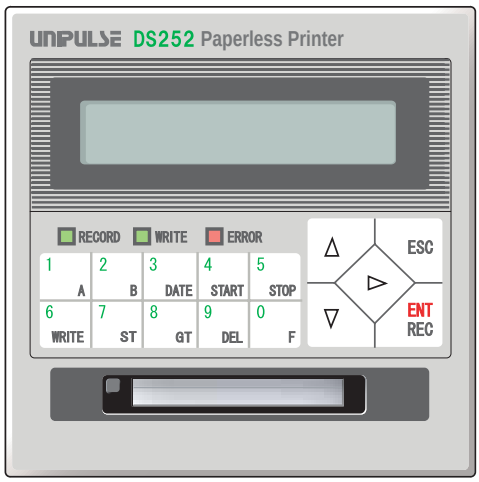
UNIPULSE

DS252 *PAPERLESS PRINTER*



OPERATION MANUAL

Rev. 1.03

BE SURE TO READ BEFORE USE

Introduction

Thank you very much for purchasing our paperless printer DS252.

This product, as is connected to our loadcell indicators or digital indicators through the SI/F (two-wire serial interface), records indicated values etc. on a CF card. External equipment data other than our indicators can also be recorded with optional BCD input or RS-232C interface.

Read this manual and understand the descriptions carefully before use.

After reading the manual, always keep it handy so that it can be referred to at any time.

Safety Precautions

Be sure to read for safety.

In order to have an DS252 Paperless Printer used safely, notes I would like you to surely follow the documents indicated separately on ⚠ WARNING and ⚠ CAUTION.

Notes indicated here are the serious contents related safety. Please use after understanding the contents well.

⚠ WARNING

Misuse may cause the risk of death or serious injury to persons.

⚠ CAUTION

Misuse may cause the risk of injury to persons or damage to property.

⚠ WARNING

Warning on design

- For the entire system to function safely when the DS252 becomes faulty or malfunctions, provide a safety circuit outside the DS252.

Warning on installation

- Do not modify the DS252. Doing so may cause fire or electric shocks.
- Do not install in the following environments.
  - Places containing corrosive gas or flammable gas.
  - Where the product may be splashed with water, oil or chemicals.

Warning on wiring

- Do not connect a commercial power source directly to the signal input/output terminals.
- For connection to the terminal block, be sure to use crimp-type terminals. Do not connect bare wires.
- Be sure to ground the protective ground terminal.
- Before performing the following, make sure that no power is applied.
  - Attachment/detachment of connectors of options etc.
  - Wiring/connection of cables to the signal input/output terminals.
  - Connection to the ground terminal.
- For connection to the signal input/output terminals, check the signal names and pin assignment numbers and then carry out wiring properly.
- Before applying power, carefully check the wiring etc.

Warning for startup and maintenance

- Use at a proper power supply voltage.
- Do not damage the power cord. Doing so may cause fire or electric shocks.
- Do not touch any signal input/output terminal while applying power. Doing so may cause electric shocks or malfunctions.
- In case of smoke, an abnormal smell or strange sound, immediately turn off the power and disconnect the power cable.
- Never disassemble, pressure-deform, or throw the built-in lithium battery into a fire. The battery may cause an explosion, fire, or leakage.

  - Battery

Model:	CR14250SE manufactured by SANYO Electric Co., Ltd.
Nominal voltage:	3V
Nominal capacity:	850mAh

⚠ CAUTION

Caution on installation

- Do not install in the following environments.
  - Places exposed to direct sunlight
  - Where the temperature/humidity exceeds the range of the specifications.
  - Places containing large quantities of salt or iron powder.
  - Where the main body is directly affected by vibrations or shocks.
- Take adequate shielding measures when using at the following locations.
  - Near a power line.
  - Where a strong electric field or magnetic field is formed.
  - Where static electricity, relay noise or the like is generated.

Caution on wiring

- For external inputs/outputs and options, use shielded cables.

Caution for startup and maintenance

- For turning on/off the power, be sure to keep intervals of 5 seconds or more.

Caution for disposal

- If you dispose of the product, handle it as industrial waste.

Features of the DS252

■ Recording of weighing data as electronic data

Since weighing data is recorded on a CF card in CSV format, the data can be retrieved by commercially available spreadsheet software, so that it can be easily processed by a PC.

■ Highly-advanced statistical operation function

Not only grand totals and sub totals, but also maximum, minimum, average, standard deviation, frequency distribution, etc. can be recorded.

■ Economical double recording

Due to both the recording function by which data from two indicators can be recorded and calculated, the statistical operation of a double weighing machine with two weighing heads can be managed by one unit.

■ Easy setting in an interactive manner

Each setting item and its current setting value are displayed on the LCD of the main body to facilitate setting operation.

■ Code sorting

Calculations sorted according to code can be made (100 on each channel at maximum) by assigning codes (within six numerical, alphabetical and katakana characters) to recorded data.

■ Perfect data backup

All setting values can be stored in a nonvolatile memory and other data in a lithium-battery-backed-up memory.

■ Selectable interfaces

Two SI/F channels are equipped as a standard. BCD input and RS-232C interface are available as an option. (Only one channel of either BCD or RS-232C can optionally be connected.)

RoHS-compliant product

The parts and attachments (including the instruction manual, packaging box, etc.) used for this unit are compliant with the RoHS Directive restricting the use of hazardous substances with regard to adverse effects on the environment and human body.

What is RoHS?

It is an abbreviation for Restriction on Hazardous Substances, which is implemented by the European Union (EU). The Directive restricts the use of six specific substances in electric and electronic equipment handled within EU borders. The six substances are lead, mercury, cadmium, hexavalent chromium, PBB (polybrominated biphenyls) and PBDE (polybrominated diphenyl ethers).

How to read this manual

The contents of this manual are broadly divided into the following six chapters:

1 to 2 ..... Precautions for use, installation of the DS252 and connection with an indicator are explained. You will find basic ways to use the DS252.

3 ..... Settings to make use of the DS252 are explained.

4 ..... Functions to make further use of the DS252 are explained.

5 ..... How to connect and use the optional BCD input and RS-232C interface is explained.

6 ..... Recorded data is explained.

7 ..... Troubleshooting is explained.

Appendix ..... Specifications and after-sales service of the DS252 are explained.

Explanatory marks in this manual

	Attention or limitation for proper functioning of the DS252. Be sure to read this to prevent incorrect operation.
	Useful or referential information using the DS252. Recommendable in to read.

Contents of the package

Name	Quantity
DS252 body	1
Operation manual (this book)	1
Mini screwdriver	1
Control signal input connector 57-30500 DDK (Attached when the optional BCD input is equipped)	1

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1 Before turning on the power

Explanation of the appearance of the DS252

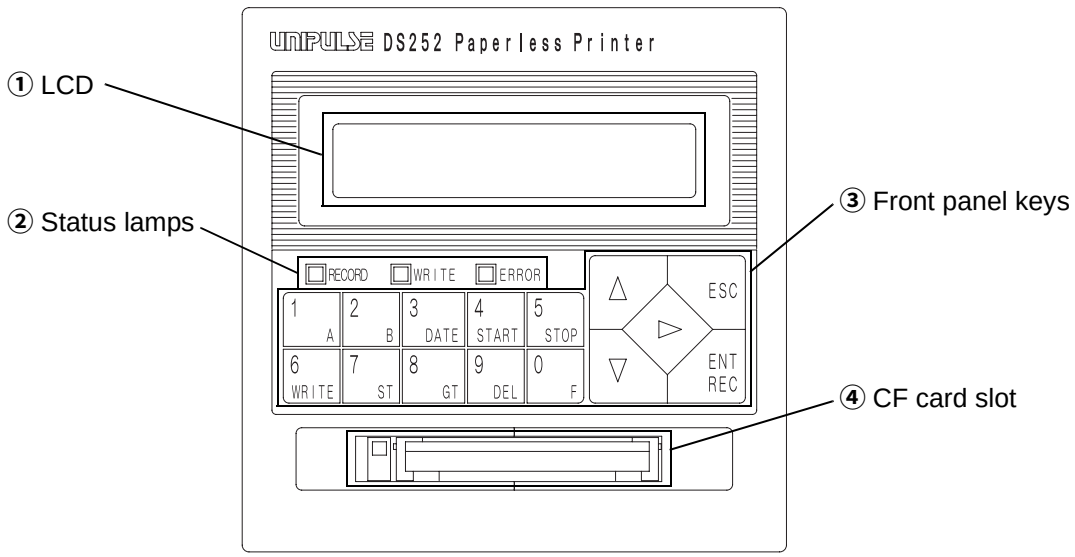
- Part names and functions 2
- Front panel keys 4
- Rear panel input terminal block 6
- Power cord attachment 7
- Insertion and ejection of a CF card 8

1-1.Part names and functions

Part names and functions are briefly explained here.

Detailed explanations of respective parts will be given in relevant chapters respectively.

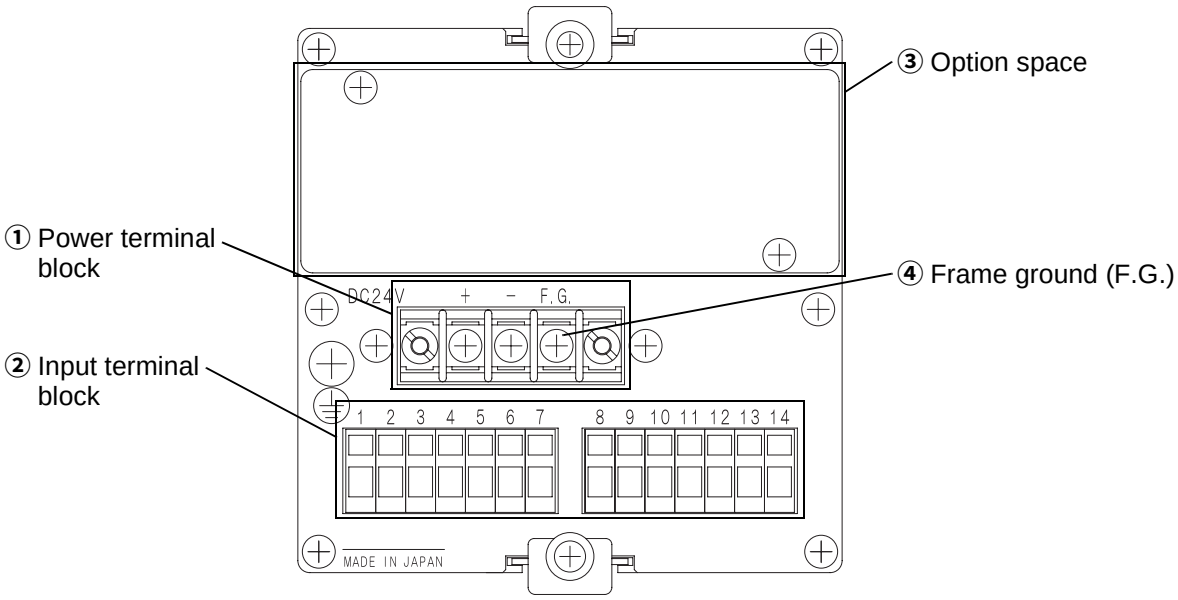
[Front panel]



Parts on front panel

Name	Description
① LCD	Displays the data sent from an indicator and setting values. (16 digits × 2 lines).
② Status lamps	
RECORD lamp (green)	Lights in recording of data into the internal memory.
WRITE lamp (green)	Lights in writing of data on a CF card.
ERROR lamp (red)	Lights under abnormal conditions such that no CF card is inserted at the time of writing on a CF card.
③ Front panel keys	Press them for operating and setting the DS252.
④ CF card slot	Slot to insert a CF card for recording.

[Rear panel]



Parts on rear panel

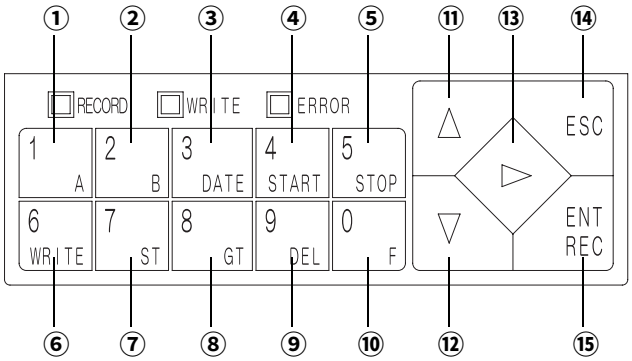
Name	Description
① Power terminal block	Connect the power cord. The power supply voltage is 24V DC.
② Input terminal block	Connect various types of input. (1) to (7) for Ach and (8) to (14) for Bch
(1) and (8): COM	Common terminals of the external input terminal block. (1) and (8) are internally connected.
(2) and (9): REC	Short-circuit with the COM terminals for recording in the internal memory.
(3) and (10): WRITE (Note 1)	Short-circuit with the COM terminals for writing on a CF card.
(4) and (11): ST (Note 2)	Short-circuit with the COM terminals for recording sub totals.
(5) and (12): GT	Short-circuit with the COM terminals for recording grand totals.
(6) (7) SI/F Ach	Input terminal for SI/F (Ach). (No polarity.)
(13) (14) SI/F Bch	Input terminal for SI/F (Bch). (No polarity.)
③ Option space	Install an option for functional extension of the DS252. Either BCD input or RS-232C can be installed.
④ Frame ground (F.G.)	Grounding terminal. Be sure to ground to prevent electrostatic hazards etc.

Note 1: The Bch WRITE terminal (10) functions to record batch totals when the setting of "20: Batch Total ON/OFF" (page 44) is ON.

Note 2: The Bch ST terminal (11) functions as external error signal input when the setting of "29: Error Input ON/OFF" (page 48) is ON.

1-2.Front panel keys

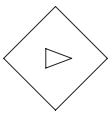
Although the key functions differ according to conditions, their basic functions, meanings and designations are briefly explained here.



Designations and functions of keys

Key (designation)	Description
① 1 A (Code A)	To go to the Ach code input (selection) screen and to input characters.
② 2 B (Code B)	To go to the Bch code input (selection) screen and to input characters.
③ 3 DATE (DATE)	To record date/time and to input characters.
④ 4 START (START)	To start interval records and to input characters.
⑤ 5 STOP (STOP)	To stop interval records and to input characters.
⑥ 6 WRITE (WRITE)	To write data on a CF card and to input characters.
⑦ 7 ST (ST)	To record sub totals and to input characters.
⑧ 8 GT (GT)	To record grand totals and to input characters.
⑨ 9 DEL (DEL)	To delete the just previously recorded data from the target of grand totals (sub totals) and to input characters.

Designations and functions of keys

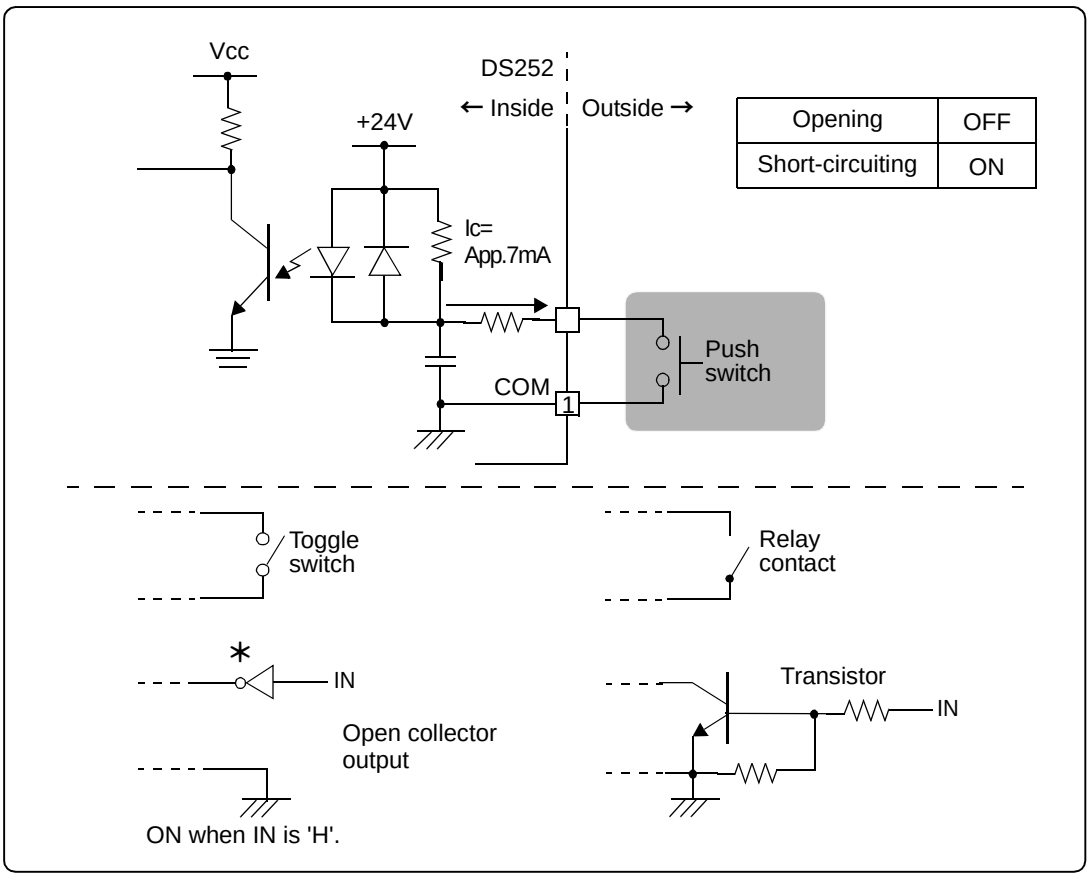
Key (designation)	Description
⑩  (Function)	To go into setting mode and to input characters.
⑪  (Up arrow)	To select setting items backward.
⑫  (Down arrow)	To select setting items forward.
⑬  (Right arrow)	To select setting items and to move the cursor.
⑭  (Escape)	To cancel input values or setting values and to return to the previous screen.
⑮  (Record)	To record data and to enter setting values.

For inputting characters to register codes and code tables, see "4-1-1.Code registration with the front panel keys" (page 53) and "4-1-3.Code table registration" (page 55).

1-3.Rear panel input terminal block

1-3-1. Input equivalent circuit

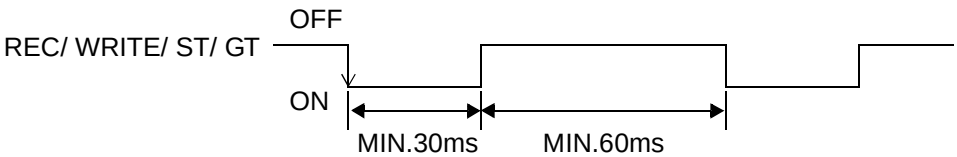
The signal is input in the circuit by short-circuiting and opening between each input terminal and COM terminal. Short-circuiting is performed by a contact (relay, switch, etc.) or non-contact (transistor, open collector output, etc.)



■ In using a transistor, FET, or SSR, be careful about withstand voltage, leakage current and saturated residual voltage.

- Withstand voltage: 30V or more
- Leakage current at OFF-time: 100 μ A or less
- Saturated residual voltage: 5V or less

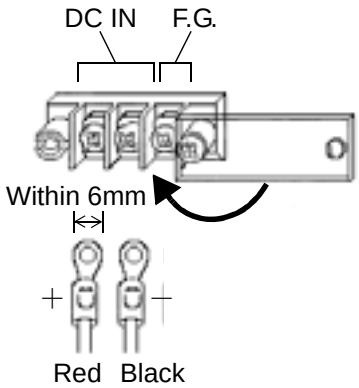
■ The following shows a timing chart of the external input terminals on the rear panel.



1-4.Power cord attachment

For connection to the terminal block, use crimp-type terminals (M3) as shown in the illustration so as not to let the cable end spread out.

Connect + (plus) and - (minus) of the power supply to the red screw side and black screw side of the terminal block on the rear of the DS252 respectively. The input voltage is 24V DC ± 15%.



Note

Be aware that the voltage will be dropped depending on the wire thickness and length.

Also, never input AC power. A failure will be caused.

Be sure to ground the F.G. terminal.

Recommended power supply

- DIN rail mounting type

  IDEC PS5R-SC24 (Rated input: 100 to 240V AC)

- Panel embedded type

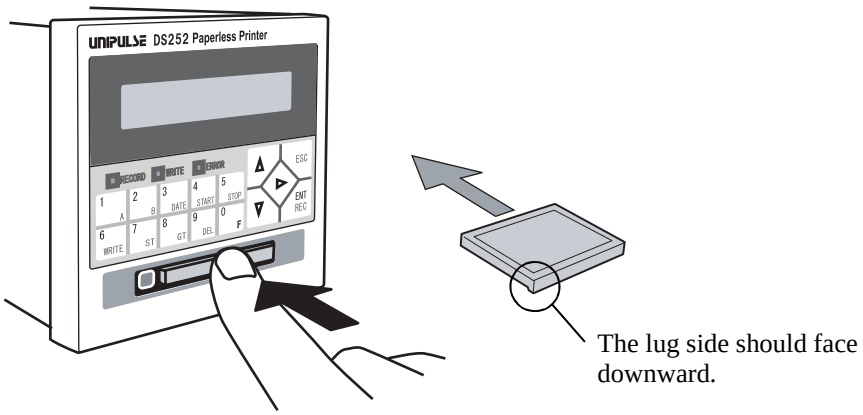
  ETA SVS24SA (Rated input: 100 to 120V AC)

  ETA SVM24SB (Rated input: 200 to 240V AC)

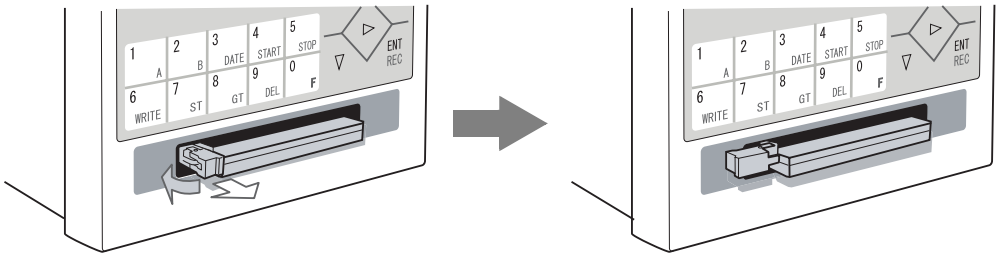
1-5.Insertion and ejection of a CF card

[Insertion]

Insert a CF card as far as it will go paying attention to its orientation.

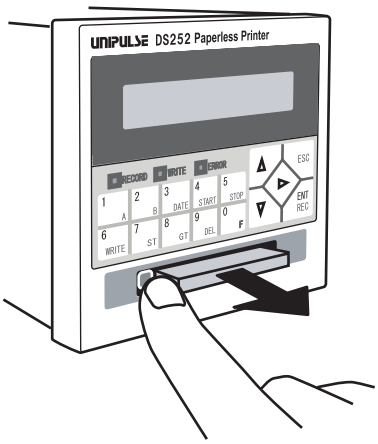


Pull out the eject button and fold it to the left side.



[Ejection]

Put back the folded eject button, push the eject button and eject the CF card.



2 Connection with indicators

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- Recording 12
- About input channels 14
- Recorded data input channels and beep sound 16

2-1.SI/F two-wire serial interface

The interface "SI/F" is equipped as a standard interface on the DS252. This interface is for connection with a UNIPULSE-manufactured digital indicator or loadcell indicator. SI/F connection with such indicators are explained in this chapter.

2-1-1. About the SI/F

UNIPULSE's unique SI/F is an interface to connect our indicators in F series and peripheral equipments, such as printers or external displays. Any SI/F-capable product can be easily connected and used without concern for the data contents and hardware specifications.

SI/F specifications

Connection	Two-wire, nonpolar	
Transmission distance	Parallel two-core cable: 30m Shielded cable: 300m	
Data transmitted	Measuring/weighing data, status information (comparison result, MD, zero alarm, etc.), error information, automatic recording command, etc.	
Signal standards	Signal level	Photo-coupler isolated current signal
	Transmission system	Start/stop system
	Transmission speed	600bps
	Data bit	8bit
	Start bit	1bit
	Stop bit	1bit
	Parity	ODD

* In this manual, the automatic print command of the SI/F is expressed as the automatic recording command.

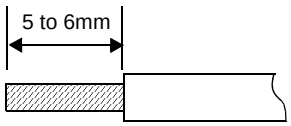
2-1-2. About the SI/F of the DS252

Two channels of SI/F (Ach and Bch) are equipped on the DS252. Pins 6-7 and 13-14 on the rear terminal block correspond to Ach and Bch respectively.

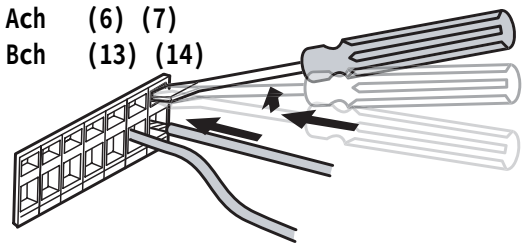
2-2.SI/F connection

Two channels of SI/F are equipped on the DS252. For connection, use parallel two-core or cabtyre cables. The SI/F is nonpolar.

