "Over-weight" after elapse of time set on target weight settlement timer, the message " W'ING FIN" is displayed.
UNDER W	If the "Net weighing" is turned on when the weight value is proved to be "Under-weight" after elapse of time set on target weight settlement timer, the message " W'ING FIN" is displayed.
W'ING FIN	Finish of weight

N) Additional feeding

<Manual additional feeding>

A. When the weighing result is "Under-weight", it is used for the additional feeding, as the "Dribble feeding"(OUT5) is turned on when the "Additional feeding" is turned on.

B. When the net weight exceeds the lower-limit setting, stop the additional feeding, as the "Dribble feeding"(OUT5) is turned off in this case.

C. The weight value is determined for "Over-weight", "Acceptable weight" and "Under-weight" after elapse of time set on the target weight settlement timer.

<Automatic additional feeding>

A. The automatic additional mode comes in "Comparison mode" and "Inching mode".

B. Comparison mode

1. When the weight value is "Under-weight", it is used for the additional feeding, as the "Dribble feeding"(OUT5) is turned on automatically until the net weight exceeds the lower-limit.
2. When the net weight exceeds the lower-limit value, stop the additional feeding, as the "Dribble feeding"(OUT5) is turned off in this case.
3. The weight value is determined for "Over-weight", "Acceptable weight" and "Under-weight" again after elapse of time set on the target weight settlement timer.

C. Inching mode

1. Since the "Dribble feeding"(OUT5) is turned on for time set on the additional feeding timer for internal setting when the weight value is "Under weight", it is used for the additional feeding in such a case.
2. Determine the weight value for "Over-weight", "Acceptable weight" and

"Under-weight" again after elapse of time set on target weight settlement timer.
3. When the weight value is "Under-weight", perform the additional feeding again.

(8) Automatic dribble comp.

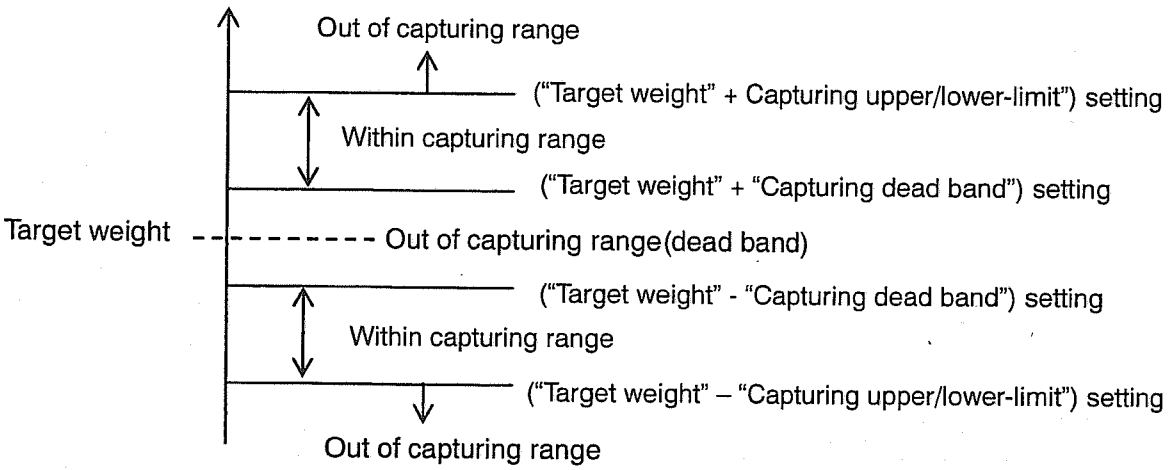
When the weighing count data set by number of compensation samples is captured, it is possible to compensate the dribble comp. automatically.

When capturing the weighing data to execute the dribble comp. during simple comparison weighing, input the dribble comp. capturing command.

For sequence control weighing, the values after elapse of time set on the target weight settlement timer are fetched automatically.

Note that the weight value is not adopted for the compensation data when it exceeds the compensation data upper/lower-limit and when it is within the compensation data capturing dead zone.

It is possible to refer the compensated dribble comp., using the monitor key [3].



5.3 *Serial Input/Output*

(1) Serial Input/Output Connector (CN 2)

Function of each serial signal is as shown in the table below.

SIGNAL	FUNCTION	Pin No.	DEDICATED CABLE		REMARKS
			Wire Color	Wire Mark	
PE	Frame Earth	1	Blue	Red - 1	
TX0	Serial 1, Sending Data	2	Blue	Black - 1	Serial 1 (RS232C)
RX0	Serial 1, Receiving Data	3	Pink	Red - 1	Output for
RTS0	Serial 1, Request for Sending	4	Pink	Black - 1	printing data
CTS0	Serial 1, Ready for Receiving	5	Green	Red - 1	2400 BPS
GND	Earth for Signal	6	Green	Black - 1	
TX2	Serial 3, Sending Data	7	Orange	Red - 1	Serial 3 (RS232C)
GND*	Earth for Signal	8	not used		Communication with PC
RX2	Serial 3, Receiving Data	9	Gray	Red - 1	9600 BPS
SEL*	RS232C/RS422 Selection	10	not used		
TX1	Serial 2, Sending Data	11	Blue	Red - 2	Serial 2
RX1	Serial 2, Receiving Data	12	Blue	Black - 2	(RS422/RS232C)
TD +	RS422 Sending Data	13	Pink	Red - 2	Communication with
TD -	- ditto -	14	Pink	Black - 2	Sequenser
RD +	RS422 Receiving Data	15	Green	Red - 2	9600 BPS
RD -	- ditto -	16	Green	Black - 2	RS422: approx. 500 m
GND	Earth for Signal	17	Orange	Red - 2	RS232C: approx. 15 m
EN	No connect (not used)	18	not used		
GND	Earth for Signal	19	Gray	Red - 2	
P5	No connect (not used)	20	not used		

Data format for Serial 1 to 3 signals is set to
START (1) + DATA (8) + EVEN PARITY + STOP BIT (1)

To change the function of a serial signal, refer to Address Setting.

3) To select RS232C or RS422 for Serial 2 signals, follow the instruction below:
RS422 is applied when for Serial 2 signals when the dedicated cable with connector is used. To use RS232C for Serial 2 signals, cut the short-circuit between Pin 8 and Pin 10 in the connector. These Pin Noes are shown with GND* and SEL* marks in the above table.

Orange Black – 1, Orange Black – 2, Gray Black – 1 and Gray Black – 2 of dedicated cable no connect .

When using the RS422, be sure to use the twisted cable for intermediate wiring, and set the terminal resistor(330Ω) at the reception side.

(2) Dedicated Cable with connector (AWG28, core wire diameter: 0.39 mm)

SUPPLIER	MODEL	LENGTH
Yamato	ER969 - 50	5 m

5.3.1 Printing Data Output

Printing data for RS232C Printer is sent through Serial 1 port. To use RS422 printer, change the settings in Address Setting and sends printing data through Serial 2 port.Each printing data is sent in four categories, which are individual data printing, accumulated data printing, sub-total data printing and grand total data printing.
Note that the printing data is formatted for 24 digits printer.
Recommended printers are:

MP-160 (24 digits), MP-190 (24 digits) or MP-310 (29/33 digits)

Manufacturer: Nada Electronics K.K.

(1) Individual Data Printing (Maximum 3 lines for title + 3 lines for data)

When individual data printing command (IN2) is received, the net weight data is accumulated both in the sub-total area and grand total area, and the counter advances. Process of each weighing count, total, average, range, standard deviation, Max. and Min. for product is performed.

Data in the following format will be sent when the above procedures are completed.

123456789012345678901234	(24 digit Printer)
XXXX XXXXXXkg	Weighing Count (4) + Net Weight (6) + unit (2)

Note that the printing format for individual printing can be changed to that of with title. (Refer to the description on the next pages.) In this case, the title printing selection input selects "Title Printing: YES/NO." .

(2) Accumulated Data Printing (Max. 9 lines)

When accumulated data printing command is received, weighing count, total, average, range, standard deviation, Max. and Min. will be sent in the following format and then, the accumulated data will be cleared.

123456789012345678901234	(24 digit Printer)	
96/08/08 10 : 30	Date (8) + Time (5)	
PRODUCT XX	Product No. :	Name (5) + data (2)
COUNT XXXX	Weighing Count:	Name (4) + data (4)
TOTAL XXXXXXXXkg	Total:	Name (4) + data (8) + Unit
AVERAGE XXXXXXkg	Average:	Name (5) + data (6) + Unit
MAXIMUM XXXXXXkg	Maximum:	Name (5) + data (6) + Unit
MINIMUM XXXXXXkg	Minimum:	Name (5) + data (6) + Unit
RANGE XXXXXXkg	Range:	Name (4) + data (6) + Unit
S. D. XXXXXX. XXXkg	S. D.:	Name (10) + data (10) + Unit

(3) Sub-total Printing (Max. 3 lines)

When sub-total printing command is received, the sub-total value accumulated will be printed in the following format. It will be cleared when sent as output.

123456789012345678901234	(24 digit Printer)	
SUB-TOTAL XXXXXXkg	Sub-total:	Name (10) + data (8) + Unit

(4) Grand Total Printing

When grand total printing command is received, the grand total value accumulated will be printed in the following format. It will be cleared when sent as output.

12345678901234567890123 4	(24 digit Printer)
TOTAL XXXXXXkg	Grand total: Name (5) + data (8) + Unit

Note that to select title printing and to print accumulated data, sub-total or grand total, set the input to one of those from IN1 to IN8 in Address Setting 31 and 32.

(5) Printing Format Change [SET] [6] [1]

Address No. from Adr. 00 to 06 in Address Setting [SET] [6] [1] allows to change printing format for individual data printing. In the similar manner. Adr. 10 to 13 to change for sub-total printing, Adr. 20 to 23 to change for grand total printing, and then,. Adr. 30 to 39 to change for accumulated data printing.

An example to change the individual data printing format is given as follows:

① Add Title Printing (Time, Count and Net Weight data)

② Add Time of Individual Printing.

<INITIAL SETTING>	<FORMAT CHANGE>
12345678901234567890123 4	12345678901234567890123 4
XXXX XXXXXXkg	Time Count Net
. .	XX. XX XXXX XXXXXXkg
. .	XX. XX XXXX XXXXXXkg

ADDRESS	ITEM		INITIAL VALUE		FORMAT CHANGE	
			Printing item	Preset Value	Printing item	Preset Value
01	1	1st line Title 1	No item	00000	Time	22012
	2	1st line Title 2	No item	00000	Count	10172
	3	1st line Title 3	No item	00000	Net	11012
	4	1st line Title 1 printing place	/	1	/	2
	5	1st line Title 2 printing place	/	1	/	8
	6	1st line Title 3 printing place	/	1	/	17
02	1	2nd line Title 1	No item	00000	No item	00000
	2	2nd line Title 2	No item	00000	No item	00000
	3	2nd line Title 3	No item	00000	No item	00000
	4	2nd line Title 1 printing place	/	1	/	1
	5	2nd line Title 2 printing place	/	1	/	1
	6	2nd line Title 3 printing place	/	1	/	1
03	1	3rd line Title 1	No item	000000	/No item	00000
	2	3rd line Title 2	No item	00000	No item	00000
	3	3rd line Title 3	No item	00000	No item	00000
	4	3rd line Title 1 printing place	/	1	/	1
	5	3rd line Title 2 printing place	/	1	/	1
	6	3rd line Title 3 printing place	/	1	/	1
04	1	!St line data 1	Weighing count	01017	Time	02201
	2	1st line data 2	Net	00103	Weighing count	01017
	3	1st line data 3	No item	00000	Net	00101
	4	1st line data 1 printing place	/	4	/	1
	5	1st line data 2 printing place	/	16	/	8
	6	1st line data 3 printing place	/	1	/	16
05	1	2nd line data 1	No item	00000	No item	00000
	2	2nd line data 2	No item	00000	No item	00000
	3	2nd line data 3	No item	00000	No item	00000
	4	2nd line data1 printing place	/	1	/	1
	5	2nd line data 2 printing place	/	1	/	1
	6	2nd line data 3 printing place	/	1	/	1
06	1	3rd line data 1	No item	00000	No item	00000
	2	3rd line data 2	No item	00000	No item	00000
	3	3rd line data 3	No item	00000	No item	00000
	4	3rd line data 1 printing place	/	1	/	1
	5	3rd line data 2 printing place	/	1	/	1
	6	3rd line data 3 printing place	/	1	/	1

Note that Data No. and Name No. to change the printing format will be given on the next page.

(6) Data No. and Name No. to change the printing format

ITEM	DATA No.	Data digit number	Name No.	Name for X = 1	Name for X = 2
Gross Weight	0100	6	1100X	ソウリョウ	GROSS
Net	0103	6	1101X	ショウミ	NET
Net Weight *5)	1008	8	1101X	ショウミ	NET
Tare	0191	6	1191X	フウタイ	TARE
Target Weight	1002	5	1002X	ショテイリョウ	TARGET
Pre-Final	1004	5	1004X	テイリョウマエ	PRE-FINAL
Prior Pre-Final	1005	5	1005X	テイリョウマエマエ	PP-FINAL
Dribble Comp.	1007	5	1007X	ラクサ	DRIBBLE COMP.
Upper Limit	1003	5	1003X	ジョウゲン	U-LIMIT
Lower Limit	1001	5	1001X	カゲン	L-LIMIT
Product No.	1006	2	1006X	メイガラ	PRODUCT
Weighing Count	1017 *6)	4	1017X	カイスウ	COUNT
Total	1010	8	1010X	トータル	TOTAL
Range	1011	6	1011X	レンジ	RANGE
Weighing Time	1013	5	1013X	ケイリョウジカン	TIME
Current Dribble C..	1014	4	1`014X	ゲンザイラクサ.	DRIBBLE COMP
Standard Dev.	1015	10	1015X	ヒョウジュンヘンサ	S. D.
Average	1016	6	1016X	ヘイキンチ	AVERAGE
Maximum Value	1018	6	1018X	サイダイ.	MAXIMUM
Minimum Value	1019	6	1019X	サイショウ.	MINIMUM
Sub-total	1023	8	1023X	チュウカンゴウケイ	SUB-TOTAL
Total	1024	8	1024X	ゴウケイ	TOTAL
Sub-total count	1025 *6)	4	1025X		SUB-COUNT
Grand Total Count	1026 *6)	4	1026X		TOTAL-CNT
Date	2200 *2)	8	2200X	ネンガッピ	DATE
Time	2201 *2)	5	2201X	ジコク	TIME
Lot No.	5090 *3)	12	5090X	ロットバンゴウ	LOT NO.
Lot No. (number)	5063 *4)	6	5090	ロットバンゴウ	LOT NO.

Note:

1). Digit number increases by one digit when decimal point is added to the weight value. And by 2 digits when weight unit is added.

2). Date format is 8 digits (YY/MM/DD) while time format is 5 digits (hh : mm).

3). Alphabetical character can be used for Lot No. Although the initial value is defined as ABCD12345678, this can be changed with "PRINTING FORMAT SETTING", that is. Address Setting of Adr. 40 [SET] [6] [1].

4). This format is used only when the Lot No. consists of numeric figures. The number of data digits can be changed among the range from 1 to 6. (Refer to Printing format setting of Adr. 41, [SET] [6] [1].)

5). If the data is greater than the upper limit, it is printed with "H" following the net value while with "L" for smaller than the lower limit.

6). The sub-total count and grand total count are incremented by "1" each time when the individual print command is input.
The weighing count is incremented by "1" each time when the weighting signal(IN5) is input.

(7) Setting Data Printing

The following procedures allows to print setting data:

① Address Setting Print: [SET] [6] [2] *1)
② Product Setting Print: [SET] [6] [3]
③ Print Format Print: [SET] [6] [4] *1)
④ Error Record Print: [SET] [6] [5]

1) When the printed result is different from the standard value, "" is added after the setting value.

Internal setting printing data printing example

```
                00/10/23

Adr. 00 BASIC PARA
1. CAPACITY        40000*
2. INCREMENT           2*
3. DECIMAL PT          0
4. UNIT                1
5. W&M                 0
6. UNIT CALC           0
Adr. 01 USER PARA
1. ZERO VCNTY         10
2. MIN CAP'TY        100*
3. OVER SCALE      40100*
4. FIXED TARE          0
5. STAB HOLD           0
6. ZERO-V MOD          0
Adr. 02 LOAD CELL
1. CELL INFO           0
```

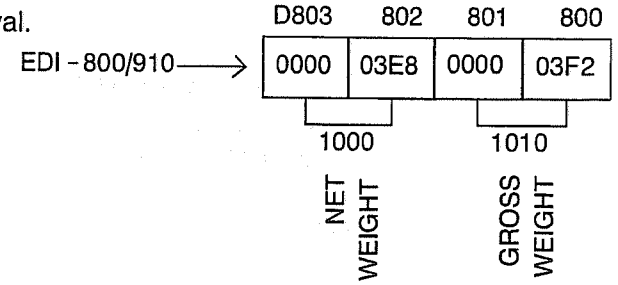
5.3.2 Communication with Sequenser

EDI - 800 can be connected with the link unit of Mitsubishi Sequenser or Omron Sequenser. This enables communication of control input/output, preset data and weighing data using dedicated protocol.

In standard setting, one to one connection with Mitsubishi Sequenser through Serial 2 allows the following communication:

(1) Sending Gross Weight and Net Weight

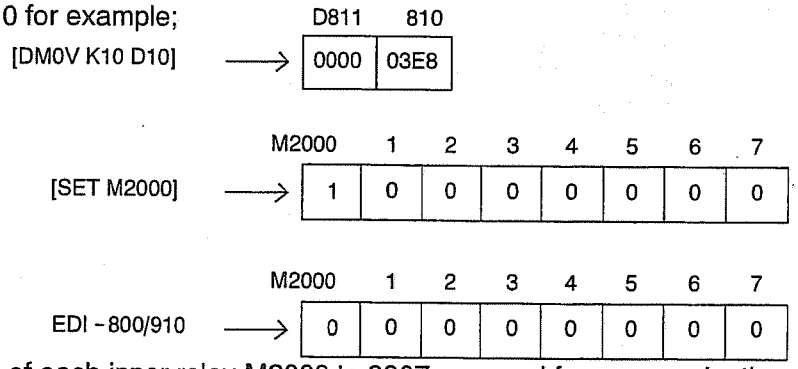
EDI - 800 writes gross weight and net weight in the data resister, D800 to D803, of the Sequenser at a certain interval.



(2) Changing Product No.

Set the inner relay M2000 of the Sequenser to ON (" **1** ") with [SET] command after setting the Product No. in the data resister D810 and D811. This inner relay M2000 will be OFF when EDI - 800 reads the Product No.

Product No. is assumed 10 for example;

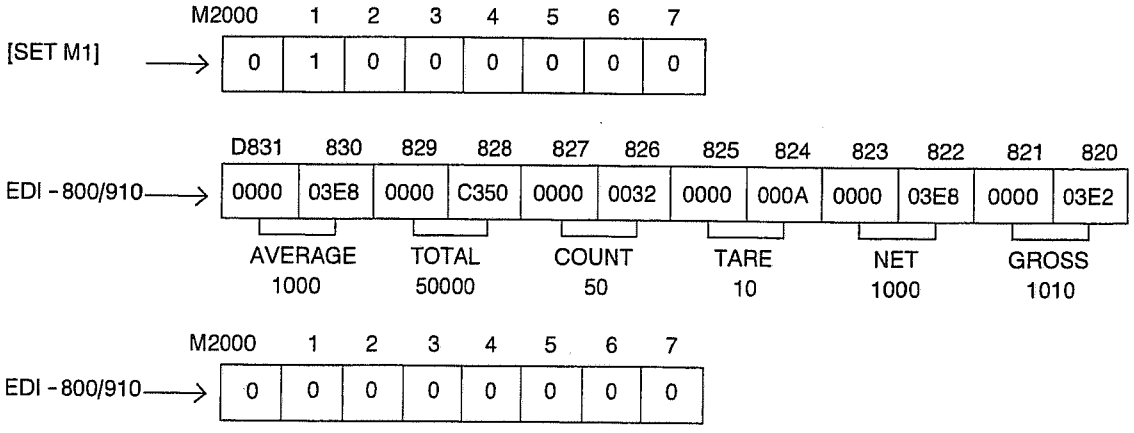


Note that 8 bits of each inner relay M2000 to 2007 are used for communication.

