Wired Production Control Indicator

21UD

Operation Manual

V1.61

HERUTU ELECTRONICS CORPORATION

62-1 Toyooka-cho, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 433-8103 Japan

TEL. 81-53- 438-3555

FAX. 81-53- 438-3411

[21UD] Notational Conventions for Series Model

Set (Controller+Display)

	1 Machine types		2 Items		3 Communication		4 Display type		5 LED color
21	***	-	***	-	***	-	***	-	***
	UD		2		nothing		123		G
	UD5		3		485		523		R
	UDW		4		429		124		
	UD5W						524		
	UDE						152		
	UDEW						15		
							12		
							52		
							23		
							24		
							1523		
							1524		

1. Machine types: UD→Large-sized 4-digit Single side, UD5→Large-sized 5-digit Single side,
   UDW→Large-sized 4-digit Double side, UD5W→Large-sized 5-digit Double side,
   UDE→Middle-sized 5-digit Single side,
   UDEW→Middle-sized 5-digit Double side
2. Item : 2 - 4 items
3. Communication:nothing
   429→Specific small-current radio wave
   485→Wire-type
4. Display type :1→Target 2→Actual 3→Advancement 4→Accomplishment rate 5→Plan
5. LED color : G→Green, R→Red
   *For the Middle-sized type, only red color is available.

To use this product in safety and comfort, (Be sure toread)

Thank you very much for purchasing our product.

This operation manual contains the precautions necessary for preventing an accident caused by the use in an improper ways.

Read it carefully while thoroughly understanding the meanings of pictorial symbols.

⚠ Warning	Using in an improper way while ignoring this pictorial symbol might cause a serious human injury.
⚠ Caution	Using in an improper way while ignoring this pictorial symbol might cause a human injury or physical damage.

■ The type of precautions that should be observed, are classified using the following pictorial symbols.

⚠	This pictorial symbol indicates a “Reminder” to attract an attention.
⃠	This pictorial symbol indicates a “Prohibition” to prohibit a certain action.

⚠ Caution

■ For the usage to be commonly applied in all the models:

● Avoid using in a place with a plenty of humidity or dust. Otherwise, absorbing a dust or water contents may cause machine trouble, fire or electrical shock. ⃠

■ For handling this machine:

● This is the electronic devise or wireless radios composed of the precision parts. Do not overhaul/remodel. It may cause accident or machine trouble. ⃠

⚠ Warning

■ For handling this machine:

● Do not use this product for the application needing the high reliability related to human lives.
● Do not use this product in a place where it is uncertain about whether or not radio waves reach.

■ For handling the power source:

Be sure to observe the following precautions to prevent the AC adapter and Power cord from being heated, damaged or ignited.

● Do not approximate the AC adapter and Power cord to a fire, or do not put them into a fire. The AC adapter and Power cord can be broken or ignited, resulting in an accident.
● You can use the AC adapter and main body only with the specified power voltage to protect them from the damage and fire accident.
● Do not use the AC adapter and main body in a wettable atmosphere. It may cause accidents or troubles such as heating, igniting or electrical shock.
● Do not touch the AC adapter, main body, Power cord and Plug outlet with wet hands. It may cause an electrical shock.
● Do not damage the Power cord. A short-circuit or heating may cause a fire or electrical shock.
● Do not use the Power plug with dust being adhered. A short-circuit or heating may cause a fire or electrical shock.
● Do not give a strong impact onto the AC adapter. It may cause an accident or machine failure.
● If you find out deformed AC adapter, do not use it. It may cause an accident or machine failure.
● do not use this product in a place where flammable gas can be generated. It may cause a fire accident.
● Never overhaul the AC adapter. It may cause an accident or machine failure.

■ When trouble happens during use:

Since it may cause a fire or electrical accident, disconnect a power plug, and immediately ask outlet store or our company torepair.

● When smoke or abnormal odors are generated, stop using, immediately disconnect a power plug, and ask outlet store or our company torepair.
● Once the Power cord is damaged, do not use it. Using it as is may cause a fire or electrical accident.

※This operation manual is translated a product for Japan into English/
This product is based on Japanese Wireless law.

Contents

1. General Description

1-1. Scope

This operation manual describes about Wired Production Control Indicator [21UD] For the Wired Production Control Indicator with Communication [21UD-429,485], see another operation manual.

1-2. Outline

The Production Control Indicator unit [21UD] series consists of the Keyboard section [KE-2]and Indicator section. This machine is Production Control Indicator , which displays the contents of ever-processing process and the quantity of production at your factory. It helps you grasp the present status of production at a glance and also provides you with a great effect on the rationalization of production such as production process analysis, worker's self-administration and etc.

1-3. Machine types

Types	Large-sized 21UD (4-digit and 5-digit display)	Middle-sized 21UDE (5-digit display)
2-command type	21UD-2	21UDE-2
3-command type	21UD-3	21UDE-3
4-command type	21UD-4	21UDE-4
2-command double side type	21UDW-2	21UDEW-2
3-command double side type	21UDW-3	21UDEW-3
4-command double side type	21UDW-4	21UDEW-4
2-command 5-digit type	21UD5-2	————
3-command 5-digit type	21UD5-3	————
4-command 5-digit type	21UD5-4	————
2-command 5-digit double side type	21UD5W-2	————
3-command 5-digit double side type	21UD5W-3	————
4-command 5-digit double side type	21UD5W-4	————

1-4. Type selection

The combination of “Target”, “Actual”, “Advancement”, Accomplishment rate” and “Plan” allows you to select several kinds of types. Normally, the type is already set before shipment. However, it can be changed after purchasing. You may select the item suitable for your application after understanding the contents of each item. In this manual, the type is replaced with the numeric value and alphabet.

Items	Contents	Numeric notation
Target	The target quantity of production today	1
Actual	The quantity of production up to the present	2
Advancement	The degree of advancement in either “+” or “-“ sign to the planned quantity of production at the present	3
Accomplishment rate	The Accomplishment rate (%) of actual to the planned quantity of production at the present	4
Plan	The planned quantity of production at the present	5

Commands	Types	Numeric representation
3-command	Target/Actual/Advancement	123
	Plan/Actual/Advancement	523
	Target/Actual/Accomplishment rate	124
	Plan/Actual/Accomplishment rate	524
	Target/Plan/Actual	152
2-command	Target/Plan	15
	Target/Actual	12
	Plan/Actual	52
	Actual/Advancement	23
	Actual/Accomplishment rate	24
4-command	Target/Plan/Actual/Advancement	1523
	Target/Plan/Actual/Accomplishment rate	1524

●How to calculate each item

"Plan" =Elapsed time within working hours ÷Tact

"Accomplishment rate"(%) =(Actual÷Plan) x100

"Advancement" =Actual-Plan

* Decimal places of the Accomplishment rate are all cut off.
* If the Accomplishment rate is over 9999% or it cannot be calculated, "9999" appears for the calculation results.

2. Specifications

2-1. 3-command type

<3-command large-sized type>

	21UD－3	21UDW－3	21UD5－3	21UD5W－3
Indicator character	(4-digit x 2-line)+(Symbol+ 3-digit x 1-line) Or 4-digit x 3-line		(5-digit x 2-line) +(Symbol +4-digit x 1-line) Or 5-digit x 3-line	
Display surface	Single side	Double side	Single side	Double side
Indicator element	High-luminance 7-segment LED display			
Character	110H x 60wmm			
Size of case	600W x 600H x 80Dmm			
Power source	AC100V (Max input range: AC85 – 125V) Power code (2P) VCTF 1.25mm^2 Length : approx. 1.5m			
Working environment	Temperature: 0- 50℃ Humidity:85% or less(no dew drop)	Temperature: 0- 40℃ Humidity:85% or less(no dew drop)	Temperature: 0- 50℃ Humidity:85% or less(no dew drop)	Temperature :0-40℃ Humidity:85% or less(no dew drop)
Input	Non-voltage contact input x 5-point For Keyboard unit(KE-2) x 4-point			
Output	Open collector output x 2-point Max output voltage DC35V Max output current 50mA Relay contact output x 2-point Max rated relay contact load (resistance load) AC125V0. 5A or DC24V1A			
Power consumption	MAX47W	MAX88W	MAX58W	MAX111W
Weight	About 9.0kg	About 9.8kg	About 9.2kg	About 10.1kg

Specifications

<3-command middle-sized type>

	21UDE-3	21UDEW-3
Indicator character	(5-digit x 2-line)+(Symbol+4-digit x 1-line) Or 5-digit x 3-line	
Display surface	Single side	Double side
Indicator element	High-luminance dispersion type red-color 7-segment LED	
Character	55H x 30Wmm	
Size of case	400W x 360H x 65Dmm	
Power source	AC100V (Max input range: Ac85 - 125V) Power code (2P) VCTF 1.25mm^2 Length : approx. 1.5m	
Working environment	Temperature: 0-50℃ Humidity: 85% or less(no dew drop)	
Input	Non-voltage contact input x 5-point For Keyboard unit(KE-2) x 4-point	
Output	Open collector output x 2-point Max output voltage DC35V Max output current 50mA Relay contact output x 2-point Max rated relay contact load (resistance load) AC125V0.5A or DC24V1A	
Power consumption	MAX19W	MAX34W
Weight	About 4.2kg	About 4.5kg

2-2. 2-command type

<2-command large-sized type>

	21UD-2	21UDW-2	21UD5-2	21UD5W-2
Indicator character	(4-digit x 1-line)+(Symbol+3-digit x 1-line) Or 4-digit x 2-line		(5-digit x 1-line)+(Symbol+4-digit x 1-line) Or 5-digit x 2-line	
Display surface	Single side	Double side	Single side	Double side
Indicator element	High-luminance 7-segment LED			
Character	110H x 60Wmm			
Size of case	600W x 445 H x 80Dmm			
Power source	Ac100V（Max input range:Ac85 – 125V） Power code (2P)　VCTF 1.25mm^2　　Length：approx. 1.5m			
Working environment	Temperature:0-50℃ Humidity:85% or less (No dew drop)			Temperature: 0-40℃ Humidity: 85% or less (No dew drop)
Input	Non-voltage contact input x 5-point For Keyboard unit(KE-2) x 4-point			
Output	Open collector output　x　2-point Max output voltage　DC35V Max output current　50mA Relay contact output x 2-point Max rated relay contact load (resistance load) AC125V0.5A or DC24V1A			
Power consumption	MAX38W	MAX63W	MAX44W	MAX84W
Weight	About 7.2kg	About 7.6kg	About 7.4kg	About 8.1kg

Specifications

＜2-command middle-sized type＞

	21UDE-2	21UDEW-2
Indicator character	(5-digit x 1-line)+(Symbol+4-digit x 1-line) Or 5-digit x 2-line	
Display surface	Single side	Double side
Indicator element	High-luminance dispersion type red-color 7-segment LED	
Character	55H x 30Wmm	
Size of case	400W x 285H x 65Dmm	
Power source	AC100V (Max input range: AC85 - 125V) Power code (2P)　VCTF 1.25mm^2　　Length：approx. 1.5m	
Working environment	Temperature:0-50℃　　Humidity:85% or less（No dew drop）	
Input	Non-voltage contact input x 5-point For Keyboard unit(KE-2) x 4-point	
Output	Open collector output　x　2-point Max output voltage　DC35V Max output current　50mA Relay contact output x 2-point Max rated relay contact load (resistance load) AC125V0.5A or DC24V1A	
Power consumption	MAX15W	MAX25W
Weight	About 3.7kg	About 3.9kg

2-3. 4-command type

<4-command large-sized type>

	21UD-4	21UDW-4	21UD5-4	21UD5W-4
Indicator character	(4-digit x 3-line)+(Symbol+3-digit x 1-line) Or 4-digit x 4-line		(5-digit x 3-line)+(Symbol+4-digit x 1-line) Or 5-digit x 4-line	
Display surface	Single side	Double side	Single side	Double side
Indicator element	High-luminance 7-segment LED			
Character	110H x 60Wmm			
Size of case	600W x 755H x 80Dmm			
Power source	AC100V (Max input range: AC８５ - １２５V) Power code (2P) VCTF 1.25mm^2 Length : approx. 1.5m			
Working environment	Temperature: 0-50℃ Humidity: 85% or less(No dew drop)	Temperature:0-40℃ Humidity: 85% or less（No dew drop）		
Input	Non-voltage contact input x 5-point For Keyboard unit(KE-2) x 4-point			
Output	Open collector output x 2-point Max output voltage DC35V Max output current 50mA Relay contact output x 2-point Max rated relay contact load (resistance load) AC125V0.5A or DC24V1A			
Power consumption	MAX59W	MAX111W	MAX82W	MAX141W
Weight	About 11.0kg	About 12.0kg	About 11.4kg	About 12.4kg

Specifications

<4-command middle-sized type>

	21UDE-4	21UDEW-4
Indicator character	(5-digit x 3-line)+(Symbol+4-digit x 1-line) Or 5-digit x 4-line	
Display surface	Single side	Double side
Indicator element	High-luminance dispersion type red-color 7-segment LED	
Character	55H x 30Wmm	
Size of case	400W x 435H x 65Dmm	
Power source	AC100V (Max input range:AC85 - 125V) Power code (2P) VCTF 1.25mm^2 Length : approx. 1.5m	
Working environment	Temperature: 0-50℃ Humidity:85% or less (No dew drop)	
Input	Non-voltage contact input x 5-point For Keyboard unit(KE-2) x 4-point	
Output	Open collector output x 2-point Max output voltage DC35V Max output current 50mA Relay contact output x 2-point Max rated relay contact load (resistance load) AC125V0.5A or DC24V1A	
Power consumption	MAX24W	MAX44W
Weight	About 5.0kg	About 5.4kg

2-4. Keyboard

	KE-2
Keyboard	Membrane switch with 20 keys [F1]-[F4] [0]-[9] [▲](UP), [▼](DOWN) [+], [-] [CLR], [ENT]
Input/Output	Input power +5v Output Signal key1 Signal key2 Common GND
Size of case	120W x 100H x 35Dmm
Weight	About 550g
Communication cable	4 cores cable(with shield,0.2 mm^2) Length : approx. 5m

Specifications

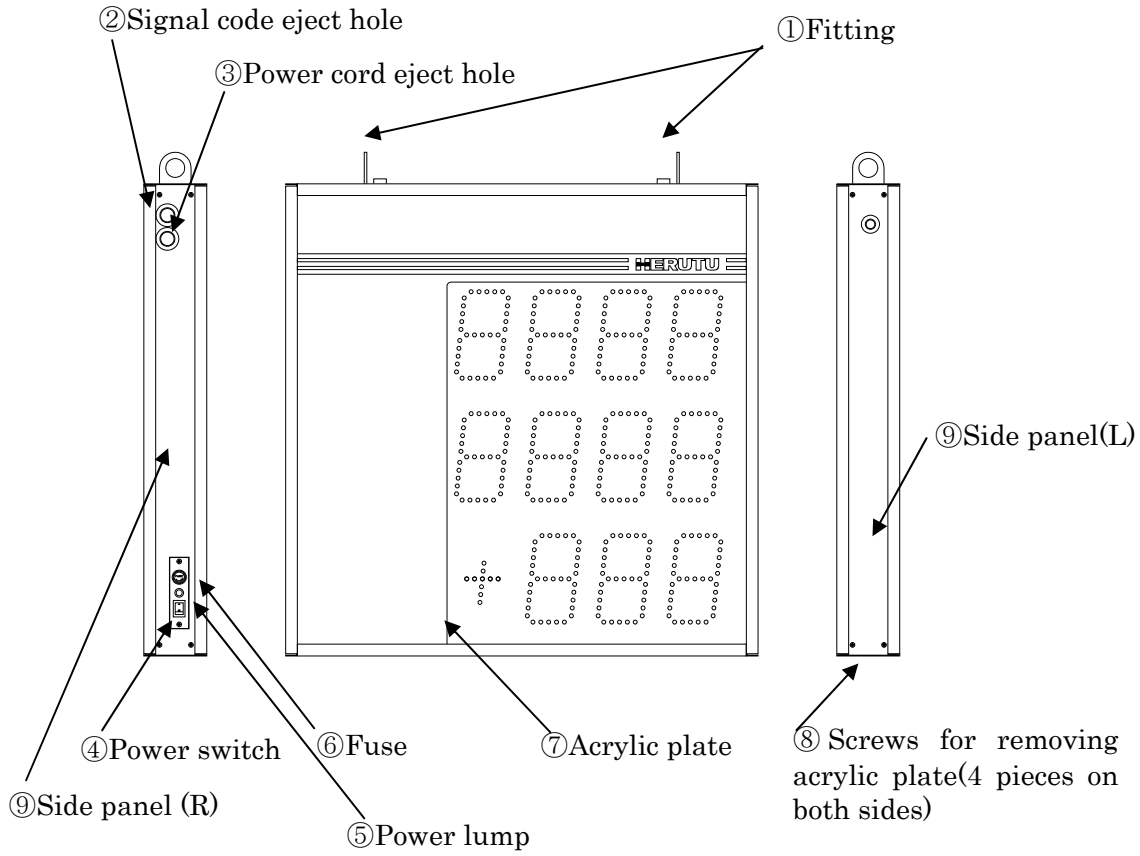
Operating specifications

Items	With working hour	Without working hour
Labor hour	Max 23 hours 59 minutes	Max 1 month
Working hour	For 20 working hours Number of sets: 40	Impossible to set
Working hour pattern	6 patterns	Impossible to set
Tact	0.1-9999.9 second or 0.01-999.99 second	
Target	4-digit type:0-9999 5-digit type:0-99999	
Plan	4-digit type:0-9999 5-digit type:0-99999	
Actual	4-digit type:0-9999 5-digit type:0-99999	
Advancement	4-digit type:0-±999 5-digit type:0-±9999	
Accomplishment rate	4-digit type:0-999(%) 5-digit type:0-9999(%)	
Tact reservation	For twenty types at max <Reserved contents> Set-up time 0-998-min ***1** Tact 1-9999.9 second or 0.01-999.99 second Production target quantity 4-digit-type:0-9999 5-digit-type:0-99999	
Clear time	For 3-time max	
Pre-scale value	1-99999(Multiple number) 1-99999(Batch number)	
Advancement judging set value	0-9999(+side) 0-9999(-side)	