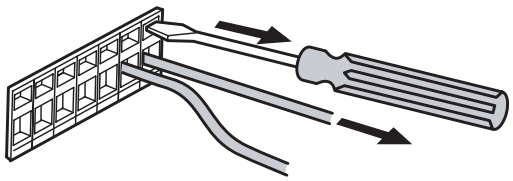
1. Strip the covering of the wire to be connected 5 to 6mm.



2. Twist the tip to such an extent that it will not spread out.
3. Insert the attached screwdriver into the upper hole and lightly push it up.
4. Insert the wire into the lower hole so as not to let the tip spread out.



5. Pull out the screwdriver.
6. Lightly pull the wire to make sure that it is securely clamped.



Note

■ The cross-sectional area of wires connectable to the (cage clamp type) terminal block is 0.2 to 2.5mm^2.

■ Do not attach a crimp-type terminal to the tip of wire(s) or finish it by soldering.

■ If you connect two or more wires, twist them together beforehand.

2-3.Recording

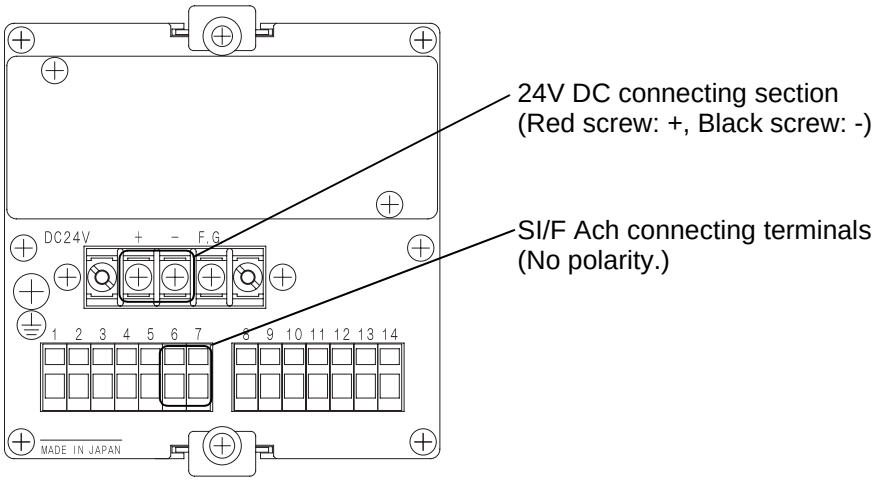
The DS252 performs recording when any of the following conditions are satisfied.

1. When the ENT REC key is pressed (*)
2. When No. 2 [RECORD] and No. 1 [COM] on the terminal block are short-circuited (Ach) (*)
   When No. 9 [RECORD] and No. 8 [COM] on the terminal block are short-circuited (Bch) (*)
3. When an automatic recording command is sent from the SI/F
4. When a recording command is input to the RS-232C
5. At preset intervals for interval records (*)

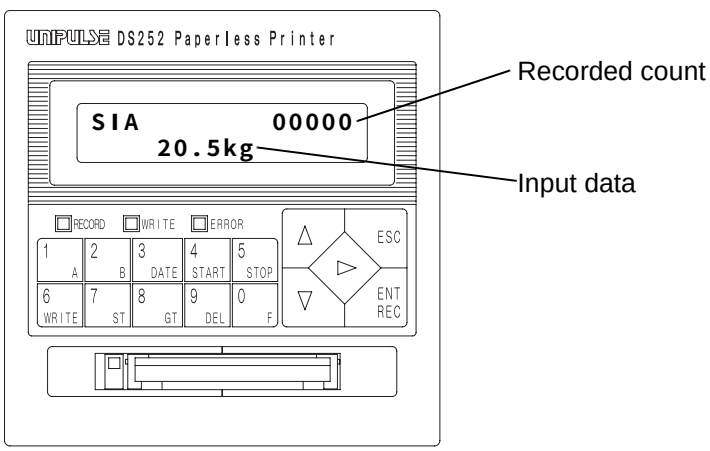
* In cases of 1, 2 and 5, where no recorded data is input, recording is not performed.

[Example] Recording the input data of SI/F Ach

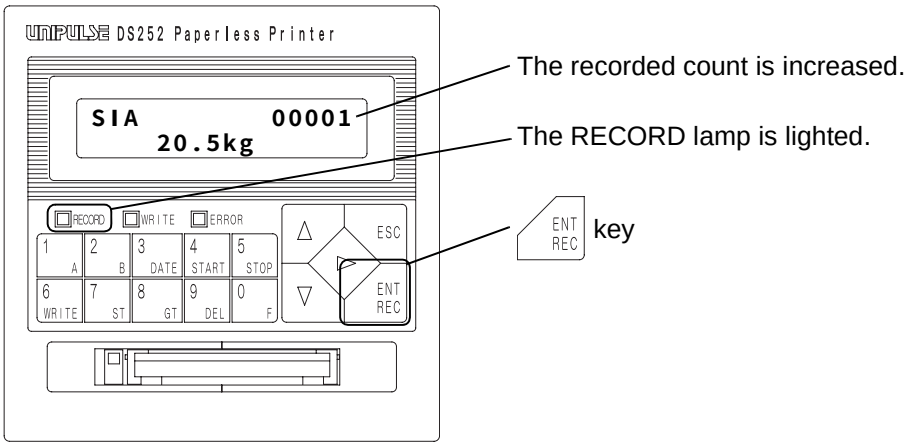
1. Connect SI/F Ach on the rear panel terminal block with an indicator and turn on the power.



2. Upon normal receipt of data, the data from the indicator is displayed on the input value display screen.

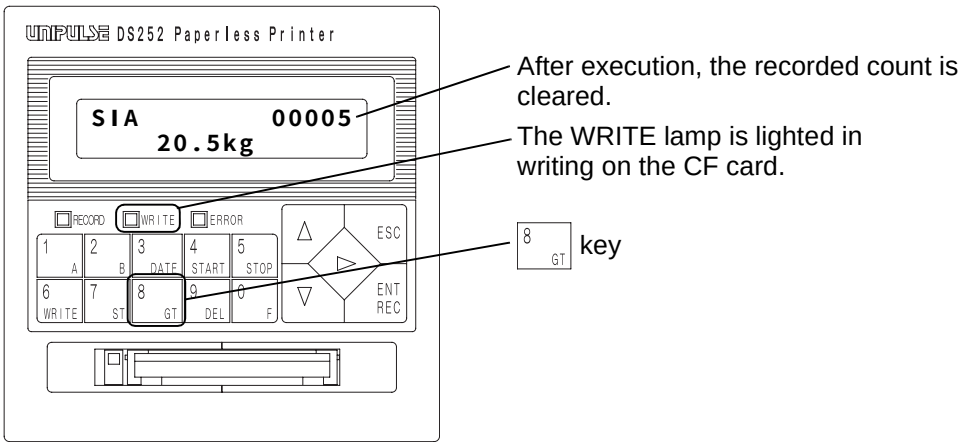


3. Press the ENT REC key. (Recorded in the internal memory)

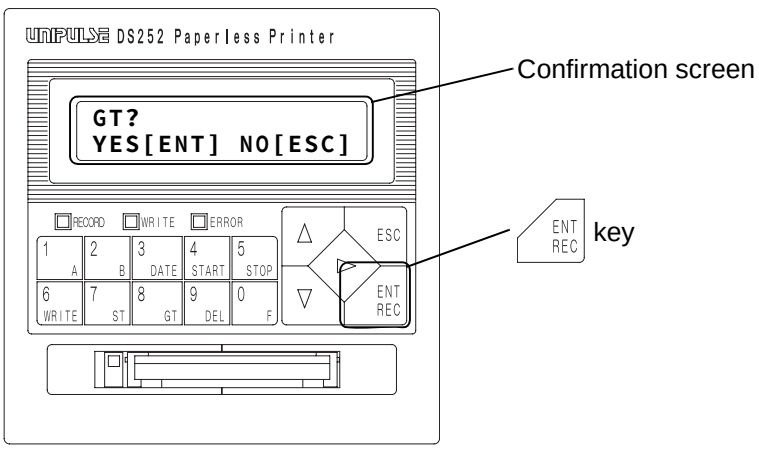


The RECORD lamp is lighted and the recorded count is increased each time the ENT REC key is pressed.

4. Set a CF card into the main body and press the 8 GT key. (Saving on the CF card)
The data having been recorded in the internal memory in 3. is saved on the CF card.



5. Since the confirmation screen is displayed, press the ENT REC key for execution.



2-4.About input channels

The DS252 has two data input channels. To use both channels at the same time, select [06: BOTH (both record), [07: BOTH+DATE (both record with date/time)], or [08: BOTH FULL (both record with date/time and code)] under "07: Record Every Format" (page 35).

The following table shows a list of data to be recorded when input.
The recorded data differs from recording commands.

If the recording command is:

- 

key on the front panel of the main body
- Interval record

		Input data	Individual record		Both record	
			Ach	Bch	Ach	Bch
	Without OP	SI/F Ach	①	×	①	×
		SI/F Bch	×	②	×	②
		SI/F Ach + Bch	①	②	①	②
	With OP	SI/F Ach	①	×	①	×
		SI/F Bch	×	②	×	②
		SI/F Ach + Bch	①	②	①	②
		SI/F Ach + OP	①	×	①	×
		SI/F Bch + OP	OP	②	OP	②
		SI/F Ach + Bch + OP	①	②	①	②
		OP	OP	×	OP	×

* Input signals are recorded regardless of the setting of "07: Record Every Format".

If the recording command is:

- [REC] terminal on the rear panel of the main body
- Automatic recording command from the SI/F
- Recording command from the RS-232C

Recording command ch		Input data	Individual record		Both record	
			Ach	Bch	Ach	Bch
Ach	Without OP	SI/F Ach	①	×	①	×
		SI/F Bch	×	×	×	②
		SI/F Ach + Bch	①	×	①	②
	With OP	SI/F Ach	①	×	①	×
		SI/F Bch	×	×	×	②
		SI/F Ach + Bch	①	×	①	②
		SI/F Ach + OP	①	×	①	×
		SI/F Bch + OP	OP	×	OP	②
		SI/F Ach + Bch + OP	①	×	①	②
		OP	OP	×	OP	×

Bch	Without OP	SI/F Ach	×	×	①	×
		SI/F Bch	×	②	×	②
		SI/F Ach + Bch	×	②	①	②
	With OP	SI/F Ach	×	×	①	×
		SI/F Bch	×	②	×	②
		SI/F Ach + Bch	×	②	①	②
		SI/F Ach + OP	×	×	①	×
		SI/F Bch + OP	×	②	OP	②
		SI/F Ach + Bch + OP	×	②	①	②
		OP	×	×	OP	×

Meanings of expressions in the table

- ① : Data input to SI/F Ach is recorded.
- ② : Data input to SI/F Bch is recorded.
- OP: Data input to the option (BCD input or RS-232C) is recorded.
- × : Recording is not performed.
- Individual record: The setting of "07: Record Every Format" is other than [both record]
- Both record: The setting of "07: Record Every Format" is [both record]
- Shaded area: The beep (buzzer) sounds. (Recording is performed on the channel with data input.)

2-5.Recorded data input channels and beep sound

2-5-1. In case of individual record

In case that the setting of input channels is individual record (the setting of "07: Record Every Format" is other than [both record]), if recording is performed with no recorded data input from Ach, Bch and the optional interface, the beep (buzzer) sounds and an error is recorded.

Also, if no data is input from the target channel with respect to the [REC] terminal on the rear panel of the main body or an automatic recording command from the SI/F, the beep (buzzer) sounds and an error is recorded.

2-5-2. In case of both record

In case that the setting of input channels is both record (the setting of "07: Record Every Format" is [both record]), if recording is performed with no recorded data from both SI/F Ach and the optional interface and with no recorded data input from SI/F Bch, the beep (buzzer) sounds and an error is recorded. However, recording is performed for the channel with input.

2-5-3. What is recorded when there is no valid data at record-every time

"-ERROR-" is recorded in the corresponding code column.

Optional input is recorded on Ach. With data from both the optional input and SI/F input, priority is given to the SI/F.

3
Basic operation of the DS252

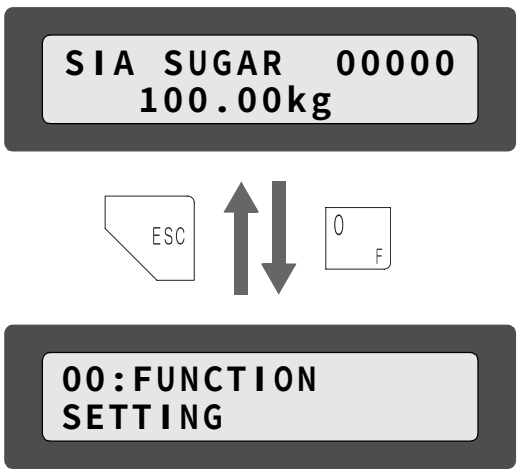
Explanation of each setting

- Screen configuration 18
- Input value display 18
- Records 23
- Various settings 27

3-1.Screen configuration

The DS252 includes screens on which input (indicated values) from the SI/F or option is displayed and screens on which setting values can be confirmed and changed.

[Input value display]



3-2.Input value display

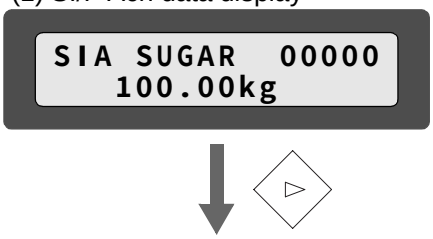
Data received from the SI/F or values input from the option are displayed.

3-2-1. Changing the input value display

At power-on, the DS252 shows the input value display.

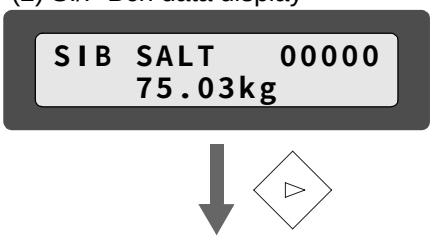
There are four types of input display, which can be changed by the ▷ key.

(1) SI/F Ach data display



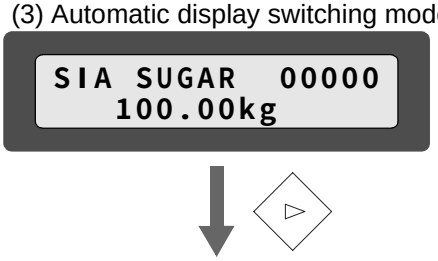
The data received on SI/F Ach is displayed on the second line.
The code (if registered) is displayed on the first line. The numerical value at the upper right represents the recorded count.
If there is no data received on SI/F Ach, [------] is displayed at the indicated value display section.

(2) SI/F Bch data display



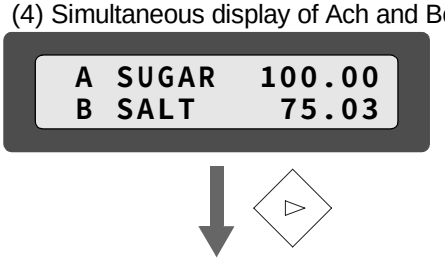
The data received on SI/F Bch is displayed on the second line.
The code (if registered) is displayed on the first line. The numerical value at the upper right represents the recorded count.
If there is no data received on SI/F Bch, [------] is displayed at the indicated value display section.

(3) Automatic display switching mode



The above two types of input are automatically switched and displayed.
Set the switching time under "76：Display Switching Time Setting" (page 70).

(4) Simultaneous display of Ach and Bch



The data received on SI/F Ach and Bch are displayed simultaneously.

Return to (1)

■ The selected input value display is held even if the power is turned off.

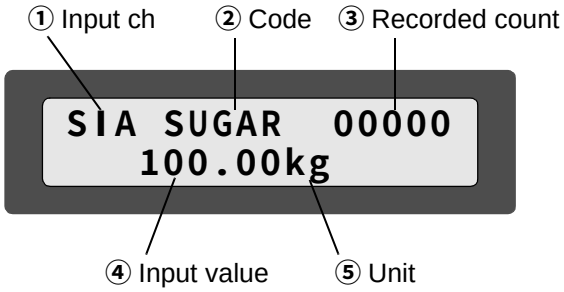
■ If there is no data input to SI/F Ach and an option is connected, the input data from the option is displayed on Ach.

Note

If the data from the SI/F or option is not updated for one second or more, it is regarded as no data received and [------] is displayed.

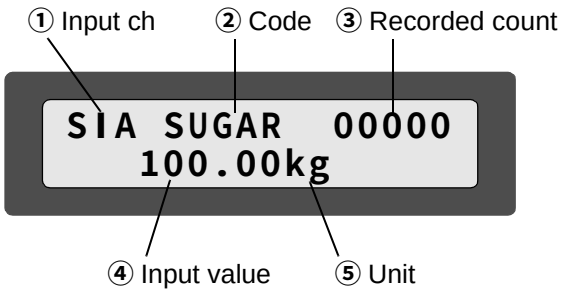
3-2-2. Contents of display

(1), (2) Each channel data display



Name	Description
① Input ch	
SIA	SI/F Ach
SIB	SI/F Bch
BCD RS2	Displays the data of the option if no data is input to SI/F Ach and an option is set.
② Code	Displays the preset code name.
③ Recorded count	Displays the recorded count on each channel (not by code).
④ Input value	Displays the data received from the SI/F or option. Displays the value set by Recorded Data Selection.
⑤ Unit	Displays the preset unit.

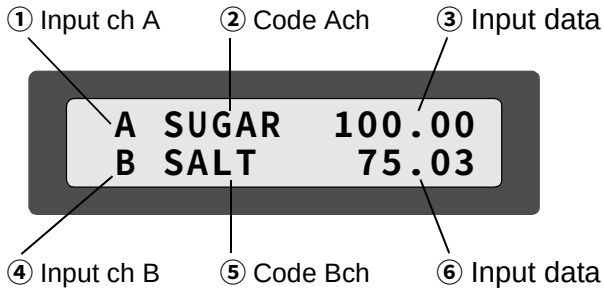
(3) Automatic display switching mode



The contents of ① , ② , ④ and ⑤ are the same as those of each channel data display.

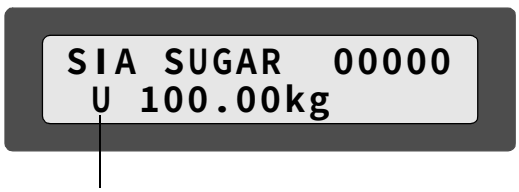
Name	Description
③ Recorded count	Displays the total of the recorded count on Ach and Bch. In case of 10 records on each of Ach and Bch, "20" is displayed.

(4) Simultaneous display of Ach and Bch



Name	Description
①, ④ Input ch	Indicates Ach and Bch (fixed).
②, ⑤ Code	Displays the codes of Ach and Bch.
③, ⑥ Input data	Displays the data of Ach and Bch.

(5) Status display



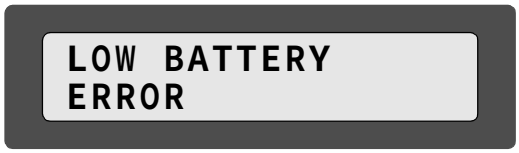
The description of each error is displayed on the lower line.

U	Displayed when the upper limit of the range is exceeded.
L	Displayed when the lower limit of the range is exceeded.
R	Displayed when the over status signal is received.
E	Displayed when the setting of Error Input ON/OFF is ON and the Bch [ST] terminal is short-circuited with the [COM] terminal on the rear panel.
∗	Displayed when data not to be added is input (following the unit).

(6) Interval recording display

When interval records are started, a rotating bar is displayed at the lower left corner.
The RECORD lamp is lighted at the time when recording is performed.

(7) Backup battery error display

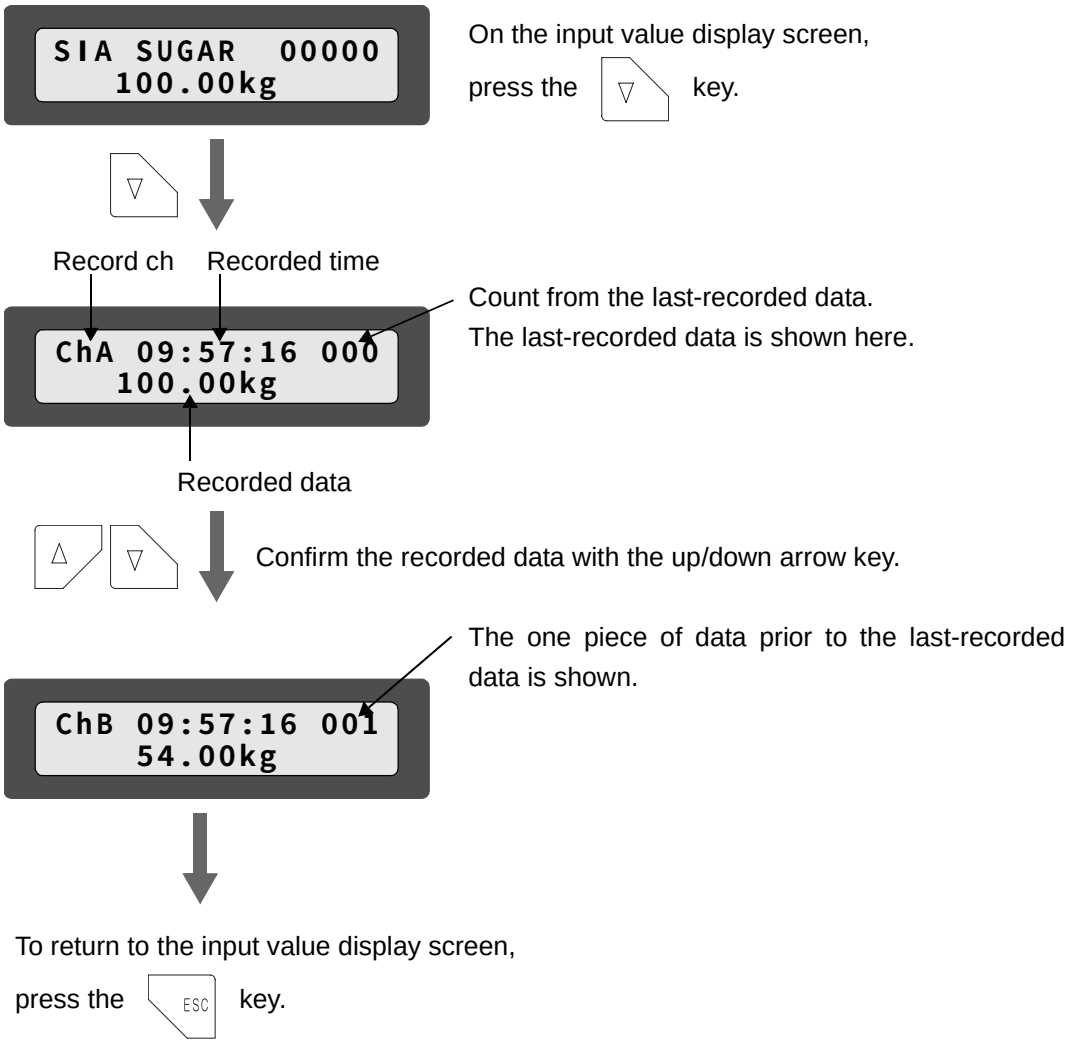


It is necessary to replace the built-in battery for data backup.

Contact our sales department.

3-2-3. Confirmation of recorded data

Up to 1000 pieces of recently recorded data can be confirmed.



To return to the input value display screen,

press the ESC key.

3-3.Records

The DS252 records and accumulates received data in the internal memory by recording operation and writes it on a CF card by GT and file write operation.

3-3-1. Recording of input values

The DS252 saves the values input from the SI/F and optional interface once in the internal memory.
Therefore, it is not necessary to insert a CF card in the main body.
Recording into the internal memory is performed by any of the following operations.
When recording is performed, the numerical value at the upper right of the input display screen is incremented.

- Pressing the 

key on the front panel of the main body
- Short-circuiting the [REC] terminal and [COM] terminal on the rear panel of the main body
- Receiving an automatic recording command from the SI/F
- Receiving a recording command from the RS-232C
- At interval-record time

Without being updated, input data is internally held for one second. Input values are recorded at the point of the time when [REC] operation is performed.

The [REC] terminal on the rear panel of the main body and the automatic recording command from the SI/F function independently on Ach and Bch.
Other recording commands function on both Ach and Bch.
However, if [both record] is selected under "07: Record Every Format" (page 35), the [REC] terminal and automatic recording command function on both Ach and Bch.

3-3-2. Contents of input values recorded

Regarding "3-3-1.Recording of input values" (page23), the following data can be recorded in addition to input data.