(3) Sending Weighing Result

To request Weighing Result in serial signal, set the inner relay M2001 of the Sequenser to ON (" **1** ") with [SET] command.

This inner relay M2001 will be OFF when EDI - 800 reads the Weighing Result.



Example of connection with Mitsubishi Sequencer

An example of connection Link Unit of Mitsubishi Sequencer (AISJ71C24-R4 Type) is given below.

(4) Wiring Procedures

① Using RS232C

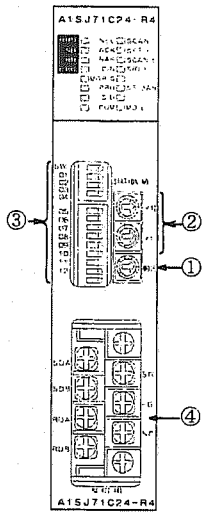
SEQUENCER SIDE			CABLE CONNECTION AND SIGNAL DIRECTION	EDI - 800			
SIGNAL	PIN NO.			PIN NO.			SIGNAL
	25 PIN	9 PIN		PORT 1	PORT 2	PORT 3	
FG	1						
SD (TXD)	2	3		2	11	7	TX
RD (RXD)	3	2		3	12	9	RX
RS	4	7		4			RTSO
CS (CTS)	5	8		5			CTSO
CD	8	1					
SG	7	5		6	17	8	GND
DSR (DR)	6	6					
DTR (ER)	20	4					

② Using RS422

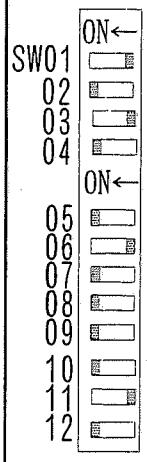
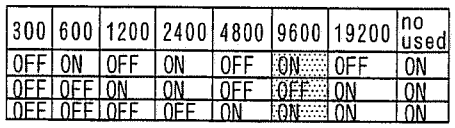
SEQUENCER SIDE SIGNAL	CABLE CONNECTION AND SIGNAL DIRECTION	EDI - 800 PIN NO.	EDI - 800 SIGNAL	DESCRIPTION
SDB		15	RD +	RECEIVING DATA
SDA	(Note 1)	16	RD -	RECEIVING DATA
RDB		13	TD +	SENDING DATA
RDA	(Note 1)	14	TD -	SENDING DATA
		10	SEL	RS422 SELECTION
SG		17	GND	SIGNAL GROUND
FG				

Note 1): Install Terminal Resister (330Ω) at the receiving side for RS422. Use attached terminal resister for CPU Link Unit.

(5) Setup of Sequencer



No.	NAME	DESCRIPTION
1	Mode Setting Switch	Used to select PROTOCOL. Set "**4**" to use RS232C while "**8**" to use RS422.
2	Station No. Setting Switch	Set "**00**" to the station No. No station No. setting switch is used for AISJ71C24-R2.
3	Transmission Setting Switch	Used to perform the setup of the transmission. Refer to the next page for setup procedures.
4	RS422 terminal block.	To perform communication between EDI and RS232C, use this connector. Refer to the instruction manual for Link Unit for communication with RS232C.

Setting of Setup Switch	Setup Switch	Setting Items	Status of Setup Switch		Remarks
			ON	OFF	
	SW01	Master/Local setting	Master Station	Local Station	CPU link neglects settings. *1)
	SW02	CPU link/Multi-drop	CPU link	Multi-drop link	CPU link must be set to ON. *1)
	SW03	Not used	----------	-------	
	SW04	Write OK during run, not during setting	Available	Not available	
	SW05 SW06 SW07	Baud rate Transmission speed setting			
	SW08	Data bit setting	8 bit	7 bit	
	SW09	Parity is used or not	Used	Not used	
	SW10	Parity even/odd	Even	Odd	
	SW11	Stop bit setting	2 bits	1 bit	
	SW12	Sum-check used or not	Used	Not used	

Note: 1) This switch is not used for RS232C type link unit.

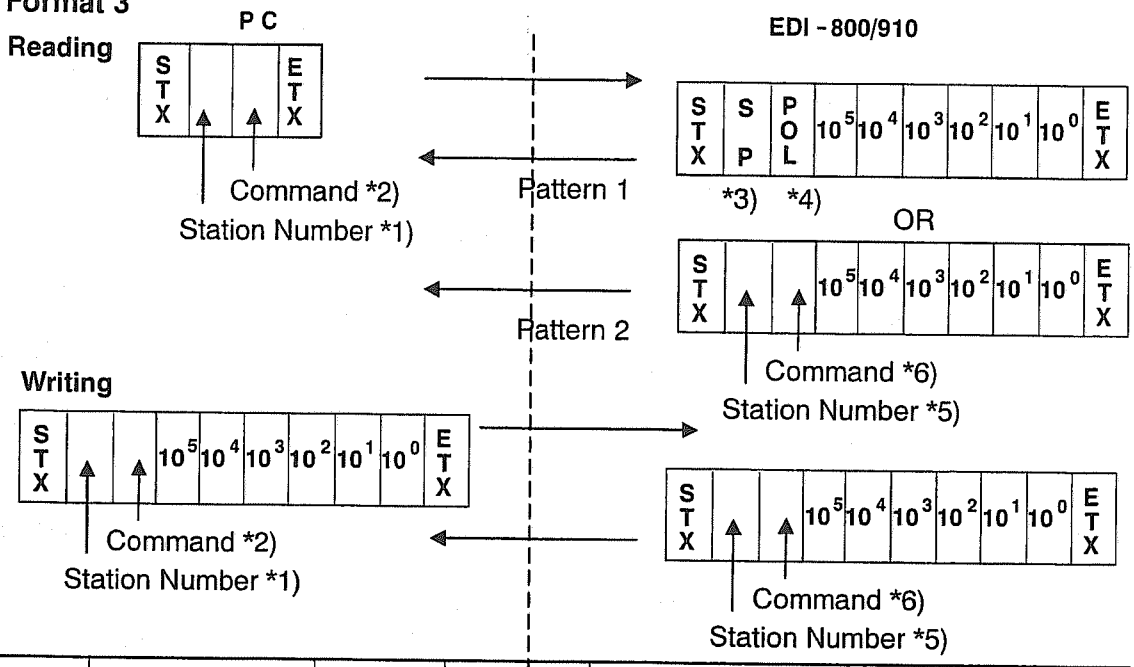
IMPORTANT 

M devices used for all the kind of Sequencer Link Units are 0 ~ 2047, while **D** devices used are 0 ~ 1023. Confirm that the device Noes. are within this range in Address Setting (Adr. 61).

5.3.3 Communication with Personal Computer (PC)

In standard setting, communication with PC is performed using Serial 3 with format 3.

(1) Format 3



Data Name	Command	Reading	Writing	Action
Gross/Net	ENQ(05H ^E)	O	×	The communication data is selectable at the internal setting addresses(45, 46-3). When the pattern-1 is selected, the response is made.
Retransmission	R (52H)	O	×	The data transmitted last is transmitted again.
Zero Memory	Z (5AH)	O	×	When the read-out operation is executed, the processing is executed in accordance with the command code. In this case, any response is not sent back. In such a case, it is possible to execute the writing processing only to the tare memory, in which the fixed tare is changed.
Zero Memory Clear	Q (51H)	O	×	
Tare Memory	T (54H)	O	O	
Tare Memory Clear	C (43H)	O	×	
Target Weight	F (46H)	O	O	When the pattern-2 is selected, the response is made.
Pre-Final Point	D (44H)	O	O	
Prior Pre-Final Point	E (45H)	O	O	
Dribble Compensation	P (50H)	O	O	
Upper Limit	U (55H)	O	O	
Lower Limit	L (4CH)	O	O	
Product Number	M (4DH)	O	O	
Fixed Tare	H (48H)	O	O	
Total Tare	J (4AH)	O	×	
Net Weight	N (4EH)	O	×	When the pattern-1 is selected, the response is made.
Gross Weight	G (47H)	O	×	

Note-1: The station No. is added only when the station No. is set within the range of 1～9 at the internal setting address 45 or 46-5.

Note-2: The command code makes it possible to execute the following communication.

Note-3: When the station No. is used, the station No. is set.
If the internal setting address 46-2 is set to "1" when the station No. is not used, "A" is displayed during settled condition, and it is spaced(20H) otherwise.

Note-4: The polarity is "+" for plus(+), and "-" for minus(-).

Note-5: Only when the station No. is used, the station No. is added.

Note-6: The command code of data read is added.

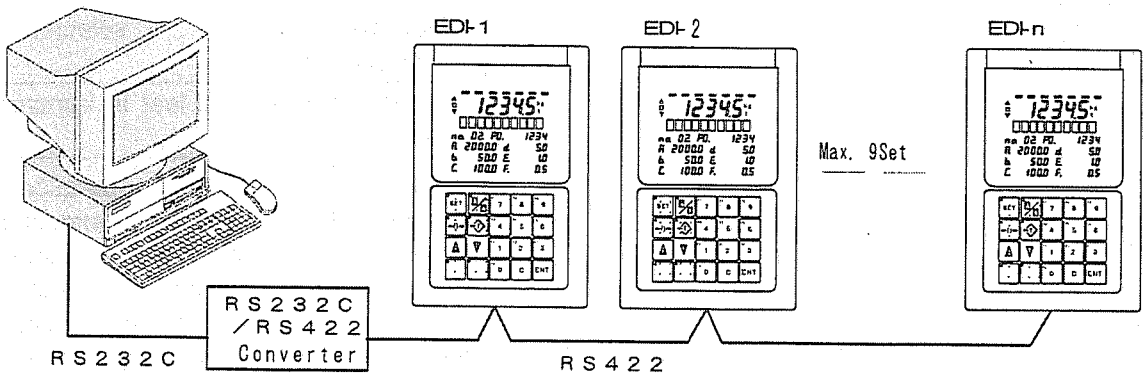
"STX" shows "02H(^B)", "ETX" "03H(^C)" and "SP" "200H" respectively.

It is possible to use 2 of 3 serial ports at the same time, for communication with the personal computer.

When using the serial port-2 and serial port-3 at the same time, for instance, set the internal setting address-41-3 to "5"(EDI-700 compatible-2) and the internal setting address 42-3 to "4"(EDI-700 compatible-1).

In this case, the contents set at the address-45 is reflected upon the serial port-3, and the contents set at the address-46 is reflected upon the serial port-2 respectively.

When the station No. is used for RS422 of serial port-2, it becomes possible to execute the communication by connecting the EDI-800(up to maximum of 9 units) to one RS422 cable.



(2) Format 0 to 8

These format can be changed among them with Address Setting.

① Format 0

1) When net weight exceeds the preset value for "IN WEIGHING" or exceeds the value (Target WT - Dribble Compensation) and settles, then either the net weight or the gross weight will be sent in the Format 0 once. (Net weight or Gross weight can be sleeted with Address Setting.)
2) If it exceeds the scale capacity (Scale Over), Space Code (SP) will be sent along with the net weight or the gross weight.
3) POL represents Space Code when plus (+) while represent (-) when minus (-).

POL	10^5	10^4	10^3	10^2	10^1	.	10^0	CR

SP	POL	10^5	10^4	10^3	10^2	10^1	10^0		CR

Decimal point will be placed as shown to the left of the illustration below.

Note that POL stands for "polarity" and + sign is indicated with SP (space code).

SP	POL	10^5	10^4	10^3	10^2	10^1	10^0	g	CR

SP	POL	10^5	10^4	10^3	10^2	10^1	10^0	k	g	CR

Weight unit (kg, g, t, or lb.) will be sent together as shown below.

② Format 1

1) This format is used to send the gross weight or net weight at 50 ms interval.
2) No decimal point nor weight unit can be added to this format.
3) POL represents Space Code when plus (+) while represent (-) when minus (-).

STX	SP	POL	10^5	10^4	10^3	10^2	10^1	10^0	ETX

POL is + or -.

4) When station Noes. are set with Address Setting 45 or 46-5, format comes as follows:

③ Format 2

When serial transmission command of the control input signal is set to ON, gross weight or net weight will be sent once.

The format for transmission is the same as that of the Format 1.

④ Format 4

1) Gross or net weight is sent every 50 ms.
2) The text 1 and 2 send the same data.
3) POL represents plus (+) or minus (-) as they are while space code when over scale.

STX	POL	10^5	10^4	10^3	10^2	10^1	10^0	,	POL	10^5	10^4	10^3	10^2	10^1	10^0	ETX

Text 1 Text 2

⑤ Format 7

The weight value is transmitted to the remote EDI.

The transmission data is selectable under the following two modes.

1) Transmission of A/D conversion value
2) Transmission compatible to EDI-700 format-6

1) Transmission of A/D conversion value

To connect one EDI-800 to the other EDI-800, normally set the internal setting address 45-2 to "0".

The A/D conversion value is output every approx. 60ms by the following format.

POL	10^6	10^5	10^4	10^3	10^2	10^1	10^0	CR	LF

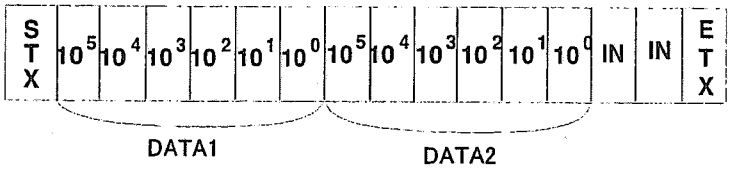
The polarity is spaced for plus(+), and "-" for minus(-)

2) Transmission compatible to EDI-700 format-6

When the parallel input status is transmitted to the remote EDI together with the A/D conversion value, using the conventional format-6 of EDI-700, set the internal setting address 45-2 to "1".

In this case, it is output every 100ms by the following format.

Since the operation is not executable normally when the EDI-700 is arranged at the reception side, be sure to prepare the EDI-800 at the reception side.



For transmission data, the load cell output is A/D converted, the binary(with code) after initial load subtraction, span multiplication and moving average processing is converted into ASCII, and arranged at 2 points of DATA1 and DATA2.

For IN, three bits[serial signal input(1～3) compatible to EDI-700] allotted to the standard input port(CN3) are converted into ASCII, and arranged at 2 points for transmission.

The reception side outputs the 3-bit signal to three bits[serial signal output(1～3) compatible to EDI-700] allotted to the standard output port(CN3).

When this function is used, it becomes possible to transmit the status of transmission side parallel signal to the reception side.

⑥ Format-8

The weight data is received from the external unit for display.

The acceptable formats are as shown below.

These formats are changeable at the internal setting address 45-2.

a. Transmission of A/D conversion value of EDI-800 format-7

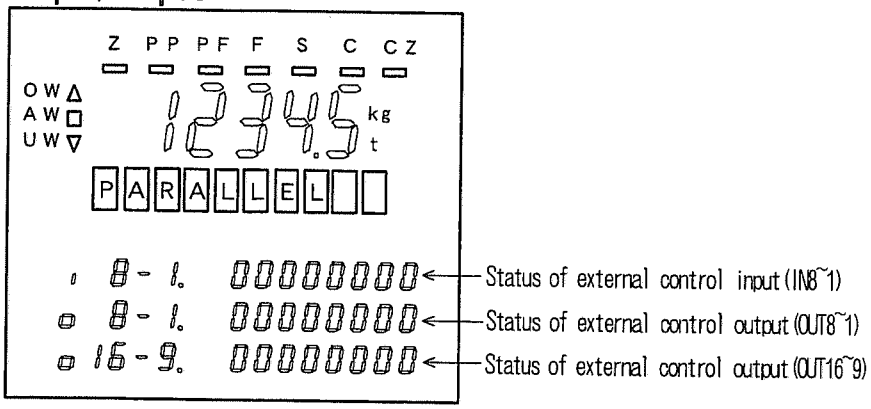
b. Transmission of weight(electronic balance PL series to be supplied to Messrs. Sartorius)

c. Transmission of data by EDI-800 format-7 compatible to EDI-700 format-6

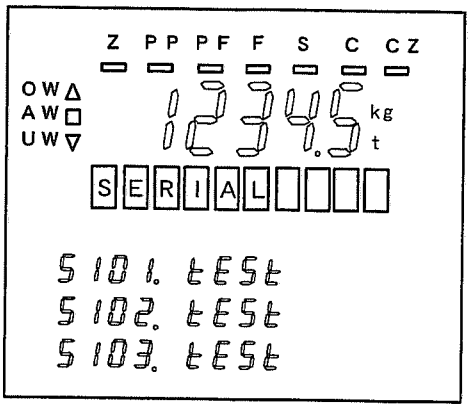
When these functions are used, it becomes possible to transmit the load cell output by high-accuracy serial signal in substitute for fine voltage(or current with analog converter arranged).

5.4 *Test of Standard Input/Output*

(1) Test of Control Input/Output



1) Press the keys [SET] [5] [1] [1] in order.
2) Thus, status of the control input and output are confirmed. "**1**" represents ON while "**0**" represents OFF.
3) Test of control output makes ON/OFF as follows:
   Set the test output of Address Setting (Adr. 99-6) to PERMIT "**1**" first.
   For example, to set OUT5 to ON, press the keys [5] [ENT]. To set OUT10 to ON, press the keys [1] [0] [ENT]. To set this output to OFF, press the keys [5] [ENT], [1] [0] [ENT] again.



(2) Serial Test

1) Press the keys [SET] [5] [1] [2[in order.
2) Short circuit between serial ports to be tested, input (RD) and output (TD) outside.
3) Press the keys [▲] or [▼], the flashing port will move from ***S 101. tESt*** → ***S 102. tESt*** → ***S 103. tESt*** in order.
4) Make the serial port to be tested to flashing, then press the [ENT] key.
5) The serial port displays "**good**" for 3 sec when it is proper, while "**no good**" will be displayed for 3 sec if an error occurs.

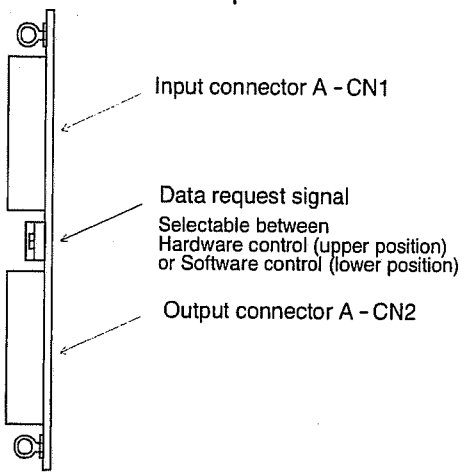
Chapter-6 OPTIONAL FUNCTION

6.1 BCD Input/Output

(1) Optional Board EV565F

To enable BCD Input/Output, the following optional board EV565F is required:

SUPPLIER	MODEL
Yamato	EV565F - 00U

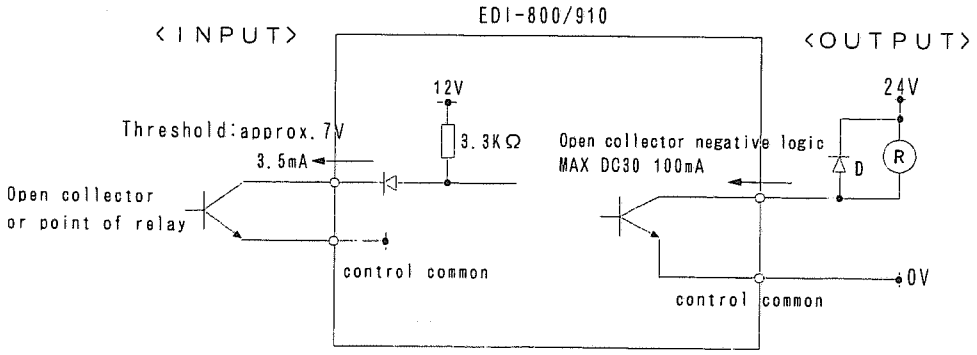


When an optional board EV565F is installed to the slot 1, parameters related to this board are allocated to the seventies.

When to slot 2, allocated to the eighties.

(2) Equivalent circuit to BCD input

NOTE1:It is necessary to add the surge killer to the relay.



NOTE2:Low level of open collector will lower up to 1.3V.

(3) The dedicated cable with connector (AWG28, core wire diameter: 0.39 mm)

This connector is common for both input and output.

