F805AT-CK *CHECKER SCALE CONTROLLER*

OPERATION MANUAL

UNIPULSE

01 Sep. 2022
Rev. 1.05

Introduction

Thank you very much for purchasing our F805AT-CK Checker Scale Controller.
For good performance, and proper and safe use of the F805AT-CK, be sure to read this instruction manual and properly understand the contents of it before use. Also, carefully keep this instruction manual so that it can be referred to at any time.

When you use options please read a separate-volume (the manual for options).

Safety Precautions

For safety reasons, please read the following safety precautions thoroughly.

In order to have an F805AT-CK used safely, notes we would like you to surely follow divide into "⚠ WARNING" and "⚠ CAUTION", and are indicated by the following documents. Notes indicated here are the serious contents related to safely. Please use F805AT-CK after understanding the contents well.

⚠ WARNING

This sign forewarns the presence of hazards that could result in serious injury or fatality when incorrectly handled.

⚠ CAUTION

This sign forewarns the presence of hazards that could result in personnel injury or property damage when incorrectly handled.

⚠ WARNING

This sign forewarns the presence of hazards that could result in serious injury or fatality when incorrectly handled.

Warning on design

- For the entire system to function safely when the F805AT-CK becomes faulty or malfunctions, provide a safety circuit outside the F805AT-CK.
- Before using the F805AT-CK as described below, make sure to consult with our sales personnel.
  - Use in environments not described in the operation manual.
  - Use greatly impacting human lives and assets, such as medical devices, transport devices entertainment devices, and safety devices.

Warning on installation

- Do not disassemble, repair, or modify the F805AT-CK. Doing so may cause a fire or an electric shock.
- 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.
- Be sure to ground the protective ground terminal.
- The attached AC cable is designed for domestic use in Japan, and its rating is 125V AC, 7A. For use at voltages exceeding the rating and for overseas use, have a separate AC cable prepared.
- 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.
- The connection to the RS-485 terminal block must use the crimp contacts.
  Do not connect it the open-wire line.
- After wiring, be sure to mount the attached terminal block cover. Otherwise, it may cause an electric shock. (at the DC spec.)
- To take measures against lightning surge, install a lightning surge protector (optionally available).
- Do not connect anything to unused terminal(s).
- Before applying power, carefully check the wiring, etc.

⚠ WARNING

This sign forewarns the presence of hazards that could result in serious injury or fatality when incorrectly handled.

Warning during startup and maintenance

- Use a power supply voltage and load within the specified and rated ranges.
- 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.
- If the cover of the main body is opened, it may cause an electric shock internally. Even if the power is off, the internal capacitor is charged. Contact us for internal inspection or repair.
- In the case of smoke, an abnormal smell or strange sound, immediately turn off the power, and disconnect the power cable.
- Lithium battery use in the F805AT-CK unit.
  type: CR14250SE manufactured by Sanyo Electric, or equivalent
  Voltage: 3 volts
  Capacity: 850 mAh

⚠ CAUTION

This sign forewarns the presence of hazards that could result in personnel injury or property damage when incorrectly handled.

Caution on installation

- Use the F805AT-CK as it is incorporated in a control panel, etc.
- Do not install in the following environments:
  - Locations where temperature or humidity exceeds specifications;
  - Locations subjected to drastic temperature fluctuations or icing and condensing;
  - Outdoors or locations above 2,000m;
  - Locations exposed to direct sunlight;
  - Locations subject to dust accumulation;
  - Locations with poor ventilation;
  - Locations with a lot of salt and metal powder;
  - Locations where the main unit is subject to direct vibration and shock.
- 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.
- Install the F805AT-CK as far away from devices generating high frequency, high voltage, large current, surge, etc., as possible. Also, carry out wiring separately from their power lines. Do not carry out parallel wiring and common wiring.
- Do not use it, broken down.

⚠ CAUTION

This sign forewarns the presence of hazards that could result in personnel injury or property damage when incorrectly handled.

Caution on wiring

- Tighten the screws for the signal input/output terminals at the specified torque.
  If they are loose, shorts, fire or malfunctions may occur.
  Tightening torque: 0.5N•m (at the DC spec.)
- For sensors, external inputs/outputs and options, use shielded cables.
- The temporary overvoltage applied to the power should not exceed 1500V.

Caution during startup and maintenance

- For turning on/off the power, be sure to keep intervals of 5 seconds or more.
- After power-on, make sure to warm up the F805AT-CK for at least 30 minutes or more before use.
- If the F805AT-CK is not used by the specified method, its protective performance may be impaired.
- Maintenance
  - When performing maintenance, disconnect the power.
  - Do not wipe with a wet rag, or with benzine, thinner, alcohol, etc. Doing so may cause discoloration or deformation of the F805AT-CK. In the case of heavy contamination, wipe off the contamination with a cloth after dipping it into a diluted neutral detergent and wringing it well, and then wipe with a soft, dry cloth.

Caution during transportation

- When the F805AT-CK is shipped, spacers made of corrugated cardboard are used as cushioning materials.
  Though it is factory-designed so that shocks can sufficiently be absorbed, breakage may result if shocks are applied when the spacers are reused for transportation. If you send the F805AT-CK to us for repair, etc., take adequate measures against shocks by using polyurethane materials, etc., separately.

Caution during disposal

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

About the power cable

⚠ CAUTION

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- The power cable attached is an object for checking of operations.
  Please use the power cable authorized in the country for employment.

Product compliant to RoHS2 Directive

The parts and attachments (including the instruction manual, packaging box, etc.) used for this unit are compliant with the RoHS2 Directive, restricting the use of hazardous substances with regard to adverse effects on the environment and human body.

Please inquire of our sales person about the RoHS2 Directive of the option.

RoHS2 Directive

It is based on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE). The Directive restricts the use of specific substances in electrical and electronic equipments that could harm environment and human body. The substances are lead, mercury, cadium, hexavalent chromium, PBB (polybrominated biphenyls), PBDE (polybrominated diphenyl ethers), DEHP (bis(2-ethylhexyl) phthalate), BBP (benzyl butyl phthalate), DBP (dibutyl phthalate), and DIBP (diisobutyl phthalate).

CONTENTS

1. FEATURES OF F805AT-CK

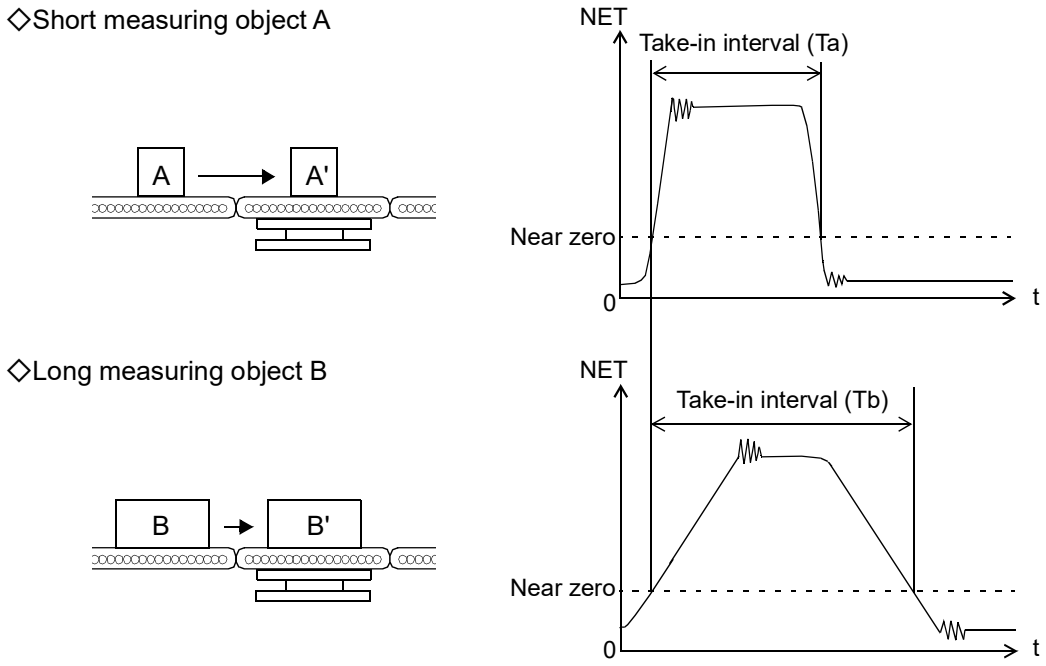
The F805AT-CK, which is a product that functions as a weight checker, can be used as a checker scale. Measurement can be carried out in “DYNAMIC MODE” and “STATIC MODE”.

1-1. Dynamic Mode

Weighing starts when the weight exceeds the near zero, and the weighing stops when the weight drops below the near zero or data is taken in by a fixed count.

Being independent of the weighing time, weighing can be performed with the weight value going across the near zero. In other words, this mode is suitable for weighing when the belt speed and/or measuring object size is nonconstant. (Refer to Fig. 1.)

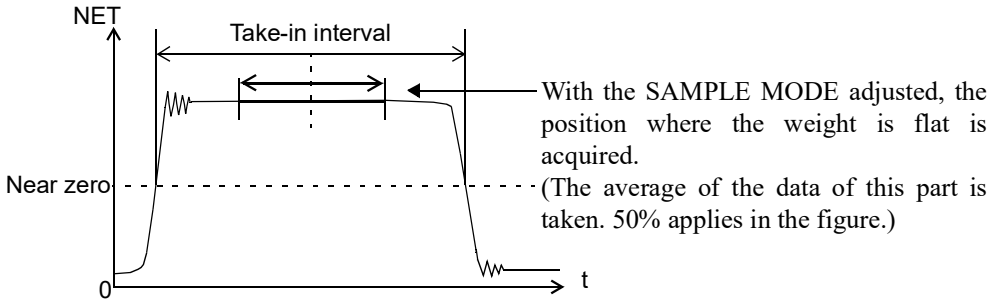
Also, since no external signal is required, this mode has the advantage of being able to simplify your system.



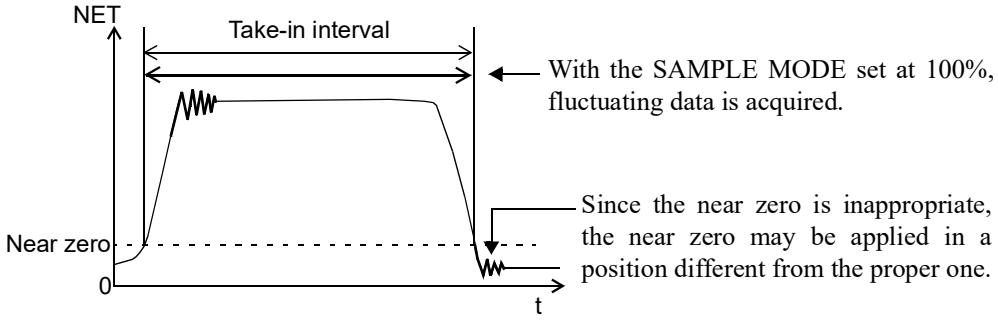
[Figure 1]

Basically, set “EMPTY COUNT” at 0, and “TAKE IN COUNT” at the maximum value (999).
According to the measuring object weight, set an optimum value to “NEAR ZERO”.
For “SAMPLE MODE”, select the largest possible value at which the load becomes constant.
(Refer to Fig. 2.)

◇Good example



◇Bad example

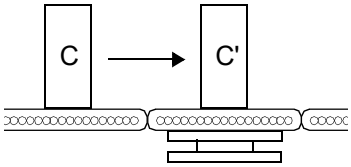


[Figure 2]

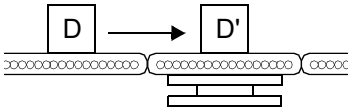
1-2. Static Mode

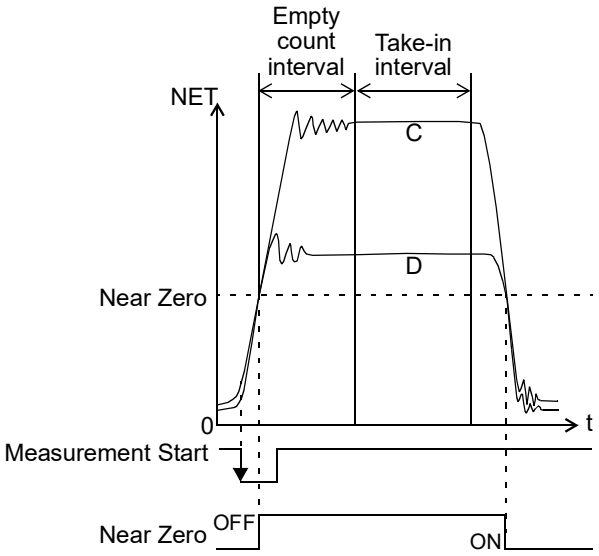
Weighing starts when the weight exceeds a Near Zero set value after inputting an external start signal, and the weighing stops when data is taken in by a fixed count. This mode is suitable for weighing when the belt speed and/or measuring object size is constant. (Refer to Fig. 3.)

◇Heavy measuring object C



◇Lightweight measuring object D

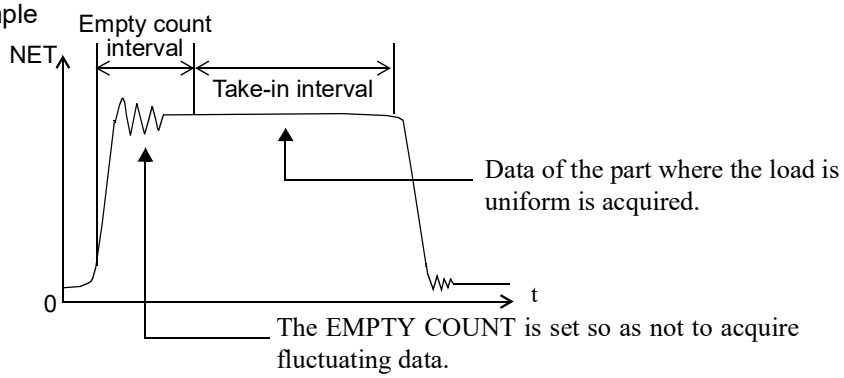




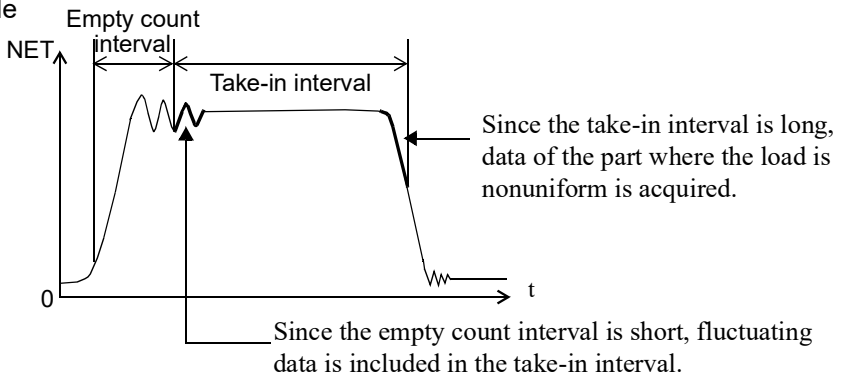
[Figure 3]

Basically, use the “SAMPLE MODE” at 100%. Adjust the “EMPTY COUNT” so as not to acquire data as long as the load is unstable. Also, adjust the “TAKE IN COUNT” so as to acquire data where the load is applied uniformly. (Refer to Fig. 4.)

◇Good example



◇Bad example



[Figure 4]

1-3. Points to be Noted in Measuring

Filter settings

Adjust the “DIGITAL FILTER” and “ANALOG FILTER” in the “OPERATION” settings, and set optimum values so as to remove noise components, such as vibration, and to obtain sufficient rising characteristics.

The relationship between parameter changes, stability, and response is as shown in the table below.

(Refer to "6-1-2. Digital filter" on Page37, "6-1-3. Analog filter" on Page37.)

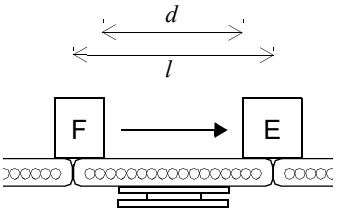
Setting of ANALOG FILTER	Low frequency		High frequency
Stability	Stable	⇔	Unstable
Response	Slow	⇔	Fast

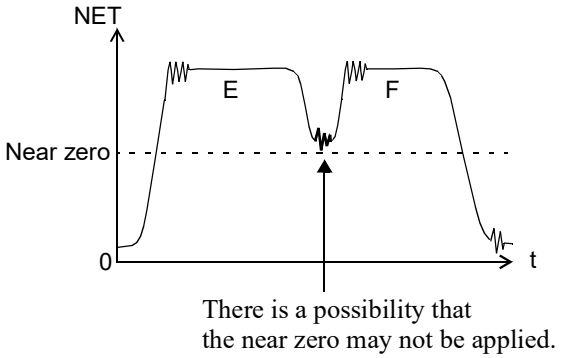
Setting of DIGITAL FILTER	High count		Low count
Stability	Stable	⇔	Unstable
Response	Slow	⇔	Fast

Prevention of double placement

Double placement is a state in which two or more measuring objects are placed on the load-sensing part. Take the distance (*d*) between measuring objects longer than the load-sensing part (*l*). Be aware that accurate weighing cannot be performed especially in “DYNAMIC MODE”. (Refer to Fig. 5.)

◇ Example of double placement (*d* < *l*)



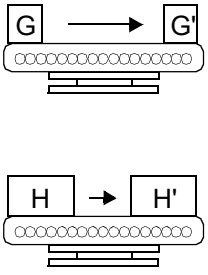


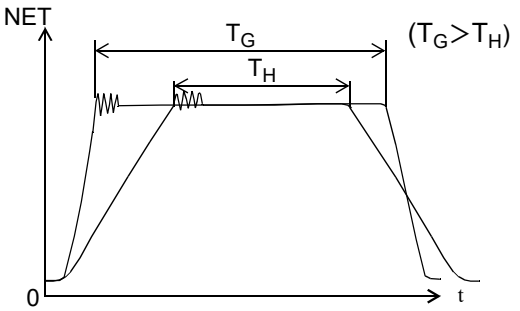
[Figure 5]

Long measuring objects

Compared with shorter measuring objects, longer ones cause the entire load to be applied to the load cell for a shorter time.

Adjust the belt speed, etc., so that a sufficient data count can be obtained. (Refer to Fig. 6.)

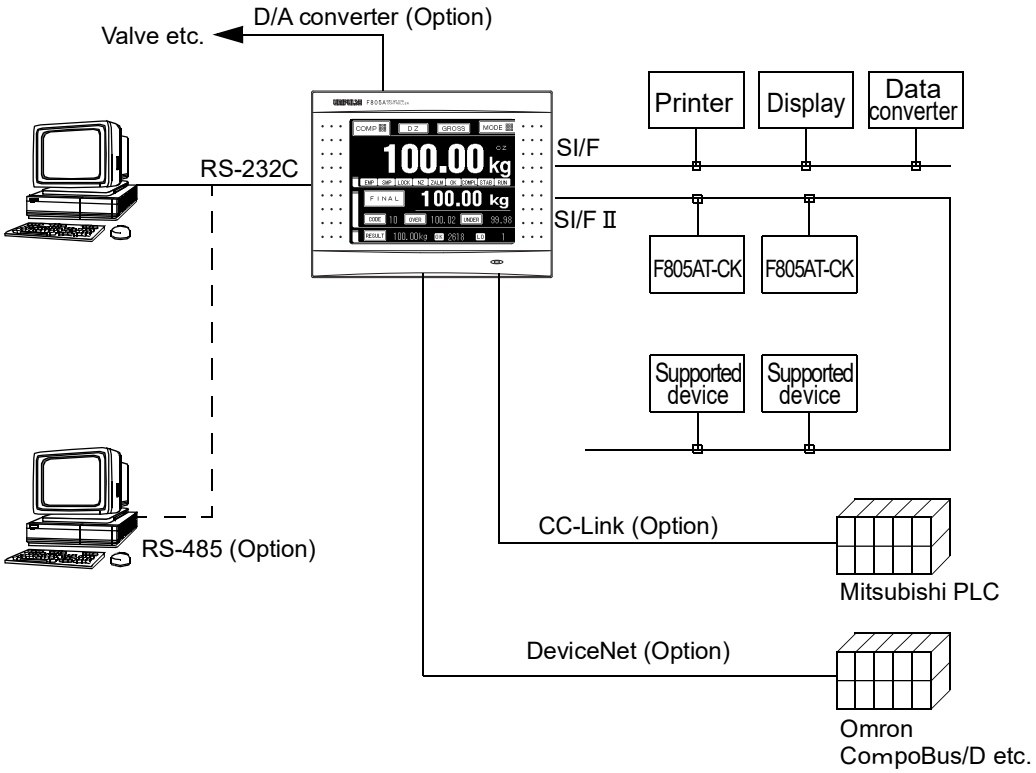




[Figure 6]

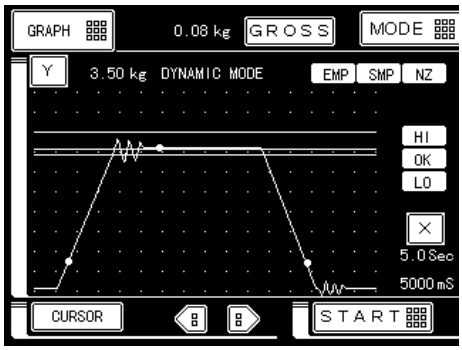
1-4. Interfaces of Weighing Controller

F805AT-CK can communicate with variety of peripheral equipment through standard or optional interface module. Sketch below shows example of such interfacing.



1-5. Graphic

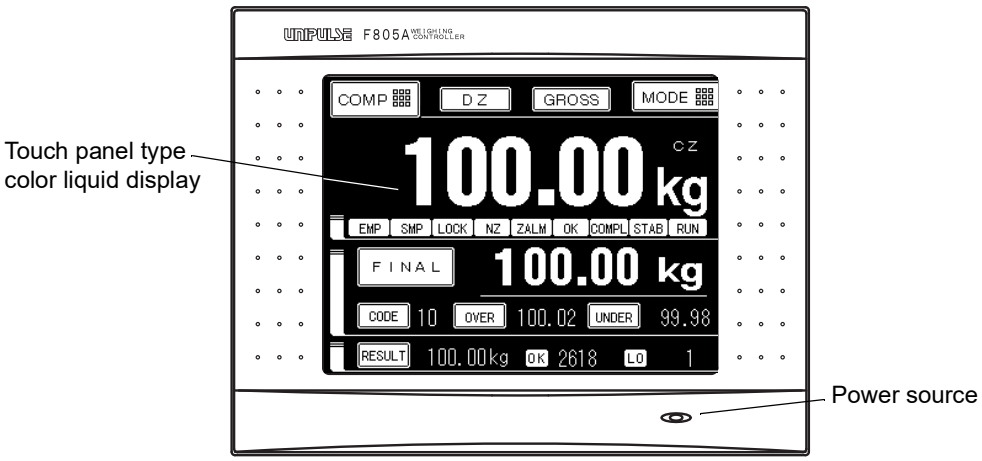
F805AT-CK possesses graphic display which enables to display input wave form.



F805AT-CK enables to weigh the weight change in detail with passing of time by moving a cursor.

2. APPEARANCE DESCRIPTION

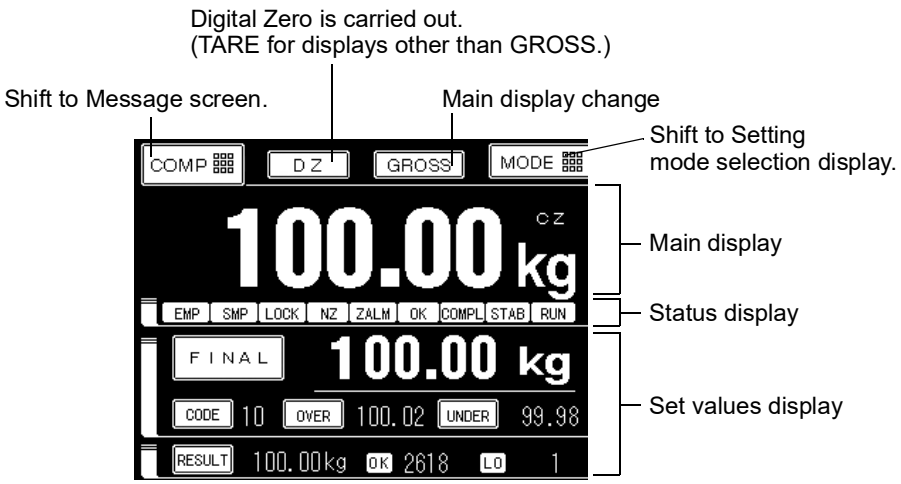
2-1. Front Panel



2-1-1. Touch panel type color liquid display

A touch panel type color liquid display enables to display indicated values and graphs and set various items.

【Comparison screen】



Main display

Weight value	Displays GROSS, NET, ERROR, or RESULT. When Error occurred, the display shows Error and Weight value alternately.
1/4 scale division	Displays the condition of 1/4 scale division. It is displayed only when the weight display is GROSS or NET.
Unit	Displays the unit already set in unit setting.

Status display

EMP	Lights during empty counting in weighing.
SMP	Lights during counting in weighing.
LOCK	Indicates the conditions of the lock switch and soft lock as: Highlights in red when the lock switch is ON, and Highlights in orange when the soft lock is ON. Priority is given to the lock switch.
NZ	Lights when the weight is the NEAR ZERO set value or less.
ZALM	Lights when a zero alarm is given.
OK	Displays the judgment state of RESULT as follows: Over: HI (blue), Go: OK (light orange), Under: LO (red).
COMPL	During Complete signal is ON, COMPL highlights in sky blue.
STAB	STAB highlights in green during weight value is stable.
RUN	When the TOTAL LIMIT is ON, TOTAL highlights in red. Also, during access to NOV RAM after changing set values, etc., NOV is displayed. During normal operation in cases other than those above, the display highlights in sky blue.

Set values display

FINAL	Set the FINAL value. Change the FINAL value by pressing the button. Depending on the setting, the following modes are available: mode in which the screen is switched to the numerical input screen; mode in which the current value is taken in as the FINAL value; and mode in which the latest RESULT is taken in as the FINAL value.
CODE	Displays the currently weighing code number. The screen is switched to the CODE setting screen by pressing the button.
OVER	Displays the calculation result of FINAL SETTING + OVER SETTING. The screen is switched to the OVER setting screen by pressing the button.

UNDER — Displays the calculation result of FINAL SETTING - UNDER SETTING.
The screen is switched to the UNDER setting screen by pressing the button.

RESULT — Displays the result of weighing.
The display is switched between the result of weighing and the error in weighing by pressing the button.

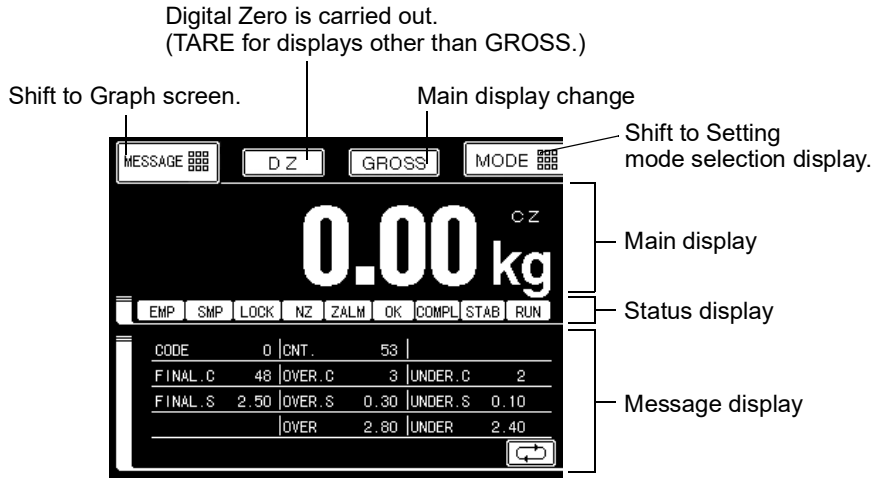
COUNT DISPLAY — Display the OK count and the error count.
The error count display becomes LO display on the **【Comparison screen】** on Page6.
Each time the LO part is pressed, switching is done between HI, LO and NG.
HI: displays the HI count.
LO: displays the LO count.
NG: displays the sum of the HI count and LO count.

Main display change

Each time the button is pressed, the weight value on the main display is switched.

GROSS → NET → ERROR → RESULT

【Message screen】



Main display, Status display

Same as the COMPARISON screen.

Message display

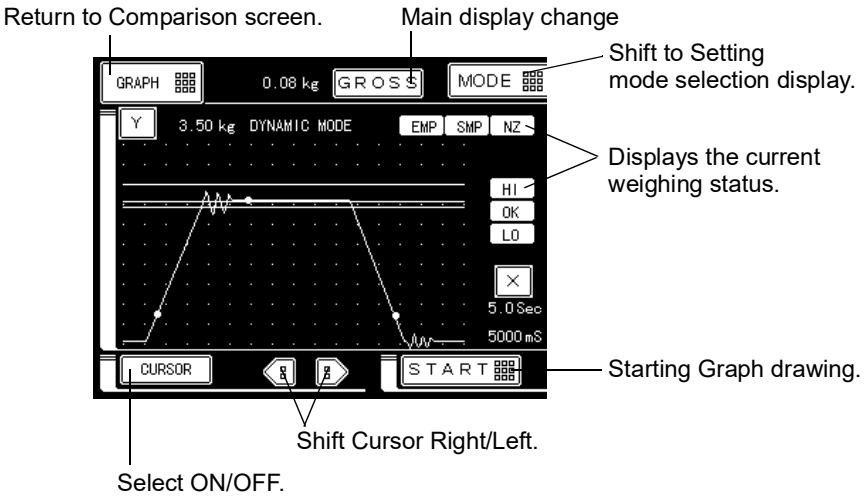
The contents of display are switched by pressing the key at the lower right.

Error status → Weighing status display → Set values display → Blank display

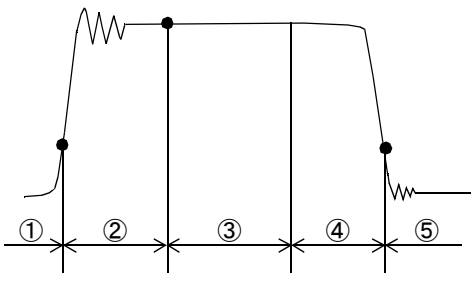
Error status — Displays the details in the case of a calibration error and over scale.

Weighing status display	Displays the current weighing status. (DYNAMIC MODE/ STATIC MODE)
Set values display	Displays the following data.
CODE	Displays the weighing CODE number.
CNT.	Displays the COUNT of weighing.
FINAL.C	Displays the FINAL COUNT of judgment.
OVER.C	Displays the OVER COUNT of judgment.
UNDER.C	Displays the UNDER COUNT of judgment.
FINAL.S	Displays the FINAL SETTING set value.
OVER.S	Displays the OVER SETTING set value.
UNDER.S	Displays the UNDER SETTING set value.
OVER	Displays the calculation result of FINAL SETTING + OVER SETTING.
UNDER	Displays the calculation result of FINAL SETTING - UNDER SETTING.
Blank display	Displays nothing in the message display area.

【Graph screen】



◇Explanation of graphic colors



① : Displayed in pink when the weight is the NEAR ZERO set value or less.
(The NZ lamp lights.)

② : Displayed in sky blue during empty counting.
(The EMP lamp lights.)

