

CFC100-E

Yamato

L FEEDER CONTROLLER

USERS MANUAL

Yamato Scale Co. , Ltd.

198.4 2/27

CFC100 - E
USERS MANUAL

RECORD OF ISSUE

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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.

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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 need any change of or additional 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 shock 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 to it.

CAUTION NOTICES DURING INSTALLATION OR MAINTENANCE

DANGER

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

DANGER

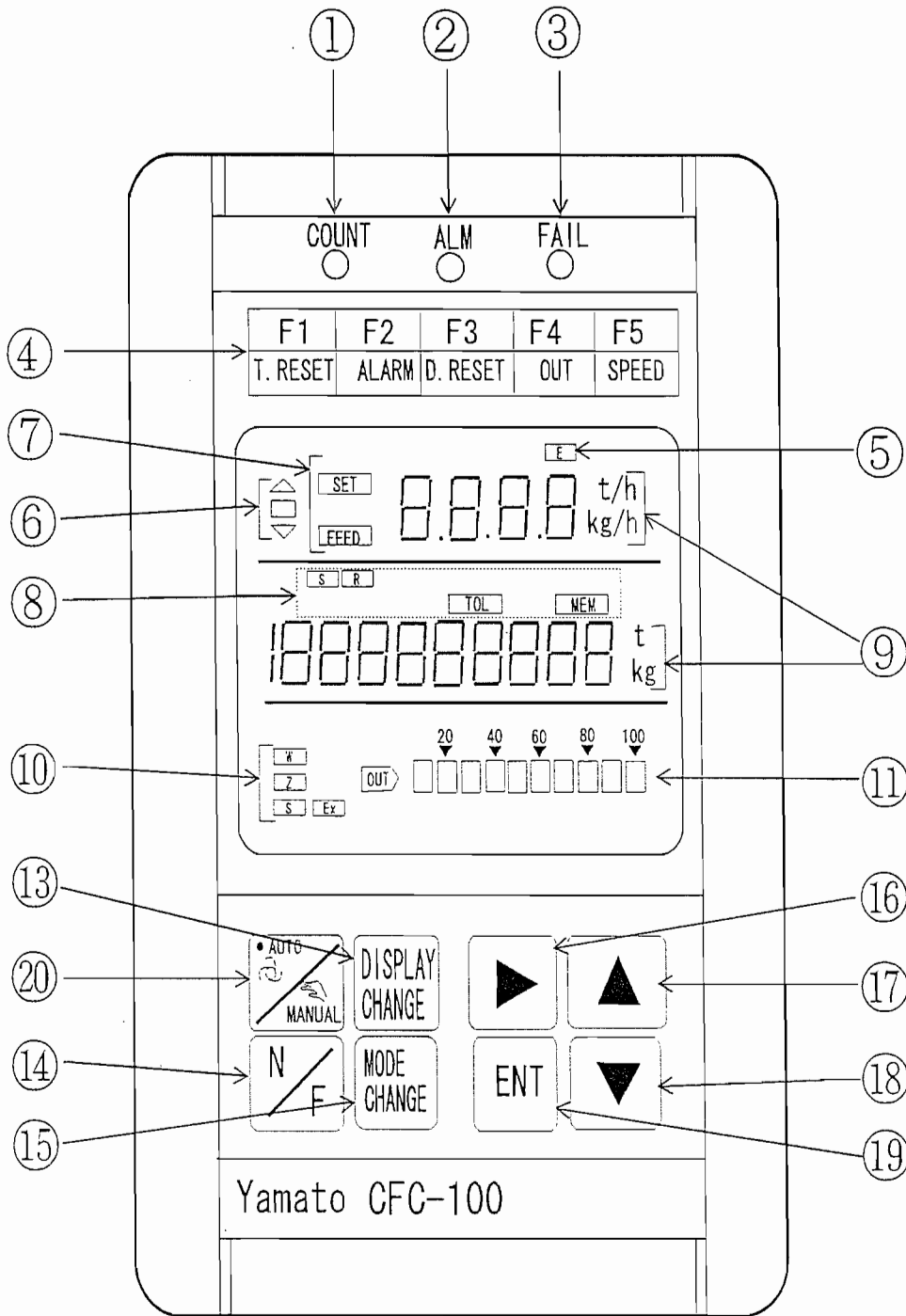
2. Be sure to ground the earth terminal of this instrument. Otherwise electrical shock would result severe personal injury or possible death in some cases, if it not avoided.

CONTENTS

Record of issue	
Preface	
DANGER, WARNING and CAUTION Notices	
Contents	
Chapter 1 - Machine Description	
1.1 Front Panel Layout	1
1.2 Front Panel - Part Name and Function	2
1.3 Rear Panel - Terminal Block & Wire Connection	4
Chapter 2 - Operation	
2.1 Feed Rate /Weight, etc.	7
2.2 How to change Preset Feed Rate	8
2.3 Product Feed in Manual and Automatic Operation	9
2.4 Operation Status Display	10
2.5 Ex-mode and Ratio Control Operation	11
Chapter 3 - Adjustment and Calibration	
3.1 Zero Adjustment	12
3, 2 Span Calibration.....	14
Chapter 4 - Function Mode	
4.1 Description of each Function	15
4.2 Function Data Change	16
4.3 Function Data	17
Chapter 5 - Alarm and Error Code	
5.1 Alarm Signal and Corrective action	27
5.2 Error Code	27
Chapter 6 - Attached Chapter	
6.1 Specification	30
6.2 Outside Drawing	32
6.3 Function Data Record Sheet	33

Chapter 1 - MACHINE DESCRIPTION

1. 1 Front Panel Layout



1.2 Front Panel - Part Name and Function

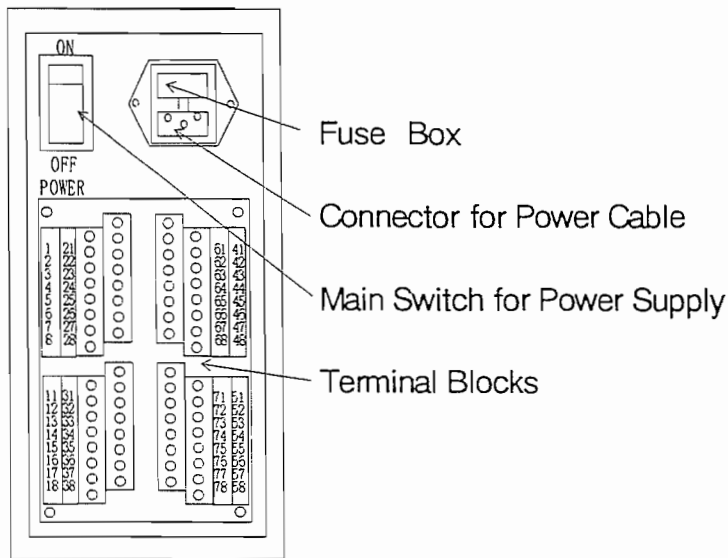
No.	Category	Name/ Symbol	Function
1	Indicator Lamp	COUNT	Starts blinking each time when the integrator advances during operation.
2		ALM	Lights when an alarm signal occurs, which can be caused with excessive weight, feed rate, or deviation, or preset feed rate error. F2 given in the Function Indicator below will call the alarm condition.
3		FAIL	Starts blinking when an incorporated unit or part is in trouble.
4	Function * Indication	F1 T. RESET	On F1 page of the menu the integrator is reset by depressing the [ENT] key (19).
		F2 ALARM	On F2 page of the menu alarm condition is called when alarm signal occurs.
		F3 D. RESET	On F3 page of the menu deviation is displayed in kg (or t) during automatic operation. The deviation is reset by depressing the [ENT] key (19).
		F4 OUT	On F4 page of the menu the control output is displayed in percent (%) of the maximum output.
5	Operation Status Lamp	E	Indicates when the system is running in Loss-of-Weight mode.
6	Deviation Indicator	▲	Lights when current feed rate exceeds the preset rate. This indicator starts blinking when exceeds further.
		■	Lights when current feed rate is around the preset feed rate.
		▼	Lights when current feed rate is below the preset rate. This indicator starts blinking when lowers further.
7	Display Data Indicator	SET	Indicates when the preset value is displayed
		FEED	Indicates when current feed rate is displayed.
		Indicates when the preset feed rate is displayed.	
8		R	Indicates when the preset ratio is displayed during ratio control in Ex-mode.
		TOL	Indicates when integrated value is displayed.
		MEM**	Is blinking or lights steadily when adjustment is performed.
9	Feed Rate / Weight Display	Feed Rate line	Displays current feed rate in t/h or kg/h when the product feed starts running, the FEED indicator will lights at that time.
		Weight line	Displays weight of product in the weigh hopper or integrated weight in kg or t.

Note (*): Refer to Chapter 4 - Function Mode for detailed procedures.

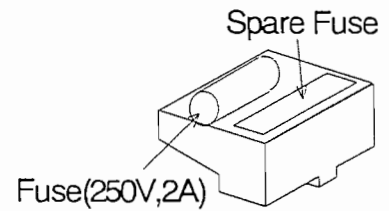
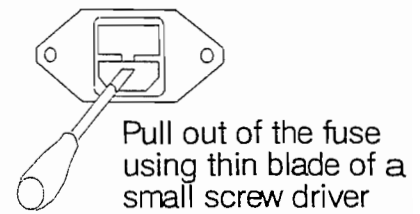
Note (**): Refer to Chapter 3 - Adjustment and Calibration for detailed procedures.

No.	Category	Name/ Symbol	Function
10	Operation status Indicators	W	Lights during product feed operation.
		Z	Lights in Zero adjustment mode.
		S	Lights in Span calibration mode.
		Ex	Lights to indicates the operation is controlled by external commands, when either individual operation or ratio control operation is selected externally.
11	Control output	OUT	Indicates control output in the 10 step level meter. ▲ or ▼ key is used to adjust the control output in manual operation mode.
13	Display Change Key	DISPLAY CHANGE	Used to select display between weight (including integrated value) and preset feed rate in normal operation. Or used to select function in Function mode.
14	Function Selection Key	N/F	Used to select display between Normal and Function.
15	Operation Status change	MODE CHANGE	Used to change operation mode. The operation mode is indicated in Operation status indicator (10).
16	Shift Key	(START) ▶	Used to change the display item during normal operation. The key lamp (LED) lights during the weigh hopper is replenished. Or used to shift the cursor (blinking place) to a digit to be changed in setting mode.
17 18	Increase or decrease Key	▲ ▼	Used to increase or decrease control output in manual operation mode. Or used to change the data selected by the Shift Key (16) in setting mode.
19	Enter key	ENT	Used to store adjusted value in memory in adjusting mode (Z or S). Or used to store the changed value in memory in preset value change. Or in function mode, (1) Used to reset integrated value in F1 mode. (2) Used to reset the deviation value in F3 (auto Operation) mode. (3) Used to shift to function data changing mode in F6 mode.
20	Operation mode selection key	AUTO/MA NUAL	Used to select the operation between Automatic and Manual. Key lamp (LED) will lights during Auto Operation. In Manual Operation mode, control output is adjusted with ▲ or ▼ key.