***1**:It can be set only when Working hour setting "Yes" is set.

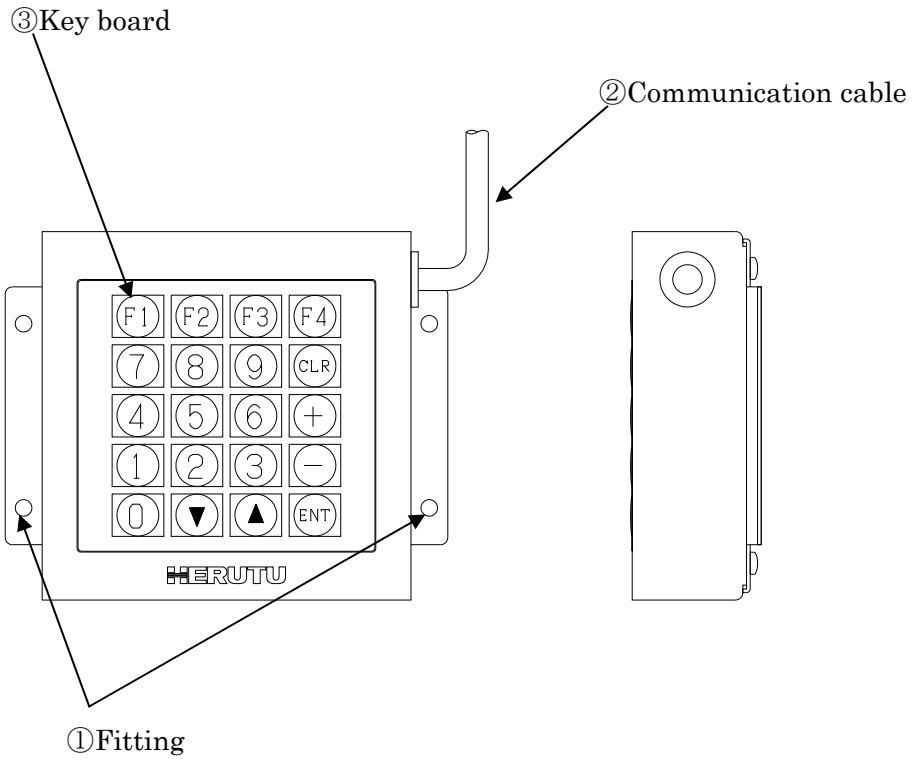
*Internal clock may possible cause approximately 1-min/month in error depending on the working environment(0 to 50℃).

3. Names and Functions of each section



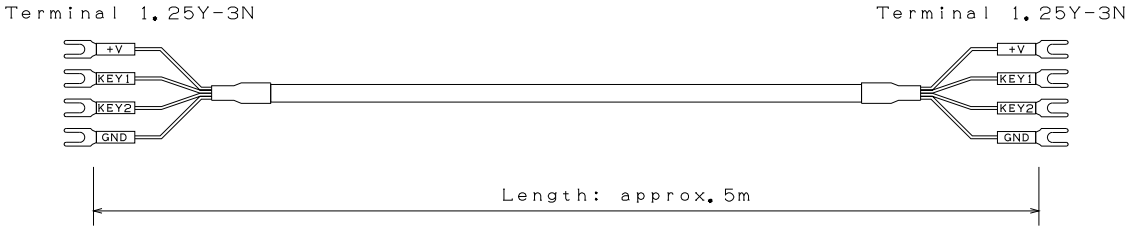
①Fitting	To hang display　2-point
②Signal code eject hole	To draw signal cord
③Power cord eject hole	To draw power cored. (The product is shipped with Power cord being mounted.)
④Power lump	Illuminated at power on
⑤Power switch	Switch to supply power
⑥Fuse	Fuse
⑦Acrylic plate	Differrent from Type　(Shipment time fixation)
⑧Screws for removing acrylic plate	Screws for removing acrylic plate
⑨Side panel	Fixed main body with4 pieces.

3-2.Key board



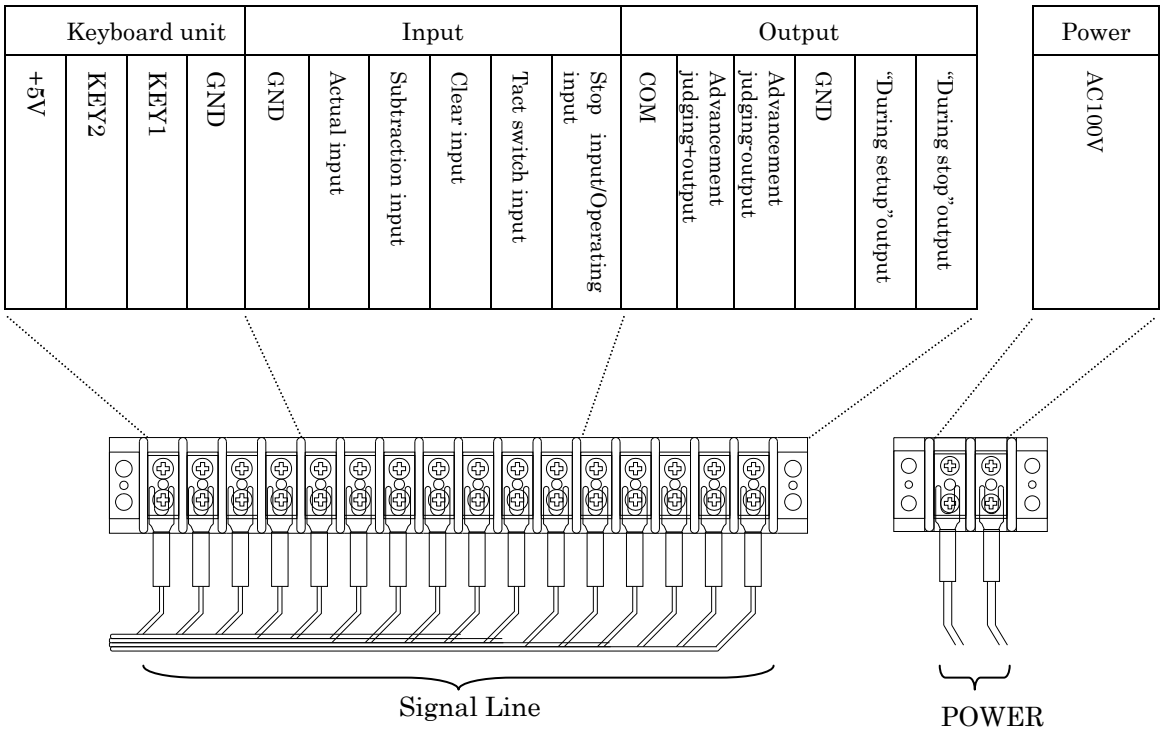
①Fitting	To fix this unit. Φ4.5mm-4point
②Communication cable	For power,signal. . Length：approx. 5m
③Keyboard	Membrane switch with 20 keys.

Communication cable



3-2. Terminal block

Backside of display



Power input	AC100V(AC85-125V)	Input the power voltage.

Non-voltage contact input	Actual input		Increases the production actual
	Subtraction input		Decreases the production actual
	Clear input		Clears the Actual/Plan.
	Tact switch input		Switches tact reserve No. into next reserve No. ***1** (effective only when Tact reserve function is used)
	Stop input Operating input	"With Working hour" is set	"Stop input" turns on during inputting so that the planned quantity calculation stops.
		"Without Working hour" is set	"Operating input" turns on during inputting so that the planned quantity calculation runs.
Open collector output	Advancement judging output "+"		It turns on while Advancement exceeds "+advancement judging value".
	Advancement judging output "-"		It turns on while Advancement does not exceed "-advancement judging value".
	"During setup" output		"During setup" turns on. ***2** "During setup" turns off for other than Working hour.
	"During stop" output	"With Working hour" is set	"During stop" turns on while Stop input terminal is ON.
		"Without Working hour" is set	Not used

***1**:When switching from the final reserve No, the reserve No. 1 comes back.

***2**:This is only effective when “Yes” for use of working hour is set while “Yes” for use of Tact reserve function is set.

4. Setting and Installation methods

4-1. Installing the Display

Display unit uses installation metal fittings in the upper part, and please install it.

By nature, the LED is most visible from the front. Install it at an angle so that you can see it from the front.

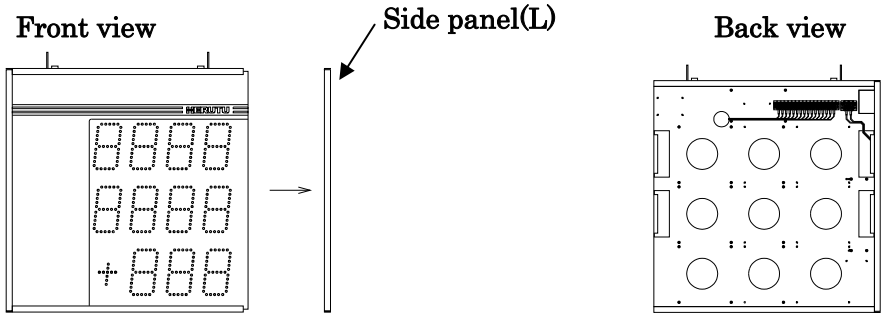
4-2. Connecting the Signal cord and Power cord

The product is shipped with Power cord being mounted.

If you need to disconnect/connect the Power cord due to some reasons, connect the Power cord according to the manual.

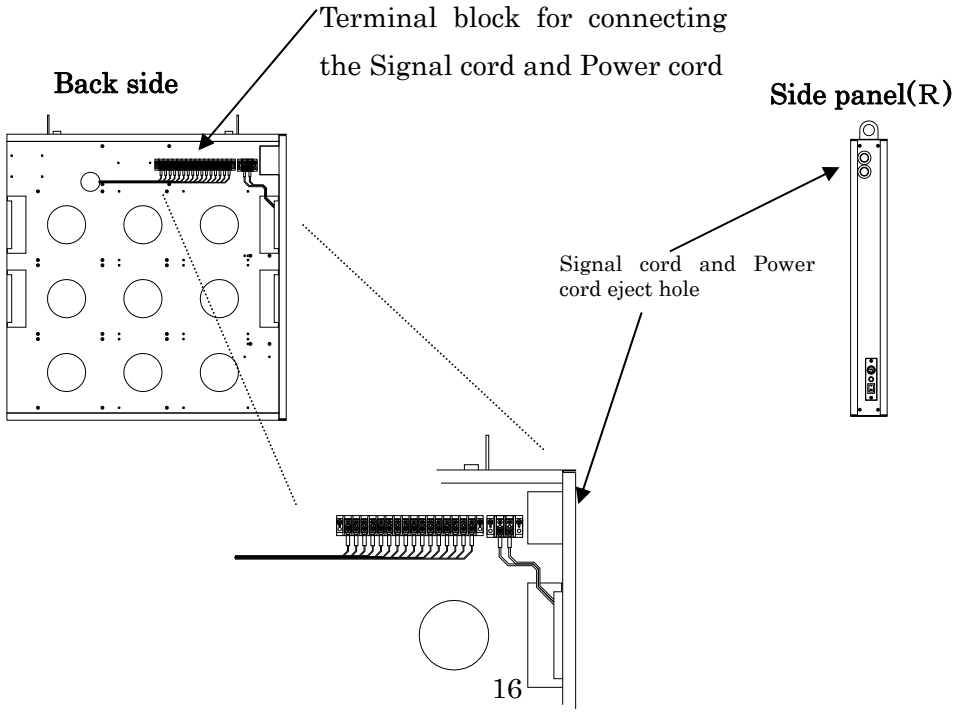
①Disconnect the side panel(L).

Remove the screws (4 pieces) for acrylic plate fixing the side panel (L). Move the side panel (L) to remove it in parallel.



②Connect the Signal cord and Power cord.

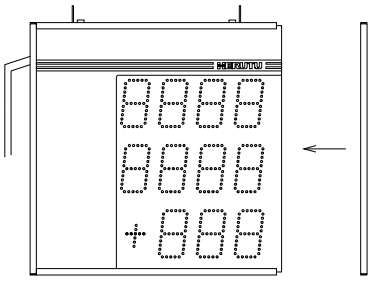
The terminal block for connecting the power and signal source is at back side of display. Slide the acrylic plate at back side to remove the terminal block.



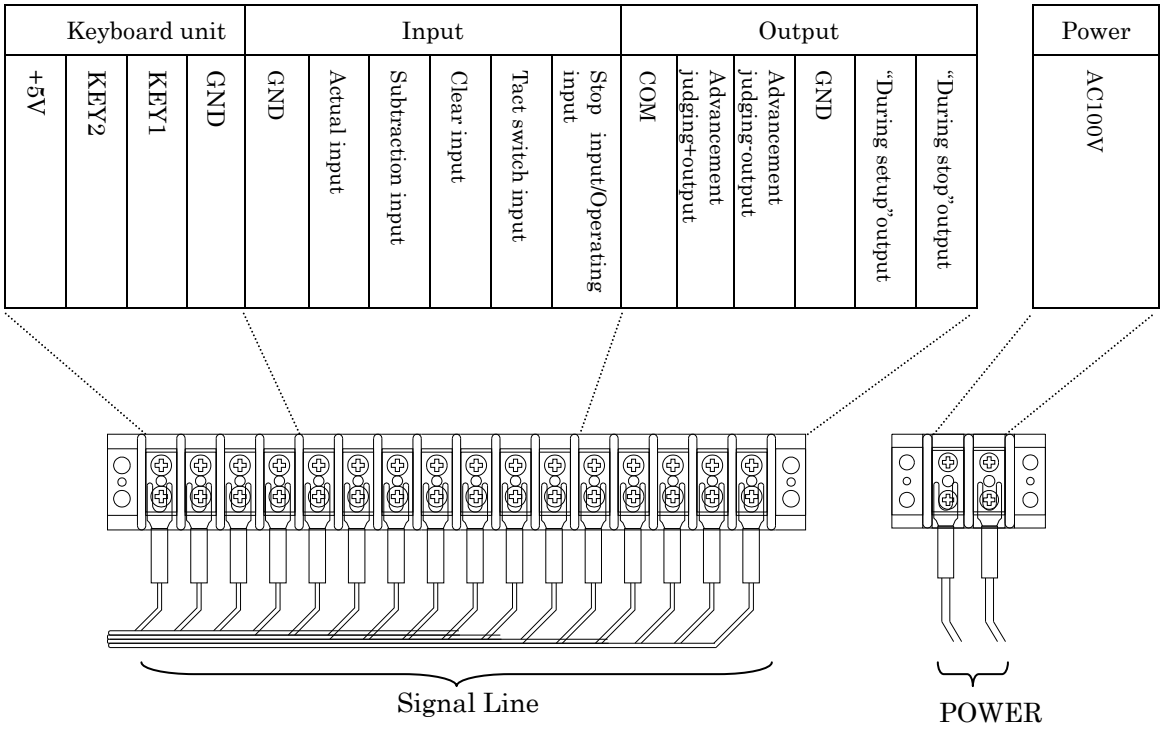
The Slgnal cord and Power cord eject hole is at side panel (R). Connect the signal cord and Power cord to the terminal block only after inserting the signal cord and power cord through the eject hole. (Connecting it to the terminal block without inserting the signal cord and power cord through the power cord eject hole does not allow the acrylic plate at back side to be closed.)