③ : Displayed in yellow during counting.
(The SMP lamp lights.)

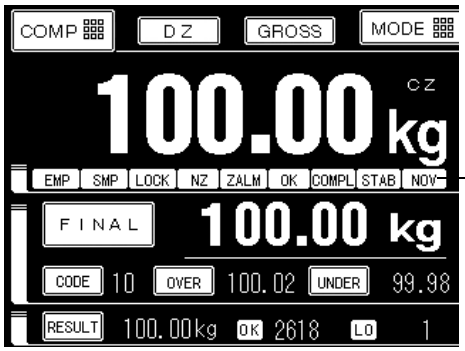
④ : Displayed in green in cases other than ① to ③ .
(Any of HI, OK and LO lights while judgment is output.)

⑤ : Displayed in pink when the weight is the NEAR ZERO set value or less.

At the beginning of each of ② , ③ , and ⑤ (at each ON edge), the display is enlarged in each color.

● **Update setting value**

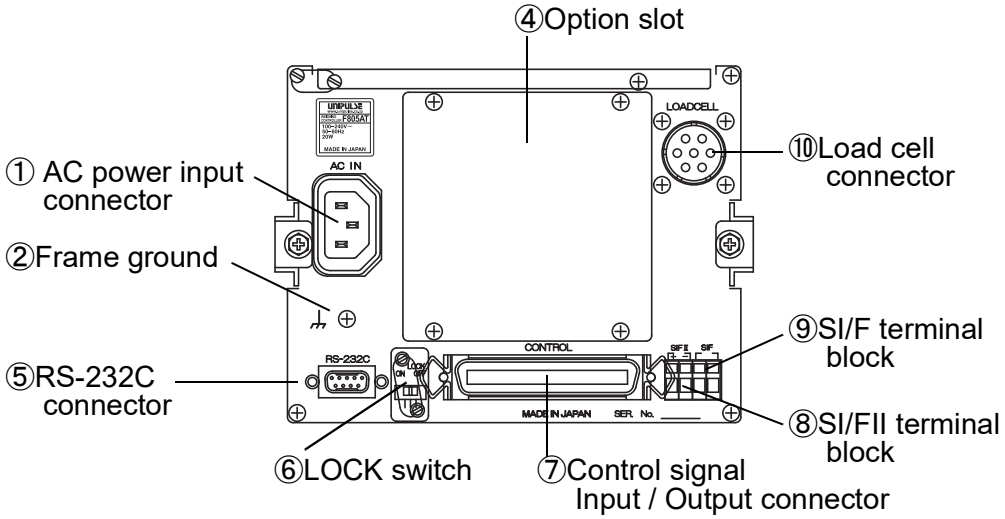
During update the Setting value to the memory (NOV. RAM), instead of RUN shows NOV.
Please make sure do not disconnected power when NOV is showing.



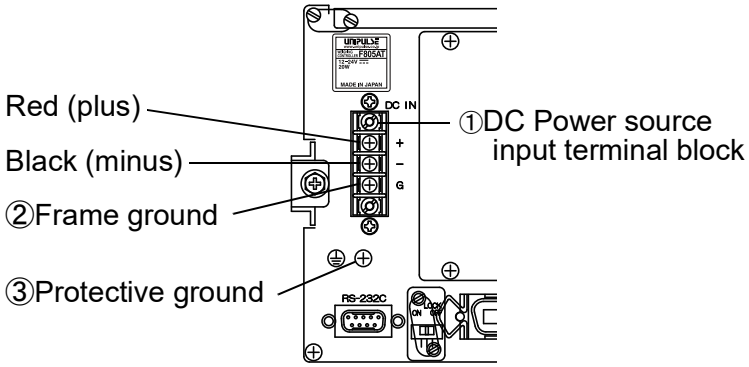
2-1-2. Power source lamp

Power Source lamp lights up when power of F805AT-CK is ON.
Power source lamp keeps lighting up as long as the power is ON even when display is disappeared in sleeping state.

2-2. Rear Panel



*DC spec.(Designated when it is shipped)



① AC power source input connector/ DC power source input terminal block

AC spec.

Connect with AC power source cable supplied.
Input voltage is AC100V~240V (+10% -15%), and frequency is 50/60Hz.

DC spec. (Designated when it is shipped.)

Connect DC power source. Voltage input is DC12~24V (±15%).

② Frame ground ⏚

Please ground the frame ground terminal to prevent failures due to static electricity.
It may be better to remove depending on the environment of the installation location.

③ Protective ground ⏚ **(DC spec. only)**

Be sure to ground the protective ground terminal to prevent electric shocks.

④ Option slot

Up to 4 option board can be installed.
Concerning serial communication system only one board can be installed.

- BCD Parallel data output
- BCD Parallel data input
- D/A Converter

(Serial Communication System)
- RS-485
- CC-Link
- DeviceNet

⑤ RS-232 connector

RS-232 connector for receiving and transmitting weight data, status information and so on.
The adaptable plug is OMRON XM3D-0921 (Cover: XM2S-0913 with #4-40 screw) or its equivalent.

⑥ LOCK switch

Lock switch is for disabling changes in calibration and setting values. While switch is ON could not do calibration.

⑦ Control signal Input/Output connector

Connector for performing control input and output signal. The adaptable plug is DDK 57-30500 (attached to the F805AT-CK) or its equivalent.

⑧ SI/FII terminal block

Higher speed bi-direction 2-wire serial interface is a network solution for connecting weighing controllers, data converters, printer and remote displays up to 20 devices.

⑨ SI/F terminal block

2-wire Serial interface is to connect Unipulse peripheral equipment such as printer, remote display.

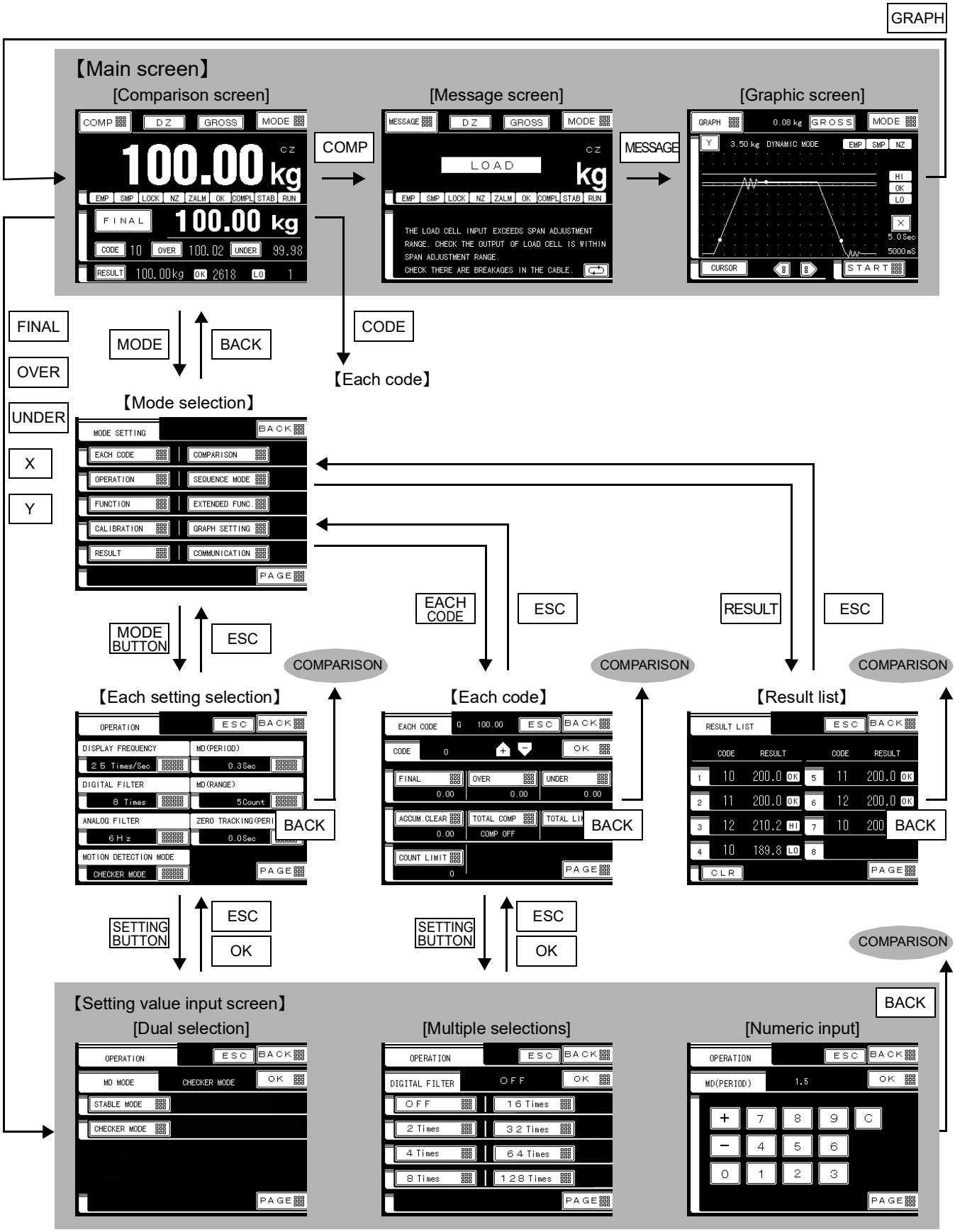
⑩ Load cell connector

7-pin round connector for 6-wire connection with load cells, adaptable plug is Hirose JR16PN-7S or its equivalent.

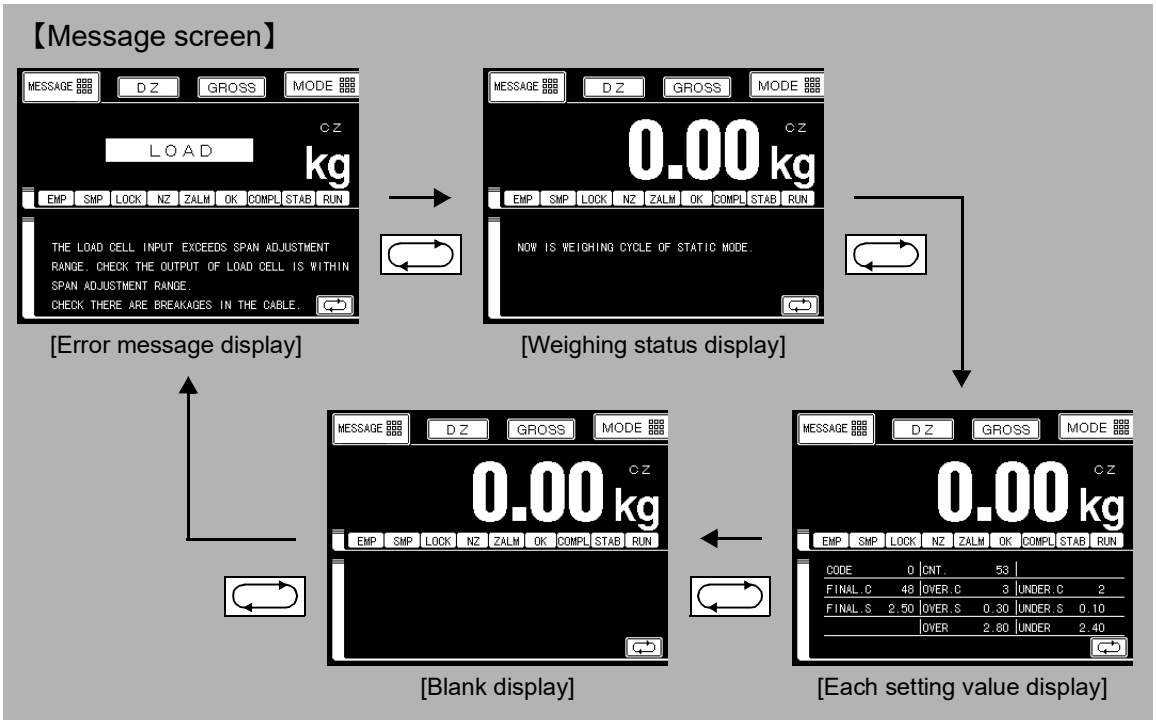
3. SCREEN COMPOSITION AND SETTINGS

3-1. Screen Configuration Flow Chart

3-1-1. Entire screen



3-1-2. Main screen (message)



3-2. The Way of Setting

3-2-1. Setting item selection

In the text, how to specify setting items is described as follows:

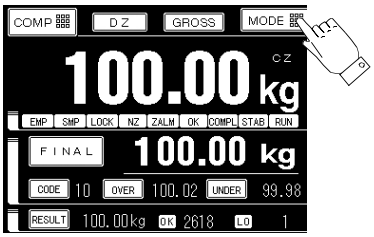
(Example) Specifying the setting item “UNIT DISPLAY”.

Press MODE → CALIBRATION → PAGE → UNIT DISPLAY

Step by step procedures are as follows:

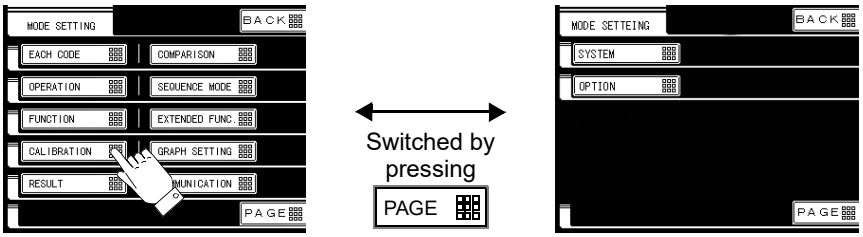
1) Press MODE from the comparison screen.

MODE SETTING

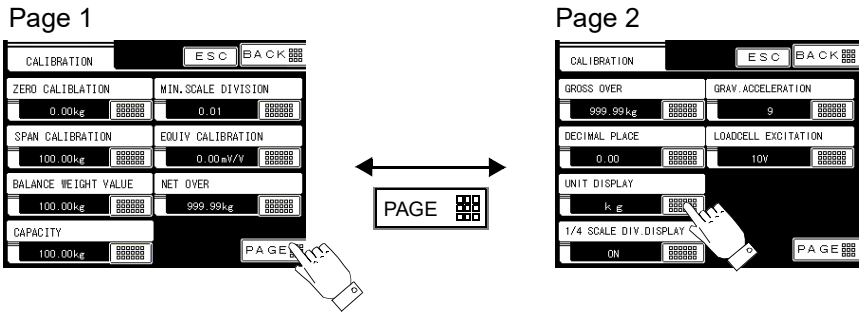


2) MODE SETTING screen appears. Then select the Mode.

CALIBRATION



3) The CALIBRATION screen appears. Select the setting item (UNIT DISPLAY in this case).



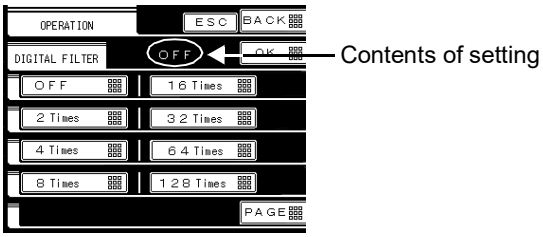
3-2-2. Setting mode

(Example 1) Setting by selecting displayed items: To select “16 times” for digital filter.

1) Press one of the option buttons
(16 Times in this case).

2) Check that the selected value appears on the top line.

3) Press OK to confirm.

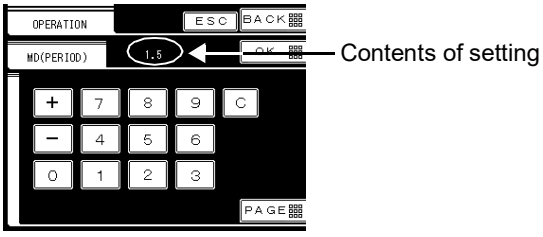


(Example 2) Setting by using numerical keypad: To set “1.5 sec” for MD period.

1) Press [1 and then 5]
in the ten-key pad.

2) Check that the selected value appears on the top line.

3) Press OK to confirm.



3-2-3. Setting mode of items on code

In the text, how to set code-related items is described as follows:

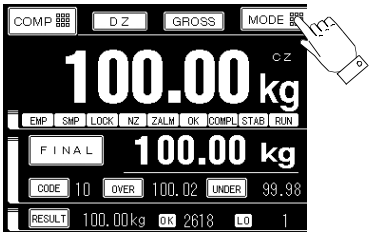
(Example) Specifying the item “FINAL”.

Press MODE → EACH CODE → (Code No.) → FINAL

Step by step procedures are as follows:

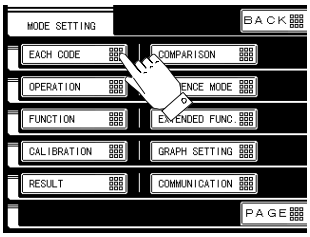
1) Press MODE from the comparison screen.

MODE SETTING



2) MODE SETTING screen appears.
Then select EACH CODE.

EACH CODE

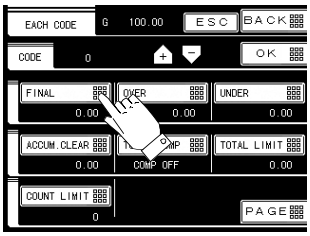


3) EACH CODE SETTING screen appears.
Select a code if necessary.

Select a code in F805AT-CK by pressing + key.

Then register it by pressing OK .

(CODE)



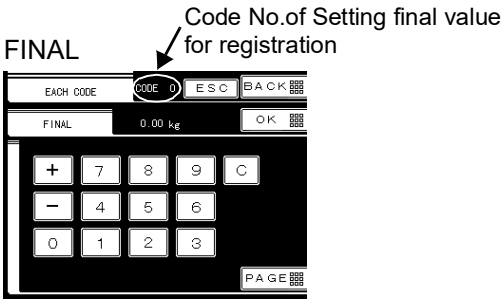
Notice

During Code selection, Code figure turns to red.

When registration is finished by pressing OK , Code figure turns to white.

Setting Items on the screen [from FINAL to COUNT LIMIT] are concerned with the Code figure that highlights in white.

4) The FINAL screen appears.
Check the code No. at the upper part, and then input a desired FINAL value with the numeric keypad, and register it with OK .



Notice

Select a Code number by pressing + − key, as described in 3) called “Key input” method; then select a Code number via Control I/O on the rear panel called “External input”.

All setting items from FINAL to COUNT LIMIT (a) correspond to “Setting Code” on the screen of Setting Each Code.

While performing Setting Code Selection through External input, it can only be set (a) on Code No. selected by external input because External input is prior to Key input in this situation.

To the contrary while performing Key input of Setting Code Selection it only enables to set (a) on Code No. selected through Key input because Key input is prior to External input.

When Setting (a), check the Code No. on the Setting screen before starting the operation.

4. WAY OF CONNECTION

Precautions about connection to the signal input/output terminal block are given below.
The precautions described here are important for safety.
Please properly understand the descriptions before connection.

⚠ WARNING

- Do not connect a commercial power source directly to the signal input/ output terminals.
- Connect to the signal input/output terminals with no power applied because it may cause an electric shock.
- For connection to the signal input/output terminals, check the signal names and pin assignment numbers, and then carry out wiring properly.
- After wiring, be sure to mount the attached terminal block cover. Otherwise, it may cause an electric shock. (Power input terminal at the DC Spec. or RS-485 terminal block.)
- Before applying power, carefully check the wiring, etc.
- Do not touch any signal input/output terminal while applying power. Doing so may cause electric shocks or malfunctions.

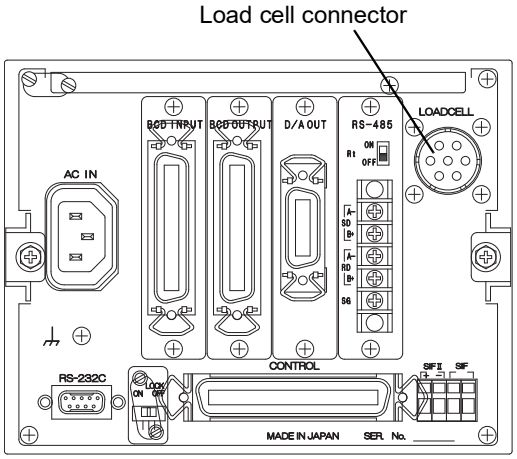
⚠ CAUTION

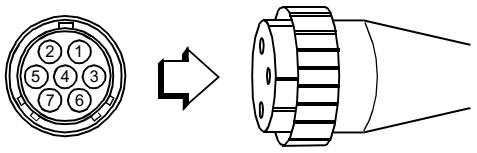
- Tighten the terminal screws at the specified torque. If they are loose, shorts, fire or malfunctions may occur. Tightening torque: 0.5N•m(Power input terminal at the DC Spec. or RS-485 terminal block.)
- Use shielded cables.

4-1. Load Cell Connection

The excitation voltage of the F805AT-CK is 10V DC/5V DC selectable at 120 mA. Up to 4 load cells (350 ohm) may be connected in parallel (when excitation is 10V). A 7-pin (Hirose JR16PN-7S) round connector is supplied.

* Refer to (5-4-2) on the page 31.

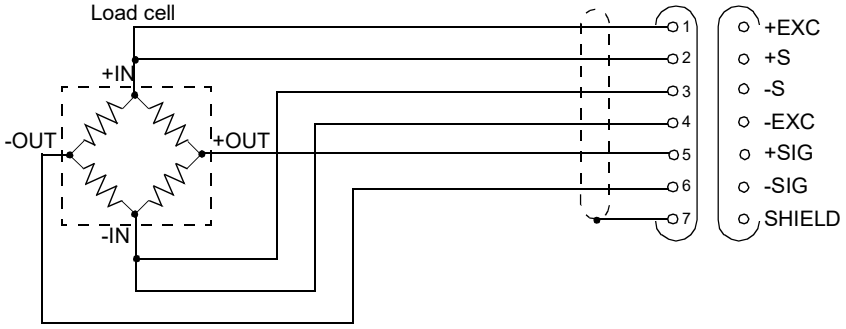




Pin No.	Signal (6-wire)	Signal (4-wire)
1	+EXC	+EXC (connect 1 to 2)
2	+S	
3	-S	-EXC (connect 3 to 4)
4	-EXC	
5	+SIG	+SIG
6	-SIG	-SIG
7	SHIELD	SHIELD

4-1-1. 6-Wire connection

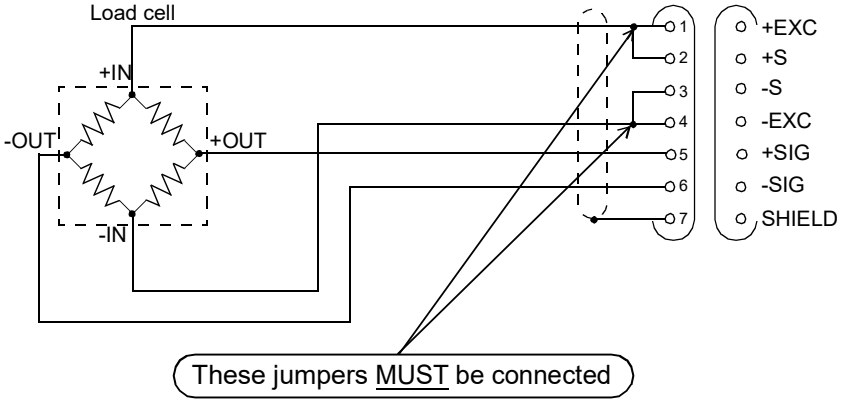
The load cell input of the F805AT-CK is a 6-wire (remote sense) connection. 6-wire shielded load cell cable should be used and kept separate from AC or other noise generating wire.



Remote sense lines are used to detect and correct variations in excitation voltage over long cable runs.

4-1-2. 4-Wire connection

Connect the sense lines to the Excitation lines (pin 1 to 2, pin 3 to 4) in a 4-wire system (shown below). Failure to comply may result in system damage.

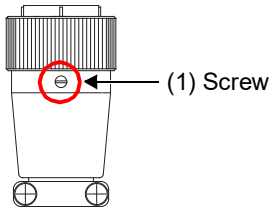


⚠ CAUTION

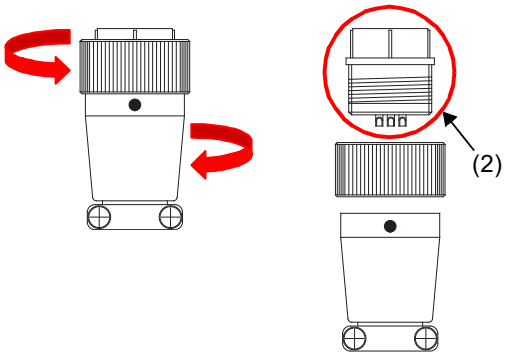
- The F805AT-CK can be used only in category II specified by EN61010. The overvoltage applied to the signal input/output terminals should not exceed the value defined in category II.
- The F805AT-CK conforms to the EMC Directive as an industrial environment product (class A). If it is used in a housing environment, interference may be caused. In that case, take appropriate measures.
- The load cell excitation voltage of the F805AT-CK is 5V or 10V. Heating or breakage may occur unless the load cells maximum excitation voltage is the load cell excitation voltage of the F805AT-CK or more.
- When using the F805AT-CK with the four-wire load cell connected, be sure to connect +EXC and +S, and -EXC and -S. Even if +S and -S are not connected, normal operation is performed apparently, but heating or breakage may occur because excessive voltage is applied to the load cell.

4-1-3. How to wire load cell connector

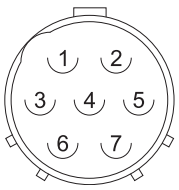
1) Remove a screw (1) indicated in the figure.



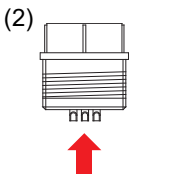
2) Turn and remove the lower part of the connector.



3) When looking at the connector (2) from the soldering side, the pin numbers look as indicated in the right figure.
Wire the connector appropriately in accordance with a load cell cable you may use.



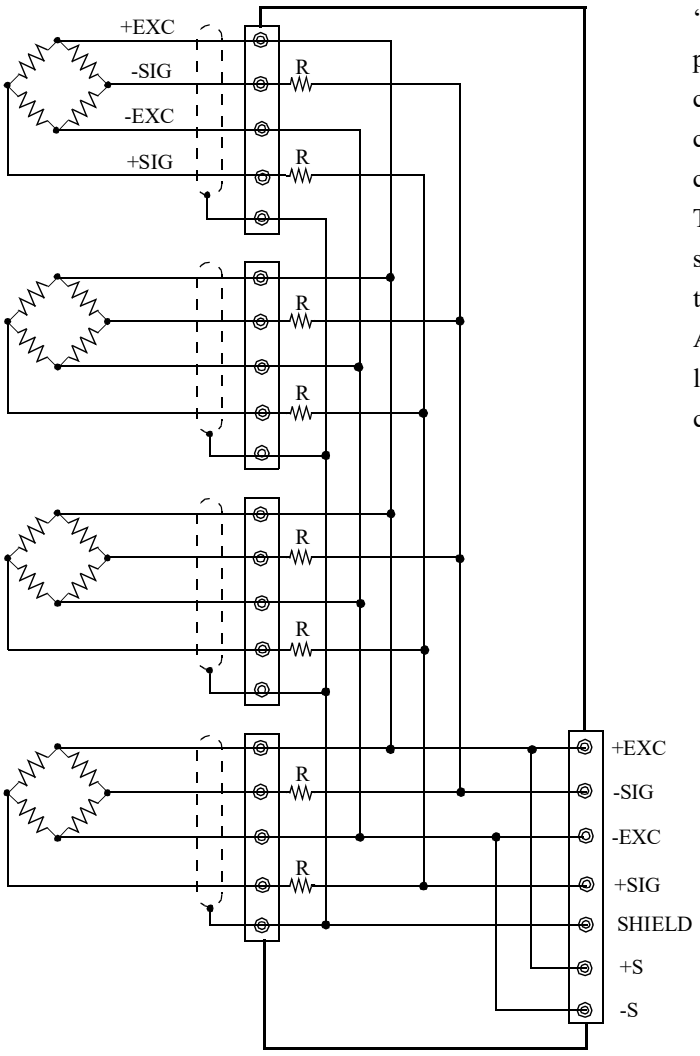
Pin numbers



See from this side

4-1-4. Connecting load cells in parallel

Some industrial applications require several load cells connected in parallel (e.g., tank or flow scales). A summing junction box should be used to facilitate connection and corner correction.



'n' (number) load cells connected in parallel are considered one unit whose capacity is 'n' x rated capacity of load cells (load cells must have the same capacity, bridge resistance, and mV/V). The averaging resistor (R) must be in same relative ratios with a low temperature coefficient.
Averaging resistors are not needed if load cells were designed for parallel connection.

Notice

When connecting several load cells in parallel, load cell capacity should be higher than expected load to compensate for mechanical shock or eccentric loading.

4-1-5. Sensor cable

Cable colors of sensors may differ from one manufacturer to another (it may even differ from one model to another for some products). Refer to the sensor manual (or data sheet) and check signal names and colors in order to connect the cables correctly.

4-2. Connecting power input terminal at the DC Spec.

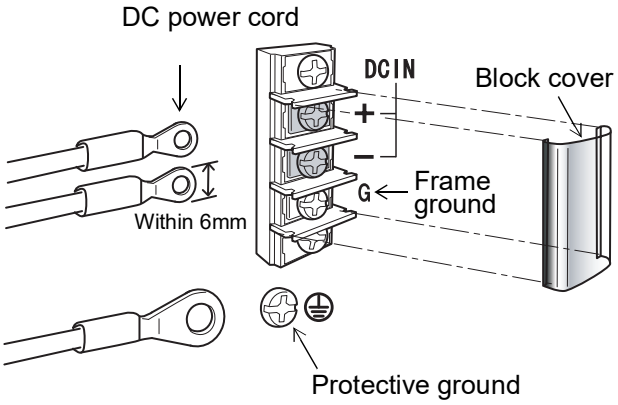
Connect the DC power cord. The input voltage is 12V to 24V DC.

1) Make sure that no power is applied.

2) Remove the terminal block cover.

3) Remove the two screws(M3) at the lower left of the terminal block, align the crimp contacts with the screw holes, and then tighten the screws.

4) Mount the terminal block cover.



5) Remove the screws(M4) of the protective ground, align the crimp contacts with the screw holes, and then tighten the screws.

4-3. Connection of the protective ground

The grounding terminal is for prevention of electric shocks.
Use an approx. 0.75mm^2 thick wire, and be sure to ground.

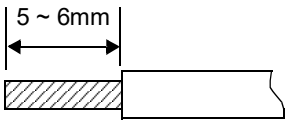
⚠ WARNING

- Connect with no power applied because it may cause an electric shock.
- The attached AC cable is designed for domestic use in Japan, and its rating is 125V.
  For use at voltages exceeding the rating and for overseas use, have a separate AC cable prepared.
- Since the F805AT-CK has no power switch, install a breaker.
- Be sure to ground the protective ground terminal to prevent electric shocks.
  Do not use other screws than that attached to the main body .
- To take measures against lightning surge, install a lightning surge protector (optionally available).

4-4. SI/F 2-wire Serial Interface

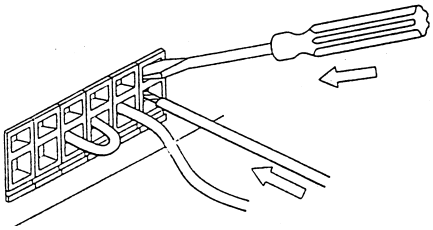
This 2-wire serial interface is for connecting F805AT-CK to peripheral equipment such as printers or remote displays. No polarity is needed for this simple, low-cost installation.
The transmitting distance is about 300m (328yds).
The Lock, SI/F. terminal on the rear panel is a Cage Clamp.
Connection is simple and easy.