1.3 Rear Panel - Terminal Blocks and Wire Connections



How to change a fuse

**WARNING**

To connect the Main Power, use the dedicated cable and connect it to the socket with grounding terminal. Be sure to ground to permanent earth.

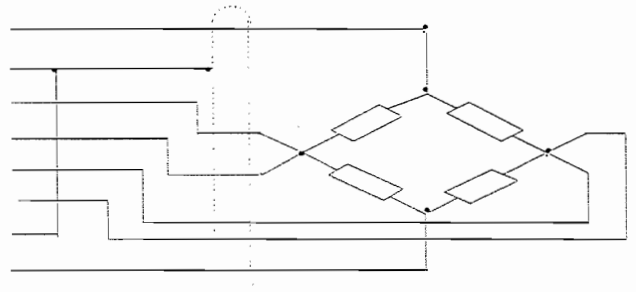
NOTE

Cautionary advise in connection at the terminal blocks

To connect the wires to the terminal blocks, use the dedicated screw driver (Japan Wide Mueller Ø486Ø.Ø) and follow the procedures below.

- (1) Use a single wire of $\varnothing.13$ to 2.0 mm^2 or flexible cores of $\varnothing.5$ to $1,5 \text{ mm}^2$.
- (2) Never use soldered wire.
- (3) Strip the core insulation about 7 mm long and insert the core from the side of the terminal block.
- (4) Fasten the terminal screw using the dedicated screwdriver, making a further half turn where the screw stops. Be careful not to fasten the screw excessively to avoid possible damage.
- (5) Make sure that the wire is tightened firmly. Check this by pulling it slightly afterwards.
- (6) If two wires are inserted in one terminal, make sure that the total cross section of the two wires not exceeds the value indicated above paragraph (1).

Terminal connection details

Terminal No.	MARK	NAME	DESCRIPTION
6	PRIN	Pulse Input	Terminal for setting pulse input.
7	COM1	Common	The terminals of 7, 8 and 18 are connected inside each other.
8	COM1	Common	
11	IN1	Auto Operation	Terminals for input of external signal. Each terminal can be used as the signal for "HOLDING OF SETTINGS" according to inside setting. *4
12	IN2	Start	
13	IN3	Being replenished	
14	IN4	Read External Settings	
15	IN5	One Touch Zero	
16	IN6	Reset One Touch Zero	
17	IN7	Reset Integrated value	
18	COM1	Common	
21	ANGSET (+)	Analog Setting Input	Used to set "INDIVIDUAL" and "RATIO" by analog signals of DC 4 - 20 mA or 1 - 5 V. An optional board is required. *3
22	ANGSET (-)	Common (Isolated)	
31	L2	Black	
32	E (COM1)		
33	L3	White	
34	L3 S	Brown	
35	L4	Green	
36	L4 S	Yellow	
37	E (COM1)		
38	L5	Red	
41	RY60	Relay 6	Contact capacity: AC 250 V, 1 A Max. DC 30 V, 1 A Max. Individual output signal from the relay varies depending on settings.
42	RY61	(Standard Feed Rate Lower Limit)	
43	RY30	Relay 3	
44	RY31	(Standard Feed Rate Upper Limit)	
45	OC1	Open Collector 1 (STD Overweight)	Negative Logic: DC 28 V 100 mA Max. Individual open collector output signal varies depending on settings. *5
46	OC2	Open Collector 2 (STD W Zero Vicinity)	
47	OC3	Open Collector 3 (STD W Upper Limit)	
48	OC4	Open Collector 4 (STD W Lower Limit)	

DANGER



Wiring must be performed by personnel who have enough mechanical and electrical knowledge and capable to carry out the work safely. Never perform wiring while power is on. This may cause possible personal injury or serious damage to the machine.

Terminal connection details (continued)

Terminal No.	MARK	NAME	DESCRIPTION
51	OC5	Open collector 5 (high speed pulse)	Negative logic, DC 28 V 100 mA Max. Output signal up to 125 Hz can be sent.
52	OC6	Open collector 5 (Ex-mode, std.)	Negative logic, DC 28 V 100 mA Max. Output signal can vary depending to internal setting.
53	FAIL	Operation Error	If the CPU is in trouble, an error signal (pulse) will be sent, which is 15 to 200 ms of ON, 400 to 600 ms of OFF.
54	CON1	Common	
55	A OUT 2 (+)	Analog output 2 (DC 4 - 20 mA output)	Can be selected to weight, feed rate or control output according to internal setting. Default is weight. *1 (The same as 54 - COM1)
56	A OUT 2 (-)	Common	
57	A OUT 3 (+)	Analog output 3 (DC 4 - 20 mA output)	Can be selected to weight, feed rate or control output according to internal setting. Default is weight. *1 To send this output signal, an optional board is required.
58	A OUT 3 (-)	Common (isolated)	
63	RY 40	Relay 4 (weight error, std.)	Contact capacity: AC 20 V, 1A Max DC 30 V, 1 A Max. Output signal varies depending on internal setting.
64	RY 41		
65	RY 20	Relay 2 (dev. out of limits, std.)	
66	RY 21		
67	RY 10	Relay 1 (request of replenish, std.)	
68	RY 11		
76	A OUT 1 (+)	Analog output 1 (DC 0 to 10 V)	Can be selected to weight, instantaneous discharge rate or control output according to internal setting. Default is control output. *2
77	A OUT 1 (+)	DC 4 to 20 mA *1	
78	A OUT 1 (-)	Common (isolated)	

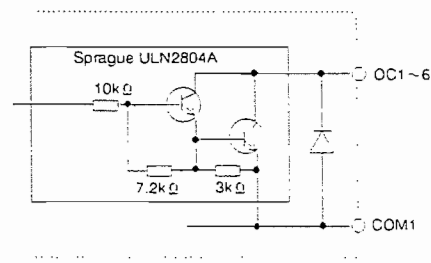
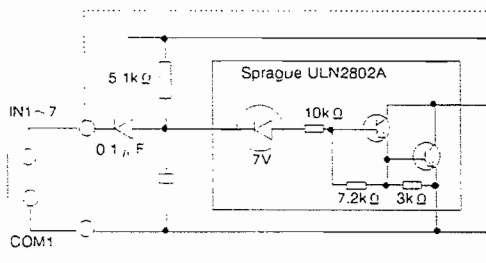
*1: Load resistance should be less than 500_ when output of DC 4 - 20 mA is applied.

*2: Load resistance should be less than 1 k_ when output of DC 0 - 10 V is applied.

*3: To input for setting with DC 4 - 20 mA signal, additional 250_ resistor is required.

*4 IN1- 7terminal requirements

*5 Open collector terminal requirements



CAUTION



Never use any terminal not defined for any purpose, because it is not available one.

Chapter 2 - OPERATION

Overview

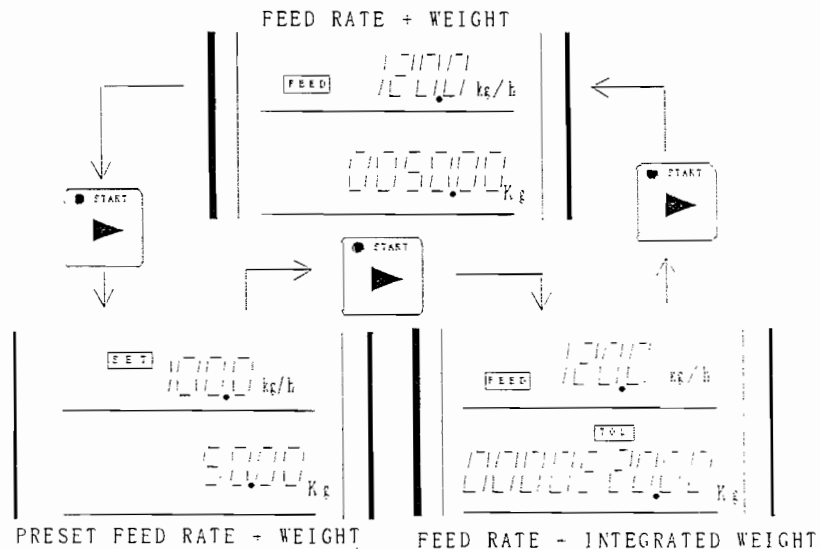
This chapter provides procedure for the operation, description of function mode and trouble shooting.

2.1 Feed Rate, Weight, Preset Feed Rate and Integrated Weight

FEED RATE + WEIGHT is displayed along with Display Data Indicator "FEED" when the operation starts. This display is referred to as INITIAL display. Note that FEED RATE means the current feed rate and WEIGHT the current weight of product in the weigh hopper.

Depress the [SHIFT] key "▶" (16) during the operation. Preset feed rate will be displayed in place of FEED RATE, when Display Data Indicator "SET" will light. Depress the [SHIFT] key again. The preset value will return to the current feed rate and the INTEGRATED WEIGHT will be displayed in place of WEIGHT, when Display Data Indicator "TOL" will light. To return to the INITIAL display (FEED RATE + WEIGHT), depress the [SHIFT] key again.

These displays will return to the INITIAL display if no key action is given for more than 60 seconds.



IMPORTANT

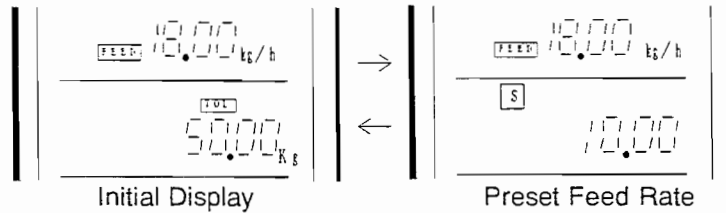


To return to the INITIAL display from any other display, depress the [FUNCTION SELECTION] key (14). When the [FUNCTION SELECTION] key (14) is depressed at the INITIAL display, FUNCTION will be displayed.

