CAS
S · C · A · L · E

Owner's Manual

EXP-2000A

EXBATTERY WEIGHING INDICATOR

TABLE OF CONTENTS

1. Introduction

We greatly appreciate for your purchase of the CAS Explosion proof indicator.
These goods have hold excellent performance and splendid properties through strike tests as well as devoting ourselves under severe quality management.
The EXP-2000A indicator is specially designed not to transmit the internal flame to external area even if a internal explosion occurs in explosive environment, and is shaped firmly and delicately designed to coincide with the requirements of severe industrial field.
Before using EXP-2000A, It is recommended to read this manual carefully and to apply the function application fully.

2. Explosion Structure & Class (Ex d   B T4)

Section	Description	Marking
Type of protection	Flameproof enclosure	Ex d
Apparatus Group	Surface Industries	B
Temperature Class	Max. surface temperature 135	T4

Explosion Class	T1	T2	T3	T4
Class 1 (USE)	Acetone, Ammonium, Carbon Monoxide, Titan, Acetic Acid, Ethyl Acetate, Toluene, Propane, Benzene, Methanol, Methane	Ethanol, Buanol, Butane, Acetic Anhydridede	Gasoline, Hexane	Acetaldehyde, Ethyl Ether
Class 2 (USE)	Cool Gas	Ethylene Oxide		
Class 3 (Don't use)	Water Gas Hydrogen	Acetylene		

(Be able to use EXP-2000A only in the inside thick line)

3. Cautions

(1) Cautions when install EXP-2000A at explosion zone.

- ■ Check to tighten bolts on a front cover.
- ■ Certainly Connect EXP-2000A AC POWER to AC220V, 50Hz/60Hz AC power.
- ■ Should use power supply cable   included an earthing line.
- ■ When connect AC POWER at explosion a zone, certainly use PLUGS AND
   RECEPTACLES(Cable Gland).

(2) Cautions when check EXP-2000A at a fixed period.

- ■ Certainly cut off power supply Before open the front cover.
- ■ When assemble the front cover, certainly tighten bolts.

♣ CHECK ITEMS

ITEMS	Check Method	Description	Remark
CASE	Naked eye	Have no rust, damage	Clean, Exchange
Display Window	Naked eye	Have no damage	Exchange
BOLT	Naked eye, Touch	Don't get loose. Have no rust, dust.	Tighten, Clean
PACKING	Naked eye. Touch	Have no crack, notable modify.	Exchange
Cable Gland	Naked eye, Touch	Have no damage, blazing fire. Don't get loose.	Tighten, Exchange
Terminal	Naked eye	Don't get loose.	Tighten

(3) Entering Method of External Wire

- ■ External Wire should be passed through CABLE GLAND and connected to terminal.
- ■ The Conduit is used PF 1/2" size.

(4) CAUTIONS before uses EXP-2000A

- ■ Do not press the keys hardly, for the keys are in operation with soft touch.
- ■ Keep away EXP-2000A from the rain.
- ■ Avoid sudden temperature change.
- ■ Do not install EXP-2000A in a place with high voltage and excessive electrical noises.
- ■ Keep it in dry place.
- ■ Do not use under direct rays.
- ■ Do not use at the place with excessive electrical

5

4. The Features of EXP-2000A

(1) Features

- High quality, High accuracy
- Appropriate for weight and measurement system
- Easy operation
- RFI/EMI screened
- WATCHDOG circuitry (System restoration)
- WEIGHT BACK-UP (Weight memory at sudden power failure)

(2) Main Function

- Store date, time and calculated data at sudden power failure
- Adjustable display rate(Digital filter function)
- Printer connection (serial printer)
- Tare weight setting with keys
- Storage of measured times
- PC interface
- Zero-tracking function
- Automatic, manual hold function
- Users can set the desirous max. weight and a division freely
- Print date and time by built-in clock
- Self hardware test

5. Technical Specification

■ Analog Part & A/D Conversion

| Loadcell Exciting Voltage	DC 5V, Up to 4×350Ω load cells
Full Scale Input Signal	20 mV, including dead load
Zero Adjust Range	0.05 mV 5 mV
Input Sensitivity	2 /D (H-44, OIML)
	0.5 /D (Non H-44, OIML)
System Linearity	0.02 of FS
A/D internal resolution	1 / 200,000
A/D external resolution	5,000 dd (H-44, OIML)
	30,000 dd (H-44, OIML)
A/D conversion speed	10 times/sec

■ Digital Part

Span calibration	Full Digital Calibration : SPAC™ (Single pass automatic span calibration)
Display	LED (6 digit)
Size of letter	14 mm (Height)
Division	×1, ×2, ×5
Display below zero	"-" minus signal
Permitted limit tare	Full capacity

"STABLE"	■ LAMP	Weight is stable
"NET"	■ LAMP	ON (net weight), OFF (gross weight)
"TARE"	■ LAMP	tare is used
"ZERO"	■ LAMP	"0" kg