- Date of receipt of the recording command
- Time of receipt of the recording command
- Code
- Recorded count (by code)

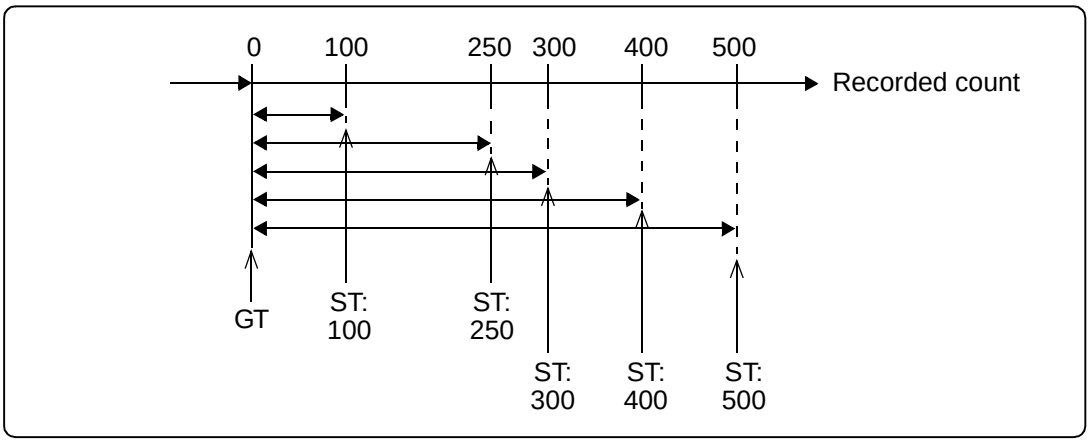
For the setting of recording format, see "07: Record Every Format" (page 35).

3-3-3. Recording of sub totals

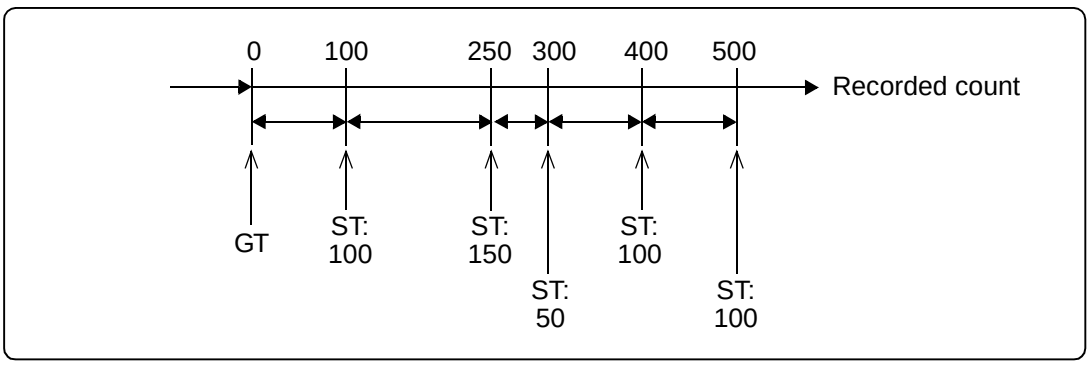
The DS252 can record the sub totals of data saved in "3-3-1.Recording of input values" (page23) as middle sub totals and section sub totals.

Middle sub totals and section sub totals

Middle sub totals: ..... Values taken from the previous grand total to sub totals are recorded.



Section sub totals:..... Values taken between sub totals are recorded.



Sub totals are recorded by the following operations.

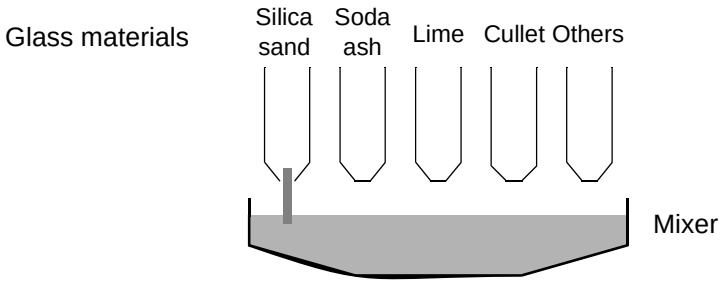
- Pressing the 7 ST → ENT REC key on the front panel of the main body
- Short-circuiting the [ST] terminal and [COM] terminal on the rear panel of the main body (on either Ach or Bch)
- Receiving a sub total recording command from the RS-232C (option)

3-3-4. Batch total

The DS252 can count measurements of two or more codes as one batch and record the data by each batch.

To record batch totals, set "20 : Batch Total ON/OFF" (page 44) to ON and input a signal to the Bch [WRITE] terminal on the rear panel. Batch totals are recorded with the Bch [WRITE] terminal ON (short-circuited with the [COM] terminal).

Weighing of several small quantities is collectively recorded as one batch.



Generally, the glass materials are silica sand, soda ash, lime, cullet and others blended and agitated by a mixer. How much of the glass materials are mixed as a result of weighing each of these five types of materials can be recorded by the batch total function.

3-3-5. Writing on a CF card

Writing on a CF card is performed by any of the following operations.
The file is named as operation day/hour/minute/second.CSV.

- Pressing the 6 WRITE → ENT REC key on the front panel of the main body
- Pressing the 8 GT → ENT REC key on the front panel of the main body
- Short-circuiting the [WRITE] terminal and [COM] terminal on the rear panel of the main body (on either Ach or Bch)
- Short-circuiting the [GT] terminal and [COM] terminal on the rear panel of the main body (on either Ach or Bch)

Except the above operations, if the following conditions are satisfied, writing on the CF card is performed automatically.

- If the internal memory is full → Equal to [WRITE] operation
- If "31 : Maximum Record Count Setting" (page 49) is reached by at least one code → Equal to [GT] operation

For the recording format, see "07: Record Every Format" (page 35).

Difference between [WRITER] operation and [GT] operation

[WRITE] operation: The data having been recorded in the internal memory is written on the CF card. Data calculations are made continuously.

[GT] operation: The data having been recorded in the internal memory is written on the CF card and also statistical data is written on the CF card and the previous data is cleared.

Note

When the setting of "20 : Batch Total ON/OFF" (page 44) is ON, the Bch [WRITE] terminal serves as a batch total command.

3-4.Various settings

For the DS252, select each setting item, in which you can input or select a desired value.

Set necessary setting items from the following list of setting items.

List of setting items

No.	Setting item	Details of setting	Page
01	Date/time (DATE/TIME)	Current date and time	33
02	Recorded Data Selection Ach (DATA KIND)	00 : GROSS (gross weight) (initial value) 01 : NET (net weight) 02 : TARE (tare weight) 03 : INDICATE (indicated value)	33
03	Recorded Data Selection Bch (DATA KIND)	00 : GROSS (gross weight) (initial value) 01 : NET (net weight) 02 : TARE (tare weight) 03 : INDICATE (indicated value)	33
04	Unit Selection Ach (DATA UNIT)	See the "List of unit settings" (page 108). (The initial value is 02: kg.)	34
05	Unit Selection Bch (DATA UNIT)	See the "List of unit settings" (page 108). (The initial value is 02: kg.)	34
06	Record Every ON/OFF (DATA RECORD)	00 : OFF (invalid) 01 : ON (valid) (initial value)	35
07	Record Every Format (DATA FORMAT)	00 : STANDARD (standard) (initial value) 01 : +TIME (with time) 02 : +CODE (with code) 03 : +TIME & CODE (with time and code) 04 : +DATE (with date/time) 05 : +DATE & CODE (with date/time and code) 06 : BOTH (both record) 07 : BOTH+DATE (both record with date/time) 08 : BOTH FULL (both record with date/time and code) 09 : THROUGH (through recording)	35
08	Automatic Record ON/OFF (AUTO RECORD)	00 : OFF (invalid) 01 : ON (valid) (initial value)	38
09	Interval Record ON/OFF (INTERVAL REC)	00 : OFF (invalid) (initial value) 01 : START KEY 02 : EXTERNAL REC	38
10	Interval Seconds (INTERVAL TIME)	1 to 9999 sec (The initial value is 0003 sec.)	39
11	GT/ST Recording Format (GT/ST FORMAT)	00 : STANDARD (initial value) 01 : +RANK	39
12	Type of Sub Totals (ST MODE)	00 : MIDDLE SUB (middle sub total) (initial value) 01 : SECTION SUB (section sub total)	40
13	Target Value for Statistical Data Ach (TARGET VALUE)	± 0 to 99999 (The initial value is +00000.)	41
14	Target Range for Statistical Data Ach (TARGET RANGE)	5 to 99999 (The initial value is 99999.)	41

No.	Setting item	Details of setting	Page
15	Target Value for Statistical Data Bch (TARGET VALUE)	± 0 to 99999 (initial value : +00000.)	41
16	Target Range for Statistical Data Bch (TARGET RANGE)	5 to 99999 (initial value : 99999.)	41
17	Standard Deviation (STD MODE)	00 : σ_n (initial value) 01 : σ_{n-1}	42
18	Data Adding ON/OFF (DATA ADDING)	00 : OFF (data not added) 01 : ON (data added) (initial value)	43
19	Record Key ON/OFF (RECORD KEY)	00 : OFF (invalid) 01 : ON (valid) (initial value)	43
20	Batch Total ON/OFF (BATCH TOTAL)	00 : OFF (invalid) (initial value) 01 : ON (valid)	44
21	(Unassigned)		
22	Code Selection (CODE SOURCE)	00 : KEY (initial value) (Ach : keyboard, Bch : keyboard) 01 : OPTION (Ach : option, Bch : keyboard) 02 : KEY TABLE (Ach : key table, Bch : key table) 03 : OPTION TABLE (Ach : option table, Bch : key table)	45
23	Number of Code Digits (CODE SIZE)	0 to 6 digits (The initial value is 0.)	45
24	Registration of Code Table Ach (CODE TABLE)	Maximum number of codes registered: 100	46
25	Registration of Code Table Bch (CODE TABLE)	Maximum number of codes registered: 100	46
26	Code Sorting Type (SORT TYPE)	00 : NAME (code name) (initial value) 01 : TABLE No. (code table number)	47
27	File Writing Mode Setting (WRITE MODE)	00 : CLEAR (continued writing) (initial value) 01 : NON CLEAR (all data writing)	47
28	File Overwriting Mode Setting (OVERWRITE)	00 : OFF (file not overwritten) (initial value) 01 : ON (file overwritten)	48
29	Error Input ON/OFF Setting (ERROR INPUT)	00 : OFF (error input unavailable) (initial value) 01 : ON (error input available)	48
30	Option Table Ch (OPTION TABLE)	00 : ChA (initial value) 01 : ChA+ChB	49
31	Maximum Recorded Count Setting (MAX COUNT)	1 to 9999 (The initial value is 9999.)	49
32	Grand Total Timer (GT TIMER)	00 : OFF (initial value) 01 : ON 12 : 00	49
33	Both Recording Mode Setting (BOTH MODE)	00 : ChA (initial value) 01 : ChB	50

List of option setting items

No.	Setting item	Details of setting	Page
40	BCD Input Monitor (BCD INPUT)		82
41	BCD Decimal Point Position (DECIMAL POINT)	00 : *.**** 01 : **.*** 02 : ***.** 03 : ****.* 04 : ***** (initial value)	82
42	BCD Data Logic (DATA LOGIC)	00 : NEGATIVE (negative logic) (initial value) 01 : POSITIVE (positive logic)	83
43	BCD Minus Sign Logic (SIGN LOGIC)	00 : NEGATIVE (negative logic) (initial value) 01 : POSITIVE (positive logic)	83
44	BCD Over Logic (OVER LOGIC)	00 : NEGATIVE (negative logic) (initial value) 01 : POSITIVE (positive logic)	83
45	BCD Strobe Logic (STROBE LOGIC)	00 : NEGATIVE (negative logic) (initial value) 01 : POSITIVE (positive logic)	83
46	RS-232C Transmission Speed (RS232C BPS)	00 : 1200bps 01 : 2400bps 02 : 4800bps 03 : 9600bps (initial value) 04 : 19200bps 05 : 38400bps	87
47	RS-232C Parity Bit (RS232C Parity)	00 : EVEN 01 : ODD 02 : NONE (initial value)	87
48	RS-232C Data/Stop Bit (RS232C DATA)	00 : 7BIT 1STOP 01 : 7BIT 2STOP 02 : 8BIT 1STOP (initial value) 03 : 8BIT 2STOP	87
49	RS-232C Terminator (RS232C TERM)	00 : CR 01 : CR+LF (initial value)	88
50	RS-232C Answer Mode (RS232C ANSWER)	00 : ECHO (echo back mode) 01 : RESULT (result answer mode) (initial value)	88

List of CF card setting items

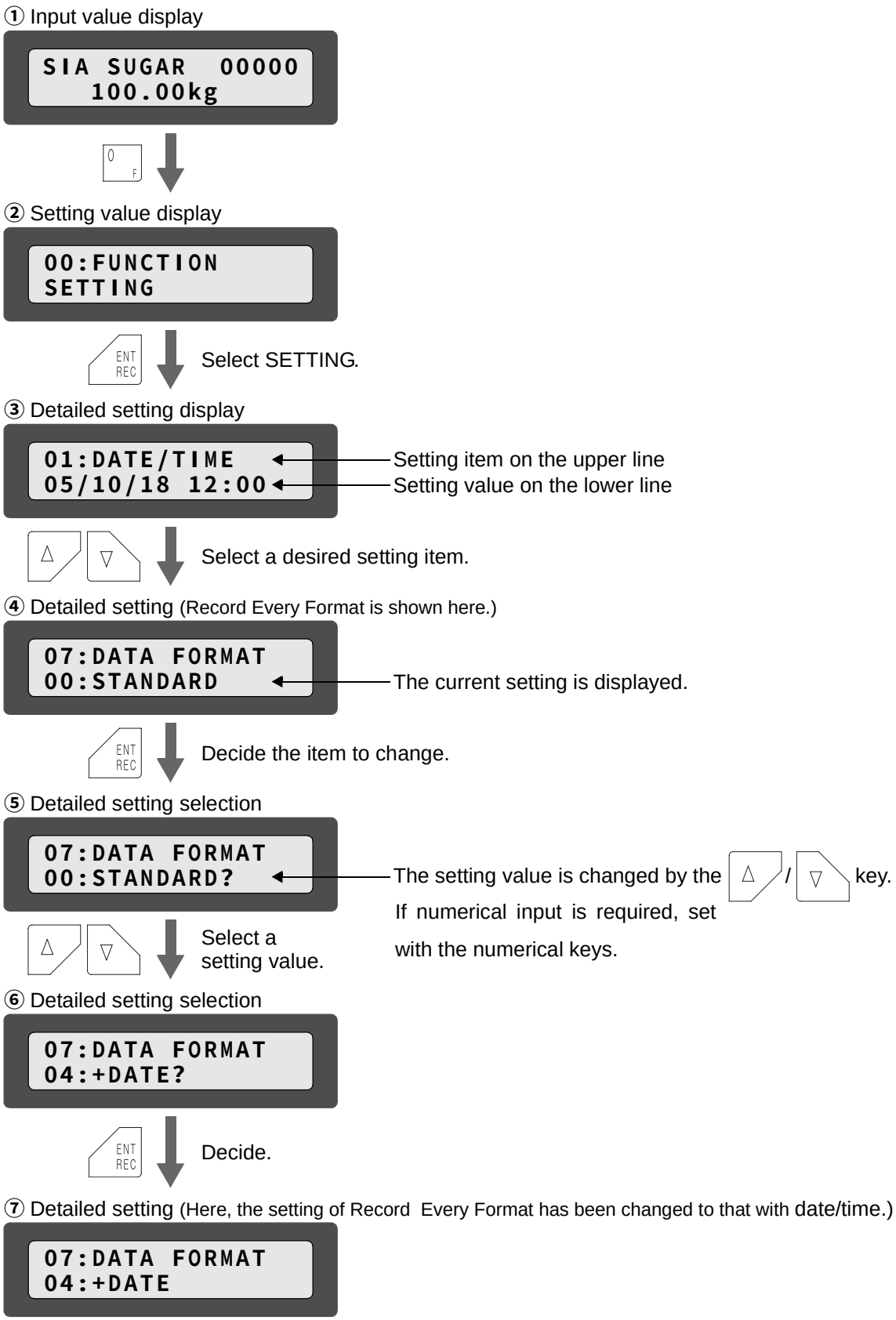
No.	Setting item	Details of setting	Page
60	CF Card Remaining Check (CARD LIST)		59
61	Loading of Code Table Ach (CODE A LOAD)		60
62	Loading of Code Table Bch (CODE B LOAD)		60
63	Saving of Code Table Ach (CODE A SAVE)		61
64	Saving of Code Table Bch (CODE B SAVE)		61
65	Loading of Setting Value (SETTING LOAD)		61
66	Saving of Setting Value (SETTING SAVE)		62
67	CF Card Format (CARD FORMAT)		62

List of maintenance mode setting items

No.	Setting item	Details of setting	Page
70	Version Display (VERSION)		68
71	Self Test (SELF TEST)		68
72	Beep Sound ON/OFF (BEEP SOUND)	00 : OFF (sound inaudible) 01 : ON (sound audible) (initial value)	69
73	LCD Backlight Setting (BACKLIGHT)	00 : OFF (invalid) 01 : ON (valid) (initial value)	69
74	LCD Backlight Timeout Setting (LCD TIMEOUT)	0000 to 9999 sec (The initial value is 0000 sec: always ON.)	69
75	Key Input Timeout Setting (KEY TIMEOUT)	0000 to 9999 sec (The initial value is 0030 sec.)	70
76	Display Switching Time Setting (CH SWAP TIME)	0001 to 9999 sec (The initial value is 0001 sec.)	70
77	Data Clear (DATA CLEAR)		70
78	Test Mode (TEST MODE)		71

3-4-1. Basic setting operation

The following shows basic operational procedures for actual setting the DS252.



By inputting a setting No. on ② Setting value display, you can go directly to ④ Detailed setting display.

In this example, press the [0 F] → [7 ST] → [ENT REC] key on the screen of ② .

Setting Nos. correspond to the leftmost numbers on the "List of setting items" (page 27).

To return to the previous display in each display state, use the [ESC] key.

3-4-2. Explanation of each setting

The details of each setting are explained below. To go to each setting screen, see "3-4-1.Basic setting operation" (page31).

01 : Date/Time

Change the date and time.

The date and time of the DS252 are factory-adjusted.

Setting name	01 : Date/Time (DATE/TIME)
Display	01:DATE/TIME 05/10/18 12:00
Precautions	・Input year/month/day/hour/minute. ・For year, input the last two digits. ・Confirm your entry with the ENT REC key so that the 'second' digits will become 00.

02, 03: Recorded Data Selection Ach, Bch

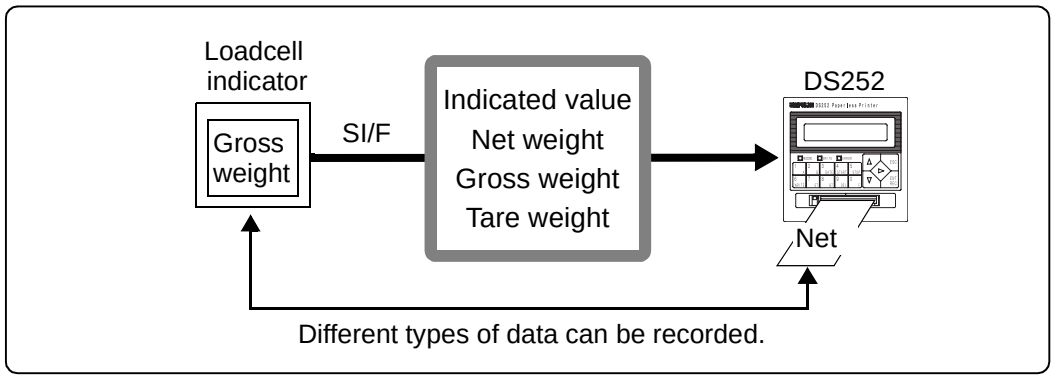
Select the type of recorded data on each channel.

There are four types of selectable data.

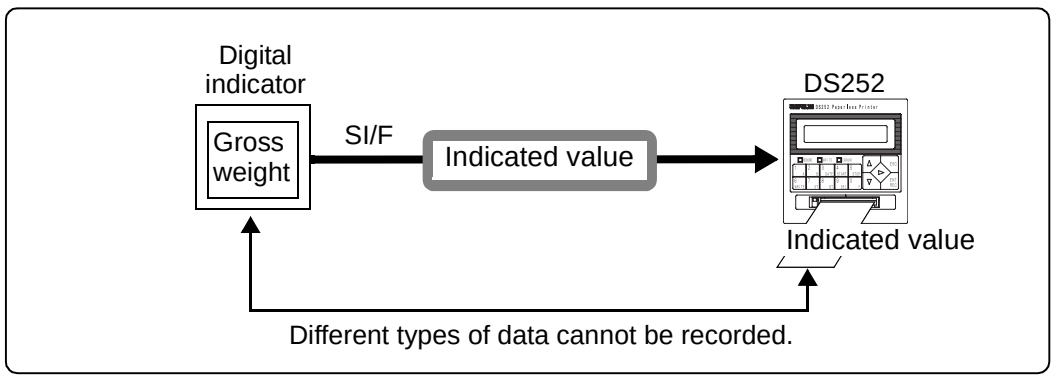
Setting name	02 : Recorded Date Selection Ach (DATA KIND) 03 : Recorded Date Selection Bch (DATA KIND)
Selectable items	00 : GROSS (gross weight) (initial value) 01 : NET (net weight) 02 : TARE (tare weight) 03 : INDICATE (indicated value)
Display	02:DATA KIND ChA=00:GROSS 03:DATA KIND ChB=00:GROSS
Reference	For recording indicated values of a loadcell indicator or digital indicator, normally set the DS252 to [03. Indicated value]. Select net weight, gross weight, or tare weight only when specifically recording it.
Precautions	The type of recorded data selected here is valid only when data is recorded through the SI/F. When data is recorded through BCD input or the RS-232C interface, the input data is recorded regardless of the type selected here.

SI/F and indicators

Loadcell indicator ..... From the loadcell indicator connected through the SI/F, indicated value/ net weight/gross weight/tare weight data, etc. are sent at intervals of approx. 0.3 sec regardless of the value displayed each time. On the DS252 side, recorded data can be selected out of them so that recording can be performed even if the data is not displayed on the indicator.



Digital indicator ..... From the digital indicator connected through the SI/F, the data of the value displayed each time is sent at intervals of approx. 0.3 sec.



04, 05: Unit Selection Ach, Bch

Select the unit of recorded data on each channel.

55 types of units are available.

Setting name	04: Unit Selection Ach (DATA UNIT) 05: Unit Selection Bch (DATA UNIT)
Selectable items	See the "List of unit settings" (page 108).
Initial value	02 : kg
Display	04:DATA UNIT ChA=02:kg 05:DATA UNIT ChB=02:kg

06 : Record Every ON/OFF

Set whether or not to recorded data individually by recording operation.

Setting name	06: Record Every ON/OFF (DATA RECORD)
Selectable items	00 : OFF (invalid) 01 : ON (valid) (initial value)
Display	06:DATA RECORD 01:ON
Reference	・If this is set to ON (valid), input data is recorded in the internal memory by recording operation. ・If this is set to OFF (invalid), data is not recorded individually by recording operation, however, sub totals and grand totals are simply calculated.

07: Record Every Format

Select the format of data to be recorded by recording operation.

10 types of recording formats are available.

For each recording format, see "6-2-2.Recording of input data" (page94).

Setting name	07: Record Every Format (DATA FORMAT)
Selectable items	00 : STANDARD (standard) (initial value) 01 : +TIME (with time) 02 : +CODE (with code) 03 : +TIME & CODE (with time and code) 04 : +DATE (with date/time) 05 : +DATE & CODE (with date/time and code) 06 : BOTH (both record) 07 : BOTH+DATE (both record with date/time) 08 : BOTH FULL (both record with date/time and code) 09 : THROUGH (through recording)
Display	07:DATA FORMAT 00:STANDARD
Reference	・If the same unit is applied on Ach and Bch, the sum of both channels is recorded after recording the grand totals of the respective channels. It will not be recorded if different units are applied. ・If this is set to STANDARD, the recorded count, input value and unit are recorded. ・If this is set to BOTH, recording is performed on Ach and Bch when the [REC] terminal turns ON regardless of the Ach/Bch setting on the rear panel. ・If this is set to THROUGH, the data received from the RS-232C is recorded as it is.
Precautions	・If THROUGH (through recording) is selected, all other recording operations become invalid. ・GT and ST operations are also invalid. ・CF writing operation is valid.

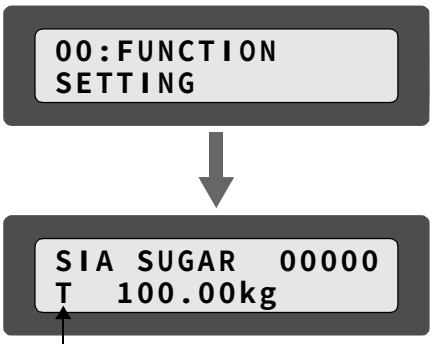
About through recording

To start through recording, set Record Every Format to THROUGH and then perform start operation.

Through recording start operation

1. Set "07: Record Every Format" (page 35) to "09: THROUGH (through recording)".

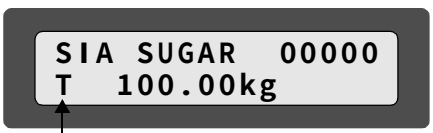
2. Press the ESC → ESC key to return to the input value display.



Through recording setting display
("T" is displayed as the first character of the second line.)