2.2 How to change Preset Feed Rate

- o Depress the [DISPLAY CHANGE] key. The preset Feed Rate will be displayed in place of WEIGHT, when the "S" lamp will light on the same line.

Depress the [DISPLAY CHANGE] key again . The display will return to the INITIAL display.



- o Enter the new setting value using keys [▲], [▼], [SHIFT], and [ENT]. These key functions are as follows:

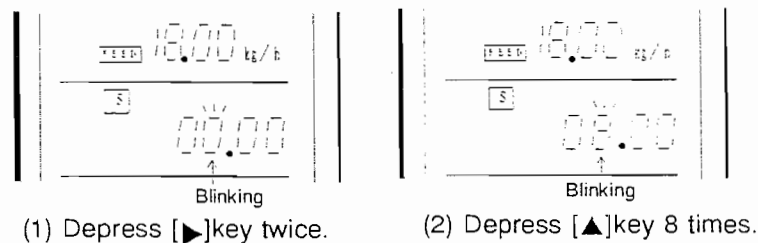
[SHIFT] ► (16) key: Used to move the digit to be changed. The selected digit will start blinking.

[▲] (17) key: Used to increase the setting value.

[▼] (18) key: Used to decrease the setting value.

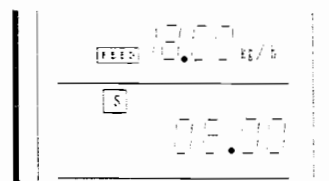
[ENT] (19) key: Used to store the changed value in memory.

- o An example to change the preset feed rate to 8.00 kg/h is given below.



(1) Depress [►]key twice.

(2) Depress [▲]key 8 times.



(3) Depress [ENT]key.

These displays will automatically return to the INITIAL display (FEED RATE + WEIGHT) if no key action has been carried out for more than 60 seconds.

2.3 Product Feed in Manual and Automatic Operation

Product feed is performed in Manual or Automatic operation. The operation mode is changed between Manual and Automatic operation alternatively when the [AUTO/MANUAL] key is depressed. Note that the key lamp lights during Automatic operation while turned off in Manual operation.

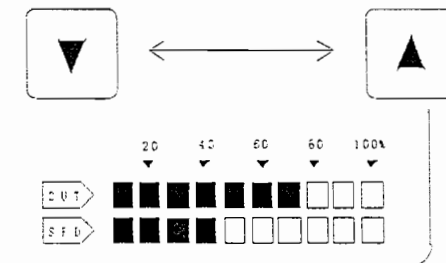


This key lamp is turned on in Automatic mode while off in Manual mode. When depressed, the operation mode will be changed alternatively

Manual Operation

The preset feed rate can be adjusted using key ▲ (increase) or ▼ (decrease) in Manual operation.

Depress one of these keys. The feed rate will change 1 % each time. Keep depressing the key. The feed rate will increase or decrease by 10 % each one second after the first one second has passed.



Automatic Operation

In Automatic operation the feed rate will be controlled automatically close to the preset feed rate.

The key lamp (LED) of [AUTO/MANUAL] key (20) lights.

The normal procedures to perform the Automatic operation are;

- (1) Preset the desired feed rate.
- (2) Change the operation mode to manual by depressing the [AUTO/MANUAL] key. Then, adjust speed of the feeder to get to near the desired feed rate.
- (3) Depress the [AUTO/MANUAL] key again to return the mode to automatic.

Note that start and stop will be controlled according to the total system.

2.4 Operation Status Display

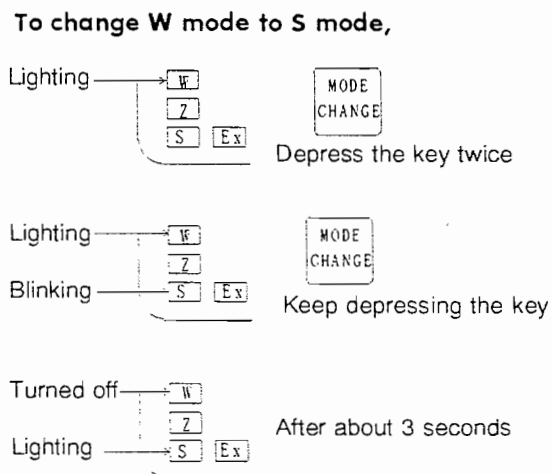
Operation of CFC 100 -E includes the following four modes:

- W :** Stands for weighing and normal operation of product feed is performed in this mode.
- Z :** Stands for Zero. One-touch Zero adjustment and its clearance, and Initial Zero setting is performed in this mode.
- S:** Stands for Span and Span Calibration is performed in this mode.
- Ex:** Stands for EXTERNAL. External setting and normal operation in Ex-mode, and RATIO control operation is performed in this mode.
External setting for both individual and ratio control using analog or pulse signal can be performed in this mode.

The procedures to change these modes are as follows:

To change the **W** mode to the other mode, depress the [MODE CHANGE] (15) key. The blinking operation status indicator (10) will move one step each time. Keep depressing the key for more than 3 seconds at the desired key, blinking lamp will change to steady lighting, then the mode change has been completed.

Refer to the illustration below.



Note that the lamp status will return to the initial condition if no key action is given for more than 60 seconds.

If no key action is carried out for more than 3 minutes in Z or S mode, the mode will return to W mode automatically.

2.5 Ex-mode and Ratio Control Operation

As described, to input preset feed rate or others externally or to perform Ratio Control operation, it is necessary to select the EX- mode.

Note that RATIO control operation is used in application of multiple product blending and ratio to the total feed rate is set for each product (each machine). The ratio is set only externally in Ex-mode.

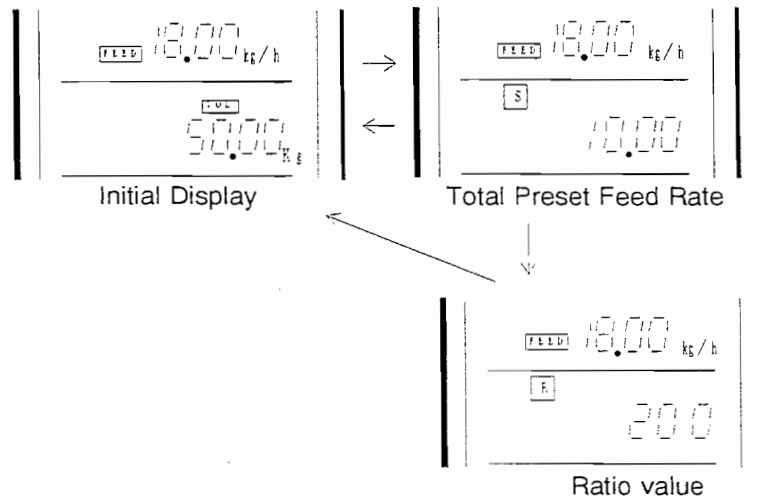
In the RATIO control operation the preset feed rate of the individual machine is given by

$$\text{Individual preset Feed Rate} = \text{Total preset Feed Rate} \times \text{Ratio value} / 100$$

- o When [DISPLAY CHANGE] key is depressed, the "S" lamp indicator will light and the total preset Feed Rate value will be displayed in place of the WEIGHT.

Then, the "R" indicator lamp lights and the ratio value will be displayed after the total preset value.

The following illustration shows display changes when the [DISPLAY CHANGE] key is depressed.



These displays other than the INITIAL display will return to it if no key action is given for more than 60 seconds.

Chapter 3 - ADJUSTMENT AND CALIBRATION

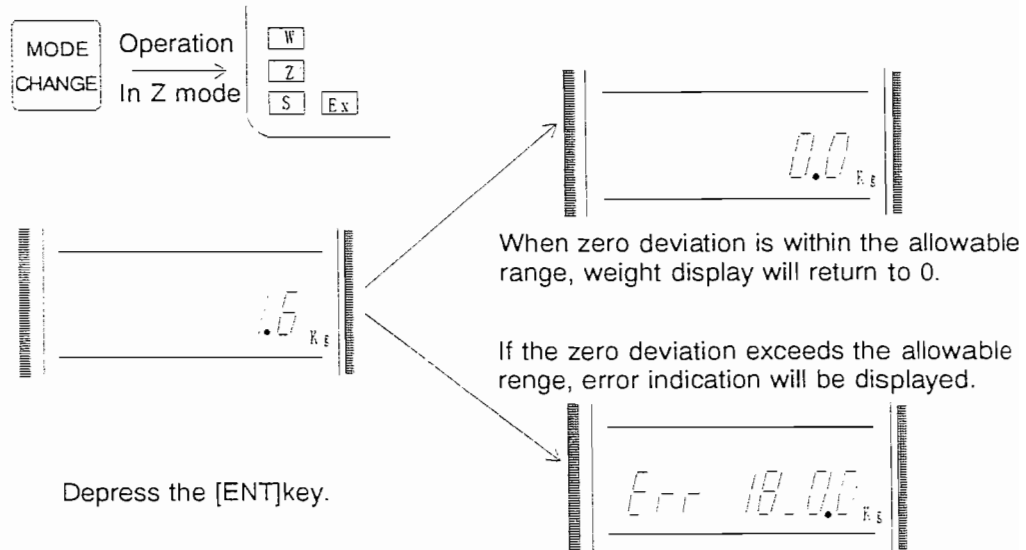
3. 1 Zero Adjustment

Zero adjustment is divided into two categories; one is One-touch Zero correction which is performed during normal operation and the other is Initial Zero setting which is performed when the system is installed or at periodical checking for maintenance.

3. 1. 1 One-touch zero correction

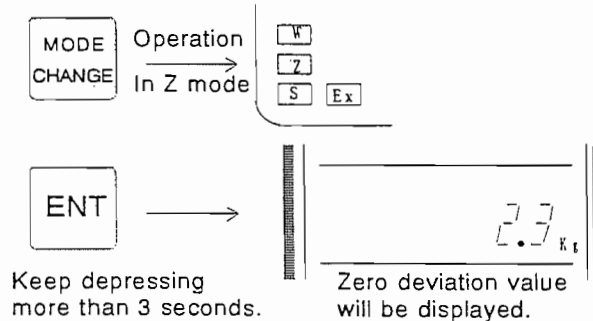
- (1) Change the operation mode to Z mode using the [MODE CHANGE] key.
- (2) Confirm that the weigh hopper is empty.
- (3) Perform One-touch zero correction;

Depress the [ENT] (19) key first. CFC100 will check itself if the one-touch zero correction is allowed or not. When zero deviation is within the allowable range (3 % of the scale capacity), weight display will be corrected to 0. If not, an error indication of ERR18 - 00 will be displayed. This means the zero adjustment has been failed.