Terminal block for connecting the Signal cord Power cord M3

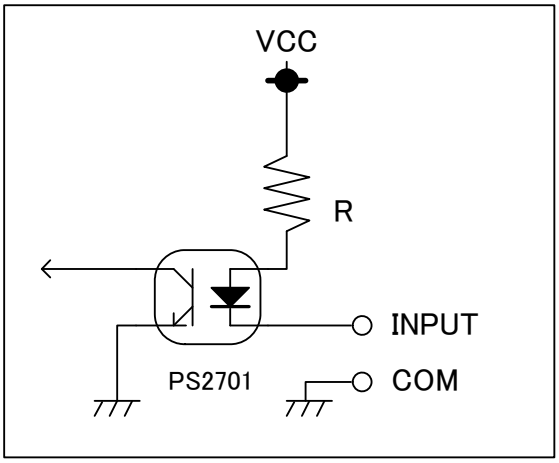
③Restore the acrylic plate and side panel to their original places.



Terminal block



[Configuration of Input circuit]



● Connecting to the input terminal

For the Non-voltage contact input to be connected to the Actual input, use the circuit with less chattering which can steadily turn on/off the voltage/current of 5V/15mA.

Keep a time interval of 50mSec or more between input signals. Also for the time interval between the time when input signal is turned off until the time when next signal is turned on, keep 50mSec or more.

For the input signal, be sure to connect the non-voltage contact signal.

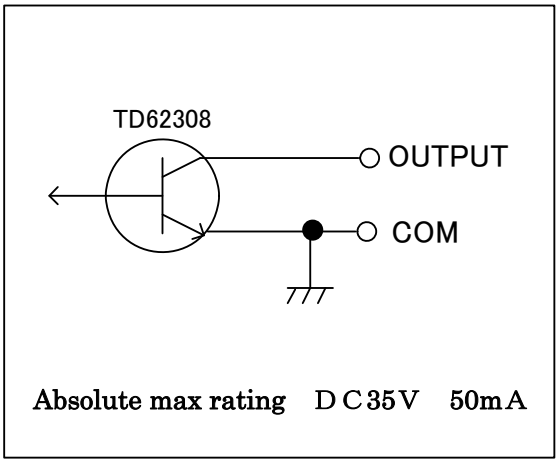
●Examples of connection (Output side)

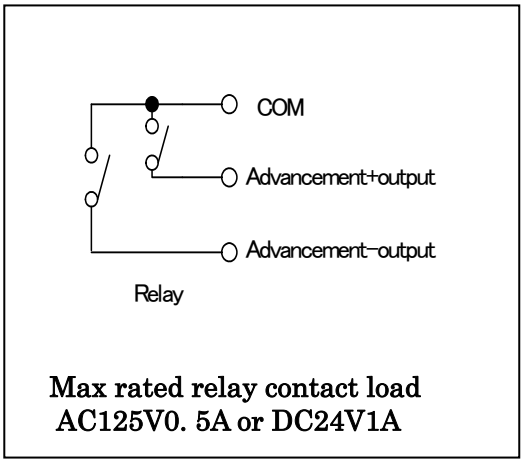
Contact output（LED lights up with ON）

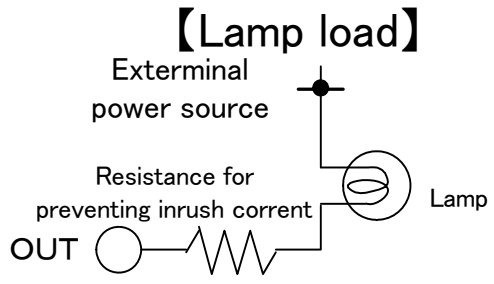
Use it within the driving current per terminal. If the specified power voltage or driving current are exceeded, connect the drive circuit like relay during use.

Or, if inductive load such as lamp or relay is connected, take necessary actions for inrush current.

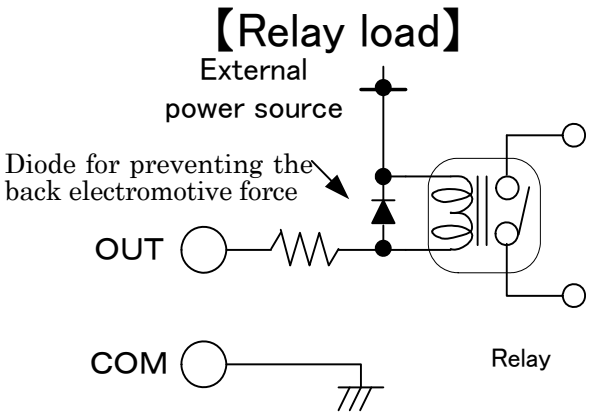
[Configuration of Output circuit]







Absolute max rating　DC35V　50mA



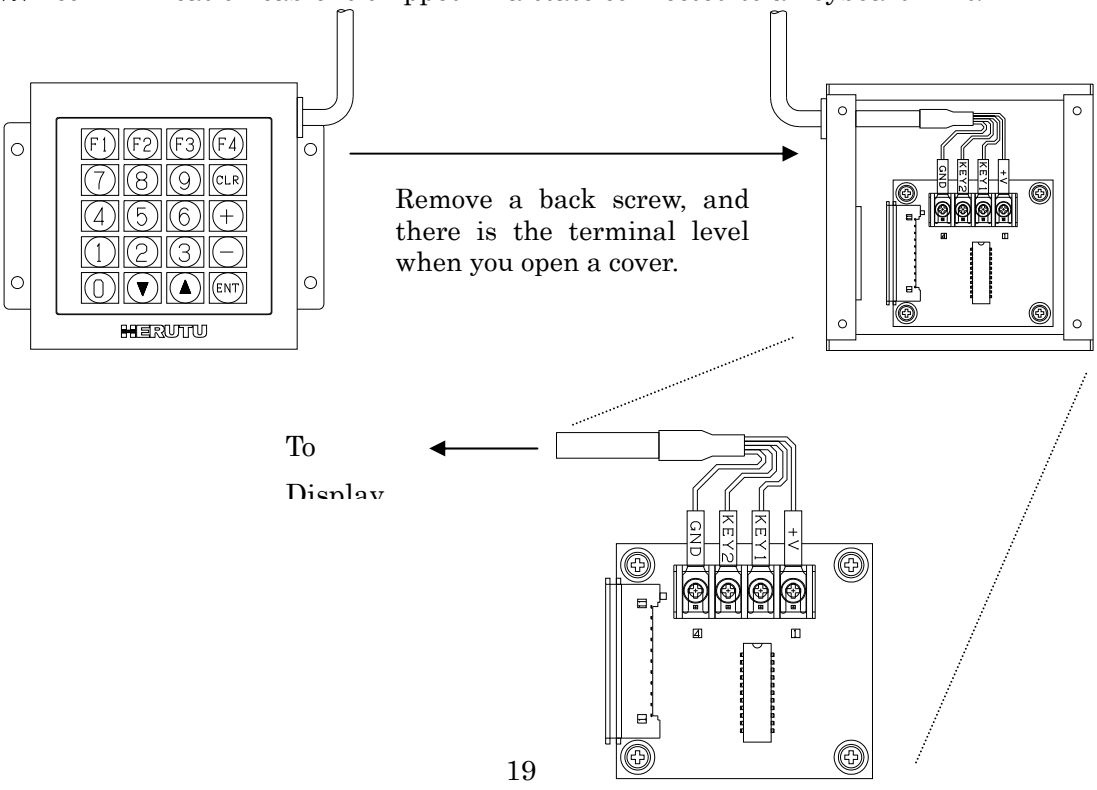
Max rated relay contact load
AC125V0. 5A or DC24V1A

4-2. Installing the Keyboard [KE-2]

Keyboard and Display is connected with communication cable(5m) of attachment. Please install it in the place that is easy to operate a key by a range of a communication cable length. Please do not wire a communication cable in parallel with power Line so that a noise does not appear.

When you do not use an attached communication cable, please use a twist pair cable with Shield, please connect a shield and the ground side of twist pair cable to GND terminal. Keyboard unit wil be damaged when you make a mistake in wiring of signal Line, please be careful

※A communication cable is shipped in a state connected to a keyboard unit.



5. Function settings

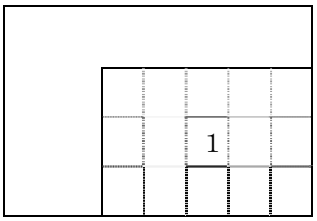
Function setting of this machine is already done depending on the customers' needs before shipment; however, if you need to change about the following contents, proceed as follows. If those descriptions are unwanted, see the Basic operation.

Function settings

①Turn on the power switch with [F1] being pressed.

Keep pressing [F1] key for about 2 seconds until after [Command selection screen] appears and buzzer sounds.

From power on condition,push "[F3] times 5+[0] times 1" after [Command selection screen] appears.



←[Command selection screen]

←Display "1"

②You may set the following contents in command selection screen.

Enter numeric value for the item to be changed.

Command	Contents	Setting range
[1]	Sets the type	Kinds of 12
[2]	Sets the tact precision.	0.1/0.01
[3]	Sets with or without tact reserve function.	No/Yes
[4]	Sets the cumulative Display.	No/Yes
[5]	Sets with or without working hours	No/Yes
[6]	Sets the pre-scale	0/1/2
[7]	With or without Advancement judging function	No/Yes
[8]	Sets the equipment No.	1-99
[9]	Sets the wireless channel	1-40
[F1]	Sets the stop at the TARGET=PLAN	0/1

*[9] is only effective when this machine is attached by communication function (Only 21UD-429-***,21UDE-429-***)

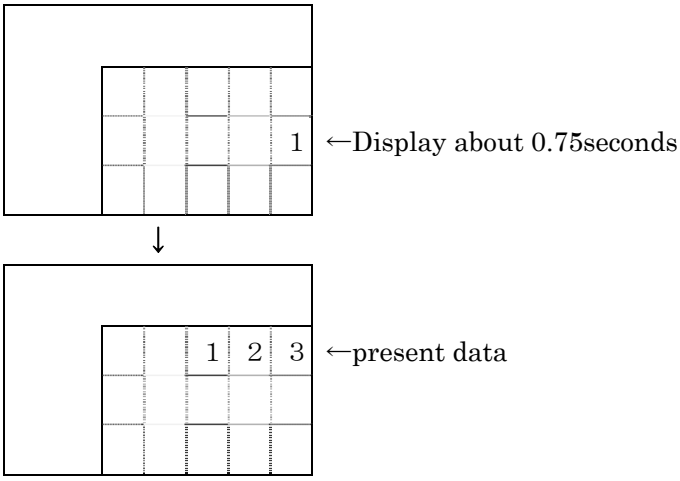
5-1. Setting the operation type　　Command [1]

Set the operation type.

Commands	Types	Setting value
3-command	Target/Actual/Advancement	123
	Plan/Actual/Advancement	523
	Target/Actual/Accomplishment rate	124
	Plan/Actual/Accomplishment rate	524
	Target/Plan/Actual	152
2-command	Target/Plan	15
	Target/Actual	12
	Plan/Actual	52
	Actual/Advancement	23
	Actual/Accomplishment rate	24
4-command	Target/Plan/Actual/Advancement	1523
	Target/Plan/Actual/Accomplishment rate	1524

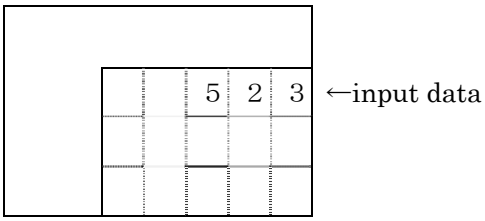
①Select [1] key and press [ENT] key, and type setting screen appears.

If there is no need to change the setting contents, press [ENT] key to get back to the Command selection screen.



②Input optional setting value .

<e.g.>To set the type “Plan/Actual/Advancement”(523) from “Target/Actual/Advancement” (123), input [5][2][3].



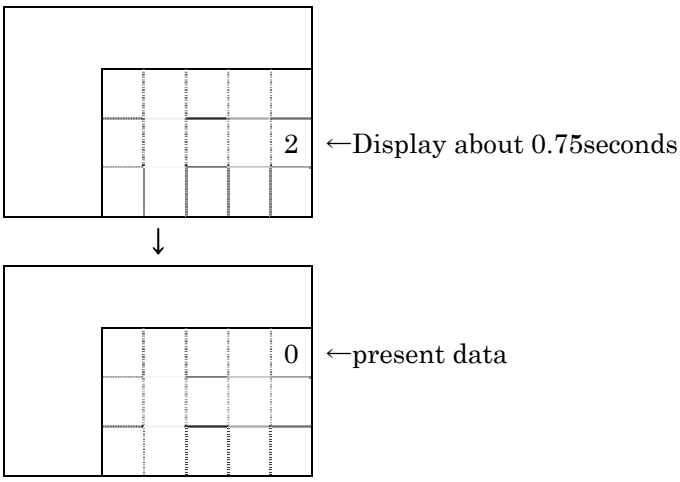
③Here, press [ENT] to set the type, and Command selection screen comes back.

If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

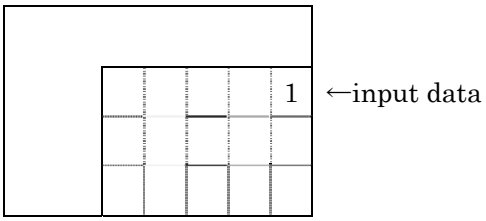
5-2. Setting the tact precision　　Command [2]

①Press [2] key, and tact precision setting screen appears.

If there is no need to change the setting contents, press [ENT] key to get back to the Command selection screen.



②Input optional setting value .



tact precision	0 → 0 .　1 second
	1 → 0 .　0　1 second

③Here, press [ENT] to set the type, and Command selection screen comes back.

If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

*Once the tact precision is changed, the tact unit, which is set at present, will be changed.

Therefore, if changed, be sure to reset the tact and tact reserve data.

If tact precision is changed from 1/10 into 1/100, the tact will become 1/10.

If changed from 1/100 into 1/10, the tact will become 10-fold value.

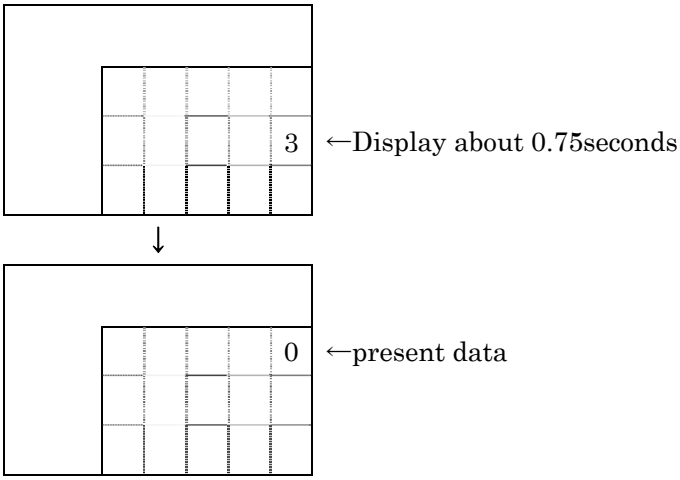
5-3. Setting with or without Tact reserve function　　Command [3]

Set with or without of Tact reserve function.

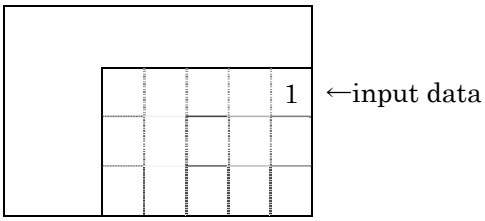
Setting	Contents
Yes	Tact reserve function is enabled. Maximum 20 working hour tact can be reserved. Set the "(Tact-Production quantity-Setup time) x Max 20 working hours" in normal screen using the [F1] key. When working hour is not used, "(Tact-Production quantity) x Max 20 working hours" can be set.
No	Tact reserve function is disabled. The[F1]key cannot be used in normal screen.

①Select [3] key and then press [ENT] key, and Tact reserve function setting screen appears.

If there is no need to change the setting contents, press [ENT] key, and Command selection screen comes back.



②Input optional setting value .



with or without Tact reserve function

0 →NO　　1 →YES

③Here, press [ENT] to set the type, and Command selection screen comes back.