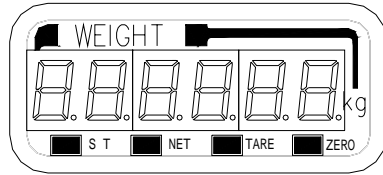## ■ General Specification

|	
Power	AC 220V, 50/60 Hz Optional : AC 110V, 50/60 Hz
Size	180(W) x 228(D) x 157(H)
Temperature	-10 ~ +40
Weight/Internal Cubic Volume	Approx. 7.4 kg / 2500
Current	Approx. 0.1 A

6. MEASURE OF APPEARANCE
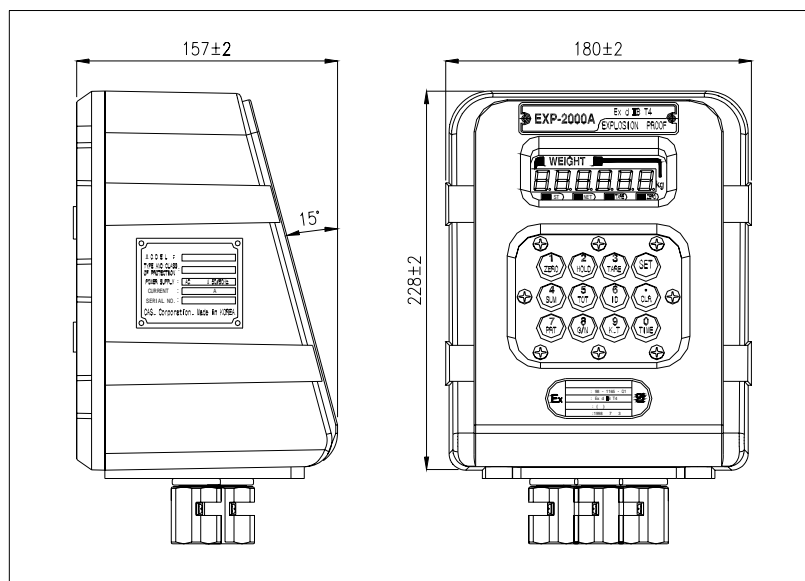
7. Front Display　Description

(1) LED lamp

Stable Lamp　: ON when the Weight is stable.
Net Lamp　　: ON when the current weight is NET weight.
Zero Lamp　: ON when the Current weight is 0kg.
Tare Lamp　: ON when the Tare weight is stored.

(2) Keyboard
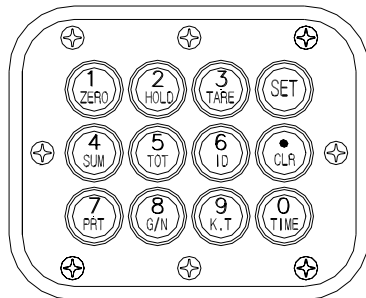
■ **ZERO Key**
　Used to return the display to the center of ZERO when the platform is empty.
　Used to enter the "TEST" mode.

■ **HOLD Key**
　Use to weight unstable things.
　Used to enter the "SET" mode.

■ **TARE Key (automatic tare weight input)**
　Used for weighing item by using the container.
　When this key is pressed, the scale stores current weight as the tare weight.
　If you perss "TARE" key in unload condition, tare setting is released.
　Used to enter the "CAL" mode.

■ SUM Key

Used to print total weight of previously weighed result by ID number.
For example, let's assume that the current specified ID number is 4.
The print form is as belows.

```
---------------------------
        SUM TOTAL
---------------------------
DATE  :  1997. 9. 25
TIME  :         9:30
ID    :          14
COUNT :           5
TOTAL :     350.0 kg
```

After printing is done, the total weight and count corresponding to the
ID number is initialized to 0.

■ TOT Key

Used to print total weight regardless of ID number.
The print form is as belows.

```
---------------------------
       OVERALL TOTAL
---------------------------
DATE  :  1997. 9. 25
TIME  :         9:30
ID    :          14
COUNT :           5
TOTAL :     350.0 kg
```

After printing is done, the total weight and count remains.

■ ID Key

Type "ID" key, the ID code using by numeric key and then the ID code
is registered. The code range is from 0 to 4.

■ PRT Key

Print key.
If this is pressed, the print format you chose in set mode (see function F06)
is to be printed.

■ G/N Key (Gross/Net key)

Toggle key between GROSS weight and NET weight. The annunciators and
display will alternate between GROSS and NET as well.
In case tare weight is REGISTERED, tare and item's total weight is G.
weight and only item's weight is N. weight.

■ **K.T Key (key tare key)**
When you already know the tare weight, press K.T Key and input tare
weight using by numeric keys and memorize it by pressing ENTER key.

■ **TIME Key**
Used to check date and time.