3. 1. 2 One-touch Zero Correction Clearance

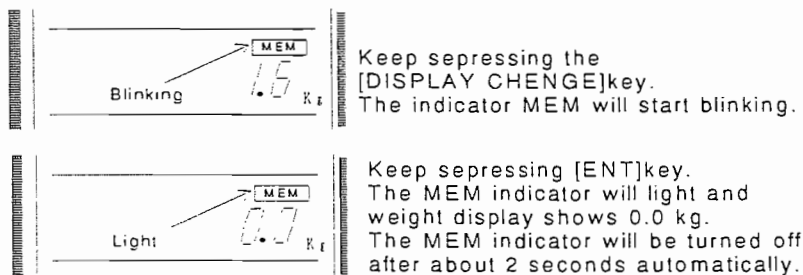
- (1) Change the operation mode to Z mode using the [MODE CHANGE] key.
- (2) To clear the correction value in the previous one-touch zero:
 - Keep depressing the [ENT] (19) key for more than 3 seconds. The correction value stored in memory will be cleared and the deviation from the INITIAL zero setting will be displayed.



3. 1. 3 Initial Zero Setting

- (1) Change the operation mode to Z mode using the [MODE CHANGE] key.
- (2) Confirm that the weigh hopper is empty.
- (3) To change the mode to the ONE-TOUCH WRITING mode, keep depressing the [DISPLAY CHANGE] key for more than 3 seconds. The MEM indicator will start blinking.
- (4) To perform the Initial Zero Setting;

Keep depressing the [ENT] key for about 1 second until the MEM indicator stops blinking. Zero Correction value will be stored at Address No. 0 of the Function Data and the weight display will show 0.0 kg, when the indicator MEM will light for about 2 seconds.



IMPORTANT



The mode to write the one-touch zero correction value is disabled by setting at Address No. 96.

A96_ 000



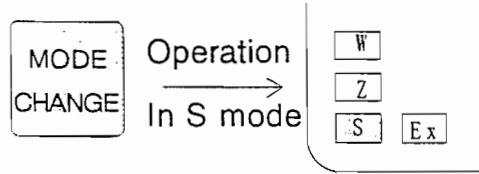
To disable writing one-touch zero correction value, set to "0".

To enable writing one-touch zero correction value, set to "1".

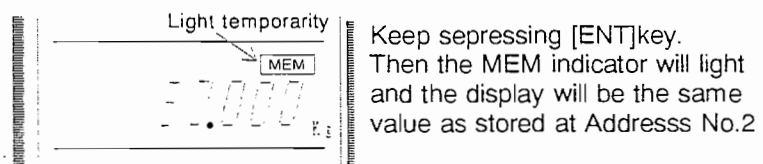
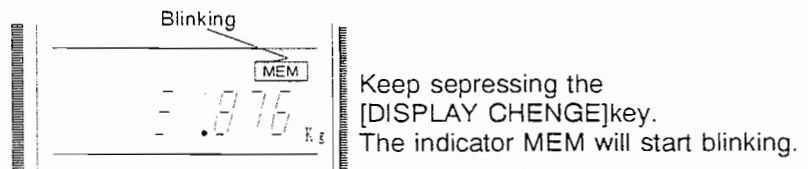
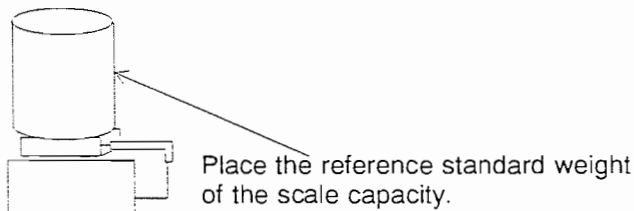
Be sure to set to "0" to disable writing after completion of the initial zero setting in order to prevent arbitrary change.

3.2 Span Calibration

- (1) Confirm that the weight hopper is empty and its display shows 0.0 kg. If not, perform the Initial Zero Setting (3. 1. 3).
- (2) Depress the [MODE CHANGE] key to change the mode to "S" Span Calibration.



- (3) Place the reference standard weight of capacity on the weigh hopper. Confirm that the capacity value which is stored at Address No. 2 of the Function Data corresponds to the weight value of the reference standard weight.
- (4) To change the mode to one-touch writing, keep depressing the [DISPLAY CHANGE] key for about 3 seconds. The MEM indicator will start blinking.
- (5) Keep depressing the [ENT] key for about 1 second until the MEM indicator stops blinking. Span calibration will be performed and the weight display will show the capacity value, when the MEM indicator will light for about 2 seconds.



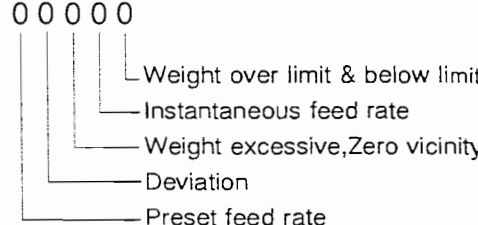
Chapter 4 - FUNCTION MODE

4. 1 Description of each Function

Depress the [FUNCTION SELECTION] (N/F) key (14) to select Function Mode. Then, depress the [DISPLAY CHANGE] key (13) to select one of the Functions from F1 to F6, as desired.

The description of each function is given in the following table.

Note that the function mode will automatically return to the INITIAL display if no key action is given for more than 60 seconds.

No.	FUNCTION NAME	DESCRIPTION
F1	Integrated Value Reset T. RESET	Used to reset integrated weight data. To reset it, depress the [ENT] (19) key.
F2	Alarm condition	Used to indicate alarm condition. Ø: Normal H: Upper Limit L: Lower Limit When an alarm signal occurs, the corresponding digit will shows its condition and start blinking. F2 0 0 0 0 0 
F3	Deviation Reset D. RESET	Used to determine deviation in weight and to reset it. To reset the deviation, depress [ENT] (19) key.
F4	Control Output OUT	Used to display control output level by 0.1 %. This output can be indicated more precisely than the output level meter.
F5	(not used)	
F6	Function Data Setting	Used to change setting parameters to determine correction value or working conditions for zero, span, etc. To display function data, depress the [ENT] key.

4.2 Function Data Change

Since the function data is important, it is necessary to keep records of these settings or changes.

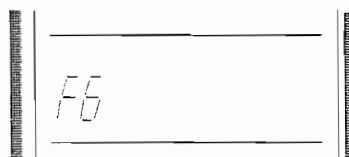
To change a parameter, perform it using [▲], [▼], and [SHIFT] (▶) keys as shown in the illustration below.

Key functions using in changing parameters are as follows:

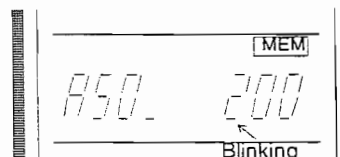
[SHIFT] (▶) key (16):	To move cursor (blinking place) to the right
[▲] key (17):	To increase the setting value.
[▼] key (18):	To decrease the setting value.
[ENT] key (19):	To store the setting value in memory.

To use the [ENT] key, keep depressing the key until the display is turned on. Note that the display will return to the INITIAL display when no key action is given for more than 30 seconds.

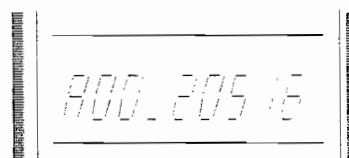
The illustration below shows the procedures, to change setting from 000 to 200 at Address No. 50.



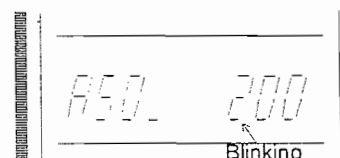
(1) Depress the [ENT]key.



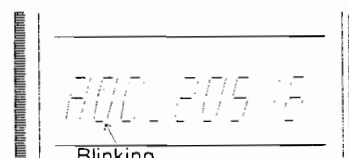
(5) Depress the [▲]key twice.



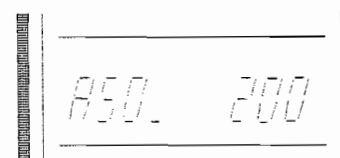
(2) Depress the [SHIFT]key.



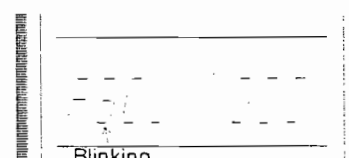
(6) Depress the [ENT]key.



(3) Depress the [▲]key 5times.



(7) Setting has been finished.
When the data has been stored, the MEM indicator will light temporarily.



(4) Depress the [SHIFT]key twice.

4.3 FUNCTION DATA

Table 1 - Setting Items related to WEIGHT

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
0		INITIAL	T__INT	10715	0	99999 9	Adjustment factor is automatically entered when initial adjustment is carried out. Don't change this factor.
1		SPAN	T__SPN	80000 0	0	99999 9	Span coefficient is automatically entered when span is determined. Don't change this value.
2		CAPACITY	T__STN	10000	0	99999 9	This value is a basic one for automatic span adjustment and analog weight output. (Output will be 20mA when weight comes to this value.)
3	2	UNIT	T__TNI	1	0	2	Select weight unit. 0: g, 1: kg, 2: t
	3	INCREMENT T	T__UNT	0	0	8	Select INCREMENT for weight display. 0: 1, 1: 2, 2: 5, 3: 10, 4: 20, 5: 50, 6: 100, 7: 200, 8: 500
	4	DECIMAL POINT	T__DT	3	0	3	Select decimal point. 0: 0000, 1: 000.0, 2: 00.00, 3: 0.000
	5	INTERVAL for R. A.	T__AV	2	0	4	Set INTERVAL for R. A. (Running Average). 0: 200ms, 1: 400ms, 2: 800ms 3: 1.6s, 4: 3.2s
4		FREQUENC Y DIVISION	T__DIV	5	1	500	Setting for higher calculation accuracy. This value is deduced from specific calculation, which is carried out by Yamato.
5		OVER- WEIGHT	T__ UPUP	11000	0	99999 9	When gross weight exceeds this value, weight display will be blinking and signal of overweight and its lamp will be sent.
6		ZERO VICINITY	T__ DNDN	100	0	99999 9	When gross weight comes below this value, signal for ZERO VICINITY (or Near Zero) and its lamp will be sent. This status referred to as empty.
7	4	H-LIMIT SETTING	T__ UPST	0	0	2	Set usually this value to 0.
	5	L-LIMIT SETTING	T__ DNST	0	0	2	Set usually this value to 0.
8		H-LIMIT	T__UP	9000	0	99999 9	When gross weight exceeds this value, signal of H-Limit and its lamp will be sent. Usually stop the replenishing motor with this signal. Replenishing request signal comes OFF when this signal is ON.
9		L-LIMIT	T__DN	1000	0	99999 9	When gross weight comes below this value, signal of L-Limit and its lamp will be sent. Usually start the replenishing motor with this signal.
10		H and L LIMIT ALARM HIS	T__HIS	100	0	99999 9	H-Limit signal comes ON when gross weight exceeds it. This signal comes OFF when gross weight comes below this setting. L-Limit signal will be OFF when gross weight exceeds L-Limit + this setting.