1) Strip the casing 6mm (0.2 inch) on the cable to be connected.



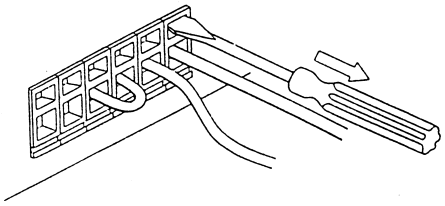
2) Twist the bare wire to fit the terminal hole.

3) Insert the supplied screwdriver into the upper hole and lift upward.



4) Insert the twisted wires into the lower hole.

5) Pull the screwdriver out from the upper hole.



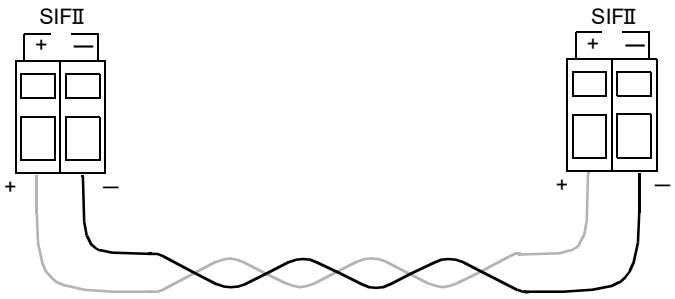
6) Make sure cable is clamped securely and does not come out with a slight tug.

Notice

- Cable can be from 24 to 14AWG (0.2 to 2.5mm^2).
- Do not solder the cable wires or fix a solderless terminal.
- If several cables to be inserted to the same hole, twist those cable wires together and insert.

4-5. SI/FII High Speed Bi-directional 2- Wire Serial Interface

SI/FII is a high speed bi-directional serial interface for connecting F805AT-CK to various peripheral Devices. These include printers, remote displays, converters (D/A, BCD-IN, BCD-OUT, RS-232C).
Up to 20 devices may be connected by 2-core parallel or shielded cable with polarity.



4-6. External In/Out Signal

The input/output circuits are opto-isolated from the internal circuitry.

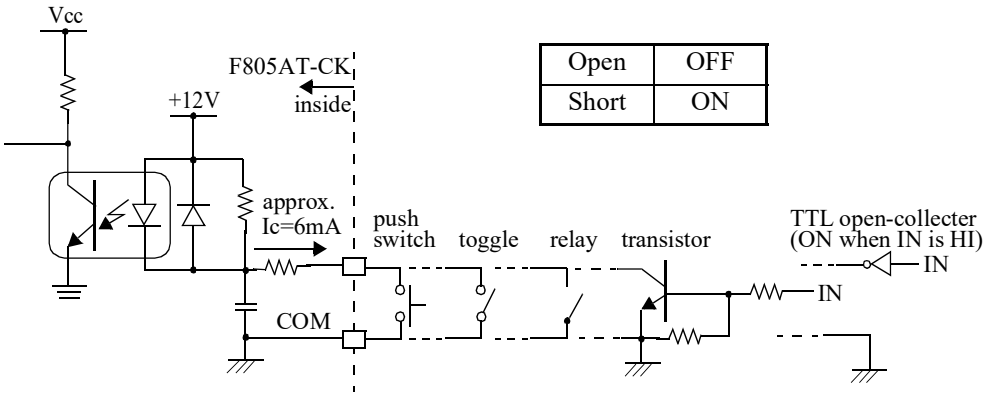
4-6-1. Control connector-pin assignment

DDK 57-30500 plug is included

1	*	COM	26	*	COM
2	in	G/N	27	in	Undefined
3	in	D/Z ON	28	in	Undefined
4	in	TARE ON	29	in	Undefined
5	in	TARE OFF	30	in	Code No.Designation Selection
6	in	Undefined	31	in	Measurement Start Mode
7	in	Undefined	32	in	Graph Drawing
8	in	Accumulation Command	33	in	Measurement Reset
9	in	Total Clear	34	in	Measurement Start
10	*	COM	35	*	COM
11	in	Code No. Designation 1	36	in	Code No. Designation 10
12	in	Code No. Designation 2	37	in	Code No. Designation 20
13	in	Code No. Designation 4	38	in	Code No. Designation 40
14	in	Code No. Designation 8	39	in	Code No. Designation 80
15	*	COM	40	*	COM
16	*	COM	41	*	COM
17	out	Near Zero	42	out	Undefined
18	out	Undefined	43	out	Lower Limit
19	out	Undefined	44	out	Upper Limit
20	out	Undefined	45	out	Stable
21	out	Under	46	out	Weight Error
22	out	Go	47	out	Undefined
23	out	Over	48	out	Taking in
24	out	Complete	49	out	RUN or Total Limit
25	*	COM	50	*	COM

4-6-2. Equivalent circuit (input)

Signal are inputted by shorting or opening input and COM terminals. A relay, switch or transisitor may be used for this application.

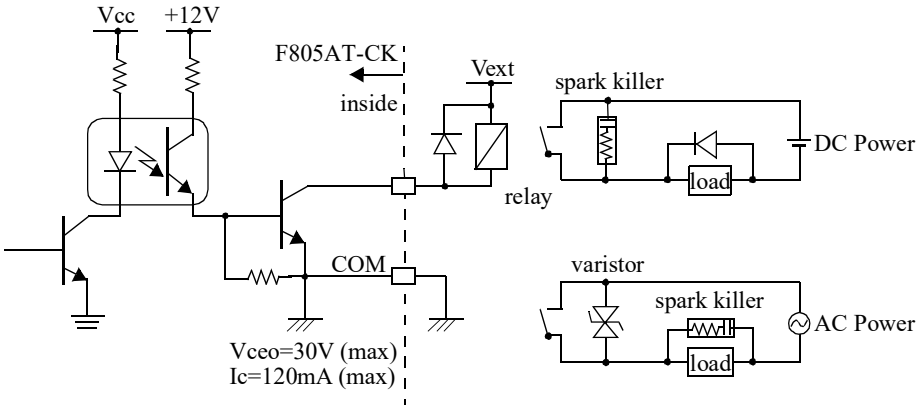


Open	OFF
Short	ON

- Do not apply external voltage to the signal input circuit.
- Use external elements which withstand Ic=10mA.
- Leakage of external elements must be within 100μA.

4-6-3. Equivalent circuit (output)

The signal output circuit is open-collecter output of a transistor.



output data	Tr
0	OFF
1	ON

- Use external power source (up to DC30V) for driving relay (vext).
- Do not short-circuit the load,such as a coil of relay ,that will break the output transistor.
- Connect a surge absorber or a spark killer to the relay circuit as shown in the draft so that to reduce noise trouble and extend the life of relay.

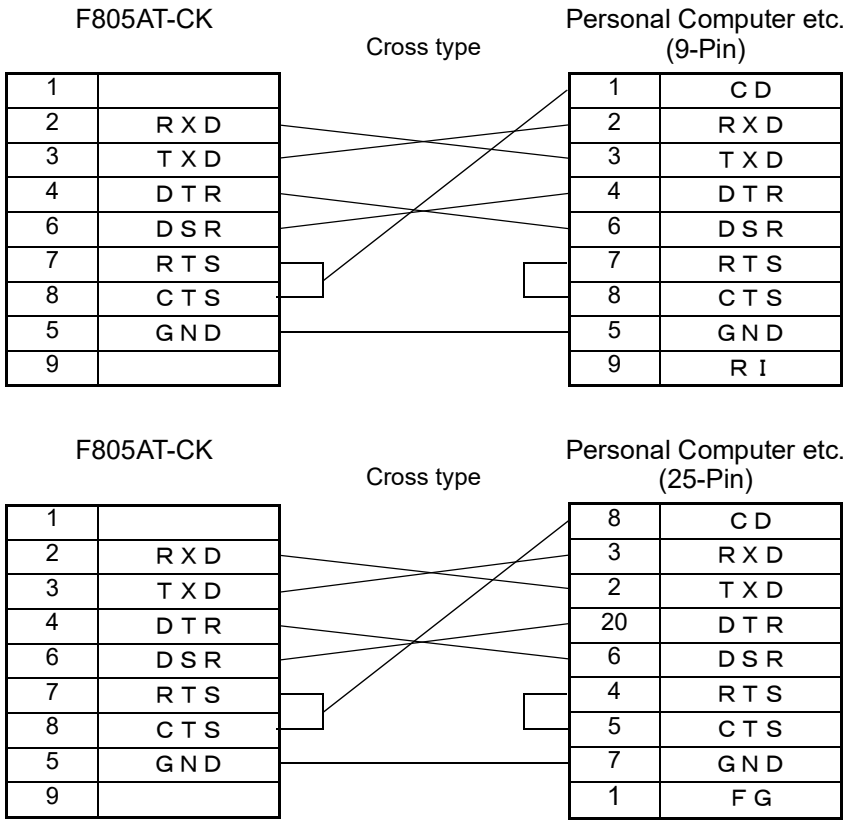
4-7. RS-232C Connector

4-7-1. Connector pin assignment

Adaptable plug: 9-pin D-SUB connector
* OMRON XM3D-0921 (Cover: XM2S-0913 with #4-40 screw) or its equivalent

1			6	in	DSR
2	in	RXD	7	out	RTS
3	out	TXD	8	in	CTS
4	out	DTR	9		
5	*	GND			

4-7-2. Cable

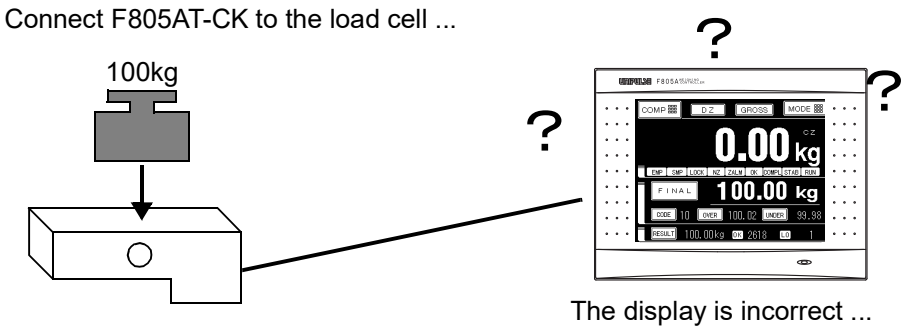


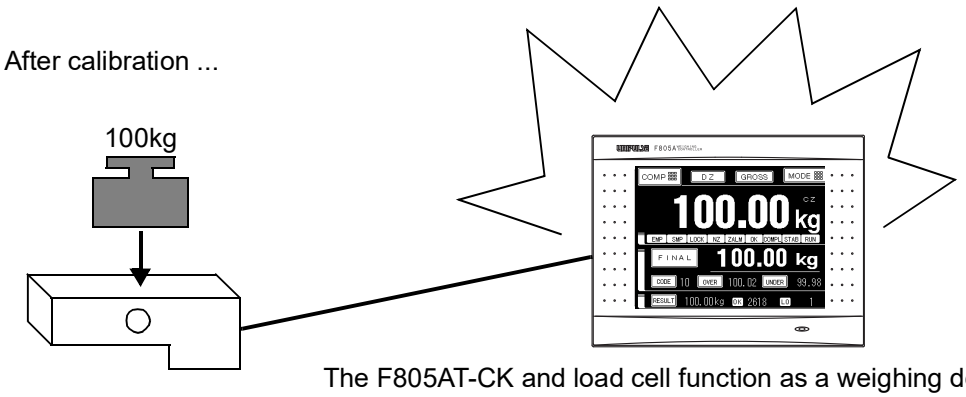
The above diagram is for connecting a personal computer as a DTE (Data Terminal Equipment) device. If it is a DCE (Data Circuit-terminating Equipment) device, connect pin to pin (DTR to DTR, DSR to DSR etc.).
Cables should be prepared after checking connector type and pin assignments of the connected device.

5. CALIBRATION

5-1. What is Span Calibration

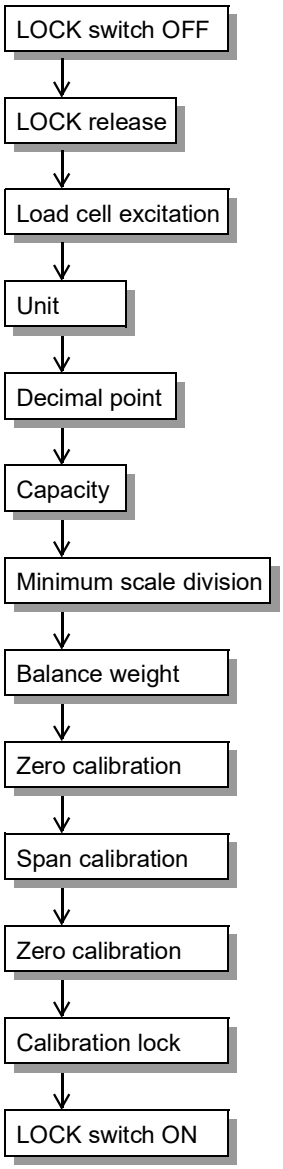
Span Calibration means putting a load (test weight) on the load cell (or scale) and calibrating so the F805AT-CK indicates the correct weight.





The F805AT-CK and load cell function as a weighing device.

5-2. Calibration Procedure



Release calibration inhibition lock by switching OFF the Lock Switch on the rear panel. (Hardware Lock)

Release Setting Value Lock which inhibits the calibration. (Software Lock)

Select Load cell Excitation between 10V to 5V.

Register the Unit of the scale.

Register the position of Decimal point.

Register the maximum capacity of the scale.
If the registered value is exceeded by 9 scale divisions, display shows over scale "OFL2".

Register the minimum scale division of the scale.

Register the value of load (balance weight) for calibration.

Calibrate the initial zero point.

Place the load (balance weight) on the load cell and calibrate the span value.

If it is necessary, re-calibrate initial zero point.

Disable changing setting value related to calibration.

Turn on Lock Switch, disable calibration.

5-3. Secondary Calibration Procedure (Equivalent Calibration)

Equivalent calibration by entering the Output (in mV/V) of the load cell to calibrate the instrument. The equivalent calibration function is not available for NTEP. Due to the replacement of weighing controller provides against an emergency or miss-operation Span calibration, and no chance to do actual load calibration, but have to continually operate the weighing system. It is a convenient, temporary measure.

LOCK switch OFF	Release calibration inhibition lock by switching OFF the Lock Switch on the rear panel. (Hardware Lock)
↓	
LOCK release	Release Setting Value Lock which inhibits the calibration. (Software Lock)
↓	
Load cell excitation	Select Load cell Excitation between 10V and 5V.
↓	
Unit	Register the Unit of the scale.
↓	
Decimal point	Register the position of Decimal Point.
↓	
Capacity	Register the maximum capacity of the scale. If the registered value is exceeded by 9 scale divisions, display shows over scale “OFL2”.
↓	
Minimum scale division	Register the minimum scale division of the scale.
↓	
Balance weight	Enter the Balance value equivalent to the mV/V for calibration.
↓	
Equivalent calibration	Enter in the output of load cell in mV/V.
↓	
Zero calibration	If it is necessary, re-enter initial zero point.
↓	
Calibration lock	Disable changing setting value related to calibration.
↓	
LOCK switch ON	Turn on Lock Switch, disable calibration.

Notice

The set Balance weight must be equal or less than the set Capacity.

When use the rated load cell mV/V for equivalent calibration, the Capacity must be equal to load cell capacity.

When connecting several load cells in parallel, it is possible to occur some differences between input and output value due to voltage drop caused by connection or material of lines.
In this case, register actual mV/V value to perform accurate calibration.

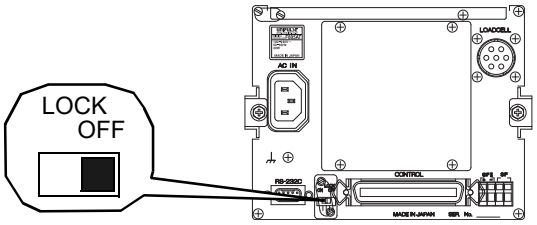
5-4. Preparation for Calibration

5-4-1. LOCK release

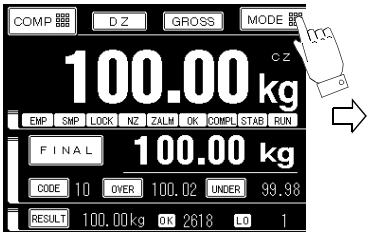
The F805AT-CK features a Lock function for disabling changes in calibration and setting values.
The Software Lock is in the configuration of SYSTEM and perform on the Comparison Screen, the Hardware Lock switch is located on rear panel. Release both of Locks before starting calibration.

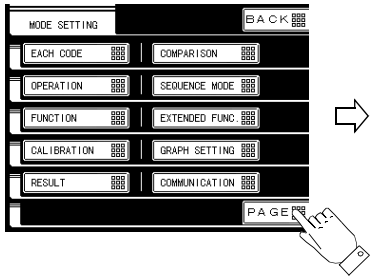
Operation

1) Set lock switch to OFF.

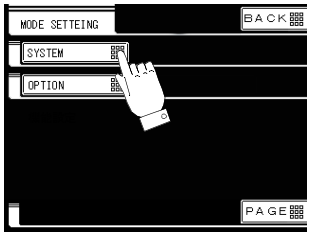


2) Press the MODE button, then PEGE .

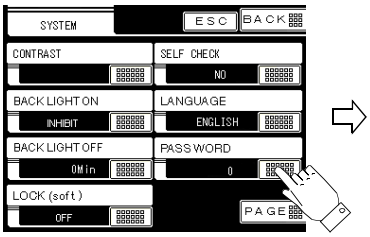


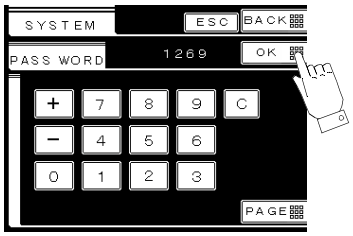


3) Select the “SYSTEM” tag.

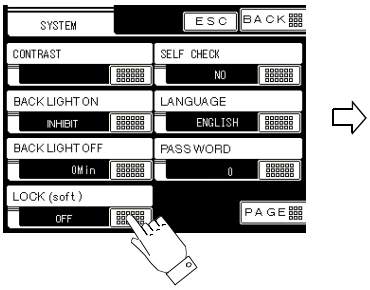


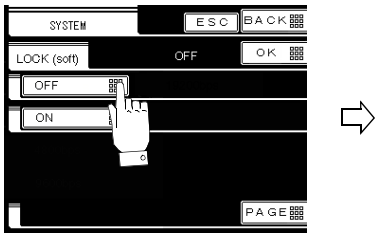
4) Press the “PASS WORD” tag, input “1269” then press OK .

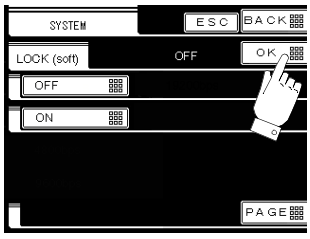




5) Press the tag of “LOCK (soft)”, then “OFF” press OK .







6) Press BACK , go back to comparison screen.

After calibration has been completed, be sure to lock the instrument again to protect calibration information.

Notice

Concerning Lock and Setting values to be protected, refer to THE LIST OF INITIAL SETTING VALUE on Page110.

5-4-2. Load cell excitation

Select load cell excitation between 10V and 5V.
Refer to the specification of load cell to select suitable excitation please.

Operation

Press MODE → CALIBRATION → PAGE → LOADCELL EXCITATION → Select 10V/ 5V → OK

5-4-3. Unit

The unit can select from t, kg, g, N, lb or None unit.

Operation

Press MODE → CALIBRATION → PAGE → UNIT DISPLAY → Select Unit → OK

5-4-4. Decimal place

Decimal place should be selected from 0/0.0/0.00/0.000.

Operation

Press MODE → CALIBRATION → PAGE → DECIMAL PLACE → Select 0/ 0.0/ 0.00/ 0.000 → OK

All of the decimal place in F805AT-CK are fixed except for weight.
* They cannot be changed.

5-4-5. Capacity

Register the capacity of the scale. The capacity must be within the rated load of load cells combined. The input range of capacity is between 0 to 99999.

Operation

Press MODE → CALIBRATION → CAPACITY → Input 0 ~ 99999 → OK

5-4-6. Minimum scale division

The minimum scale division can be from 001 to 100.
The display resolution obtains from dividing minimum scale division by capacity.

Operation

Press MODE → CALIBRATION → MIN.SCALE DIVISION → Input 1 ~ 100 → OK

The display resolution ignores the decimal place.
For example : When minimum scale division is 001 then
if capacity is 10.000, the display resolution is 1/10000;
if capacity is 100.00, the display resolution is 1/10000;
if capacity is 40.000, the display resolution is 1/40000.

5-4-7. Balance weight

The load value (Balance weight) that is applied to the scale for calibration. The input range of Balance is between 0 to 99999.

Operation

Press MODE → CALIBRATION → BALANCE WEIGHT VALUE →
Input 0 ~ 99999 → OK

5-4-8. Gravitational acceleration

Slight error may occur if the scale moved from the location of calibration due to gravitational changes. If the scale is used in the location of calibration, this function is not necessary. But after calibration the scale will ship to different location, before Span calibration do operation procedure as follows.

- Select GRAV. ACCELERATION , input relative number to located Gravitational Acceleration.
- Do Span calibration.
- Input the number following new place Gravitational Acceleration.

Operation

Press MODE → CALIBRATION → PAGE → GRAV.ACCELERATION →
Input 01 ~ 16 → OK

Gravitational accceleration

01	9.806	02	9.805	03	9.804	04	9.803	05	9.802	06	9.801
07	9.800	08	9.799	09	9.798	10	9.797	11	9.796	12	9.795
13	9.794	14	9.793	15	9.792	16	9.791				

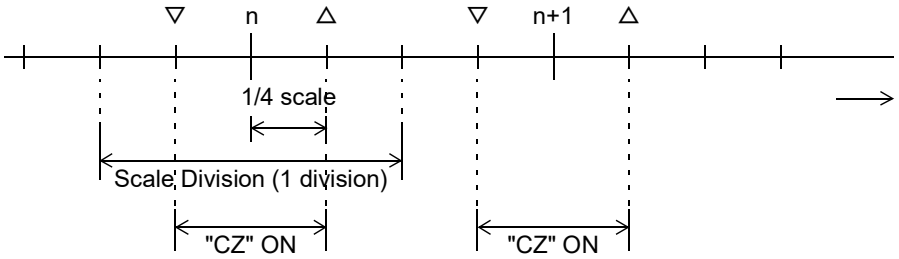
5-4-9. 1/4 scale division

It divides the Minimum scale division into four (4) parts. The “CZ” (Center Zero) Lamp turns on when the weight is between +1/4 and -1/4 division.

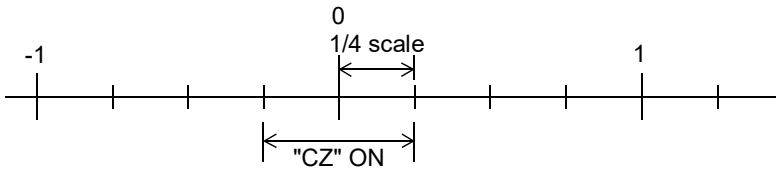
Operation

Press MODE → CALIBRATION → PAGE → 1/4 SCALE DIV. DISPLAY → Select ON/OFF → OK

When 1/4 Scale Division Display selects ON.



When the 1/4 Scale Division Display selects OFF, “CZ” lamp only works at the Zero Point.



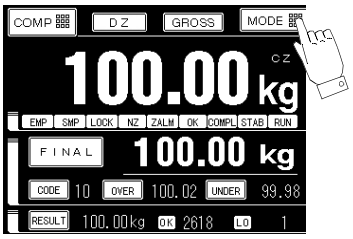
5-5. Zero Calibration

Register the initial zero point.

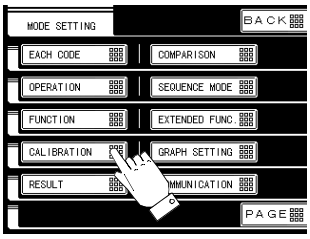
- Verify there are no excess loads applied to load cell or scale.
- Check STAB in green appears on the comparison screen.

Operation

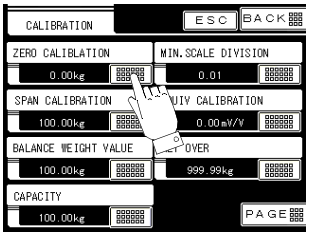
1) Press the MODE button.



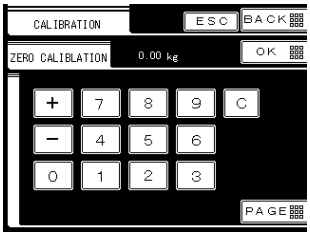
2) Select the "CALIBRATION" tag.



3) Press “ZERO CALIBRATION” tag.



4) Register zero point by pressing OK .



5) Zero calibration is completed when the CALZ changes to RUN and numeral display become to “0” on the comparison screen.

If a calibration error is displayed, redo zero calibration following the description on the message screen.

- CAL. ERR. 2: The initial dead load is above zero adjustment range.
- CAL. ERR. 3: The initial dead load is negative.

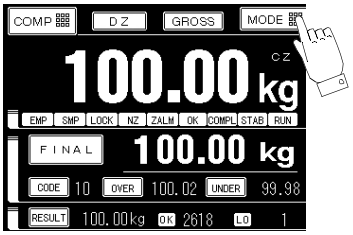
5-6. Span Calibration

Apply the load (Balance weight) to the load cell or scale.

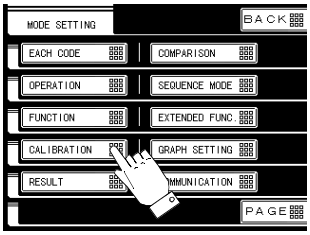
- The balance weight should be full capacity to get the best linearity. The balance weight must be at least 50% of scale capacity.
- Verify there is no excess load (except Balance weight) applied to the load cell or scale.
- Check STAB in green appears on the comparison screen. Correct calibration cannot be completed if the signal is unstable.

Operation

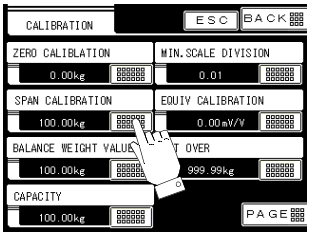
1) Press the MODE button.



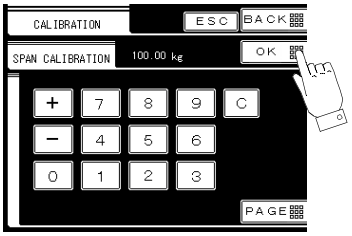
2) Select the "CALIBRATION" tag.



3) Press “SPAN CALIBRATION” tag.



4) When used balance weight is equal to the capacity press OK ,if not input the real weight then press OK .



5) Span calibration is completed while the CALS changes to RUN and display the real weight on the comparison screen.

If a calibration error is displayed, redo span calibration following the description on the message screen.

- CAL. ERR. 4: The entered balance weight value is beyond the Capacity.
- CAL. ERR. 5: The enter balance weight value is 00000 Re-enter the correct value.
- CAL. ERR. 6: The load cell output does not reach the span adjustment range.
- CAL. ERR. 7: The load cell output is negative.
- CAL. ERR. 8: The load cell output is beyond the span adjustment range.

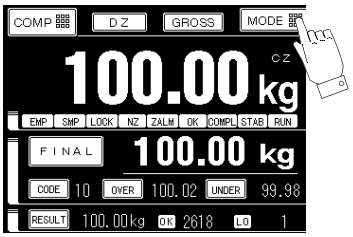
Regarding to error massage, refer to trouble shooting on the Page97.

5-7. Do Secondary Calibration (Equivalent Calibration)

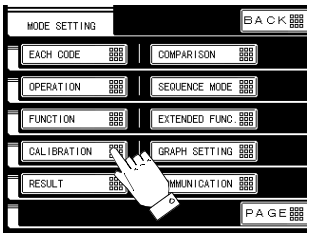
Input the mV/V of load cell corresponds to the input Balance weight to instrument, instrument will calibrate it following the inputted values.

Operation

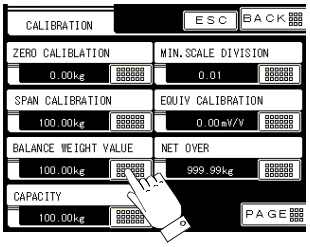
1) Press the MODE button.

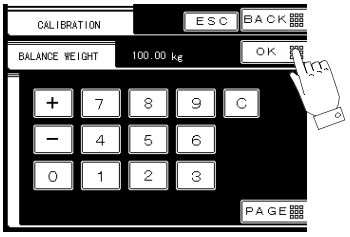


2) Select the "CALIBRATION" tag.

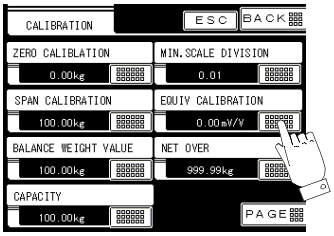


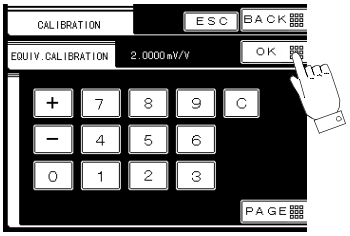
3) Press “BALANCE WEIGHT VALUE” tag, key input the weight value then press OK .





4) Press “EQUIV. CALIBRATION” tag, key input the corresponded mV/V to the inputted weight value then press OK .





5) Equivalent Calibration is completed while the CALS changes to RUN and display the real weight on the comparison screen.

If the calibration error CAL.ERR.1 is displayed, redo Zero calibration.

5-8. Net Over/ Gross Over

Conditional formula

1) Net Over: When Net Weight > Net Over set value, OFL 1 is displayed.
2) Gross Over: When Gross Weight > Gross Over set value, OFL 3 is displayed.

Operation

1) Press MODE → CALIBRATION → NET OVER → Input 0 ~ 99999 → OK

2) Press MODE → CALIBRATION → PAGE → GROSS OVER → Input 0 ~ 99999 → OK

6. FUNCTION SETTING

6-1. Operation

6-1-1. Display frequency

Select the F805AT-CK Display Frequency. The numbers of updates on the display per second is selected here.
Internal A/D conversion speed and CPU processing speed are not changed. The available display frequencies are: 25, 13, 6 or 3 times per second. 25 times per second is recommended for normal operation.
If the display flickers, select a lower frequency.

Operation

Press MODE → OPERATION → DISPLAY FREQUENCY →
Select 3/ 6/ 13/ 25 Times/Sec → OK

6-1-2. Digital filter

This function minimizes instability of the weight value by calculating the average frequency of the data converted from analog to digital. The frequency of the moving average selected from 2 to 128 times. A higher frequency will make a more stable display in slower response.
A lower frequency will have quicker response but unstable display.
Select the most suitable value for the weighing.

Operation

Press MODE → OPERATION → DIGITAL FILTER →
Select 2/ 4/ 8/ 16/ 32/ 64/ 128 Times → OK

6-1-3. Analog filter

This function stabilizes the display by removing low frequency noise from the load cell signal as well as averaging analog signals.
Selectable frequencies are: 2, 4, 6 and 8 Hz. A higher frequency will make a more quick response but sometimes read a noise in.
Select the most suitable value for the weighing.