SUPPLIER	MODEL	LENGTH
Yamato	ER968 - 30	3 m
Yamato	ER968 - 50	5 m

(4) BCD Input Connector (A - CN1)

SIGNAL	FUNCTION	Pin No.	DEDICATED CABLE	
			Wire Color	Wire Mark
IN 1	Settings 1	1	Blue	Red - 1
IN 2	Settings 2	2	Blue	Black - 1
IN 3	Settings 4	3	Pink	Red - 1
IN 4	Settings 8	4	Pink	Black - 1
IN 5	Settings 10	5	Green	Red - 1
IN 6	Settings 20	6	Green	Black - 1
IN 7	Settings 40	7	Orange	Red - 1
IN 8	Settings 80	8	Orange	Black - 1
IN 9	Settings 100	9	Gray	Red - 1
IN 10	Settings 200	10	Gray	Black - 1
IN 11	Settings 400	11	Blue	Red - 2
IN 12	Settings 800	12	Blue	Black - 2
IN 13	Settings 1000	13	Pink	Red - 2
IN 14	Settings 2000	14	Pink	Black - 2
IN 15	Settings 4000	15	Green	Red - 2
IN 16	Settings 8000	16	Green	Black - 2
IN 17	Settings 10000	17	Orange	Red - 3
IN 18	Settings 20000	18	Orange	Black -2
IN 19	Settings 40000	19	Gray	Red - 2
IN 20	Settings 80000	20	Gray	Black - 2
IN 21	Input Reading Product No.	21	Blue	Red - 3
IN 22	Input Reading Settings 1	22	Blue	Black - 3
IN 23	Input Reading Settings 2	23	Pink	Red - 3
IN 24	Input Reading Settings 3	24	Pink	Black - 3
OUT 24	Output Reading Settings 1/ Outout Reading Produt No.	25	Green	Red - 3
OUT 25	Output Reading Settings 2	26	Green	Black - 3
COM	Common	27	Orange	Red - 3
COM	Common	28	Orange	Black - 3

(5) BCD Output Connector (A - CN 2)

SIGNAL	FUNCTION	Pin No.	DEDICATED CABLE	
			Wire Color	Wire Mark
OUT 1	Weighing Data 1	1	Blue	Red - 1
OUT 2	Weighing Data 2	2	Blue	Black - 1
OUT 3	Weighing Data 4	3	Pink	Red - 1
OUT 4	Weighing Data 8	4	Pink	Black - 1
OUT 5	Weighing Data 10	5	Green	Red - 1
OUT 6	Weighing Data 20	6	Green	Black - 1
OUT 7	Weighing Data 40	7	Orange	Red - 1
OUT 8	Weighing Data 80	8	Orange	Black - 1
OUT 9	Weighing Data 100	9	Gray	Red - 1
OUT 10	Weighing Data 200	10	Gray	Black - 1
OUT 11	Weighing Data 400	11	Blue	Red - 2
OUT 12	Weighing Data 800	12	Blue	Black - 2
OUT 13	Weighing Data 1000	13	Pink	Red - 2
OUT 14	Weighing Data 2000	14	Pink	Black - 2
OUT 15	Weighing Data 4000	15	Green	Red - 2
OUT 16	Weighing Data 8000	16	Green	Black - 2
OUT 17	Weighing Data 10000	17	Orange	Red - 3
OUT 18	Weighing Data 20000	18	Orange	Black -2
OUT 19	Weighing Data 40000	19	Gray	Red - 2
OUT 20	Weighing Data 80000	20	Gray	Black - 2
OUT 21	Polarity	21	Blue	Red - 3
OUT 22	Renewing Data	22	Blue	Black - 3
OUT 23	Reading Settings Finished	23	Pink	Red - 3
IN 25	Request Data	24	Pink	Black - 3
IN 26	Data Output Selection Command 1	25	Green	Red - 3
IN 27	Data Output Selection Command 2	26	Green	Black - 3
COM	Common	27	Orange	Red - 3
COM	Common	28	Orange	Black - 3

6.1.1 BCD Setting Input

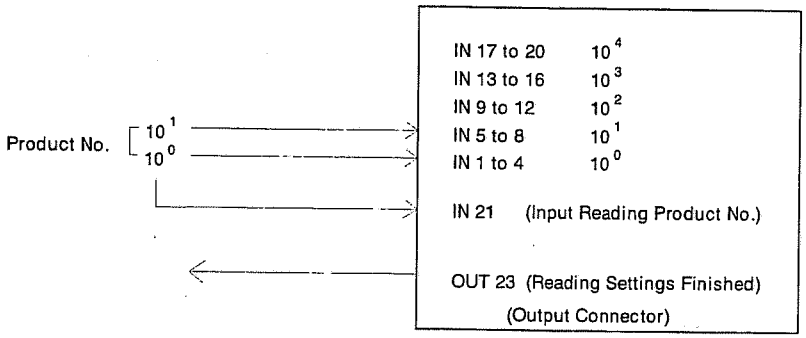
Parameter setting by an external sequenser (or other unit) with BCD signal is divided into two methods; one is "Reading Input by command" in which EDI - 800 reads the BCD settings upon receives a external command and the other is "Automatic Reading" in which EDI - 800 reads BCD settings a certain interval automatically.

(1) Setting with Reading Input by command

The BCD Setting is performed by reading the outside BCD digital switch (DG Switch) settings. These signal is stored in EDI - 800 and are used as operation parameters.

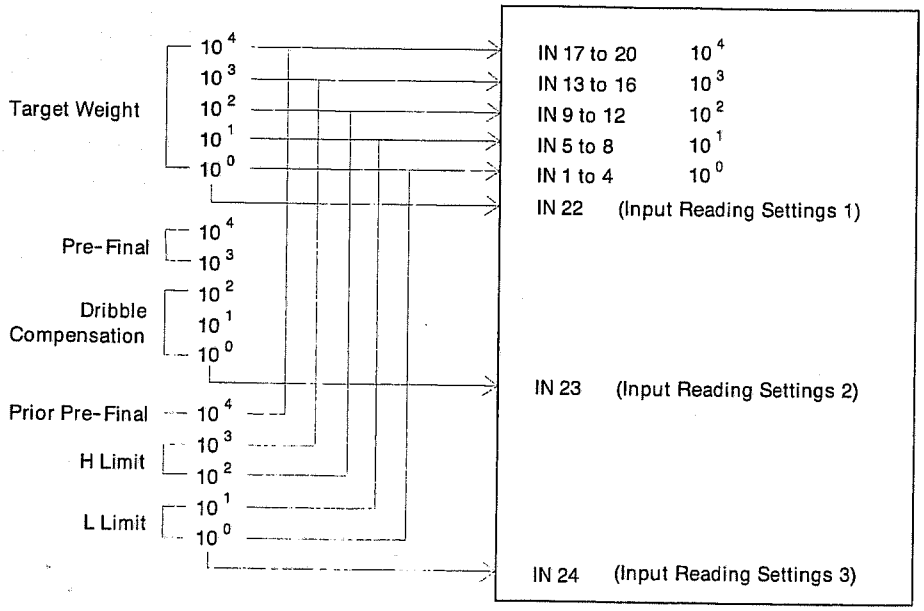
① Product No. (00 to 99)

1) Input Product No. of 2 digits to the lines of IN 1 to IN 8 (Settings 1 to 80) and then set the line IN 21 (Input Reading Product No.) to ON.
2) Call the Product Preset parameters (A to F) stored with this Product No. and set the line OUT 23 (Reading Settings Finished) to ON for 0.5 seconds.

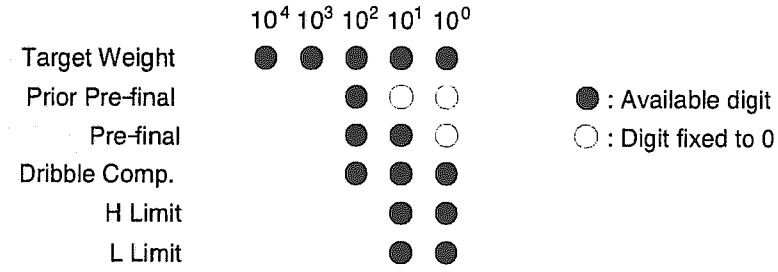


② Product Preset Parameters (A to F)

1) As the BCD setting of Product Preset parameter utilizes three (3) lines of each five (5) digits, this BCD method can set 15 digits for setting.
2) These 15 digits are allocated to 6 kinds of settings (A to F) in standard.
3) Set these A to F settings as shown in the illustration below.



4) The settings A to F are allocated to the following digits:



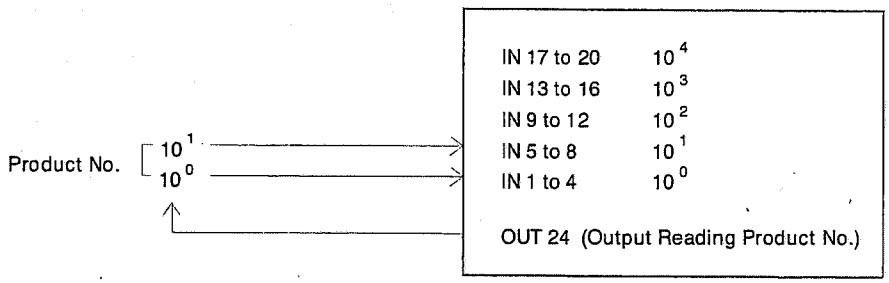
5) The setting value changes whenever input reading setting are ON.

(2) BCD setting with (Auto Reading)

BCD settings can be read from the DG switch automatically. To utilize this function, change relevant Address Settings. (Note that the " BCD setting with Reading Input by Command" is standard.)

① Product No. (00 to 99)

1) Connect BCD data of DG switch to Input lines of IN 1 to IN 8 and the common line of DG switch to Product No. reading output line of OUT 24.
2) EDI - 800 reads data from the DG switch as the Product No. a certain interval.

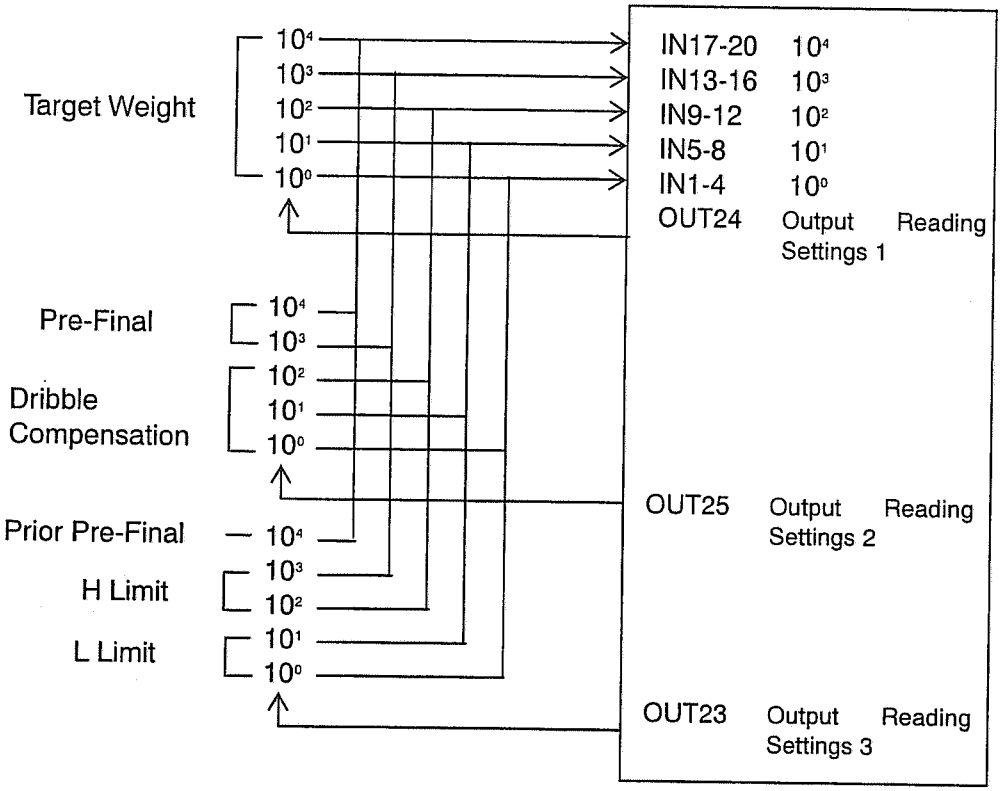


② Product Preset Parameters (A to F)

1) Change the function, using Address Setting, from Output Reading Product No. to Output Reading Settings 1.
2) Since 5 digits input settings and two Output Reading lines are available for the Automatic Reading, only 10 digits are allowed for the Automatic setting. Allocate these 10 digits to appropriate ones among 6 kinds of the Preset Parameters (A to F).
3) The following shows an example to read automatically the preset parameters of Target Weight, Pre-Final and Dribble Compensation, and the Changes of Address Settings.

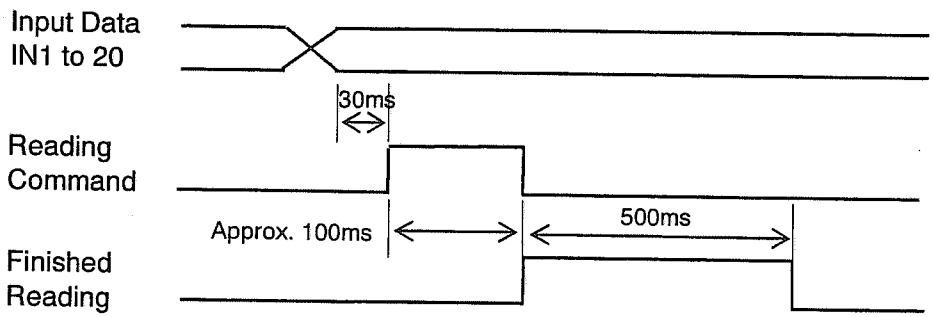
Changes of Address Settings;

	PRESET PARAMETER	OUTPUT READING SETTINGS	DIGITS FOR INPUT	DISPLAY DIGITS
Input Settings 1	Target WT	Output Reading Settings 1	10^4 to 10^0	x 1
Input Settings 2	Pre-Final	Output Reading Settings 2	10^4 , 10^3	x 100
Input Settings 3	D. Comp.	Output Reading Settings 3	10^2 10^1 10^0	x 1

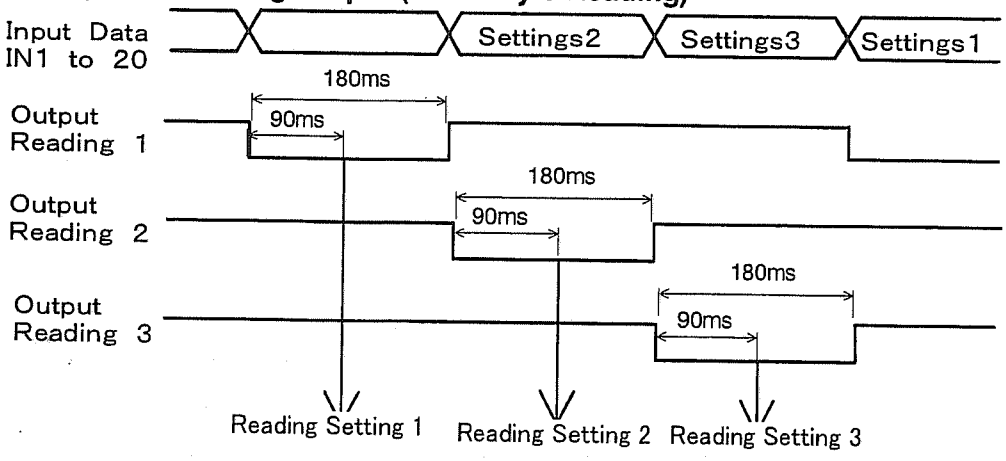


(3) Timing Chart for BCD Setting

① BCD settings with Reading Input (Reading Input by command)

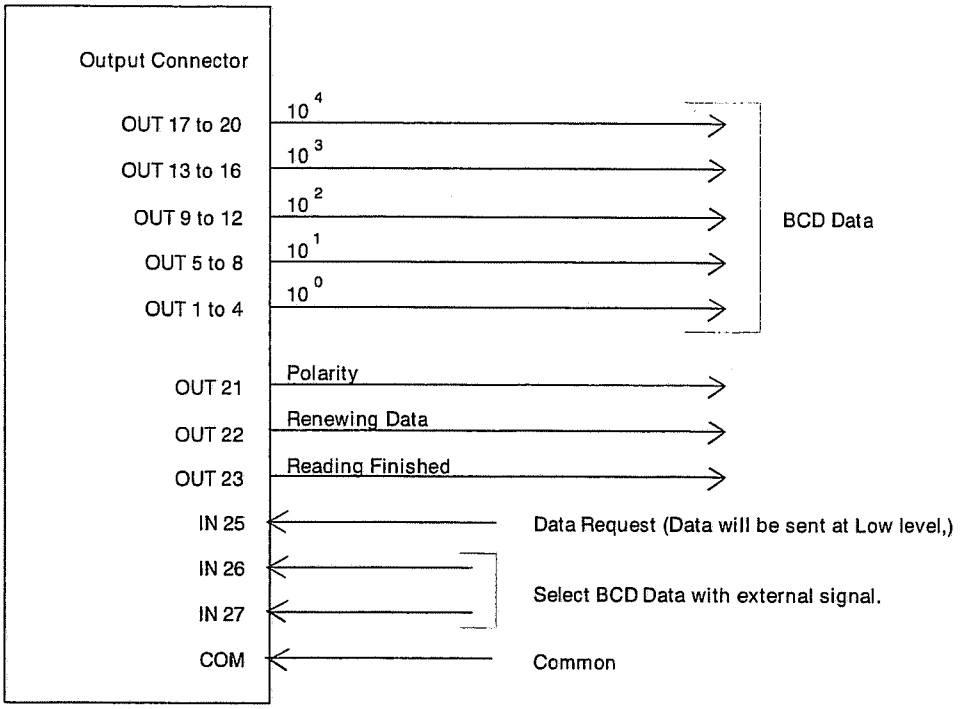


② BCD setting with Reading Output (Automayic Reading)



6.1.2 BCD Data Output

(1) Outline



① BCD data (OUT1~20)

One of the following items will be sent in negative logic as output:

Gross weight, net weight, tare value or the target weight.

Selection of the output data and change over of the logic can be set with Address Setting, 70 or 80.

② Polarity (OUT21)

"L' is sent when gross weight or net weight is minus. (Negative logic).

③ Data is being updated (OUT22)

"L" will be sent every about 30 ms during the data is being updated about 700μsec. (Negative logic)

④ Data Request (IN25)

Used when multiple EDI-800 or 910 are applied. When this input is set to ON, BCD data is sent. When set to OFF, the output port will be of high impedance.

Connect this input with common when one single EDI800/910 is used.

⑤ BCD data selection (IN26, 27)

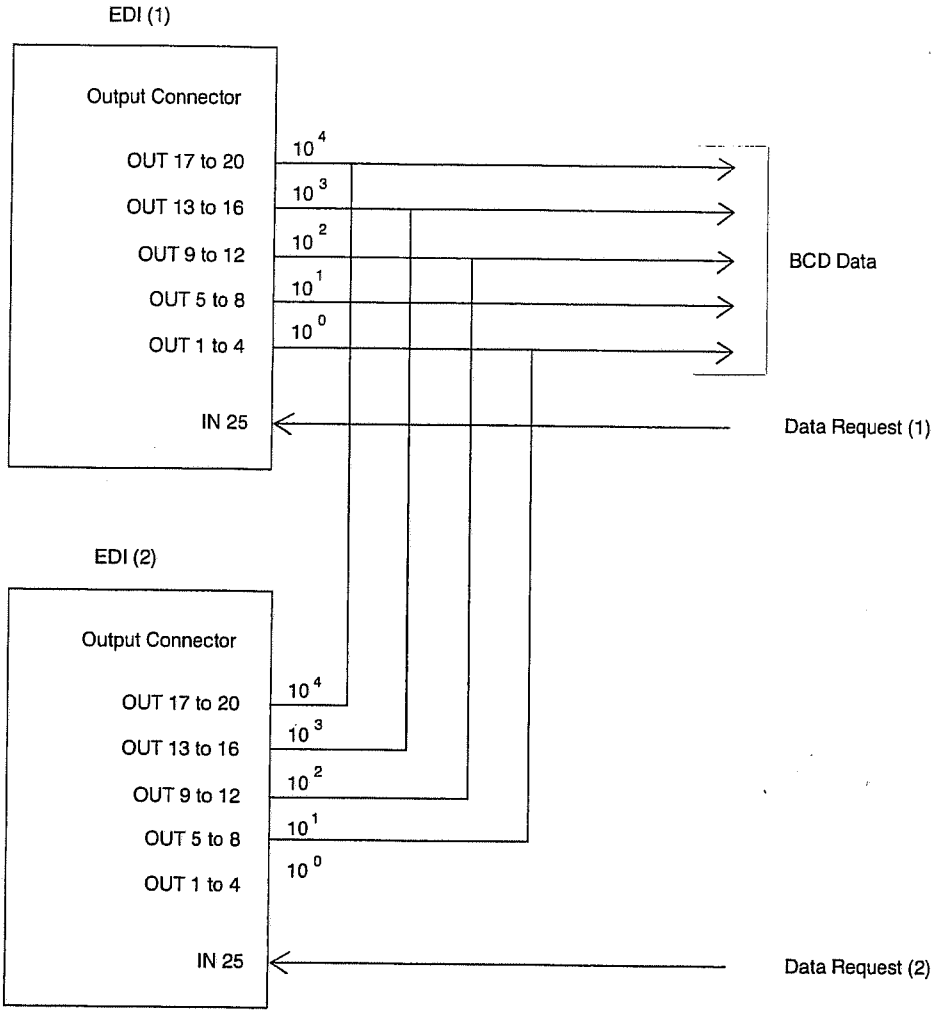
This input is used to select one of the data among gross, net, tare, or target weight. Output data requires max. 60 ms to change over after selection.