Note:

The guide mark shown in the MARK column will be displayed while the ▲ and ▼ are depressed together.

Table 2 - Setting Items related to FEED RATE

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
12	2	UNIT	F__TNI	4	0	5	Select UNIT for Feed Rate. 0: g/min, 1: kg/min, 2: t/min, 3: g/h, 4: kg/h, 5: t/h
	3	INCREMENT	F__UNT	1	0	8	Select increment for Feed Rate. 0:1, 1:2, 2:5, 3:10, 4:20, 5:50, 6:100, 7:200, 8:500.
	4	DECIMAL POINT	F__DP	2	0	3	Select decimal point for Feed Rate. 0: 0000, 1: 000.0, 2: 00.00, 3: 0.000
	5	INTERVAL for R. A.	F__AV	5	0	7	Select INTERVAL for R. A. (Running Average). 0: 200ms, 1: 400ms, 2: 800ms 3: 1.6s 4: 3.2s, 5: 6.4s, 6: 12.8s 7: 25.6s
13		MAX FEED RATE	F__STN	3600	0	9999	This value is basis for analog output of Feed Rate and for control operation. (When Feed Rate comes to equal to this value, output of 20mA will be sent.) Also, Over Limit signal for setting is sent outside when Feed Rate setting exceeds this value.
14		H-LIMIT	F__UP	3960	0	9999	When Feed Rate exceeds this value, H-Limit signal will be sent outside.
15		L-LIMIT	F__DN	360	0	9999	When Feed Rate comes below this value, L-Limit signal will be sent outside.
16		L-LIMIT for SETTING	S__DN	360	0	9999	L-Limit for Feed Rate setting value; L-Limit signal will be sent outside when Feed Rate setting value given from individual and ratio setting value is below this setting value.
17	2	W- or EX-OPERATION CHANGE-OVER	S__EX	1	0	1	Select one of the following 2 modes for change-over between W-operation and EX-operation: 0: With front panel, 1: With input signal
	3	MAX FEED RATE SETTING	S__STNS	0	0	4	Max feed rate is set with below: Usually set this value to 0. 0: Nothing used, 1: With Key, 2: With Pulses, 3: With Serial, 4: With Analog
	4	INCREMENT	S__UNT	3	0	8	Set this value when display is hard to read with flickering. When this value is set to, small value of display will be cut off but nothing is changed for inner calculation. 0:1, 1:2, 2:5, 3:10, 4:20, 5:50, 6:100, 7:200, 8:500
	5	SETTINGS FOR EX-OPERATION	S__STHO	0	0	1	When Ex-operation is switched over to W-operation, select the mode to keep Feed Rate settings at EX-operation during W-operation. 0: Not keep, 1: Keep.
18	2	INDIVIDUAL SETTING	S__SIH	2	0	4	This is for setting method for individual settings at EX-operation. 0: Standard (with key), 1: Key*, 2: Pulses, 3: not defined, 4: Analog
	3	DECIMAL POINT FOR INDIVIDUAL	S__SIDP	0	0	3	Set decimal point for Individual setting at Ex-operation. 0: The same as at Feed Rate setting, 1: One digit right from setting at Feed Rate 2: Two digits right from setting at Feed Rate.
	4	RATIO SETTING	S__RTH	1	0	4	Select setting method for Ratio Setting at EX-operation. 0: Standard (No Ratio setting), 1: Key, 2: Pulses, 3: not defined, 4: Analog
	5	DECIMAL POINT FOR RATIO OP	S__RTDP	1	0	3	Select decimal point for Ratio Setting at Ex-operation. 0: 0000, 1: 000.0, 2: 00.00, 3: 0.000

Note (18-2): Since "key-setting" is standard, "0" and "1" have the same meaning.

Table 3 - Setting Items related to DEVIATION WEIGHT

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
19		REFERENCE VALUE FOR INTEGRATED VALUE	D__STN	20	0	9999	Deviation indicator is controlled based on this Reference Value (RV). Deviation symbols, Δ , \square and ∇ , are controlled with this RV as follows. (Where ID means Integrated Deviation.) $ID > 2 \times RV$ Δ : Blinking by 0.6s $2 \times RV \geq ID > RV$ Δ : Blinking by 1.0s $RV \geq ID > 1/2 \times RV$ Δ : Always lit $1/2 \times RV \geq ID > -1/2 \times RV$ \square : Always lit $-1/2 \times RV \geq ID > -RV$ ∇ : Always lit $-RV \geq ID > -2 \times RV$ ∇ : Blinking by 1.0s-2 x RV $\geq ID$ ∇ : Blinking by 0.6s
20	5	DEVIATION RESET IN FEEDING	D__TRST	0	0	1	Select the function to reset deviation during replenishment. 0: Deviation reset during replenishment, 1: No reset. during replenishment,
21		H / L LIMIT FOR INTEGRATED VALUE	D__UPDN	0	0	9999	When absolute value of integrated value of deviation exceeds this value, H or L limit signal will be sent outside as control output.

Table 4 - Setting Items related to CONTROL OF FEEDING

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
22		CONSTANT FOR PROPORTION BAND	C__P	100	1	999	Use to set constant to proportional control. Optimum setting of this value will help quick control rise. Set usually to 100 or so.
23		INTEGRAL CONTROL CONSTANT	C__I	5	0	999	Used to set integral control constant. Increasing this constant makes control stable but taking rather long time for settlement. On the contrary, decreasing this constant makes quicker rise time (response) but rather unstable.
24	5	AUTO OPERATION SWITCH-OVER FROM OUTSIDE	C__EXAT	0	1	0	To enable switching-over Auto Operation outside. 0: Only with the front panel 1: Only with external input.

Table 5 - Setting Items related to REPLENISHMENT CONTROL SETTING

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
27		CONTROL OUTPUT DURING REPLENISHING	TRRET	100	000	199	Control output for replenishing is calculated as follows: Multiply by this setting the average for 60 sec of feed rate before replenishment which starts during auto operation. The output will be 100 % when set to 100.
28	1	SWITCHING-OVER OF INTEGRATING	TR_TOT	1	0	2	Select method to continue integrating during replenishment. 0: Stop counting for integrator. 1: Count integrated value proportional to setting. 2: Count with integrated value proportional to measured value before L-Limit.
	2	MANUAL FUNCTION	TR_HAND	0	0	1	Select function of manual replenishing. 0: No, 1: Enable
	3	REFERENCE for MANUAL REPLENISHING	TR_JU	3	0	9	Select reference weight for replenishing start. (% of capacity) 0: 0.0 %, 1: 0.2 %, 2: 0.4 %, 3: 0.6 %, 4: 0.8 % 5: 1.0 %, 6: 1.2 %, 7: 1.4 %, 8: 1.6 %, 9: 1.8 %
	4	START TIME for MANUAL REPLENISHING	TR_STA	2	0	4	When the weight increases or decreases around the reference value during the following time, it is judged to start replenishment and its signal is automatically set. 0: 0s, 1: 0.4s, 2: 0.8s, 3: 1.2s, 4: 1.6s
	5	STOP TIME for MANUAL REPLENISHING	TR_END	3	0	9	When the following time has passed after end of replenishing (weight value has changed to minus side), replenishing signal is automatically cleared. 0: 0s, 1: 5s, 2: 10s, 3: 15s, 4: 20s, 5: 25s, 6: 30s, 7: 35s, 8: 40s, 9: 45s

Table 6 - Setting Items related to OPERATION SETTING

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
29	3	STANDARD DISPLAY	DP_ST	0	0	2	Select item to be displayed as standard; 0: Feeding Rate + weight, 1: Preset values + weight, 2: Feeding Rate + Integrated value.
	4	ONE-TOUCH-ZERO	DS_ZR	0	0	3	Select way for zero setting and resetting; 0: Only with front zero PB. 1: Only with external signal, 2: With both front panel PB and external signal, 3: No one-touch-zero is used.
	5	INTEGRATED VALUE RESET	DS_TRS	0	0	3	Select way for integrated value setting and resetting; 0: Only with front PB, 1: Only with external signal, 2: With both front panel PB and external signal, 3: No integrated value resetting is used.

Table 7 - Setting Items related to PULSE INPUT

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
37		WEIGHT OF PULSE (NUMERATOR)	PI.UTC	20	0	9999	To perform settings for individual feed rate with pulses, set the pulse weight for numerator in 4 digits value given by $\text{Weight increment} \times 10^2$ (Address 18-3) / pulse weight For ratio feed rate, set the frequency at 100.0 % of ratio.
38		WEIGHT OF PULSE (DENOMINATOR)	PI.UT	1	0	9999	To perform settings for individual feed rate with pulses, set the pulse weight for denominator in 4 digits value given by $\text{Weight increment} \times 10^2$ (Address 18-3) / pulse weight]
39	5	INTERVAL FOR RUNNING AVERAGE IN PULSE SETTING	PI.AV	2	0	6	For setting with pulses, set interval in sec for running average: 0: 1s, 1: 2s, 2 ; 4s, 3: 8s, 4: 16s, 5: 32s, 6: 64s, 7: 128s

Table 8 - Setting Items related to ANALOG INPUT

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
41		INITIAL	AI.INI	0	0	4095	Set initial value for analog input as follows: Enter value at ZERO of analog input (ex. 4 mA when 4 - 20 mA system is applied) to both [41] and [42] in initial status and then calculate the setting given with the equation below. Settings = (Displayed value at Zero analog input) / (Reference value in analog input*) x 4095
42		SPAN	AI.SPN	4095	0	4095	Set span value for analog input as follows: After setting initial value to [41], set first the value of $4095 - (\text{settings at [41]})$ and then enter the analog SPAN input value (ex. 20 mA when 4 - 20 mA system is applied). Now, the setting will be given with the equation below. Settings = (Displayed value at Span analog input) / (Reference value in analog input) x 4095
43		INTERVAL FOR RUNNING AVERAGE	AI.AV	2	0	7	Set interval for Running Average in analog setting. 0: 1s, 1: 2s, 2 ; 4s, 3: 8s, 4: 16s, 5: 32s, 6: 64s, 7: 128s

Note(*): This reference value in the denominator means that the reference value for 100 % of analog input.