3. Press the 4 START key to enter the through recording start confirmation screen.

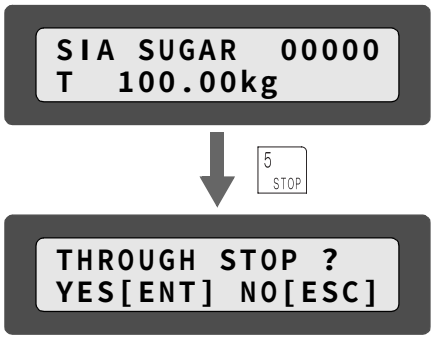
4. Start through recording with the ENT REC key.



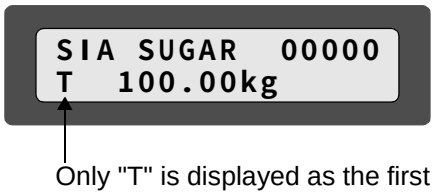
Display through recording
(The first character of the second line is switched and displayed as "T" → "h" → "r" → "o" → "u" → "g" → "h".)

The data received from the RS-232C is recorded.

5. To interrupt the through recording and refuse the data from the RS-232C, press the 5 STOP key on the input value display screen in Step 2 to enter the through recording stop confirmation screen.



6. Interrupt the through recording with the ENT REC key.



Only "T" is displayed as the first character of the second line.

7. To resume the through recording, perform the operations in Steps 3 and 4.

08 : Automatic Record ON/OFF

An automatic recording command can be sent from the SI/F or RS-232C to the DS252 to perform automatic recording. Select whether this automatic recording is on or off.

Setting name	08 : Automatic Record ON/OFF (AUTO RECORD)
Selectable items	00 : OFF (invalid) 01 : ON (valid) (initial value)
Display	08:AUTO RECORD 01:ON
Reference	・If this is set to ON (valid), data is recorded when a recording command is received from the SI/F or RS-232C. For the recording command from the SI/F, see the instruction manual of each indicator and for the recording command from the RS-232C, see "5-3.RS-232C interface" (page84). ・If this is set to OFF (invalid), recording is not performed by the recording command from the SI/F or RS-232C.
Precautions	・Regardless of this setting, recording is always performed in the following conditions: When the ENT REC key is pressed When the [REC] terminal on the rear panel terminal block is ON (short-circuited with the [COM] terminal) ・Since no automatic recording command can be given by BCD input, for recording data from BCD input, it is necessary to perform operation on the front panel, or input a REC signal from the rear terminal block.

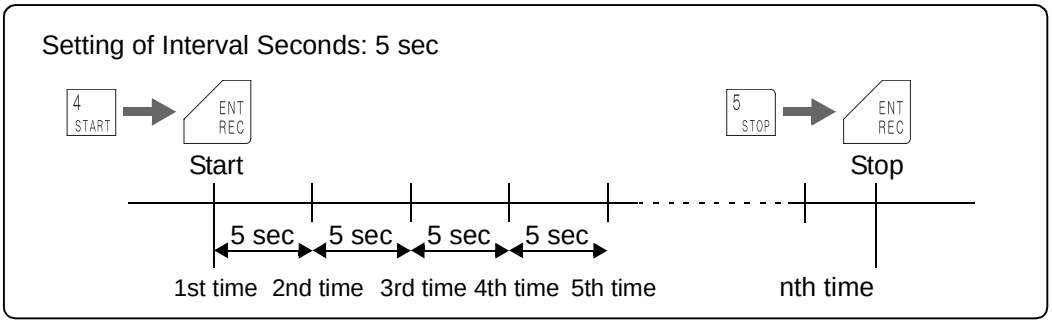
09 : Interval Record ON/OFF

Select whether or not to perform recording automatically at fixed intervals.

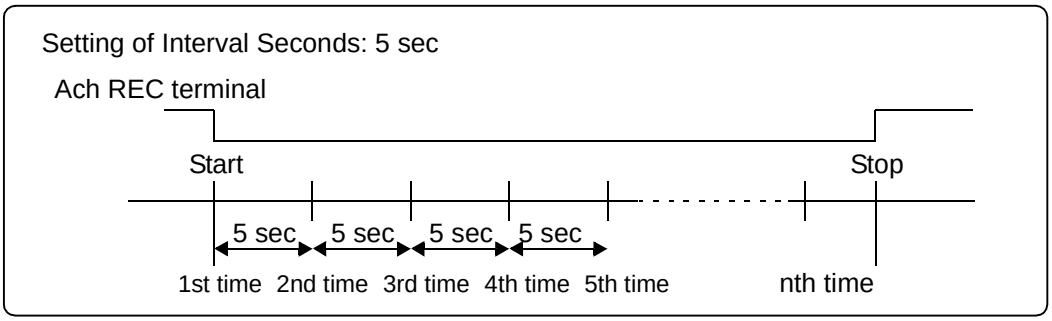
Setting name	09 : Interval Record ON/OFF (INTERVAL REC)
Selectable items	00 : OFF (invalid) (initial value) 01 : START KEY 02 : EXTERNAL REC
Display	09:INTERVAL REC 00:OFF
Reference	・If the setting is other than OFF (invalid), data is recorded at the intervals of the time specified in "10: Interval Seconds" (page 39). Start and stop in case that START KEY is selected Start of recording..... 4 START → ENT REC key Stop of recording..... 5 STOP → ENT REC key Start and stop in case that EXTERNAL REC is selected Recording is performed at the specified intervals as long as the [Ach REC] terminal on the rear panel is ON. ・If this is set to OFF (invalid), interval recording is not performed. ・During interval record, a rotating bar is displayed at the lower left of the input value display screen.
Precautions	During interval record, other recording operations are invalid.

Timing of interval record

At the setting of START KEY



At the setting of EXTERNAL REC



10: Interval Seconds

Set the interval time for interval records in seconds.

Setting name	10 : Interval Seconds (INTERVAL TIME)
Setting range	1 to 9999 sec
Initial value	0003 sec
Display	10:INTERVAL TIME 0003

11 : GT/ST Recording Format

Select the format of grand total/sub total data to be recorded by recording operation.

Setting name	11 : GT/ST Recording Format (GT/ST FORMAT)
Selectable items	00 : STANDARD (initial value) 01 : +RANK
Display	11:GT/ST FORMAT 00:STANDARD
Reference	・If this is set to STANDARD, the following data is recorded. (See"6-2-1.Data labels" (page93)). TOTAL, STD, AVE, MIN, MAX, MAX - MIN, ERROR, OVER, LOWER, UPPER ・If this is set to +RANK, frequency distribution (See "6-2-3.Recording of ST (sub total) / GT (grand total)" (page95) is added to STANDARD.

12 : Type of Sub Totals

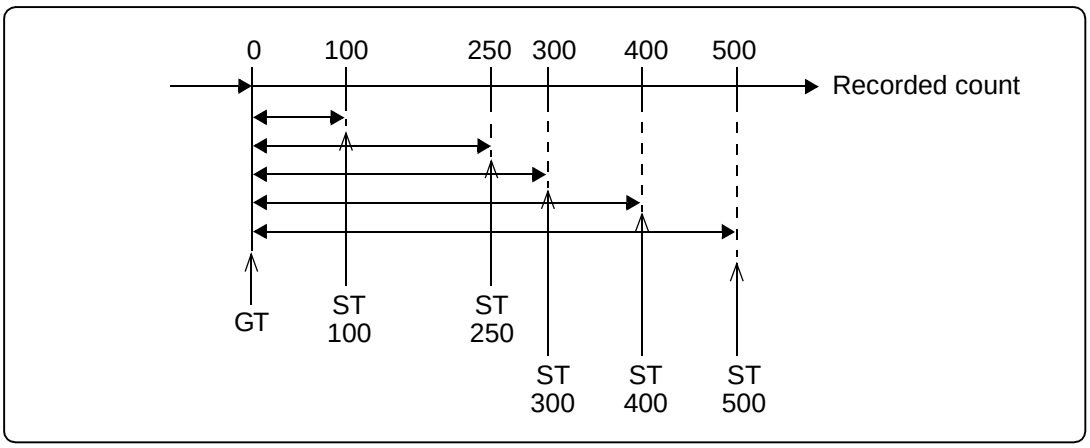
Select the type of sub totals.

There are two types of sub totals: middle sub totals and section sub totals.

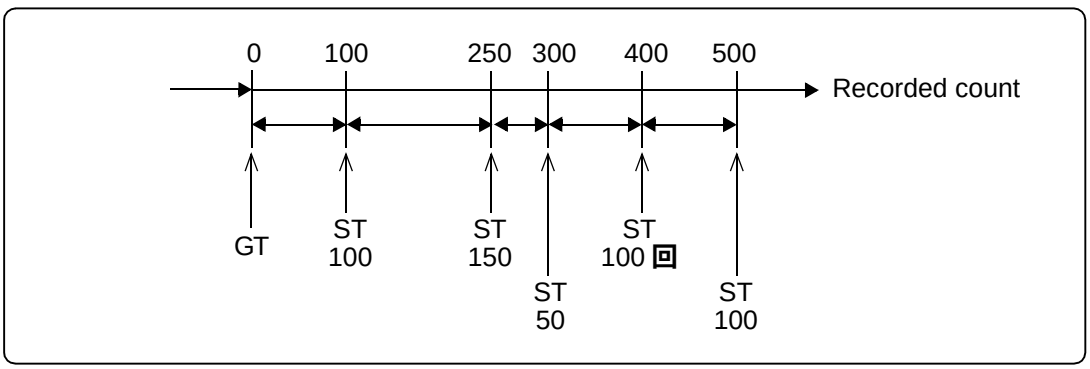
Setting name	12 : Type of Sub Totals (ST MODE)
Selectable items	00 : MIDDLE SUB (middle sub total) (initial value) 01 : SECTION SUB (section sub total)
Display	12:ST MODE 00:MIDDLE SUB

Middle sub totals and section sub totals

Middle sub totals:..... Values taken from the previous grand total to sub totals are recorded.



Section sub totals: ..... Values taken between sub totals are recorded.

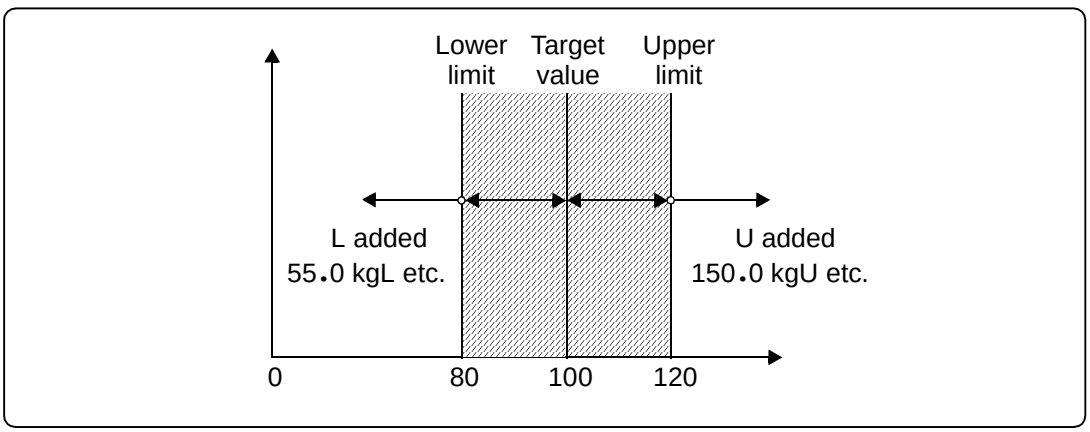


13, 15 : Target Value for Statistical Data Ach, Bch
14, 16 : Target Range for Statistical Data Ach, Bch

Set the target value and range, a width from the target value, required for calculating statistical data.

Setting name	13, 15 : Target Value for Statistical Data Ach, Bch (TARGET VALUE) 14, 16 : Target Range for Statistical Data Ach, Bch (TARGET RANGE)
Setting range	Target value : ± 0 to 99999 (The initial value is +00000.) Target range : 5 to 99999 (The initial value is 99999.)
Display	13:TARGET VALUE ChA= 00000 15:TARGET VALUE ChB= 00000 14:TARGET RANGE ChA=99999 16:TARGET RANGE ChB=99999
Reference	・For setting a target value, change the sign with the down arrow key. ・Set a value without a decimal point. Example) 100.0 → 1000 ・The range between the upper limit and lower limit is divided into ten equal parts to generate ranks for frequency distribution. Rank data in lower order than the indicated value is discarded. ・If the data exceeds the upper limit or lower limit at record-every time, a range over symbol is recorded in the corresponding STATE column. Data ＞ (upper limit) ⇒ ‘ U ’ Data ＜ (lower limit) ⇒ ‘ L ’ ・The number of pieces of data exceeding the upper limit or lower limit is counted as UPPER or LOWER, respectively, which will be recorded at ST/GT-time.
Precautions	If the target value or range is changed in recording, the data of each rank may differ from the recorded data because the frequency distribution data is counted in each rank.

Example of setting <Setting of Target Value: 100, Range: 20>



17 : Standard Deviation

Select a calculating formula the standard deviation.

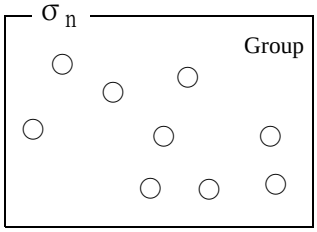
There are two types of calculating formula.

Setting name	17 : Standard Deviation (STD MODE)
Selectable items	00 : σ_n (initial value) 01 : σ_{n-1}
Display	17:STD MODE 00:σn

Details of setting

σ_n..... All the data in a group is used to obtain the standard deviation of the group.

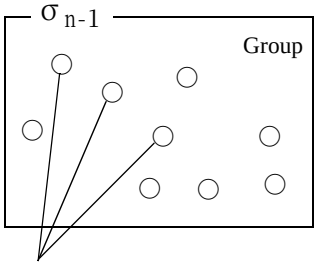
$$\sigma_n = \sqrt{\frac{\sum_{i=1}^{n} (\chi_i - \bar{\chi})^2}{n}}$$



All the data in the group is recorded to obtain the standard deviation.

σ_{n-1}..... Several pieces of sample data out of a group are used to estimate the standard deviation of the whole group.

$$\sigma_{n-1} = \sqrt{\frac{\sum_{i=1}^{n} (\chi_i - \bar{\chi})^2}{n-1}}$$



Only several pieces of sample data are recorded to estimate the standard deviation of the whole.

Caution for selection

By σn-1, part of the entire recorded data is extracted as samples and the standard deviation is calculated from the data of those samples alone. Therefore, if it is used when the amount of data is small, the reliability of the value will become low.

18 : Data Adding ON/OFF

Select whether or not the recorded data is targeted at grand totals/sub totals.

Setting name	18 : Data Adding ON/OFF (DATA ADDING)
Selectable items	00 : OFF (data not added) 01 : ON (data added) (initial value)
Display	18:DATA ADDING 01:ON
Reference	・If this is set to ON (data added), the recorded data is targeted at grand totals/sub totals. ・If this is set to OFF (data not added), the recorded data is excluded from the target of grand totals/sub totals. An asterisk (*) follows the data (unit) recorded.
Precautions	If OFF (data not added) is selected, recording is not performed regardless of the setting of "06 : Record Every ON/OFF" (page 35).

19 : Record Key ON/OFF

Select whether the 

key on the front panel is valid or invalid.

Setting name	19 : Record Key ON/OFF (RECORD KEY)
Selectable items	00 : OFF (invalid) 01 : ON (valid) (initial value)
Display	19:RECORD KEY 01:ON
Reference	・If this is set to OFF (invalid), recording is not performed with the  key on the front panel. ・Set to OFF not to record by careless operation in equipment automation etc.
Precautions	This setting has no relationship to the [REC] terminal on the rear panel and the recording command from the SI/F or RS-232C.

20 : Batch Total ON/OFF

Set whether or not to record batch totals.

Setting name	20 : Batch Total ON/OFF (BATCH TOTAL)
Selectable items	00 : OFF (invalid) (initial value) 01 : ON (valid)
Display	20:BATCH TOTAL 00:OFF
Reference	・To record batch totals, use the [Bch WRITE] terminal on the rear panel. Batch totals are recorded by short-circuiting the [WRITE] terminal and [COM] terminal. ・Several weighing counts are collectively recorded as one batch. For more details, see "3-3-4.Batch total" (page25).
Precautions	・The [Bch WRITE] terminal on the rear panel, which is used for batch total control, cannot be used for recording on a CF card. ・To perform GT operation at Batch-Total-ON time, be sure to record the batch total just before the GT operation. (As the grand total data by GT operation, the sum of batch totals is recorded on the GT CH-A (B) line and the sum of individual data codes is recorded on the GT TOTAL line. (See page 95.) Completed batch totals are summed up independently. Since the data of individual codes is summed up regardless of completion of batch totals, if GT operation is performed without a batch total, the sum of batch totals and the sum of individual codes will not match.)

21 : (Unassigned)

22 : Code Selection

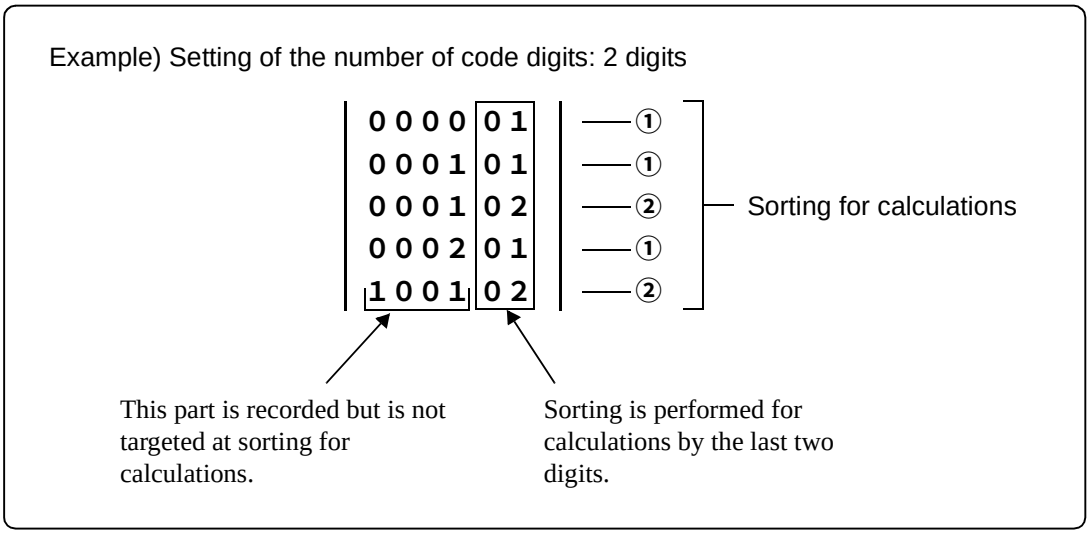
Select the method of code selection.

Setting name	22 : Code Selection (CODE SOURCE)
Selectable items	00 : KEY (initial value) (Ach: Keyboard, Bch: Keyboard) 01 : OPTION (Ach: Option, Bch: Keyboard) 02 : KEY TABLE (Ach: Key table, Bch: Key table) 03 : OPTION TABLE (Ach: Option table, Bch: Key table)
Display	22:CODE SOURCE 00:KEY
Reference	・Keyboard For setting a code, input the code name with the front panel keys. ・Option For setting a code, input the code name from the RS-232C interface or BCD input (option). ・Key table For setting a code, input the code table number corresponding to the pre-registered code name with the front panel keys. ・Option table For setting a code, send the code table number from the RS-232C interface or BCD input (option).
Precautions	・If OPTION or OPTION TABLE is selected with no option board set to the main body, the following will result: OPTION → Keyboard setting OPTION TABLE → Key table ・If you set this to "00: KEY" or "01: OPTION," set "26 : Code Sorting Type" (page 47) to "00: NAME".

23 : Number of Code Digits

Specify the number of digits for code sorting.

Setting name	23 : Number of Code Digits (CODE SIZE)
Setting range	0 to 6 digits
Initial value	0
Display	23:CODE SIZE 06:6
Reference	Normally, up to 6 digits can be used for codes. But by setting the number of code digits, calculations can also be made as codes having different heads are sorted by the preset number of digits from the last. (See the following example.) If it is set to 0, sorting is performed by input code.
Precautions	In case of using code tables, set the number of code digits to 2 digits or 1 digit. If it is set to 3 digits or more, sorting cannot be performed normally.



24, 25 : Registration of Code Table Ach, Bch

Register code tables.

Register code table numbers and corresponding code names.

Setting name	24, 25 : Registration of Code Table Ach, Bch (CODE TABLE)
Maximum number of codes registered	Up to 100 on each channel
Display	24:CODE TABLE ChA=00:SUGAR 25:CODE TABLE ChB=00:SALT Table number — Code name
Reference	Change the code number with the ▷ key.
Precautions	・There are two ways to register code tables: to input with the front panel keys and to load a code table file having been created on a CF card. ・For more details, see"4-1.Sorting by code and code table" (page52).

26 : Code Sorting Type

Select the method of sorting codes.

Setting name	26 : Code Sorting Type (SORT TYPE)
Selectable items	00 : NAME (code name) (initial value) 01 : TABLE No. (code table number)
Display	26:SORT TYPE 00:NAME
Reference	Specify whether data should be sorted by code name or by code table number.

27 : File Writing Mode Setting

Set the operation in writing data on a CF card.

Setting name	27 : File Writing Mode Setting (WRITE MODE)
Selectable items	00 : CLEAR (continuous writing) (initial value) 01 : NON CLEAR (all data writing)
Display	27:WRITE MODE 00:CLEAR
Reference	・If this is set to CLEAR (continuous writing): By WRITE operation, data from WRITE operation to WRITE operation is written on the CF card. ・If this is set to NON CLEAR (all data writing): By WRITE operation, data from GT operation to WRITE operation is written on the CF card.
Precautions	If this is set to CLEAR (continuous writing), the previous data is cleared by WRITE operation (data accumulation will be continued); therefore, the data before the previous WRITE operation will not be written on the CF card by the next WRITE operation or GT operation.

28 : File Overwriting Mode Setting

Set the operation to be performed when a CF card is full of data.

Setting name	28 : File Overwriting Mode Setting (OVERWRITE)
Selectable items	00 : OFF (not overwritten) (initial value) 01 : ON (overwritten)
Display	28:OVERWRITE 00:OFF
Reference	・If this is set to OFF (not overwritten): When the inserted CF card does not have enough free space or the number of files is too large, writing operation to the CF card is not performed. Reinsert a CF card with enough free space for recording. Recording into the internal memory will be continued. ・If this is set to ON (overwritten): The oldest file(s) on the CF card is deleted as required for writing to record the latest data.
Precautions	・If this is set to OFF (not overwritten), write operation into the internal memory will be continued, but if the internal memory has also become full, data accumulation will be simply made result. ・If this is set to ON (overwritten), old file(s) will automatically be deleted. Therefore, save important data on a PC etc. as soon as possible.

29 : Error Input ON/OFF Setting

Set whether or not to validate input data by an external terminal.

Setting name	29 : Error Input ON/OFF Setting (ERROR INPUT)
Selectable items	00 : OFF (error input available) (initial value) 01 : ON (error input unavailable)
Display	29:ERROR INPUT 00:OFF
Reference	・If this is set to ON (error input available): The SI/F Bch ST signal input on the rear panel terminal block is used as an error input terminal. Data is invalid as long as this terminal is short-circuited with the [COM] terminal and is not reflected in the grand total data. ('E' is added in the STATE column.) ・If this is set to OFF (error input unavailable) The SI/F Bch ST signal on the rear panel terminal block functions to process sub totals (ST).

30 : Option Table Ch

Select the operation of setting codes by option.

Setting name	30 : Option Table Ch (OPTION TABLE)
Selectable items	00 : ChA (initial value) 01 : ChA+ChB
Display	30:OPTION TABLE 00:ChA
Reference	01 : About the setting of "01: ChA+ChB" If this setting is selected with "22 : Code Selection" (page 45) set to OPTION TABLE, a code name can be set on both Ach and Bch by using the option-input code table number. The code name corresponding to the input code table number is called out of respective code tables and set on Ach and Bch at the same time.
Precautions	No code name can be called out of the code tables on Bch alone.

31 : Maximum Recorded Count Setting

Set the count to perform GT operation.

Setting name	31 : Maximum Recorded Count Setting (MAX COUNT)
Setting range	1 to 9999 (The initial value is 9999.)
Display	31:MAX COUNT 9999
Reference	GT operation is performed when any of the codes in use reaches the maximum recorded count set here.

32 : Grand Total Timer

Set the grand total timer.

Setting name	32 : Grand Total Timer (GT TIMER)
Selectable items	00 : OFF (initial value) 01 : ON 12 : 00
Display	32:GT TIMER 00:OFF
Reference	・By this function, GT operation is performed and a file is created at the preset time every day. ・The GT operation time can be input by selecting ON and using the  key. Input the time and set the function with the  key. (The initial setting is 12:00.) ・GT operation by other factors remains valid.

33 : Both Recording Mode Setting

Select the channel accepting a recording command in both recording mode.

Setting name	33 : Both Recording Mode Setting (BOTH MODE)
Selectable items	00 : ChA (initial value) 01 : ChB
Display	33:BOTH MODE 00:ChA
Reference	・This setting relates to recording commands from the SI/F and RS-232C. Select the channel accepting a recording command when [both record] is selected under "07: Record Every Format" (page 35). At this time, recording is not performed even if a recording command is given to the unselected channel. ・ The recording command from the RS-232C is dealt with as an input to Ach. ・ If [both record] is not selected under "07: Record Every Format" (page 35), both channels will accept a recording command.