Operation

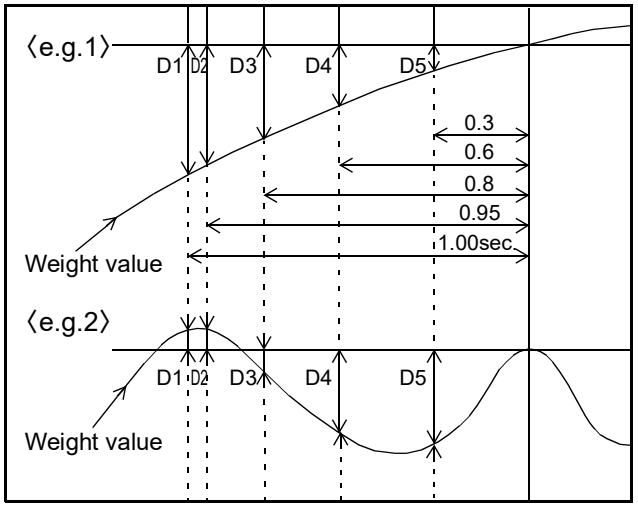
Press MODE → OPERATION → ANALOG FILTER → Select 2/ 4/ 6/ 8 Hz → OK

6-1-4. Motion detection

When signal fluctuation is less than the result (range × Min.Scale Div.) and is within the set period, weight value is stable and **STAB.** display lights.
The two modes of Motion Detection in the F805AT-CK are: Stable Mode and Check Mode.

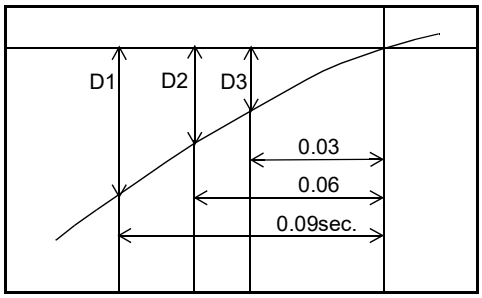
In stable mode, D1 to D5 in the figure at the right and the set range are compared each time A/D conversion is made, and if at least one of them exceeds the range, the STABLE signal turns OFF immediately.

* D1 is the difference between the current weight value and one-sec-old weight value.



In checker mode, D1 to D3 in the figure at the right and the set range are compared each time A/D conversion is made, and if at least one of them exceeds the range, the STABLE signal turns OFF immediately.

* D1 is the difference between the current weight value and 0.09-sec-old weight value.



Setting of motion detect parameter

1) MD MODE — Select the condition from Stable mode or Checker mode in Motion Detection Mode.

2) MD PERIOD — Setting the period for judging the stability of weight (input range: 0.0 ~ 9.9).

3) MD RANGE — Comparing the value (setting value×minimum scale division) with the range of weight change (input range: 00 ~ 99).

Operation

1) Press MODE → OPERATION → MOTION DITECTION MODE → Select STABLE MODE/ CHECKER MODE → OK

2) Press MODE → OPERATION → MD (PERIOD) → Input 0.0 ~ 9.9 → OK

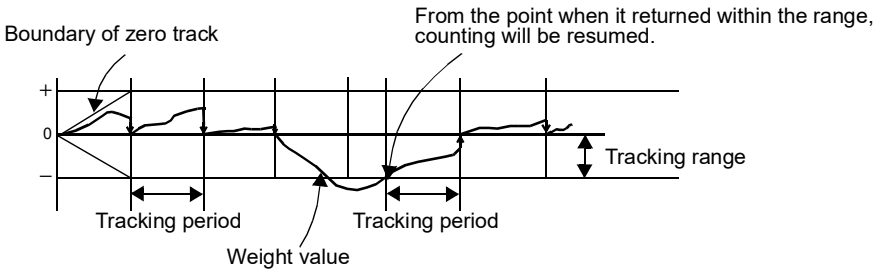
3) Press MODE → OPERATION → MD (RANGE) → Input 00 ~ 99 → OK

6-1-5. Zero tracking

This function automatically adjusts slow drifts and slight shifting of the zero point due to small amounts of accumulation on a scale.

- Zero tracking is the function to reset gross weight to zero automatically when the state remaining the zero point drift within the zero tracking range continues more than set period.

- Zero tracking period must be set between 0.1 ~ 9.9 second and its range must be set between 1 ~ 99 using 1/4 resolution interval of weight display.
  For instance, 02 corresponds to 0.5 and 12 corresponds to 3 of weight display.
  Zero tracking range is not proportional to the Minimum scale division regardless of the setting state of Minimum scale division.
  Zero tracking does not work if you set the period to 0.0 sec. and range to 00.



Operation

ZT PEROPD:

Press MODE → OPERATION → ZERO TRACKING (PERIOD) →
Input 0.1 ~ 9.9 → OK

ZT RANGE:

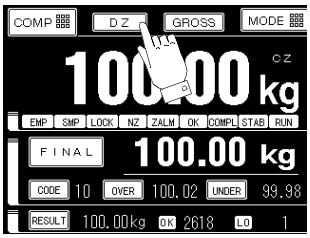
Press MODE → OPERATION → PAGE → ZERO TRACKING (RANGE) →
Input 1 ~ 99 → OK

6-1-6. Digital zero

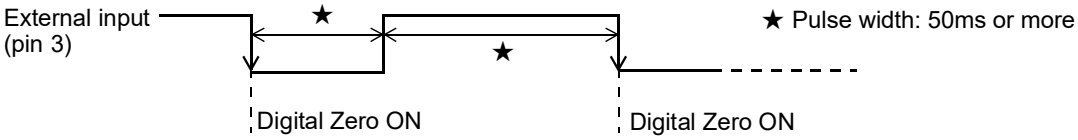
The Digital Zero function zeroes the Gross Weight to adjust for slight shifts at the zero point due to load cell drift or dregs remaining on a scale.
If Digital Zero is operated when the displayed weight is beyond the set Digital Zero Regulation Value (Refer to on Page40), then the Zero Alarm is actived, ZALM appears red.

Operation

Display GROSS on the comparison screen then press DZ .



To operate Digital Zero via the Control connector on the rear panel, input ON edge signal to the pin 3 (D/ Z ON) and the COM (Common).



6-1-7. Digital zero clear

When ZALM highlights in red, do Digital Zero Clear.

Then Digital Zero will be cleared and ZALM goes out.

Operation

Press MODE → PAGE → SYSTEM → PASSWORD →
Input 1269 → OK → PASSWORD → Input 1111 → OK

Input PASSWORD 1269 → 1111 in order.

6-1-8. Digital zero regulation value

Set a range for Digital Zero adjustment (a gap from the Registered Zero Calibration) by operating Digital Zero or Zero Tracking.

Operation

Press MODE → OPERATION → PAGE → DZ REGULATION VALUE →
Input 0 ~ 9999 → OK

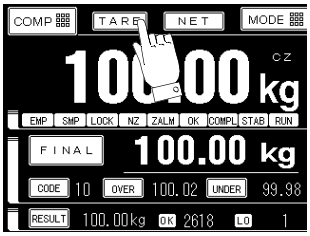
6-2. Function

6-2-1. Tare subtraction/ Tare subtraction reset

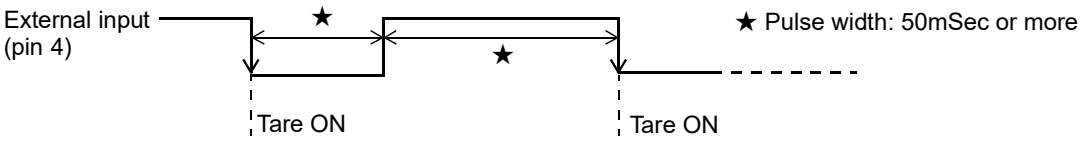
Tare is subtracted and Net weight is zeroed by pressing TARE.

Operation

Display NET on the comparison screen then press TARE



Tare subtraction can be executed by the signal from the external in/output connector on the rear panel (Pin 4)

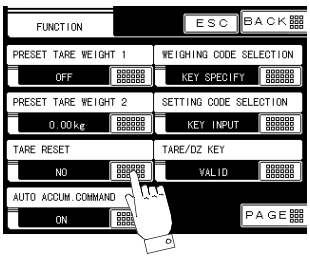


The subtracted Tare can be restored and Net weight becomes equal to the Gross weight.

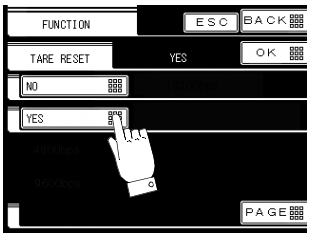
Operation

1) Press MODE → FUNCTION

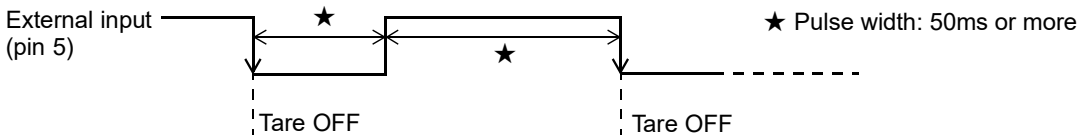
2) Press TARE RESET in FUNCTION MODE.



2) Press YES then press OK ,
the Tare subtraction value is reset.



Tare subtraction can be executed by the signal from the external in/output connector on the rear Panel (Pin 5).



6-2-2. Preset tare weight 1/ Preset tare weight 2

Tare is Subtracted and Net weight is zeroed.
Set tare by pressing PRESET TARE WEIGHT 2 then set PRESET TARE WEIGHT 1 ON.

1) PRESET TARE WEIGHT 1 (ON/OFF)
2) PRESET TARE WEIGHT 2 (input range: 0 ~ 99999)

Operation

1) Press MODE → FUNCTION → PRESET TARE WEIGHT 1 → Select ON/OFF → OK

2) Press MODE → FUNCTION → PRESET TARE WEIGHT 2 → Input 0 ~ 99999 → OK

TARE SUBTRACTION and PRESET WEIGHT 1 functions independently.
When [TARE] is pressed, Tare Subtraction will be executed at once then NET becomes 0 while PRESET TARE WEIGHT 1 is ON.

6-2-3. Auto accumulation command

Select whether to automatically accumulate the RESULT of the F805AT-CK (ON) or not (OFF).
When Complete output signal turns ON, do auto accumulation to the active weighing code, value, times and statistical data. Also send out auto printer command via SI/F and SI/FII interfaces.
Accumulation is executed only when over/under judgment is made.
If the setting of OVER/UNDER COMPARISON is OFF, accumulation is not performed. Select from ON/OFF.

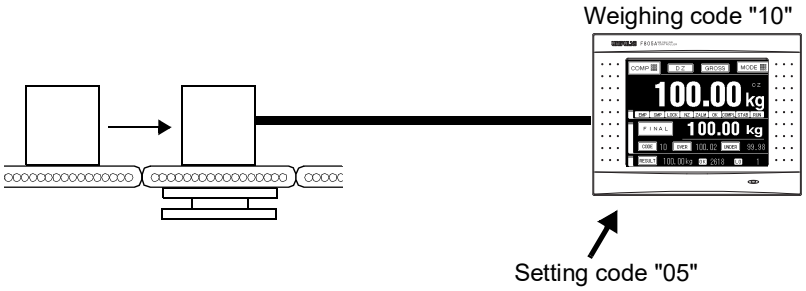
1) ON Automatic accumulation is performed.
2) OFF Automatic accumulation is not performed.

Operation

Press MODE → FUNCTION → AUTO ACCUM. COMMAND → Select ON/OFF → OK

6-2-4. Weighing code selection/ Setting code selection

The F805AT-CK has two types of codes: codes to perform weighing (weighing codes) and codes to make settings (setting codes).

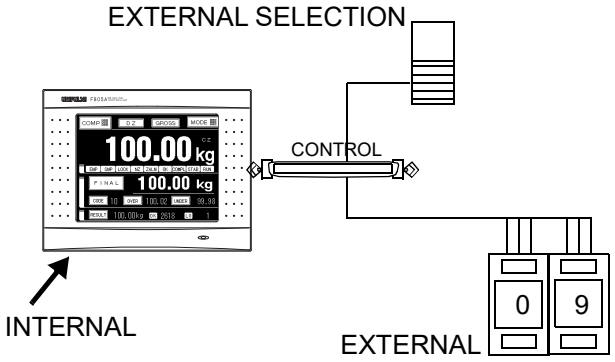


While weighing with the Setting Value of Code "10", the Setting Value of Code "05" can be changed.

The selection of Weighing Code and Setting Code should be performed by External Part (Control Connector) or Internal part (Front Panel Key).
Selection with Internal or External part can also be decided from external selection (SELECTION).

1) Weighing code selection
2) Setting code selection

1: KEY SPECIFY KEY INPUT	Specify a code No. by using the touch panel. (It can be changed through serial communications, such as RS-232C.)
2: EXTERNAL INPUT	Specify a code No. by external (control connector) input.
3: SELECTION	Either key input or external input can be set by the condition of external (control connector) input.



Operation

1) Press MODE → FUNCTION → WEIGHING CODE SELECTION →
Select KEY SPECIFY/ EXTERNAL INPUT/ SELECTION → OK

2) Press MODE → FUNCTION → SETTING CODE SELECTION →
Select KEY INPUT/ EXTERNAL INPUT/ SELECTION → OK

On Comparison screen and Data display screen always correspond to the parameter of weighing code.

Notice

Do not change Weighing Code Number during Weighing process or do not switch to the unused code regularly otherwise it may sometimes not work normally. Weighing is performed by using Final discharge setting value of weighing code presently selected.

6-2-5. TARE/DZ key disablement

It can be inhibited the operation of [TARE] [DZ] for avoiding false operation on Comparison and Message screen. Select VALID or INVALID in the Function setting item.

Operation

Press MODE → FUNCTION → TARE/DZ KEY → Select INVALID/ VALID → OK

6-2-6. GROSS/NET key disablement

It can be inhibited the operation of [GROSS] [NET] [ERROR] [RESULT] for avoiding false operation on Comparison and Message screen. Select VALID or INVALID in the Function setting item.

Operation

Press MODE → FUNCTION → PAGE → GROSS/NET KEY →
Select INVALID/ VALID → OK

6-2-7. Each code key disablement

F805AT-CK enables to disable Each Code key (Final, Over, Under, ACCUM.CLEAR, TOTAL COMP, TOTAL LIMIT, COUNT LIMIT) for avoiding false operation on the touch screen.
If this setting is INVALID, writing of set values through RS-232C is also disabled.
Select VALID or INVALID in the Function setting item

1) VALID Changing of set values of each code is enabled.
2) INVALID Changing of set values of each code is disabled.

Operation

Press MODE → FUNCTION → PAGE → EACH CODE KEY →
Select INVALID/ VALID → OK

6-2-8. Accumulation command acceptance

Select to receive the accumulation command regularly (REGULARLY) or to receive it only when the indicated value is stable (IN STABLE MODE). Select from REGULARLY/ IN STABLE MODE.

1) REGULARLY The accumulation command is accepted regularly.
2) IN STABLE MODE The accumulation command is accepted only when the indicated value is stable (while the STAB lamp is lit).

Operation

Press MODE → EXTENDED FUNC. → ACCUMULATION COMMAND ACCEPTANCE →
Select REGULARLY/ IN STABLE MODE → OK

6-2-9. Tare display

The tare can be displayed on the main display by keeping TARE pressed with the setting of TARE KEY ON.
Select from TARE KEY ON/ INHIBIT.

1) TARE KEY ON The tare is displayed when [TARE] is kept pressed.
2) INHIBIT The tare is not displayed.

Operation

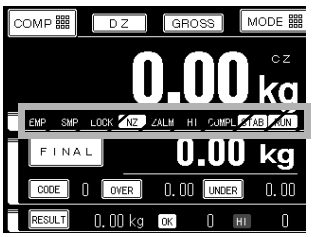
Press MODE → EXTENDED FUNC. → TARE DISPLAY →
Select INHIBIT/ TARE KEY ON → OK

6-2-10. I/O monitor display

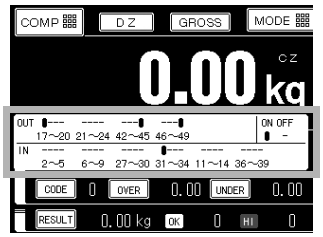
The view as popup which can monitor the operation state of an external I/O signal by pushing a specific domain is performed. Select Effect or inhibit.

- INHIBIT.....A view as popup is not performed.
- EFFECT .....If a specific domain is pushed in a comparison screen, a pop-up screen will be displayed.
  In order to close a pop-up screen, please push the inside of a pop-up screen.

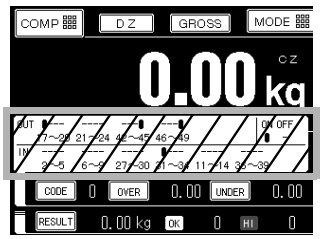
A push on a specific domain will display a pop-up screen.



The inside of a pop-up display becomes the display interlocked with the operation state of the output pin (17-24 and 42-49 pin) / input pin (2-9, 11-14, 27-34, and 36-39 pin) of control I/O.
It is displayed by " ● " at the time of ON, and is displayed by "-" at the time of OFF.



A screen will be closed if a specific domain is pushed into a pop-up display.



* In the state where the pop-up screen is displayed, if this setup is repealed with a communication command etc., a pop-up screen will be closed.

Operation

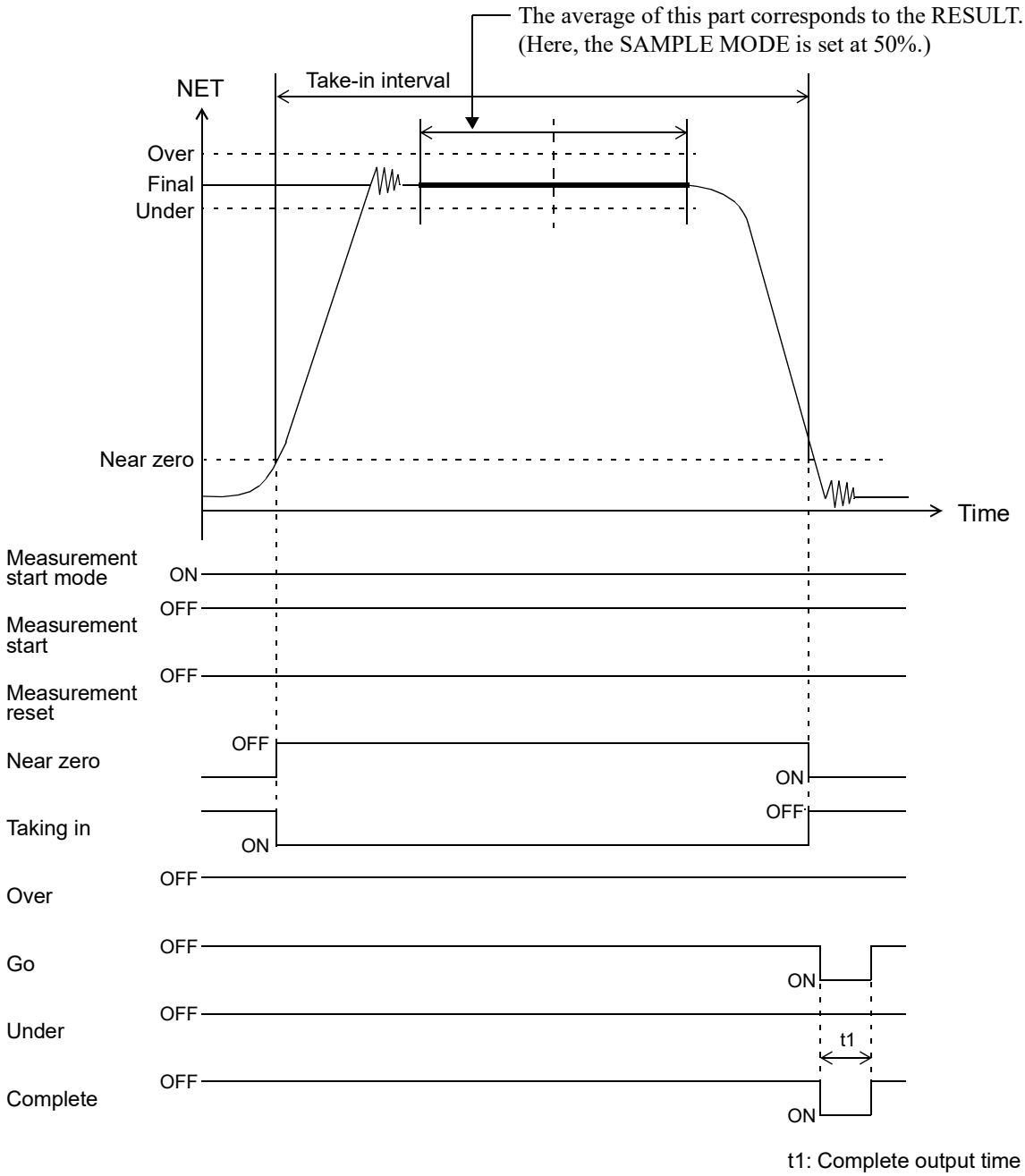
Press MODE → EXTENDED FUNC. → I/O MONITOR DISPLAY →
Select INHIBIT/ TARE KEY ON → OK

7. FUNCTION AS A WEIGHT CHECKER

7-1. About Measurement

Measurement can be carried out in “DYNAMIC MODE” and “STATIC MODE”.
Select by the external input/output signal “MEASUREMENT START MODE” (pin 31).

7-1-1. Dynamic mode



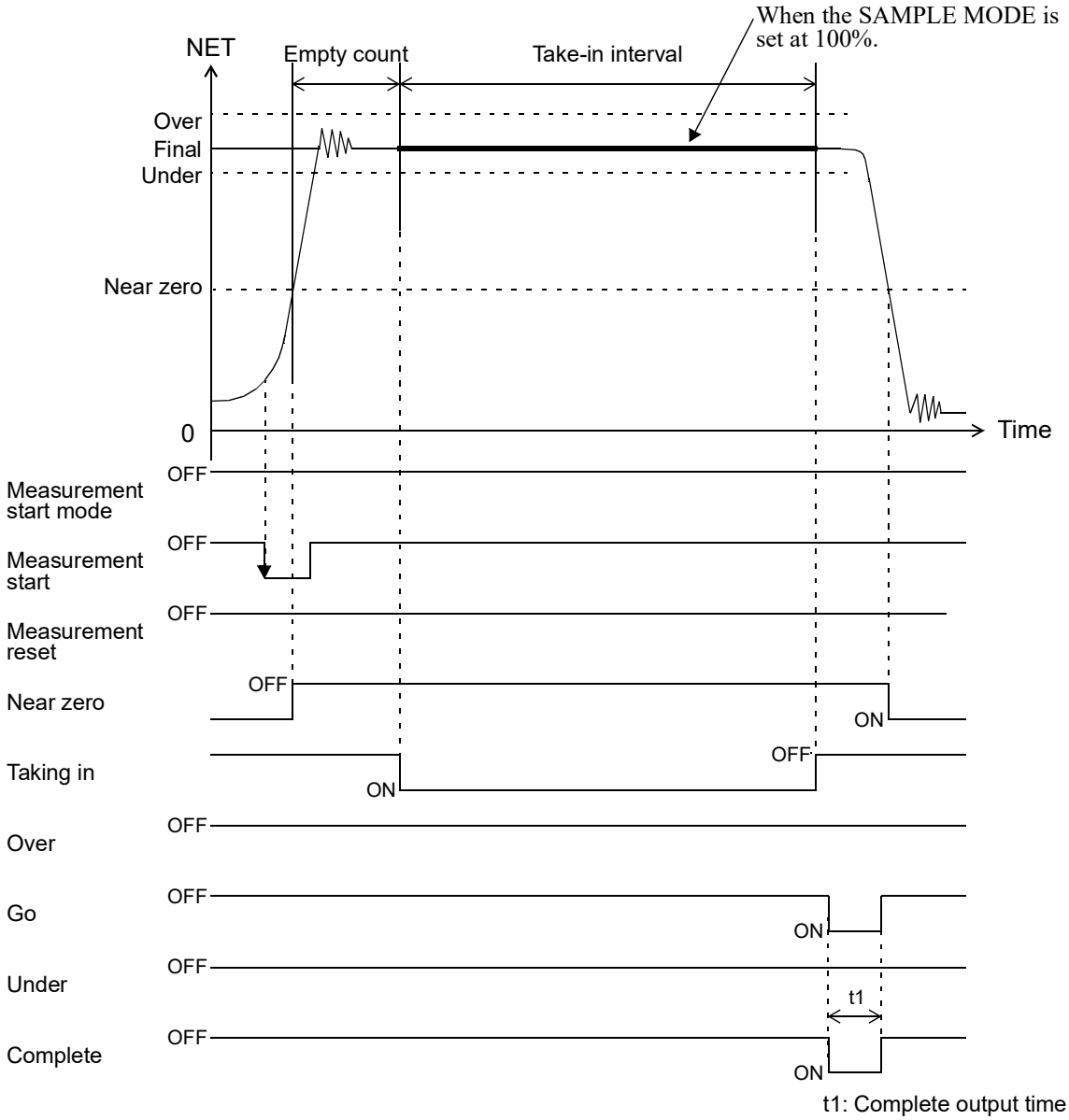
t1: Complete output time

Conditional formula

Near zero	Turns ON when weight value ≦ NEAR ZERO set value.
Taking in	Turns ON when data is being taken in.
Over	Turns ON when RESULT > FINAL SETTING + OVER SETTING.
Go	Turns ON when FINAL SETTING - UNDER SETTING ≦ RESULT ≦ FINAL SETTING + OVER SETTING.
Under	Turns ON when RESULT < FINAL SETTING - UNDER SETTING.
Complete	Turns ON for the COMPLETE signal output time after completion of taking-in of data and after processing of RESULT calculation. * The RESULT calculation processing time is approximately 50msec. * The OVER/FINAL/UNDER signal turns ON only while the COMPLETE signal is output.

Select NEAR ZERO COMPARISON from GROSS/NET by the setting of NEAR ZERO COMPARISON.
Select OVER/UNDER COMPARISON from GROSS/NET by the setting of OVER/UNDER COMPARISON.

7-1-2. Static mode



t1: Complete output time

Conditional formula

Near zero	Turns ON when weight value ≦ NEAR ZERO set value.
Taking in	Turns ON when data is being taken in.
Over	Turns ON when RESULT > FINAL SETTING + OVER SETTING.
Go	Turns ON when FINAL SETTING - UNDER SETTING ≦ RESULT ≦ FINAL SETTING + OVER SETTING.
Under	Turns ON when RESULT < FINAL SETTING - UNDER SETTING.
Complete	Turns ON for the COMPLETE signal output time after completion of taking-in of data and after processing of RESULT calculation. * The RESULT calculation processing time is approximately 50msec. * The OVER/FINAL/UNDER signal turns ON only while the COMPLETE signal is output.

Select NEAR ZERO COMPARISON from GROSS/NET by the setting of NEAR ZERO COMPARISON.
Select OVER/UNDER COMPARISON from GROSS/NET by the setting of OVER/UNDER COMPARISON.

7-1-3. Points to be noted in measuring

Filter settings

Adjust the “DIGITAL FILTER” and “ANALOG FILTER” in the “OPERATION” settings, and set optimum values so as to remove noise components, such as vibration, and to obtain sufficient rising characteristics.
The relationship between parameter changes, stability, and response is as shown in the table below.
(Refer to "6-1-2. Digital filter" on Page37, "6-1-3. Analog filter" on Page37.)

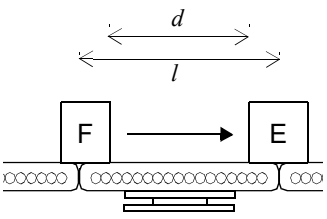
Setting of ANALOG FILTER	Low frequency		High frequency
Stability	Stable	⇔	Unstable
Response	Slow	⇔	Fast

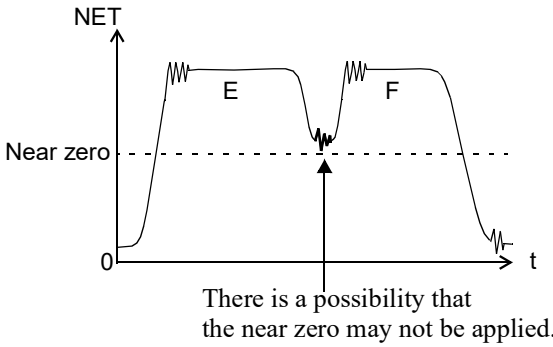
Setting of DIGITAL FILTER	High count		Low count
Stability	Stable	⇔	Unstable
Response	Slow	⇔	Fast

Prevention of double placement

Double placement is a state in which two or more measuring objects are placed on the load-sensing part. Take the distance (*d*) between measuring objects longer than the load-sensing part (*l*). Be aware that accurate weighing cannot be performed especially in “DYNAMIC MODE”.

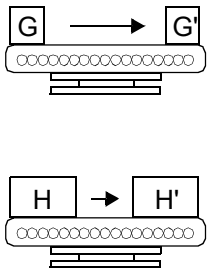
◇ Example of double placement (*d* < *l*)

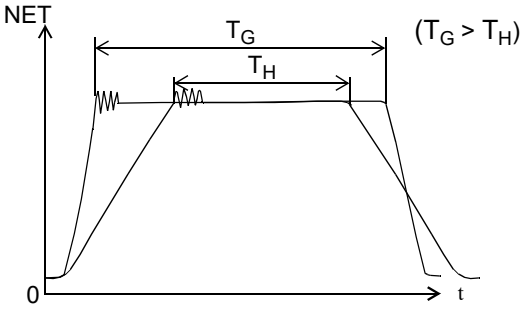




Long measuring objects

Compared with shorter measuring objects, longer ones cause the entire load to be applied to the load cell for a shorter time.
Adjust the belt speed, etc., so that a sufficient data count can be obtained.





7-2. Each Code

Weight checks can be made by assigning code No. to comparison set values, such as FINAL, OVER and UNDER, and specifying set values to each code No.
Up to 100 code No. can be stored.
Total-comparison-related settings can also be stored by code.

7-2-1. Final

This is the standard for comparison with the results of weighing used upon completion of weighing.
(input range: 0 ~ 99999)

Operation

Press MODE → EACH CODE → (Code No.) → FINAL → Input 0 ~ 99999 → OK

7-2-2. Over

When RESULT > FINAL SETTING + OVER SETTING, the status display “HI” lights and the output signal “HI” turns ON (only while the COMPLETE signal is output).
After the end of the COMPLETE signal output, the above output signal turns OFF, and the status display is gray-backed.
(input range: 0 ~ 999)

Operation

Press MODE → EACH CODE → (Code No.) → OVER → Input 0 ~ 999 → OK

7-2-3. Under

When RESULT < FINAL SETTING - UNDER SETTING, the status display “LO” lights and the output signal “LO” turns ON (only while the COMPLETE signal is output).
After the end of the COMPLETE signal output, the above output signal turns OFF, and the status display is gray-backed.
(input range: 0 ~ 999)

Operation

Press MODE → EACH CODE → (Code No.) → UNDER → Input 0 ~ 999 → OK

7-2-4. Accumulation clear

The values and counts accumulated by code are cleared.

Operation

Press MODE → EACH CODE → (Code No.) → ACCUM. CLEAR →
Select NO/ YES → OK

7-2-5. Total comparison/ Total limit/ Count limit

It can compare with Accumulation value or Count limit of each code.
Moreover, it can select external output ON or OFF of the result of comparison.
Setting for each code is also possible.