BCD Data	IN 26	IN 27
To send Gross Weight value,	Open	Open
To send Net Weight value,	Connect to COM	Open
To send Tare value,	Open	Connect to COM
To send T. W. value	Connect to COM	Connect to COM

Note: If only one of the data among gross, net, tare and target weight is necessary, fix the Address Setting to 70 or 80-3. On that case, selection of BCD data (IN26, 27) does not need above connection.

(2) Connection to BUS line.

To take BCD data from multiple EDI – 800/910 units, connect each unit to the bus line, switching it with Data Request signal. BCD data will be sent from the EDI – 800/910 receiving Data Request signal. Refer to the illustration below.



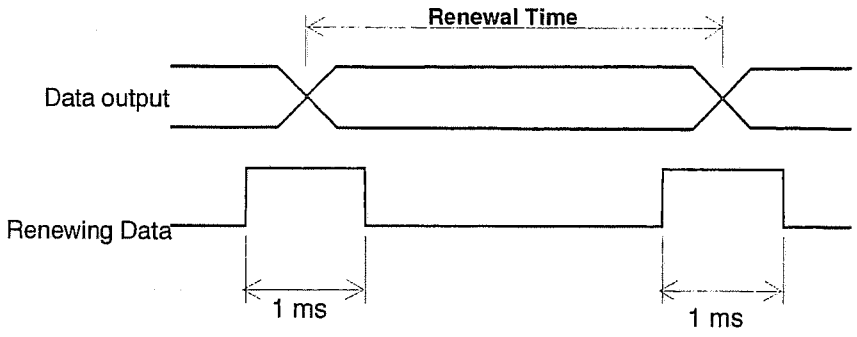
Note: Software Control and Hardware Control for Data Request

Software control is the standard for EDI – 800/910. Hardware control, however, is necessary to use the EDI – 800/910 unit in place of the old EDI - 700 unit.

To switch between Hard ware and Software, select the switch between the input connector and the output connector on the BCD input/output board, EV565F - 00U. To select the Hardware, slide the switch upwards while to select the Software, slide the switch downwards.

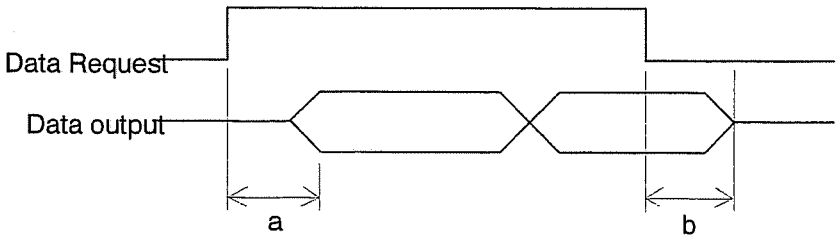
(3) Timing Chart for BCD output.

① Timing for renewing data



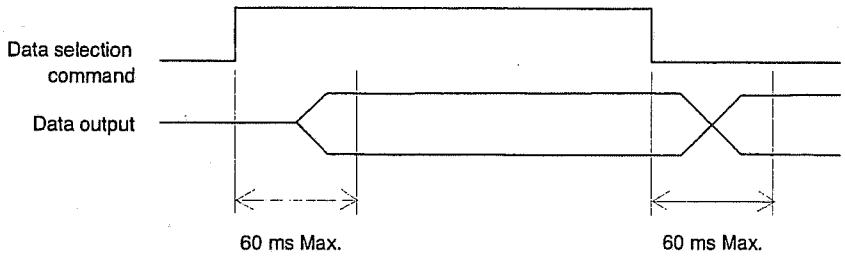
internal setting address 70-6	0	1
Renewal time	30ms	300ms

② Timing from Data request to Data output



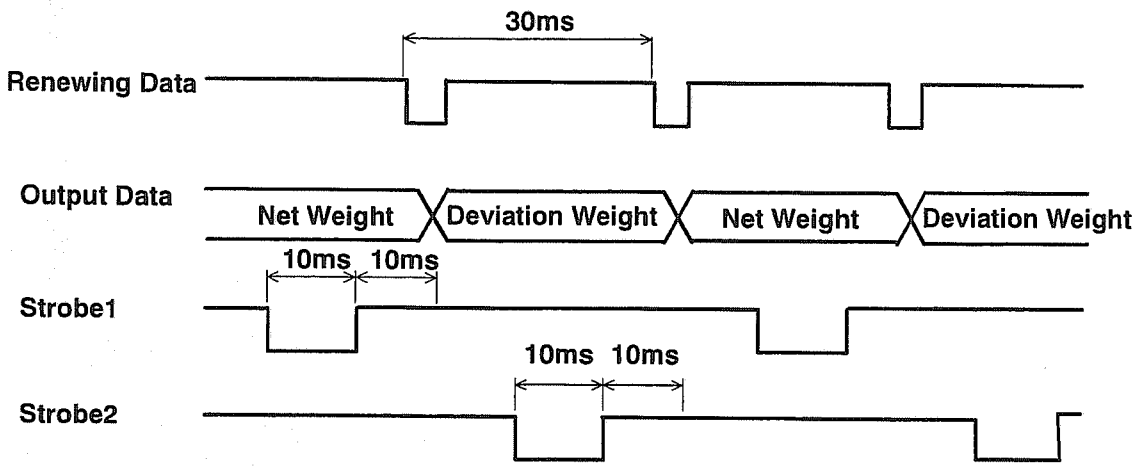
	a		b	
	Min.	Max.	Min.	Max.
Software Control	—	60 ms	—	60 ms
Hardware Control	—	3 μs	—	3 μs

③ Timing from the command for data selection to data output.



(4) BCD cyclic output timing chart

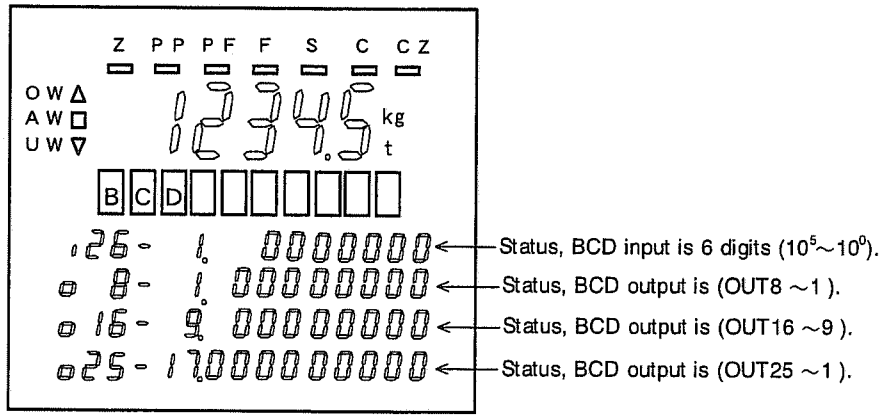
When the internal setting address 70-6 is set to "1", it becomes possible to change the mode of BCD output to the cyclic mode. Under this mode, the data defined at the addresses 71-1 and 71-2 are changed for output. In this case, two of signals(OUT9~16) at the standard output terminal are allotted as strobe for use. The following shows a timing chart for cyclic output.



To output the net weight and deviation weight, set the "101(net weight) and "1009(deviation weight)" to the addresses 71-1 and 71-2 respectively.

When the HOLD command is received under cyclic output mode, the strobe is output only one time together with net weight and deviation weight after "On hold" is output.

(5) BCD Input/Output Test



1) Press the keys, [SET] [5] [2] [1] in order.

   While, press the keys, [SET] [5] [3] [1] for Slot 2.

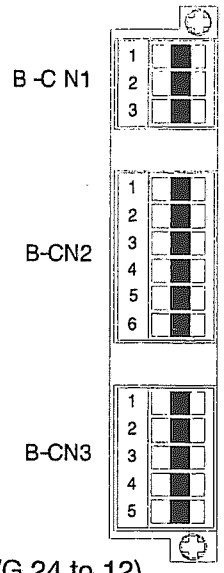
2) BCD input is displayed in "0" to "F" while output is "1" for ON and "0" for OFF.

3) To set BCD output to ON or OFF with the test as follows:

   Set the test output of Address Setting (Adr. 99-6) to PERMIT "1" first.

   For example, to set OUT5 to ON, press [5] [ENT] while to set OUT10 to ON, press [1] [0] [ENT]. To set this output to OFF, press [5] [ENT] , [1] [0] [ENT] again.

6.2 D/A and Relay Output



(1) Optional Board EV567F

To enable D/A and Relay Output, the optional board EV567F is required:

SUPPLIER	MODEL
Yamato	EV567F - 00U

(2) Connector terminal block

(Connection Cable, Core wire: 0.2 to 0.5 mm^2, AWG 24 to 12)

TERMINAL No.		SIGNAL	FUNCTION
B-CN1	1	Voltage Output (V)	Output is voltage or current. Standard is set to DC 4 to 20 mA at scale capacity (net weight).
	2	Current Output (I)	
	3	Analog Common	
B-CN2	1	Relay 1 contact a (R1a)	Relative Setting (Standard)
	2	Relay 1 contact b (R1b)	
	3	Relay 1 common (COM)	
	4	Relay 2 contact a (R2a)	Relative Setting (Standard)
	5	Relay 2 contact b (R2b)	
	6	Relay 2 common (COM)	
B-CN3	1	Relay 3 contact a (R3a)	Relative Setting (Standard)
	2	Relay 4 contact a (R4a)	
	3	Relay 5 contact a (R5a)	
	4	Relay 6 contact a (R6a)	
	5	Relay 3 to 6 common	

(3) D/A Output

Output Mode: 0 to 4 V, 0 to 5 V, 0 to 10 V, 1 to 5 V. 0 to 16 mA, or 4 to 20 mA

Output for: Gross weight, Net weight, or preset parameter,etc.

Accuracy: 1/1000

Renewal cycle 30ms

Load resistance: 1 k Ω or more for Voltage output,
500Ω or less for Current output.

(4) Relay Output

Number of points: 2 x C contacts (with independent common line),
4 x A contacts (with same common line)

Contact Capacity: AC 250 V 1 A, DC 30 V1 A (Max.)

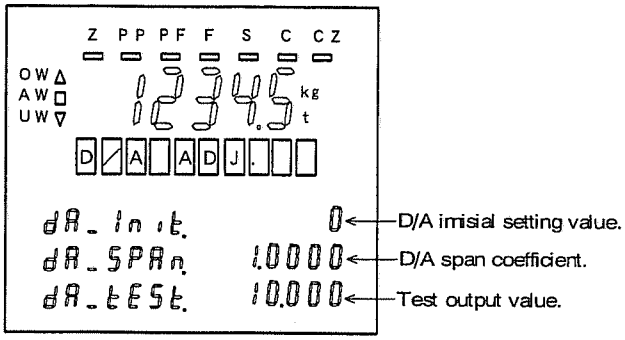
Output: Relative Settings of 1 to 6 or Zero Vicinity, Weighing, Scale Over, Prior Pre-final, Pre-final, Target Weight, Underweight, Acceptable weight, Overweight, WH H Limit, WH L Limi (WH means Weigh Hopper)

Note that above output are to be selected with Address Setting.

(5) Adjustment of D/A

The initial setting of D/A is 4-20 mA of output for 0-Full Scale (Address Setting 70 or 80-4).

To change the net weight value against D/A output or to change D/A output span (4~20 mA), refer to Address Setting 70 or 80-1~3 for details.



If zero or span of analog output can have deviation because of a factor of the device analog output to be sent to, perform the fine adjustment as shown on the screen above.

① To change zero or span coefficient of D/A

1) Set first the test output of Address Setting (Adr. 99-6) to to PERMIT "**1**".
2) Press the keys [SET] [5] [2] [1] in order.

   Press [SET] [5] [3] [1] for Slot 2.
3) If ***dA-Init*** is flashing, press the key [▲] or [▼] to adjust the D/A output to 4 mA (for Output mode of 5). The D/A initial value will increase or decrease by 1 increment.
4) Press [ENT] key, flashing item will move as ***dA-Init*** → ***dA-SPAn*** → ***dA-tESt*** in order.
5) While ***dA-SPAn*** is flashing, the key [▲] or [▼] used to adjust D/A output to 20 mA (at output mode of 5) when pressed, D/A span coefficient will increase or decrease by increment.

② To give test output

1) Confirm the present output current as follows:

   The test output provides current (or voltage).
2) Set first the test output to PERMIT "**1**" with Address Setting (Adr. 99-6).

   To give the test output, press the [ENT] key. The test output indicator ***dR-tESt*** display will flash intermittently.

   The output will be 10 mA for preset value of 10.000.(at output mode of 5).
3) To change the test output, enter a preset value with 10-key board and press the [ENT] key.

(6) Relay Output Test

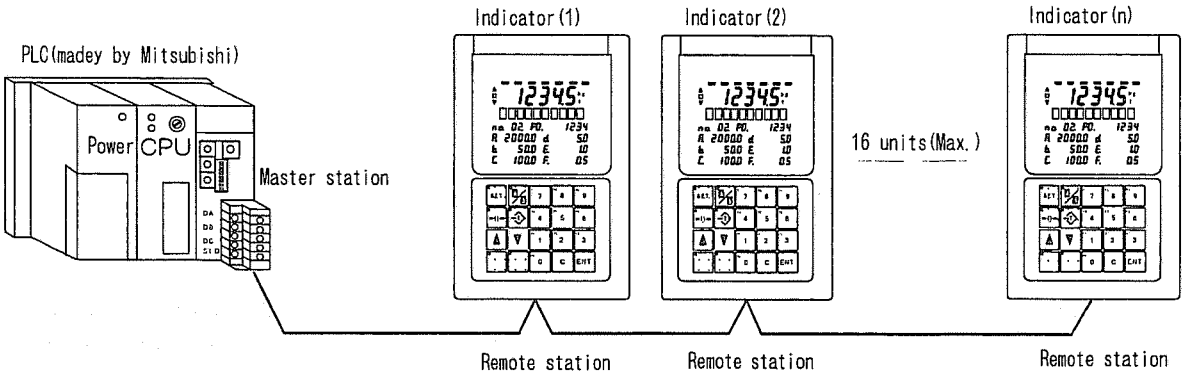
1) Press [SET] [5] [2] [2] keys in order.
2) The data line shows ON when the relay output is ON while shows OFF when OFF.
3) The relay output will be ON or OFF with the test as follows:

   Set the test output of Address Setting (Adr. 99-6) to PERMIT "1" first.For example, to set the relay 3 to ON, press [3] [ENT] while to set the relay 6 to ON, press [6] [ENT]. To change this output to OFF, press [3] [ENT] and [6] ,[ENT],

6.3 Cc-Link Interface

(1) Specification EV569F

A CC-Link(Control & Communication Link), enabling the communication with the Mitsubishi's PLC(programmable logic controller) at high speed, was mounted on Yamato's indicator.This makes it possible to communicate the ON/OFF information such as input/output, etc., or numeric data to be handled by each indicator, with the programmable logic controller easily at high speed.

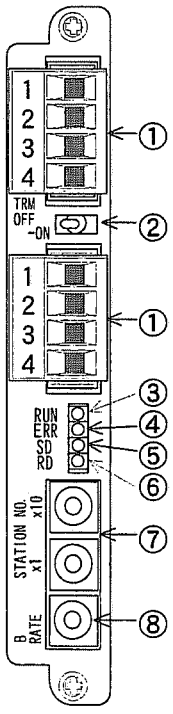


1. Master station: AJ61BT11 or A1SJ61BT11(made by Mitsubishi Electric)
2. Remote station: Optional board(EV569F) for CC-Link
3. Transmission speed: 156 kbps/625 kbps/2.5 Mbps/5Mbps/10Mbps(initial setting)
4. Maximum transmission distance: Depending on transmission speed
   156 kbps: 1,200m(max.) 625 kbps: 600m(max.)
   2.5 Mbps: 200m(max.) 5 Mbps: 150m(max.)
   10 Mbps: 100m(max.)
5. Maximum number of units connected: 16 units
   (4 stations × 16 units = 64 stations: 4 stations are occupied by one unit)

IMPORTANT

As for the detailed use method of the Cc-Link option foundation, please refer to EDI-800/900 Cc-Link option operation manual (EV569F-703).

(2) Rear view of optional board



Maker	Type
Yamato	EV569F-00U

	Designation	Description
1	Connector terminal block	Used to connect the dedicated cable.
2	Terminal switch	Be sure to turn on the switch when this board is connected to the end point of communication cable,and turn it off when it is connected to the junction point.
3	RUN lamp	Comes on when the communication is executed properly with the master station.
4	ERR lamp	Comes on when a transmission error occurs.
5	SD lamp	Comes on while the data is transmitting
6	RD lamp	Comes on while the data is receiving.
7	Station No. settings witch	"×10" is used to set the digit of 10, and "×1" that of 1 r espectively.Be sure to set the station No. to within the ra nge of 1~61.
8	Transmission speed setting switch	0 : 156kbps 1 : 625kbps 2 : 2.5Mbps 3 : 5Mbps 4 : 10Mbps(default)

(3) Allotment of remote bit input

Buffer memory	Bit	Device No.	Signal name
00E0	0	RX0000	Weighing setting value writing response
	1	RX0001	Un-used
	2	RX0002	General-purpose command response
	3	RX0003	Writing[0]/reading[1] selection response
	4	RX0004	Operation mode changeover response
	5	RX0005	Un-used
	6	RX0006	CPU in normal operation
	7	RX0007	Word[0]/bit[1] selection response
	8	RX0008	Decimal point position: 0
	9	RX0009	Decimal point position: 1*1
	A	RX000A	Decimal point position: 2
	B	RX000B	*1:3-bit binary
	C	RX000C	
	D	RX000D	Un-used
	E	RX000E	
	F	RX000F	
00E1	0	RX0010	Zero band
	1	RX0011	Prior pre-final/Full feed
	2	RX0012	Pre-final/Mid. feed
	3	RX0013	Target WT/Dribblel feed
	4	RX0014	Over-weight
	5	RX0015	Over-weight
	6	RX0016	Under-weight
	7	RX0017	Settled
	8	RX0018	Weighing completion
	9	RX0019	Scale over
	A	RX001A	On hold
	B	RX001B	Weighing hopper upper-limit
	C	RX001C	Weighing hopper lower-limit
	D	RX001D	Un-used
	E	RX001E	Un-used
	F	RX001F	Weighing error

Buffer memory	Bit	Device No.	Signal name
00E2	0	RX0020	Center zero
	1	RX0021	Tare canceling
	2	RX0022	Weighing
	3	RX0023	Tare memory completion
	4	RX0024	Un-used
	5	RX0025	Zero error
	6	RX0026	Settlement during weighing
	7	RX0027	Un-used
	8	RX0028	Accumulated zero error
	9	RX0029	Individual zero error
	A	RX002A	Deviation error
	B	RX002B	Un-used
	C	RX002C	
	D	RX002D	
	E	RX002E	
	F	RX002F	
00E3	0	RX0030	Un-used
	1	RX0031	
	2	RX0032	
	3	RX0033	
	4	RX0034	
	5	RX0035	
	6	RX0036	
	7	RX0037	
	8	RX0038	
	9	RX0039	
	A	RX003A	Transmission allotment bit 1
	B	RX003B	Transmission allotment bit 2
	C	RX003C	Transmission allotment bit 3
	D	RX003D	Transmission allotment bit 4
	E	RX003E	Transmission allotment bit 5
	F	RX003F	Transmission allotment bit 6
00E7	B	RX007B	System(remote)ready)

* The buffer memory shows for case when the station No. is 1. If the station No. is changed, the buffer memory address is changed correspondingly. For buffer memory address,refer to the paragraph 4-2 "Allotment of buffer memory".