4 Advanced use

Various functions of the DS252

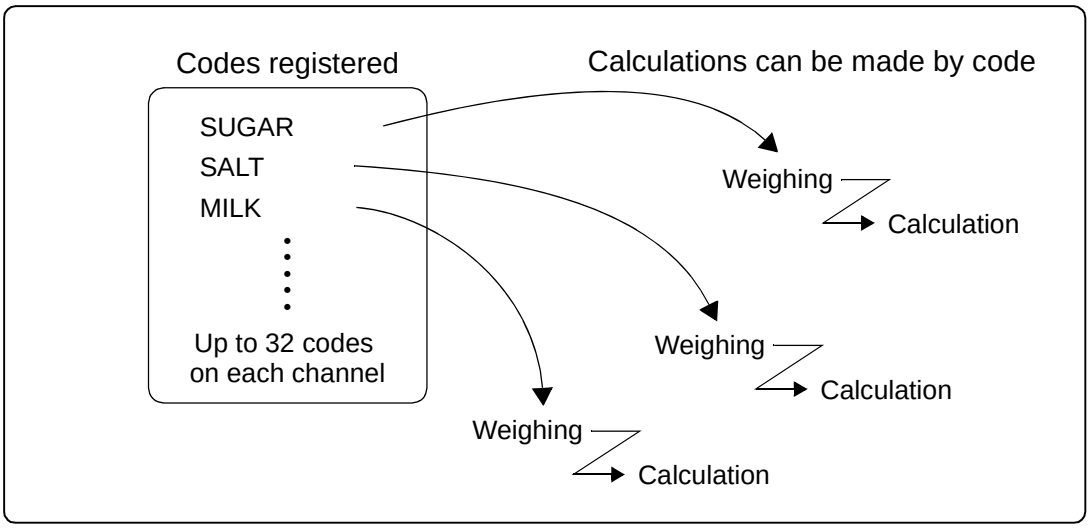
- Sorting by code and code table 52
- CF card 57
- Maintenance mode 67
- Over records 71
- Deletion records 72
- Date/time records 73
- Initialization 73

4-1.Sorting by code and code table

The DS252 can calculate sub totals and grand totals etc. on each code that can be assigned to each piece of recorded data.

Up to 32 codes can be registered on each channel.

Maximum number of codes registered	32 codes on each channel
Method of registration	・Input with the front panel keys on the main body Registration is waited for by pressing the 1 A key (for Ach) or the 2 B key (for Bch). ・Input from the RS-232C (See page 84.)
Input format	###### (6 digits at the maximum)
Usable characters	Numerical, alphabetical and katakana characters and symbols (-, *, /, space)
Method of calling a code	Front panel keys, RS-232C, BCD input



4-1-1. Code registration with the front panel keys

Input a code by using the numerical keys from [1 A] to [0 F], [△], [▽] and [▷] keys.

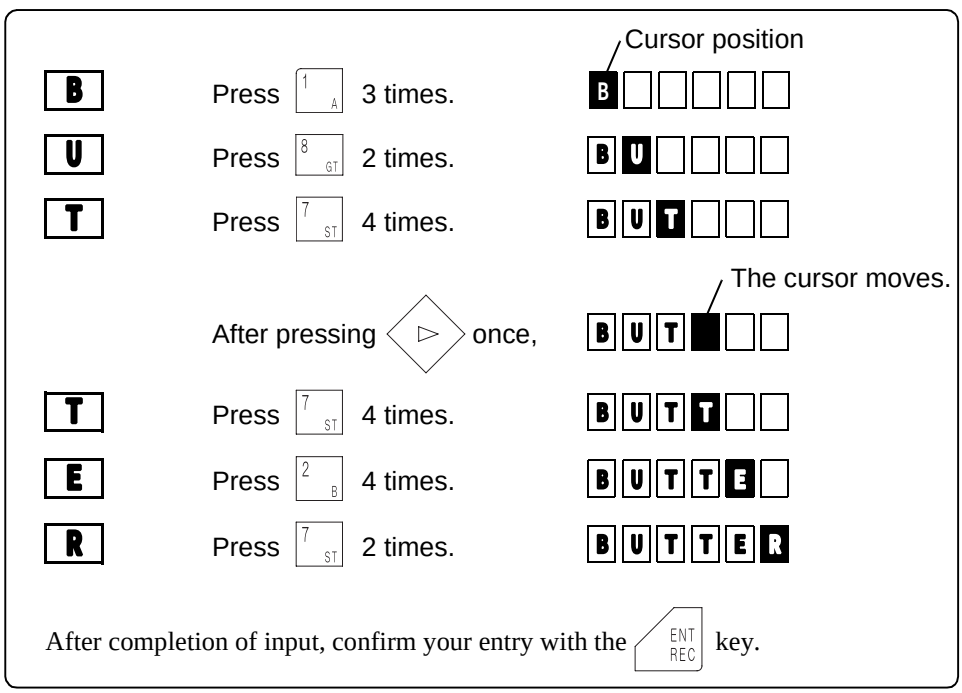
Since about ten characters are allocated for each numerical key, the key should be pressed until a desired character appears (This collection of keys is called a group.). For the list of characters allocated for each group, see the appendix "Character input table" (page 109).

- In case of inputting characters in the same group continuously, press the [▷] key once to move the cursor forward by one character.
- In case of inputting characters in different groups, input continuously. There is no need to press the [▷] key.
- In case of deleting one character, press the [△] key.

The following shows basic operational procedures for actually setting the DS252.
Then, "BUTTER" will be registered as a code on Ach for example.

1. Press the [1 A] key and the following is displayed to start code input.

2. Input the code as follows:



3. Upon completion of registration, the input value display screen is restored.

4-1-2. Code tables- difference from codes-

If you have registered code names corresponding to two-digit numbers (code table numbers) between 00 and 99 (ditto for Bch) in advance, you can call the registered codes by specifying each code table number for recording without the need to input a code name each time you change the weighing target. Code tables can be set on each channel (A, B). If you do not use code tables, you have to input and call code names with the front panel keys or from the option.

Code table numbers	Corresponding codes
00	SUGAR
01	SALT
02	MILK
⋮	⋮
99	BUTTER

When a code table number is specified, the corresponding code is called for recording and sorting. To call "MILK", input 02 to the last two digits.

Registered codes
SUGAR
SALT
MILK
⋮
BUTTER

When a code is specified, recording and sorting are performed according to the code. To sort "MILK", input "MILK".

Maximum number of codes registered	100 codes on each channel
Method of registration	Register in the setting mode "24, 25 : Registration of Code Table Ach, Bch" (page 46).
Input format	Code table number: ## (00 to 99 to the last two digits) Code name: ###### (6 digits at the maximum)
Usable characters	Numerical, alphabetical and katakana characters and symbols (-, *, /, space)
Method of calling a code	Front panel keys, RS-232C, BCD input

4-1-3. Code table registration

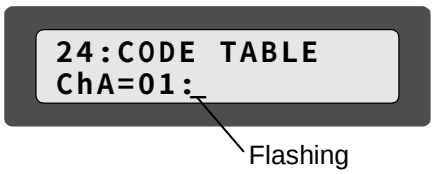
The operation of code table registration is nearly the same as that of code registration described above except for inputting a code table number corresponding to each code name.

The following shows basic operational procedures for actually setting the DS252. Then, "01" and "SUGAR" will be registered as a code table number and code respectively on Ach for example.

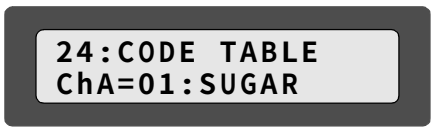
1. Press the [0 F] key to enter the setting mode.

2. Register the code table.
   Since the setting number is [24], press the [2 B], [4 START] → [ENT REC] key.

3. Select the code table number with the [▷] key and enter the code input mode with the [ENT REC] key.

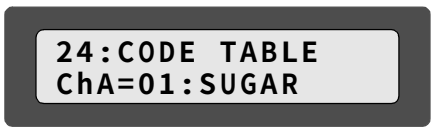


4. Input the code name by using the numerical keys.



   * Input the code name referring to "4-1-1.Code registration with the front panel keys" (page 53).

5. After inputting the code name, confirm your entry with the [ENT REC] key.



6. To continue registration, repeat Steps 3 to 5.

7. Exit with the [ESC] key.

4-1-4. How to call a code/code table

To call a code, input the code name and to call a code table, input the code table number. Depending on the interface, there are some restrictions in calling such a code/code table.

Under "22 : Code Selection" (page 45), select whether to call a code or code table and whether to call it from the front panel keys or optional interface.

Selecting with the front panel keys

Pressing the 1 A key (2 B key for Bch) on the input value display brings about a code selection state.For a code, input the code name directly. For a code table, input the code table number.

Selecting from the option

See the explanation of each option.

List of methods of code name/code table selection

	Code		Code table	
	Ach	Bch	Ach	Bch
Front panel keys	○	○	○	○
BCD input	△ (Note1)	×	○	▲ (Note2)
RS-232C	○	×	○	▲ (Note2)

(Note1) Codes that can be selected through the BCD input are only numbers, spaces and hyphens.

(Note2) If "30 : Option Table Ch" (page 49) set to ChA+ChB, a code name can be set on both Ach and Bch by using the option-input code table number.
No code name can be called out of the code tables on Bch alone.

List of code table registration methods

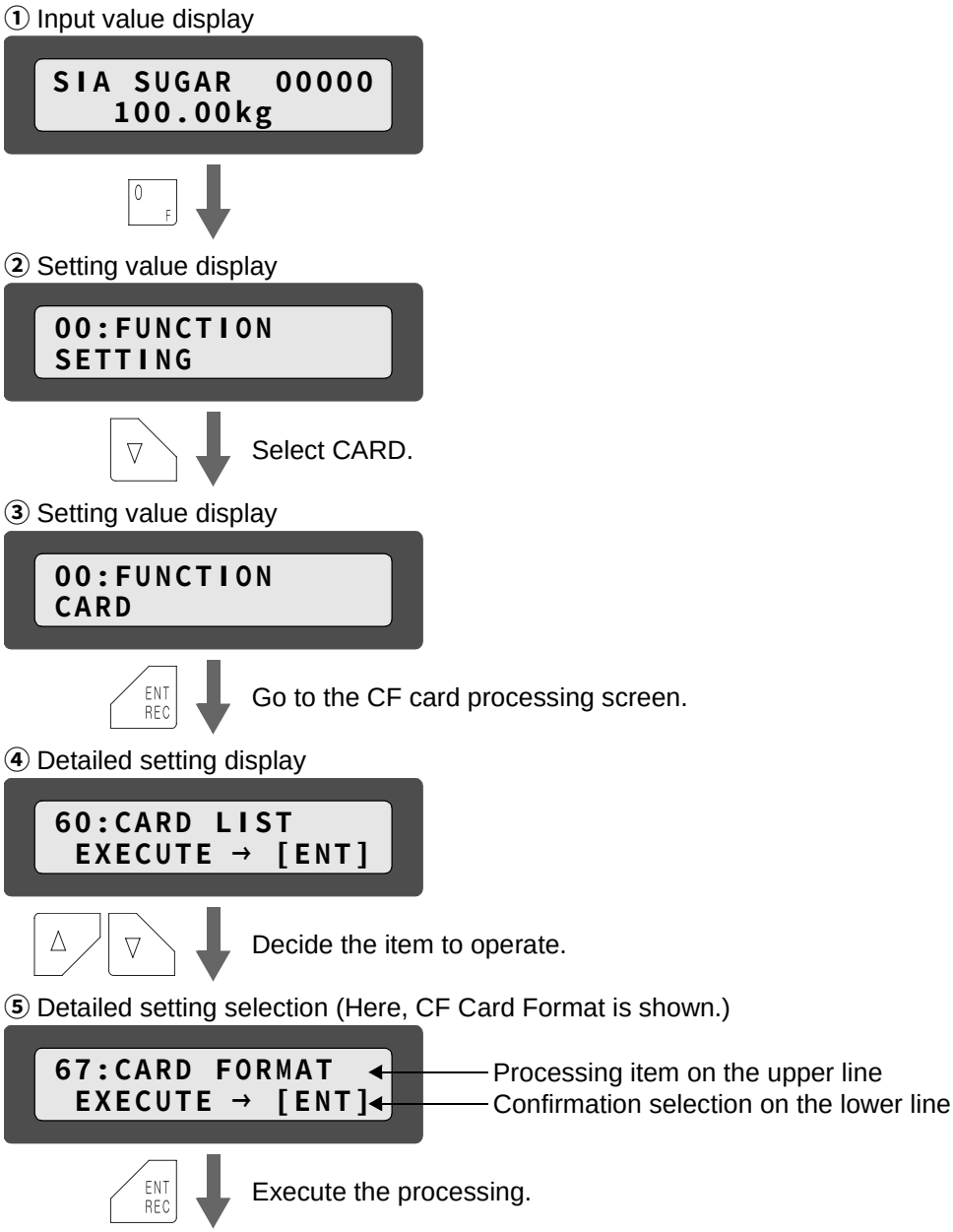
	Code table	
	Ach	Bch
Front panel keys	○	○
BCD input	×	×
RS-232C	×	×

4-2.CF card

For the DS252, a CF card is adopted as a recording medium. It not only can record the data but also can save and call the setting values and codes.

4-2-1. How to operate a CF card

Operate the CF card by selecting CARD on the setting value display.



⑥ Executing

⑦ Execution completed

⑧ Return to the processing screen

■ By inputting a setting No. on ② Setting value display, you can go directly to ⑤ detailed setting display.

In this example, press the [6 WRITE] → [7 ST] → [ENT REC] key on the screen of ② .

Setting Nos. correspond to the leftmost numbers on the "List of CF card setting items" (page 30).

■ To return to the previous display in each display state, use the [ESC] key.

4-2-2. Explanation of each process

60：CF Card Remaining Check

Check the remaining volume of a CF card.

Setting name	60：CF Card Remaining Check (CARD LIST)
Display	60:CARD LIST EXECUTE → [ENT] 60:CARD REMAIN 00: 95.40% — % display 60:CARD REMAIN 01: 127.67MB — Free space display 60:CARD FILE CNT 02: 10/512 — File count display 60:CARD DIR 000 02122510.CSV — File name display 60:CARD REMAIN 00: NO DATA — Error display
Reference	・Execute with the ENT REC key. ・The remaining volume (% and free space (MB)) of a CF card and the file count and name can be checked. Switch the display with the arrow keys (▷ , △ , ▽). ・Exit the remaining check display with the ESC key.
Precautions	Even if the CF card has enough free space, no more files can be created when the file count has reached 512.

61, 62 : Loading of Code Table (Ach, Bch)

Load the code table files having been saved on a CF card.

Setting name	61, 62：Loading of Code Table Ach, Bch (CODE A(B) LOAD)

Display	`61:CODE A LOAD`
	`EXECUTE → [ENT]` Ach
	`62:CODE B LOAD`
	`EXECUTE → [ENT]` Bch
	`61:CODE A LOAD`
	`READING...` Loading
	`61:CODE A LOAD`
	`DONE` Loading completed
	`61:CODE A LOAD`
	`ERROR [1]` Error display

Reference	・Execute with the ENT REC key. ・Loading file names are: Ach：DS_TBL_A.TXT Bch：DS_TBL_B.TXT ・If there is any invalid description, the data before that line is loaded and the loading is stopped at the invalid line with an error displayed. ・For the file contents, see the "Code table files" (page 66).
Precautions	By performing this operation, the code tables currently set to the DS252 are overwritten. Perform the processing after confirming the setting files.

63, 64 : Saving of Code Table (Ach, Bch)

Save the currently set code tables on a CF card.

Setting name	63, 64：Saving of Code Table Ach, Bch (CODE A(B) SAVE)
Display	63:CODE A SAVE EXECUTE → [ENT] — Ach 64:CODE B SAVE EXECUTE → [ENT] — Bch 63:CODE A SAVE WRITING... — Saving 63:CODE A SAVE DONE — Saving completed 63:CODE A SAVE ERROR [1] — Error display
Reference	・Execute with the ENT REC key. ・Saving file names are: Ach：DS_TBL_A.TXT Bch：DS_TBL_B.TXT ・If the above file names exist on the CF card, they are saved as overwritten. ・For the file contents, see the "Code table files" (page 66).
Precautions	If setting files exist on the CF card, execute this after saving necessary files on a PC etc. to overwrite the files.

65 : Loading of Setting Value

Load the setting value file having been saved on a CF card.

Setting name	65：Loading of Setting Value (SETTING LOAD)
Display	65:SETTING LOAD EXECUTE → [ENT] 65:SETTING LOAD READING... — Loading 65:SETTING LOAD DONE — Loading completed 65:SETTING LOAD ERROR [1] — Error display
Reference	・Execute with the ENT REC key. ・Loading file name is: DS252SET.TXT ・If there is any invalid description, the data before that line is loaded and the loading is stopped at the invalid line with an error displayed. ・For the file contents, see the "Setting file" (page 64).
Precautions	By performing this operation, the values currently set to the DS252 are overwritten. Perform the processing after confirming the setting file.

66 : Saving of Setting Value

Save the currently setting values on a CF card.

Setting name	66：Saving of Setting Value (SETTING SAVE)
Display	66:SETTING SAVE EXECUTE → [ENT] 66:SETTING SAVE WRITING...　Saving 66:SETTING SAVE DONE　Saving completed 66:SETTING SAVE ERROR [1]　Error display
Reference	・Execute with the ENT REC key. ・Saving file name is: DS252SET.TXT ・If the above file name exists on the CF card, it is saved as overwritten. ・For the file contents, see the "Setting file" (page 64).
Precautions	If setting file exists on the CF card, execute this after saving file on a PC etc. to overwrite the file.

67 : CF Card Format

Format a CF card.

Setting name	67：CF Card format (CARD FORMAT)
Display	67:CARD FORMAT EXECUTE → [ENT] 67:CARD FORMAT FORMATTING...　Formatting 67:CARD FORMAT DONE　Formatting completed 67:CARD FORMAT ERROR [1]　Error display
Reference	Execute with the ENT REC key.
Precautions	By formatting, all files on the CF card are deleted.

4-2-3. About the error display

If any error that no CF card is set in the main body occurs, the error is displayed on the lower line of the display. Since the error is numerically described, check the following together.

CARD ERROR［1］	No CF card is set in the main body.
CARD ERROR［2］	The type of CF card is incorrect.
CARD ERROR［3］	The CF card is not formatted.
CARD ERROR［11］	The CF card is full.
CARD ERROR［20］	The number of files on the CF card is too large.
CARD ERROR［22］	No file exists.
CARD ERROR［24］	The same file name exists.

If any other error is displayed, the CF card may be abnormal.
Check the CF card on a PC etc.

4-2-4. Setting file

With the DS252, each setting can be saved on a CF card or loaded out of it to the main body. Since the file contents are saved in text format, they can be confirmed on a PC etc.

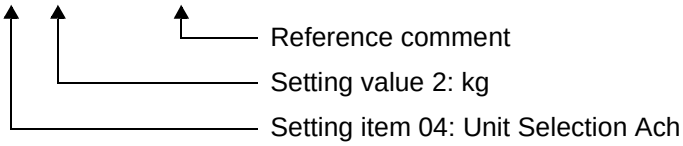
Setting file name: DS252SET.TXT

Setting values are saved with this file name. If this file name already exists on the CF card, the file will be overwritten. Setting values are loaded out of the CF card by searching for this file name.

File format

In the setting file, each setting item is described on a line-by-line basis.
The first 2 digits of each line show the unique value allocated for the setting item and the comma-delimited second field shows the value set to the setting item. If the same setting item doubly exists in the file, the lower-order line will become valid.

[Example] **04,2, UNIT A**



List of setting values

Setting item	Setting value	Reference comment	Description
02,	0,	DATA KIND A	Recorded Data Selection Ach
03,	0,	DATA KIND B	Recorded Data Selection Bch
04,	2,	UNIT A	Unit Selection Ach
05,	2,	UNIT B	Unit Selection Bch
06,	1,	EVERY RECORD	Record Every ON/OFF
07,	0,	RECORDING FORMAT	Record Every Format
08,	1,	AUTO RECORD	Automatic Record ON/OFF
09,	1,	INTERVAL MODE	Interval Record ON/OFF
10,	3,	INTERVAL TIME	Interval Seconds
11,	0,	GT/ST FORMAT	GT/ST Recording Format
12,	0,	ST MODE	Type of Sub Totals
13,	0,	TARGET A	Target Value for Statistical Data Ach
15,	0,	TARGET B	Target Value for Statistical Data Bch
14,	99999,	RANGE A	Target Range for Statistical Data Ach
16,	99999,	RANGE B	Target Range for Statistical Data Bch
17,	0,	STD MODE	Standard Deviation
18,	1,	ADD DATA MODE	Data Adding ON/OFF

Setting item	Setting value	Reference comment	Description
19,	1,	RECORD KEY	Record Key ON/OFF
20,	0,	BATCH TOTAL MODE	Batch Total ON/OFF
22,	0,	CODE SOURCE	Code Selection
23,	0,	CODE DIGIT	Number of Code Digits
26,	0,	SORT TYPE	Code Sorting Type
27,	0,	WRITE MODE	File Writing Mode Setting
28,	0,	OVERWRITE	File Overwriting Mode Setting
29,	0,	ERROR INPUT	Error Input ON/OFF Setting
30,	0,	OPTION TABLE	Option Table Ch
31,	9999,	DATA MAX COUNT	Maximum Recorded Count Setting
32,	0,12,0,	GT TIMER	Grand Total Timer
33,	0,	BOTH MODE	Both Recording Mode Setting
41,	4,	BCD DOT POINT	BCD Decimal Point Position
42,	0,	BCD LOGIC	BCD Data Logic
43,	0,	SIGN LOGIC	BCD Minus Sign Logic
44,	0,	OVER LOGIC	BCD Over Logic
45,	0,	STROBE LOGIC	BCD Strobe Logic
46,	3,	RS232C BPS	RS-232C Transmission Speed
47,	2,	RS232C PARITY	RS-232C Parity Bit
48,	2,	RS232C DATA	RS-232C Data/Stop Bit
49,	1,	RS232C TERMINATOR	RS-232C Terminator
50,	1,	RS232C ANSWER	RS-232C Answer Mode
72,	1,	BEEP SOUND	Beep Sound ON/OFF
73,	1,	LCD BACK LIGHT	LCD Backlight Setting
74,	0,	LCD BACK LIGHT TIMEOUT	LCD Backlight Timeout Setting
75,	30,	KEY TIMEOUT	Key Input Timeout Setting
76,	1,	CH SWAP TIME	Display Switching Time Setting

The setting value of setting item 32 shows the GT TIMER setting value and hour/minute.

If any value that cannot be set is described for a setting item or the setting is described outside the range, the data before that line is loaded and the loading is stopped at the erroneous line.

Since the erroneous line number is displayed on the LCD, check the file on a PC etc. and retry loading.

4-2-5. Code table files

With the DS252, code tables (Ach, Bch) can be saved on a CF card or loaded out of it to the main body. Since the file contents are saved in text format, they can be confirmed on a PC etc.

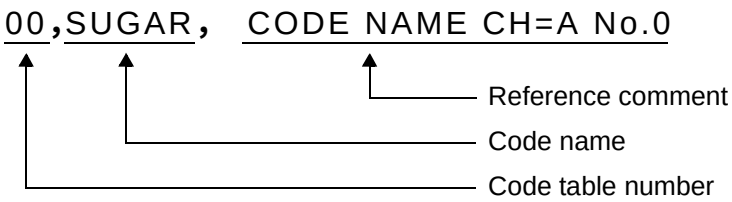
Setting file names: DS_TBL_A.TXT(for Ach)
DS_TBL_B.TXT(for Bch)

Code tables are saved separately for Ach and Bch with the above file names. If these file names already exist on the CF card, the files will be overwritten.
Code tables are loaded out of the CF card by searching for the file names.

File format

In the code table files each code is described on a line-by-line basis. If the same code table number doubly exists in the files, the lower-order line will become valid.
The first 2 digits of each line show the unique value allocated for the code table and the comma-delimited second field shows the code name.

[Example]



The code table number is valid between 00 and 99.
For using katakana in the code name, input one-byte characters.
(Two-byte characters cannot be used.)
If any character other than those in the "Character input table" (page 109) are used in the code name, normal display or recording may not be performed.
The code name is valid up to six one-byte characters.