1) TOTAL COMP MODE — It is the selection whether compares with Accumulation value or not. Select from COMP. OFF, Total COMP. ON, Total COMP. OFF, Count COMP. ON, or Count COMP. OFF.

The Total comparison is conducted then RUN changes to ACCUM. on the comparison screen and message screen when Total limit output is ON.

- COMP OFF — Comparison is not conducted. Pin49 becomes "RUN" signal.
- TOTAL COMP ON — When Accumulation value ≧ Total limit setting value, it is considered as "Total limit".
  External output is conducted. Pin49 becomes "Total limit" signal.
- TOTAL COMP OFF — When Accumulation value ≧ Total limit setting value, it is considered as "Total limit".
  External output is not conducted. Pin49 becomes "RUN" signal.
- COUNT COMP ON — When Accumulation counts ≧ Count limit setting value, it is considered as "Total limit".
  External output is conducted. Pin49 becomes "Total limit" signal.
- COUNT COMP OFF — When Accumulation counts ≧ Count limit setting value, is considered as "Total limit".
  External output is not conducted. Pin49 becomes "RUN" signal.

2) TOTAL LIMIT — Set up the value for Total comparison. (input range: 0 ~ 999999999)

3) COUNT LIMIT — Set up the value for Count comparison. (input range: 0 ~ 9999)

Operation

1) Press: MODE → EACH CODE → (Code No.) → TOTAL COMP →
Select COMP OFF/ TOTAL COMP ON/ TOTAL COMP OFF/
COUNT COMP ON/ COUNT COMP OFF → OK

2) Press: MODE → EACH CODE → (Code No.) → TOTAL LIMIT →
Input 0 ~ 999999999 → OK

3) Press: MODE → EACH CODE → (Code No.) → COUNT LIMIT →
Input 0 ~ 9999 → OK

7-3. Comparison

7-3-1. U/L limit comparison/ Upper limit/ Lower limit

1) U/L LIMIT COMPARISON — Select the weight value to make U/L LIMIT COMPARISON.
Select from GROSS/ NET/ COMPARISON OFF.

- GROSS — Comparison is made by gross.
- NET — Comparison is made by net.
- COMPARISON OFF — Comparison is not made.

2) UPPER LIMIT/ LOWER LIMIT — Set the upper limit and lower limit of comparison weight values.

Conditional formula

- UPPER LIMIT — Turns ON when weight value > UPPER LIMIT set value.
- LOWER LIMIT — Turns ON when weight value < LOWER LIMIT set value.
(input range: 0 ~ 99999)

Operation

1) Press: MODE → COMPARISON → U/L LIMIT COMPARISON →
Select GROSS/ NET/ COMPARISON OFF → OK

2) Press: MODE → COMPARISON → UPPER LIMIT/ LOWER LIMIT →
Input 0 ~ 99999 → OK

7-3-2. Near zero comparison/ Near zero

1) NEAR ZERO COMPARISON — Select the weight value to make NEAR ZERO COMPARISON. Select from GROSS/ NET/ COMPARISON OFF/ ABSOLUTE GROSS/ ABSOLUTE NET.

GROSS	Comparison is made by gross.
NET	Comparison is made by net.
COMPARISON OFF	Comparison is not made.
ABSOLUTE GROSS	Comparison is made by absolute-value gross.
ABSOLUTE NET	Comparison is made by absolute-value net.

2) NEAR ZERO — Set the near zero comparison weight value. (input range: 0 ~ 99999)

Operation

1) Press: MODE → COMPARISON → NEAR ZERO COMPARISON → Select GROSS/ NET/ COMPARISON OFF/ ABSOLUTE GROSS/ ABSOLUTE NET → OK

2) Press: MODE → COMPARISON → NEAR ZERO → Input 0 ~ 99999 → OK

7-3-3. Over/Under comparison 1

Select the weight value to make OVER/UNDER COMPARISON.
Select from GROSS/ NET/ COMPARISON OFF.

GROSS	Comparison is made by gross.
NET	Comparison is made by net.
COMPARISON OFF	Comparison is not made.

Operation

Press: MODE → COMPARISON → OVER/UNDER COMPARISON 1 → Select GROSS/ NET/ COMPARISON OFF → OK

7-3-4. Complete output time

Set the length (time) of outputting the COMPLETE signal (pin 24 of the control connector) upon completion of weighing.
(input range: 0.0 ~ 9.9)

Operation

Press: MODE → COMPARISON → COMPLETE OUTPUT TIME → Input 0.0 ~ 9.9 → OK

7-4. Sequence Mode

7-4-1. Empty count/ Take in count

1) EMPTY COUNT — This is the interval between the measurement start and actual data acquisition.
One count corresponds to 5msec. (200 counts = 1 sec.)
When using the dynamic mode, set "0" in principle.
(input range: 0 ~ 999)

2) TAKE IN COUNT — This is the interval during which the weight value is actually acquired after the measurement start and the passage of the EMPTY COUNT interval.
One count corresponds to 5msec. (200 counts = 1 sec.)
When the weight value is acquired by the TAKE IN COUNT, weighing is completed.
(Weighing is also completed when the weight value becomes the NEAR ZERO set value or less.)
(input range: 1 ~ 999)

Operation

1) Press MODE → SEQUENCE MODE → EMPTY COUNT → Input 0 ~ 999 → OK

2) Press MODE → SEQUENCE MODE → TAKE IN COUNT → Input 1 ~ 999 → OK

7-4-2. Average mode/ Sample mode

1) AVERAGE MODE — Select whether to calculate the average by using the taken-in data from which the maximum group and minimum group are removed or calculate the average by using all the data.
Select from REMOVAL / ARITHMETIC.

REMOVAL — Out of sample data, splitting the difference between the maximum value and minimum value of the eight. The average is calculated by using data with the removal of the data of the maximum group ⑧ larger than effective maximum value and the minimum group ① smaller than effective minimum value.
In this case, the effective maximum value and effective minimum value in the sample data does not remove.

* The effective maximum value is median value of group ⑦ and group ⑧.
(Median value is truncated at the less than effective display digits.)
The effective minimum value is median value of group ① and group ②.
(Median value is truncated at the less than effective display digits.)

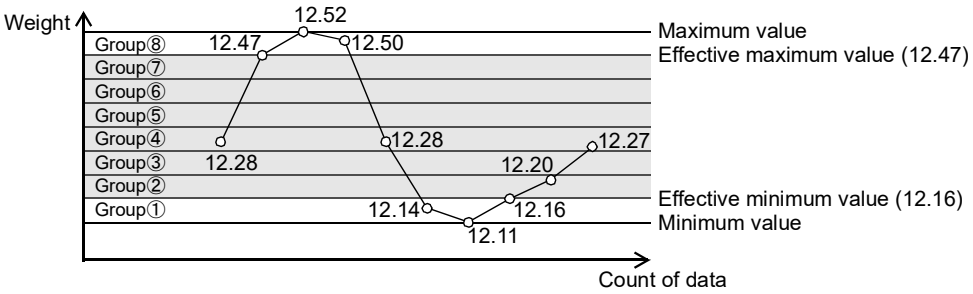
ARITHMETIC — The average is calculated by using all the sample data.

Ex.1) When data is dispersed

Arithmetic = 12.29

Removal = 12.28

The average is calculated by using six samples with the removal of the data of group ⑧ and group ① .

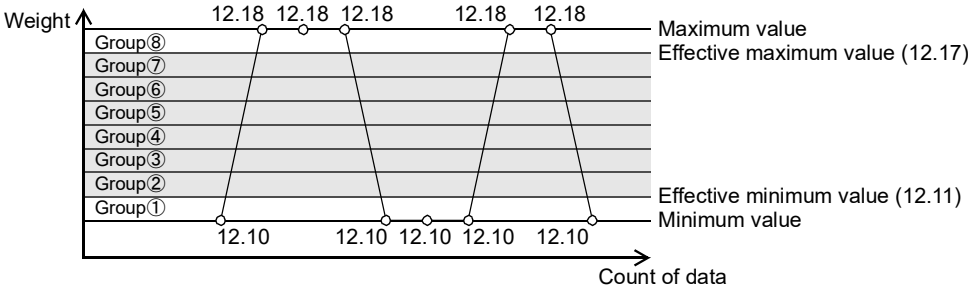


Ex.2) When the data is biased up or down

Arithmetic = 12.14

Removal = 12.14

If the data of group ⑧ and group ① are removed, there is no data; therefore the average of all the data is taken.

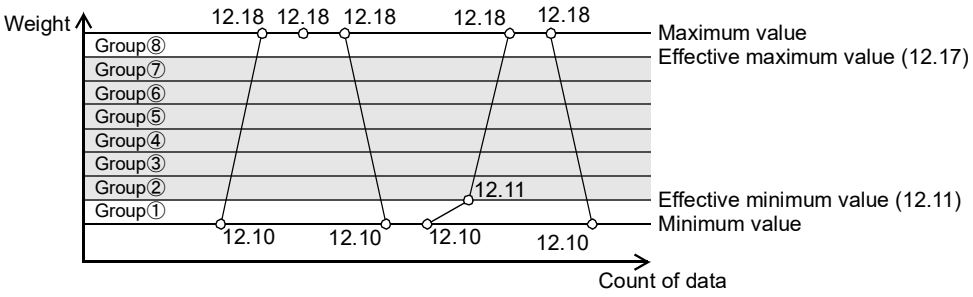


Ex.3) When few data available to removal

Arithmetic = 12.14

Removal = 12.11

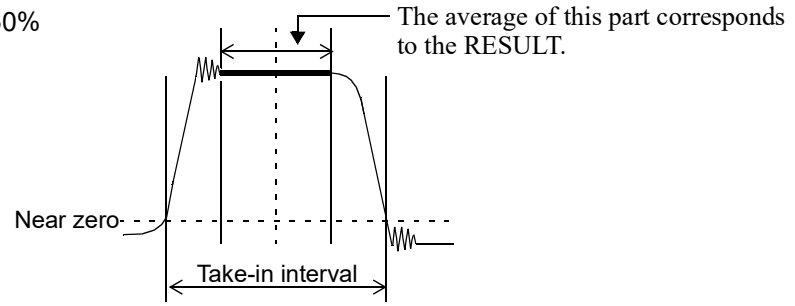
If the data of group ⑧ and group ① are removed, only piece of data remains, and the average is calculated by using the one piece of data.



2) SAMPLE MODE — Set the sampling width to calculate the average of the take-in interval.
Select from 100%/ 50%/ 25%/ 12.5%.

100%	The average is calculated by using all the sample data.
50%	The average is calculated by using the data 25% before and after the center of the sample data (50% in total).
25%	The average is calculated by using the data 12.5% before and after the center of the sample data (25% in total).
12.5%	The average is calculated by using the data 6.25% before and after the center of the sample data (12.5% in total).

◇Example at 50%



Operation

1) Press MODE → SEQUENCE MODE → AVERAGE MODE →
Select ARITHMETIC/ REMOVAL → OK

2) Press MODE → SEQUENCE MODE → SAMPLE MODE →
Select 100%/ 50%/ 25%/ 12.5% → OK

7-4-3. Gross ratio

If a fixed error occurs in weighing, make adjustment by ratio multiplication.
Normally set "1.000" (no adjustment).
(input range: 0.001 ~ 9.999)

Operation

Press MODE → SEQUENCE MODE → GROSS RATIO → Input 0.001 ~ 9.999 → OK

7-4-4. One-touch final

Set the operation performed when [FINAL] is pressed on the COMPARISON screen.
Select from OFF/ GROSS/ RESULT.

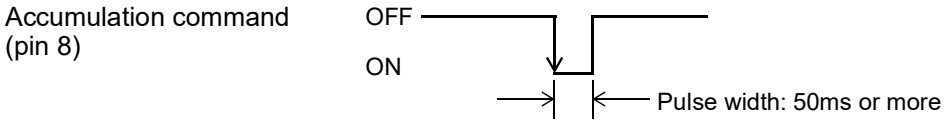
OFF	The screen is switched to the FINAL input screen.
GROSS	The current gross weight value is taken in as the FINAL.
RESULT	The latest result is taken in as the FINAL.

Operation

Press MODE → SEQUENCE MODE → ONE-TOUCH FINAL →
Select OFF/ GROSS/ RESULT → OK

8. STATISTICS・ACCUMULATION CONTROL FUNCTION

The weight value can be accumulated to each ingredient code number. When Auto Accumulation is selected in Function setting mode, after Complete output signal gets ON the weight value will be added, otherwise by Accumulation Command via pin 8 of Control I/O on the rear panel.



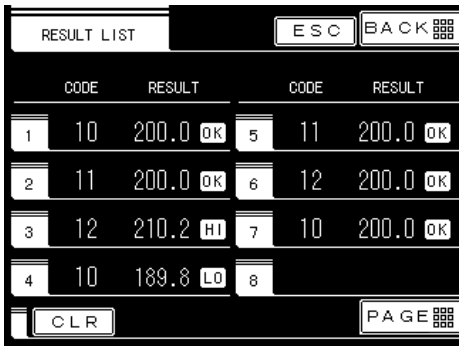
The weight value accumulated is the weight value set by OVER/UNDER COMPARISON (GROSS or NET).
With the setting of COMPARISON OFF, GROSS applies.

8-1. Result

8-1-1. Result display screen

Latest eight results of weighing (accumulated data) are displayed on the F805AT-CK at maximum.
The data accumulated by the auto accumulation command or the data accumulated by inputting the accumulation command is displayed.
For the data accumulated by the accumulation command, which is not judged, the judgment result (OK/ HI/ LO) is not displayed.

【Result list】



The data of the latest eight results of weighing are displayed. (Code No., results of weighing, and judgment results are displayed.)

The display area is cleared by pressing CLR. (This operation should be considered separately from the operation of ACCUMULATE CLEAR.)
Only the contents displayed on this screen are cleared.

The screen is switched to the statistical data display screen by pressing PAGE.

8-1-2. Statistical data display screen

The statistics data accumulated in F805AT-CK are displayed.
Weight values will accumulate when the Auto Accumulation Command is ON.
The statistics data (100 sorts) for each code are also displayed.
Average weight, Maximum weight, Minimum weight, General standard deviation, Sample standard deviation, Count of data, Latest data and Minimum - Maximum are displayed.

Operation

Press MODE → RESULT → PAGE → (Code No.)

However, when the weighing code designation is performed by external input, ⊕ ⊖ key cannot be operated.
The display on the screen is updated by switching code number through external input.

● Calculation formula

n = Count = Count of data
$\underline{\Sigma}\chi$ = Accumulation = Grand total
χ = Average = Accumulation/Count = $\Sigma\chi/n$

General standard deviation

$$\sigma_n = \sqrt{\frac{\sum_{i=n}^{n} (x_i - \bar{x})^2}{n}}$$

Use all the data of the finite population and fine the standard deviation of the population.

Sample standard deviation

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

Use the sample data among the population and the standard decision of the population.

〈Ex.〉

Times (n)	Accumulation	Actual weighing value (latest)	Average	Max.	Min.	Max.- Min.	General S.D.	Sample S.D.	
0	0.000	0.000	0.000	0.000	0.000	0.000	error	error	← Accumulation clear
1	20.050	20.050	20.050	20.050	20.050	0.000	0.000	error	
2	40.090	20.040	20.045	20.050	20.040	0.010	0.005	0.007	
3	60.160	20.070	20.053	20.070	20.040	0.030	0.012	0.015	
4	80.240	20.080	20.060	20.080	20.040	0.040	0.016	0.018	
5	100.260	20.020	20.052	20.080	20.020	0.060	0.021	0.024	
6	120.260	20.000	20.043	20.080	20.000	0.080	0.027	0.030	
7	140.270	20.010	20.039	20.080	20.000	0.080	0.028	0.030	
8	160.250	19.980	20.031	20.080	19.980	0.100	0.033	0.035	
9	180.360	20.110	20.040	20.110	19.980	0.130	0.039	0.042	
10	200.370	20.010	20.037	20.110	19.980	0.130	0.038	0.041	

8-2. Accumulation Command Acceptance

Select to receive the accumulation command regularly (REGULARLY) or to receive it only when the indicated value is stable (IN STABLE MODE).

Operation

Press MODE → EXTENDED FUNC. → ACCUMULATION COMMAND ACCEPTANCE →
Select REGULARLY/ IN STABLE MODE → OK

8-3. Accumulation Clear

Clear Accumulated Data (times, accumulation value and statistical data) for the selected Code.

Operation

Press MODE → EACH CODE → (Code No.) → ACCUM. CLEAR →
Select NO/ YES → OK

8-4. Total Comparison/ Total Limit/ Count Limit

It can compare with Accumulation value or Count limit of each code.
Moreover, it can select external output ON or OFF of the result of comparison.
Setting for each code is also possible.

1) TOTAL COMP MODE — It is the selection whether compares with Accumulation value or not. Select from COMP. OFF, Total COMP. ON, Total COMP. OFF, Count COMP. ON, or Count COMP. OFF.

The Total comparison is conducted then RUN changes to ACCUM. on the comparison screen and message screen when Total limit output is ON.

COMP OFF	Comparison is not conducted. Pin49 becomes "RUN" signal.
TOTAL COMP ON	When Accumulation value ≧ Total limit setting value, it is considered as "Total limit". External output is conducted. Pin49 becomes "Total limit" signal.
TOTAL COMP OFF	When Accumulation value ≧ Total limit setting value, it is considered as "Total limit". External output is not conducted. Pin49 becomes "RUN" signal.
COUNT COMP ON	When Accumulation counts ≧ Count limit setting value, it is considered as "Total limit". External output is conducted. Pin49 becomes "Total limit" signal.
COUNT COMP OFF	When Accumulation counts ≧ Count limit setting value, is considered as "Total limit". External output is not conducted. Pin49 becomes "RUN" signal.

2) TOTAL LIMIT Set up the value for Total comparison. (input range: 0 ~ 999999999)

3) COUNT LIMIT Set up the value for Count comparison. (input range: 0 ~ 9999)

Operation

1) Press MODE → EACH CODE → (Code No.) → TOTAL COMP →
Select COMP OFF/ TOTAL COMP ON/ TOTAL COMP OFF/
COUNT COMP ON/ COUNT COMP OFF → OK

2) Press MODE → EACH CODE → (Code No.) → TOTAL LIMIT →
Input 0 ~ 999999999 → OK

3) Press MODE → EACH CODE → (Code No.) → COUNT LIMIT →
Input 0 ~ 9999 → OK

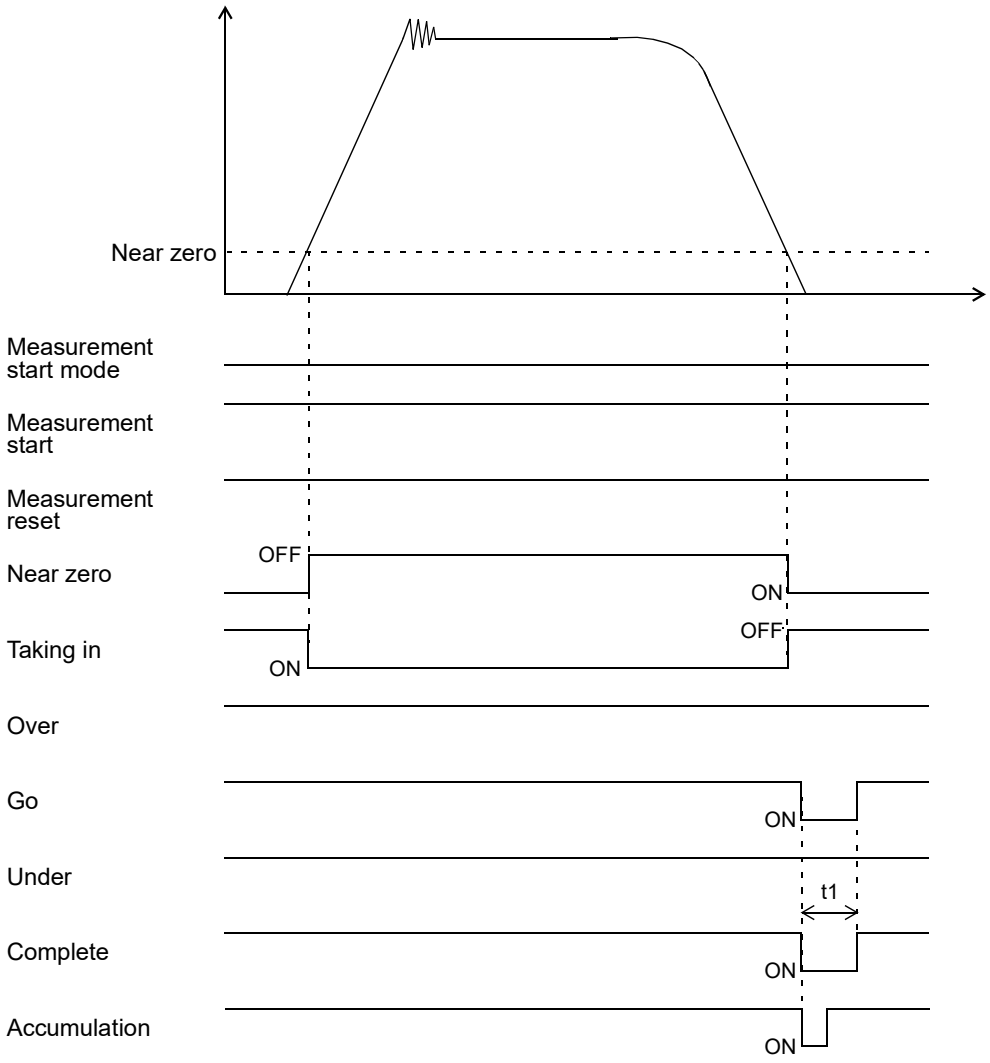
When "Total COMP ON" or "Count COMP ON" in Total COMP Mode, "RUN" signal of pin 49 becomes "Total limit" signal.

8-5. Auto Accumulation Command

When Complete output signal turns ON, do auto accumulation to the active weighing code, value, times and statistical data. Also send out auto printer command via SI/F and SI/FII interfaces.
But if the weighing result exceeds 99999 or selected comparison OFF in Over/Under Comparison of the Function, F805AT-CK do not do accumulation.

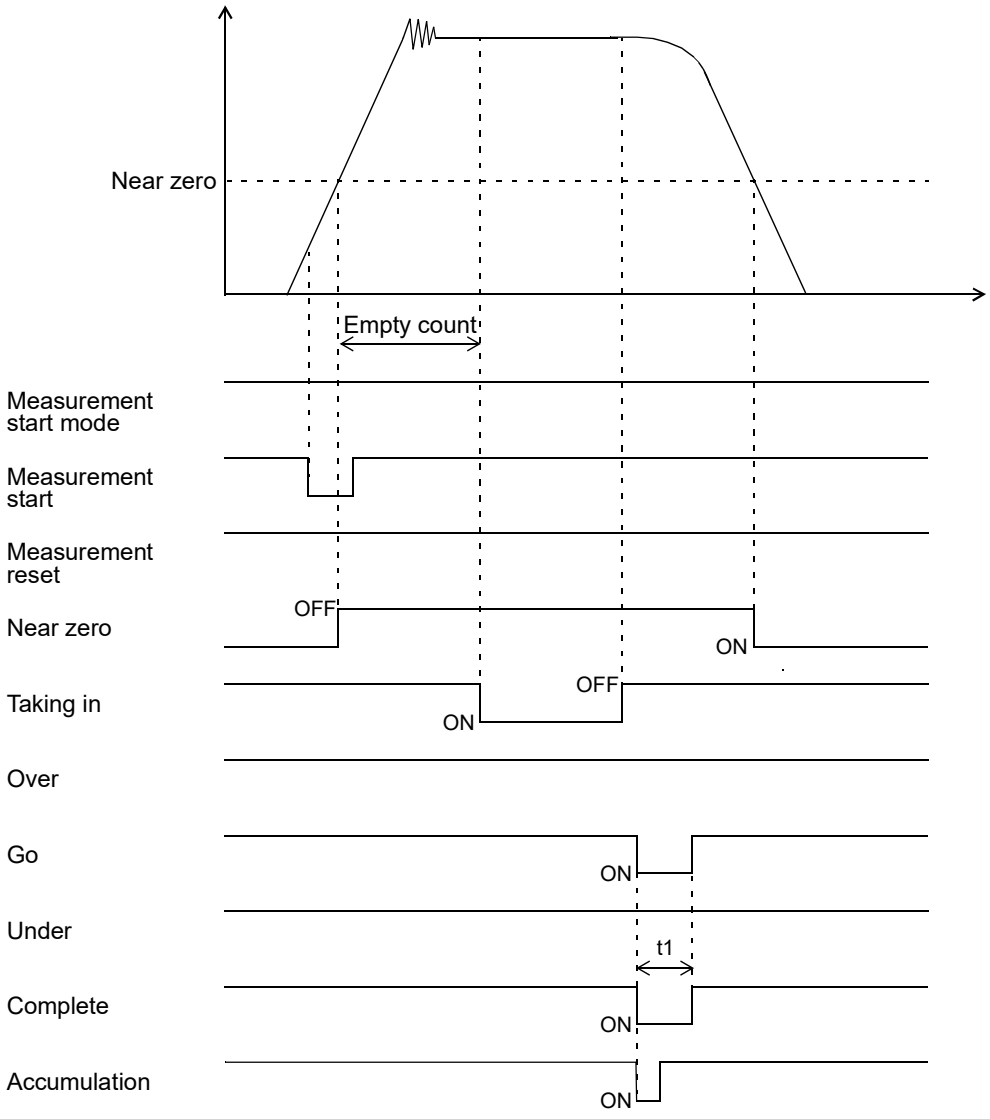
Timing of auto accumulation command

1) Dynamic mode



t1: Complete output time

2) Static mode



t1: Complete output time

Operation

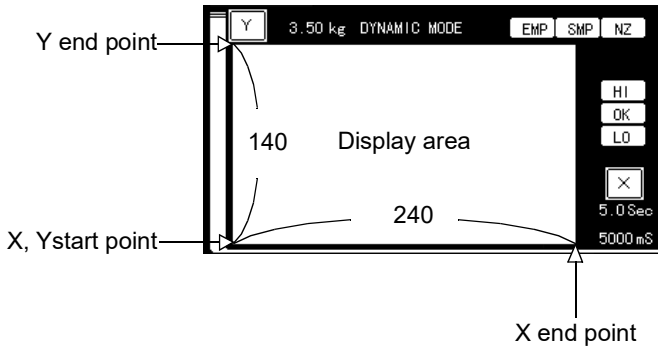
Press MODE → FUNCTION → AUTO ACCUM. COMMAND → Select ON/OFF → OK

9. GRAPHIC SCREEN

9-1. Graphic Drawing Point

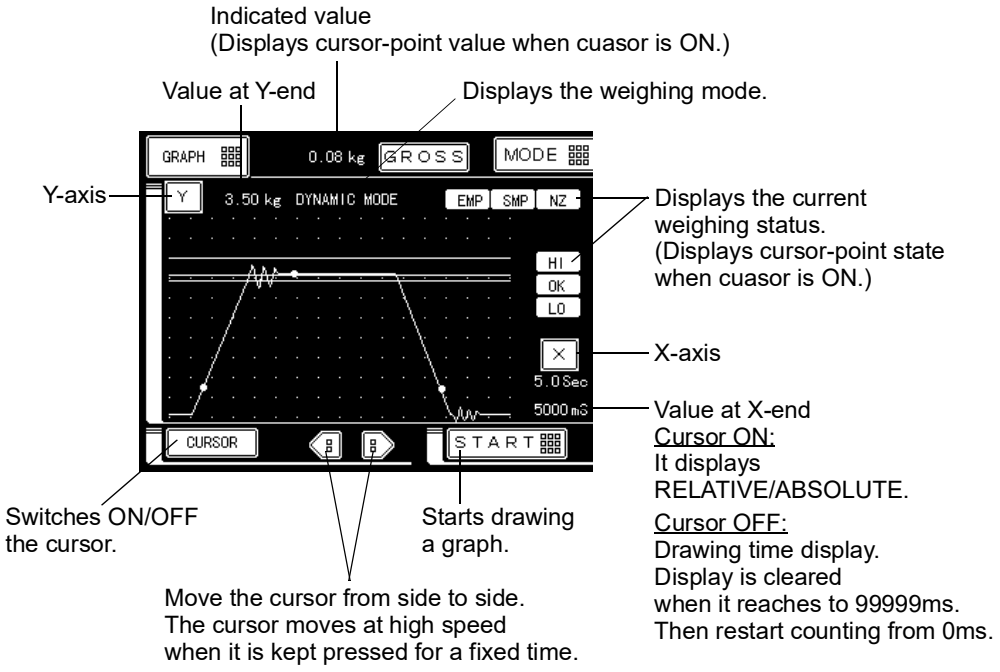
X-axis: X-axis is for time setting.
One displayed drawing is between inputting start to the set time of X.
Drawing is consisted of 240 points, except 0 point.
The set time is divided by 240 drawing points, and represented value of each time will be shown on the graph screen.

Y-axis: Y-axis is for load setting.
It shows the loads between the start set point to the end.
Drawing is consisted of 140 points, except 0 point.

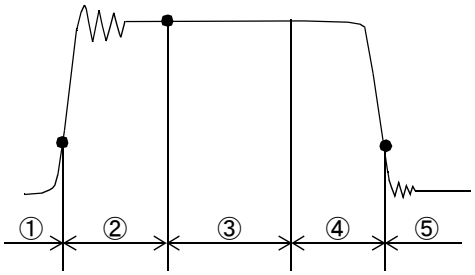


9-2. Graphic Display

When you press MESSAGE on the Message Screen, it change to [GRAPH].



◇Explanation of graphic colors



① : Displayed in pink when the weight is the NEAR ZERO set value or less.
(The NZ lamp lights.)

② : Displayed in sky blue during empty counting.
(The EMP lamp lights.)

③ : Displayed in yellow during counting.
(The SMP lamp lights.)

④ : Displayed in green in cases other than ① to ③ .
(Any of HI, OK and LO lights while judgment is output.)

⑤ : Displayed in pink when the weight is the NEAR ZERO set value or less.

At the beginning of each of ② , ③ , and ⑤ (at each ON edge), the display is enlarged in each color.

9-2-1. Relative time/ Absolute time

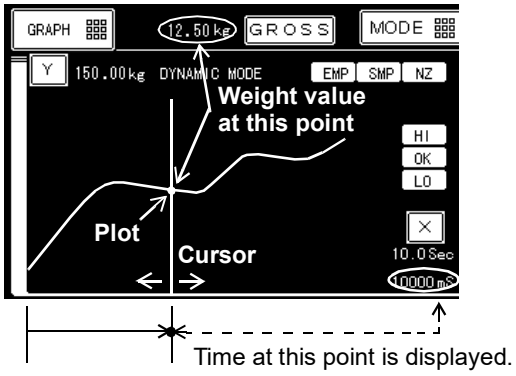
"START" display changes to RELATIVE or ABSOLUTE when the cursor is ON.

When [RELATIVE] is pressed, it changes to [ABSOLUTE] .

When [ABSOLUTE] is pressed, it changes to [RELATIVE] .

ABSOLUTE Time

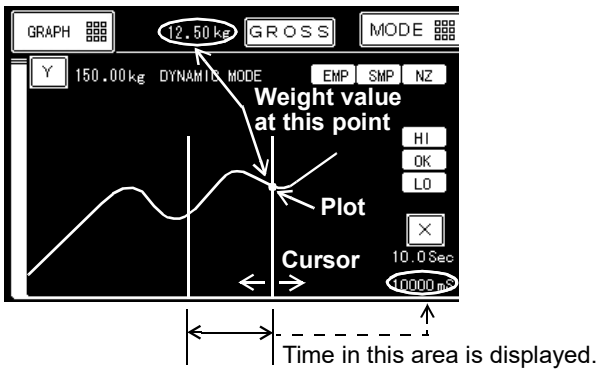
The time between start to the cursor point shows on the button of the right.