Signal name	Signal function
Weighing setting value writing response	It is turned on when the writing is completed against the weighing setting value writing request sent from the master unit, and turned off when the weighing setting value writing request is turned off.
General-purpose command response	It is turned on when the execution of general-purpose command is completed against the general-purpose command request sent from the master unit, and turned off when the general-purpose command request is turned off.
Writing/reading selection response	Sends back the same signal status as writing/reading selection designated from PLC when the general-purpose command is requested from the master station upon completion of general-purpose command. It is turned on when the reading is designated.
Operation mode changeover response	It is turned on when the operation mode changeover is completed against the operation mode changeover request sent from the master unit, and turned off when the operation mode changeover request is turned off.
Word/bit selection response	Sends back the same signal status as word/bit selection designated from PLC when the general-purpose command is requested from the master station upon completion of general-purpose command. It is turned on when the "Bit" is designated.
Decimal point position(0~2)	Outputs the decimal point position of weight value by 3-bit binary.
Transmission allotment bit(1~3)	Bit output extension area.

*1 For other signals, refer to the paragraph "Control input/output" contained in the instruction manual of each indicator, as they are the same as control output signals.

(4) Allotment of remote bit Output

Buffer memory	Bit	Device No.	Signal name	Buffer memory	Bit	Device No.	Signal name
0160	0	RY0000	Weighing setting value writing request	0162	0	RY0020	Title printing selection
	1	RY0001	Un-used		1	RY0021	Individual printing command
	2	RY0002	General-purpose command request		2	RY0022	Sub-total printing command
	3	RY0003	Writing[0]/reading[1] selection		3	RY0023	Grand-Total printing command
	4	RY0004	Operation mode changeover request		4	RY0024	Counting printing command
	5	RY0005	Un-used		5	RY0025	Red printing selection
	6	RY0006			6	RY0026	Internal/external changeover
	7	RY0007	Word[0]/bit[1] selection		7	RY0027	Automatic dribble compensation fetching command
	8	RY0008	Un-used		8	RY0028	Un-used
	9	RY0009			9	RY0029	
	A	RY000A			A	RY002A	
	B	RY000B			B	RY002B	
	C	RY000C			C	RY002C	
	D	RY000D			D	RY002D	
	E	RY000E			E	RY002E	
	F	RY000F			F	RY002F	
0161	0	RY0010	Zero memory	0163	0	RY0030	Un-used
	1	RY0011	Zero memory reset		1	RY0031	
	2	RY0012	Tare memory		2	RY0032	
	3	RY0013	Tare reset		3	RY0033	
	4	RY0014	Hold command		4	RY0034	
	5	RY0015	Un-used		5	RY0035	
	6	RY0016			6	RY0036	
	7	RY0017			7	RY0037	
	8	RY0018	Net weighing		8	RY0038	
	9	RY0019	Total clear		9	RY0039	
	A	RY001A	Sequence reset		A	RY003A	Receiving allotment bit1
	B	RY001B	Un-used		B	RY003B	Receiving allotment bit2
	C	RY001C			C	RY003C	Receiving allotment bit3
	D	RY001D			D	RY003D	Receiving allotment bit4
	E	RY001E			E	RY003E	Receiving allotment bit5
	F	RY001F			F	RY003F	Receiving allotment bit6

* 1 1 The buffer memory shows for case when the station No. is 1. If the station No. is changed, the buffer memory address is changed correspondingly. For buffer memory address,refer to the paragraph 4-2 "Allotment of buffer memory".

Signal name	Signal function
Weighing setting value writing request	This is a request signal for writing of weighing setting value, using remote register output Turn on the signal when the weighing setting value is written and tuned off it after checking that the weighing setting value sent from the indicator is turned off.
General-purpose command request	This is a request signal for writing/reading of general-purpose command, using remote register output. Turn on the signal when the general-purpose command is executed and turned off it after checking that the general-purpose command response is turned off.
Writing/reading selection	This is a signal used to designate the writing/reading selection, using general-purpose command. Turn it on for writing, and turn it off for reading.
Operation mode changeover request	This is a signal to request the operation mode changeover from the master unit to the indicator. Turn on the signal when the operation mode is changed and turned off it after checking that the operation mode changeover request response sent from the indicator is turned off.
Word/bit selection	It is used to designate "Bit" or "Word" for data requested to the indicator when the general-purpose command is requested from the master unit. Turn on the signal when "Bit" is designated.
Transmission allotment bit(□~□)	Bit input extension area

*1For other signals, refer to the paragraph "Control input/output" contained in the instruction manual of each indicator, as they are the same as control input signalS.

(5) Allotment of remote register input

Buffer memory	Data name	Description
02E0	Net weight (lower bit)	The current net weight is stored.
02E1	(upper bit)	
02E2	Gross weight (lower bit)	The current gross weight is stored.
02E3	(upper bit)	
02E4	Total weight (lower bit)	Total value of net weight to be added with input of weighing signal
02E5	(upper bit)	
02E6	Error code	Division code(See "Error code list") for case when an error occurs
02E7	Aux. Code	Detailed code(See "Error code list") for case when an error occurs
02E8	Product No.	The current setting product No. is set
02E9		
02EA		
02EB		
02EC	General-purpose data response (lower bit)	The designated data is set when the indicator data is read, using the general-purpose command. When the setting value is written in the indicator,the written data is reflected.
02ED	(upper bit)	
02EE	Command No. response	The designated data code to be read/written from to PLC is set when the indicator data is read/written, using the general-purpose command.
02EF	Operation mode Response	The operation mode No. set from PLC for specific specification is reflected.

*1 The buffer memory shows for case when the station No. is 1. If the station No. is changed, the buffer memory address is changed correspondingly.

*2 For buffer memory address, refer to the paragraph 4-2 "Allotment of buffer memory".

(6) Allotment of remote register output

Buffer memory	Data name	Description
02E0	(lower bit) Target weight	Target weight(external) setting area The most significant bit(bit-8) shows a product No.
02E1	Product(8bit) (upper bit)	
02E2	(lower bit) Prior pre-final	Prior pre-final(external) setting area
02E3	(upper bit)	
02E4	Pre-final	Pre-final(external) setting area
02E5	Dribble compensation	Dribble compensation(external) setting area
02E6	Upper-limit	Upper-limit(external) setting area
02E7	Lower-limit	Lower-limit(external) setting area
02E8	(lower bit) Weighing hopper upper-limit	Weighing hopper upper-limit setting area (* This setting is reflected upon internal setting Adr.15-1.)
02E9	(upper bit)	
02EA	(lower bit) Weighing hopper lower-limit	Weighing hopper lower-limit setting area (* This setting is reflected upon internal setting Adr.15-2.)
02EB	(upper bit)	
02EC	(lower bit) General-purpose data set tingvalue	This area is used to set the setting value for case when writing the setting value to the indicator, using general-purpose command. For reading of setting value, the contents of setting value within the area is ignored.
02ED	(upper bit)	
02EE	Command No. setting value	This area is used to set the data code for case when reading/writing the setting value from/to the indicator, using general-purpose command.
02EF	Operation mode setting value	This area is used to set the operation mode No. for specific specification.

*1 The buffer memory shows for case when the station No. is 1. If the station No. is changed, the buffer memory address is changed correspondingly.

*2 For buffer memory address, refer to the paragraph 4-2 "Allotment of buffer memory".

*3 For command No., refer to the sub-paragraph 7.5.7 "Command No. designatable, using general-purpose command".

Chapter-7 SPECIFICATION

7.1 Specifications

(1) General

Model:	EDI – 800,EDI-910
Power requirement:	85 to 264 V ac, 50/60 Hz, 15 VA
Operation temperature:	- 10 to 50 °C
Operation humidity:	45 to 85 % R.H. (no condensation)
Storage temperature:	- 20 to + 60 °C (no condensation)
Storage humidity:	Below 85 % R.H.
Dimensions:	EDI800 96 mm (W) x 144 mm (H) x 178 mm (D) EDI910 144 mm (W) x 96 mm (H) x 178 mm (D)
Weight:	1.1 kg

(2) Input/output associated to load cell

Analog input:	Full scale	30 mV dc
Filter	2 Hz 3 poles	
Load Cell excitation:	10 V dc	200 mA (for up to 6 load cells)
	Remote differential sensing	
A / D converter:	Conversion speed	100/sec
	Rsolution	300,000 counts/30 mV
	Zero drift	± 0.1 μV/°C (typ.)
	Span drift	± 5ppm/°C (typ.)

(3) Display

Weight:	5 digits + polarity, Unit: t/kg/ g, Character height: 10 mm
Status indicator:	Zero vicinity, Prior Pre-final, Pre-final, Settled, Completed, Target weight, Center zero, Overweight, Acceptable weight, Underweight
Message:	10 digits 5 x 7 dot
Monitor:	Max. 9 digits 7 segments
Product No. :	Max. 2 digits 7 segments
Settings:	15 digits x 3 lines 7 segments

(4) Key pad:

Mode selection key [SET], Gross/Net change-over key [G/N], One-touch zero key [0], One-touch tare key [T], Cursor keys and , 10-key pad [0] ..... [9], Function keys [F1] and [F2], Enter key [ENT], Clear key [C]

(5) Control Input/Output

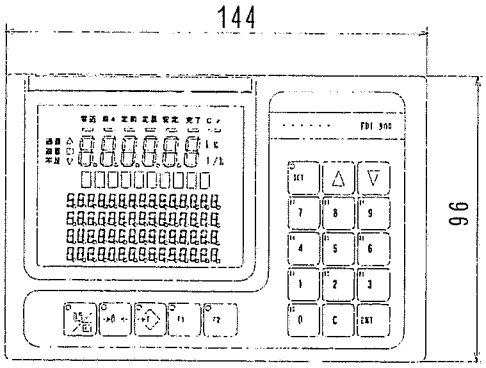
Input signals x 8:	Input current approx. - 3.5 mA,
	Threshold voltage - approx. 7 V,
Output signal x 16:	Open collector - Max. 30 V dc x 100 mA

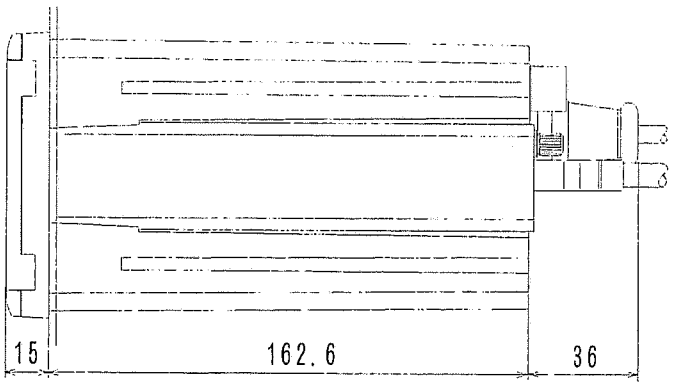
(6) Serial Input/Output

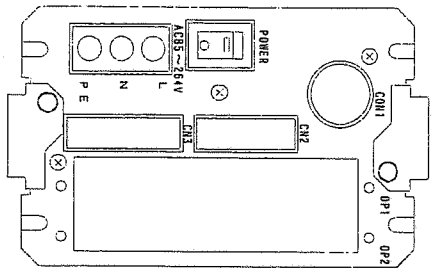
RS232C:	2 ports
RS232C/RS422	change-over: 1 port
Communication:	Bilateral
Baud rate:	1200, 2400, 4800, 9600 bps