Note

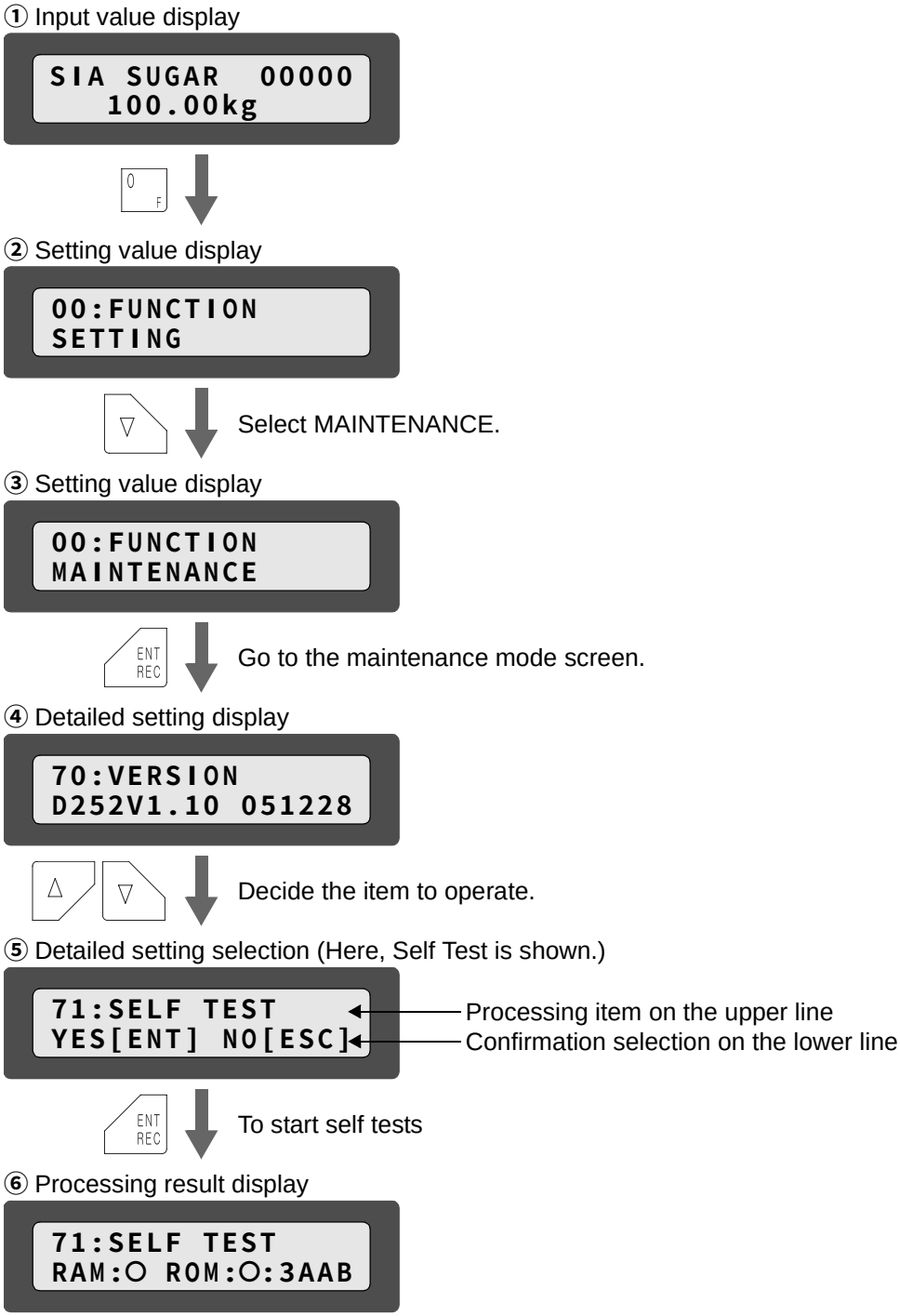
If any error that the code name exceeds the specified number of digits occurs, the data before that line is loaded and the loading is stopped at the erroneous line.
Since the erroneous line number is displayed on the LCD, check the file on a PC etc. and retry loading.

4-3.Maintenance mode

In the maintenance mode, check the functioning etc. of the DS252.

4-3-1. How to operate the maintenance mode

Operate the maintenance mode by selecting MAINTENANCE on the setting value display.



By inputting a setting No. on ② Setting value display, you can go directly to ⑤ Detailed setting display.

In this example, press the [7 ST] → [1 A] → [ENT REC] key on the screen of ② .

Setting Nos. correspond to the leftmost numbers on the "List of maintenance mode setting items" (page 30).

To return to the previous display in each display state, use the [ESC] key.

4-3-2. Explanation of each setting/operation

70 : Version Display

Display the software version of the DS252 body.

Setting name	70：Version Display (VERSION)
Display	70:VERSION D252V1.10 051228
Reference	It is simply displayed with no particular operation or setting item available.

71 : Self Test

Check the inside of the DS252 body.

Setting name	71：Self Test (SELF TEST)
Display	71:SELF TEST EXECUTE → [ENT]
Reference	・Carry out self tests with the [ENT REC] key. ・By the self tests, the internal memory is checked.

If the self test result is [×] or the tests do not end normally, the DS252 is considered to be faulty.

Ask your distributor or our company for repair.

72：Beep Sound ON/OFF

Set whether or not to allow the beep to sound during key operation and when an error occurs etc.

Setting name	72：Beep Sound ON/OFF (BEEP SOUND)
Display	00：OFF (sound inaudible) 01：ON (sound audible) (initial value)
Reference	72:BEEP SOUND 01:ON
Precautions	If this is set to OFF, the beep will not sound during writing on a CF card etc.

73：LCD Backlight Setting

Set whether or not to turn on/off the backlight of the LCD

Setting name	73：LCD Backlight Setting (BACKLIGHT)
Display	00：OFF (invalid) 01：ON (valid) (initial value)
Reference	73:BACKLIGHT 01:ON
Precautions	If this is set to OFF, the backlight will not light. For use in a dark place, set this to ON (valid).

74：LCD Backlight Timeout Setting

Set the backlight lighting-up time.

Setting name	74：LCD Backlight Timeout Setting (LCD TIMEOUT)
Setting range	0000 to 9999 sec (The initial value is 0000.)
Display	74:LCD TIMEOUT 0000
Reference	・If "73：LCD Backlight Setting" (page 69) is OFF, this setting is invalid. ・If this is set at 0000 (0 sec), the LCD backlight stays lit.

75 : Key Input Timeout Setting

Set the key input waiting time.

Setting name	75 : Key Input Timeout Setting (KEY TIMEOUT)
Setting range	0000 to 9999 sec (The initial value is 0030.)
Display	75:KEY TIMEOUT 0005
Reference	・Key input is waited for by the time set here on the confirmation screens displayed when a code is input in modes other than the setting mode, when the time is displayed and when the 4 START , 5 STOP , 6 WRITE , 7 ST , 8 GT or 9 DEL key is pressed. If nothing is operated when the set time has elapsed, the input value display screen is restored. ・If the set time is 0 sec, the input value display screen is not restored automatically. Not to change a code, return to the input value display screen with the ESC key.

76 : Display Switching Time Setting

Set the time to switch the input value display screen.

Setting name	76 : Display Switching Time Setting(CH SWAP TIME)
Setting range	0001 to 9999 sec (The initial value is 0001.)
Display	76:CH SWAP TIME 0001
Reference	Set the display time per channel on the input value display screen in the automatic display switching mode.

77 : Data Clear

Clear the recorded data.

Setting name	77 : Data Clear (DATA CLEAR)
Display	77:DATA CLEAR EXECUTE → [ENT] 77:DATA CLEAR DONE Clearing completed
Reference	The data having been recorded in the internal memory is cleared.
Precautions	Once the data is cleared, it cannot be restored.

78：Test Mode

This is for shipping checks.

Setting name	78：Test Mode (TEST MODE)
Display	78:TEST MODE EXECUTE → [ENT]
Precautions	This mode is used for factory-shipping. It is locked by a password.

Cautions in the maintenance mode

In the maintenance mode, normal recording is not performed.
Do not perform maintenance during recording of data.

The test mode is an item prepared for shipping checks. Do not use this mode. (It is locked by a password.)

4-4.Over records

By this function, recorded data outside the range set by the indicator in connection or the DS252 is identified as over status (R) and range over (U/L).

Over status (R)

If LOAD (A/D converter input over), OFL1 (net weight > 99999), or a zero alarm occurs on the indicator side, "R" is recorded in the STATE column and the data is not added to grand totals/sub totals. Also, it is not counted up.

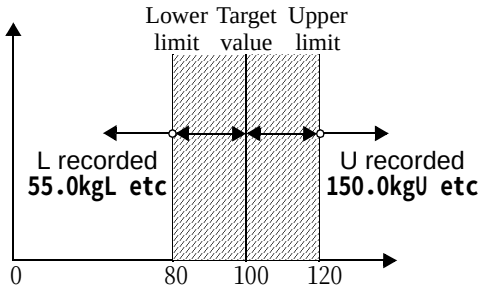
Through the SI/F, the over status is automatically sent from the indicator. In case of BCD input, "over" recording is performed when a signal is input to pin No. 46 [over input].

The over status is recorded due to an abnormality on the indicator side. The problem cannot be solved by setting the DS252.

4-4-1. Range over (U/L)

If the limits set by Target Value Ach (Bch) and Target Range Ach (Bch) are exceeded, the following are additionally recorded in the STATE column: "U" for upper limit over and "L" for lower limit over.

(Example) When Target Value is set at 100,and Range at 20



'U' recorded

Weighed value > Target value + Target range

'L' recorded

Weighed value < Target value - Target range

■ If "range over" (U/L) and "over status" (R: See the previous page.) occur simultaneously, "over status" (R) is recorded.

■ "Range over" is a index for users to know whether or not the recorded value exceeds the limits. It does not affect sub totals/grand totals.

4-5.Deletion records

Use this function for deleting recorded data (not to add it to sub totals/grand totals). Only the previously recorded one piece of data can be deleted.

In the recording mode, press the [9 DEL] → [ENT REC] key for deletion.

■ Only the previously recorded one piece of data can be deleted.

■ The latest data at the time of pressing the [ENT REC] key is deleted.

Note

■ Deletion cannot be performed twice or more in succession.

■ In case of both recording, deletion is performed on both Ach and Bch.

4-6.Date/time records

The current time is recorded by pressing the [3 DATE] → [ENT REC] key on the input value display.

4-7.Initialization

All the internal memory of the DS252 is cleared and the setting values are rewritten and return to factory defaults.

1. Turn on the power while pressing the [1 A] key and [0 F] key at the same time.
2. The confirmation message is displayed.

3. To initialize, press the [ENT REC] key.
   Not to initialize, press the [ESC] key.

Note

■ Deleted data and settings cannot be restored. Carefully perform this operation.

MEMO

5 Options

BCD input and RS-232C interface

■ BCD input 76
■ BCD input settings 80
■ RS-232C interface 84
■ RS-232C settings 85

5-1.BCD input

The BCD input is the interface to integrate BCD data and codes in the DS252.

Adaptable connector	DDK-manufactured 57-30500 or equivalent
Data that can be input	Recorded data, codes (numerical characters, space, hyphen)
Input equipment	Digital switch, DIP switch, BCD output equipment etc.
Input logic	Selectable from negative logic and positive logic.

BCD input pin assignments

No			No		
1	COM		26	Code	10
2	Recorded data	1	27	Code	20
3	Recorded data	2	28	Code	40
4	Recorded data	4	29	Code	80
5	Recorded data	8	30	Code	100
6	Recorded data	10	31	Code	200
7	Recorded data	20	32	Code	400
8	Recorded data	40	33	Code	800
9	Recorded data	80	34	Code	1000
10	Recorded data	100	35	Code	2000
11	Recorded data	200	36	Code	4000
12	Recorded data	400	37	Code	8000
13	Recorded data	800	38	Code	10000
14	Recorded data	1000	39	Code	20000
15	Recorded data	2000	40	Code	40000
16	Recorded data	4000	41	Code	80000
17	Recorded data	8000	42	Code	100000
18	Recorded data	10000	43	Code	200000
19	Recorded data	20000	44	Code	400000
20	Recorded data	40000	45	Code	800000
21	Recorded data	80000	46	Over input	
22	Code	1	47	Minus input	
23	Code	2	48	Reserved	
24	Code	4	49	Strobe input	
25	Code	8	50	Reserved	

BCD data input coding

Binary	Hexadecimal	Record
MSB LSB		Character
0000 〜 1001	1 〜 9	1 〜 9
1010	A	Space
1011	B	Space
1100	C	Space
1101	D	- (hyphen)
1110	E	Space
1111	F	Space

Note

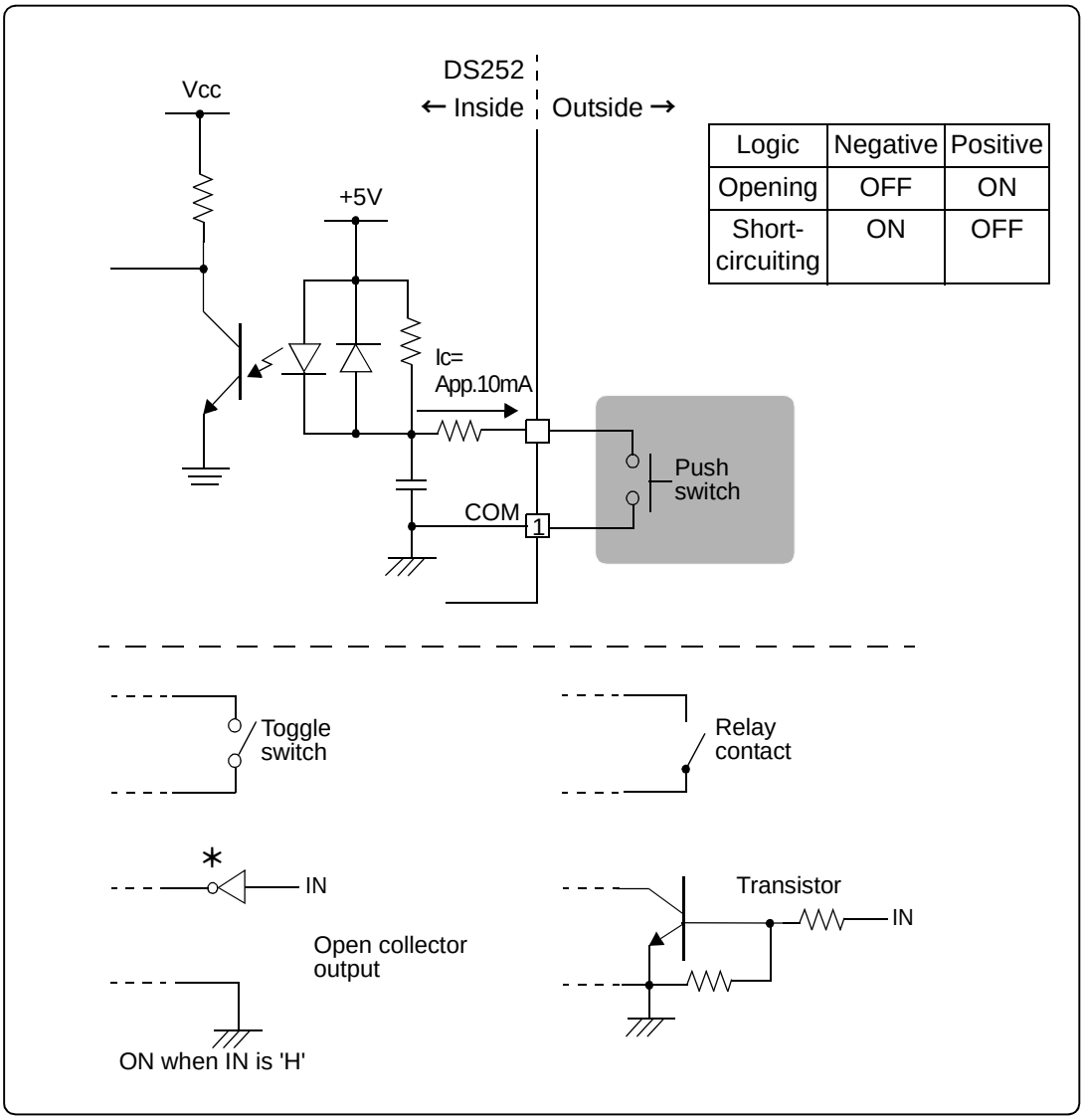
■ For inputting codes from the BCD input, select 1 or 3 under the setting item "22 : Code Selection" (page45).

■ For recording codes at record-every time, select [with code] under "07: Record Every Format" (page35). As a default, only the count, data and unit are recorded.

■ If there is any input other than 0 to 9 for each digit of recorded data, an error will result.

Input equivalent circuit

The signal input circuit inputs a signal by short-circuiting and opening between each input terminal and COM terminal. Short-circuiting is performed by a contact (relay, switch, etc.) or non-contact (transistor, open collector output, etc.)

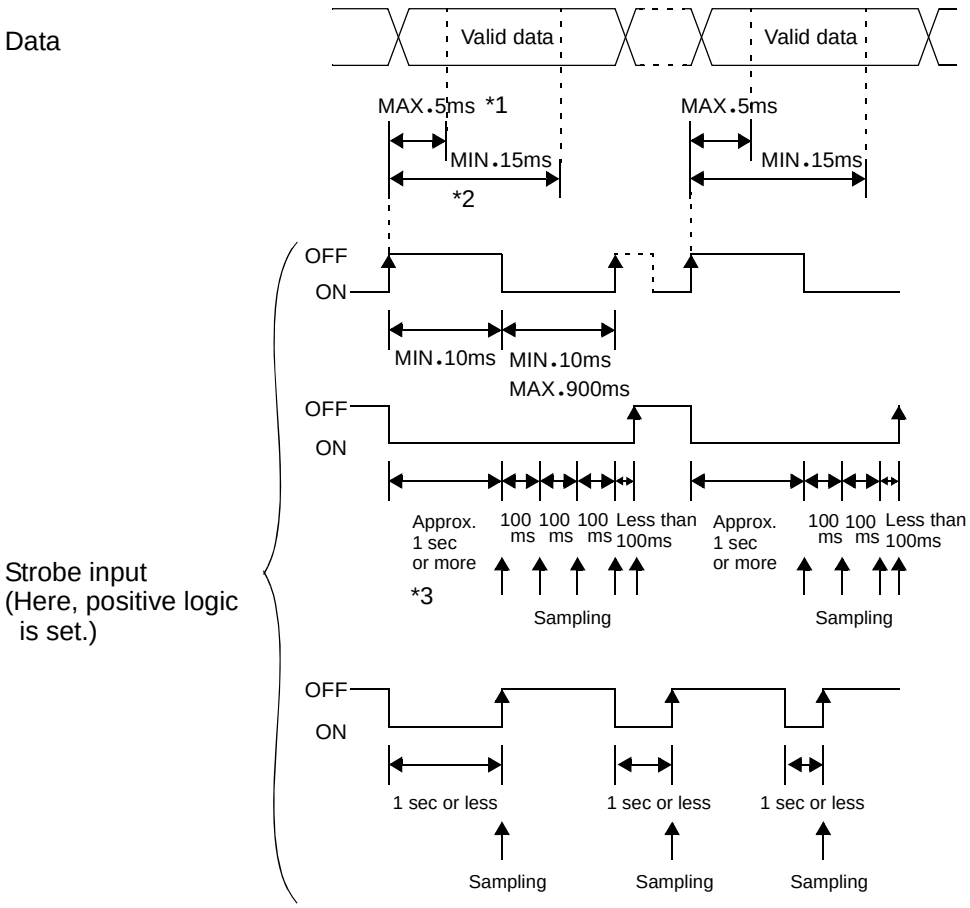


Logic	Negative	Positive
Opening	OFF	ON
Short-circuiting	ON	OFF

When using a transistor, FET, or SSR, be careful about withstand voltage, leakage current and saturated residual voltage.

- Withstand voltage: 30V or more
- Leakage current at OFF-time: 100 μA or less
- Saturated residual voltage: 0.1V or less

Strobe input



*1 Data reading delay time

*2 Data holding time

*3 When the strobe input is short-circuited for 1 sec or more, data is taken in every 100ms asynchronously.

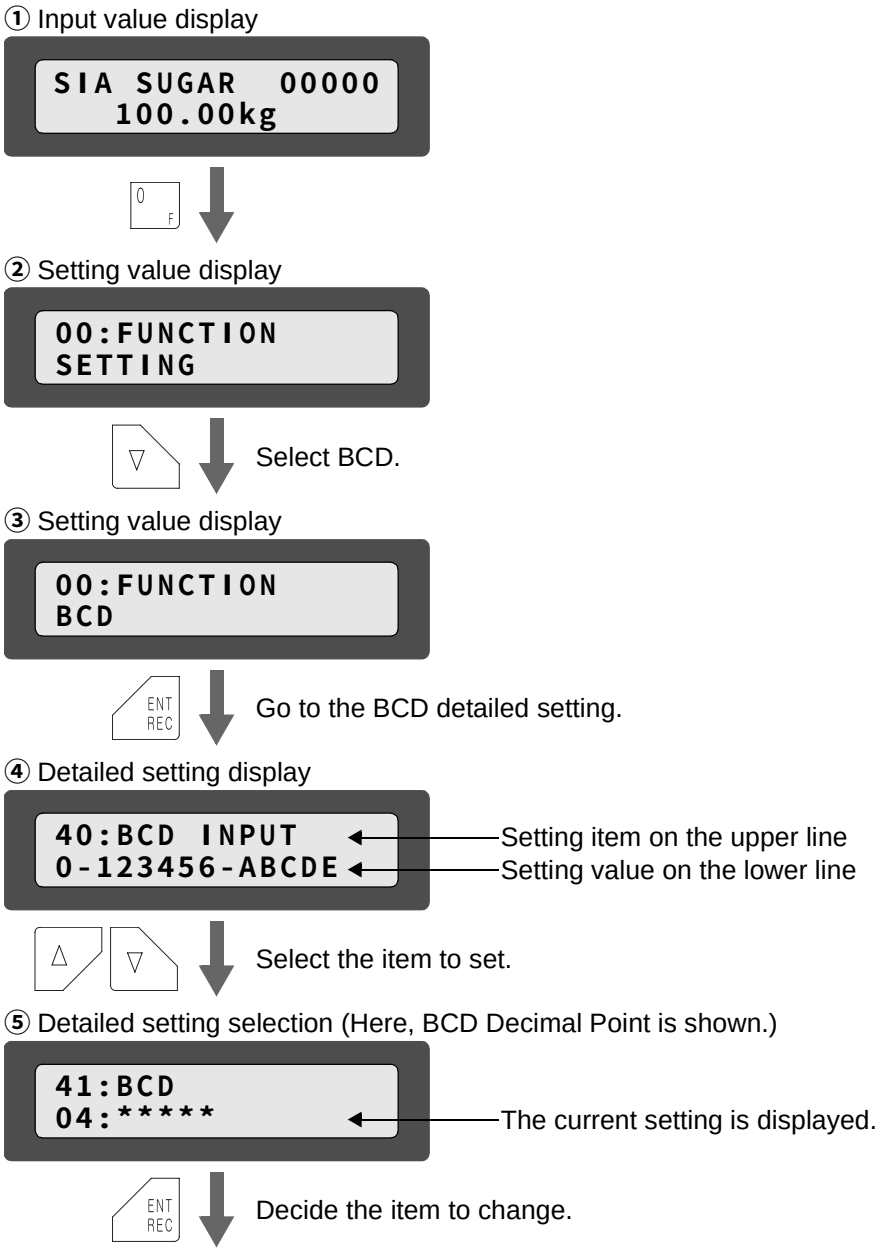
5-2.BCD input settings

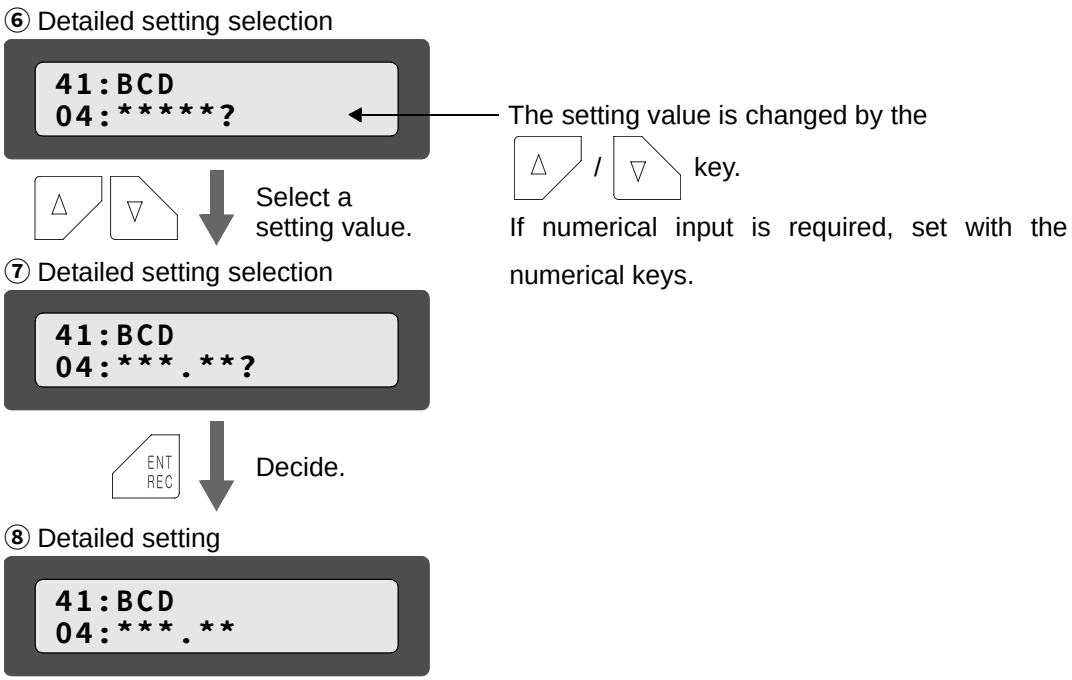
Set the BCD input by selecting BCD on the setting value display.