If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

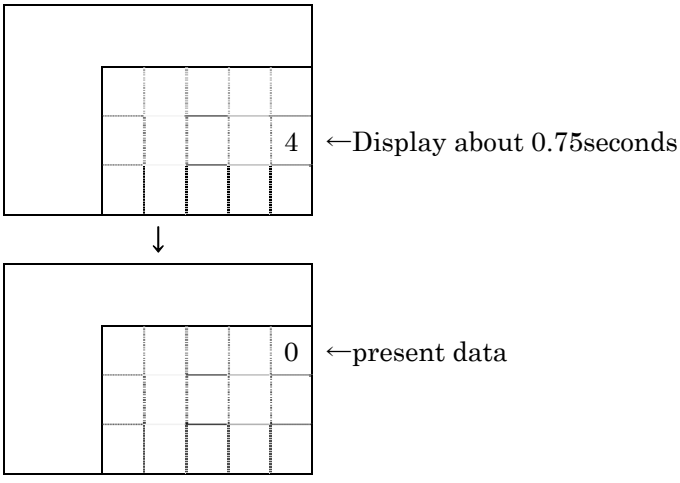
5-4. Setting Display way to use Tact reserve function　　Command [4]

Set Display way to use Tact reserve function.

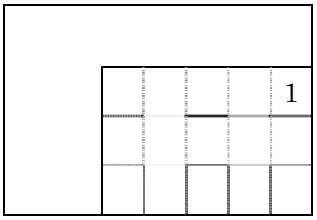
Commands	Cumulative display (“1” is selected)	Individual display (“0” is selected)
Target	Displays total target production quantity today.	Displays target production quantity of reserve No. being executed at present time.
Plan	Displays total planned production quantity at present time.	Displays total planned production quantity of reserve No. being executed at present time.
Actual	Displays total production actual up to present time.	Displays total production actual of reserve No. being executed at present time.
Advancement	Displays advancement degree ± against total planned production quantity at present time.	Displays advancement degree ± against total planned production quantity of reserve No. being executed at present time.
Accomplishment rate	Display the accomplishment rate of production actual against total planned production quantity at present time.	Display the accomplishment rate of production actual against total planned production quantity of reserve No. being executed at present time.

①Select [4] key and then press [ENT] key, and Tact reserve function setting screen appears.

If there is no need to change the setting contents, press [ENT] key, and Command selection screen comes back.



②Input optional setting value .



Display way to use Tact reserve function

0 →Individual display

1 →Cumulative display

③Here, press [ENT] to set the type, and Command selection screen comes back.

If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

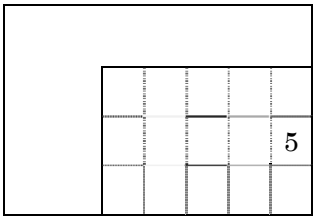
5-5. Setting with or without working hours　　Command [5]

Set with or without working hours.

Setting	Contents
Yes	Planned calculation is carried out based on the registered contents of working hour. Register the working hour with the [5] key in normal screen.
No	The working hour cannot be registered. When signal from outside signal (Stop/Operating terminal) is ON, planned calculation is carried out. Recalculation function after returning to the beginning of working hour is not available.

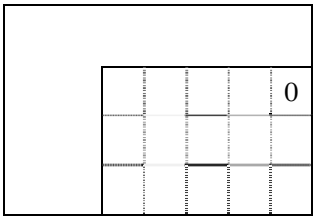
①Select [5] key and then press [ENT] key, and the "Working hour with/without setting screen" appears.

If there is no need to change the setting contents, press [ENT] key to get back to the Command selection screen.



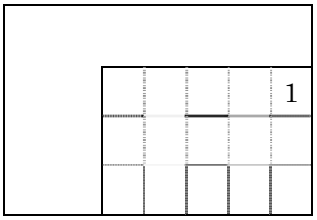
←Display about 0.75seconds

↓



←present data

②Input optional setting value .



←input data

With or without working hours

0 →without working hour

1 →with working hour

③Here, press [ENT] to set the type, and Command selection screen comes back.

If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

*When "No" for use of working hour is set, both "During setup" output and "During stop" output functions are disabled.

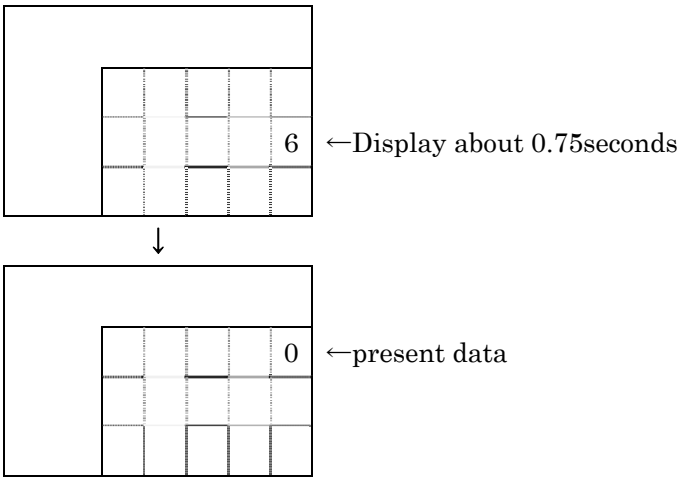
5-6. Setting the pre-scale Command [6]

Set the pre-scale function.

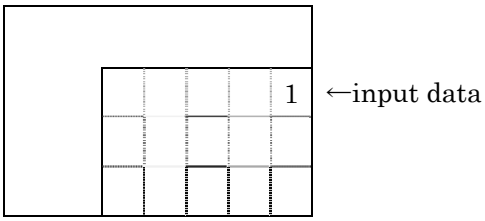
Selective No.	Contents
0	Pre-scale function is disabled.
1	The Pre-scale function is set to “Multiple number”. Set the pre-scale value with [8] key in normal screen.
2	The Pre-scale function is set to “Batch number”. Set the pre-scale value with [8] key in normal screen.

*It cannot be used together with the tact reserve function.

①Select [6] key and then press [ENT] key, and Pre-scale function setting screen appears. If there is no need to change the setting contents, press [ENT] key to return to the Command selection screen.



②Input optional setting value .



Pre-scale selection:

0→none

1→Multiple(Multiple number)

2→Batch(Batch number)

③Here, press [ENT] to set the type, and Command selection screen comes back.

If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

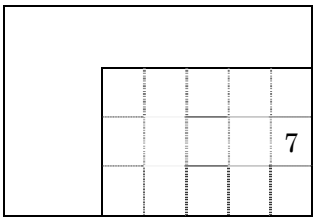
5-7. Setting with/without Advancement judging　　Command [7]

Setting with/without Advancement judging

Setting	Contents
Yes	Advancement judging function is enabled. Set the Advancement judging value of + side and - side with the [9] key in normal screen.
No	Advancement judging function is disabled.

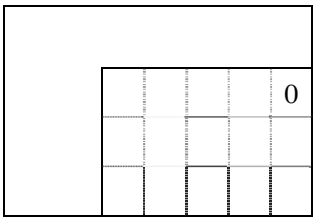
①Select [7] key, and press [ENT] key, and "Advancement judging With/Without setting screen" appears.

If there is no need to change the setting contents, press [ENT] key to get back to the Command selection screen.



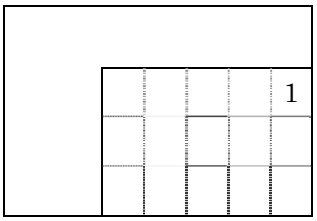
←Display about 0.75seconds

↓



←present data

②Input optional setting value .



←input data

Advancement judging With/Without setting

0→without

1→with

③Here, press [ENT] to set the type, and Command selection screen comes back.

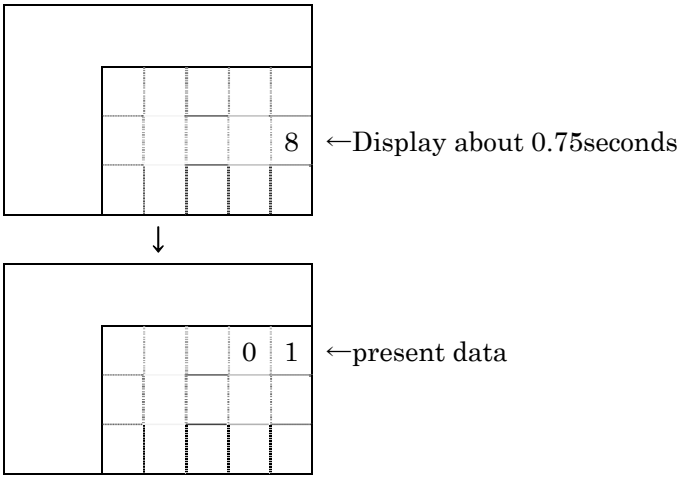
If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

*The advancement judging function is only effective when "＊＊S(＊＊3)" and "YKJS(1523)" are set in the《5-1. Type》setting.

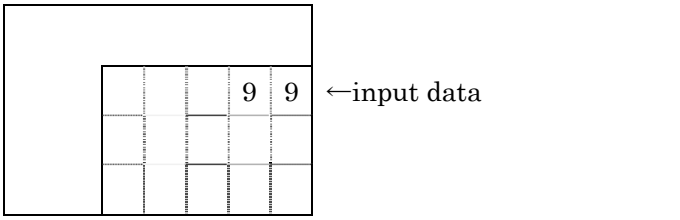
5-8. Setting the equipment No.　Command[8]

①Select [8]key, and press [ENT] key . The equipment no selection screen appears.

If there is no need to change the setting contents, press [ENT] key to return to the Command selection screen.



②Input optional setting value .



Equipment No. setting
01～99

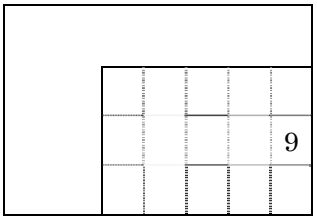
③Here, press [ENT] to set the type, and Command selection screen comes back.

If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

5-9. Setting the wireless channel Command[9]

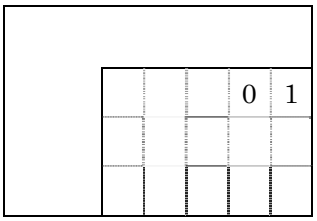
①Press [9] key, and Wireless channel setting screen appears.

If there is no need to change the setting contents, press [ENT] key to return to the Command selection screen.



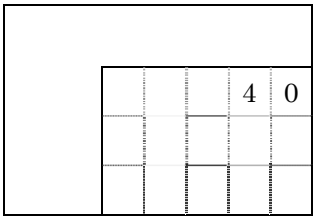
←Display about 0.75seconds

↓



←present data

②Input optional setting value .



←input data

Wireless channel setting range

01～40

③Here, press [ENT] to set the type, and Command selection screen comes back.

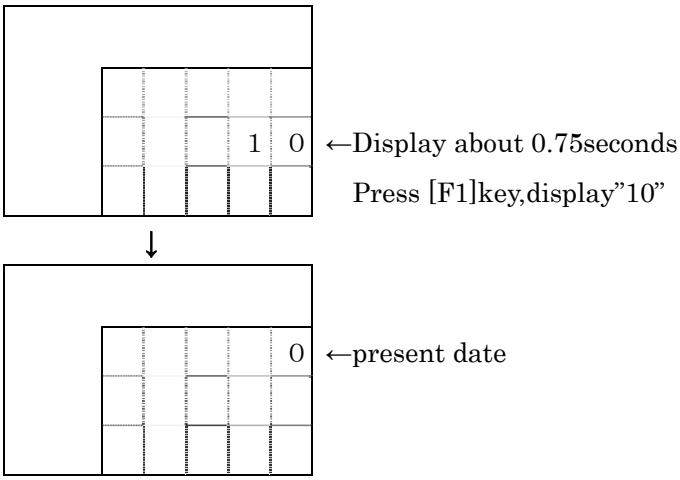
If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0 1	429.2500	2 1	429.5000
0 2	429.2625	2 2	429.5125
0 3	429.2750	2 3	429.5250
0 4	429.2875	2 4	429.5375
0 5	429.3000	2 5	429.5500
0 6	429.3125	2 6	429.5625
0 7	429.3250	2 7	429.5750
0 8	429.3375	2 8	429.5875
0 9	429.3500	2 9	429.6000
1 0	429.3625	3 0	429.6125
1 1	429.3750	3 1	429.6250
1 2	429.3875	3 2	429.6375
1 3	429.4000	3 3	429.6500
1 4	429.4125	3 4	429.6625
1 5	429.4250	3 5	429.6750
1 6	429.4375	3 6	429.6875
1 7	429.4500	3 7	429.7000
1 8	429.4625	3 8	429.7125
1 9	429.4750	3 9	429.7250
2 0	429.4875	4 0	429.7375

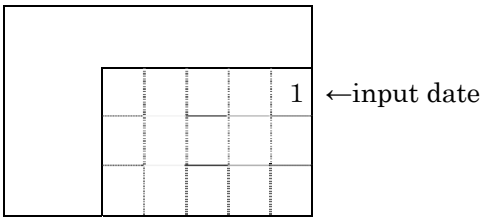
5-10. Setting the stop at the PLAN=ACTUAL Command【F1】

①Press [F1] key, and Stop at the PLAN=ACTUAL setting screen appears.

If there is no need to change the setting contents, press [ENT] key to return to the Command selection screen.



②Input optional setting value



Setting the stop at the PLAN=TARGET
0→Not stop PLAN value at the PLAN=TARGET
1→Stop PLAN value at the PLAN=TARGET

③Here, press [ENT] to set the stop at the PLAN=ACTUAL, and Command selection screen comes back.

If you have inadvertently press a wrong type No, press [CLR] key to get back to the status of ① or overwrite the correct No to modify.

*When "No" for Tact reserve function is set in Function setting

The stop at the TARGET=PLAN function is only effective when type included "TARGET" are set in the 《5-1. Type》 setting and Tact reserve function are not used.

When "Yes" for Tact reserve function is set in Function setting

The stop at the TARGET=PLAN function is effective no relation of type setting.

Target value of present reserve No. is intended to be compared

6. Basic operation

To operate the machine, you need to carry out various settings before use.

Execute those settings according to the explanation to precisely operate this machine.

Since the keys and commands vary with the types, implement the settings with this understanding.

Key	Command	Functions	Target type
[0]	Tact	Sets or changes the tact	ALL
[1]	Target	Sets or changes the target production quantity	1＊＊
	Plan	Sets or changes the planned production quantity	5＊＊
[2]	Actual	Sets or changes the production actual	＊2＊
	Plan	Sets or changes the planned production quantity	１５２
[3]	Advancement	Sets or changes the advancement	＊＊３
	Accomplishment rate	Sets or changes the accomplishment rate	＊＊４
	Actual	Sets or changes the production actual	１５２
[4]	Clock	Sets or changes the internal clock	ALL
[5]	Working hour	Sets or changes the working hour	ALL
[6]	Working hour pattern	Sets or changes the working hour pattern	ALL
[7]	Clear time	Sets or changes the clear time	ALL
[8]	Pre-scale	Sets or changes the pre-scale value	ALL
[9]	Advancement judging	Sets or changes the advancement judging	＊＊３
[▲]	Actual UP	Increases the Actual by one point	ALL
[▼]	Actual DOWN	Decreases the Actual by one point	ALL
[CLR]	Clear	Clears the Actual	ALL
[+]	Screen switch	Switches between normal screen and setting screen	ALL
[−]	Output selection	Switches Yes/No for output from terminal	ALL
[F1]	Tact reservation	Sets or changes the tact reserved contents	ALL
[F2]	Tact switch input	Switches tact reserve No. into next reserve No.	ALL
[F4]	Turn on/off	Turn on/off Display	ALL

*[5] [6] keys are only effective when “Yes” for working hour setting is set in Function settings.

*[9] key is only effective when “Yes” for “With/Without Advancement judging function” is set in the Function settings.

*[F1] key is only effective when “Yes” for “With/Without Tact reserve function” is set in Function settings.

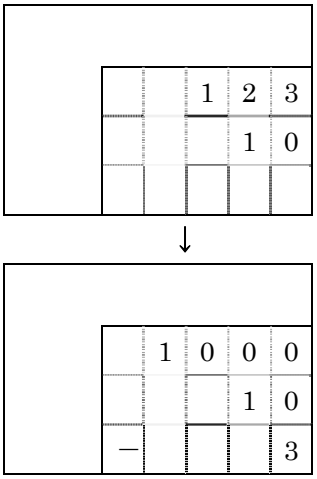
*[8] key is only effective when either of “Multiple” or “Batch” for the pre-scale is set in the Function settings.

*Pressing [CLR] key once allows the Actual to be cleared, and returning to the beginning of working hour, and then the planned quantity to be recalculated according to the tact. Pressing this key twice allows the Actual to be cleared, and the planned quantity to be recalculated according to the tact from the present time.

*When ”Yes” for The stop at the Target=PLAN function is set in Function setting,several command of PLAN ,ACHIVEMENT and ACCOMPLISHMENT’s adjustment is not effective.