* The color of plot on the cursor is corresponded to the color of Over Go and Under.
It shows green when Over, Go and Under output signals are OFF.

RELATIVE Time

The time (ΔT) between the two cursors shows on the button of the right.



Only the plot on the intersection of the movable cursor with wave displays on the top.

Notice

The graphics drawn is always initialized (cleared) when any setting below is changed.

- Setting in Graph setting
- Weighing code
- Any item of FINAL, OVER and UNDER in the EACH CODE settings

9-2-2. Graphic mode

Select from Single, Continuity or Level.

Single	Only draws the line once to X End Point by pressing START or external input.
Continuity	Start drawing by pressing START or external input then repeat drawing continuously until STOP is pressed or externally inputted.
Level (↑) + exterior	Start the level detection by external input or START. When the indicated value exceeds the setting value of trigger level, starts the drawing then draws the line to X End Point once.
Level (↑↓) + exterior	Start level detection by external input or START. When the indicated value passes the setting value of trigger level, starts drawing then draws the line to X End Point once.
Level (↑)	When the indicated value exceeds the setting value of trigger level, starts the drawing then draws the line to X End Point once.
Level (↑↓)	When the indicated value passes the setting value of trigger level, starts the drawing then draws the line to X End Point once.

Operation

Press MODE → GRAPH SETTING → GRAPHIC MODE →
Select SINGLE/ CONTINUITY/ LEVEL(↥) + EXT/ LEVEL(⇅) + EXT/
LEVEL(↥)/ LEVEL(⇅) → OK

9-2-3. Trigger level

Set the Trigger Level when the level is set in graphic mode. (input range: 0 ~ 99999)

Operation

Press MODE → GRAPH SETTING → TRIGGER LEVEL → Input 0 ~ 99999 → OK

9-2-4. X (Time axis)-end point

Set the range of X-axis (Time axis). (input range: 1.2 ~ 99.9)

Operation

Press MODE → GRAPH SETTING → X END POINT → Input 1.2 ~ 99.9 → OK

or X on the Graphic Screen → Input 1.2 ~ 99.9 → OK

9-2-5. Y (Weight)-start point

Set the Y-axis (Weight axis) start point. (input range: 0 ~ 99998)

Operation

Press MODE → GRAPH SETTING → Y START POINT → Input 0 ~ 99998 → OK

9-2-6. Y (Weight)-end point

Set the full scale of Y-axis (Weight axis). (input range: 1 ~ 99999)

Operation

Press MODE → GRAPH SETTING → Y END POINT → Input 1 ~ 99999 → OK

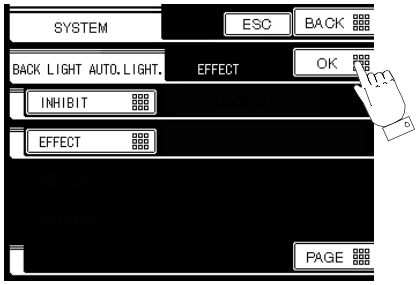
or Y on the Graphic Screen → Input 1 ~ 99999 → OK

When Y End Point ≦ Y Start point is set, the value at Y Start Point equals the value at Y End Point-1.

10. SYSTEM MODE

10-1. Back Light Auto. Light.

The back light turns ON when the weight exceeds the NEAR ZERO set value in the dynamic mode, and when the MEASUREMENT START input turns ON in the static mode.



Operation

Press MODE → PAGE → SYSTEM → BACK LIGHT AUTO. LIGHT. →
Select Effect/ Inhibit → OK

* Ignore the selection here, when F805AT-CK power on and touch screen the Back Light turns on.

10-2. Back Light Low Time

The function which the back light of screen is switched between Light and Dark when touch screen has not been used for a certain period of time. Dark lighting will not be carried out if it sets up in 00 minute. (input range / 0 ~ 99)

Operation

Press MODE → PAGE → SYSTEM → BACK LIGHT LOW TIME → Input 0 ~ 99 → OK

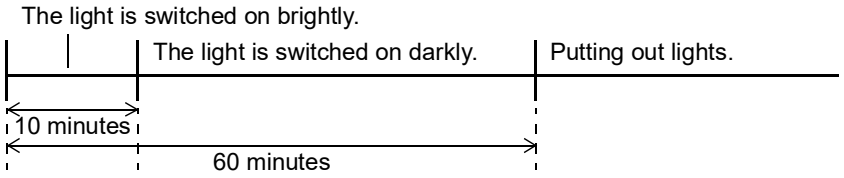
10-3. Back Light ON Time

The function which turns off the back light of screen when touch screen has not been used for a certain period of time.
The back light will not turns off if you set 00. (input range / 0 ~ 99)

Operation

Press MODE → PAGE → SYSTEM → BACK LIGHT ON TIME → Input 0 ~ 99 → OK

Example) When the back light low time was set up in 10 minutes and the back light ON time is set up in 60 minutes



10-4. Self-Check

The function which checks the operation status of F805AT-CK itself.
If you find any problem, please contact us or our sales agent for repairing.

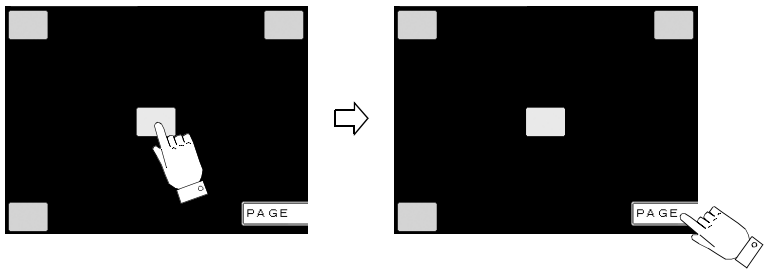
Operation

Press MODE → PAGE → SYSTEM → SELF CHECK → Select NO/ YES → OK

1) Touch panel check

Each blue square turns yellow when you press it. Check whether the each square reacts correctly.

Press PAGE to proceed to next page.

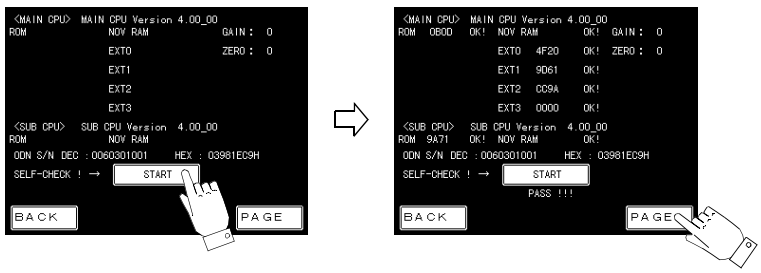


2) Memory check

Start NOV. and RAM. checking by pressing START .
PASS is displayed when it is working normally. NG is displayed in the reverse case.

Press PAGE to proceed to next page when you finished the checking.

(Press BACK to return to the previous page).



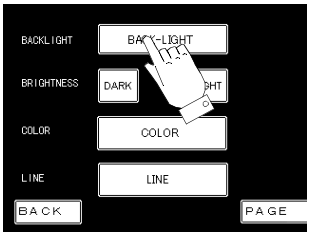
3) Display check

Start checking by pressing each button (BACK LIGHT, BRIGHTNESS, COLOR or LINE).

BACK LIGHT	Press [BACK - LIGHT] tag, turns dark, touch screen returns to display check.
BRIGHTNESS	Screen turns lighter by pressing [LIGHT] . It turns darker by pressing [DARK] .
COLOR	Color changes in turn. White → Black → Red → Green → Blue.
LINE	Displays Lateral strip → Verticl strip in turn.

Press [PAGE] to proceed to the next page after checking each item respectively.

(Press [BACK] to return to the previous page.)

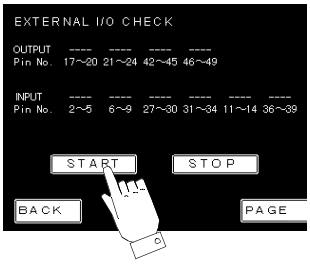


4) Input/Output check

Check external input/output signal.
Signal are outputted via pin 17 ~ 24 and 42 ~ 49 in turn of control I/O connector on the rear panel by pressing [START] . The output status "-" show "0".

Output signals are stopped by pressing [STOP] .

The input status "-" show "0" when signals are inputted via control I/O pin 2~9, 11~14, 27~34 and 36~39 on the rear panel.



5) BCD out check (BCO)
6) BCD in check (BCI)
7) D/A check (DAC)

These are only indicated when option board is mounted.

BCD output board check (BCO)

Check I/O signal of the BCD parallel data output serial interface.
Signals are outputted via pin 2~18 and 20~26 in turn of BCD output connector on the rear panel by pressing [START] .

The indication of output status "-" changes to "0".

Output signals are stopped by pressing [STOP] .

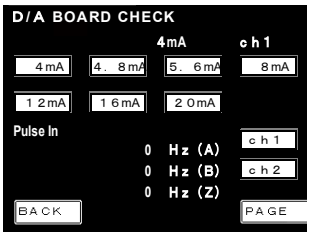
The input status "-" shows "0" when signals are inputted via pin 27 ~ 34 of the BCD output connector on the rear panel.

BCD input board check (BCI)

Check I/O signal of the BCD parallel data input serial interface.
Signals are outputted via pin 27 ~ 34 in turn of the BCD input connector on the rear panel by pressing START .
The output status "-" show "0".
Output signals stop by pressing STOP .
The input status "-" show "0" when signals are inputted via pin 2 ~ 18 and 20 ~ 26 of the BCD input connector on the rear panel.

D/A board check (DAC)

Check the output of D/A converter.
Select channel of output signal by pressing ch1 / ch2 key.
Indicated current is outputted by pressing 4mA ~ 20mA .



* Pulse input is not used here.

* There are no self-check screens concerning SI/F, SIFII, RS-232C and RS-485.

10-5. Language

English version or Japanese version can be selected by pressing LANGUAGE tab of the System mode.

Operation

Press MODE → PAGE → SYSTEM → LANGUAGE →
Select ENGLISH/ JAPANESE → OK

10-6. Pass Word

To release the software Lock, release the alarm of Near Zero, accumulation clear and initialize instrument by entering the password.
(input range: 0 ~ 9999)

Operation

Press MODE → PAGE → SYSTEM → PASS WORD → Input 1269 → OK →
PASS WORD → Input 0 ~ 9999 → OK

Input password ”1269” releasing the software lock;
When input password “1111” releasing the alarm of Near Zero;
When input password “2486” clears accumulation value, count, statistical data and result list;
When input password “6842” initializing set value of the instrument.
(The memorized setting value in NOV. and RAM. can not be changed by above processing.)

10-7. Lock (soft)

Lock for protecting from false operation, refer to the list of setting items on page 110 regarding effective setting value for LOCK (soft).
Select from ON/OFF.

Operation

Press MODE → PAGE → SYSTEM → LOCK (soft) → Select ON/OFF → OK

Notice

Unless inputting password 1269 beforehand, LOCK OFF cannot be executed.

11. CONTROL I/O (EXTERNAL SIGNAL)

11-1. Control Connector-pin Assignment

DDK 57-30500 plug is included

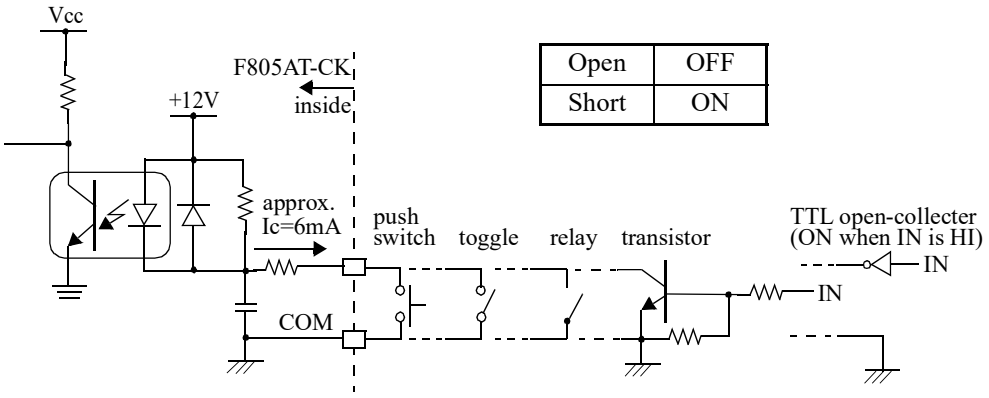
1	*	COM	26	*	COM
2	in	G/N	27	in	Undefined
3	in	D/Z ON	28	in	Undefined
4	in	TARE ON	29	in	Undefined
5	in	TARE OFF	30	in	Code No.Designation Selection
6	in	Undefined	31	in	Measurement Start Mode
7	in	Undefined	32	in	Graph Drawing
8	in	Accumulation Command	33	in	Measurement Reset
9	in	Total Clear	34	in	Measurement Start
10	*	COM	35	*	COM
11	in	Code No. Designation 1	36	in	Code No. Designation 10
12	in	Code No. Designation 2	37	in	Code No. Designation 20
13	in	Code No. Designation 4	38	in	Code No. Designation 40
14	in	Code No. Designation 8	39	in	Code No. Designation 80
15	*	COM	40	*	COM
16	*	COM	41	*	COM
17	out	Near Zero	42	out	Undefined
18	out	Undefined	43	out	Lower Limit
19	out	Undefined	44	out	Upper Limit
20	out	Undefined	45	out	Stable
21	out	Under	46	out	Weight Error
22	out	Go	47	out	Undefined
23	out	Over	48	out	Taking in
24	out	Complete	49	out	RUN or Total Limit
25	*	COM	50	*	COM

* The COM (common) terminals are connected inside.

* The power voltage is not outputted.

11-2. Equivalent Circuit (Input)

Signal are inputted by shorting or opening input and COM terminals. A relay, switch or transisitor may be used for this application.

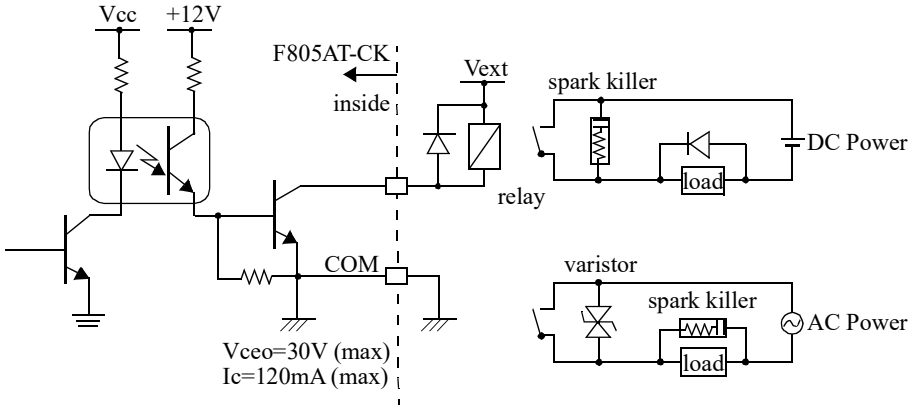


Open	OFF
Short	ON

- Do not apply external voltage to the signal input circuit.
- Use external elements which withstand Ic=10mA.
- Leakage of external elements must be within 100μA.

11-3. Equivalent Circuit (Output)

The signal output circuit is open-collecter output of a transistor.



output data	Tr
0	OFF
1	ON

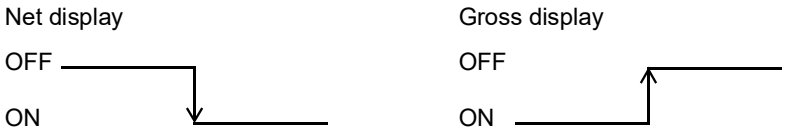
- Use external power source (up to DC30V) for driving relay (vext).
- Do not short-circuit the load,such as a coil of relay ,that will break the output transistor.
- Connect a surge absorber or a spark killer to the relay circuit as shown in the draft so that to reduce noise trouble and extend the life of relay.

11-4. External Input Signal

11-4-1. G/N <edge input> [pin 2]

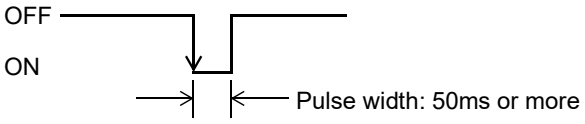
The display value on the main display is switched between Gross and Net.

When External Input pin 2 is shorted to COM (OFF → ON) the Net weight is displayed.
When External Input pin 2 is open to COM (ON → OFF) the Gross weight is displayed.



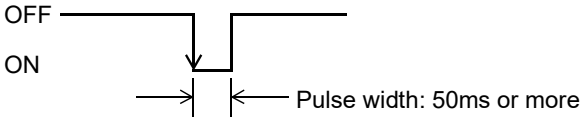
11-4-2. Digital zero (D/Z ON) <edge input> [pin 3]

When External Input pin 3 is shorted to COM (OFF → ON) it brings the Gross weight to Zero.
This function works within the range of Digital Zero Regulation Value.
If these values exceed the range, the ZALM (Zero Alarm) turns red.
DZ button is also effective for the same operation.



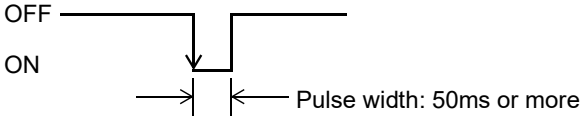
11-4-3. Tare subtraction (TARE ON) <edge input> [pin 4]

Pressing TARE brings the Net weight to zero.
When External Input pin 4 is shorted to COM (OFF → ON) it brings the Net weight to zero. TARE key is also effective for the same operation.



11-4-4. Tare reset (TARE OFF) <edge input> [pin 5]

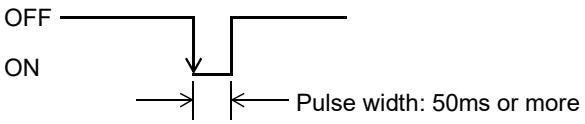
When External Input pin 5 is shorted to COM (OFF → ON) it brings the Net weight equal to Gross weight. This does not apply if Preset Tare Weight used.
TARA RESET key is also effective in detail please refer to page41.



11-4-5. Accumulation command <edge input> [pin 8]

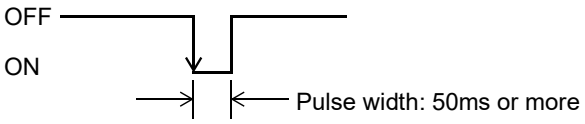
Accumulation is activated by shorting pin 8 to COM.
The weight value added to is depending on the weight value set in Comparison of weighing control.
Only this function works according to the setting of Accumulation command when indicated value is stable.

* A negative weight value or Weight Error is not add to the Accumulation value or count.



11-4-6. Accumulation clear <edge input> [pin 9]

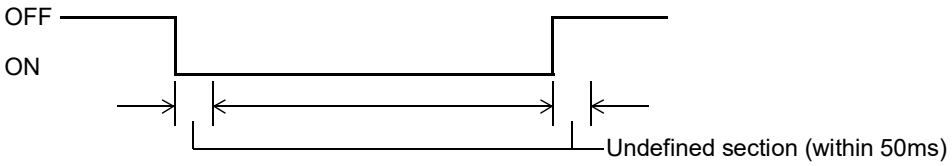
Clear accumulation value, count and statistical data by shorting pin 9 to COM.



11-4-7. Input signals used in weighing

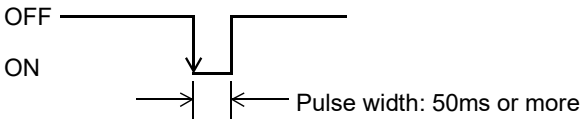
Measurement start mode <level input> [pin 31]

Select the dynamic mode or static mode by the external input level.
When this signal is ON, the dynamic mode results, when this signals is OFF, the static mode results.



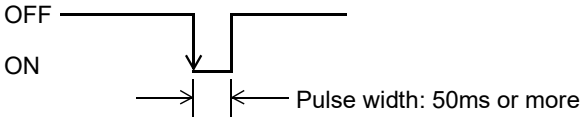
Measurement start <edge input> [pin 34]

Sampling starts when the weight exceeds a Near Zero set value after the ON edge in static mode.
* This signal does not function in dynamic mode.



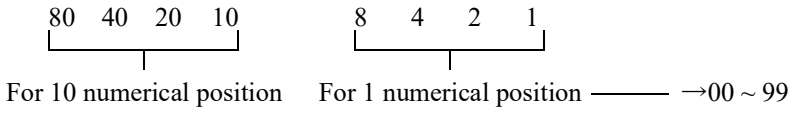
Measurement reset <edge input> [pin 33]

Weighing stops with the ON edge.



11-4-8. Code No. designation <level input> [pin 11 ~ 14, 36 ~ 39]

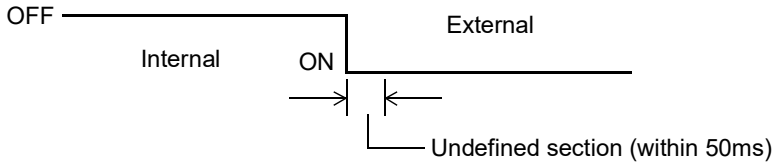
Appoint code No.



* Effective when setting the Weighing Code Selection/ Setting Code Selection by external input.

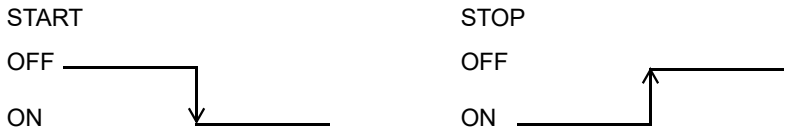
11-4-9. Code No. designation selection <level input> [pin 30]

Code numbers are inputted through the key if pin 30 is open to COM. Code numbers are inputted through the Control I/O if pin 30 is shorted to COM.
Key input when it is OFF. External input when it is ON.



11-4-10. Graph drawing <edge input> [pin 32]

To start and stop drawing on the Graphic Screen.
When pin 32 is short to COM (OFF → ON) start drawing, while pin 32 is open to COM (ON → OFF) stop drawing.



11-5. External Output Signal

11-5-1. Near zero [pin 17]

When weight value ≦ Near Zero set value, the Near Zero output turns ON.
The weight value could be Gross, Net, Absolute Gross, Net or Comparison OFF that are selected in Near Zero Comparison of the Comparison Mode.

11-5-2. Lower limit, Upper limit [pin 43, 44]

The Lower Limit output turns on when weight value < Lower Limit set value.
The Upper Limit output turns on when weight value > Upper Limit set value.
The weight value here could be Gross or Net that are selected in U/L Limit Comparison;
Also, could select Comparison regularly, or Comparing when external judging input is on (EXT. JUDGING ON) in the U/L Limit Comp. Mode of the Comparison Mode.

* When Total is selected in U/L Limit Comparison, the setting value of Upper/Lower Limit is increased by ten.

11-5-3. Stable [pin 45]

This output turns on when the weight value is stable.

* Refer to 「Motion detection」on Page38 for details.

11-5-4. Weight error [pin 46]

This output turns on when the LOAD, -LOAD, OFL1, OFL2, OFL3 happen or ZALM turns ON.

11-5-5. Run or Total limit [pin 49]

The output turns on when F805AT-CK is ready to operate and external output is OFF in Total Comparison.
The output turns on when external output is ON in Total Comparison and Total limit output is ON.

11-5-6. Under, Go, Over [pin 21 ~ 23]

When the COMPLETE output is ON, comparison is made and the corresponding signal turns ON.

Each signal turns ON under the following conditions:

Under	Weight value < FINAL set value - UNDER set value
Over	Weight value > FINAL set value + OVER set value
Go	FINAL set value + OVER set value ≧ weight value ≧ FINAL set value - UNDER set value

The weight value depends on the setting of OVER/UNDER COMPARISON.

11-5-7. Complete [pin 24]

After data sampling, processing of average calculation is executed.
After processing of average calculation, the COMPLETE signal turns ON.
The time required for processing of average calculation is within 50msec.

12. INTERFACE

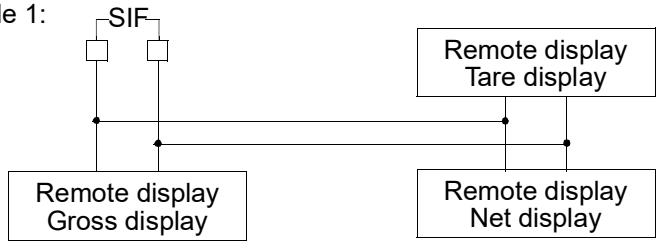
12-1. SI/F 2-Wire Serial Interface

This 2-wire serial interface is for connecting F805AT-CK to peripheral equipment such as printers or remote displays. No polarity is needed for this simple, low-cost installation.
A two-core parallel cable or a cabtyre cable (Wire with covering thickened for construction) may be used for connection.When a two-core parallel cable or a cabtyre cable is used, the transmitting distance is approximately 30m. When a two-core shielded twisted pair cable is used, the transmitting distance is approximately 300m.

● Connection

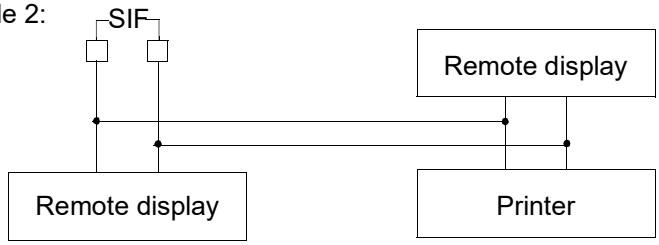
Up to 3 peripheral units can be connected in parallel.
It should not run along side AC or other high-voltage wiring. It may cause of malfunction.

Example 1:



Up to 3 remote displays can be connected. The each display can display individual content according to the selection.

Example 2:



These indicated above are examples for the connection of Remote displays. Each display can select the data individually.

● Auto print command

The F805AT-CK gives an automatic print command to any device connected by SI/F interface.
In Simple Comparison Mode the automatic print command is sent when the Complete output signal turns ON. In Sequence with Judgement the automatic print command is sent when judgement output signals (Over, Go, Under) turn ON. In sequence without Judgement the automatic print command cannot be sent out.
Also, when weighing result exceeds 99999, the automatic print command can not be sent out.

● Transmission

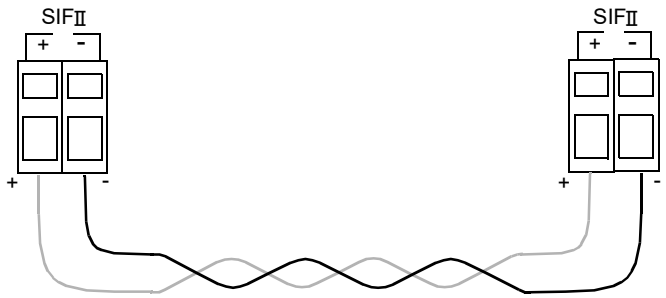
On the F805AT-CK, the contents sent through SI/F correspond to the latest result.
At power-on, when the internal memory is cleared, the data is “0”.
Also, since the weight value is updated when the print command is sent, if no print command is sent (the setting of AUTO ACCUMULATION COMMAND is OFF, for instance), the weight value is not updated.

12-2. SI/FII High Speed Bi-Directional 2- Wire Serial Interface

SF/FII is a high speed bi-directional serial interface for connecting F805AT-CK to various peripheral Devices. These include printers, remote displays, converters (D/A, BCD-IN, BCD-OUT, RS-232C) as well as PLC's (Mitsubishi CC-Link, Omron CompoBus/D, Yokogawa FAM3, Allen-Bradley Open DeviceNet).
Up to 20 devices may be connected by 2-core parallel or shielded cable with polarity.

● Connection

In this network up to 4 weighing controllers (specified by different ID numbers) are connected by SI/FII positive to positive, negative to negative.
The M350 printer serves up to 4 coded simultaneous sources, in one of 32 statistical categories. The LD517 remote display accumulates or sums up to 4 coded simultaneous sources.
Our converters (E924, E928, E930, E232) allow the 4 coded sources to communicate with PC's or PLC's.

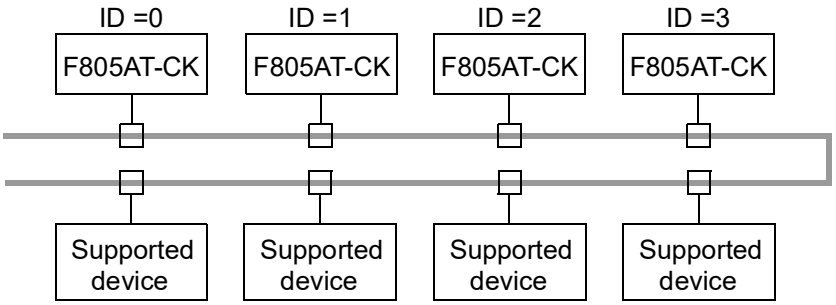


● Auto print command

The F805AT-CK gives an automatic print command to any device connected by SI/F interface.
In Simple Comparison Mode the automatic print command is sent when the Complete output signal turns ON. In Sequence with Judgement the automatic print command is sent when judgement output signals (Over, Go, Under) turn ON. In sequence without Judgement the automatic print command cannot be sent out.
Also, when weighing result exceeds 99999, the automatic print command can not be sent out.

● ID Number

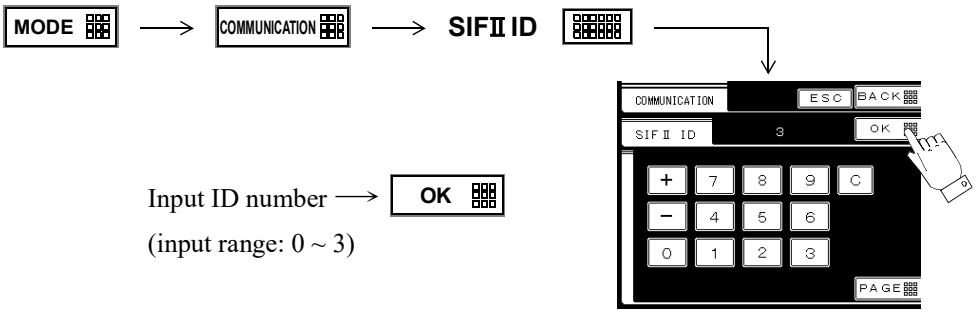
SI/FII enables to connect 4 weighing controllers on the net work and these weighing controllers with each ID number are classified into the groups by the ID number respectively.



A low cost of wiring and easy maintenance because the devices with different ID number can be wired in the same net work.

● ID Number setting

Set ID number for each F805AT-CK in the SIFII network.