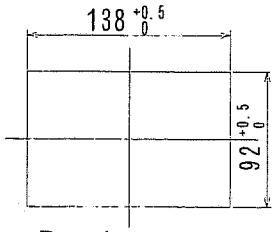
7.2 OUTER VIEW

EDI-800



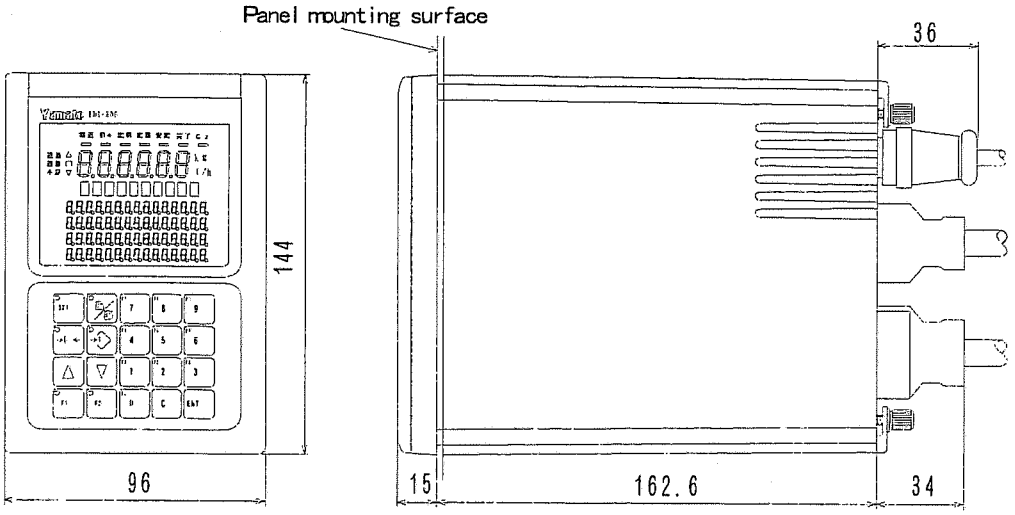


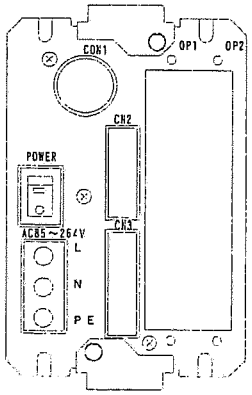


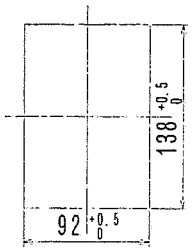


Panel cut

EDI-910

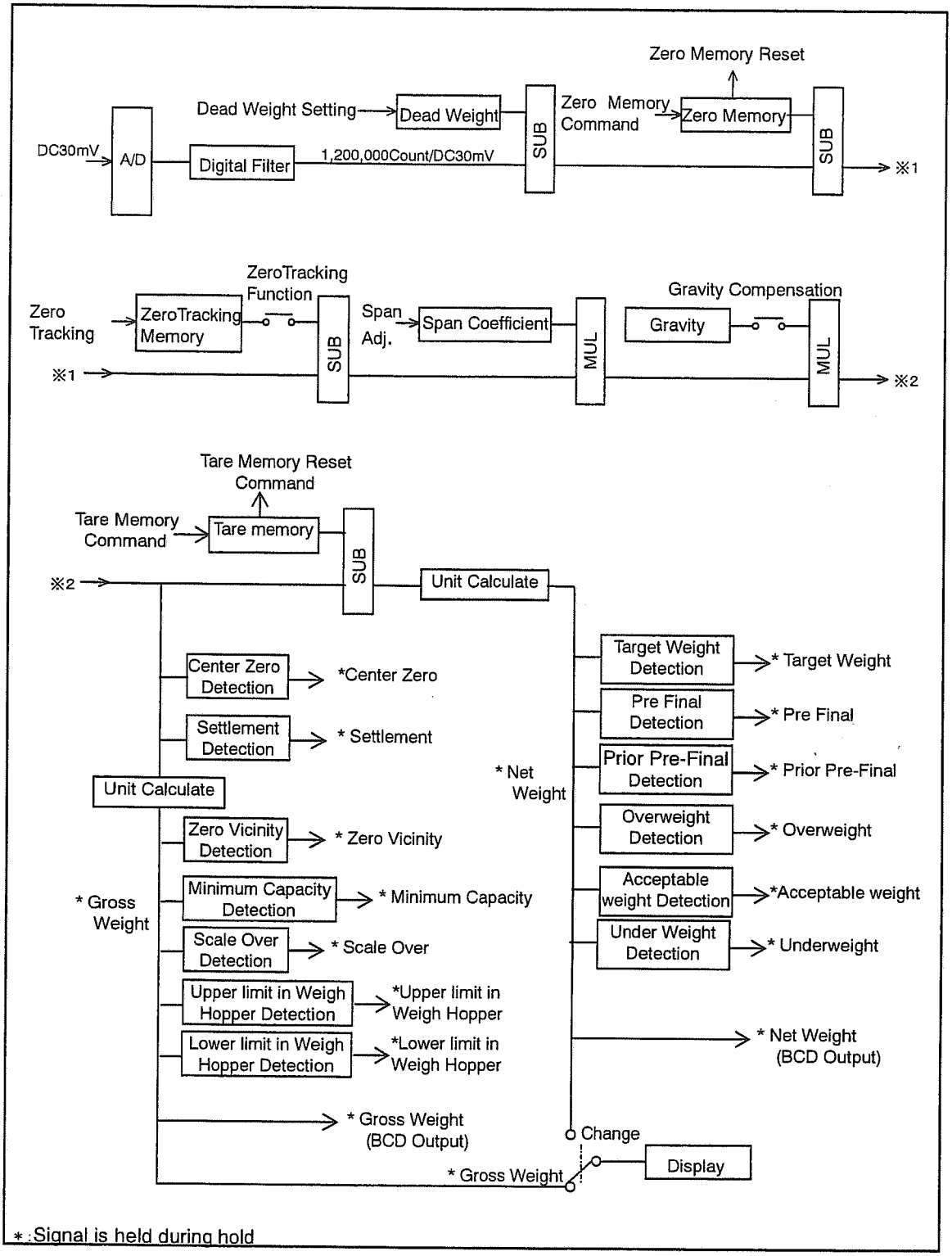






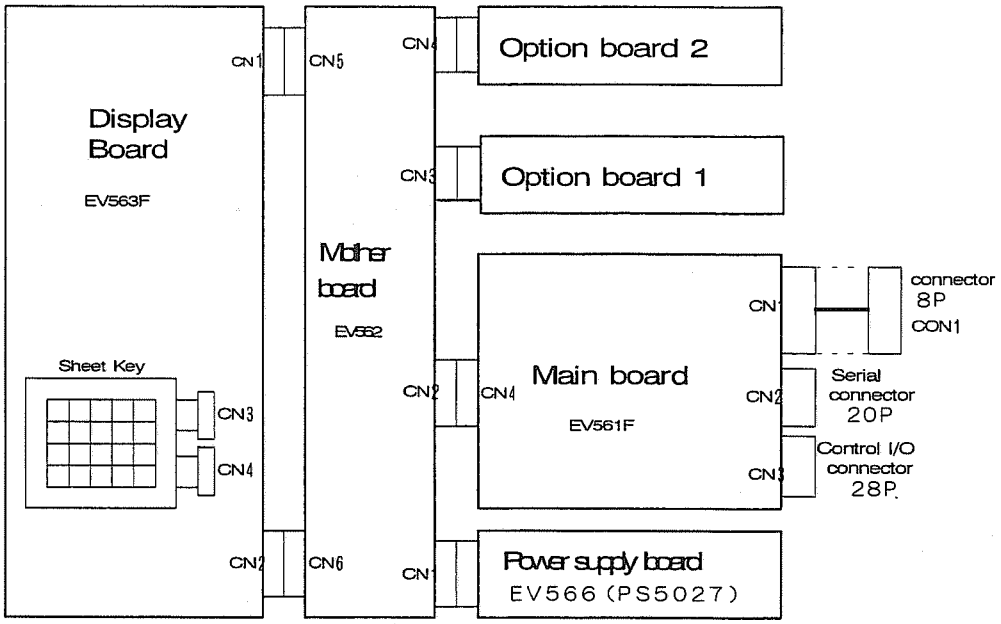
Panel cut

7.3 Processing Block Chart



* :Signal is held during hold

7.4 Internal configuration drawing



Annex 1 - ADDRESS SETTING

Basic

			Default	Setting
00 Basic Parameters				
1	Capacity	Scale Capacity of the weighing system.	3000	
2	Increment	0: 1 1: 2 2: 5 3: 10 4: 20 5: 50	0	
3	Decimal Point	0: — 1: 0.0 2: 0.00 3: 0.000	0	
4	unit	0: g 1: kg 2: t 3: —	1	
5				
6				
01 User Parameter				
1	Zero Vicinity	Weight below this value is regarded as no product.	10	
2	Minimum Capacity	When gross weight is above this value, the system is regarded as in weighing.	200	
3	Scale Over	When gross weight exceeds Scale capacity + 10 increments, the product is regarded as scale over.	3010	
4	Fixed Tare	Used to set fixed tare.	0	
5	Settled hold under weighing	Sets to "0".	0	
6	Zero vicinity mode	Initial zero: Sets the mode of zero vicinity signal. 0: Gross weight ≦ Zero vicinity setting 1: | Gross weight | ≦ Zero vicinity setting	0	
02 Load Cell Parameters				
1	Cell Information	0: Not available 1: Available	0	
2	Cell Output	Set output voltage in μV at cell capacity when excitation of 1 V is applied. (Initial value is 2 μV/V.)	2000	
3	Cell Capacity	Cell capacity expressed in the weight unit.	5000	
4	Gravity Compensation	0: No compensation 1: Compensation is applied	0	
5	Factory Gravity	Set the gravity where the system is setup before shipment.	9.797	
6	Local Gravity	Set the gravity where the system is installed.	9.797	
03 Zero				
1	Zero Range	Range within which one-touch zero and zero tracking are allowed. Set it in % of the scale capacity.	10.0	
2	Zero Tracking	Sets the zero-tracking settlement condition in unit of graduation.When it is set to "0", the zero-tracking is invalidated.	0	
3	Zero Tracking Range	Set range in increment within which zero tracking is allowed.	1	
4	Zero Tracking Interval	When gross weight is kept in the above range for this interval, zero tracking is performed. Set it in second.	1.0	
5	Minus Auto Zero	When a gross weight is settled below zero, zero correction is carried out automatically. 0:not effective 1:effective	0	
6				
04 Preference				
1	Settlement Range	Set weight indication range in number of increments within which the system is regarded as settled.	1	
2	Settlement Interval	When weight indication is kept in the above range for this interval, the system is regarded as settled. Set it in seconds. If it is set to "0", the scale status is regarded always as settled.	3.0	
3	Digital Filter	0: Arithmetic mean 1: Geometric mean	1	
4	Digital Filter Count***	Set average count for digital filter.	2	
5	Initial zero	Sets the initial zero function. 0: Invalid 1: Valid	0	
6	Multi-graduation change point	Sets the change point for multi-graduation use. 0: Invalid	0	
05 Adjustment				
1	Value of Reference Weight	Set the value of the reference weight to be used for calibration in kg.	3000	
2	Dead Weight*	The dead weight value of the weighing system will be stored in memory in AD count at Dead Weight Setting.	100000	
3	Span coefficient**6	The conversion coefficient of load cell output will be stored in memory at Span Calibration.	1.0000000	
07 Key Control (User parameters)				
1	Zero Key Suspension	To suspend zero adjustment by pressing front panel key, set this to"1".	0	
2	Tare Key Suspension	To suspend tare adjustment by pressing front panel key, set this to "1". To accepted zero adjustment and tare adjustment by pressing front panel key, as settled set to "0", as always set to "1".	0	
3	Key acceptability when Settlement	Used to set status for Tare Subtraction for Zero Correction. 0:only when settled 1:always sffective.	1	
4				
5				
6				

Note (*): This value will be entered automatically when the initial Dead Weight setting is carried out.

Note (**): This value will be entered automatically when the Span Calibration is carried out.

Note (***):
The standard interval shoe the following.

	0	1	2	3	4	5	6	7	8
Arithmetic mean	0.01	0.02	0.04	0.08	0.16	0.32	0.64	1.28	2.56
Geometric mean	0.01	0.03	0.07	0.15	0.31	0.63	1.27	2.55	5.11

08 Special Setting			Default	Setting
1	Accumulated zero range	Sets the error range of zero deviation from initial.When it is set to "0", no detection is made.	0	
2	Individual zero range	Sets the error range of deviation from last zero adjustment.When it is set to "0", no detection is made.	0	
3	×10 mode	When it is set to "1", the mode is set to "×10".	0	
4	HOLD mode	Un-used. Set it to "0".	0	
5				
6				

Weighing Parameters

10 System Settings			Default	Setting
1	Weighing Method	0: Simple Comparison 1: Sequence Control Set sample	0	
2	Sample size	count for statistical data*.	1	
3	Comparison Conditions	Set comparison conditions for TW, PF, PP, Upper and Lower Limit. 0: Absolute value 1: With polarity	0	
4	Target Weight (TW) Ratio	Set preset parameters in ratio (%) to TW. If set to "0", no ratio will be given.	0	
5	Bias	Set bias in %. If set to "0", no bias is counted.	0.00	
6				
11 Product Preset Parameters (Presetting)				
1	Product Presetting	To allow product presetting change, set to "0". If not, set to "1".	0	
2	External Selection	Used to select way of designation of Product No. among the following. 0:AddressSetting(fixed setting) 1:Inner setting or	1	
3	selection of Screen Display	2:External setting(change over) used to select an item to be displayed on the screen. 0:Product Name 1:"—"sign for Product Name 2:date 3:No display(blank)	0	
4	Product check function	Checks product consistency. 0: Non-execution of checking	0	
5		1: Execution of checking (When there is an error, the errors(10-52,		
6		10-53) are displayed.)		
12 Internal / External setting selection				
1	Target Weight		1	
2	Pre-final value	For all the six parameters:	1	
3	Prior Pre-final value	To limit to internal setting only, set to "0". to allow either internal or	1	
4	Dribble Compensation	external setting, set to "1". to limit to external setting, set to "2".	1	
5	Upper (H) Limit		1	
6	Lower (H) Limit		1	
13 Setting Method				
1	Pre-final value		1	
2	Prior Pre-final value	For all the four parameters:	1	
3	Upper (H) Limit	To set them in absolute value, set to "0".	1	
4	Lower (L) Limit	To set them in value relative to Target Weight, set to "1".	1	
5		To set them in % to Target Weight, set to "2".		
6				
14 Automatic Adjustment of Dribble Compensation				
1	Sample size	Set count of weighing samples for the adjustment. If set to "0", no adjustment is enabled.	0	
2	Compensation ratio	Adjustment value is given by multiplying average value of dribble errors with this ratio.	50	
3	Reading limit for adjustment	Dribble error exceeding this limit is not counted for adjustment.	100	
4	Reading dead zone	Dribble error within this zone is not counted for adjustment.	50	
5	Timing to clear the adjustment**	To set timing to return the adjusted compensation value to the preset value.	0	
6				

Note (*): 0 : Statistical data will be calculated when P0 to P8 key is depressed.
1 : Statistical data will be calculated every cycle.
2 to 9999 : Statistical data will be calculated every preset count of cycles.

Note (**): 0 : Enable only when dribble compensation value is changed.
1 : Enable even when power is turned on.
2 : Enable even when product number is changed.

15 Loss-in-weight (User parameters)				
1	Upper limit of product in Weigh Hopper	Set upper limit of product in the weigh hopper.	2500	
2	Lower limit of product in Weigh Hopper	Set lower limit of product in the weigh hopper.	500	
3				
4				
5				
6				
16 Sequence Control Weighing				
1	Settlement timer	Set time for settle time after reaching target weight in 0.1 sec.	5.0	
2	Additional feed timer	Set time for automatic additional feed in 0.1 sec.	5.0	
3	Automatic additional feed	Select automatic additional feed as follows: 0: Disable 1: Comparison mode 2: Inching mode	0	
4	Hold	To hold weight value and its BCD output after settle time; 0: not hold 1: Hold	0	
5				
6				
16 Deviation				
1	Deviation limiter	Sets the deviation limiter.If the deviation weight exceeds this value, the BCD/DA output is held.The deviation display flashes in this case.	0	
2	Deviation Display	change a net display 0:net 1:Deviation 2:total1 3:total2	0	
3				
4				
5				
6				

Control Input/Output

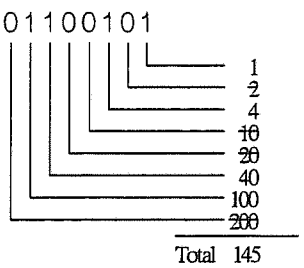
30 Select Output Logic		Default	Setting
1 Control Output logic	0: Negative 1: Positive	0	
2 Control output logic(OUT1 ~16)	Changes the control input/output logic in unit of bit. 0: Negative logic, 1: Positive logic	00000	
3 Control input logic(IN1~8)	The setting is executed in octal numbers.	000	
4			
5			
6			
31 Control Input Port Allocation 1			
1 IN1 allocation	To change input port allocation, select as follows:	0	
2 IN2 allocation	0: Standard 1: Sequence reset	5	
3 IN3 allocation	2: Serial signal command 3: Suspend key control	0	
4 IN4 allocation	4: Title print 5: Individual weight print	0	
5	6: Sub-total print command 7: Grand total print command		
6	8: Data print command 9: Print with red ink		
	11: Dribble-comp. capturing command		
	12:EDI700 Serial IN1 13:EDI700 Serial IN2		
	14: EDI700 Serial IN3		
32 Control Input Port Allocation 2			
1 IN5 allocation	This setting is similar as 31 addresses.	0	
2 IN6 alloc		0	
3 IN7 allocation		8	
4 IN8 allocation		0	
5			
6			
33 Control Output Port Allocation 1			
1 Out 9 allocation	To change output port allocation, select as follows:	0	
2 Out 10 allocation	0: Standard 1: Weigh hopper upper limit	0	
3 Out 11 allocation	2: Weigh hopper lower limit 3: Under tarring	0	
4 Out 12 allocation	4: Upper/lower limits 5: In Weighing	0	
5	6: Settled In Weighing 7: Weight error		
6	8: Scale Over(Positive) 9: on hold(Positive)		
	10: Zero Error(Positive) 11: EDI700 Serial OUT1		
	12: EDI700 Serial OUT2 13: EDI700 Serial OUT3		
	14: Accumulated zero error 15: Individual zero error		
	16:BCD output Data Strob1		
	17: BCD output Data Strob2		
34 Control Output Port Allocation 2			
1 Out 13 allocation	This setting is similar as 33 addresses.	5	
2 Out 14 allocation		0	
3 Out 15 allocation		0	
4 Out 16 allocation		0	
5			
6			

The standard allocation show the following.

IN1 :Zero Memory
IN2 :Zero Memory Reset(The first value is Individual Print)
IN3 :Tare Memory/
IN4 :Tare Reset
IN5 :weighing
IN6 :Clearing Accumulated Weighing Data
IN7 :Hold Command
IN8 :Selection Internal or External signal

OUT9 :Scale Over
OUT10:Tare Memory Finish
OUT11:Weighing Finish(The first value is In Weiging)
OUT12:Settled
OUT13:On Hold
OUT14:Zero Error
OUT15:CPU in Operation
OUT16:Alarm

Note—1 : The logic of input/output is set by octal value.
To fetch the IN1, 3, 6 and 7 of input logic by positive logic, proceed as follows:
Arrange the numeric at IN1 and after from right to left with the signal to be fetched by negative logic as "0" and that to be fetched by positive logic as "1".
IN8 -> 0 1 1 0 0 1 0 1 <- IN1
Add the numeric for part "1" as 1, 2, 4, 10, 20, 40, 100, 200 from right-end.



Serial Input/Output

			Default	Setting
40	Serial Port 1			
1	Baud rate*	Set Baud rate (BPS) for Serial port 1.	1	
2	Bit size**	Set Bit size for Serial port 1.	6	
3	Interface***	Set Interface for SERIAL PORT 1.	3	
4				
5				
6				
41	Serial Port 2			
1	Baud rate*	Set Baud rate (BPS) for Serial port 2.	3	
2	Bit size**	Set Bit size for Serial port 2.	6	
3	Interface***	Set Interface for SERIAL PORT 2.	0	
4				
5				
6				
42	Serial Port 3			
1	Baud rate*	Set Baud rate (BPS) for Serial port 3.	3	
2	Bit size**	Set Bit size for Serial port 3.	6	
3	Interface***	Set Interface for SERIAL PORT 3.	4	
4				
5				
6				
45	EDI - 700 Compatible Mode1			
1	EDI-700 format selection	0:Format0 1:Format1 2:Format2 3:Format3 4:Format4 7:Format7 8:Format8	3	
2	Transmission timing at Format 0	Sets the transmission timing for case when the format-0 is selected. 0: Transmission one time during weighing and settling 1: Transmission one time at target weight and during settling When the format-1 is selected, the data at the space is changed. 0: Spaced all the time. 1: "A"(41H: It is invalid when station No. is used) during non-settling The transmission format for case when the format-7 is selected, is selected. 0: EDI-800 1: Compatible to EDI-700 format-6 When the format-8 is selected, the input device connected is selected. 0: EDI-800 1: Sartorius LP series 2: Compatible to EDI-700 format-6	0	
3	data selection	Transmission data is set to each format;0: Gross 1: Net	1	
4	Unit	Weight unit is set to when Format 0 or 2 is selected; 0: No unit 1: g 2: kg 3: t 4: lb. When the format-1/3/4 is selected, the zero-suppress function is selected. 0: Zero-supply 1: Zero-suppress 2: 0.0 format 3: 0.00 format	0	
5	ID No.	0:Not Use ID No. 1~9:ID No.	0	
6				
46	EDI - 700 Compatible Mode2			
1	EDI-700 format selection	This setting is similar as 45 addresses.	3	
2	Transmission timing at Format 0		0	
3	Data selection		1	
4	Unit		0	
5	ID No.		0	
6				
47	Adjustment for YAMATO			
1	ID number	You don't change, because adjustment for YAMATO.	0	
2				
3				
4				
5				
6				

Note (*) 0: 1200 BPS
1: 2400 BPS
2: 4800 BPS
3: 9600 BPS

Note (**) 0: 7 bits + Even parity + 2 stop bits
1: 7 bits + Odd parity + 2 stop bits
2: 7 bits + Even parity + 2 stop bits
3: 7 bits + Odd parity + 1 stop bit
4: 8 bits + No parity + 2 stop bits
5: 8 bits + No parity + 1 stop bit
6: 8 bits + Even parity + 1 stop bit
7: 8 bits + Odd parity + 1 stop bit

Note (***) 0: Not used
2: Communication with Sequenser
3: Communication with Printer
4: EDI - 700 compatible1
5: EDI - 700 compatible2

Printer

50 Printer (General)			Default	Setting
1	Format selection	Select format to internal or external for printing; 0: External 1:Internal	1	
2	New line code	Select new line code; 0: CR 1: CR + LF	0	
3	Guide print	Select a printing guide for setting during printing; 0:Yes 1: No		
4	Sub-total and count clear	To clear sub-total and count after sub-total printing, or not; 0: Yes 1: No	0	
5	Time for waiting after print	Set wait time in 100 ms for sending next data after sending CR code.	1.0	
6				
51 Printer Function				
1	Individual Print Command	0:External 1:Input Weight 2: while in weighing and settled. 3: while settled after reaching over target weight.	0	
2	Accumulated Data Printing Clear Mode	0:No clear of accumulated data is allowed after Accumulated data Print 1:Clear is allowed after Accumulated Data Printing	1	
3				
4				

Sequenser

60 General Setting for Sequenser			Default	Setting
1	Support sequenser	Select a kind of sequenser; 0: Mitsubishi 1: Omron	0	
2	Bus Configuration*	When no bus configuration (1 to 1 communication) is applied, set this bit to 0. If n to 1 bus configuration is applied, set it to 1.	0	
3	ID number	Set an ID No. to the sequenser for communication at the bus configuration.	00	
4	PC number	This number is used for communication when Mitsubishi sequenser is connected. (This item is not yet effective because of future expansion.)	00	
5	EDI ID number**	Set an ID No. for this EDI controller for bus configuration.	00	
6				
61 Sequenser Device Number				
1	Receiving bit device	Set starting address of bit device reading from Sequenser.	2000	
2	Request receiving word device	Set starting address of word device reading upon Sequenser request.s.	0810	
3	Every transmission word device	Set starting address of word device writing Sequenser every cycle.	0800	
4	Every transmission bit device	Set starting address of bit device writing Sequenser every cycle.	2010	
5	Requested transmission word device	Set starting address of word device Sequenser writes on-demand.	0820	
6	Receiving error bit device	Set address of bit device to alert the problem if an error is found in request given from the sequenser.	2008	
62 Receiving Bit Device				
1	Receiving bit device 1		0000	
2	- ditto - 2	Set data number which bit device reading from Sequenser.	0000	
3	- ditto - 3	This setting must be ended with 0.	0000	
4	- ditto - 4	If 4 bit devices, for example, are to be set, set 62-5 to 0.	0000	
5	- ditto - 5		0000	
6	- ditto - 6		0000	
63 Request receiving word device 1				
1	Request receiving word device 1		0130	
2	- ditto - 2	Set data number which word device reading from Sequenser.	0000	
3	- ditto - 3	This setting must be ending with 0.	0000	
4	- ditto - 4		0000	
5	- ditto - 5		0000	
6	- ditto - 6		0000	
64 Request receiving word device 2				
1	Request receiving word device 1		0000	
2	- ditto - 2	Set data number which word device reading from Sequenser.	0000	
3	- ditto - 3	This setting must be ending with 0.	0000	
4	- ditto - 4		0000	
5	- ditto - 5		0000	
6	- ditto - 6		0000	

Note (*) When n to 1 bus configuration is applied, set the number of the bit device (communication device) which indicates that one time communication has finished. When the communication finishes, the bit device comes to ON, when on-demand command should be sent.

Note (**): On-demand command will be sent with the value set here from the sequenser. It is necessary to set different value for each EDI connected via the bus configuration.

Sequenser (continued)

			Default	Setting
65	Request Transmission Word Device 1			
1	Request transmission word device 1	Set data number word device writing upon request from Sequenser. This setting must be ending with 0.	0100	
2	- ditto - 2		0101	
3	- ditto - 3		0191	
4	- ditto - 4		1017	
5	- ditto - 5		1010	
6	- ditto - 6		1016	
66	Request Transmission Word Device 2			
1	Request transmission word device 7	Set data number word device writing upon request from Sequenser. This setting must be ending with 0.	0000	
2	- ditto - 8		0000	
3	- ditto - 9		0000	
4	- ditto - 10		0000	
5	- ditto - 11		0000	
6	- ditto - 12		0000	
67	Every transmission word device			
1	Request transmission word device 1	Set data number which word device receiving from Sequenser. This setting must be ending with 0.	0100	
2	- ditto - 2		0101	
3	- ditto - 3		0000	
4	- ditto - 4		0000	
5	- ditto - 5		0000	
6	- ditto - 6		0000	
68	Every transmission bit device			
1	Request transmission bit device 1	Set data number which bit device receiving from Sequenser. This setting must be ending with 0.	0000	
2	- ditto - 2		0000	
3	- ditto - 3		0000	
4	- ditto - 4		0000	
5	- ditto - 5		0000	
6	- ditto - 6		0000	

Note: Parameters of seventies and eighties are for an optional board installed on optional slot.
These parameters vary depending on the optional boards.
Refer to the next pages for details.

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Maintenance

98 Production Information			Default	Setting
1	Program Version	Program version number is entered in factory and can not be changed.		
2	Serial Number	Enter the serial number when user wants to control with this number.	000000	
3				
4				
5				
6				
99 Variant				
1	Operation level**	Select operation level among 0: Operator level* 1: Supervisor level	1	
2	Variation**	To disable changing, set to 1 (Reference only). To enable changing, set to 2 (Enable either for reference or writing).	2	
3	Temperature compensation	To enable temperature compensation, set to 1, If not, set to 0.	0	
4	AD self-diagnosis*	To enable AD self-diagnosis, set to 1. If not, set to 0.	1	
5	Language	Language of message line changes .0: Japanese(katakana) 1:English	0	
6	Test output***	Used to set test output toeffective automatically when power Is applied. 0:Not effective 1:Effective	0	

Note-(*): When intrinsic Safe Barrier is applied to Load Cell, set the self diagnosis function to not to be used. (Change to set 99-4 from "1" to "0".)