The BCD input cannot be set if no BCD option is connected to the DS252.

5-2-1. Basic operation of the BCD input

The following shows basic operational procedures for actually setting the BCD input.





By inputting a setting No. on ② Setting value display, you can go directly to ⑤ detailed setting display.

In this example, press the 4 START → 1 A → ENT REC key on the screen of ② .

Setting Nos. correspond to the leftmost numbers on the "List of option setting items" (page29).

To return to the previous display in each display state, use the ESC key.

5-2-2. Explanation of each setting

40：BCD Input Monitor

Display the BCD input in hexadecimals.

Setting name	40：BCD Input Monitor (BCD INPUT)
Display	40:BCD INPUT 0-123456-ABCDE
Reference	The first digit of the second line displays over input and minus input. The 3rd to 8th digits display a code. The 10th to 14th digits display data.
Precautions	With no strobe input, "----------" is displayed on the second line.

41：BCD Decimal Point Position

Select the decimal point for inputting data from the BCD.

There are five types of selectable decimal points.

Setting name	41：BCD Decimal Point Position (DECIMAL POINT)
Selectable items	00：*.**** 01：**.*** 02：***.** 03：****.* 04：***** (initial value)
Display	41:DECIMAL POINT 0003

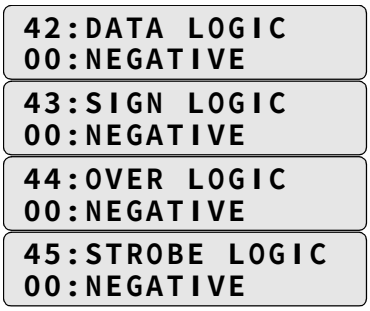
42：BCD Data Logic

43：BCD Minus Sign Logic

44：BCD Over Logic

45：BCD Strobe Logic

Select the BCD input logic.

Setting name	42：BCD Data Logic (DATA LOGIC) 43：BCD Minus Sign Logic (SIGN LOGIC) 44：BCD Over Logic (OVER LOGIC) 45：BCD Strobe Logic (STROBE LOGIC)
Selectable items	00：NEGATIVE (negative logic) (initial value (all of the above items)) 01：POSITIVE (positive logic)
Display	
Reference	The data/code logic, minus sign logic, over logic and strobe logic can be set separately.

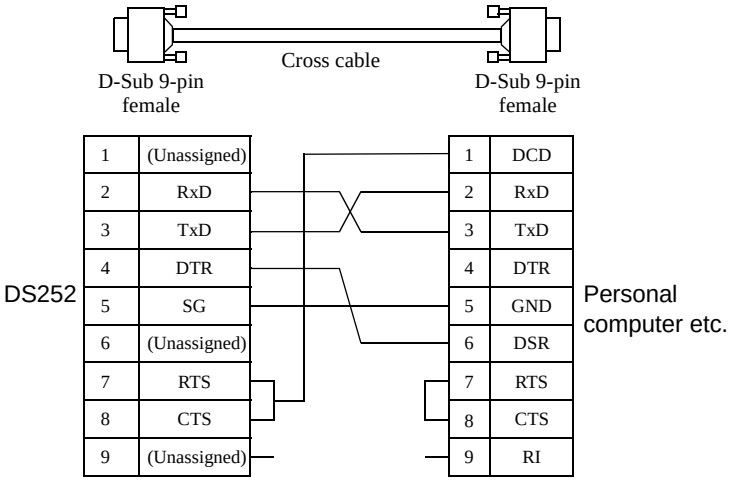
5-3.RS-232C interface

The RS-232C interface is the interface to integrate RS-232C-spec data, codes and command signals in the DS252.

Signal level	RS-232C-compliant
Transmission distance	Approx. 15m
Transmission mode	Start-stop, full-duplex communication
Transmission speed	Selectable from 1200, 2400, 4800, 9600, 19200 and 38400bps
Bit configuration	Start bit: 1 Length of character: Selectable from 7 and 8 bits Stop bit: Selectable from 1 and 2 bits Parity bit: Selectable from none, odd and even
Code	ASCII
Connector	D-Sub 9-pin male
Necessary settings	46：RS-232C Transmission Speed 47：RS-232C Parity Bit 48：RS-232C Data/Stop Bit 49：RS-232C Terminator 50：RS-232C Answer Mode

RS-232C pin assignments

No.	I/O	Signal name
1	-	(Unassigned)
2	IN	RxD
3	OUT	TxD
4	OUT	DTR
5	*	SG
6	-	(Unassigned)
7	OUT	RTS
8	IN	CTS
9	-	(Unassigned)



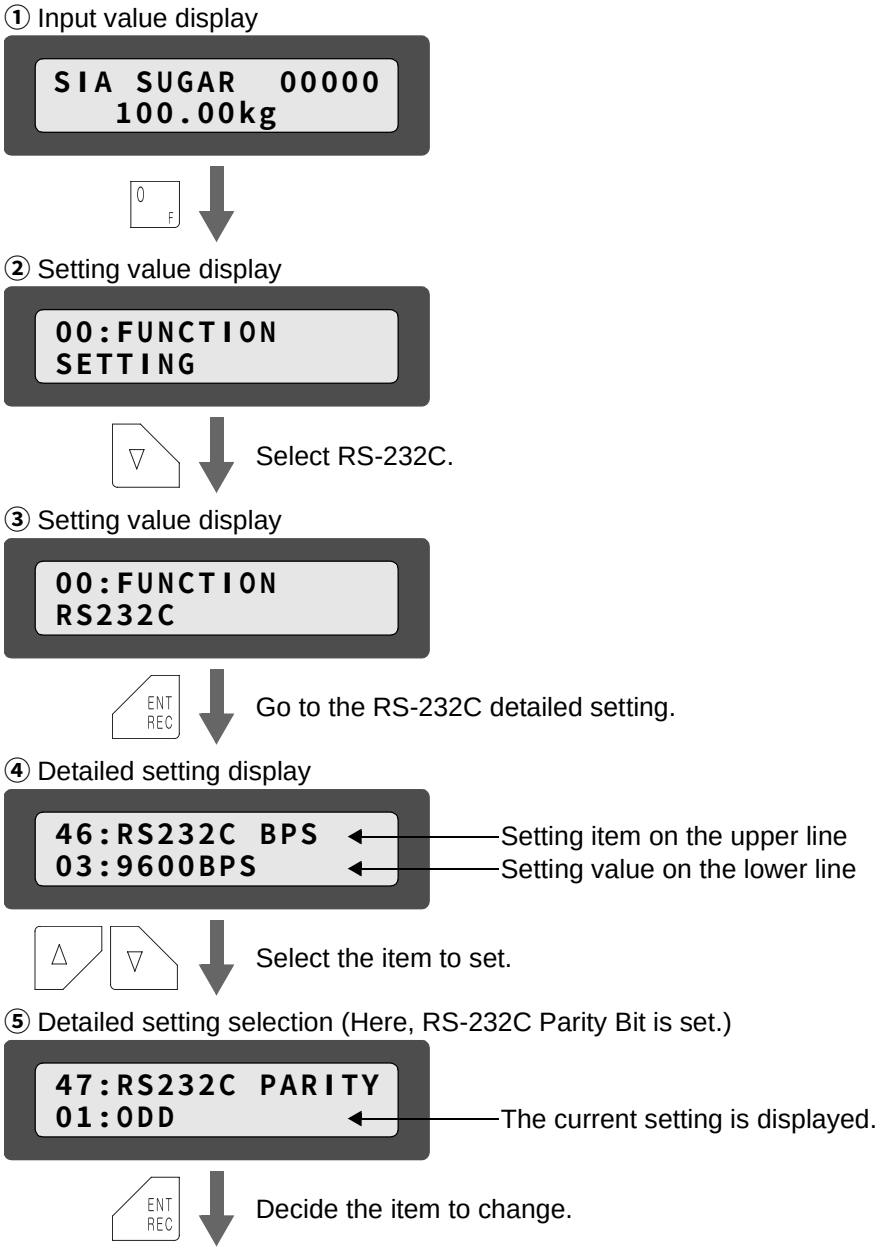
* The above connection diagram shows cabling for the case of using a personal computer as DTE (data terminal equipment). If DCE (data circuit-terminating equipment) such as a modem, is connected, use a straight type.
* Cabling should be prepared after reconfirmation of the connector configuration and signal names (pin assignments) of the equipment you are using.

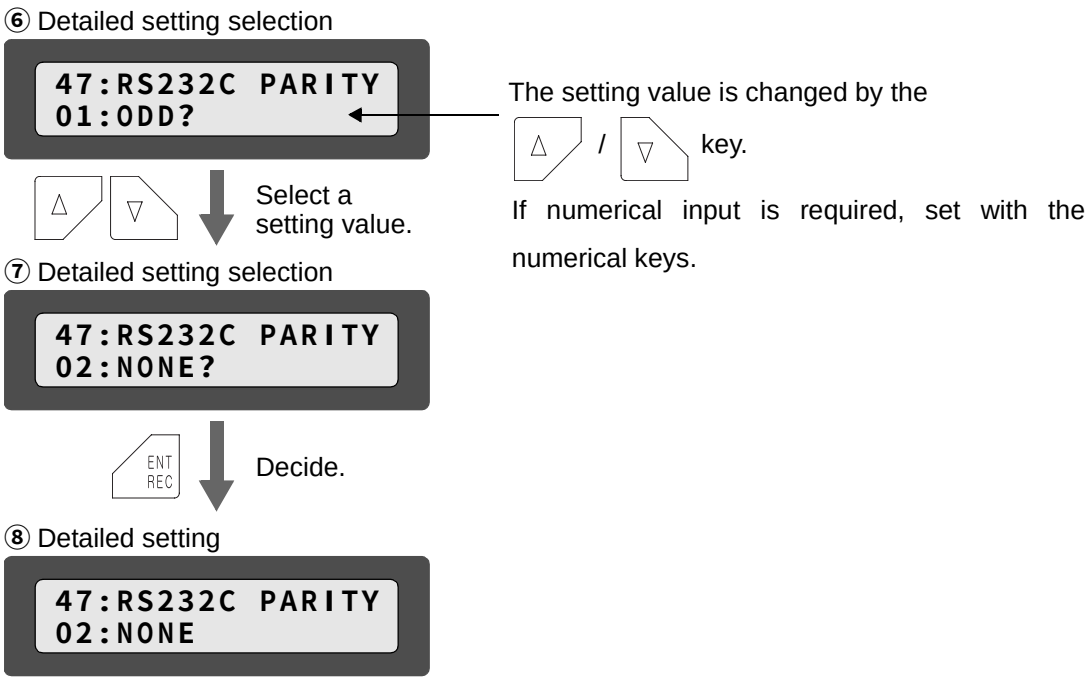
5-4.RS-232C settings

Set the RS-232C interface by selecting RS-232C on the setting value display.

5-4-1. Basic operation of the RS-232C interface

The following shows basic operational procedures for actually setting the RS-232C.





■ By inputting a setting No. on ② setting value display, you can go directly to ⑤ detailed setting display.

In this example, press the 4 START → 7 ST → ENT REC key on the screen of ② .

Setting Nos. correspond to the leftmost numbers on the "List of option setting items" (page29).

■ To return to the previous display in each display state, use the ESC key.

5-4-2. Explanation of each setting

46：RS-232C Transmission Speed

Set the transmission speed.

Setting name	46：RS-232C Transmission Speed (RS232C BPS)
Selectable items	00：1200bps 01：2400bps 02：4800bps 03：9600bps (initial value) 04：19200bps 05：38400bps
Display	46:RS232C BPS 03:9600BPS
Precautions	Make the setting identical to that of the target equipment.

47：RS-232C Parity Bit

Select the parity bit.

Setting name	47：RS-232C Parity Bit (RS232C Parity)
Selectable items	00：EVEN 01：ODD 02：NONE (initial value)
Display	47:RS232C PARITY 02:NONE
Precautions	Make the setting identical to that of the target equipment.

48：RS-232C Data/Stop Bit

Select the data/stop bit.

Setting name	48：RS-232C Data/Stop Bit (RS232C DATA)
Selectable items	00：7BIT 1STOP 01：7BIT 2STOP 02：8BIT 1STOP (initial value) 03：8BIT 2STOP
Display	48:RS232C DATA 02:8BIT 1STOP
Precautions	・Make the setting identical to that of the target equipment. ・When recording codes in katakana, set the RS-232C data bit of the DS252 and PC to 8 bits. Katakana cannot be sent if the setting is 7 bits.

49：RS-232C Terminator

Select the terminator.

Setting name	49：RS-232C Terminator (RS232C TERM)
Selectable items	00：CR 01：CR+LF (initial value)
Display	49:RS232C TERM 01:CR+LF
Precautions	Make the setting identical to that of the target equipment.

50：RS-232C Answer Mode

Upon receipt of data and commands from the RS-232C interface, the DS252 answers return to the host computer about the received data and commands. Select this answer format.

Setting name	50：RS-232C Answer Mode (RS232C ANSWER)
Selectable items	00：ECHO (echo back mode) 01：RESULT (result answer mode) (initial value)
Display	50:RS232C ANSWER 01:RESULT
Precautions	For producing software such that two or more commands are sent in succession, be sure to program so as to send the next command after receiving the answer-back.

Details of setting

ECHO..... All received commands are echoed back.
Invalid commands (such that a code name is received even though it is set to input codes with the front panel keys) are also echoed back.

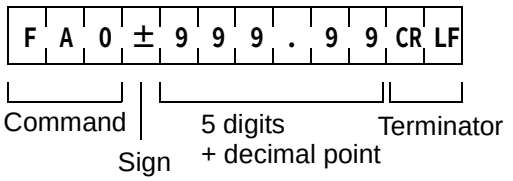
RESULT..... Information on whether or not all received commands are executed is answered back as added to the header.

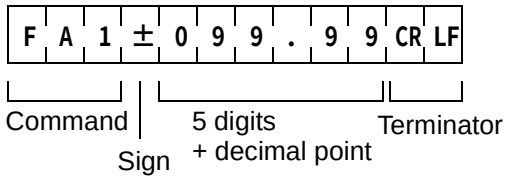
If the received command is executed: O K : Received command CR LF

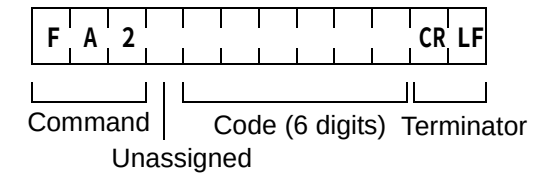
If the received command is invalid: N G : Received command CR LF

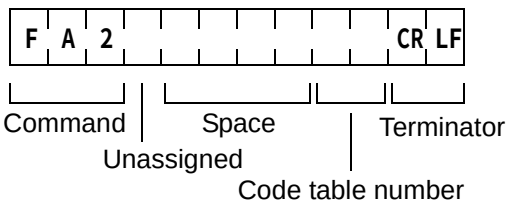
5-4-3. Communication format

The DS252 receives all data from the RS-232C interface as ASCII character strings. For the data and command formats, see below.

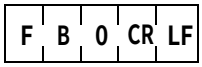
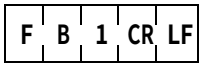
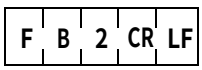
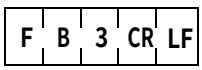
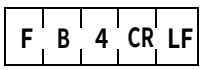
<table>
<tr><td>Data (automatic record off)</td><td> 

* If no decimal point is included, 0 is added to the highest-order digit.</td></tr>
<tr><td>Data (automatic record on)</td><td> 

* If no decimal point is included, 0 is added to the highest-order digit.
Note
Recording is not performed if the setting of "08 : Automatic Record ON/OFF" of the DS252 is OFF. For more details, see "08 : Automatic Record ON/OFF" (page38).</td></tr>
<tr><td>Code</td><td> 

Code { Numerical characters: 0 to 9
Alphabetical characters: A to Z
Katakana: ア to ン (Japanese syllabary)
Symbols：hyphen, slash, space
(ASCII code)</td></tr>
<tr><td>Code table</td><td> 

Code table number { Numerical characters : 00 to 99</td></tr>
</table>

Previous data deletion	
Grand total recording	
Sub total recording	
Data recording (Latest data recording)	
Batch total recording	

Note

■ For inputting codes from the RS-232C interface, select 1 or 3 under the setting item "22 : Code Selection" (page45).

■ For recording codes at record-every time, select a format with code.

As a default, only the count and data are recorded.

■ If THROUGH (through recording) is selected under Record Every Format, no commands are accepted.

6 Recorded data

- Recorded data amount 92
- Data format 93
- CF card 97
- Recorded data examples 98

The DS252 saves the data from the SI/F (Ach, Bch), BCD (option) or RS-232C (option) once in the internal memory by REC operation. After that, it is to be written on the CF card by WRITE or GT operation.

6-1.Recorded data amount

The recording capacity of the internal memory is 700KB.
When the setting of "07: Record Every Format" comes with date/time and code for recording on Ach and Bch (filling all recorded items), recording can be performed 7,000 times at a minimum.

On Ach alone, recording can be performed 13,000 times or more.
(For one-code recording, GT operation is performed automatically when 9,999 times is exceeded.)
If ST operation or batch total recording is performed in midstream, the recorded count of input data will decrease.

When the internal memory has become full, it is attempt to write the recorded data on a CF card. (WRITE operation)
If writing cannot be performed because no CF card is inserted or the CF card does not have enough free space to write etc., the input data is not recorded regardless of subsequent REC signals, but the data is simply added.
If normal writing is performed, the previous data is cleared to continue recording. (The added data is not cleared.)

6-2.Data format

Data is recorded in CSV text format.

Data is recorded as set under Record Every Format.

6-2-1. Data labels

On the first line of data, the following recorded data labels are recorded.

DATE,TIME,CODE,COUNT,CH-A DATA,UNIT,STATE,CODE,COUNT,CH-B DATA,UNIT,STATE,

CH,CODE,COUNT,TOTAL,UNIT,STD,AVE,MIN,MAX,MAX-MIN,ERROR,OVER,LOWER,UPPER

Meaning of each label

DATE	Date of record
TIME	Time of record
CODE	Code (Ach, Bch, total data)
COUNT	Recorded count (Ach, Bch, total data)
CH-A DATA	Ach input data
UNIT	Unit (Ach, Bch, total data)
STATE	Data conditions (Ach, Bch) R ：Over status U ：Upper limit over L ：Lower limit over E ：Error input － ：Deleted ＊ ：Data not added
CH-B DATA	Bch input data
CH	Ch display for total data
TOTAL	Total data
STD	Standard deviation
AVE	Average
MIN	Minimum value
MAX	Maximum value
MAX-MIN	Maximum value - minimum value
ERROR	Input error count
OVER	Count of occurrences of over status from the indicator
LOWER	Count of excesses of the lower limit by input data
UPPER	Count of excesses of the upper limit by input data

All of these labels are always recorded regardless of the setting of Record Every Format.

6-2-2. Recording of input data

Input data is recorded in the internal memory by any of the following operations.

- Pressing the 

key on the front panel of the main body
- Short-circuiting the [REC] terminal and [COM] terminal on the rear panel of the main body
- Receiving an automatic recording command from the SI/F
- Receiving a recording command from the RS-232C
- At interval-record time

When the data is recorded, the RECORD lamp is lighted.

The recorded contents differ according to the setting of "07: Record Every Format".

07: Record Every Format

00：STANDARD	Only the count, input data and unit are recorded.
01：+TIME	The count, input data, unit and time are recorded.
02：+CODE	The count, input data, unit and code are recorded.
03：+TIME&CODE	The count, input data, unit, time and code are recorded.
04：+DATE	The count, input data, unit, date and time are recorded.
05：+DATE&CODE	The count, input data, unit, date, time and code are recorded.
06：BOTH	The count and input data and unit of Ach and Bch are recorded.
07：BOTH+DATE	The count and input data, unit, date and time of Ach and Bch are recorded.
08：BOTH FULL	The count and input data, unit, date, time and code of Ach and Bch are recorded.
09：THROUGH	Data received from the RS-232C is recorded. When this mode is selected, the other REC operations are not accepted.

6-2-3. Recording of ST (sub total) / GT (grand total)

The sum of data having been recorded by ST/GT operation and statistical data are recorded by code (*).
(*) Sorting depends on "26 : Code Sorting Type"(page47), "23 : Number of Code Digits"(page45) and "22 : Code Selection"(page45).

Meaning of data described in the "channel" column

ST CH-A	Ach sub total
ST CH-B	Bch sub total
ST TOTAL	Ach + Bch sub total
GT CH-A	Ach grand total
GT CH-B	Bch grand total
GT TOTAL	Ach + Bch grand total

About the expression of frequency distribution

When Target Value is 0 and Target Range is 99999:

LOW	-999.99	-777.77	-555.55	-333.33	-111.11	111.11	333.33	555.55	777.77	999.99
0	0	0	0	0	6	0	0	0	0	0

In case of the above example

LOW	Amount of data less than -999.99
-999.99	Amount of data from -999.99 incl. to -777.77 excl.
-777.77	Amount of data from -777.77 incl. to -555.55 excl.
-555.55	Amount of data from -555.55 incl. to -333.33 excl.
-333.33	Amount of data from -333.33 incl. to -111.11 excl.
-111.11	Amount of data from -111.11 incl. to 111.11 incl.
111.11	Amount of data from 111.11 excl. to 333.33 incl.
333.33	Amount of data from 333.33 excl. to 555.55 incl.
555.55	Amount of data from 555.55 excl. to 777.77 incl.
777.77	Amount of data from 777.77 excl. to 999.99 incl.
999.99	Amount of data larger than 999.99

How to operate ST (sub total)

- Pressing the 7 ST → ENT REC key on the front panel of the main body
- Short-circuiting the [ST] terminal and [COM] terminal on the rear panel of the main body (on either Ach or Bch)
- Receiving a sub total recording command from the RS-232C (option)

There are two types of sub totals: middle sub totals and section sub totals, which can be set under "12 : Type of Sub Totals".

For more details, see "3-3-3.Recording of sub totals" (page24).

Note

■ When the setting of "29 : Error Input ON/OFF Setting"(page48) is ON, the Bch [ST] terminal on the rear panel functions as an error input terminal.

As the [ST] terminal, use it on the Ach side.

How to operate GT (grand total)

- Pressing the 8 GT → ENT REC key on the front panel of the main body
- Short-circuiting the [GT] terminal and [COM] terminal on the rear panel (on either Ach or Bch)
- Receiving a grand total recording command from the RS-232C (option)

By performing ST/GT operation, the previous data is processed and recorded.

Recorded data includes total data, standard deviation, average, maximum value, minimum value, maximum value - minimum value, count of excesses of the lower limit, count of excesses of the upper limit and count of occurrences of over status.

When GT (grand total) operation is performed, it is attempt to write the data on a CF card. Perform GT operation with a CF card inserted in the DS252.

By performing GT operation, the previous data is cleared.

Note

■ If the set unit is changed during recording, the changed data is not dealt with as the target of sub totals/grand totals and statistical processing.

After GT processing, the data of the initially accepted unit is targeted.

6-3.CF card

The data having been recorded in the internal memory is written on a CF card.

There are two ways of writing: WRITE operation and GT operation

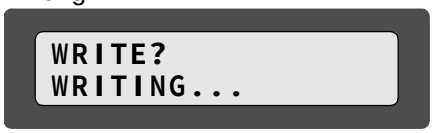
By WRITE operation, the data in the internal memory is written as it is.

By GT operation, the data in the internal memory and statistical data are written on a CF card and the previous data is cleared.

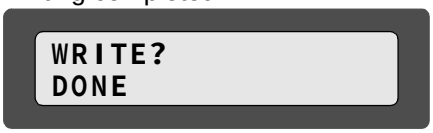
The way to write data by WRITE operation can be selected from two types under "27 : File Writing Mode Setting"(page47).

The WRITE lamp is lighted during writing on the CF card and the following screens will are displayed.

Writing



Writing completed



6-3-1. Specifications

Card specifications	CF type I or type II
File system	FAT16 In compliance with DOS interface guideline Ver. 1.1
File format	Text file (CSV format)
Recommended card	Hagiwara Sys-Com

Subdirectories are not supported.

The number of files that can be created is 512.

6-3-2. Writing

[WRITE] operation

- Pressing the 6 WRITE → ENT REC key on the front panel of the main body
- Short-circuiting the [WRITE] terminal and [COM] terminal on the rear panel
  (It can be on either Ach or Bch, but when the setting of "20 : Batch Total ON/OFF"(page44) is ON, the Bch side terminal serves as a batch total command.

[GT] operation

- Pressing the 8 GT → ENT REC key on the front panel of the main body
- Short-circuiting the [GT] terminal and [COM] terminal (on either Ach or Bch)

6-3-3. File name

A file recorded on a CF card is named as WRITE operation day (D)/hour (h)/minute (m)/second (s).extension (CSV).