[Normal screen]

After power ON, the following screen appears, and then normal screen appears.

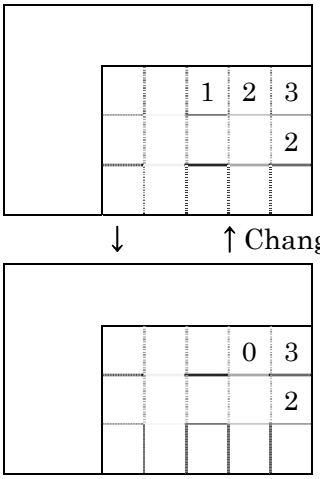


[Opening screen]
←Display of type
←Display of program version No.
[Normal screen]

[Operating status screen]

Press [+] key in [normal screen] to display the [Operating status screen].

If [+] key is pressed once more, [Normal screen] comes back.



[Operating status screen1]
Display of type
Display of "Working hour setting"(1-6)
↓ ↑ Change Display every one second
[Operating status screen2]
Display of present tact reserve No.
Display of "Working hour setting"(1-6)

Descriptions of working setting to be displayed(normal screen)

Setting contents		Display contents	
"With working hour" is set	Without Tact reserve function	1	–
	With Tact reserve function (Individual display)	2	–
	With Tact reserve function (Cumulative display)	3	–
"Without working hour" is set	Without Tact reserve function	4	Flashing Display under planned quantity calculation"
	With Tact reserve function (Individual display)	5	
	With Tact reserve function (Cumulative display)	6	

Flow of Basic operation("Without Tact reserve function" and "With working hour")

1. Setting the present time→Set the present time
   Key No. "4" → {Optional numerals} → "ENT"

↓

2. Setting working pattern→Select working pattern from 1-6.
   Key No. "6" → Select from "1" - "6" → "ENT"

↓

3. Setting working hour→Set the working hour
   Key No. "5" → {Start-Finish} x Input 20-time max → "ENT"
   ＊At last, press "0"→[ENT], and working hour is set.

↓

4. Setting tact→Tact (time necessary for production of one product)
   Key No. "0" → {Optional numerals} → "ENT"

↓

5. Setting target→Set the target production quantity for one day
   Key No. "1" → {Optional numerals} → "ENT"

↓

6. Setting the clear time→Set the time by which production actual can be cleared automatically
   Key No. "7" → Clear time x Input 3-time max → "ENT"
   *If no need, input "0".

↓ Carry out the following setting as necessity.

7. Setting pre-scale Key No. "8"	8. Setting advancement judging Key No. "9"

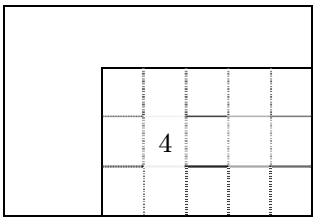
*For pre-scale and advancement judging function, the key No. is only effective when "Yes" is set in the "Function settings".

*For the type 523 and 524, "5. Setting the Target" cannot be executed.

6-1. Setting the Internal clock　　Key [4]

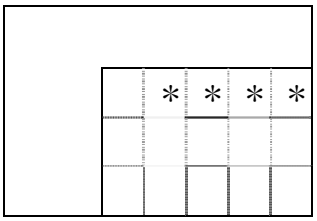
Setting the internal clock

①Press [4] key, and the internal clock setting screen appears.



←Display about 0.75seconds

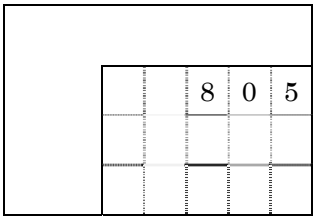
↓



←present data

②Input the present time in the order of hour and minute.

<e.g.>If you have 8:05 A.M.



←input data

③Here, press [ENT] to set that time.

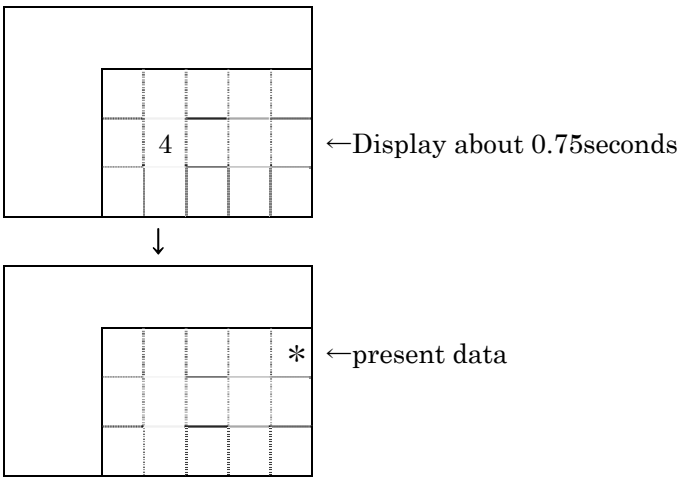
*If you have inadvertently set a wrong data, you may press [CLR] key to get back to the Step ① or you may input 4 correct digits continuously to correct the wrong data.

The machine has a crystal clock. The accuracy of this clock well withstands the normal use. However, the oscillation frequency of the crystal may vary with the temperature, causing a slight shift due to changes in the working environment or temperature if any.

6-2. Setting the Working hour pattern Key [6]

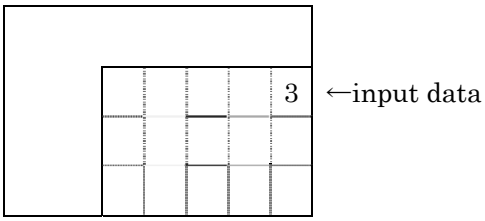
The machine has six working hour patterns and you have to set the machine to operate at which working hour pattern.

①Press [6] key, and the working hour pattern setting screen appears.



<e.g.>If you want to set working hour pattern No.3,

②Input [3].



③Here, press [ENT] to set that working hour pattern.

*If you have inadvertently set a wrong data, you may press [CLR] key to get back to Step ①.

Working hour pattern setting is only effective when “Yes” for use of working hour pattern is set in Function settings. If “No” is set, it cannot be set.

6-3. Setting the Working hour　　Key [5]

Set the working hour of your interest. The machine computes the planned quantity of productions at the present by the set working hour to compute the advancement to production actual.

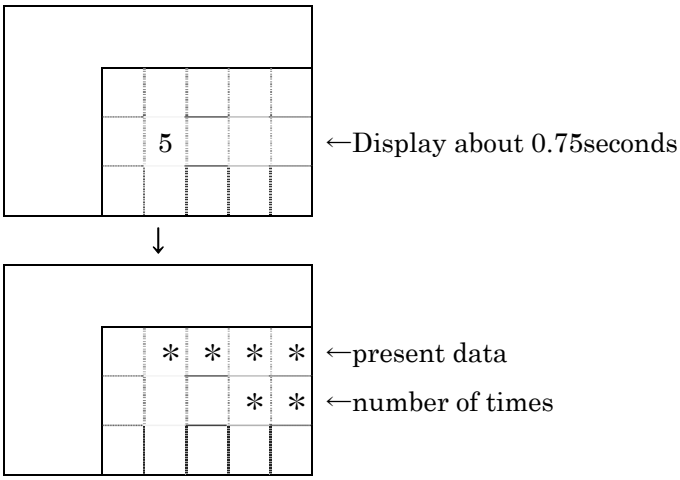
Since the machine has six kinds of working hour patterns, clarify which working hour pattern # is set with the Command [6] and set the working hour pattern of your interest.

<e.g.> If you have working hours as follows:

Start 8:30-----10:00・・10:10--12:00・・13:00-----15:00・・15:15-----17:30・・
Working　Rest　Working　Rest　Working　Rest　Working　Rest

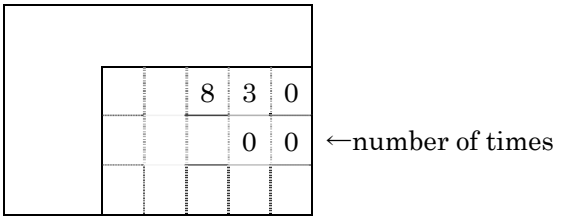
17:45-----19:50・・20:00-----22:00・・23:00-----1:00・・1:15-----3:30 End
Working　Rest　Working　Rest　Working　Rest　Working

①Press [5] key, and Working hour setting screen appears.



The {00} before "START" indicates an input number.

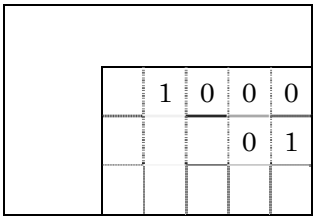
②Input [8][3] and [0] in this order.



③Here, press [ENT] key, "FINISH" screen appears.

*If you have inadvertently set a wrong data, you may press [CLR] key to get back to the Step ① or may input the correct 4-digit data to modify.

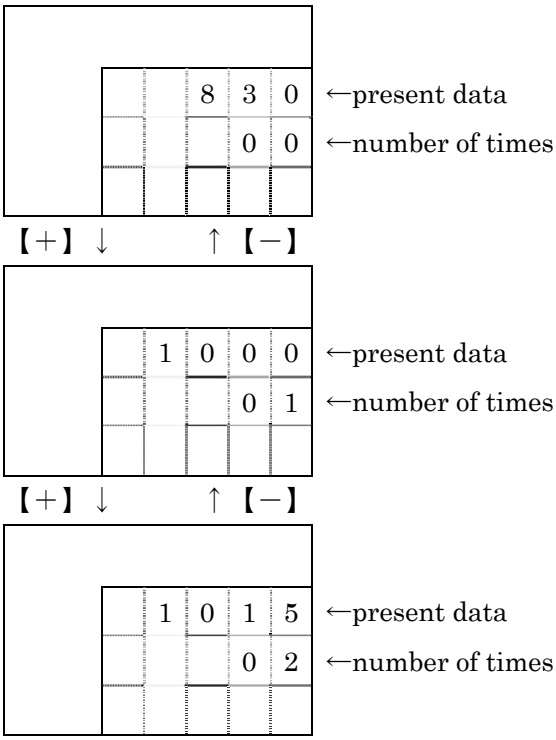
④Input [1][0][0]and[0]in this order for working finish time.



⑤Here, press [ENT] key to get back to the “START” screen.
Repeatedly input “START” and “FINISH” of working hours according to forementioned procedures.

⑥At last, press [0] and [ENT] keys on the “START” screen of even input number to set the working hours of your interest.

*If you need to change only optional “START” or “FINISH”, scroll the screen with [+]/[-] key to change it.



*Pressing [ENT] key without any input lets you set that working hours without any change. (The data before this have been changed.)

For 0: 00, set 24:00.
For 0: 01, set 00:01.

Since the machine has the unit of 24 hours, you cannot set any start of working hours exceeding the end of working hours.
<e.g.>You cannot set any start time of 8:00 A.M. and any end time of 10:00 A.M. on the next day.

After setting the end of working hours, be sure to set [0].
Unless [0] is set, the machine does not recognize the end time of working hours and so does not have the normal computation. If [0] is set en route, further data after that setting is all ignored. If the set time is odd number (FINISH screen), the end time of working hours has not been set. Accordingly [0] cannot be set in this case.

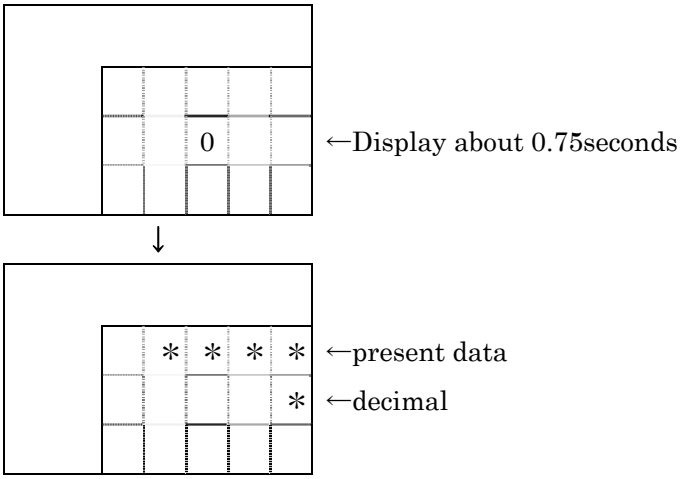
A single working hour set is for 20 working hours, which is equivalent to 40 set times.

The working hour setting is only effective when working hour setting “Yes” is set in Function settings. If “No” is set, it cannot be set.

6-4. Setting the Tact　　Key [0]

Setting tact in seconds (the time required for production per product)

①Press [0] key , and the tact setting screen appears.



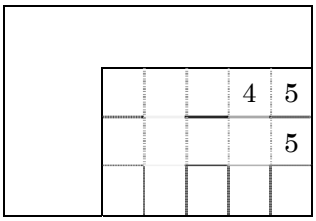
②Input the Tact (man-hours) of your interest in seconds within less than 5-digit.

The setting ranges vary with the tact precision (0.1sec/0.01sec) which was set in operation setting.

0.1sec setting→0.1-9999.9sec

0.01sec setting →0.01-999.99sec

<e.g.>For 45.5sec, input [4][5] and [5] in this order.



③Here, press [ENT] to set the tact.

*If you have inadvertently set a wrong data, you may press [CLR] key to get back to the Step ①.

Tact can be changed at anytime.

If tact is “0”, the machine does not compute any progress.

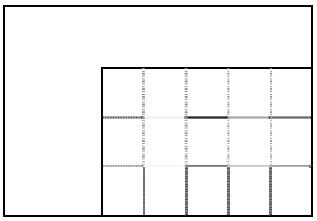
6-5. Setting the contents displaying　Key [1]～[3]

Setting each command

The contents displaying in each item is different from type and put it together [target] [actual][advancement][advenacement][accomplishment].

<3-command type>

<e.g.>For type [123]



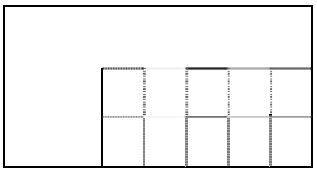
Setting of target by command [1]

Setting of actual by command [2]

Setting of advancement by command [3]

<2-command type>

<e.g.>For type [23]

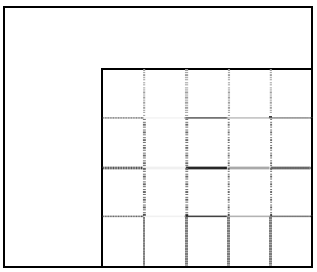


Setting of actual by command [1]

Setting of advancement by command [2]

<4-command type>

<e.g.>For type [1524]



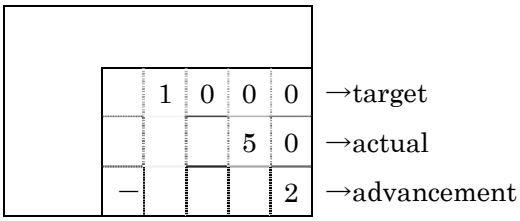
Setting of target by command [1]

Setting of plan by command [2]

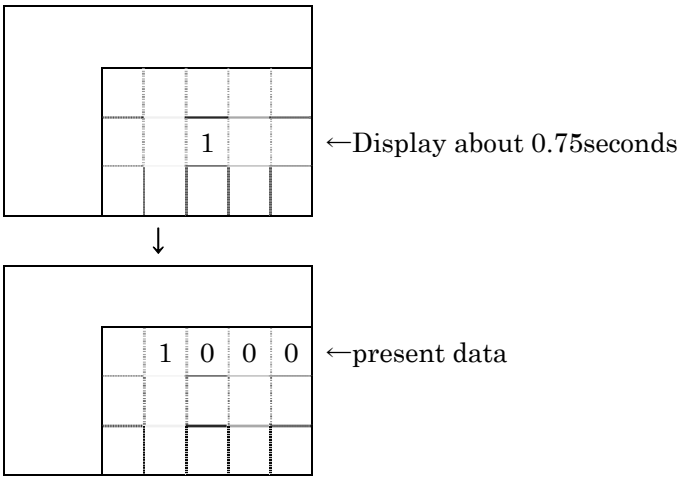
Setting of advancement by command [3]

<e.g.>Setting a target quantity of productions a day

For type[123] target 1000→2000 in this order.

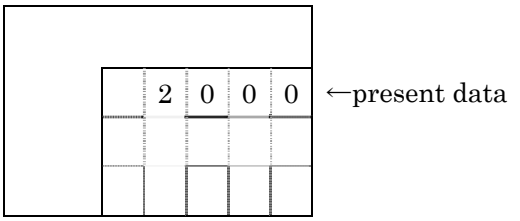


①Press [1] key, and Target setting screen appears.



②Input the number of target of your interest.

<e.g.>For 2000, input [2][0][0] and [5] in this order.