Table 9 - Setting Items related to PARALLEL INPUT

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
45	1	IN 1 (AUTOMATIC OPERATION) SELECTION	PI_ST1	0	0	9	Set IN 1 to ON. This selects Automatic Operation in standard. To enable this function, it is necessary to perform settings in [24].
	2	IN2 (START) SELECTION	PI_ST2	0	0	9	Set IN 2 to ON. This selects Starting of Operation in standard. Weighing will stop along with deviation reset if this signal comes OFF.
	3	IN 3 (REPLENISH- MENT) SELECTION	PI_ST3	0	0	9	Set IN 3 to ON. This selects Replenishing Operation in standard. The start LED on the Shift Key is lit during replenishment.
	4	IN 4 (EXTERNAL) SELECTION	PI_ST4	0	0	9	Set IN 4 to ON. This selects External Setting in standard. To enable this function, It is necessary to perform setting of [17-2].
	5	IN 5 (ONE- TOUCH-ZERO SETTING) SELECTION	PI_ST5	0	0	9	Set IN 5 to ON. This selects Zero Adjustment in standard To enable this function, It is necessary to perform setting of [29-4].
46	4	IN 6 (RESET OF ONE-TOUCH ZERO) SELECTION	PI_ST6	0	0	9	Set IN 6 to ON. This selects Resetting of Zero Adjustment in standard To enable this function, it is necessary to perform setting of [29-4].
	5	IN 7 (RESET OF INTEGRATED VALUE) SELECTION	PI_ST7	0	0	9	Set IN 7 to ON. This selects Reset of Integrated Value in standard To enable this function, it is necessary to perform setting of [29-5].

- Note: (1) The above setting will change Allocation of input signals.
 (2) When "0" is set to, "DEFAULT" in the left column is effective.
 (3) If "1" is set, "HOLD" of its setting is effective.

Table 10 - Setting Items related to PULSE OUTPUT

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
47	4	WIDTH OF LOW SPEED PULSE	PO_LB	0	0	7	Select width of low speed pulse output. When "0" is selected, optimum value based on setting of machine capacity will be selected automatically. 0: Automatic, 1: 10ms, 2: 50ms, 3: 100ms, 4: 200ms, 5: 500ms, 6: 1s, 7: 2s
	5	WIDTH OF HIGH SPEED PULSE	PO_HB	0	1	9	Select width of high speed pulse output. When "0" (standard) is selected, optimum value based on setting of machine capacity will be selected automatically. 0: Standard (automatic), 1: 4ms, 2: 8ms, 3: 10ms, 4: 20ms, 5: 30ms, 6: 40ms, 7: 50ms, 8: 80ms, 9: 100ms
48		FREQUENCY DIVIDING RATIO FOR HIGH SPEED PULSE	PO_BUN	10	1	999	This is to set weight of high speed pulse to be sent outside.
49		FREQUENCY DIVIDING RATIO FOR LOW SPEED PULSE	PO_LBU	10	1	999	This is to set weight of low speed pulse to be sent outside. This should be set so that the output frequency of the low speed pulse may not exceed 10 Hz.

Table 11 - Setting Items related to ANALOG OUTPUT

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
50	3	I (STANDARD, CONTROL OUTPUT) ALLOCATION	AO_ST1	0	0	4	Selection of analog output signal 1: 0: Standard (control output), 1: Control output, 2: Weight output, 3: Feed rate output, 4: No output
	4	II (STANDARD, WEIGHT OUTPUT) ALLOCATION	AO_ST2	0	0	4	Selection of analog output signal 2: 0: Standard (weight output), 1: Control output, 2: Weight output, 3: Feed rate output, 4: No output
	5	III (STANDARD, FEED RATE OUTPUT) ALLOCATION	AO_ST3	0	0	4	Selection of analog output signal 3: 0: Standard (Feed rate output), 1: Control output, 2: Weight output, 3: Feed rate output, 4: No output
51		INITIAL for I	AO_IIN	100	0	999	Fine adjustment of zero between 1.6 to 6.4 mA for analog output 1: 0: 1.6mA, 100: 4.0mA, 200: 6.4mA
52		SPAN for I	AO_ISP	1000	0	9999	Fine adjustment of span for analog output 1: 0: 0mA, 500: 8mA, 1000: 16mA
53		INITIAL for II	AO_2IN	100	0	999	Fine adjustment of zero between 1.6 to 6.4 mA for analog output 2: 0: 1.6mA, 100: 4.0mA, 200: 6.4mA
54		SPAN for II	AO_2SP	1000	0	9999	Fine adjustment of span for analog output 2: 0: 0mA, 500: 8mA, 1000: 16mA
55		INITIAL for III	AO_3IN	100	0	999	Fine adjustment of zero between 1.6 to 6.4 mA for analog output 3: 0: 1.6mA, 100: 4.0mA, 200: 6.4mA
56		SPAN for III	AO_3SP	1000	0	9999	Fine adjustment of span for analog output 3: 0: 0mA, 500: 8mA, 1000: 16mA

Table 12 - Setting Items related to OPEN COLLECTOR OUTPUT

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
58	1	OC 6 MODE (Standard, Ex-Operation)	OC_ST6	0	0	3	Allocation for Open Collector: 0: Standard (Allocation of terminals as standard) 1: Special ("OR" output for any 5 signals can be selected among Allocation Group1) 2: Special ("OR" output for any 5 signals can be selected among Allocation Group2) When above 1 or 2 is selected, settings have to be carried out for Address 59 to 63
	2	OC 4 MODE (Standard, Weight L-Limit)	OC_ST4	0	0	3	
	3	OC 3 MODE (Standard, Weight H-Limit)	OC_ST3	0	0	3	
	4	OC 2 MODE (Standard, Zero vicinity)	OC_ST2	0	0	3	
	5	OC 1 MODE (Standard, Overweight)	OC_ST1	0	0	3	

Table 13 - Setting Items related to OPEN COLLECTOR SETTING

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L- LIMIT	H-LIMIT	DESCRIPTION
59	1	OC 5 SETTING 5	OC_DF5	Ø	Ø	8	Specific allocation for each open collector is set as follows: Up to 5 settings are possible to each Address all of which are set to ON when one of them is set to ON.
	2	OC 5 SETTING 4	OC_DF5	Ø	Ø	8	
	3	OC 5 SETTING 3	OC_DF5	Ø	Ø	8	
	4	OC 5 SETTING 2	OC_DF5	Ø	Ø	8	
	5	OC 5 SETTING 1	OC_DF5	Ø	Ø	8	
60	1	OC 4 SETTING 5	OC_DF4	Ø	Ø	8	Specific Allocation 1 Ø: No output 1: Request for replenishment 2: Not defined 3: H-Limit of Feed 4: L-Limit of Feed 5: Overweight 6: Zero Vicinity 7: H-Limit of Weight 8: L-Limit of Weight
	2	OC 4 SETTING 4	OC_DF4	Ø	Ø	8	
	3	OC 4 SETTING 3	OC_DF4	Ø	Ø	8	
	4	OC 4 SETTING 2	OC_DF4	Ø	Ø	8	
	5	OC 4 SETTING 1	OC_DF4	Ø	Ø	8	
61	1	OC 3 SETTING P5	OC_DF3	Ø	Ø	8	Specific Allocation 2 Ø: No output 1: Weight Error 2: H-Limit of Deviation 3: L-limit of Deviation 4: H-Limit of Setting 5: L-Limit of Setting 6: On Ex-operation 7: Automatic Operation 8: On Operation
	2	OC 3 SETTING 4	OC_DF3	Ø	Ø	8	
	3	OC 3 SETTING 3	OC_DF3	Ø	Ø	8	
	4	OC 3 SETTING 3	OC_DF3	Ø	Ø	8	
	5	OC 3 SETTING 1	OC_DF3	Ø	Ø	8	
62	1	OC 2 SETTING 5	OC_DF2	Ø	Ø	8	Ex. For Feeding Rate allocation to Open Collector 2 with H-Limit and L-Limit connected with "OR"; setting should be as follows: A58_00010 A62_34000
	2	OC 2 SETTING 4	OC_DF2	Ø	Ø	8	
	3	OC 2 SETTING 3	OC_DF2	Ø	Ø	8	
	4	OC 2 SETTING 2	OC_DF2	Ø	Ø	8	
	5	OC 2 SETTING 1	OC_DF2	Ø	Ø	8	
63	1	OC 1 SETTING 5	OC_DF1	Ø	Ø	8	
	2	OC 1 SETTING 4	OC_DF1	Ø	Ø	8	
	3	OC 1 SETTING 3	OC_DF1	Ø	Ø	8	
	4	OC 1 SETTING 2	OC_DF1	Ø	Ø	8	
	5	OC 1 SETTING 1	OC_DF1	Ø	Ø	8	