12-3. RS-232C Interface

12-3-1. Communication specifications

1. Specifications

Signal level	Based on the RS-232C
Transmitting distance	Approx. 15m (16.4yd.)
Transmitting method	Asynchronous, full duplex
Transmitting speed	1200, 2400, 4800, 9600, 19200 or 384200 bps selectable
Bit configuration	Start 1 bit Character length 7 or 8 bits selectable Stop 1 or 2 bits selectable Parity none, odd or even selectable
Code	ASCII

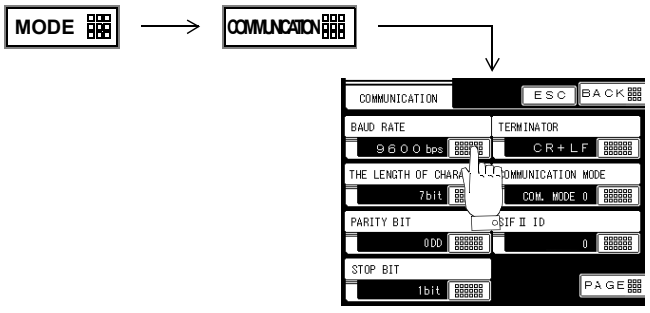
2. Connector pin assignment

Adaptable plug: 9-pin D-SUB connector
* OMRON XM3D-0921 (Cover: XM2S-0913 with #4-40 screw) or its equivalent

1			6	in	D S R
2	in	R X D	7	out	R T S
3	out	T X D	8	in	C T S
4	out	D T R	9		
5	*	G N D			

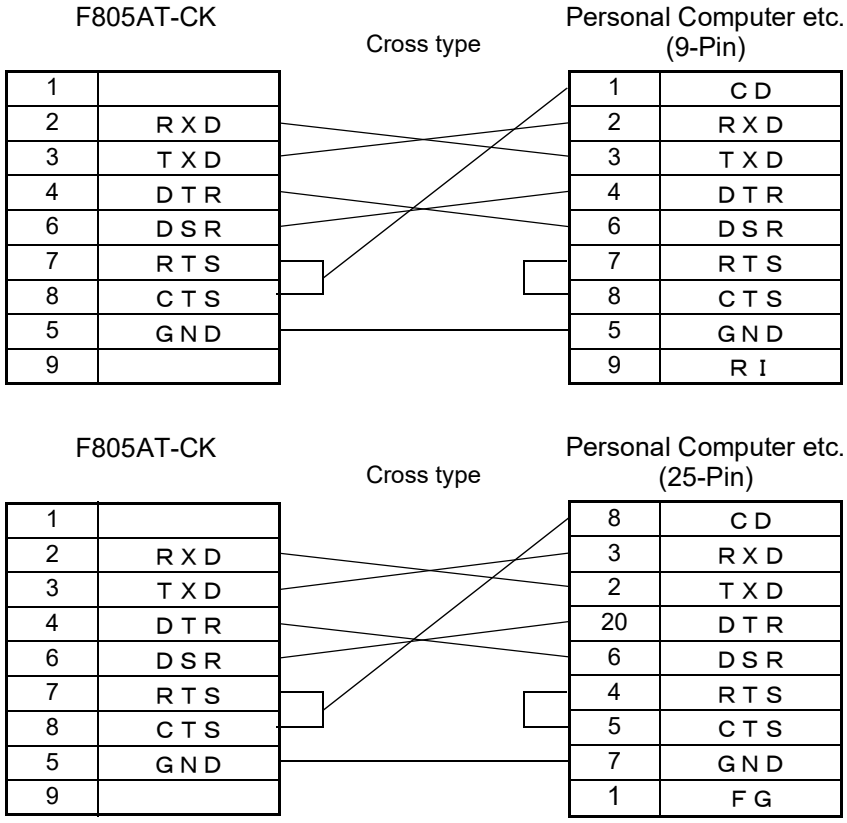
12-3-2. Setting values for RS-232C

The initial set for RS-232C port of connecting Personal Computer and Sequencer should be as the same setting as F805AT-CK.



Set each item below.
- Baud rate
- Character length
- Parity bit
- Stop bit
- Terminator
- Communication mode
- SIF II ID

12-3-3. Cable



The above diagram is for connecting a personal computer as a DTE (Data Terminal Equipment) device. If it is a DCE (Data Circuit-terminating Equipment) device, connect pin to pin (DTR to DTR, DSR to DSR etc.).

Cables should be prepared after checking connector type and pin assignments of the connected device.

12-3-4. Communication format

R command

- Reading out the Gross weight (sign, 5-digits weight value, decimal point)

HOST	R	A	CR									
F805AT-CK	R	A	+	1	0	0	.	0	0	CR	LF	

- Reading out the Net weight (sign, 5-digits weight value, decimal point)

HOST	R	B	CR									
F805AT-CK	R	B	+	1	0	0	.	0	0	CR	LF	

- Reading out the Tare (sign, 5-digits weight value, decimal point)

HOST	R	C	CR									
F805AT-CK	R	C	+	1	0	0	.	0	0	CR	LF	

- Status 1 (7-digits)

HOST	R	D	CR								
F805AT-CK	R	D	0	0	0	0	0	0	0	CR	LF

Undefined

Weight value Zero alarm 1:ON 0:OFF

Weight value Stable 1:ON 0:OFF

Tare subtracted 1:ON 0:OFF

LOCK (soft) 1:ON 0:OFF

Rear panel LOCK 1:ON 0:OFF

Weight display
3: Error
2: Result
1: Net
0: Gross

- Status 2 (7-digits)

HOST	R	E	CR								
F805AT-CK	R	E	0	0	0	0	0	0	0	CR	LF

Undefined

Near zero Output signal 1:ON 0:OFF

Taking in Output signal 1:ON 0:OFF

Complte Output signal 1:ON 0:OFF

Over Output signal 1:ON 0:OFF

Go Output signal 1:ON 0:OFF

Under Output signal 1:ON 0:OFF

- Status 3 (7-digits)

HOST	R	F	CR								
F805AT-CK	R	F	0	0	0	0	0	0	0	CR	LF

Undefined

Upper limit Output signal 1:ON 0:OFF

Total limit Output signal 1:ON 0:OFF

Lower limit Output signal 1:ON 0:OFF

- Status 4 (7-digits)

HOST	R	G	CR									
F805AT-CK	R	G	0	0	0	0	0	0	0	CR	LF	

Weight error Output signal: 1:ON, 0:OFF

Undefined

Operation Mode: 3: SPAN calibrating, 2: ZERO calibrating, 1: Weighing, 0: Comparison OFF

Undefined

Sequence error: 0 or 1 ~ 9

* Same as the error display of F805AT-CK

Weighting value over flow: 5: -LOAD, 4: +LOAD, 3: OFL3, 2: OFL2, 1: OFL1, 0:

- Read out the Count of Data (accumulation times) (4-digits)

HOST	R	H	CR					
F805AT-CK	R	H	9	9	9	9	CR	LF

- Read out the accumulated value (9-digits, decimal point)

HOST	R	I	CR										
F805AT-CK	R	I	9	9	9	9	9	9	9	.	9	9	CR	LF

- Read out the accumulated weight

HOST	R	J	CR										
F805AT-CK	R	J	0	0	+	1	0	0	.	0	0	CR	LF

CODE — Code No.of accumulated

Weight value — Accumulated weight value

* Up to 256 data entries are stored in the memory buffer. Oldest data will be cleared when buffer is read.

HOST	R	J	CR		
F805AT-CK	R	J	CR	LF	

When there is no accumulated data in the buffer memory.

- Read out the weighing data

HOST	R	K	CR										
F805AT-CK	R	K	0	0	+	1	0	0	.	0	0	CR	LF

CODE — Code No. in weighing (External or Internal)

Weightt value — Weight value (Net or Gross)

- Read out Go count (4-digits)

HOST	R	L	CR					
F805AT-CK	R	L	9	9	9	9	CR	LF

- Read out Over count (4-digits)

HOST	R	M	CR						
F805AT-CK	R	M	9	9	9	9	CR	LF	

- Read out Under count (4-digits)

HOST	R	N	CR						
F805AT-CK	R	N	9	9	9	9	CR	LF	

W command

- Read out the set value [ex. the Final]

HOST	W	1	2	CR							
F805AT-CK	W	1	2	1	0	0	0	0	CR	LF	

Communication #

Communication # 5-digits value (without a dicimal point)

- Write in the set value [ex. the Final]

HOST	W	1	2	1	0	0	0	0	CR
F805AT-CK									

Communication # 5-digits value (without a decimal point)

- Code No.

W	0	0	0	0	0			CR

- Final

W	1	2						CR	(For each code number)

- Over

W	1	3	0	0				CR	(For each code number)

- Under

W	1	4	0	0				CR	(For each code number)

- Total comparison mode

W	1	8	0	0	0	0		CR	(For each code number)

- Total limit

W	1	9										CR	(For each code number)

- Count limit

W	1	A	0					CR	(For each code number)

* Designate the code number when reading out and writing the setting value in each code.
* When writing in the setting value, it is necessary to select Valid in Each Code Key.

- U/L limit comparison

W	2	0	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Upper limit

W	2	2						CR

(When LOCK(soft) cannot write in)

- Lower limit

W	2	3						CR

(When LOCK(soft) cannot write in)

- Near zero comparison

W	2	4	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Near zero

W	2	5						CR

(When LOCK(soft) cannot write in)

- Over/Under comparison 1

W	2	6	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Complete output time

W	2	9	0	0	0			CR

(When LOCK(soft) cannot write in)

- Display frequency

W	3	0	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Digital filter

W	3	1	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Analog filter

W	3	2	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Motion detection mode

W	3	3	0	0	0	0	①	CR

(When LOCK(soft) cannot write in)

①: Motion detection mode

- MD (Period)

W	3	4	0	0	0			CR

(When LOCK(soft) cannot write in)

- MD (Range)

W	3	5	0	0	0			CR

(When LOCK(soft) cannot write in)

- Zero tracking (Period)

W	3	6	0	0	0			CR

(When LOCK(soft) cannot write in)

- Zero tracking (Range)

W	3	7	0	0	0			CR

(When LOCK(soft) cannot write in)

- DZ regulation value

W	3	8	0					CR

(When LOCK(soft) cannot write in)

- Empty count

W	4	5	0	0				CR

(When LOCK(soft) cannot write in)

- Take in count

W	4	6	0	0				CR

(When LOCK(soft) cannot write in)

- Average mode, Sample mode, One-touch final

W	4	7	0	0	①	②	③	CR

(When LOCK(soft) cannot write in)

①: Average mode
②: Sample mode
③: One-touch final

- Gross ratio

W	4	8	0					CR

(When LOCK(soft) cannot write in)

- Preset tare weight 1, TARE/DZ key, G/N key

W	5	0	①	②	③	④	⑤	CR

(When LOCK(soft) cannot write in)

①: Preset tare weight 1
②: Undefined
③: Undefined
④: TARE/DZ key
⑤: GROSS/NET key

- Preset tare weight 2

W	5	1						CR

(When LOCK(soft) cannot write in)

- Auto accum. command

W	5	2	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Weighing code selection

W	5	3	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Setting code selection

W	5	4	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Each code key

W	5	5	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Balance weight value

W	6	0						CR

(When LOCK(soft/ SW) cannot write in)

- Capacity

W	6	1						CR

(When LOCK(soft/ SW) cannot write in)

- Min. scale division

W	6	2	0	0				CR

(When LOCK(soft/ SW) cannot write in)

- Net over

W	6	3						CR

(When LOCK(soft) cannot write in)

- Gross over

W	6	4						CR

(When LOCK(soft) cannot write in)

- Decimal place

W	6	5	0	0	0	0		CR

(When LOCK(soft/ SW) cannot write in)

- Unit display

W	6	6	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- 1/4 scale div. display

W	6	7	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Grav. acceleration

W	6	8	0	0	0			CR

(When LOCK(soft) cannot write in)

- Loadcell excitation

W	6	9	0	0	0	0		CR

(When LOCK(soft/ SW) cannot write in)

- Graphic mode

W	7	0	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Trigger level

W	7	1						CR

(When LOCK(soft) cannot write in)

- X end point

W	7	2	0	0				CR

(When LOCK(soft) cannot write in)

- Y start point

W	7	3						CR

(When LOCK(soft) cannot write in)

- Y end point

W	7	4						CR

(When LOCK(soft) cannot write in)

- Avg. weight

W	8	0	CR

(Read out only)

- Max. weight

W	8	1	CR

(Read out only)

- Min. weight

W	8	2	CR

(Read out only)

- Gen. stan. dev.

W	8	3	CR

(Read out only)

- Smp. stan. dev.

W	8	4	CR

(Read out only)

- Max. - Min.

W	8	5	CR

(Read out only)

- LOCK (soft)

W	9	0	0	0	0	0		CR

- LANGUAGE

W	9	1	0	0	0	0		CR

(When LOCK(soft) cannot write in)

- Total comp mode

0: COMP OFF 1: TOTAL COMP ON 2: TOTAL COMP OFF
3: COUNT COMP ON 4: COUNT COMP OFF

- U/L limit comparison

0: GROSS 1: NET 2: COMPARISON OFF

- Near zero comparison

0: GROSS 1: NET 2: COMPARISON OFF
3: ABSOLUTE GROSS 4: ABSOLUTE NET

- Over/Under comparison 1

0: GROSS 1: NET 2: COMPARISON OFF

- Digital filter

0: OFF 1: 2 Times 2: 4 Times 3: 8 Times
4: 16 Times 5: 32 Times 6: 64 Times 7: 128 Times

- Analog filter

0: 2Hz 1: 4Hz 2: 6Hz 3: 8Hz

- Motion detection mode

0: STABLE MODE 1: CHECKER MODE

- Average mode

0: ARITHMETIC 1: REMOVAL

- Sample mode

0: 100 % 1: 50 % 2: 25 % 3: 12.5 %

- One-touch final

0: OFF 1: GROSS 2: RESULT

- Preset tare weight 1

0: OFF 1: ON

- TARE/DZ key

0: INVALID 1: VALID

- G/N key

0: INVALID 1: VALID

- Auto accum. command

0: OFF 1: ON

- Weighing code selection

  0: KEY SPECIFY 1: EXTERNAL INPUT 2: SELECTION

- Setting code selection

  0: KEY INPUT 1: EXTERNAL INPUT 2: SELECTION

- Each code key

  0: INVALID 1: VALID

- Decimal place

  0: 0 1: 0.0 2: 0.00 3: 0.000

- Unit display

  0: kg 1: g 2: N 3: t
  4: lb 5: NONE

- 1/4 scale div.display

  0: OFF 1: ON

- Loadcell excitation

  0: 5V 1: 10V

- Graphic mode

  0: SINGLE 1: CONTINUITY 2: LEVEL (↥) + EXT
  3: LEVEL (⇅) + EXT 4: LEVEL (↥) 5: LEVEL (⇅)

- LOCK (soft)

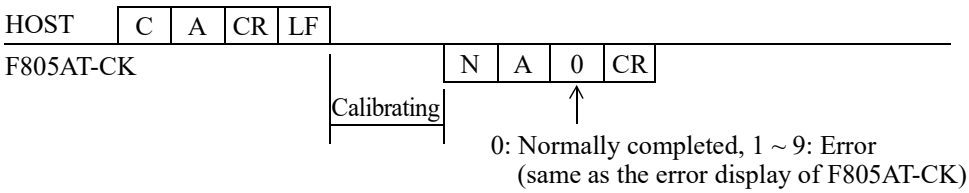
  0: OFF 1: ON

- LANGUAGE

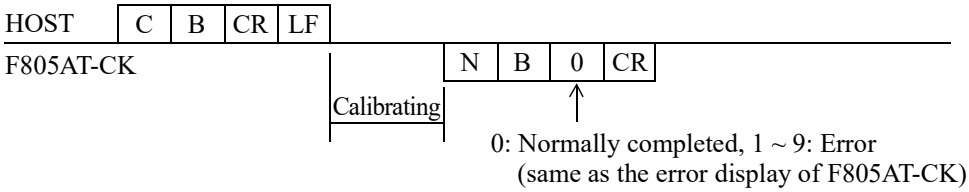
  0: JAPANESE 1: ENGLISH

C command

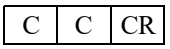
- Zero calibration



- Span calibration



- Gross selection



(No return date)

- Net selection

C	D	CR

(No return date)

- Error selection

C	E	CR

(No return date)

- Result selection

C	F	CR

(No return date)

- Tare subtraction

C	G	CR

(No return date)

- Tare reset

C	H	CR

(No return date)

- Digital zero

C	I	CR

(No return date)

- Digital zero reset

C	J	CR

(No return date)

- Accumulation command

C	K	CR

(No return date)

- Accumulation clear

C	L	CR

(No return date)

- Accumulation data all clear

C	M	CR

(No return date)

12-3-5. Communication Mode

・Communication mode 0

F805AT-CK communicates with the command from the host computer.
The terminator can be selected “CR” or “CR+LF”.

・Communication mode 1

F805AT-CK sends Gross weight continuously.
Command is invalid at this mode.

Transmission format 1

(24byte)

・Communication mode 2

F805AT-CK sends Net weight continuously.
Command is invalid at this mode.

(24byte)

・Communication mode 3

F805AT-CK sends Gross and Net weight continuously.
Command is invalid at this mode.

(27byte)

・Communication mode 4

F805AT-CK will send once the weight value according to the set of "Over / Under comparison 1".
F805AT-CK does not transmit when set in "COMPARISON OFF".
Command is invalid at this mode.

(24byte)

■ About the timing for continuous transmission

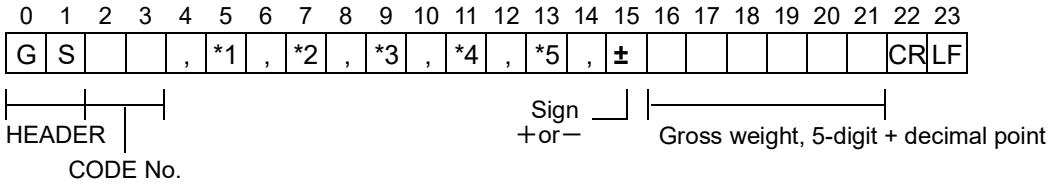
According to the communication baud rate setting, the continuous transmission intervals in the case where any of the communication modes from 1 to 3 is selected are as follows:

Communication baud rate	Continuous transmission interval
38400 bps	100 times/sec.
19200 bps	50 times/sec.
9600 bps	25 times/sec.
4800 bps	12 times/sec.
2400 bps	6 times/sec.
1200 bps	3 times/sec.

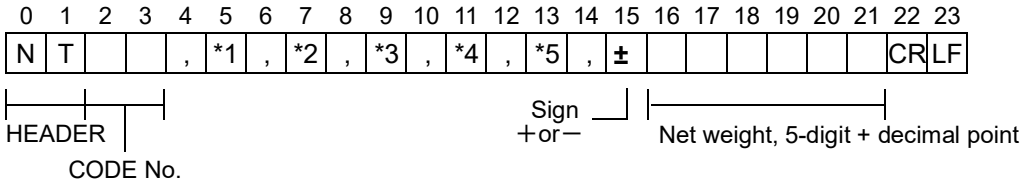
* When screen changes are carried out during continuation transmission, it differs from the above-mentioned continuation transmitting interval.

12-3-6. Transmission Format

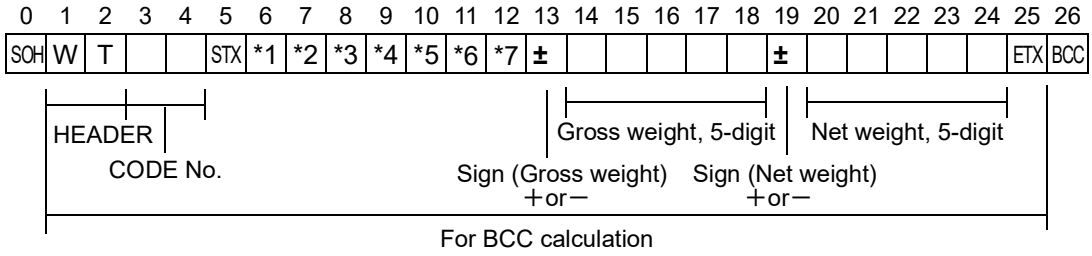
- Transmission format 1



- Transmission format 2



- Transmission format 3



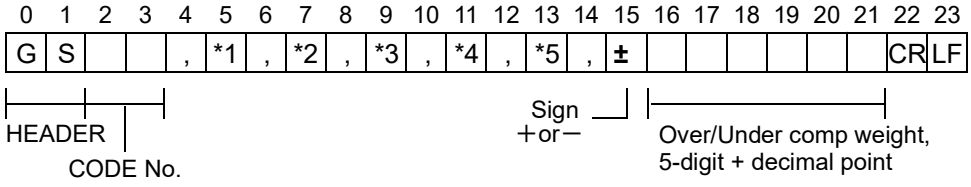
Each ASCII code of SOH, STX, and ETX

SOH : 01
STX : 02
ETX : 03

BCC: Block check character

It is calculated as the XOR of the transmitted character (Hexadecimal).

- Transmission format 4



*1 O : Overload (LOAD, OFL)
S : Stable
M : Unstable
H : Hold

Priority: H > O > (S or M)

*2 A : Zero tracking OFF
T : Zero tracking ON
Z : Zero error

Priority: Z > (A or T)

*3 H : Upper limit ON
L : Lower limit ON
G : Upper limit and Lower limit OFF
N : Upper limit and Lower limit ON
F : Comparison OFF

Priority: N, F > (H or L) > G

*4 H : Over ON
L : Under ON
W : Wait for judgment
G : Over and Under OFF
F : Comparison OFF

Priority: (H or L), F > G > W

*5 N : Near zero OFF
Z : Near zero ON

*6 Unit
0 : kg
1 : g
2 : N
3 : t
4 : lb
5 : None

*7 Decimal place
0 : 0
1 : 0.0
2 : 0.00
3 : 0.000

13. OVER SCALE & ERROR

13-1. Over Scale (Weight Error [Pin 46])

The input of A/D Converter overflowed	LOAD
Net weight > Net Over set value	OFL1
Gross weight > Capacity + 9 scale division	OFL2
Gross weight > Gross Over Set value	OFL3

* Net weight = Gross weight - Tare

13-2. Calibration Error

Error item	Alarm Message	Alarm No.
Re-do Zero Calibration.	CAL.ERR.1	1
The initial tare is beyond the zero adjustment range.	CAL.ERR.2	2
The initial tare is minus.	CAL.ERR.3	3
The input Balance weight is beyonde the Capacity.	CAL.ERR.4	4
The Balance weight is “00000”.	CAL.ERR.5	5
The loadcell output dose not reach the span adjustment range.	CAL.ERR.6	6
The loadcell output is miunus.	CAL.ERR.7	7
The loadcell output is beyond the span adjustment range.	CAL.ERR.8	8
The weight value is not stable and Calibration stopped.	CAL.ERR.9	9

13-3. EXC Error

When the voltage of sensing is too low, “EXC ERR” turns on.
Check the cable between instrument and load cell.

13-4. Priority of Error Display

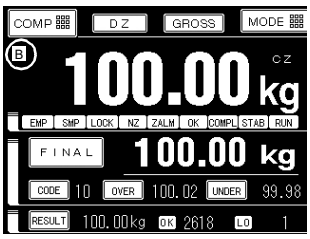
When plural ERR occured simultaneously, ERR are display following Order.

Priority	ERR. Over Scale
1	CAL.ERR
2	EXC ERR
3	-LOAD
4	LOAD
5	OFL2
6	OFL3
7	OFL1

14. TROUBLE SHOOTING

● Short capacity of lithium battery

When the capacity of lithium battery is insufficient,
Alarm (reversed display of red) turns on.



When B mark turns on as above, the capacity of lithium battery is insufficient. B mark indicates the ending of battery life.
When you turn F805AT-CK off after leaving it such condition for certain period of time the contents of setting may suddenly be lost.
In this case, the contents stored in NOV RAM are not lost.
When B mark turns on, change the battery earlier.
(The life of lithium battery is approximately 7 years in normal use.)

● Over-scale

LOAD (A/D converter over scale)

An input signal from the load cell exceeds F805AT-CK span adjustment range.
Check whether the output of the load cell is within span adjutment range;
Check there are breakages in the cable which is connected to the F805AT-CK and the load cell;
And whether the load cell connector on the rear panel is open or not, when the load cell connector is open (not connected with the load cell) will display LOAD also.

OFL1 (Net weight > Net over set value)

Net weight exceeds the Net Over set value.
Decrease the signal coming from the load cell unitl the normal display returns.
Reset the Net Over Value;
If the Net Over value is as the same as or within the value of the Capacity, OFL1 will not be displayed.

OFL3 (Gross weight > Gross over set value)

Decrease the signal coming from the load cell until the normal display returns.
Reset the Gross Over value;
If the Gross Over value is as the same as or within the value of the Capacity, OFL3 will not be displayed.

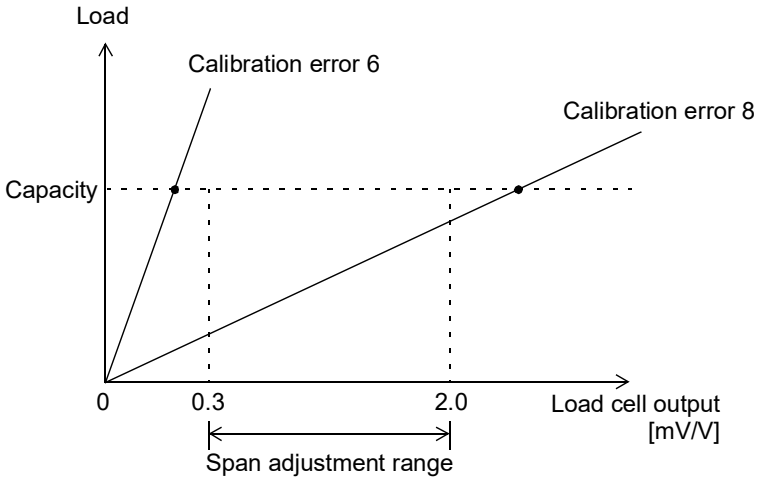
OFL2 (Gross weight > Capacity + 9 scale division)

Gross weight exceeds Capacity + 9 scale division.
Decrease the signal coming from the load cell until the normal display returns.

Notice

Scale Capacity is a primary data for the F805AT-CK. You must re-calibrate if capacity is changed.
DO NOT CHANGE CAPACITY TO RESET OVER SCALE MESSAGE.

Span adjustment range of F805AT-CK is 0.3 ~ 2.0mV/V.
The display up to capacity at span calibration is guaranteed.
If load cell output is under 0.3mV/V (Calibration error 6) or over 2.0mV/V (Calibration error 8) when it reached to the capacity, calibration can not been performed.



CAL. ERR. 1 (Calibration error)

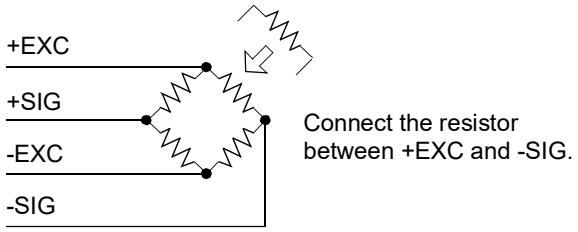
Zero Calibration must be entered again.
Zero Calibration should always be done before Span Caibration. If CAL. ERR 1 appears after Span Calibration, Zero Calibration must be entered again.
After Zero Calibration CAL. ERR 1 will disappear.

CAL. ERR. 2 (Calibration error)

Initial Dead Load is above Zero adjustment range.

Remove any excess load from loadcell or scale. If CAL.ERR.2 is still displayed, connect a resistor between+EXC and -SIG. loadcell connections. This should shift the Zero point.

Do Zero Calibration again.



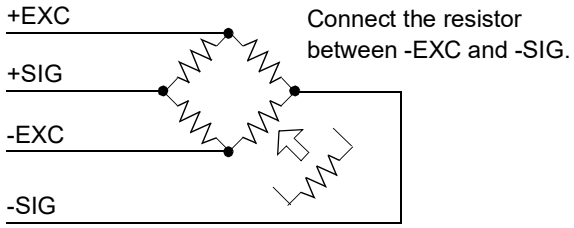
Resistor		Strain	
Ideal	Approx.	μ-STRAIN	mV/V
875 kΩ	866 kΩ	200	0.1
437 kΩ	442 kΩ	400	0.2
291 kΩ	294 kΩ	600	0.3
219 kΩ	221 kΩ	800	0.4
175 kΩ	174 kΩ	1000	0.5
146 kΩ	147 kΩ	1200	0.6
125 kΩ	124 kΩ	1400	0.7
109 kΩ	110 kΩ	1600	0.8
97 kΩ	97.6 kΩ	1800	0.9
87.3 kΩ	86.6 kΩ	2000	1.0
79.4 kΩ	78.7 kΩ	2200	1.1
72.7 kΩ	73.2 kΩ	2400	1.2
67.1 kΩ	66.5 kΩ	2600	1.3
62.3 kΩ	61.9 kΩ	2800	1.4
58.2 kΩ	57.6 kΩ	3000	1.5
54.5 kΩ	54.9 kΩ	3200	1.6
51.3 kΩ	51.1 kΩ	3400	1.7
48.4 kΩ	48.7 kΩ	3600	1.8
45.9 kΩ	46.4 kΩ	3800	1.9
43.6 kΩ	43.2 kΩ	4000	2.0
41.5 kΩ	41.2 kΩ	4200	2.1
39.6 kΩ	39.2 kΩ	4400	2.2
37.9 kΩ	38.3 kΩ	4600	2.3
36.3 kΩ	36.5 kΩ	4800	2.4
34.8 kΩ	34.8 kΩ	5000	2.5

- This table is for a 350 ohm loadcell.

  When 4 load cells are connected in parallel, the sensitivity decrease to 1/4. Be aware that the resistance also decreases to 1/4 accordingly.
- The temperature coefficient of the connected resistor directly influences the accuracy of the indicator. Use a resistor with a temperature coefficient below 50ppm.

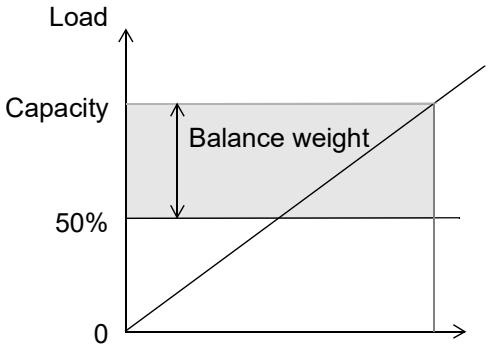
CAL. ERR. 3 (Calibration error)

Inditial Dead Load is negative.
Check that load cell is mounted in the correct direction; check that load is being applied to the load cell in the correct direction ;check that the +SIG. and -SIG. lines are propely connected.
If CAL. ERR. 3 still displayed, connect a resistor between -EXC and -SIG. load cell connections. This should shift the Zero point. Do Zero Calibration again.



CAL. ERR. 4 (Calibration error)

The Balance weight is larger than the Capacity.
Re-enter the Balance weight equal to or less than the Capacity. Do Span Calibration again.



Balance weight must be between 50% to 100% of Capacity in order to do Span Calibration correctly.

CAL. ERR. 5 (Calibration error)

The set Balance weight is “00000”. Set adequate value to Balance weight.

CAL. ERR. 6 (Calibration error)

The loadcell output dose not reach the Span range of the F805AT-CK.
Check how load is applied to loadcell; check loadcell has sufficient outpul (mV/V) to reach Span range. Do Span Calibration again.

The span adjustment range of F805AT-CK is between 0.3mV/V and 2.0mV/V.
Span Calibration is not Possible if load cell output is not within this range.

CAL. ERR. 7 (Calibration error)

Load cell output is negative.
Check that load cell is mounted in the correct direction; check that load is being applied to the load cell in the correct direction; check that the +SIG. and -SIG. lines are propely connected.
Do Span Calibration again.