③Here, press [ENT] key to set the tact.

*If you have inadvertently pressed a wrong data, press [CLR] key to get back to the Step ①.

④Likewise setting [actual][advancement][advenacement][accomplishment].

If the plan is changed, the Advancement and Accomplishment rate are automatically changed based on the production actual.

If the production actual is changed, Advancement and Accomplishment rate are automatically changed based on the production actual.

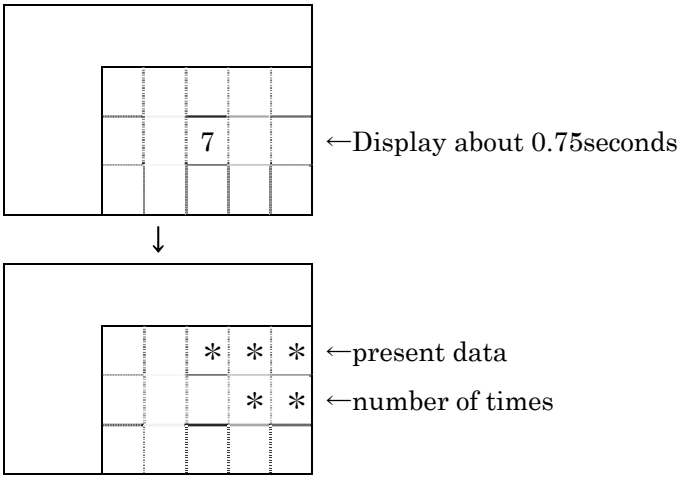
A small change in the production actual can also be made by using the [▲]/[▼]key.

The larger + numerals than actual cannot be inputted

6-6. Setting the Clear time　　Key [7]

This is the clear time setting procedure. Once the preset time is reached, the clear function allows the planned quantity/production actual to set into "0" and makes restarting. For this machine, [CL] key should be pressed or the power source should be turned on/off once a day.　However, if the clear time is set before the beginning of the working hour, continuous operation is enabled. The clear time can be set up to 3 times in total.

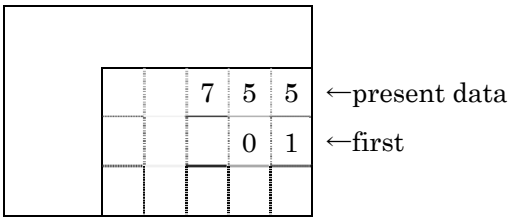
①Press [7] key.



②Set the time at which you want to clear for the first time.

<e.g.>　To set it at 7:55, input [7] [5] and [5] in this order.

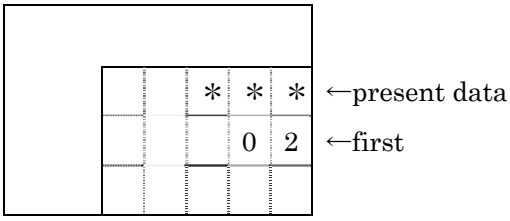
If you have inadvertently set a wrong data, press [CLR] key and input once again.



③Press [ENT] to set the clear time.

The screen displays the clear time 2.

In the same manner as for the first time, set the second and third clear time.



*You can get off/back the input screen using [+] [-] key.

④To terminate the setting, press [ENT] while input column is being blank to get back to the normal screen.

*The clear time can be registered up to 3-time for a day (23-hour 59-min).

*For the clear time which is not used, input [00:00].

*For 0:00, input [24:00].

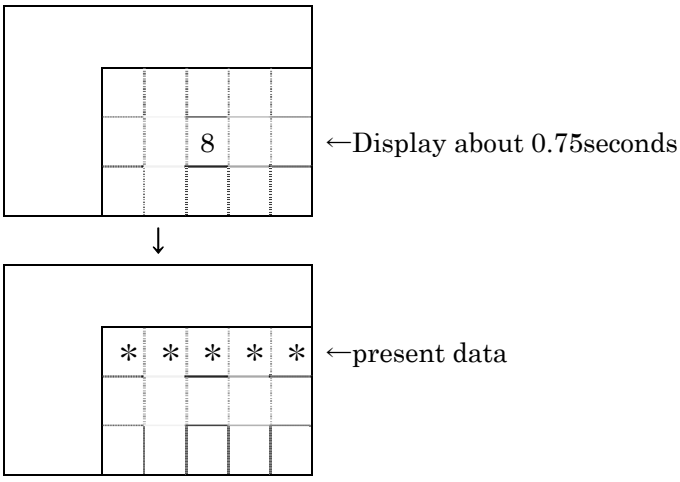
*When the Controller power source was turned off at the clear time registered, this function does not work.

6-7. Setting the Pre-scale Key [8]

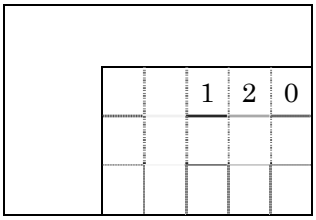
Set the pre-scale here. The pre-scale function includes the multiple number setting and batch number setting. Once either [Multiple number] or [Batch number] is selected in the Function settings, this function is enabled. If neither of [Multiple number] nor [Batch number] is selected in the Function settings, this function is disabled, thus [8] key cannot be selected.

(Multiple number setting)
It allows the multiplied content, which is set for actual input/subtraction input, to go up/down. Up/Down by means of [▲]/[▼] key allows increasing/decreasing one by one point regardless of any pre-scale set values.
(Batch number setting)
Once the Batch number set for actual input/subtraction input is reached, the numeric value goes up or down one by one point. The actual input and subtraction input, which do not exceed the Batch number, are memorized into this machine, however, if they are cleared, the memorized contents will be erased. Up/Down by means of [▲]/[▼] key allows increasing/decreasing one by one point regardless of any pre-scale set values.

To carry out the Multiple number setting [Multiple number]:
①Press [8] key.



②Input the Multiple number to be set.
<e.g.> To set “120”, input [1] [2] and [0] in this order.
If you have inadvertently set a wrong data, press [CLR] key and input once again.



③Here, pres [ENT] key to set the Multiple number.

*If you have inadvertently pressed a wrong numerals, press [CLR] key to get back to the Step ①.

*Also for the Batch number (Batch), take setting in the same manner as above.

Multiple number setting range:1-99999

Batch number setting range:1-99999 *"0" cannot be set.

*This function cannot be used together with Tact reserve function.

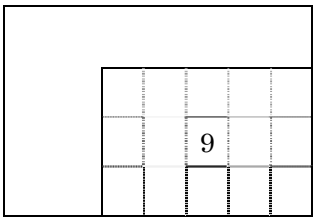
6-8. Setting the Advancement judging function Key [9]

Objective type=＊＊3, 1523

The Advancement judging function allows the outputting from “Advancement judging + “terminal and “Advancement judging - “terminal when the absolute value of Advancement has exceeded the judging value of [+] side and [-] side, which was preset. You have to set both for plus side and minus side.

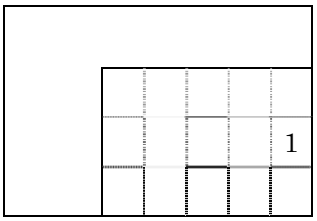
Once “With/without of advancement judging” is set to “No” in the Function settings, this function is disabled, thus [9] key cannot be selected.

①Press [9] key.



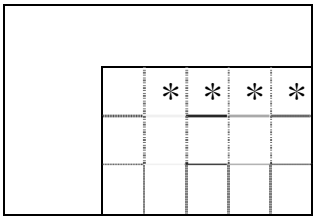
←Display command

②To set the + side judging, input [1].



Display about 0.75seconds

↓

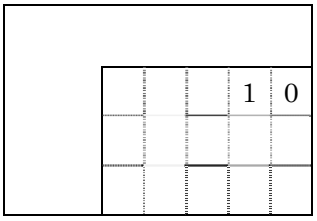


←present data

③Input + side judging value.

<e.g.>To set + 10, input [1] and [0] in this order.

If you have inadvertently pressed a wrong numerals, press [CLR] key and input once again.



④Here, press [ENT] to set the + side judging value.

*If you have inadvertently pressed a wrong numerals, press [CLR] key to get back to the Step ①.

*Also for the - side judging value, take setting in the same manner as above.

+side judging value setting range:0-9999
- side judging value setting range:0-9999

7. Applied operation

7-1. Explanation of Working setting

This article describes the operation methods other than those mentioned in "6. Basic operation".

The contents stated here are mainly the different points from those in Basic operation, but the same points as those in Basic operation are not contained. Accordingly, make settings for those different points according to the Basic operation.

The operation described here consist of the working setting (2)-(6) .

The working setting is largely classified into:

① "Yes" or "No" for registration of Working hour
(Function settings command [3])

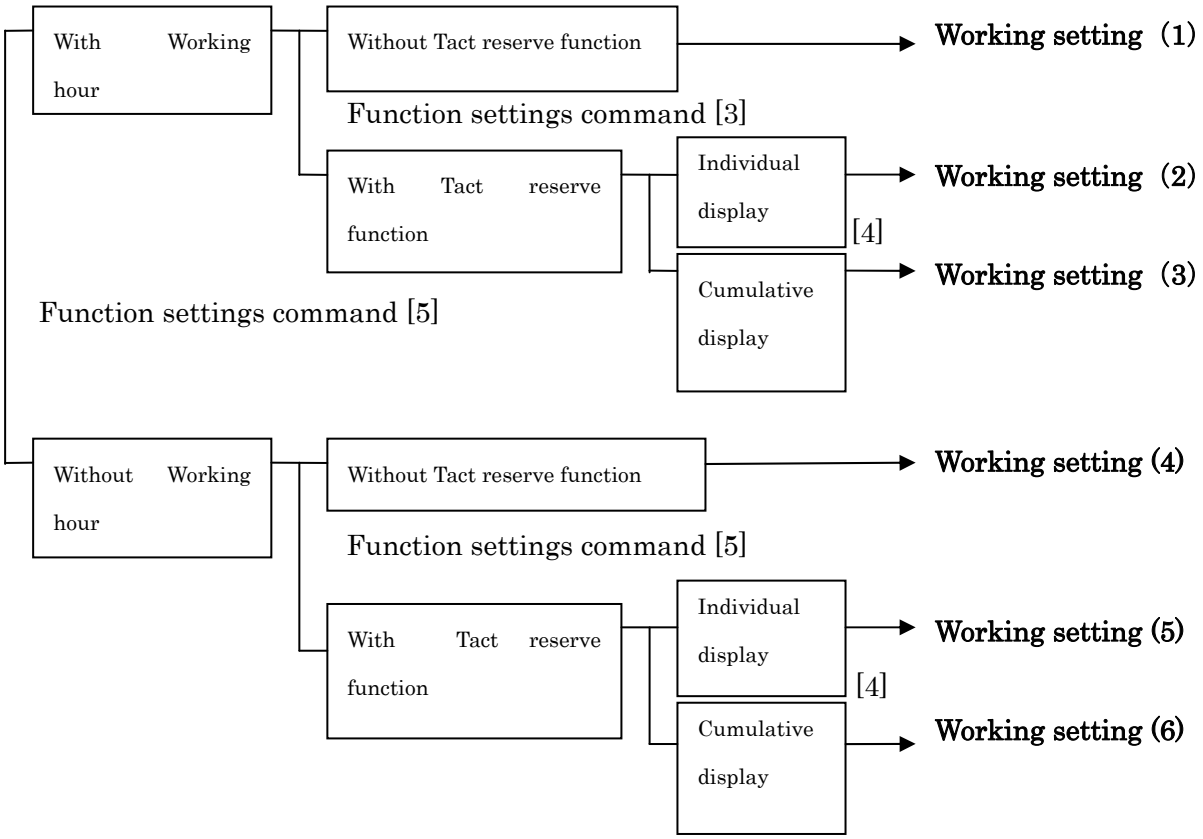
② "Yes" or "No" for use of Tact reserve function
(Function settings command [5])

Besides, when ②Tact reserve function is used, the display method is divided into:

①"Yes" for use of Cumulative display ②"Yes" for use of Individual display

To change the working setting, use the commands [3] [5] in the Function settings(Page-20). Precisely set depending on your application.

For the Working setting (1), see the Basic operation.

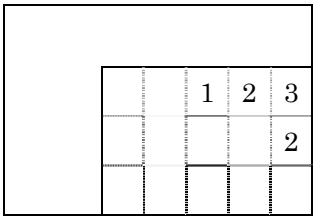


<Confirmation of working setting contents>

The [Normal screen] and [Operating status screen] let you confirm the working setting contents, which is set at present.

Press [+] key in [normal screen] to display the [Operating status screen].

If [+] key is pressed once more, [Normal screen] comes back.

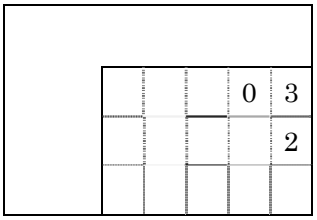


[Operating status screen1]

Display of type

Display of "Working hour setting"(1-6)

↓ ↑ Change Display every one second



[Operating status screen2]

Display of present tact reserve No.

Display of "Working hour setting"(1-6)

Descriptions of working setting to be displayed(normal screen)

Setting contents		Display contents	
"With working hour" is set	Without Tact reserve function	1	—
	With Tact reserve function (Individual display)	2	—
	With Tact reserve function (Cumulative display)	3	—
"Without working hour" is set	Without Tact reserve function	4	Flashing Display under planned quantity calculation"
	With Tact reserve function (Individual display)	5	
	With Tact reserve function (Cumulative display)	6	

7-2. Working setting A - Operation when "No" for working hour setting is set(Without Tact reserve function)

This article describes about the Working setting "4".

When Working setting is displayed as "4" in the Operating status screen, the Function setting is carried out as stated in the following table.

Working setting	With/Without of Tact reserve function [3]		With/Without of working hour [5]
"4"	No	No	No

The Working setting "4" allows the planned quantity to be calculated without setting the working hour while the signal being inputted from outside is regarded as "Within working hour".

The working hour registration and the working pattern selection are disabled. Since working hour is not registered, there is no starting time and finishing time. Accordingly, recalculating function by means of [CLR] key is not available.

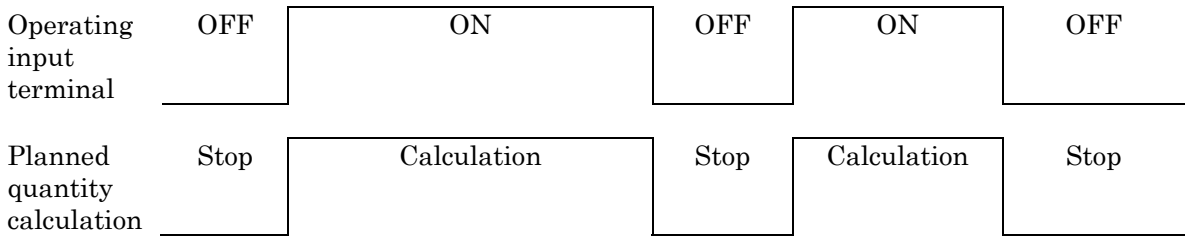
The input terminal for "Stop input" operation in the Working setting "1" - "3" is changed into the operation for "Operating input" in the Working setting "4" - "6".

The "During Stop" output terminal is also disabled.

The key function is basically same as the basic operation; however, the key functions stated below are changed.

(For other portions, see the page 33～ of Basic operation.)

This operation setting allows the planned quantity to be calculated only while the I/O terminal" Operating input" is ON.