Note-(**): It is possible to lock the operation menu by changing the operation mode. (O = Applicable, × = Inapplicable)
Note that it is unable to change the other setting value than those of which item No. is marked with O when it is set to "User".

Operation mode	Attribute to change	Internal setting (SET + 3)	Calibration (SET + 4)	Test (SET + 5)	Print setting (SET + 6)	Initialization (SET + 7)	Clock setting (SET + 8)	Error history (SET + 9)
Operator level	Reference	O	×	×	×	×	×	×
	Write enable	O	×	×	×	×	×	×
Supervisor level	Reference	O	×	×	O	×	×	O
	Write enable	O	O	O	O	O	O	O

Note-(***): This value is set to "0" forcibly when the power source is started. Change the value to "1" for use only when this function is required.

Address Setting when Optional Board is installed into Optional Slot* (1)

Optional BCD

70 or 80 BCD output			Default	Setting
1	Polarity/Data renewing logic	Select the polarity of BCD output signal and logic for renewing data; 0: Negative 1: Positive	0	
2	Weight value output logic	0: Negative 1: Positive	0	
3	Selection of BCD data	0: Gross weight 1: Net weight 2: Tare weight 3: Target weight 4: Selection by external signal**	4	
4	Shifting function	Shifts the data for output. 0:normal 1:1-digit shift to right(÷10)	0	
5	Scale over Output	0: Output all the time 1: Outputs "F" code.	0	
6	Output mode	0:Normal 1: Cyclic	0	
71 or 81 BCD output data setting ****				
1	Output data 1	Select kind of data for output 1. Default is Gross weight.	0100	
2	Output data 2	Select kind of data for output 2. Default is Net weight.	0101	
3	Output data 3	Select kind of data for output 3. Default is Tare weight.	0191	
4	Output data 4	Select kind of data for output 4. Default is Target weight.	1002	
5	Renewal timing	Renewal timing of data is changed. 0:30ms 1:300ms	0	
6				
72 or 82 BCD Input				
1	BCD input mode	Select BCD input mode between 0: Input reading by command 2: Automatic reading	0	
2	Select output 1 mode to read settings	When automatic reading is selected, select the mode for reading output 1 between 0: Normal 1: Using to read product No.	1	
3	Input reading by command mode	0:Up Edge 1:down Edge 2:On Status 3:Off Status	0	
73 or 83 BCD input data setting ****				
1	Input data 1	Set kind of data for Input data 1. Default is external T. W.	1031	
2	Input data 2	Set kind of data for Input data 2. Default is external Pre-Final.	1032	
3	Input data 3	Set kind of data for Input data 3. Default is external Prior P. F.	1033	
4	Input data 4	Set kind of data for Input data 4. Default is external D comp.	1034	
5	Input data 5	Set kind of data for Input data 5. Default is external H Limit..	1035	
6	Input data 6	Set kind of data for Input data 6. Default is external L Limit..	1036	
74 or 84 BCD Input Selection by command				
1	Input data 1 (T. W.)	For reading by command, allocate each data input for reading parameters to be used;. 0: parameter reading input 1 1: parameter reading input 2 2: parameter reading input 3	0	
2	Input data 2 (P-final)		1	
3	Input data 3 (Prior PF)		2	
4	Input data 4 (D Comp)	For automatic reading, allocate each data output for reading parameters to be used;. 0: parameter reading output 1 1: parameter reading output 2	1	
5	Input data 5 (H Limit)		2	
6	Input data 6 (L Limit)		2	
75 or 85 BCD Input Reading Digit				
1	Input data 1 (T. W.)	Select digit among 5 digits of BCD input when given input reading and automatic reading; 0: 10^4, 10^3, 10^2, 10^1, 10^0 1: 10^4, 10^3 2: 10^2, 10^1 3: 10^0 4: 10^4 5: 10^3, 10^2 6: 10^1, 10^0 7: 10^2, 10^1, 10^0 8: 10^3, 10^2, 10^1, 10^0	0	
2	Input data 2 (Pre-final)		1	
3	Input data 3 (Prior PF)		4	
4	Input data 4 (D Comp)		7	
5	Input data 5 (H Limit)		5	
6	Input data 6 (L Limit)		6	
76 or 85 BCD Input Display				
1	Input data 1 (T. W.)	Select what time multiplying BCD input when given input reading and automatic reading; 0: x 1 1: x 10 2: x 100 3: 1000 4: x 10000	0	
2	Input data 2 (Pre-final)		1	
3	Input data 3 (Prior PF)		2	
4	Input data 4 (D Comp)		0	
5	Input data 5 (H Limit)		0	
6	Input data 6 (L Limit)		0	

Note (*): Two optional slots are provided for EDI - 800.When an optional board is installed to the slot 1, parameters related to this board are allocated to the seventies. When to slot 2, allocated to the eighties.

Note (**): Gross weight, net weight, tare value and target weight can be changed by external data selection command.

Note (***): Set all the input data not used to "0".

Note (****): Setting possible data is shown below.

Data name	Number	IN	OUT	Data name	Number	IN	OUT
Gross weight	100	X	O	External Upper Limit	1035	O	O
Net Weight	101	X	O	External Lower Limit	1036	O	O
Tare Weight	191	X	O	Fixed Tare	193	O	O
Target Weight	1002	X	O	Upper Limit weigh Hopper	1086	O	O
External Target Weight	1031	O	O	Lower Limit weigh Hopper	1085	O	O
External Pre-Final point	1032	O	O	Accumulated zero	0142	X	O
External Prior Pre-Final point	1033	O	O	Individual zero	0143	X	O
External Dribble Compensation	1034	O	O	Deviation Weight	1009	X	O

Address Setting when Optional Board is installed into Optional Slot* (2)

Output from D/A and relay

			Default	Setting
70 or 80 D/A Output				
1	D/A output mode	0: 0 - 4V 1: 0 - 5V 2: 0 - 10V 3: 1 - 5V 4: 0 - 16mA 5: 4 - 20mA	5	
2	D/A output data	0: Gross 1: Net 2: Feed Control Output	1	
3	D/A output polarity	0: Absolute value 1: With polarity	1	
4	Full Scale for D/A	Set weight value output at full scale. (Select usually Scale Capacity.)	3000	
5	D/A zero output ***	Sets the weight value for which zero is output. Set it normally to "0".	0	
6				
71 or 81 Setting for D/A Feed Control Output				
1	For Full Feed Output	Set output in % of Full Scale for Full Feed.	100	
2	For Mid Feed Output	Set output in % of Full Scale for Mid Feed.	50	
3	For Dribble Feed Output	Set output in % of Full Scale for Dribble Feed.	10	
72 or 82 Adjustment for D/A output				
1	Initial	Perform fine tuning for D/A output initial value.	0	
2	Span Coefficient	Perform fine tuning for D/A output span coefficient.	1.0000	
3	Output Test	Used for test of D/A output.	10.000	
73 or 83 Relay 1				
1	Relay Output data**	Select output signal.	1	
2	Contact Logic	0: Contact closes at ON, 1: Contact opens at ON.	0	
3	Output Delay timer	Relay 1 will be ON after this delay time..	0.0	
4	Comparison Setting	Relay 1 will be ON when net weight exceeds this value.	10000	
5	Comparison data	Selects the data to compare. 0: Net weight 1: Gross weight	0	
6	Comparison method	Selects the comparison method. 0: Normal 1: Absolute value	0	
74 or 84 Relay 2				
1	Relay Output data**	Select output signal.	1	
2	Contact Logic	0: Contact closes at ON, 1: Contact opens at ON.	0	
3	Output Delay timer	Relay 2 will be ON after this delay time..	0.0	
4	Comparison Setting	Relay 2 will be ON when net weight exceeds this value.	20000	
5	Comparison data		0	
6	Comparison method		0	
75 or 85 Relay 3				
1	Relay Output data**	Select output signal.	1	
2	Contact Logic	0: Contact closes at ON, 1: Contact opens at ON.	0	
3	Output Delay timer	Relay 3 will be ON after this delay time..	0.0	
4	Comparison Setting	Relay 3 will be ON when net weight exceeds this value.	30000	
5	Comparison data	Selects the data to compare. 0: Net weight 1: Gross weight	0	
6	Comparison method	Selects the comparison method. 0: Normal 1: Absolute value	0	
76 or 85 Relay 4				
1	Relay Output data**	Select output signal.	1	
2	Contact Logic	0: Contact closes at ON, 1: Contact opens at ON.	0	
3	Output Delay timer	Relay 4 will be ON after this delay time..	0.0	
4	Comparison Setting	Relay 4 will be ON when net weight exceeds this value.	40000	
5	Comparison data	Selects the data to compare. 0: Net weight 1: Gross weight	0	
6	Comparison method	Selects the comparison method. 0: Normal 1: Absolute value	0	
77 or 87 Real 5				
1	Relay Output data**	Select output signal.	1	
2	Contact Logic	0: Contact closes at ON, 1: Contact opens at ON.	0	
3	Output Delay timer	Relay 5 will be ON after this delay time..	0.0	
4	Comparison Setting	Relay 5 will be ON when net weight exceeds this value.	50000	
5	Comparison data	Selects the data to compare. 0: Net weight 1: Gross weight	0	
6	Comparison method	Selects the comparison method. 0: Normal 1: Absolute value	0	
78 or 88 Real 6				
1	Relay Output data**	Select output signal.	1	
2	Contact Logic	0: Contact closes at ON, 1: Contact opens at ON.	0	
3	Output Delay timer	Relay 6 will be ON after this delay time..	0.0	
4	Comparison Setting	Relay 6 will be ON when net weight exceeds this value.	60000	
5	Comparison data	Selects the data to compare. 0: Net weight 1: Gross weight	0	
6	Comparison method	Selects the comparison method. 0: Normal 1: Absolute value	0	

Note (*): Two optional slots are provided for EDI - 800.
When an optional board is installed to the slot 1, parameters related to this board are allocated 70th. When to slot 2, allocated to 80th.

Note (**): Select each parameter among the following for output signal:
0: Not used 1: Comparison setting 2: Prior Pre-final/Full Feed 3: Pre-final/Mid feed
4: Target Weight/Dribble feed 5: Overweight 6: Acceptable weight 7: Underweight 8: Scale over
9: WH H Limit 10: WH L Limit 11: Upper and Lower Limit 12; In weighing 13: Zero Vicinity
14: On hold 15:System Ready 16: Settled 17:Zero Error 18: Tare Subtracted
19: Upper/Lower limit 20: Finish of Weighing 21: Settled In Weighing 22: Weight error
23: Accumulated zero error 24: Individual zero error 25-27: Serial signal output(1-3) compatible to EDI-700

Note (***): When 4-20mA is output for net weight of –10t to 10t, for instance, set –10t to this point, and 20t to the full-scale value(A70-4).

Address Setting when Optional Board is installed into Optional Slot* (2)

Cc-Link Interface

70 or 80 General setting			Default	Setting
1	Operation setting	Sets the operation mode of CC-Link. 0: CC-Link Not available, 1: Available(standard mode). 2: Available(special mode).	1	
2	Individual receiving(long)	Defines the long-word area(4 points) in which individual receiving is executed. 0:Not receive individually 1:I1 2:I1,I2 3:I1,I2,I7 4:I1,I2,I7,I8	0	
3	Area definition Individual receiving(word)	Defines the word area(4 points) in which individual receiving is executed. 0:Not receive individually 1:I3 2:I3,I4 3:I3,I4,I5 4:I3~I6	0	
4	Area definition Individual sending(long)	Defines the long-word area(3 points) in which individual sending is executed. 0:Not send individually 1:O1 2:O1,O2 3:O1,O2,O3	3	
5	Area definition Individual sending(word)	Defines the word area(6 points) in which individual sending is executed. 0:Not send individually 1:O4 2:O4,O5 3:O4~O6 4:O4~O7 5:O4~O8 6:O4~O9	3	
	Area definition			
71 or 81 Receiving allotment bit device definition				
1	Receiving bit def-1	Defines the device of receiving allotment bit. (buffer address: 0163) bitA 0:Not use	0	
2	Receiving bit def-2	B	0	
3	Receiving bit def-3	C	0	
4	Receiving bit def-4	D	0	
5	Receiving bit def-5	E	0	
6	Receiving bit def-6	F	0	
72 or 82 Transmission bit device definition				
1	Transmission bit def-1	Defines the device of transmission allotment bit. (buffer address: 00E3) bitA 0: Not use	0	
2	Transmission bit def-2	B	0	
3	Transmission bit def-3	C	0	
4	Transmission bit def-4	D	0	
5	Transmission bit def-5	E	0	
6	Transmission bit def-6	F	0	
73 or 83 Receiving word device definition-1				
1	Receiving word def-1	Defines the receiving word device.(Product + Ex.target WT)	1038	
2	Receiving word def-2	0: Not use (Ex.prior pre-final)	1033	
3	Receiving word def-3	Item within parenthesis: Initial value name (Ex.pre-final)	1032	
4	Receiving word def-4	(Ex.dribble compensation)	1034	
5	Receiving word def-5	(Ex.upper-limit)	1035	
6	Receiving word def-6	(Ex.lower-limit)	1036	
74 or 84 Receiving word device definition-2				
1	Receiving word def-1	Defines the receiving word (Weighing hopper upper-limit)	0	
2	Receiving word def-2	device.0: Not use (Weighing hopper lower-limit)	0	
3		Item within parenthesis: Initial value name		
4				
5				
6				
75 or 85 Transmission word device definition-1				
1	Transmission word def1	Defines the transmission word device. (Gross weight)	0101	
2	Transmission word def2	0: Not use (Net weight)	0100	
3	Transmission word def3	Item within parenthesis: Initial value name (Total)	1010	
4	Transmission word def4	(Error code)	9500	
5	Transmission word def5	(Aux. code)	9501	
6	Transmission word def6	(Product No.)	1006	
76 or 86 Transmission word device definition-2				
1	Transmission word def7	Defines the transmission word device.	0	
2	Transmission word def8	0: Not use	0	
3			0	
4				
5				
6				

Annex 2 - Printing Format Setting Table

Table for setting, [SET] [6] [1], of printing format is provided below.

INDIVIDUAL PRINTING

Address No.		Item			Initial Value	Preset Value
00	1	Line feed after Title printing *2)			1	
	2	Line feed after Individual printing *3)			0	
	3	Weight unit *4)			1	
	4					
	5					
	6					
01	1	Title Printing*1)	Line 1	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	
02	1		Line 2	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	
03	1		Line 3	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	
04	1	Individual Printing	Line 1	Data 1	01017	
	2			Data 2	00103	
	3			Data 3	00000	
	4			Data 1 Printing Place	4	
	5			Data 2 Printing Place	16	
	6			Data 3 Printing Place	1	
05	1		Line 2	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	
06	1		Line 3	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	ooooo	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	

Note: *1) Title printing is carried out when its command is received.
*2) Used to set number of line feed after title printing.
*3) Used to set number of line feed after individual printing.
*4) Used to set weight unit is added or not. 0: not add. 1: add.

SUB-TOTAL PRINTING

Address No.		Item			Initial Value	Preset Value
10	1	Line feed before printing *5)			1	
	2	Line feed after printing *6)			1	
	3	Weight unit *4)			1	
	4					
	5					
	6					
11	1	Sub-total Printing	Line 1	Data 1	10232	
	2			Data 2	01023	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	15	
	6			Data 3 Printing Place	1	
12	1		Line 2	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	
13	1		Line 3	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	

Note: *5) Used to set Line feed before printing.
*6) Used to set Line feed after printing.

GRAND TOTAL PRINTING

Address No.		Item			Initial Value	Preset Value
20	1	Line feed before printing *5)			1	
	2	Line feed after printing *6)			1	
	3	Weight unit *4)			1	
	4					
	5					
	6					
21	1	Grand Total Printing	Line 1	Data 1	10242	
	2			Data 2	01024	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	15	
	6			Data 3 Printing Place	1	
22	1		Line 2	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	
23	1		Line 3	Data 1	00000	
	2			Data 2	00000	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	1	
	6			Data 3 Printing Place	1	

ACCUMULATED DATA PRINTING

Address No.		Item			Initial Value	Preset Value
30	1	Line feed before printing *5)			1	
	2	Line feed after printing *6)			1	
	3	Weight unit *4)			1	
	4					
	5					
	6					
31	1	Accumulated Data Printing	Line 1	Data 1	02200	
	2			Data 2	02201	
	3			Data 3	00000	
	4			Data 1 Printing Place	11	
	5			Data 2 Printing Place	20	
	6			Data 3 Printing Place	1	
32	1		Line 2	Data 1	10062	
	2			Data 2	01006	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	21	
	6			Data 3 Printing Place	1	
33	1		Line 3	Data 1	10171	
	2			Data 2	01017	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	19	
	6			Data 3 Printing Place	1	
34	1		Line 4	Data 1	10102	
	2			Data 2	01010	
	3			Data 3	00000	
	4			Data 1 Printing Place	4	
	5			Data 2 Printing Place	15	
	6			Data 3 Printing Place	1	
35	1		Line 5	Data 1	10162	
	2			Data 2	01016	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	17	
	6			Data 3 Printing Place	1	
36	1		Line 6	Data 1	10182	
	2			Data 2	01018	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	17	
	6			Data 3 Printing Place	1	

ACCUMULATED DATA PRINTING (continued)

Address No.		Item			Initial Value	Preset Value
37	1	Accumulated Data Printing	Line 7	Data 1	10192	
	2			Data 2	01019	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	17	
	6			Data 3 Printing Place	1	
38	1		Line 8	Data 1	10112	
	2			Data 2	01011	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	11	
	6			Data 3 Printing Place	1	
39	1		Line 9	Data 1	10152	
	2			Data 2	001015	
	3			Data 3	00000	
	4			Data 1 Printing Place	1	
	5			Data 2 Printing Place	13	
	6			Data 3 Printing Place	1	

LOT NO.

Address No.		Item	Initial Value	Preset Value
40	1	Lot No. 1 for printing	00000000	
	2	Lot No. 2 for printing	00000000	
	3	Lot No. 3 for printing *7)	00000000	
	4			
	5			
	6			
41	1	Lot No. 4 for printing *8)	00000000	
	2	Lot No. 4 Digit number *9)	6	
	3			
	4			
	5			
	6			

Note: *7) Two (2) digits represent one (1) character.
Numerical numbers are to be set to the range of 00 to 09.
Alphabetical characters from A to Z are represented from 10 to 35.
To set space, use 49.
These Lot Noes. are printed with settings of 5090.
*8) Used to set a Lot No. with numerical numbers. This Lot No. Is printed with 5093.
*9) When Lot No. Is set with numerical numbers, set digit number beforehand.