Table 14 - Setting Items related to RELAY SETTING

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L-LIMIT	H-LIMIT	DESCRIPTION
64	1	RELAY 6 MODE (STD, Feed L-Limit)	RY_ST6	∅	∅	3	<p>Relay Allocation:</p> <p>∅: Standard Terminal allocation as standard.</p> <p>1: Special 1 Select 5 signal in Group 1 for "OR" output</p> <p>2: Special 2 Select 5 signal in Group 2 for "OR" output</p> <p>When above 1 or 2 is selected, settings for Address 65 to 69 are necessary.</p>
	2	RELAY 4 MODE (STD, Wt error)	RY_ST5	∅	∅	3	
	3	RELAY 3 MODE (STD, Feed H-Limit)	RY_ST5	∅	∅	3	
	4	RELAY 2 MODE (STD, DV H / L-Limit)	RY_ST5	∅	∅	3	
	5	RELAY 2 MODE (STD, Request for Feed)	RY_ST5	∅	∅	3	
65	1	RY5 SETTING 5	RY_DF5	∅	∅	8	<p>Specific allocation for each relay is set as follows up to 5 settings are possible to each Address all of which are set to ON when one of them is set to ON.</p> <p>Specific Allocation 1</p> <p>∅: No output 1: Request for Replenishmen 2: Not defined 3: H-Limit of Feed 4: L-Limit of Feed 5: Overweight 6: Zero Vicinity 7: H-Limit of Weight 8: L-Limit of Weight</p> <p>Specific Allocation 2</p> <p>∅: No output 1: Weight Error 2: H-Limit of Deviation 3: L-limit of Deviation 4: H-Limit of Setting 5: L-Limit of Setting 6: On Ex-operation 7: Automatic Operation 8: On Operation</p> <p>Ex. To send on Relay 4 signal of Auto Operation and on Operation connected with "OR"</p> <p>setting should be as follows</p> <p>A64_02000 A66_78000</p>
	2	" 4	RY_DF5	∅	∅	8	
	3	" 3	RY_DF5	∅	∅	8	
	4	" 2	RY_DF5	∅	∅	8	
	5	" 1	RY_DF5	∅	∅	8	
66	1	RY4 SETTING 5	RY_DF4	∅	∅	8	<p>Specific Allocation 2</p> <p>∅: No output 1: Weight Error 2: H-Limit of Deviation 3: L-limit of Deviation 4: H-Limit of Setting 5: L-Limit of Setting 6: On Ex-operation 7: Automatic Operation 8: On Operation</p> <p>Ex. To send on Relay 4 signal of Auto Operation and on Operation connected with "OR"</p> <p>setting should be as follows</p> <p>A64_02000 A66_78000</p>
	2	" 4	RY_DF4	∅	∅	8	
	3	" 3	RY_DF4	∅	∅	8	
	4	" 2	RY_DF4	∅	∅	8	
	5	" 1	RY_DF4	∅	∅	8	
67	1	RY3 SETTING 5	RY_DF3	∅	∅	8	<p>Specific Allocation 2</p> <p>∅: No output 1: Weight Error 2: H-Limit of Deviation 3: L-limit of Deviation 4: H-Limit of Setting 5: L-Limit of Setting 6: On Ex-operation 7: Automatic Operation 8: On Operation</p> <p>Ex. To send on Relay 4 signal of Auto Operation and on Operation connected with "OR"</p> <p>setting should be as follows</p> <p>A64_02000 A66_78000</p>
	2	" 4	RY_DF3	∅	∅	8	
	3	" 3	RY_DF3	∅	∅	8	
	4	" 2	RY_DF3	∅	∅	8	
	5	" 1	RY_DF3	∅	∅	8	
68	1	RY2 SETTING 5	RY_DF2	∅	∅	8	<p>Specific Allocation 2</p> <p>∅: No output 1: Weight Error 2: H-Limit of Deviation 3: L-limit of Deviation 4: H-Limit of Setting 5: L-Limit of Setting 6: On Ex-operation 7: Automatic Operation 8: On Operation</p> <p>Ex. To send on Relay 4 signal of Auto Operation and on Operation connected with "OR"</p> <p>setting should be as follows</p> <p>A64_02000 A66_78000</p>
	2	" 4	RY_DF2	∅	∅	8	
	3	" 3	RY_DF2	∅	∅	8	
	4	" 2	RY_DF2	∅	∅	8	
	5	" 1	RY_DF2	∅	∅	8	
69	1	RY1 SETTING 5	RY_DF1	∅	∅	8	<p>Specific Allocation 2</p> <p>∅: No output 1: Weight Error 2: H-Limit of Deviation 3: L-limit of Deviation 4: H-Limit of Setting 5: L-Limit of Setting 6: On Ex-operation 7: Automatic Operation 8: On Operation</p> <p>Ex. To send on Relay 4 signal of Auto Operation and on Operation connected with "OR"</p> <p>setting should be as follows</p> <p>A64_02000 A66_78000</p>
	2	" 4	RY_DF1	∅	∅	8	
	3	" 3	RY_DF1	∅	∅	8	
	4	" 2	RY_DF1	∅	∅	8	
	5	" 1	RY_DF1	∅	∅	8	

Table 15 - Setting Items related to MAINTENANCE AND SELF DIAGNOSIS

ADDRESS	DIGIT	ITEM	MARK	DEFAULT	L- LIMIT	H-LIMIT	DESCRIPTION
96	3	PERMISSION TO WRITE FUNCTION DATA	H__ENS	1	0	1	Used to inhibit changing function data. No change except for Address 96 is allowed when it is set to "0". Set it to "0" when setting is finished. 0: Inhibit setting change 1: Allow setting change
	4	PERMISSION TO ONE-TOUCH WRITING	H__ENC	1	0	1	Used to inhibit changing Initial Adjustment or Span Calibration. 0: Inhibit changing 1: Permit changing
	5	START OF TEST MODE	H__ENT	0	0	1	Set this usually to "0".
97		SELF-DIAGNOSIS	H__STOP				To reset count, use ENT key.
98			H__VSON				

Chapter 5 - ALARM and ERROR CODE

5.1 Alarm signal and corrective action

If an alarm signal occurs, the ALM indicator lamp will light. As explained in Chapter 4 - Function Mode, the alarm condition is displayed in the WEIGHT line when F2 is selected. You will find a corrective action against each alarm condition in the table below.

No.	ALARM INDICATION (F2)	ALARM CONDITIONS and CORRECTIVE ACTION
1	Weight Over H-limit 0 0 0 0 H	Product in the weigh hopper exceeds the upper limit. Stop supplying product upon this signal is given.
2	Weight Below L-limit 0 0 0 0 L	Product in the weigh hopper is below lower limit. Start supplying product upon this signal is given.
3	Feed rate Over H-limit 0 0 0 H 0	Excessive current feed rate over its capacity. The motor could be overrunning.
4	Feed rate Below L-limit 0 0 0 L 0	Inadequate current feed rate. The motor could stop or shortage of product in the weigh hopper.
5	Weight Excessive 0 0 H 0 0	Product in the weigh hopper exceeds further the upper limit.
6	Weight Zero vicinity 0 0 L 0 0	No product in the weigh hopper.
7	Deviation Over H-limit 0 H 0 0 0	Excessive deviation of the current feed rate over the preset value.
8	Deviation Below L-limit 0 L 0 0 0	Excessive deviation of the current feed rate below the preset value
9	Preset F Rate Over H-limit H 0 0 0 0	Excessive preset feed rate over allowable range. It is necessary to perform preset the correct feed rate.
10	Preset F Rate Below L-limit L 0 0 0 0	Inadequate preset feed rate below allowable range. It is necessary to perform preset the correct feed rate.

CAUTION



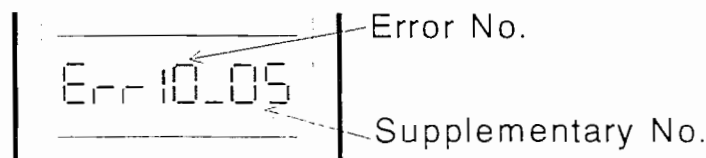
Corrective action at trouble must be carried out by a qualified person who has enough mechanical and electrical knowledge and is capable to perform safe work.

5.2 Error Code

CFC100 is always performing self-diagnosis and the weight display will be automatically switched the weight display will be automatically switched to an error code, if occurs, as shown in the illustration right-hand.

The first two digits of the error code indicate error number and next two digits supplementary number. Refer to the separate Error Code table for details.

Although this error code is cleared by depressing DISPLAY CHANGE key (13), it will be displayed again after 1 minute if cause of the error has not been removed.



No.	Aux. No.	ERROR CONTENTS	RESETTING PROCEDURE
1	1	RAM error	Turn on power source again. When this error occurs several times repeatedly, RAM is in error, which will require the replacement of CFC-100. * Perform this check only when turning on power source.
	3	ROM error	Re-turn on power source. If this error occurs several times repeatedly, ROM is in error, which requires replacement of CFC-100. * Perform this check only when turning on power source.
2	1	Error in A/D conversion unit	Turn on power source again. If this error occurs several times repeatedly, A/D conversion unit is in error, which requires replacement.
	2	Load cell wiring failure	Intermediate wiring to load cell is erroneously connected, or is disconnected. Check intermediate wiring.
10	1	One-touch zero	Execute re-setting after zero adjustment.
	2	Integrated value	Integrated value is cleared automatically.
	3	Weighting mode	W-operation is started automatically.
	4	Automatic operation	Automatic operation stopped automatically.
	5	W-mode independent value	Execute re-setting by key.
	6	EX-mode independent value	Execute re-setting by external input.
	8	Ex-mode proportion value	Execute re-setting by external input.
	10	Error number of power failures	Address-97 of setting data is broken. Address-97 is called and input enter key.
	11~16	The others	Error indicated for a moment, but it returned automatically.
11	XX	EEROM parity error	After clearing error display, set correct value to address shown by aux. No.
16	XX	Function date	Setting value was input out of address setting range shown by aux. No. Execute re-setting after checking setting rang.
17	0	Definition of same contents for input terminal	Check that same input as contents at address is not defined.
18	0	One-touch zero error	Weight value exceeded $\pm 3\%$ of weighing capacity. After scale confirmed, perform one-touch zero adjustment again.
	1	High-speed pulse setting value error	High-speed pulse output saturated during max. capacity or weighing. Change capacity or set high-speed pulse dividing value to great value.
	2	Span Calibration	It was not adjustment, because of present setting need output run short of road cell. Confirm setting value and adjustment value again.
30	XX	Writing impossible to EEROM	Writing impossible was depress for turn on a light MEM indication. Re-write value to address shown by aux. No. after clearing error display. If this error occurs again, EEROM is in error, which requires replacement of CFC-100.
31	1	[AUTO/MANUAL]	Key input was made when it is not permitted. Cleared automatically one second after.
	2	[N/F]	
	3	[DISPLAY CHA.]	
	4	[MODE CHANGE]	
	5	[SHIFT]	
	6	[▲]	
	7	[▼]	
	8	[ENT]	

No.	Aux. No.	ERROR CONTENTS	RESETTING PROCEDURE
32	2	Auto change	Key input was made when it is not permitted.
	3	One-touch zero correction	
	4	Integrated value reset	
41	1	Independent setting value exceeded 9999.	Check independent setting value.
	2	Independent setting error	Key input was made when it is not permitted.
42	1	Proportion setting value exceeded 9999.	Check proportion setting value.
	2	Proportion setting error	Key input was made when it is not permitted.
50	0	Input external terminal	I/O data reading error. Error occurs internally. Execute re-checking after clearing error.
52	1	Ex change	External input signal was made when it is not permitted
	2	Auto change	
	3	One-touch zero correction	
	4	Integrated value reset	
54	0	High -speed pulse output saturate	High -speed pulse output saturate during max. capacity or weighing.