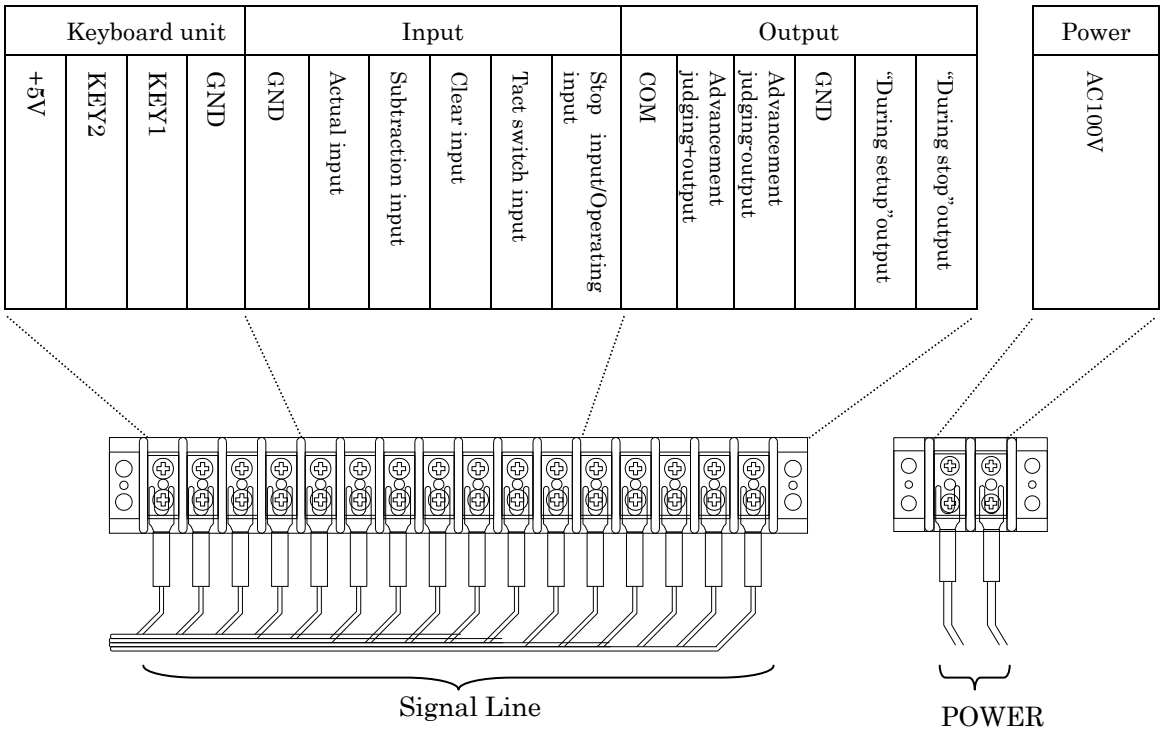
*As the working hour is not registered, the recalculating function while returning to the starting time is not available.

*The data in power off can be backed up. If power is boosted again, calculation starts with the backed up data.

*Operating input can be accumulated for up to 1-month.

Key	Command	Functions
[5]	Working hour	Disable
[6]	Working hour pattern	Disable
[CLR]	Clear	Clears the Actual, and allows the calculation of planned quantity according to the tact from the present time.

Terminal block



Power input	AC100V(AC85-125V)	Input the power voltage.

Non-voltage contact input	Actual input		Increases the production actual
	Subtraction input		Decreases the production actual
	Clear input		Clears the Actual/Plan.
	Tact switch input		Switches tact reserve No. into next reserve No. ***1** (effective only when Tact reserve function is used)
	Stop input Operating input	"With Working hour" is set	"Stop input" turns on during inputting so that the planned quantity calculation stops.
		"Without Working hour" is set	"Operating input" turns on during inputting so that the planned quantity calculation runs.
Open collector output	Advancement judging output "+"		It turns on while Advancement exceeds "+advancement judging value".
	Advancement judging output "-"		It turns on while Advancement does not exceed "-advancement judging value".
	"During setup" output		"During setup" turns on. ***2** "During setup" turns off for other than Working hour.
	"During stop" output	"With Working hour" is set	"During stop" turns on while Stop input terminal is ON.
		"Without Working hour" is set	Not used

<Clear processing>

[Clear] terminal	Plan/Actual is cleared and calculation is started from the present time according to the preset tact.
[CLR] key	Plan/Actual is cleared and calculation is started from the present time according to the preset tact.

*As the working hour is not registered, the recalculating function while returning to the starting time is not available.

*The data in power off can be backed up. If power is boosted again, calculation starts with the backed up data.

*Operating input can be accumulated for up to 1-month.

7-3. Working setting 2,3,5,6-Setting the Tact reservation (With working hour)

This article describes about the Working setting ”2” and “3””5””6”.

When the Working setting is represented by ”2” and “3””5””6” in the Operating status screen, the Function settings stated in the following table is set.

Working setting	With/Without of Tact reserve function [5]	With/Without of working hour [6]
“2””3”	Yes(Command=1)	YES(Command=0)
“5””6”		NO(Command=1)

The operation carried out by the Working setting”2””3””5””6”includes Tact reserve function in addition to the Basic operation.This article only describes the Tact reserve function.

To change the tact during work of one day, you can reserve the tact up to 20-type for each work order.

To reserve the tact, register “Tact”, “Target production quantity” and “Setup time” beforehand.

The tact can be changed at the time when the production actual reaches the target production quantity. For the display methods, you have to set either Cumulative display or Individual display.

Registered items	Contents
Work quantity	20 types at max
Reserved contents	Tact 0.1-9999.9sec or 0.01-999.99sec Target production quantity: 4-digit-type:0-9999 5-digit-type:0-99999 Setup time 0-998min
Display method	Cumulative display or Individual display

<Displayed contents>

Command	Cumulative display (Working setting”3””6”)	Individual display (Working setting”2””5”)
Target	Displays total target production quantity today	Displays target production quantity of the present reserve No.
Plan	Displays total planned production quantity at present time	Displays planned production quantity of present reserve No.
Actual	Displays total production actual at present time	Displays production actual of present reserve No.
Advancement	Displays advancement degree in ± against total planned production quantity at present time	Displays Advancement degree in ± against planned production quantity at present time
Accomplishment rate	Displays Accomplishment rate of Actual against total planned production quantity at present time	Displays Accomplishment rate of Actual against planned production quantity at present time

Tact reserve function cannot be used together with pre-scale function.

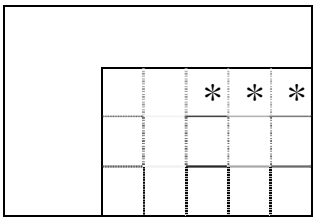
<e.g.>When there are 4 types of works for one day and the target quantities for each work are as stated below, the contents both of Cumulative display and Individual display are as follows:
(The following example shows the case when immediately after tact is changed and also the production actual for each work is not being inputted)

Work	No.1	No.2	No.3	No.4	Total
Target quantity	350	100	860	400	1710

Individual display	Cumulative display	
Target 350 Actual 0 Advancement 0	Target 1710 Actual 0 Advancement 0	For the reserve No.1
Target 100 Actual 0 Advancement 0	Target 1710 Actual 350 Advancement 0	For the reserve No.2
Target 860 Actual 0 Advancement 0	Target 1710 Actual 450 Advancement 0	For the reserve No.3
Target 400 Actual 0 Advancement 0	Target 1710 Actual 1310 Advancement 0	For the reserve No.4

["During setup" screen]

"During setup" signal turns on from I/O terminal in the open collector system.



[Display of During setup]

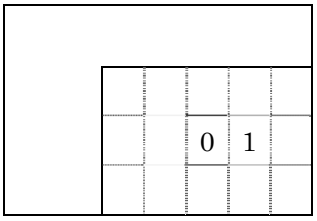
←Settingup time(Flashing)

<Tact reserving procedures>

To reserve the tact, register "Tact", "Target production quantity" and "Setup time" beforehand.Register the Reserve No. 1-20.

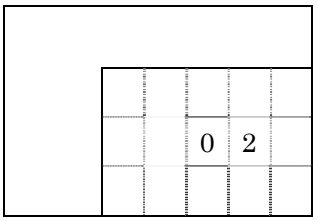
Setting range	Contents
Reserved work	20 works
Tact	0.1~9999.9-sec or 0.01-999.99-sec
Target production quantity	4-digit-type:0-9999 5-digit-type:0-99999
Setup time	0-998

①Input [F1] key and Display of Tact reserve No.



←Display of Tact reserve No.

【+】 ↓ ↑ 【−】



←Display of Tact reserve No.

【+】 ↓ ↑ 【−】

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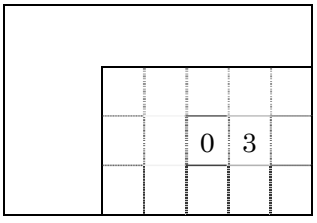
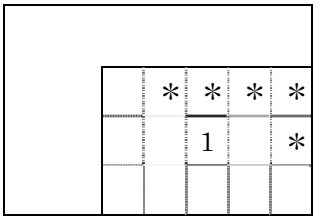
【+】 ↓ ↑ 【−】



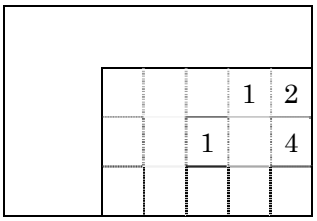
←Display of Tact reserve No.

②Input [1] key and carry out “Registration”.



Input the tact of the first work (Reserve No.1).

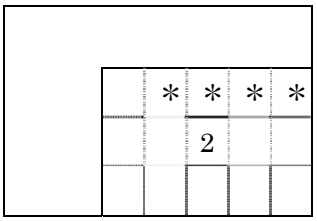
<e.g.>For 12.4 sec, input [1], [2] and [4]in this order.



Press [ENT] to register the tact.

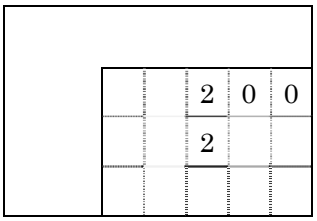
If you have inadvertently pressed a wrong data, press [CLR] key and input [1],[2] and [4] in this order once again and then press [ENT] to register.

If [ENT] key is pressed without inputting anything, carry out No.2 register screen without being registered.



③Input the target production quantity of the first work (Reserve No.1).

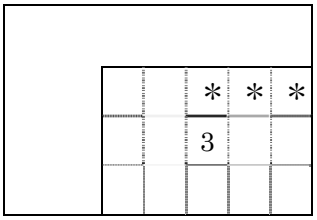
<e.g.>For 200, input [2],[0] and [0] in this order.



Press [ENT] key to register the target production quantity.

If you have inadvertently pressed a wrong data, press [CLR] key and input [2],[0] and [0] in this order once again and then press [ENT] to register the target production quantity of the Reserve No.1.

If [ENT] key is pressed without inputting anything, carry out No.2 register screen without being registered.

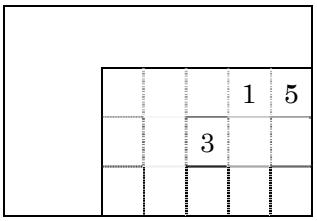


[Register screen of setup time]

←Present data (Setup time)

④Input the Setup time of the first work (Reserve No.1).

<e.g.>For 15min, input [1] and [5] in this order.



[Register screen of setup time]

←Input data (Setup time)

Press [ENT] key to register the setup time.

If you have inadvertently pressed a wrong data, press [CLR] key and input [1] and [5]in this order once again and then press [ENT] key to register the setup time. If setup time is not required, input [0] and press [ENT] to register the setup time of "0". If [ENT] key is pressed without inputting anything, carry out No.2 register screen without being registered.

⑤Input "Tact", "Target production quantity" and "Setup time" for Reserve No.2 and onward according to the aforementioned procedures.

For less than 20 in registered work quantity, if one condition among "999 of setup time", "0 of tact" or "0 of production actual" for the next Reserve No. is satisfied in final register screen, it means that registration is completed, so that the subsequent registered contents are ignored.

<Clear processing>

[Clear] terminal	Within working hour	Plan/Actual is cleared and calculation is started from the present time according to the tact of current reserve No.
	Other than working hour	Work of Reserve No. 1 is set.

[CLR] key	Pressing once within working hour	Plan/Actual is cleared and recalculation is carried out up to the present time according to the tact of the current reserve No.
	Pressing twice within working hour	Plan/Actual is cleared and calculation is started from the present time according to the tact of the current reserve No.
	Other than working hour	Work of Reserve No. 1 is set.

<Tact switching timing>

The tact switching timing is the time when target production quantity is consistent with the production actual.

Processing is carried out within working hour setting for the range between the reserve No. registered as "1" and the reserve No. ahead of either [999] in setup time or [0] in tact or [0] in production actual.

If within working hour, processing continues after returning to the reserve No. 1.

Switching timing:

1.When No is manually changed using "Reserve No." of [F2]

2.When inputting through Input terminal "Tact switch"

3.When Production Actual is reached

<To change the tact reserve No.>

In normal processing, data is switched in the order registered in Tact reservation; however, if processing should be started with the tact reserved work other than the work being currently processed, this setting should be carried out.

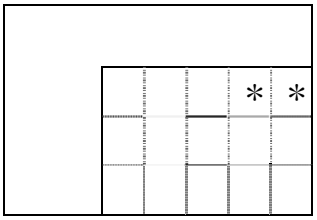
The tact reserve No. switching method includes the following two ways:

1.Input the external signal to switch the current reserve No. into the next reserve No.
Each time when signal is turned on from the external input terminal "Tact switch", the Tact reserve No. is switched into the next reserve No.

2.Control the key to specify the reserve no and switch it.

To switch the reserve No through the control of key:

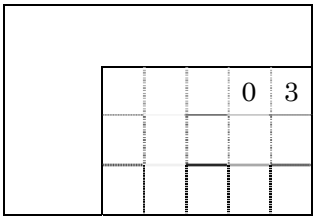
①Press [F2] key.



←Present data (Reserve No.)

②Input "Reserve No.".

<e.g.>To switch to Reserve No 3, input[3].



←Input data (Reserve No.)

③Press [ENT] key to switch into the inputted reserve no.

When the reserve No. is changed through either the control of key or use of external signal,

① For the Individual display setting: the reserve No is changed, and also Plan/Actual is cleared.

② For the Cumulative display setting: even if the reserve No is changed, Actual is not cleared.

8. Handling precautions

[1] If you use the setting of using working hour, the machine maintains the displayed data after the working hours are over. Thus, you need to turn off power once or press the [CLR] key before the start of working hours.
(Unless the previous day's data is cleared, the machine will not start the Plan/Advancement calculation.)

[2] Assume a case where the clock time is changed after the start time of working hours. If the time is put back, the machine operates erroneously, recognizing that 24 hours or more have elapsed. In this case, press the [CLR] key after you have put back the time. For example, if the clock time is changed to 8:27 at 8:30, then the machine takes it for 8:27 on the next day.

[3] It is imperative that the machine be switched on before the start time of working hours. If it is switched on after that, the machine fails to operate normally. For the machine takes it for recovery from a power failure because it is within working hours and recognizes 24 hours or more have elapsed.
In such a case, press the [CLR] key after you have switched on the machine.

[4] Most of the causes for abnormal operation of the machine are attributed to the Working hour setting, the Tact setting, and the above [1]/[2]/[3]. When the machine does not operate normally, try pressing the [CLR] key after re-checking if the Working hour, Tact, and Clock are normal.
If the machine still does not return to normal condition, please contact us because a machine trouble is suspected.

[5] When it becomes impossible for the period of the data backup and the clock to shorten or to backup, it is necessary to exchange the battery. It might be consumed.When you have to exchange, contact the AGENT or through which you purchased the product or our office.

[6] If the battery of data back up is not used for a while, the battery doesn't charge it enough and cannot be backed up. Please turn on Power for while. It is necessary for the full charge for 24hours. If you don't use the machine over 3-6 months, please charge for full charge for 24 hours every 3-6 months to maintain performance of battery.

[7] If you press the [ENT] key after this, the value you input will be set as the planned quantity. If you have inadvertently set a wrong data, press the [CLR] key and re-input the correct data.

9. Maintenance

In the unlikely event that you find trouble during use under normal conditions, inform the following matters to the outlet store through which you purchased or our sales office.

Product name / Production No. / Service environment,
External devices connected
Operating procedures taken until trouble happens, and
Concrete trouble contents

10. Warranty

■ Provisions of warranty

The provisions of warranty are set forth by us for warranty of the product after shipment so that the product can be used with a sense of security after purchased. In case our product is out of order, we will provide repair or replacement under the provisions of warranty.

■ Warranty period

Besides, as long as there is not providing, the warranty period shall be 13 months after shipping the products. During the warranty period, we will provide free-of-charge repair subject to the provisions of warranty set forth in the warranty certificate.

If you have anything unclear about the repair or follow-up service during the warranty period, please contact the outlet store through which you purchased the product or our Sales Office.

■ Scope of warranty

If the product should get out of order under the normal conditions of use by the customer, we will repair the failed section(s) free of charge or exchange the new one free of charge subject to the provisions of warranty. Please contact the outlet store through which you purchased the product or our Sales Office.

Also, the warranty period shall be 13 months after shipping the product or shall be 6 months after shipping substituting goods. The warranty periods will be applied the period visited later.

Note, however, that free-of-charge repair under this warranty is limited to the hardware components of the product. Even during the warranty period, the customer shall be responsible for repair cost if any of the following applies:

1. Troubles or damages occurring due to improper handling by the customer, such as a fall, a shock, etc. during transportation or movement of the product by the customer.
2. Troubles caused by overhaul or remodeling of the main body by the customer.
3. Troubles or damages caused by fire, earthquake, flood damage, or other natural disasters, as well as by abnormal voltage.