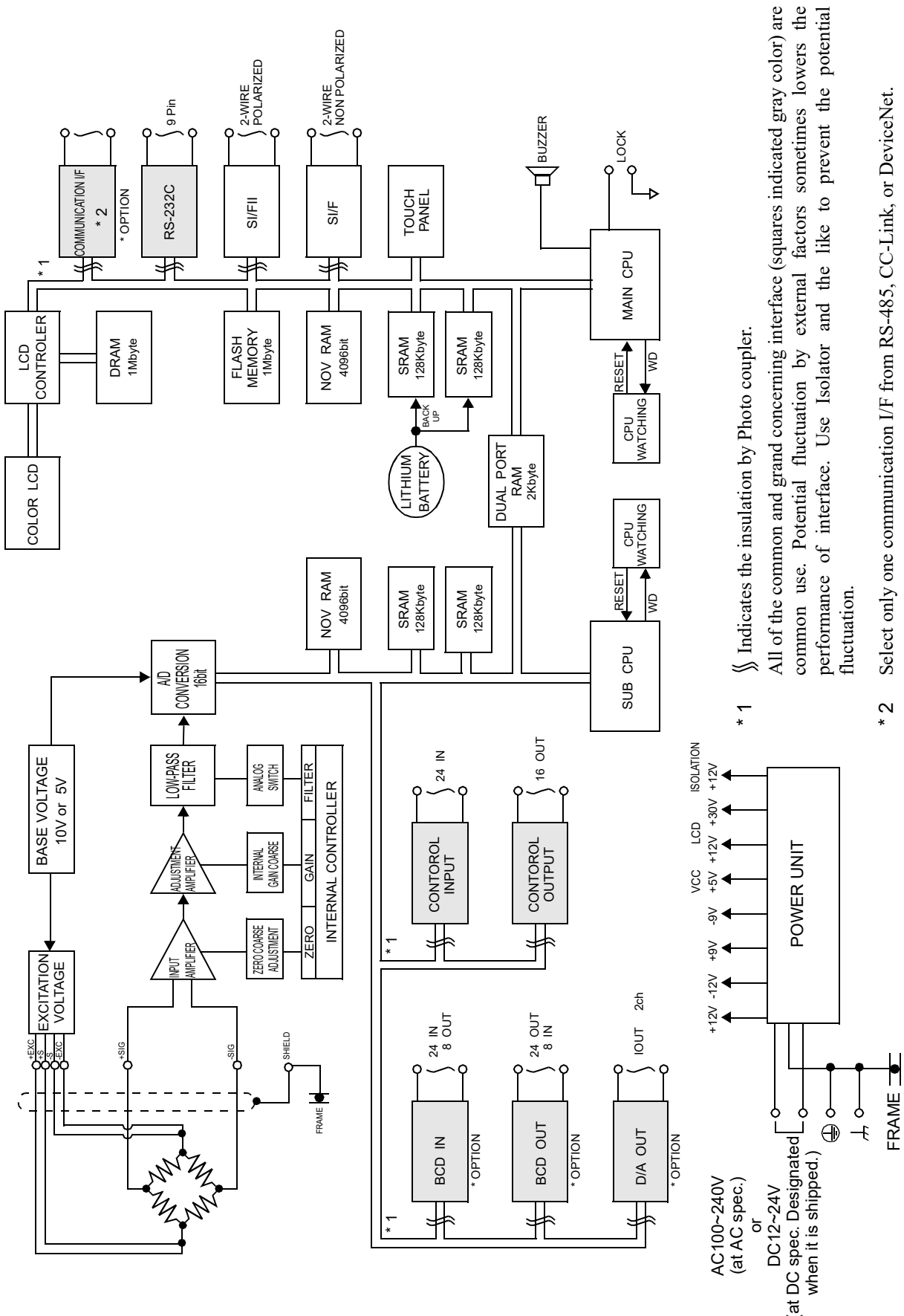
CAL. ERR. 8 (Calibration error)

Load cell output is beyond Span adjustment range.
Check how load is applied to load cell; check load cell has sufficient output(mV/V) to reach Span range. Do Span Calibration again.

CAL. ERR. 9 (Calibration error)

The Load is not stable enough for correct Calibration.
Adjust the Stable Period and Stable Range of Motion Detection so “STAB” display lights during Calibration. Do Calibration again.

15. BLOCK DIAGRAM

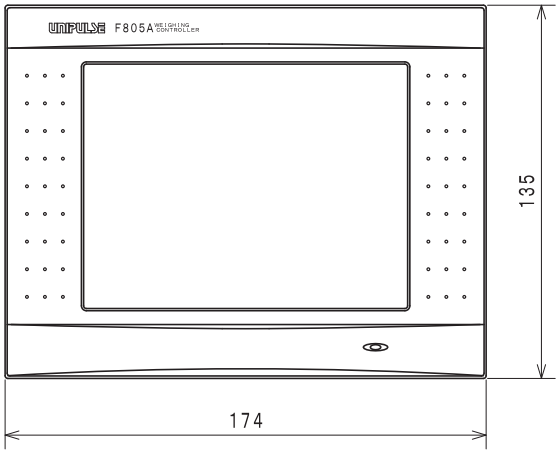


* 1 ⟪ Indicates the insulation by Photo coupler.
All of the common and grand concerning interface (squares indicated gray color) are common use. Potential fluctuation by external factors sometimes lowers the performance of interface. Use Isolator and the like to prevent the potential fluctuation.

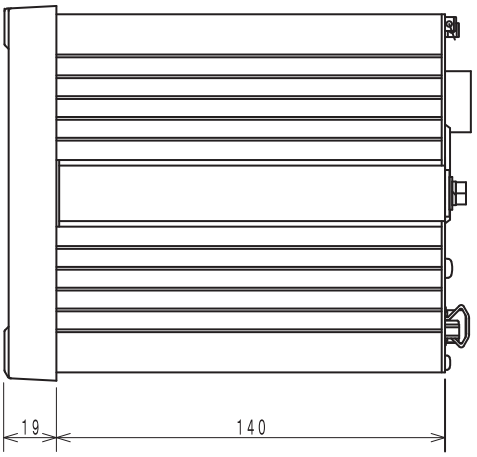
* 2 Select only one communication I/F from RS-485, CC-Link, or DeviceNet.

16. DIMENSIONS

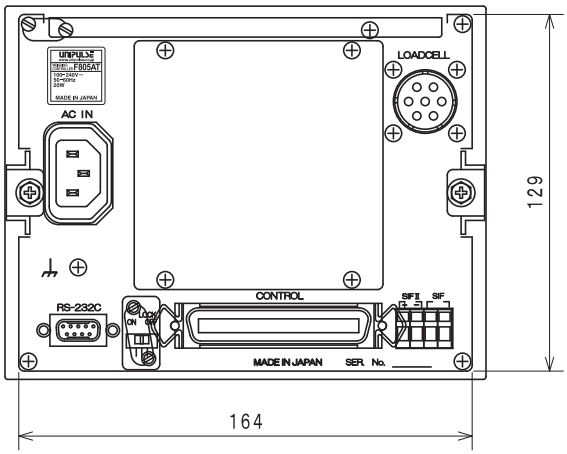
Unit: mm



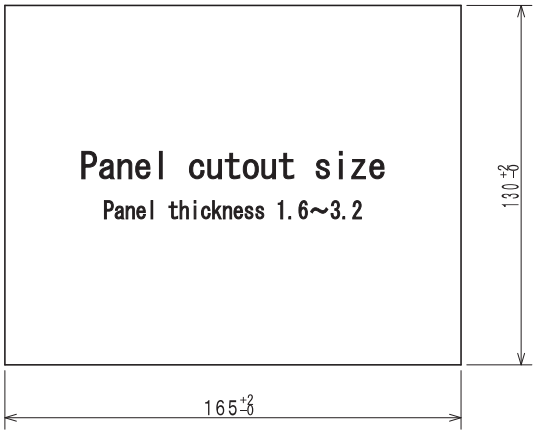
< Front >



< Side>



< Rear >



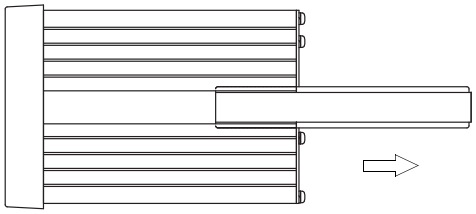
* Projections excluded.

* Dimensions of F805AT-CK with AC spec. and with DC spec. are the same.

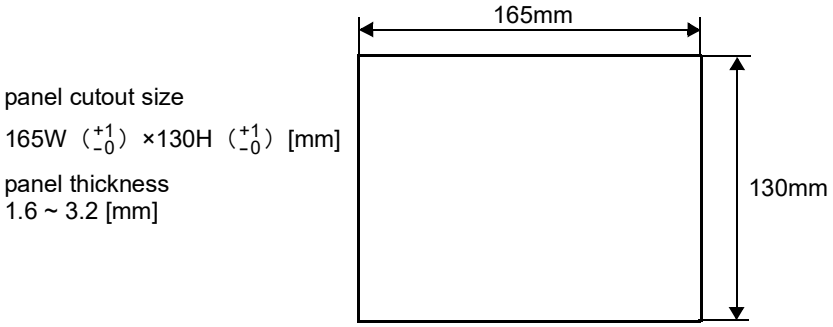
17. MOUNTING ON A PANEL

Please follow the procedure for F805AT-CK panel mounting.

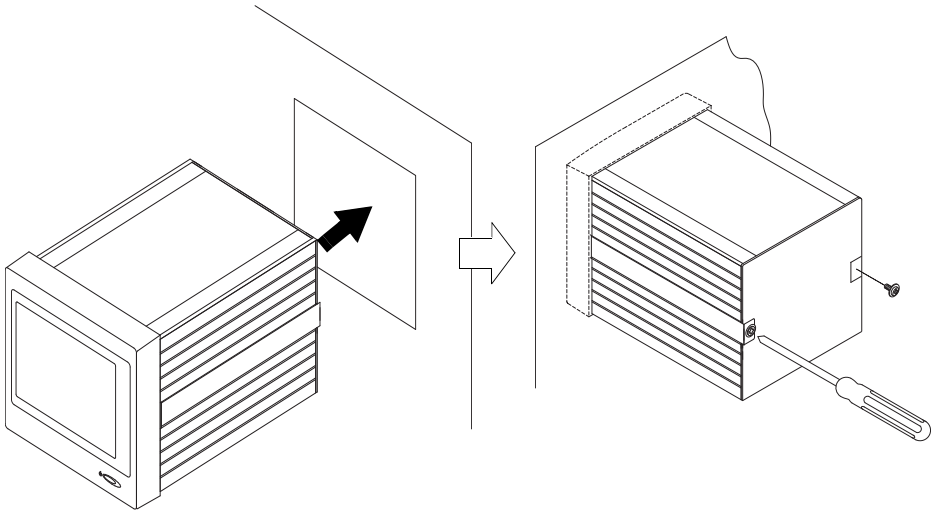
1) Remove the rails of both side from F805AT-CK.



2) Drill holes following the panel cutout size.



3) Mount F805AT-CK, then fix it with the side rails.



18. SPECIFICATIONS

18-1. Analog

Load cell excitation	DC10V±5% (enables to switchover from 5V to 10V)	
Load cell current	120mA (4-350 ohm load cell, when excitation is 10V)	
Zero adjustment range	0 to approx. 2mV/V	
Span adjustment range	0.3 to 2.0mV/V	
Analog input signal sensitivity	0.3 micron V/count (Legal for Trade) 0.075 micron V/count expanded	
Accuracy	Non-linearity:	Within 0.01%FS (Typ 0.005% FS, room temperature)
	Zero drift:	Within 0.1μV/ ℃ RTI (Typ 0.08μV/ ℃)
	Gain drift:	Within 15ppm/ ℃ (Typ 5ppm/ ℃)
	Noise:	Within 0.1μVp-pRTI (0.1Hz ~ 10Hz)
Analog filter	Bessel type low-pass filter (-12dB/oct) 2, 4, 6, 8 Hz	
A/D converter	Conversion:	200 times/sec.
	Resolution:	16bit (binary)
Display resolution	1/10000 (Legal for Trade) 1/40000 expanded	
Secondary calibration	Digital calibration (Registration of Reference value)	

18-2. Display

Display	TFT color LCD	
	Display area:	116.8 (W)×88.0 (H) mm
	Dot structure:	320×240 dot
	Dot pitch:	0.12 (W)×0.36 (H) mm
Weight value display	5 digits	
	Sign:	Weight display Only minus sign is displayed on MSD
	6 digits:	Total display(without sign)
Display update rate	Selectable 3, 6, 13, 25 times/sec. (internal 200 times/sec.)	
Scale capacity	5 digits (up to 99999)	
Min. scale division	1 ~ 100 selectable	

Decimal point	Selectable 0, 0.0, 0.00, 0.000
Over scale display	The input of A/D converter overflowed LOAD Net weight >Net over set value (5-digits setting possible) OFL1 Gross weight >Capacity + 9 scale division OFL2 Gross weight >Gross over set value (5-digits setting possible) OFL3
Center zero	'CZ' turns on when the displayed value is at the center of zero (0 +/-1/4 scale)
Status display	Various weighing status are displayed.
Set value display	CODE (2-digits), Final (5-digits), Under (3-digits), Over (3-digits)

18-3. Configuration

Setting method	Analog type touch panel operation or set by a host computer through RS-232C.
Memory	Initial set values-NOV RAM (Non volatile RAM). Other set Values-C-MOS RAM backed up by a lithium battery.

18-4. Control Input/Output Signal

External input signal (24)	Signals are inputted by shorting or opening Input and COM terminals.
External output signal (16)	Output signal circuit is an open-collector output of a transistor.

18-5. Interface

Standard equipment

2-Wire serial interface (SI/F)

Connect Controller to Printers and Remote displays (up to 3 units).

Transmitting method: Asynchronous
Transmitting speed: 600bps

2-Wire high speed bi-directional serial interface (SI/FII)

Connect Controller to Printer, Remote displays and Converters.

Transmitting distance: Approx. 300m
Transmitting speed: 100 times/sec.
SIF connectable unit: max 20units
Indicator connectable unit: max 4units

RS-232C communication interface

Weight data, status and set values can be written or read by a host computer.

Signal level:	Based on RS-232C	
Transmitting distance:	Approx. 15m (16.41 yards)	
Transmitting method:	Asynchronous	
Transmitting speed:	1200, 2400, 4800, 9600, 19200 or 384200 selectable.	
Bit configuration:	Start	1bit
	Character length	7 or 8bits selectable.
	Stop	1 or 2bits selectable.
	Parity	none, odd or even selectable.
Code:	ASCII	

Option

(Number of mountable options: 4. However, the maximum number of serial communication interfaces is 1.)

OP1: BCD parallel data output interface (BCO)

Transmits weight data to a PLC or other BCD devices.

Output signal:	Weight data (5 digits), sign, over, strobe, printing command.
Output logic:	Positive/ Negative selectable.
Output circuit:	Open-collector (Vceo=30V max., Ic=50mA max.)
Input signal:	Logic switching, hold, output data selection.
Input circuit:	Operated by a contact or an open-collector circuit (Ic=10mA min.).

OP2: BCD parallel data input interface (BCI)

Receives commands from a BCD device.

Input data:	BCD data (5 digits)
Input mode:	Level/ Edge selectable.
Input circuit:	Operated by a contact or an open-collector circuit (Ic=10mA min.).

OP3: D/A converter interface (DAC)

Weight data converted to an analog signal.

Current output:	4 ~ 20mA
D/A conversion speed:	200 times/sec.
Resolution:	16bit
Over range:	Full scale +/-10%
	Current 2.4 ~ 21.6mA

Serial communication interface option

OP4: RS-485 serial communication interface (485)

Addressable serial communication for connecting multi units.

Signal level:	RS-485
Transmission distance:	Approx. 1km (1,094 yards)

OP5: CC-Link interface (CCL)

Links directly to Mitsubishi Control & Communication Link.

CC-Link I/F operates as the remote device stations corresponding to CC-Link Ver.1.10.

OP6: DeviceNet interface (ODN)

Connects seamlessly to Allen-Bradley, Omron CompoBus/D which is based on DeviceNet.

18-6. General Specifications

AC spec.

Voltage input	AC100V ~ 240V (+10% -15%) Free power supply 50/60Hz.
Inrush current (Reference value)	15A, 5mSec: DC12V at the status of average load (room temperature, at cold start) 30A, 5mSec: DC24V at the status of average load (room temperature, at cold start)

DC spec.: Designated when it is shipped

Voltage input	DC 12~24V (+/-15%)
Inrush current (Reference value)	10A, 0.5mSec : DC12V at the status of average load (room temperature, at cold start) 35A, 0.4mSec : DC24V at the status of average load (room temperature, at cold start)

The followings are the same for AC spec. and DC spec.

Power consumption	Approx. 20W
Operating temperature	-10 to +40D. Celsius (+14 to +104D.Fahrenheit)
Storage temperature	-20 to +60D. Celsius (-4 to +140D. Fahrenheit)
Humidity	<85% RH (non-condensation)
Dimension	174 (W)×159 (D)×135 (H) mm (Projections excluded.) (6.85×5.51×5.31 inch)
Panel cutout size	165 (W) $(^{+1}_{-0})$×130 (H) $(^{+1}_{-0})$ mm
Panel thickness	1.6 ~ 3.2 (mm)
Weight Approx.	2.3 kg (5.07 pound)

18-7. Attachment

- Operation manual 1
- Power cable (2m [6.56ft], AC spec.only) 1
- Plug for power cable (AC spec. and CE marking only) 1
- Minus Screw driver 1
- Load cell connector 1
- Control signal input/output connector 1
- Ferrite core (CE marking only) 2
- BCD output connector (with BCD option) 1
- BCD input connector (with BCD option) 1
- Connector for D/A converter (with D/A converter option) 1
- Connector for CC-Link (with the CC-Link option) 1
- Connector for DeviceNet (with the DeviceNet option) 1

About the power cable

The power cable attached to this product as standard equipment can be used in the AC100V power supply in Japan. (Official ratings voltage AC125V)
Please use the power cable authorized in the country when you use this product outside Japan.

19. THE LIST OF INITIAL SETTING VALUE

Each code

MODE → EACH CODE

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Final	0.00	◎				
Over	0.00	◎				
Under	0.00	◎				
Accumulation clear	NO	◎				Command
Total comparison	COMP OFF	◎				
Total limit	0.00	◎				
Count limit	0	◎				

Comparison

MODE → COMPARISON

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
U/L limit comparison	GROSS		◎		◎	
Upper limit	0.00				◎	
Lower limit	0.00				◎	
Near zero comparison	GROSS		◎		◎	
Near zero	0.00				◎	
Over/Under comparison 1	GROSS		◎		◎	
Complete output time	3.0		◎		◎	

Operation

MODE → OPERATION

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Display frequency	25 Times/Sec		◎		◎	
Digital filter	8 Times		◎		◎	
Analog filter	6Hz		◎		◎	
Motion detection mode	CHECKER MODE		◎		◎	
MD (period)	0.3 Sec		◎		◎	
MD (range)	5 Count		◎		◎	
Zero tracking (period)	0.0 Sec		◎		◎	
Zero tracking (range)	0		◎		◎	
DZ regulation value	2.00		◎		◎	

Sequence mode

MODE → SEQUENCE MODE

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Empty count	0		◎		◎	
Take in count	999		◎		◎	
Average mode	ARITHMETIC		◎		◎	
Sample mode	100 %		◎		◎	
Gross ratio	1.000		◎		◎	
One-touch final	OFF		◎		◎	

Function

MODE → FUNCTION

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Preset tare weight 1	OFF		◎		◎	
Preset tare weight 2	0.00				◎	
Tare reset	NO					Command
Auto accumuration command	ON		◎		◎	
Weighing code selection	KEY SPECIFY		◎		◎	
Setting code selection	KEY INPUT		◎		◎	
TARE/DZ key	VALID		◎		◎	
GROSS/NET key	VALID		◎		◎	
Each code key	VALID		◎		◎	

Extended function

MODE → EXTENDED FUNC.

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Accumulation command acceptance	REGULARLY		◎		◎	
Tare display	INHIBIT		◎		◎	
I/O monitor display	INHIBIT		◎		◎	

Calibration

MODE → CALIBRATION

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Zero calibration	0.00		◎	◎	◎	Command
Span calibration	100.00		◎	◎	◎	Command
Balance weight value	100.00		◎	◎	◎	
Capacity	100.00		◎	◎	◎	
Minimum scale division	0.1		◎	◎	◎	
Equivalent calibration	2.0000		◎	◎	◎	Command
Net over	999.99		◎		◎	
Gross over	999.99		◎		◎	
Decimal place	0.00		◎	◎	◎	
Unit display	kg		◎		◎	
1/4 scale division display	ON		◎		◎	
Gravitational acceleration	9		◎		◎	
Loadcell excitation	10V		◎	◎	◎	

Graph setting

MODE → GRAPH

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Graphic mode	SINGLE		◎		◎	
Trigger level	0.00		◎		◎	
X end point	10 Sec		◎		◎	
Y start point	0.0		◎		◎	
Y end point	150.00		◎		◎	

Result

MODE → RESULT

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Average weight	0.00	◎				◎
Maximum weight	0.00	◎				◎
Minimimu weight	0.00	◎				◎
General standard deviation	0.00	◎				◎
Sample standard deviation	0.00	◎				◎
Count of data	0	◎				◎
Latest data	0.00	◎				◎
Maximum - Minimimu	0.00	◎				◎

Communication

MODE → COMMUNICATION

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Baud rate	9600bps		◎		◎	
The length of character	7bit		◎		◎	
Parity bit	ODD		◎		◎	
Stop bit	1bit		◎		◎	
Terminator	CR+LF		◎		◎	
Communication mode	COM.MODE 0		◎		◎	
SIFII ID	0		◎		◎	

System

MODE → PAGE → SYSTEM

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Back light auto.light.	INHIBIT		◎		◎	
Back light low time	5 Min		◎		◎	
Back light ON time	10 Min		◎		◎	
Lock (soft)	OFF		◎			
Self check	NO				◎	
Language	JAPANESE		◎		◎	
Pass word	0					

Option (BCD output)

MODE → PAGE → OPTION

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
BCD data update rate	200 Times/Sec		◎		◎	

Option (D/A Converter)

MODE → PAGE → OPTION

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
D/A output channel	ch1		◎		◎	
D/A output mode (ch1)	INTERLOCK (G)		◎		◎	
D/A zero output weight (ch1)	0.00kg		◎		◎	
D/A full scale value (ch1)	100.00kg		◎		◎	
D/A output mode (ch2)	INTERLOCK (G)		◎		◎	
D/A zero output weight (ch2)	0.00kg		◎		◎	
D/A full scale value (ch2)	100.00kg		◎		◎	

Option (RS-485)

MODE → PAGE → OPTION

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Baud rate	9600bps		◎		◎	
The length of character	7bit		◎		◎	
Parity bit	ODD		◎		◎	
Stop bit	1bit		◎		◎	
Terminator	CR+LF		◎		◎	
Communication mode	COM.MODE 0		◎		◎	
RS-485 ID	0		◎		◎	

Option (CC-Link)

MODE → PAGE → OPTION

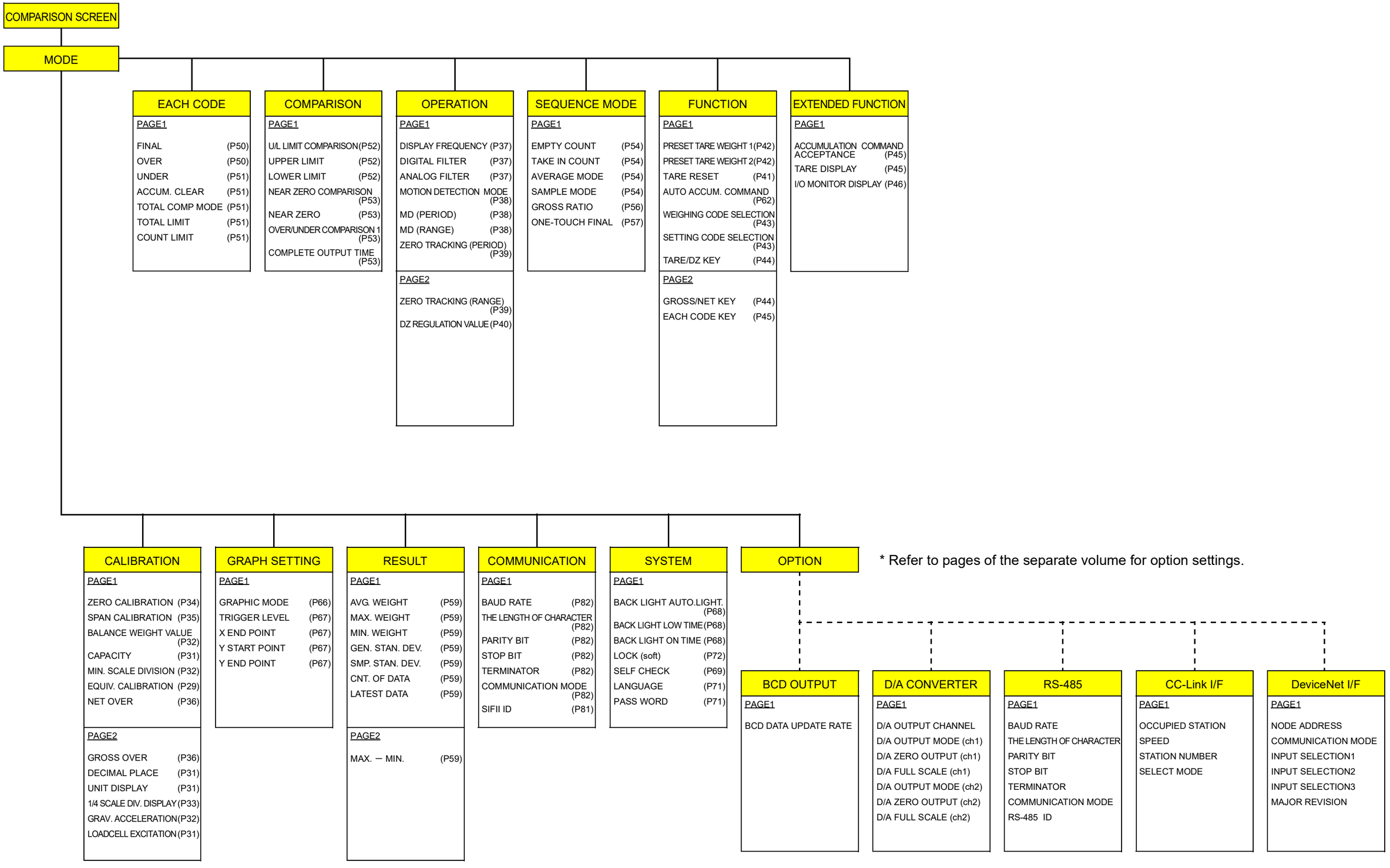
Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Occupied station	4 STATION		◎		◎	
Speed	10Mbps		◎		◎	
Station number	1		◎		◎	
Select code	SET WITH RELAY		◎		◎	

Option (DeviceNet I/F)

MODE → PAGE → OPTION

Function	Initial value	Code	NOV.RAM	Lock (sw)	Lock (soft)	Display
Node address	0		◎		◎	
Communication mode	MODE 0		◎		◎	
Input select 1	EXTINPUT		◎		◎	
Input select 2	EXTINPUT		◎		◎	
Input select 3	EXTINPUT		◎		◎	
Major revision	1		◎		◎	

20. MODE SETTING TREE CHART



21. STATEMENT OF CONFORMATION TO EC DIRECTIVES (Designated when it is shipped)

*** The following notice must be observed only CE marking.**

Unipulse F805AT-CK Checker Scale Controller conforms to The EC Directives (based on Council of the European Communities), and is allowed to affix CE mark on it.

- Low Voltage Directive
  EN61010-1:2010, A1:2019
  EN62311:2008

- EMC Directive
  EN61326-1:2013
  EN55011:2009, A1:2010 Group1, ClassA
  EN61000-3-2:2006, A1:2009, A2:2009
  EN61000-3-3:2008
  EN61000-4-2:2009
  EN61000-4-3:2006, A1:2008, A2:2010
  EN61000-4-4:2004, A1:2010
  EN61000-4-5:2006
  EN61000-4-6:2009
  EN61000-4-8:2010
  EN61000-4-11:2004

The following notice must be observed when you install F805AT-CK unit.

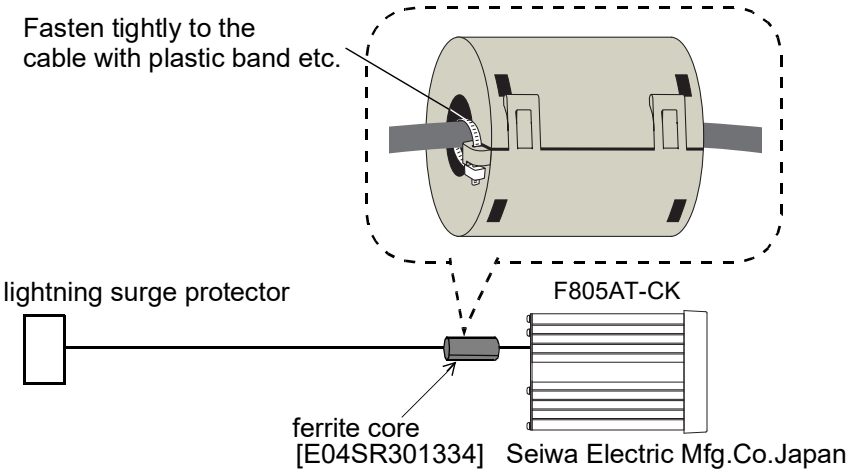
1. Since F805AT-CK is defined as an open type (unit to be fixed or built-in), it must be fixed or bolted to frame or solid board securely.
2. The power cable attached to this product as standard equipment can be used in the AC100V power supply in Japan. (Official ratings voltage AC125V)
   Please use the power cable authorized in the country when you use this product outside Japan.
3. Use shielded cable for connection with components other than power supply, such as load cell, input/output signals and optional device.
4. Attach separate type ferrite core (supplied as standard item with the unit) on terminal box side of power supply cable and also on connecting cable to sensor.

Notice

Lightning surge protector is not included in standard supply for F805AT-CK.
The combination of the main unit of the F805AT-CK and a lightning surge protector conforms to EN61000-4-5 (lightning surge immunity) in the EMC Directives.
Please refer to "Connection of Lightning serge protector" on P.117 for information regarding lightning surge protector connection.

Attachment of a ferrite core (power source cable)

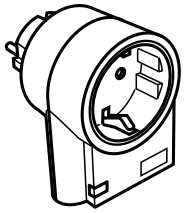
It is necessary to attach the ferrite core to the power source cable.



Connection of Lightning serge protector

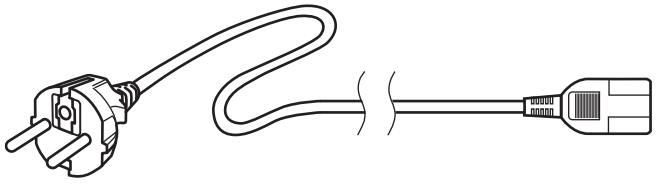
The F805AT-CK main body conforms to EMC directive EN61000-4-5 (lightning surge immunity) in combination with the lightning surge protector.

● AC Spec.



(option to F805AT-CK)

No lightning surge protector is included as a standard. Please use the power cable authorized in the country when you use this product outside Japan.
Before purchasing it, check the plug shape/voltage, which differs with countries and regions.
It is optionally available (TSU02) in combination with a 250V AC high-voltage cable in EU outlet form (See below: Standard product in Europe). For details, contact our sales department.



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