Example) If WRITE operation is performed at 14:30:45 on the second day,

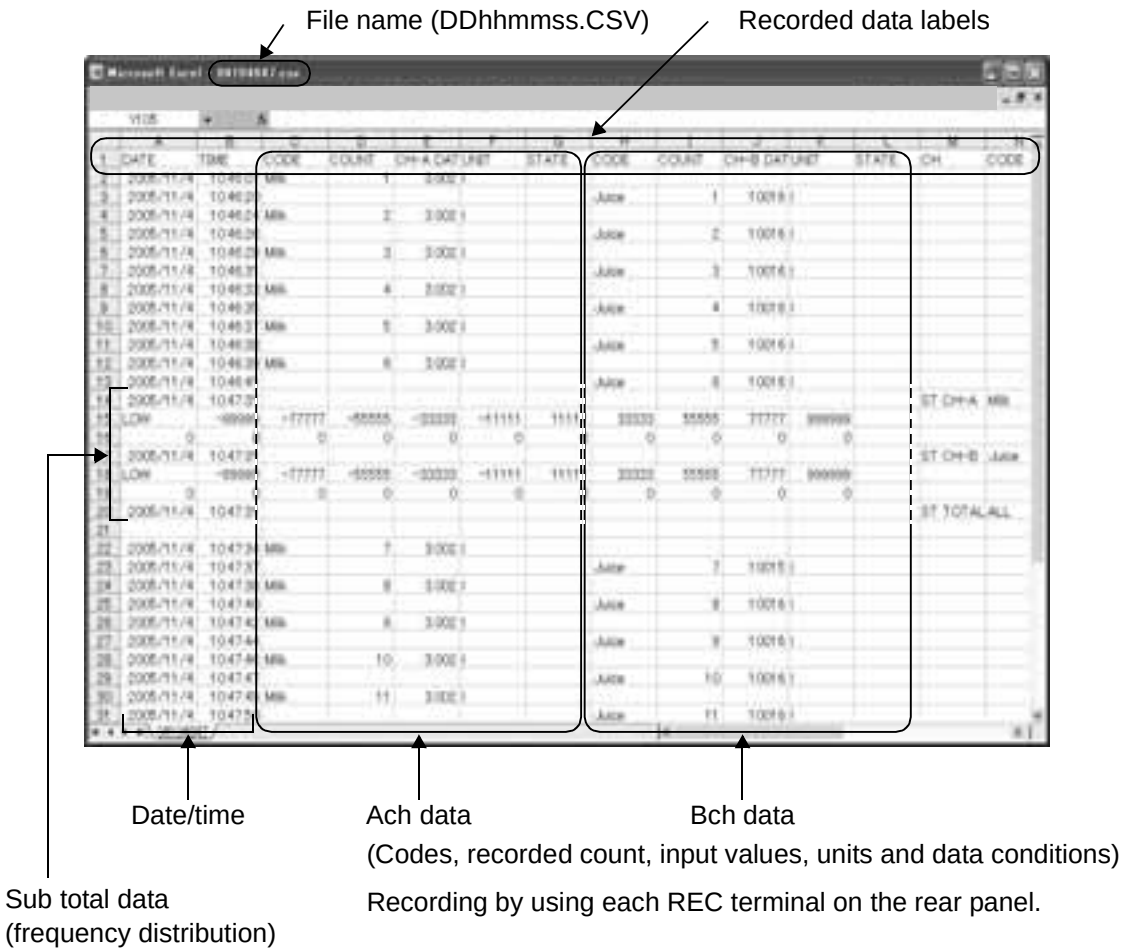
Recorded file is named: 02143045.CSV

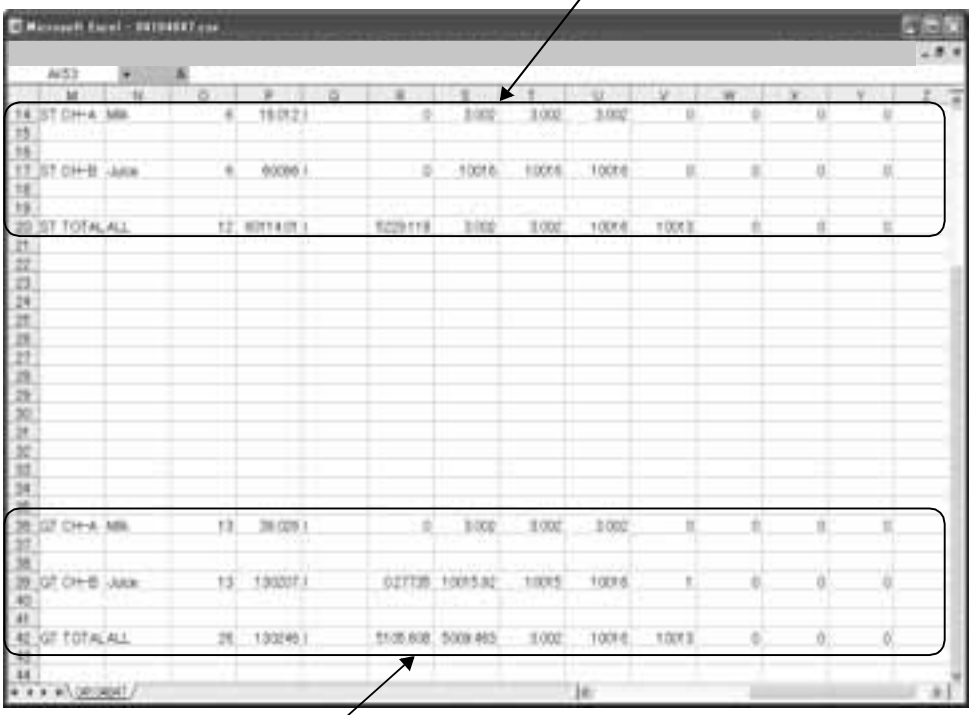
When a file is created, if the same file name already exists on the CF card, the extension will be changed as "001," "002," "003" ... (001 to 00Z) for recording.

6-4.Recorded data examples

Recording example 1

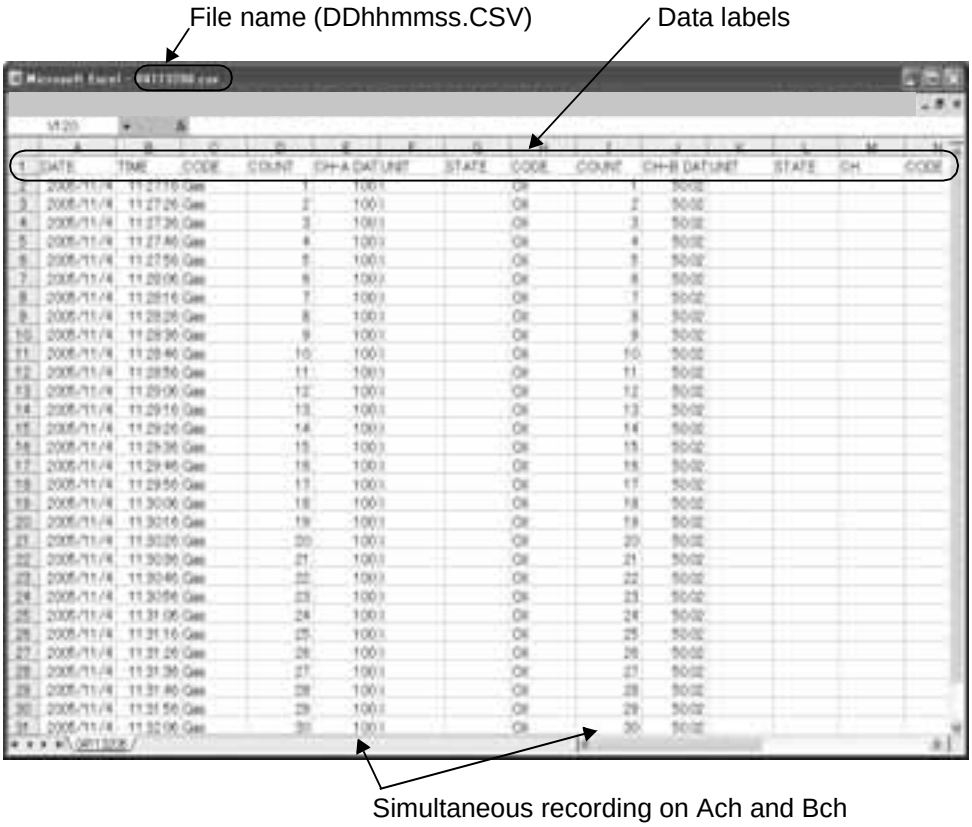
When the setting of Record Every Format is +DATE&CODE (with date/time and code):





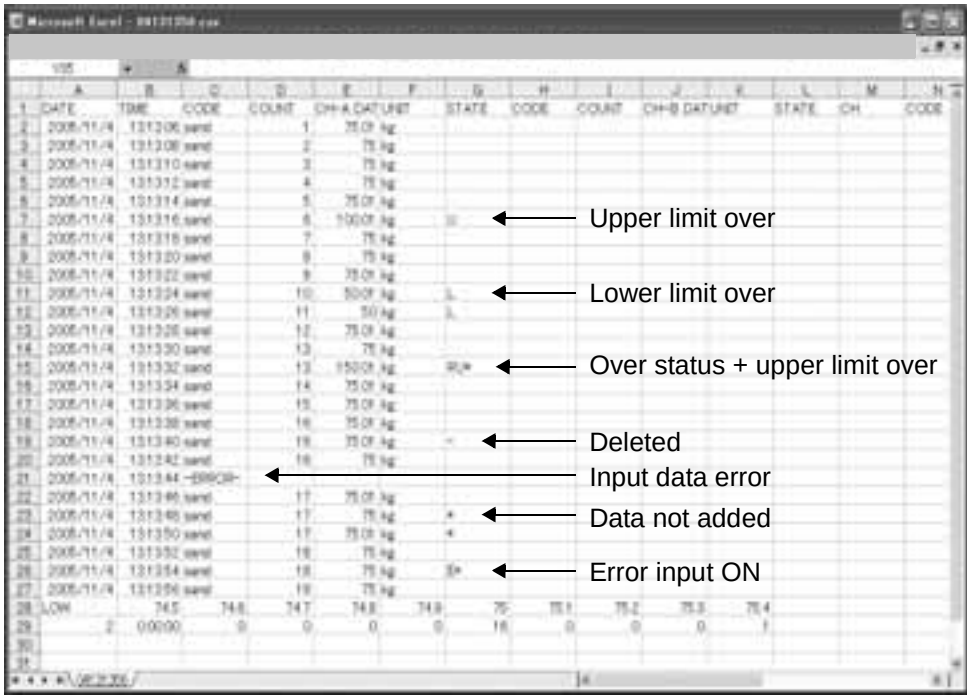
Recording example 2

When the setting of Both Recording Mode is BOTH FULL



Recording example 3

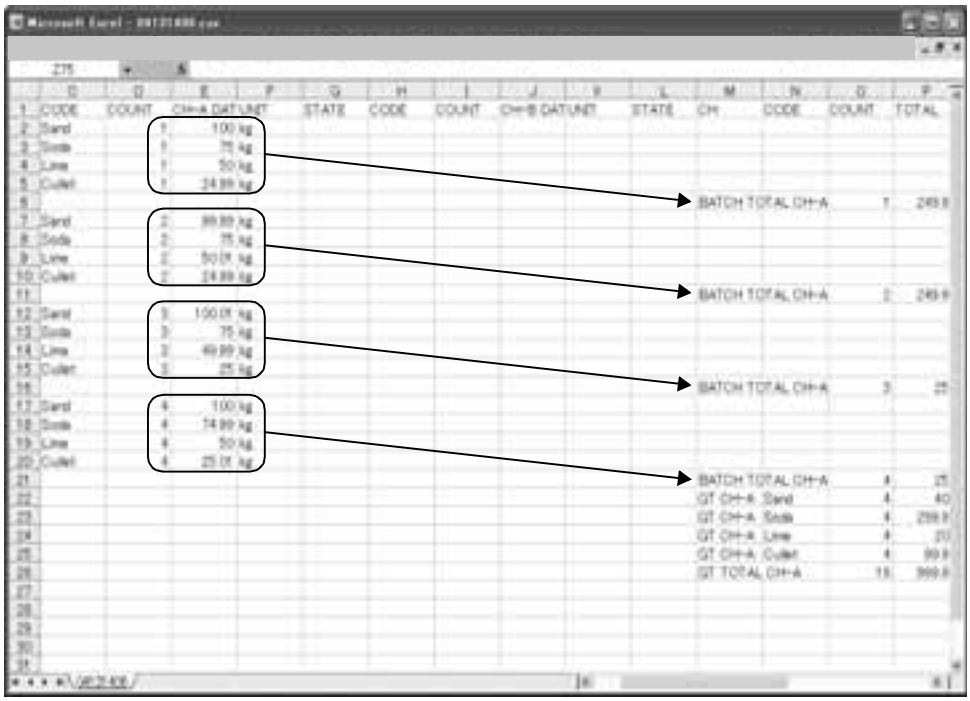
Recording of data conditions



Conditions are expressed in the STATE column. Nothing is described under normal conditions.

Recording example 4

Batch total recording



Batch totals are recorded by short-circuiting terminal No. 10 on the rear panel (the SI/F Bch WRITE terminal) with the COM terminal on a batch-by-batch basis with the setting of "20 : Batch Total ON/OFF"(page44) ON. In the above example, a batch total command is input every four codes.

7 Troubleshooting

- Classification of trouble 102
- The DS252 does not operate normally. 103
- The DS252 does not function normally. 105
- Others 106

7-1.Classification of trouble

Find your trouble out of the following and take the remedy(ies) given on the reference page. After that, if the recording is still incorrect, check the ROM version of the DS252 body ("70：Version Display"(page68) and then contact our company.

The DS252 does not operate normally.

The DS252 does not run. P.103
No recording is performed. P.103
Recording is not performed by pressing the 

key. P.104
Recorded values are different from those displayed on the loadcell indicator. P.104

The DS252 does not function normally.

Recorded counts are abnormal. P.105
Values of sub totals/grand totals are abnormal. P.105

Other trouble

If you have recorded by mistake..... P.106

7-2.The DS252 does not operate normally.

Trouble 1 The DS252 does not run.

Cause 1 The DS252 is not connected to a power source.

Remedy 1 Check that the power cords are securely fixed. The power supply voltage of the DS252 is 24V DC. Check the polarity and then connect the power supply.

Trouble 2 No recording is performed.

Cause 1 Recording is not performed until the data input terminals (SI/F and/or BCD input or RS-232C) are properly connected and recorded data is sent.

Remedy 1 Check to see if the connectors are properly inserted and check for breaks or incorrect wiring.

Remedy 2 Check that the equipment sending data to the DS252 (indicator sending SI/F signals, PC sending RS-232C signals, etc.) is in normal operation.

Remedy 3 In case of connection by the BCD input, check that the logics of the DS252 and target equipment are in agreement.

Remedy 4 If the case of connection by the RS-232C, check that the communication conditions of the DS252 and target equipment are in agreement. Settings that need to be in agreement are the following six items (five settings): transmission speed, length of character, stop bit, parity bit and terminator.

Cause 2 Recording is not performed if the setting of "Record Every ON/OFF" is OFF (invalid).

Remedy 1 Set "Record Every ON/OFF" to ON (valid).

Cause 3 Normally, the DS252 records input values in the internal memory. Writing on a CF card is performed by WRITE/GT operation.

Remedy 1 Properly insert a CF card in the DS252 and perform WRITE/GT operation.

Trouble 3

Recording is not performed by pressing the ENT REC key.

Cause 1 The setting of "Record Key ON/OFF" is OFF (invalid).

Remedy 1 Set "Record Key ON/OFF" to ON (valid) referring to "19 : Record Key ON/OFF"(page43).

Trouble 4

Recorded values are different from those displayed on the loadcell indicator.

Cause 1 The SI/F signals from the loadcell indicator include indicated values and various kinds of weight data regardless of the value displayed on the indicator each time.

Remedy 1 Select the data to be recorded by the DS252. Set it referring to "02, 03: Recorded Data Selection Ach, Bch"(page33).

7-3.The DS252 does not function normally.

Trouble 1 Recorded counts are abnormal.

Cause 1 Counts are stored in the battery-backed-up memory. If the power is turned off and then on again with the backup battery exhausted, such a problem occurs that records are not counted normally.

Remedy 1 The backup battery needs to be replaced. Since the backup battery should be replaced by our company, contact your distributor. The average life of the backup battery is approx. 8 years. The time may become out of sync as the backup battery is exhausted.

Trouble 2 Values of sub totals/grand totals are abnormal.

Cause 1 The decimal point recorded by the DS252 depends on the decimal point on the indicator side. If the decimal point on the indicator side is changed during recording, sub totals/grand totals will not be calculated correctly.

Remedy 1 Never change the decimal point of the indicator during recording. Change the decimal point after once totaling (GT) and clearing the recorded data.

Cause 2 Data with over status (R record) added is not targeted at grand totals/sub totals.

Remedy 1 Check that over status (R record) is not added to the recorded data. The over status occurs due to an abnormality on the indicator side. Remove the abnormality referring to the operation manual of the indicator.

7-4.Others

Trouble 1	If you have recorded by mistake

Remedy 1 The previously recorded one piece of data can be deleted. For more details, see "4-5.Deletion records" (page72).

Appendix

- List of unit settings 108
- Character input table 109
- Introduction of options 110
- Product specifications of the DS252 111
- External views 112

List of unit settings

NO.	Unit	Type	NO.	Unit	Type
00	None		32	Pa	Pressure
01	g	Mass	33	kPa	
02	kg		34	MPa	
03	t		35	hPa	
04	lb		36	mmHg	
05	m	Length	37	kg/cm^2	
06	μm		38	N/m^2	
07	mm		39	kN/m^2	
08	km		40	kN/cm^2	
09	m^3	Volume	41	kg/s	Mass flow
10	cm^3		42	kg/h	
11	L		43	t/s	
12	mL		44	t/h	
13	m/s	Speed	45	m^3/s	Flow rate
14	km/h		46	m^3/h	
15	m/s^2	Acceleration	47	L/s	
16	G		48	L/h	
17	gal		49	K	Temperature
18	Hz	Frequency	50	℃	
19	kHz		51	°F	
20	MHz		52	%	Percentage
21	rpm	Speed of revolution	53	count	Number of times
22	kg/m^3	Density	54	pulse	
23	N	Force			
24	kN				
25	kg・m	Torque			
26	kg・cm				
27	N・m				
28	kN・m				
29	kN・cm				
30	t・m				
31	t・cm				

Character input table

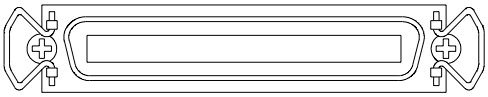
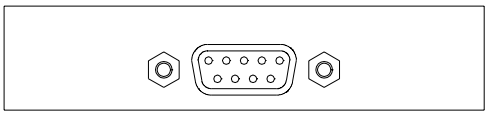
Key	1	2	3	4	5	6	7	8	9	10	
1 A	1	A	B		ア＊	イ＊	ウ＊	エ＊	オ＊		Return to the first character
2 B	2	C	D	E	カ＊	キ＊	ク＊	ケ＊	コ＊		
3 DATE	3	F	G	H	サ＊	シ＊	ス＊	セ＊	ソ＊		
4 START	4	I	J	K	タ＊	チ＊	ツ＊	ッ＊	テ＊	ト＊	
5 STOP	5	L	M	N	ナ＊	ニ＊	ヌ＊	ネ＊	ノ＊		
6 WRITE	6	O	P	Q	ハ＊	ヒ＊	フ＊	ヘ＊	ホ＊		
7 ST	7	R	S	T	マ＊	ミ＊	ム＊	メ＊	モ＊		
8 GT	8	U	V	W	ヤ＊	ャ＊	ユ＊	ュ＊	ヨ＊	ョ＊	
9 DEL	9	X	Y	Z	ラ＊	リ＊	ル＊	レ＊	ロ＊		
0 F	0	―	／	＊	ワ＊	ヲ＊	ン＊	゛＊	゜＊		
▽	Space (Character deletion)										
△	One-character return and deletion										

* Marks express the Japanese syllabary.

■ After the 10th character completes switching, it returns to the first character.

■ The blanks in the table function in the same way as space (character deletion).

Introduction of options

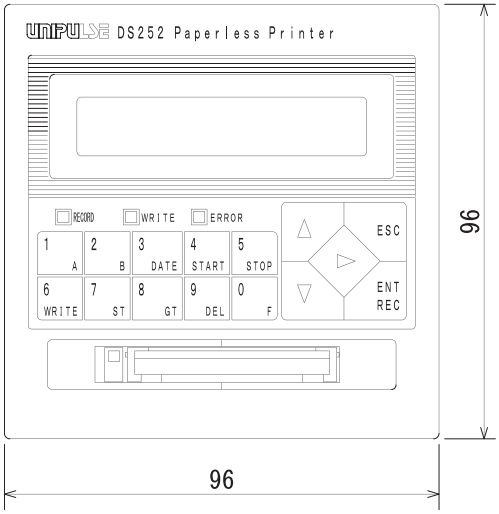
BCD input interface (option)	Included connector (57-30500 (DDK-manufactured) or equivalent) 
RS-232C interface (option)	

Product specifications of the DS252

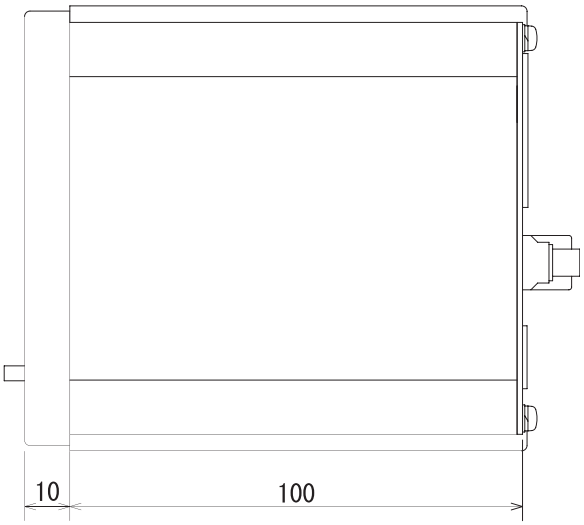
Setting section	
Setting method	Front panel keys
Storage of setting values	Setting values: Recorded in NOV-RAM (nonvolatile memory) Data: SRAM (lithium-battery-backed-up)
Settings	"List of setting items"(page27)
Main functions	
Recording methods	Recording by using the ENT REC key Recording by recording command input (REC terminal) Recording by automatic recording command input (SI/F, RS-232C) Automatic recording by setting the interval time
Records	Date, time, weighed value, code (6-digit), count (1 to 9999), sub total (9-digit), grand total (9-digit), batch total, maximum value, minimum value, average, standard deviation, range (maximum value - minimum value), frequency distribution
Functions	Grand total/sub total recording, batch total, code sorting, deletion, over recording, interval recording, both recording
External input signals	
Rear terminal block	Ach：(1) COM, (2) REC, (3) WRITE, (4) ST, (5) GT Bch：(8) COM, (9) REC, (10) WRITE, (11) ST, (12) GT Connector: WAGO 7pin × 2
Interfaces	
Rear terminal block	(6-7) SI/F-Ach, (13-14) SI/F-Bch
Option	BCD input interface Connector: DDK-manufactured 57-30500 or equivalent
Option	RS-232C interface Connector: D-Sub9pin
General performance	
Power requirements	DC24V(± 15%) (voltage between the terminals of the DS252)
Current consumption	150mA or less
Inrush current	10A (800 μ sec) (reference)
Operating conditions	Temperature:Operating temperature range: 0 to 40 ℃ Storage temperature range: -20 to 70 ℃ Humidity: 85%RH or less (non-condensing)
Outside dimensions	96W × 96H × 110D (mm) (not including projections)
Panel-cut dimensions	92W × 92H (mm)
Weight	Approx. 0.8kg

External views

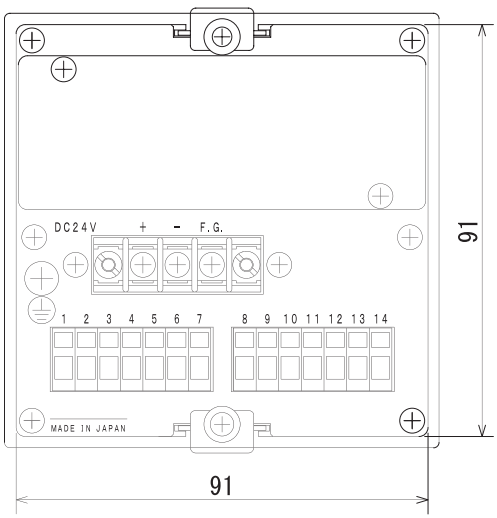
Unit: mm



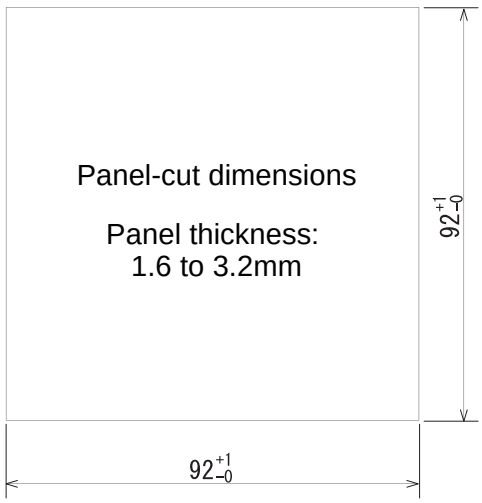
(Front view)



(Side view)



(Rear view)



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