Chapter 6 - ATTACHED CHAPTER

6.1 Specification**6.1.1 General**

Type	: CFC-100(EH370)
Power source	: AC85~264V, 50/60Hz, 20VA
Working temp. range	: 0~50°C
Working humidity range	: 45%~85%
Outside dimension	: 175(H)×100(W)×350(D)mm
Weight	: 4kg

6.1.2 Analog unit

Analog input - Resolution	: $\pm 0.7 \mu\text{V}/\text{count}$
- Full-scale	: 30mV
- Filter	: 2Hz, tertiary
Excitation output	: DC10V, 150mA, remote-sensing differential method
A/D Type	: Double integration type, Conversion speed 25 times/sec
Non-linearity	: $\pm 0.01\%$
Temperature coefficient-zero	: $0.25 \mu\text{V}/^\circ\text{C}$
-span	: $\pm 50\text{ppm}/^\circ\text{C}$

6.1.3 Display(liquid crystal display)

Setting value / feed rate	: LCD 4 digits Change over by key input.
Contents weight / integrator: Contents weight....5 digits	
	Integrator can display up to 9 digits by changeover.
Deviation meter	: LCD level meter
Control output	: Ditto
Operation mode	: LCD display of W, Z, X, S, Ex
Calculation function	: LCD display of E
Operation error	: FAIL (LED display : red)
Alarm display	: ALM (LED display : yellow)
Under weighing	: COUNT (LED display : green)
Under AUTO operation	: AUTO (LED display : green)
Under calibration	: START(LED display : green)

6.1.4 Key input

AUTO changeover	: AUTO / MANUAL changeover
Display changeover	: Display changeover during mode
▲, ▼	: UP / DOWN of control output, change of setting value
START	: Start / stop of adjustment
N / F	: Changeover of weighing, function
MODE CHANGE	: Changeover of weighing mode
ENT	: Change of setting value

6.1.5 Output unit

Analog output

: 3 point (1 point : option)

DC4~20 mA (load resistance of 500Ω or less) or 0~10V

(only one point is possible, load resistance of over 250Ω)

Resolution ... 1/2000 Accuracy ... 1/1000(with isolate)

Used for control output and output of weight value / feed rate.

Pulse output

: Dividing ratio 1/N (integer or N=1-200)

Pulse width ... 4~100 ms

Open-collector negative logic signal (28V, 100mA, max.)

output

: Upper limit, lower limit, overweight, zero vicinity, demand supply weight error, feed rate upper limit, feed rate lower limit, deviation upper/lower limit, setting value upper/lower limit, Under Ex-operation, automatic operation, operation, movement error
The above outputs can be arranged optionally for 4 points of

open-collector negative logic signal(28V, 100mA:ULN2804A

made by SPRAGUE) or 4 points of relay output, and sent out in OR. (Except movement error)

6.1.6 Input unit

Analog input

: Load cell input ... DC 0~30mV

Analog setting input

: (option) DC 4~20mA (Used Independent setting and Proportion setting.)

Pulse row input

: 0~200Hz

External control input

: 7 points of following

Supplying, set one-touch zero, reset one-touch zero, External setting signal, reset integrated value, movement(possible integrated value), automatic operation, hold setting value

6.1.7 Others

Load cell power source

: DC 10V, 150mA(connectable up to 4 load cells)

Accessories

: Power failure compensation Approx. 5 years (battery back-up)

6.1.8 Option

Analog input / output

: Out put ... 1 point , Input ... 1 point

[Output(with isolate)] :

DC4~20mA, 12-bit resolution

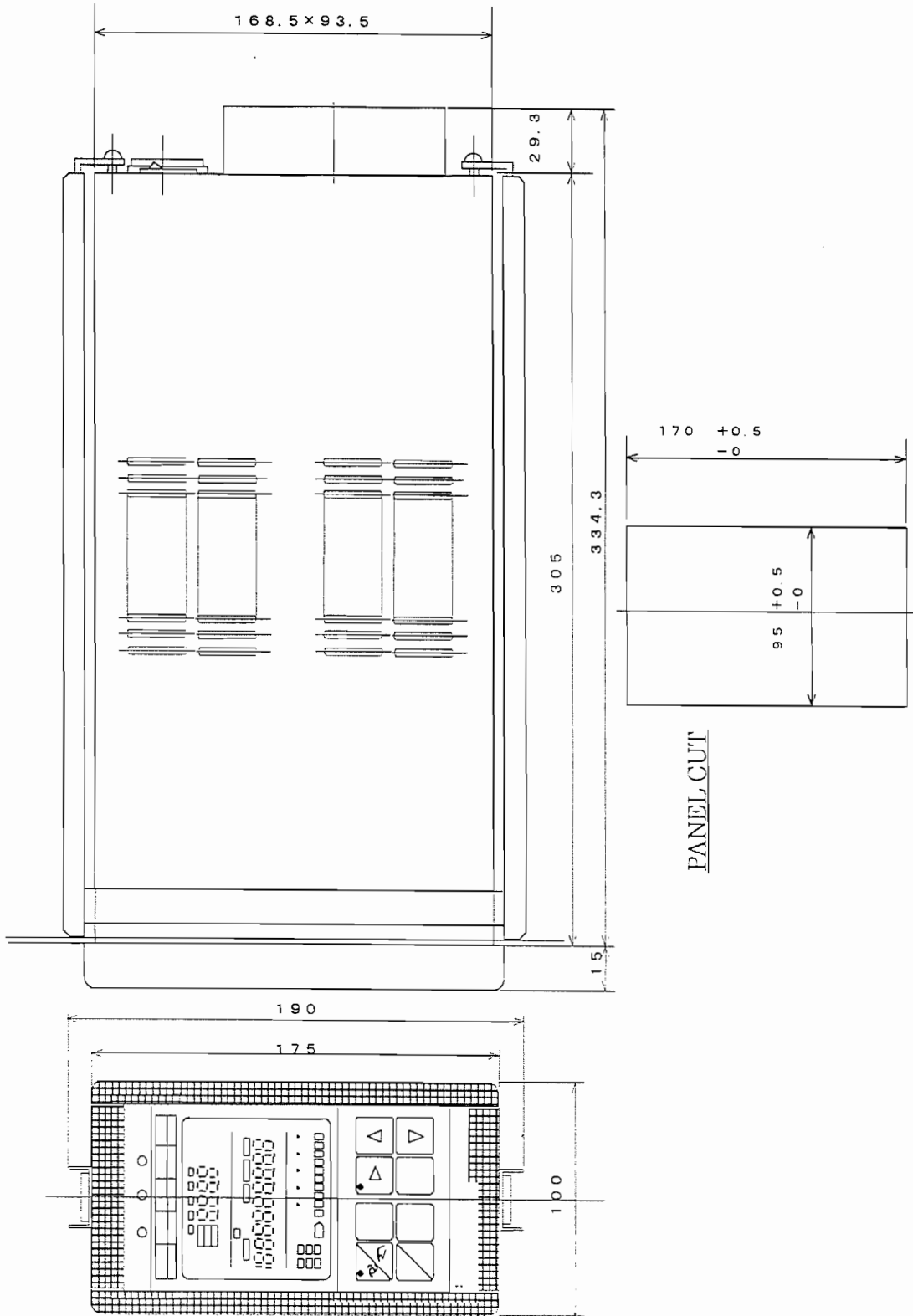
Used for analog output of feed rate, load

[Input] :

DC4~20mA(1~5V), 12-bit resolution(with isolate)

Used for analog setting input of independent, proportion and analog

6.2 Outside drawing



6.3 Function data record sheet

ADDRESS	ITEM
0	INITIAL
1	SPAN
2	CAPACITY
3	UNIT
4	FREQUENCY DIVISION
5	OVER-WEIGHT
6	ZERO VICINITY
7	H-LIMIT / L-LIMIT SETTING
8	H-LIMIT
9	L-LIMIT
10	H and L LIMIT ALARM HIS
12	UNIT
13	MAX FEED RATE
14	H-LIMIT
15	L-LIMIT
16	L-LIMIT For SETTING
17	SETTING ITEM
18	INDIVIDUAL /RATIO SETTING
19	REFERENCE VALUE FOR INTEGRATED VALUE
20	DEVIATION RESET IN FEEDING
21	H / L LIMIT FOR INTEGRATED VALUE
22	CONSTANT FOR PROPORTION BAND
23	INTEGRAL CONTROL CONSTANT
24	AUTO OPERATION SWITCH- OVER FROM OUTSIDE
27	CONTROL OUTPUT DURING REPLENISHING
28	SUPPLY SETTING
29	MOVEMENT SETTING
37	WEIGHT OF PULSE (NUMERATOR)
38	WEIGHT OF PULSE (DENOMINATOR)
39	INTERVAL FOR RUNNING AVERAGE IN PULSE SETTING
41	INITIAL
42	SPAN
43	INTERVAL FOR RUNNING AVERAGE
45	IN 1~5 SELECTION
46	IN 6~7 SELECTION
47	WIDTH OF SPEED PULSE
48	FREQUENCY DIVIDING RATIO FOR HIGH SPEED PULSE
49	FREQUENCY DIVIDING RATIO FOR LOW SPEED PULSE
50	ALLOCATION
51	INITIAL for I
52	SPAN for I
53	INITIAL for II

ADDRESS	ITEM	SETTING VALUE
54	SPAN for II	
55	INITIAL for III	
56	SPAN for III	
58	OC MODE	
59	OC 5 SETTING	
60	OC 4 SETTING	
61	OC 3 SETTING	
62	OC 2 SETTING	
63	OC 1 SETTING	
64	RELAY MODE	
65	RY5 SETTING	
66	RY4 SETTING	
67	RY3 SETTING	
68	RY2 SETTING	
69	RY1 SETTING	
96	PERMISSION TO SET ADDRESS	
97	SELF-DIAGNOSIS	
98	PROGRAM VERSION	