4. Troubles resulting from any trouble of devices connected to the product, which devices are other than those designated by us.
5. Troubles with the accessories (AC adapter, antenna, connection cables, or the like) except the main body.
6. Repairing, adjustment, modification by except our company
7. Replacement of consumables and limited-life items (including batteries).
Consumables and limited-life items include, but not limited to:
(1) Switches (limit switches, pushbutton switches, or the like)
(2) Battery cells or batteries (dry batteries, button batteries, or the like)
(3) Other items subject to consumption or limitation of life caused by use.
8. Troubles occurring due to handling against the use instructions or precautions specified in this operation manual.

■ Initial defects

The period within 30 days from the date of shipping the product is defined as the initial defect period for the product. The product will be replaced with a new one or repaired free of charge provided that it is returned to the outlet store through which you purchased the product or our Sales Office, checked, and recognized as having initial defects. For initial defects, we shall be responsible for the shipping cost.
But it is in Japan only. In case of purchasing the products out of Japan, it will be decided after conference about shipping cost for returning back, insurance cost, custom duty.

■ Disclaimer

We will assume no liability for any damages or monetary losses, direct or indirect, arising out of troubles, failures, or use of the product.

■ Repair service period

Only if we have the stock of parts for repairing, even if after finishing the warranty period, we will repair the product within 5 years after end of production for a fee.
However, we reserve the right to use substitute parts or devices for repairing purposes if there are unavoidable reasons such as unavailability of service parts.

■ Others

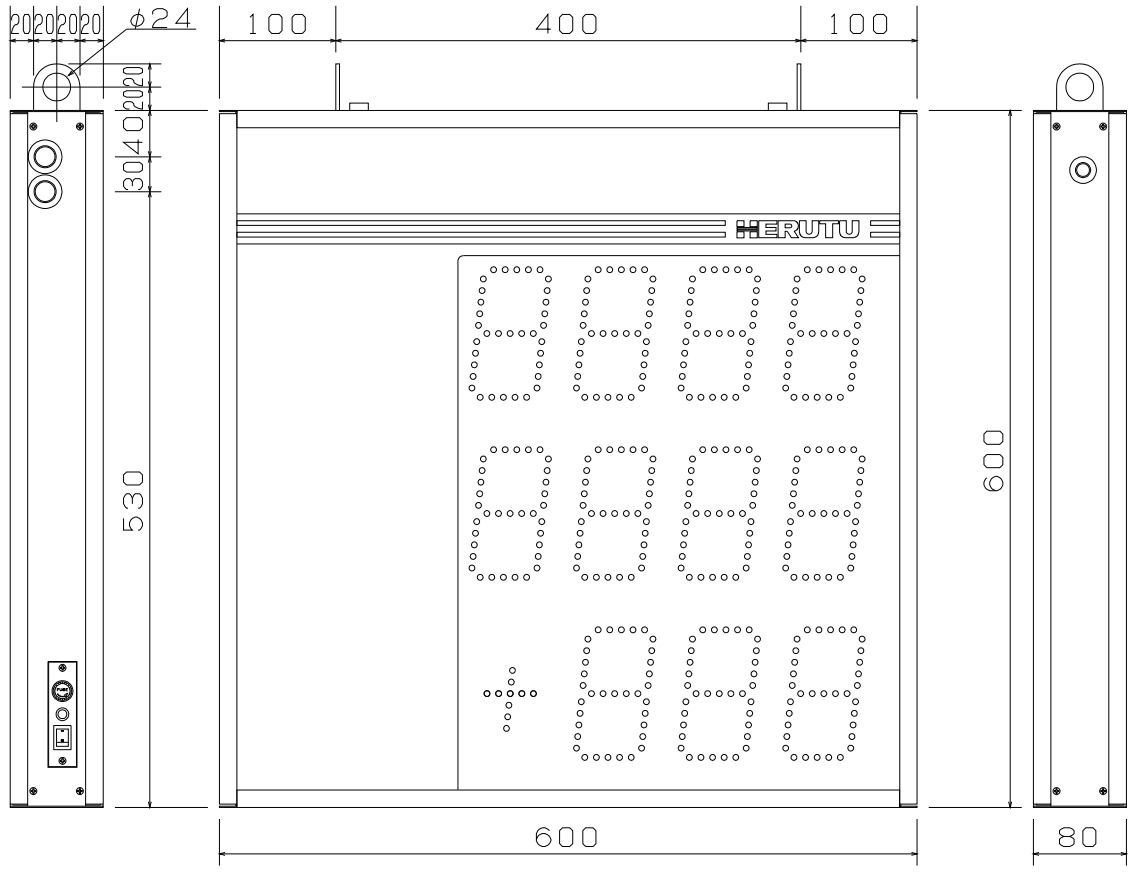
- ●Independent of the warranty period, the product to be repaired shall in principle be brought into our site because of the necessity of using measuring instruments or the like for adjustments etc., and the shipping cost etc. incurred in bringing the product into our site shall be borne by the customer.
- ●In such cases where you request a trip to your place for repair or need substitute devices during the warranty period, please contact the outlet store through which you purchased the product or our Sales Office. We will correspond for a fee.
- ●We reserve the right to refuse replacement or repair if we are unable to reproduce the concerned failure at our engineering department after receipt of a request for repair.

In addition, an additional charge may be made to the customer for the technical examination cost incurred in reproducing the failure.

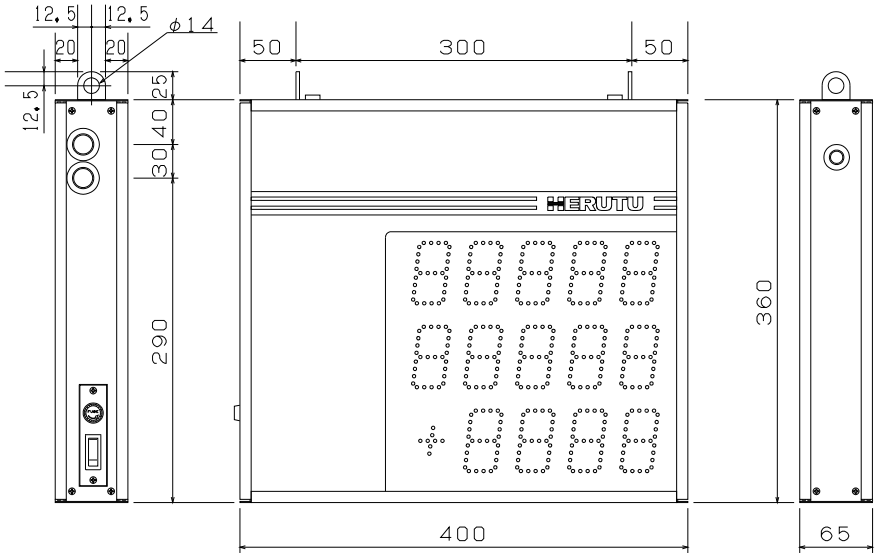
●The information in this manual, our website, catalog we supply, is subject to change without prior notice. Please be forewarned.

Dimensional drawing

<<3-command large-sized type>>

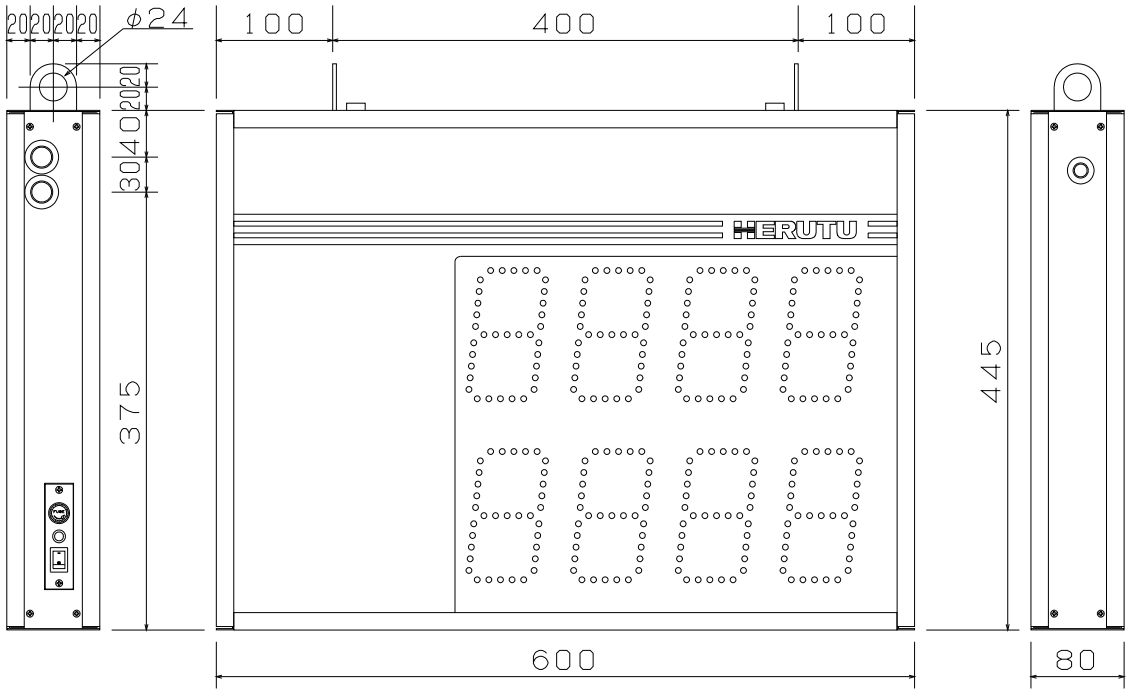


<<3-command middle-sized type>>

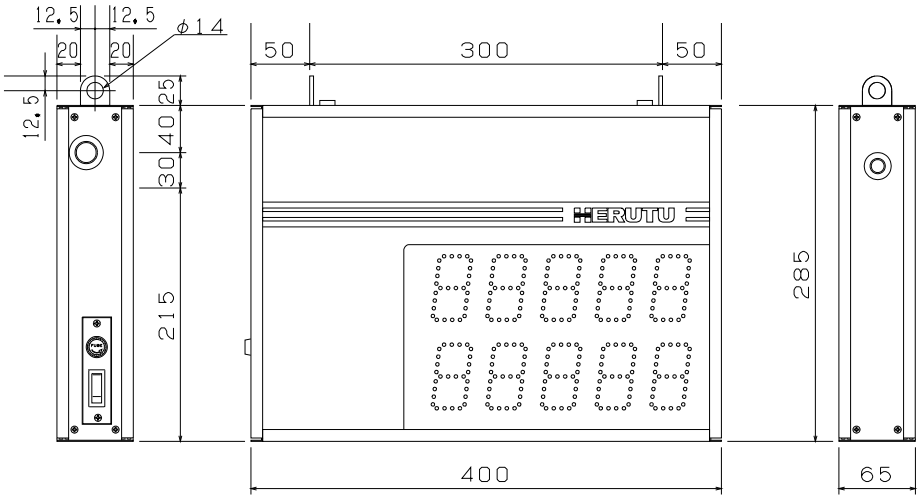


Dimensional drawing

<<2-command large-sized type>>

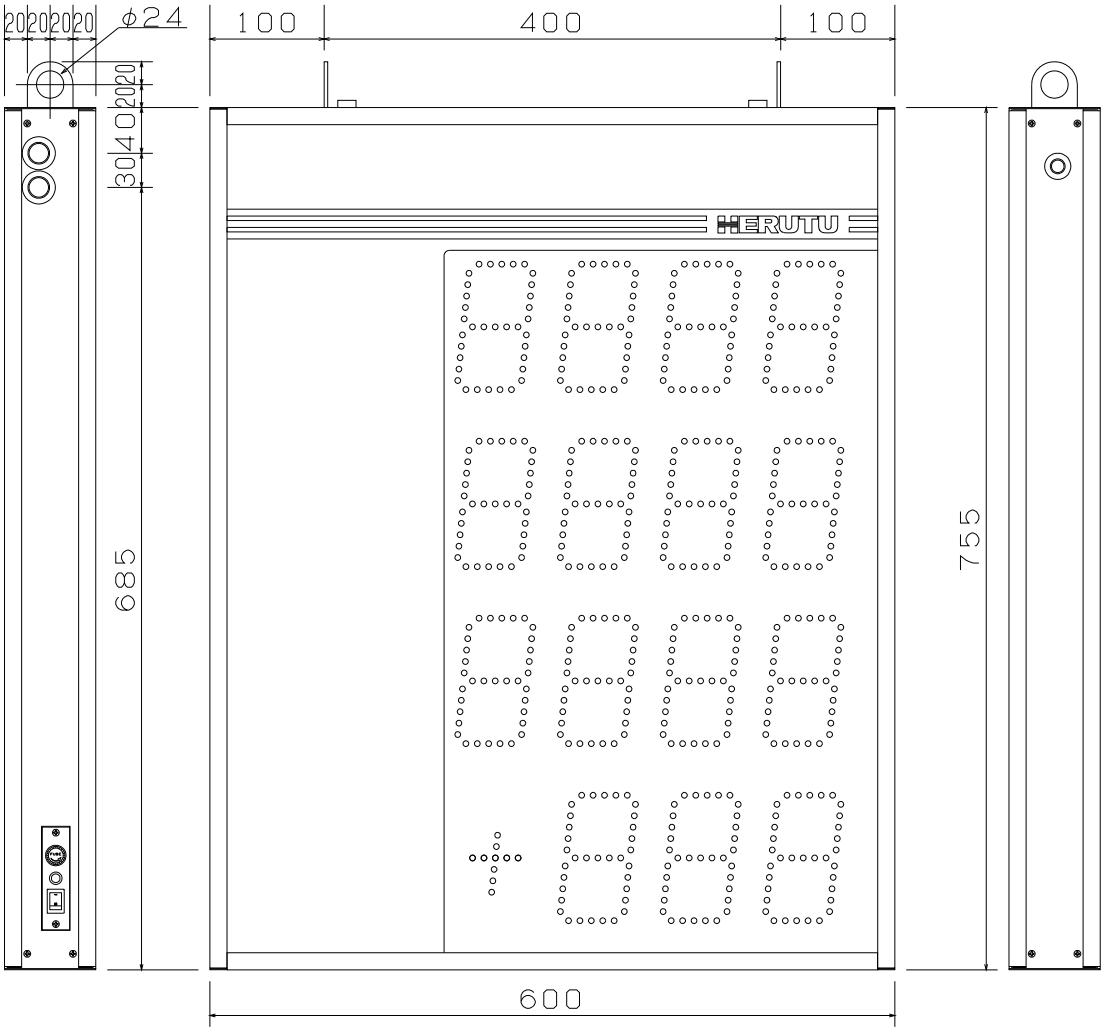


《2-command middle-sized type》

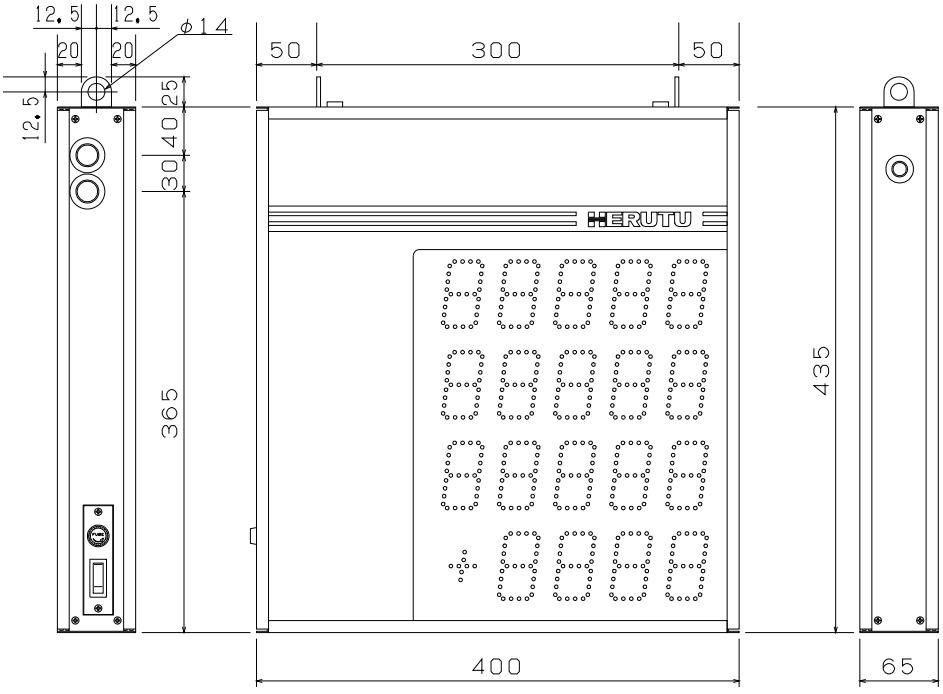


Dimensional drawing

<<4-command large-sized type>>



<<4-command middle-sized type>>



Dimensional drawing

KE-2