Annex 3- ERROR CODE & TROUBLE SHOOTING

00 - XX TROUBLE RELATED TO LOAD CELL

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
01	Low LC exciting voltage EXCITE VLT	Internal power supply could be in trouble.	Consult Yamato.	No	Off	Yes
02	LC wiring problem WIRING ERR	LC could be in trouble such as wire breaking, over load, or problem of LC itself.	Check LC wiring. Turn off power and turn on it again. If the trouble is not removed, consult Yamato.	No	Off	Yes
03	Excess input from LC INPUT OVER	LC could be in trouble such as wire breaking, over load, or problem of LC itself.	Check LC wiring. Turn off power and turn on again. If the trouble is not removed, consult Yamato.	No	—	Yes
04	AD converter output has problem AD-CONV	AD converter without being acting normally.	Check LC wiring. Turn off power and turn on it again. If the trouble is not removed, consult Yamato.	No	Off	Yes
10	Excess AD deviation DIF BET AD	Remarkable difference is found between AD deviation at self-diagnosis and in weighing output.	Check LC wiring.Turn off power and turn on it again. If the trouble is not removed, consult Yamato	No	Off	Yes
11	Excess offset OFFSET ERR	Excess offset is found at self-diagnosis. Weighing amp is possibly in trouble.	Turn off power and turn on it again. If the trouble is not removed, consult Yamato.	No	Off	Yes
12	Span error SPAN ERROR	Span error is found at self-diagnosis. Weighing amp is possibly in trouble.	Turn off power and turn on it again. If the trouble is not removed, consult Yamato.	No	Off	Yes

01 - XX TROUBLE RELATED TO WEIGHING

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
00	Failure in adjustment ADJ ERROR	Zero adjustment or tarring has not been succeeded because it was carried out while weight display was unstable.	Repeat the adjustment while S (SETTLED) lamp lights.	No	—	Yes
01	Failure in zero adjustment OUT OF Z R	Zero adjustment has not been succeeded because of excess deviation.	Check that no product build-up is on the weighing hopper or pan. Then repeat the adjustment.	Yes	—	Yes
03	Failure in dead weight setting INIT ERROR	Dead weight setting has not been succeeded because the dead weight can not be covered by the current LC.	Check the actual dead weight and LC specifications. If no problem is found, repeat the setting.	No	—	No
04	Failure in span calibration (Low weight signal input) LOW INPUT	Span calibration has not been succeeded because the weight signal input was too low to perform span calibration.	Check the actual weight value of the reference weight and its entered value. If no problem is found, repeat the span calibration.	No	—	No
05	LC does not meet the requirement SPAN ERROR	Span calibration has not been succeeded because the LC specifications do not cover the requirement.	Check the current requirements and conditions. If no problem is found, repeat the span calibration.	No	—	No
08	Accumulated zero error TOTAL ZERO	An accumulation zero did adjustment exceeding the prescription range at the time of zero adjustment.	It confirms the use situation of the present condition and please do adjustment once again.The error is canceled with a zero reset.	No	—	Yes

01 - XX TROUBLE RELATED TO WEIGHING continued

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
09	individual zero error EVERY ZERO	Individual zero did adjustment exceeding the prescription range at the time of zero adjustment.	It confirms the use situation of the present condition and please do adjustment once again.The error is canceled with a zero reset.	No	—	Yes
30	Different increment DIF INCR	Address setting has not been succeeded because increment to be set did not meet that current setting.	Change the value to be set to multiple of the current increment, and perform the setting again.	No	—	No
31	Excess product parameter setting OUT OF S R	Product parameter setting has not been succeeded because it exceeded scale capacity or setting range.	Check the parameter to be set, comparing with these range. If no problem is found, repeat the setting.	No	—	No
35	Failure in parameter change NOT ALWED	The parameter change is not allowed because it does not meet requirements of W & M.	Such parameters can not be changed.	No	—	No
50	Tare setting scale over TARE OVER	Tare setting has not been succeeded because the tare exceeded the scale capacity.	Check the capacity and tare value. If no problem is found, repeat the setting.	No	—	Yes
51	Failure in zero tracking TRACKING E	No more zero tracking is allowed because the accumulated zero adjustment has reached its limit.	Check that no trouble is there with weighing system. If product build-up is found, remove it.	Yes	—	Yes
53	Scale Over SCALE OVER	The load exceeding the weighing capacity is applied to the scale.	Remove the load exceeding the weighing capacity immediately.	No	—	Yes

10 - XX TROUBLE RELATED TO WEIGH HOPPER

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
10	Failure in feed command (Feed command error) FEED COM E	The command to feed product is given while product is currently being fed.	Check sequence for product feed.	No	—	No
11	Failure in weighing command (Weighing command error) WEI COM E	A command to weigh product is given while product is currently being fed.	Check sequence for product weighing.	No	—	No
50	Failure in product setting (Increment setting error) INCR SET E	Increment to be set in product setting does not meet that currently set.	Change the value to multiple of the currently set increment, and perform the setting again.	No	—	No

10 - XX TROUBLE RELATED TO WEIGH HOPPER continued

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
52 53	Failure in product setting (Setting error) SETTING E	Product setting does not fulfill the current conditions.	Check the parameters to be set, comparing with the following conditions: (1) T. W. < Capacity (2) Dribble comp. < T. W. (3) PF < (T. W. - D comp.) (4) P-PF < PF (5) Upper Limit < Capacity (6) Lower Limit < Capacity	Yes	—	Yes
71	Failure in product setting due to parity error PS PA'TY	Product setting error which indicated with a supplementary error code has been found.	Check the parameter and enter the value to be set again.	No	—	Yes
72	Failure in product setting due to setting range error SET R ERR	Product setting error which indicated with a supplementary error code has been found out of the range.	Check the parameter and enter the value to be set within the range again.	No	—	Yes
81	Statistical data parity error SD PA'TY E	Statistical data parity error indicated with supplementary error code has been found.	Clear the statistical data.	No	—	Yes
82	Statistical data range error SD RANGE E	Statistical data range error indicated with supplementary error code has been found.	Clear the statistical data.	No	—	Yes
85	Statistical data over flow SD OVER	Accumulated statistical data has exceeded its limit.	Clear the accumulated data for the currently selected product.	Yes	—	Yes
91	Adjusted dribble compensation setting parity error DS PA'TY E	Adjusted dribble compensation setting parity error indicated with supplementary error code has been found.	Check the compensation value and set again dribble compensation for the product.	No	—	Yes
92	Adjusted dribble compensation setting range error DS RANGE E	Adjusted dribble compensation setting range error indicated with supplementary error code has been found.	Check the compensation value and set again dribble compensation for the product.	No	—	Yes

21 - XX TROUBLE RELATED TO EEROM

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
10	EEROM writing error EEROM ERR	Writing in EEROM has not been succeeded. The EEROM could be damaged.	Consult Yamato	Yes	—	Yes
11	EEROM busy signal on BUSY ON	Writing in EEROM has not been succeeded because the EEROM is busy with continued writing. The EEROM could be damaged.	Consult Yamato	Yes	—	Yes

22 - XX TROUBLE RELATED TO CLOCK

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
11	Trouble of internal clock CLOCK ERR	Changing time has not been succeeded because of possible damage of internal clock.	Consult Yamato	Yes	—	Yes

25 - XX TROUBLE RELATED TO ADDRESS SETTING

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
01	Address setting parity error AS PA'TY E	Parity error of address setting indicated with supplementary error code has been found.	Carry out again the setting.	No	—	Yes
02	Address setting range error AS RANGE E	Address setting exceeded the preset range, which is indicated with supplementary error code.	Carry out again the setting within the range.	No	—	Yes
11	BRAM parity error BRAM PA'TY	Battery buck-up RAM parity error has been found, which is indicated with supplementary error code	Carry out again the setting.	No	—	Yes
12	BRAM range error BRAM RANGE	Data in the battery buck-up RAM exceeds the preset range, which is indicated with supplementary error code.	Rewrite data in the battery back-up RAM.	No	—	Yes

40 - XX TROUBLE RELATED TO SERIAL INPUT/OUTPUT

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
01	Overrun at serial port OVERRUN	Overrun has occurred at serial port because the communication speed was too high, resulting data processing could not follow.	Set lower baud rate.	No	—	Yes
02	Parity error PARITY ERR	Parity error has been found at the serial port, which is indicated with supplementary error code.	As parity setting (even, odd, or no parity) could be wrong, carry out parity setting again.	No	—	Yes
03	Framing error FRAMING E	Framing error has been found at the serial port, which is indicated with supplementary error code.	As stop bit setting (1 stop bit or 2 stop bits) could be wrong, carry out stop bit setting again.	No	—	Yes
11	Time-out error TIME-OUT E	Time-out has occurred because no data has been received at the serial port, which is indicated with supplementary error code.	Check that no wrong wiring is there or check any problem in software of the equipment communicated with.	No	—	Yes

50 - XX TROUBLE RELATED TO PRINTING

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
00	Printing PRINTING	The printing command was input during printing.	Input the printing command after completion of printing.	No	—	Yes
01 02	Printer error PRINTER E	The printer is not set to reception-permit status.	When the serial port-1 is used, check the RTS line and CTS line.	No	—	Yes
51	Printing format parity P PARITY E	The printing format data of No. indicated by aux. error No. is erroneous.	It is necessary to re-write the printing format data in which the error is displayed.	No	—	Yes
52	Printing format range PS RANGE E	The printing format data of No. indicated by aux. error No. is out of setting range.	It is necessary to re-write the printing format data in which the error is displayed.	No	—	Yes

6X - XX TROUBLE RELATED TO COMMUNICATION WITH SEQUENSER

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
0 - 01	Checksum error CHECKSUM E	The checksum of the text received from the sequenser is not consistent in format.	Check that applied baud rate is proper.	No	—	Yes
0 - 02	ID number error ID No. ERR	ID No. set in address setting does not correspond to that set with the CPU link unit.	Check the setting in the sequenser is proper.	No	—	Yes
0 - 04	Format error FORMAT ERR	The format of the text received from the sequenser does not correspond to the defined one.	Check the setting in the sequenser is proper.	No	—	Yes
0 - 06	Received byte size error SIZE ERROR	The byte size of the text received from the sequenser does not correspond to the requested one.	Check the setting in the sequenser is proper.	No	—	Yes
0 - 30	Select signal off SELECT OFF	Bus configuration select signal comes off during communication when the sequenser is connected with bus.	Check the sequence is proper.	No	—	Yes
1- 00 to 41	MITSUBISHI link unit communication error MITSUBISHI	NAK is received from the sequenser, when MELSEC is used.	As error code in 2 digits (-XX) is indicated, refer to the manual for MITSUBISHI link-unit.	No	—	Yes
2 - 00 to 88	OMRON link-unit error OMRON ERR	The ending code for returned responded frame from the sequenser is not proper (00), when SYSMAC is used.	As the ending code in 2 digits (-XX) is indicated, refer to the manual for OMRON link-unit. The ending code AX is shown in the form of 8X.	No	—	Yes

65- XX Errors concerned with CC-Link

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
00	Station switch setting error("AREA NO SW")	The station No. switch setting is erroneous.	Set the station No. switch to the range of 1~61.	No	—	Yes
01	Baud rate switch setting error ("BAURATE SW")	The Baud rate switch setting is erroneous.	Set the Baud rate switch to the range of within 0~4.	No	—	Yes
02	Station No. switch change error ("AREA SW CG")	The station No. switch setting was changed during operation.	The station No. switch was changed during operation, or the station No. switch is erroneous.	No	—	Yes
03	Baud rate switch change error ("BAU SW CG")	The Baud rate switch was changed during operation.	The Baud rate switch was changed during operation, or the Baud rate switch is erroneous.	No	—	Yes
10	CRC error ("CRC ERROR")	An error occurred in CRC for over 10 seconds continuously.	Check the wiring. Check the terminal resistor.	No	—	Yes
11	Time-over error ("TIME OVER")	The response failed to be sent back from master(5sec), resulting in the generation of time-out.	Check the master station for wiring, start-up status and station No., and the Baud rate switch, terminal resistor, etc. for setting.	No	—	Yes
20	Master CPU stopping ("CPU STOP")	The master side PLC is stopping.	It is restored when the PLC is operated.	No	—	Yes
21	Master CPU error ("MASTER ER")	This is an error in CPU of master side PLC.		No	—	Yes

70 - XX TROUBLE RELATED TO DA OUTPUT

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
- 70 72	DA circuit error DA BUSY ON	The circuit of the DA is abnormal.	Turn off power once and turn on it again. If this error occurs very often, consult Yamato.	—	OFF	Yes
- 71 73	DA circuit error DA BOARD E	The circuit of the DA is abnormal.	Turn off power once and turn on it again. If this error occurs very often, consult Yamato.	—	OFF	Yes

9X - XX TROUBLE RELATED TO OTHER UNITS

XX	Problem and Error Message	Possible Cause	Recommended Action	Alarm output	System ready	Record
4 - 11	Error record initialized ER INIT'ZE	The structure of the error record table could be destroyed.	The initializing is performed automatically.	No	—	Yes
7 - 00 -01	Internal circuit error (Parallel-series circuit error) P / S CIRC'T	Trouble in internal circuit has been found.	Check LC wiring. Turn off power once and turn on it again.	No	Off	Yes
7- 10	Low battery voltage LOW BATT V	The battery for battery-backup voltage comes low.	Replace the battery with new one. If this error occurs very often, consult Yamato.	No	—	Yes
8 - 00 to 17	System reset RESET FFXX	Software resetting has occurred.	The resetting is performed automatically.	No	—	Yes
8 - 50	POWER ON	To keep error record, date and time the power is turned on will be recorded.	This is not trouble.	No	—	Yes
8 - 51	System restart INTERRUPT	Power interruption has been occurred.	This will reset automatically.	No	—	Yes
9 - 00	Operation starts OPERATION	To keep error record, time operation starts and stops are recorded.	This is not trouble.	No	—	Yes
9 - 01	No key operation NO KEY OP	The key operation is suspended.	This is not trouble.	No	—	No
9 - 02	Operation level does not allow the operation OP LEVEL	Operation not allowed was tried to be carried out or variant for reference only was tried to write.	Confirm the operation level or variant requirements.	No	—	No
9 - 03	Operation not allowed NO OPERATN	Item set to "DISABLE" was tried to perform, or AD self-diagnosis is tried to perform during product feeding.	These operation is not allowed.	No	—	No

Annex 4 - INPUT/OUTPUT CONNECTORS

1. Load Cell Connector, CON1

SIGNAL	PIN No.	CABLE COLOR
2	1	Black
3S	2	Brawn
3	3	White
5	4	Red
4	5	Green
4S	6	Yellow
(NC)	7	—
SE	8	Shield

2. Power Supply

AC 85 to 264 V

L
N
PE

3. Serial Input/Output, CN2

SIGNAL	FUNCTION	Pin No.	DEDICATED CABLE	
			Wire Color	Wire Mark
PE	Frame Earth	1	Blue	Red - 1
TX0	Serial 1, Sending Data	2	Blue	Black - 1
RX0	Serial 1, Receiving Data	3	Pink	Red - 1
RTS0	Serial 1, Request Sending	4	Pink	Black - 1
CTS0	Serial 1, Ready for Receiving	5	Green	Red - 1
GND	Earth for Signal	6	Green	Black - 1
TX2	Serial 3, Sending Data	7	Orange	Red - 1
GND	Earth for Signal	8	No Use	
RX2	Serial 3, Receiving Data	9	Gray	Red - 1
SEL	RS232C/RS422 Selection	10	No Use	
TX1	Serial 2, Sending Data	11	Blue	Red - 2
RX1	Serial 2, Receiving Data	12	Blue	Black - 2
TD +	RS422 Sending Data	13	Pink	Red - 2
TD -	- ditto -	14	Pink	Black - 2
RD +	RS422 Receiving Data	15	Green	Red - 2
RD -	- ditto -	16	Green	Black - 2
GND	Earth for Signal	17	Orange	Red - 2
EN	(not used)	18	Orange	Black - 2
GND	Earth for Signal	19	Gray	Red - 2
P5	(not used)	20	Gray	Black - 2

4. Control Input/Output, CN3

SIGNAL	FUNCTION	Pin No.	DEDICATED CABLE	
			Wire Color	Wire Mark
IN 1	Zero Memory	1	Blue	Red - 1
IN 2	Individual Print	2	Blue	Black - 1
IN 3	Tare Memory	3	Pink	Red - 1
IN 4	Tare Reset	4	Pink	Black - 1
IN 5	Weighing (Hold command)	5	Green	Red - 1
IN 6	Clearing Data	6	Green	Black - 1
IN 7	Hold command (Printing Data)	7	Orange	Red - 1
IN 8	Selection In or Ex	8	Orange	Black - 1
COM	Common	9	Gray	Red - 1
COM	Common	10	Gray	Black - 1
OUT 1	System Ready	15	Green	Red - 2
OUT 2	Zero Vicinity	16	Green	Black - 2
OUT 3	Prior Pre-Final/Full Feed	17	Orange	Red - 2
OUT 4	Pre-Final/Mid Feed	18	Orange	Black - 2
OUT 5	Target WT/Dribble Feed	19	Gray	Red - 2
OUT 6	Overweight	20	Gray	Black - 2
OUT 7	Acceptable Weight	21	Blue	Red - 3
OUT 8	Underweight	22	Blue	Black -3
OUT 9	Scale Over	11	Blue	Red - 2
OUT 10	Tare Memory Finish	12	Blue	Black - 2
OUT 11	In Weighing (Weighing Finish)	13	Pink	Red - 2
OUT 12	Settled	14	Pink	Black - 2
OUT 13	On Hold	25	Green	Red - 3
OUT 14	Zero Error	26	Green	Black - 3
OUT 15	CPU in Operation	27	Orange	Red - 3
OUT 16	Alarm	18	Orange	Black - 3
COM	Common	23	Pink	Red - 3
COM	Common	24	Pink	Black - 3

5. **BCD Input, A - CN1** (Optional connector)

SIGNAL	FUNCTION	Pin No.	DEDICATED CABLE	
			Wire Color	Wire Mark
IN 1	Settings 1	1	Blue	Red - 1
IN 2	Settings 2	2	Blue	Black - 1
IN 3	Settings 4	3	Pink	Red - 1
IN 4	Settings 8	4	Pink	Black - 1
IN 5	Settings 10	5	Green	Red - 1
IN 6	Settings 20	6	Green	Black - 1
IN 7	Settings 40	7	Orange	Red - 1
IN 8	Settings 80	8	Orange	Black - 1
IN 9	Settings 100	9	Gray	Red - 1
IN 10	Settings 200	10	Gray	Black - 1
IN 11	Settings 400	11	Blue	Red - 2
IN 12	Settings 800	12	Blue	Black - 2
IN 13	Settings 1000	13	Pink	Red - 2
IN 14	Settings 2000	14	Pink	Black - 2
IN 15	Settings 4000	15	Green	Red - 2
1N 16	Settings 8000	16	Green	Black - 2
IN 17	Settings 10000	17	Orange	Red - 3
IN 18	Settings 20000	18	Orange	Black -2
IN 19	Settings 40000	19	Gray	Red - 2
IN 20	Settings 80000	20	Gray	Black - 2
IN 21	Input Reading Product No.	21	Blue	Red - 3
IN 22	Input Reading Settings 1	22	Blue	Black - 3
IN 23	Input Reading Settings 2	23	Pink	Red - 3
IN 24	Input Reading Settings 3	24	Pink	Black - 3
OUT 24	Output Reading Settings 1/ Output Reading Product No.	25	Green	Red - 3
OUT 25	Output Reading Settings 2	26	Green	Black - 3
COM	Common	27	Orange	Red - 3
COM	Common	28	Orange	Black - 3

6. BCD Output, A - CN2 (Optional connector)

SIGNAL	FUNCTION	Pin No.	DEDICATED CABLE	
			Wire Color	Wire Mark
OUT 1	Weighing Data 1	1	Blue	Red - 1
OUT 2	Weighing Data 2	2	Blue	Black - 1
OUT 3	Weighing Data 4	3	Pink	Red - 1
OUT 4	Weighing Data 8	4	Pink	Black - 1
OUT 5	Weighing Data 10	5	Green	Red - 1
OUT 6	Weighing Data 20	6	Green	Black - 1
OUT 7	Weighing Data 40	7	Orange	Red - 1
OUT 8	Weighing Data 80	8	Orange	Black - 1
OUT 9	Weighing Data 100	9	Gray	Red - 1
OUT 10	Weighing Data 200	10	Gray	Black - 1
OUT 11	Weighing Data 400	11	Blue	Red - 2
OUT 12	Weighing Data 800	12	Blue	Black - 2
OUT 13	Weighing Data 1000	13	Pink	Red - 2
OUT 14	Weighing Data 2000	14	Pink	Black - 2
OUT 15	Weighing Data 4000	15	Green	Red - 2
OUT 16	Weighing Data 8000	16	Green	Black - 2
OUT 17	Weighing Data 10000	17	Orange	Red - 3
OUT 18	Weighing Data 20000	18	Orange	Black -2
OUT 19	Weighing Data 40000	19	Gray	Red - 2
OUT 20	Weighing Data 80000	20	Gray	Black - 2
OUT 21	Polarity	21	Blue	Red - 3
OUT 22	Renewing Data	22	Blue	Black - 3
OUT 23	Reading Settings Finished	23	Pink	Red - 3
IN 25	Request Data	24	Pink	Black - 3
IN 26	Data Output Selection Command 1	25	Green	Red - 3
IN 27	Data Output Selection Command 2	26	Green	Black - 3
COM	Common	27	Orange	Red - 3
COM	Common	28	Orange	Black - 3

7. Wiring Material

Power Supply	Solderless Terminal: 1.25-4
CON1	EJ750-60 (3 m), EJ750-70 (5 m)
CN2	ER969-50 (5 m)
CN3, A - CN1, A - CN2	ER968-30 (3 m), ER968-50 (5 m)