■ **CLR Key**
Usage 1: Clear the number you are entering on the display.
Usage 2: Used to enter such floating point number as 0.2, 0.01 etc.
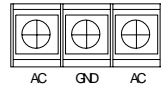
■ **SET Key**
Used to store current condition and exit in CALIBRATION, TEST, SET mode

8. INSTALLATION & CONNECTION

(1) Internal terminal connection

■ **TB1 : AC POWER**

- AC   : 220V,50/60Hz   (Optional : AC 110V, 50/60Hz)

AC   GND   AC

- GND : Ground

■ **TB2 : RS-232/RS-489(OPTION)**

OUT+   OUT-   IN-   IN+   GND   TXD   RXD

■ **TB3 : Load cell.**

EX+   EX-   SIG+   SIG-   GND
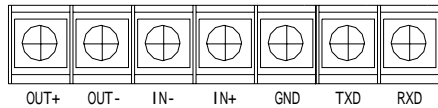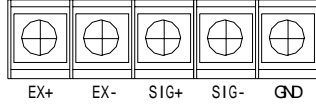
(2) Load cell connection

Connect load cell wire to terminal in the indicator.
* Must connect load cell wire to be through electro-pipe.
Note. Each load cell manufacturer's or model's wire color could be different.
      In that case, please note the following diagram.
* Manufactures's wire color

11

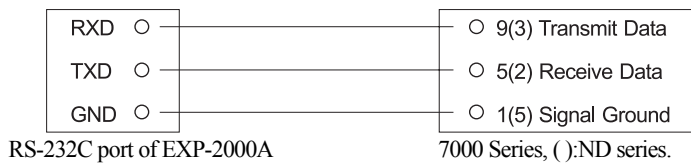| Terminal Company	EX+	EX-	SIG+	SIG-	GND
CAS	RED	WHITE	GREEN	BLUE	CASE
KYOWA	RED	BLACK	GREEN	BLUE	CASE
INTERFACE	RED	BLACK	GREEN	WHITE	CASE
P.T	RED	BLACK	GREEN	WHITE	CASE
BLS	RED	BLACK	WHITE	RED	YELLOW
SHOWA	RED	BLUE	WHITE	BLACK	CASE
SHINKOH	RED	BLACK	GREEN	WHITE	CASE
TMI	RED	WHITE	GREEN	BLUE	YELLOW
TML	RED	BLACK	WHITE	GREEN	CASE
TFAC	RED	BLUE	WHITE	BLACK	YELLOW
HUNTLEIGH	GREEN	BLACK	RED	WHITE	CASE

(3) RS 232C Serial interface

■ **Serial Printer**

RXD ○	○ 9(3) Transmit Data
TXD ○	○ 5(2) Receive Data
GND ○	○ 1(5) Signal Ground

RS-232C port of EXP-2000A   7000 Series, ( ):ND series.

F04 : 0 (Manual), 1 (Automatic)	F05 : 1 (7000 Series), 2 (ND Series)
F06 : Print Form	

■ **Sub Display Connection (CD-3000A,CD-3010A,CD-3040A,CD-3060A)**

RXD ○	○ 2 Transmit Data
TXD ○	○ 3 Receive Data
GND ○	○ 7 Signal Ground

RS-232C port of EXP-2000A   Sub display RS-232C port.
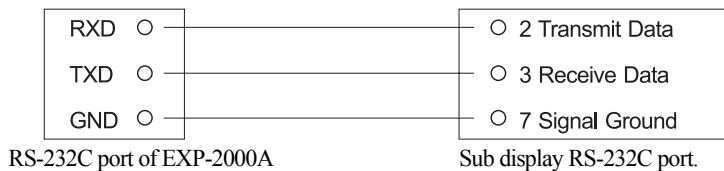
F04 : 0 (Manual), 1 (Automatic)	F05 : 1 (7000 Series), 2 (ND Series)
F06 : Print Form	

■ PC - 25 pin
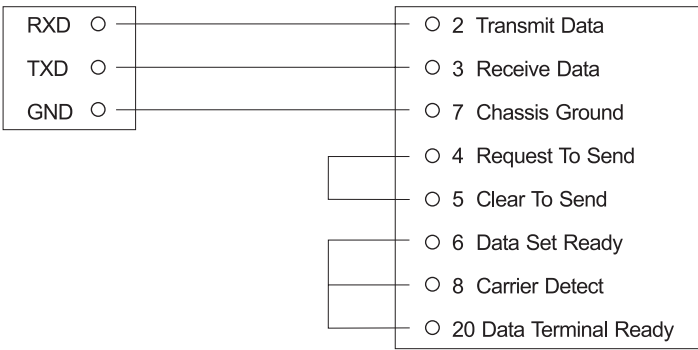
```
RXD  ○───────────────────○  2  Transmit Data

TXD  ○───────────────────○  3  Receive Data

GND  ○───────────────────○  7  Chassis Ground

                         ○  4  Request To Send

                         ○  5  Clear To Send

                         ○  6  Data Set Ready

                         ○  8  Carrier Detect

                         ○ 20  Data Terminal Ready
```

RS-232C port of EXP-2000A   PC RS-232C port. (Female)

F05 : 0(Printer is not used)	F07 : Baud rate set
F08 : Data set sent to PC	F09 : Device Number

■ PC - 9 pin

```
RXD  ○───────────────────○  2  Transmit Data

TXD  ○───────────────────○  3  Receive Data

GND  ○───────────────────○  5  Chassis Ground

                         ○  7  Request To Send

                         ○  8  Clear To Send

                         ○  6  Data Set Ready

                         ○  1  Carrier Detect

                         ○  4  Data Terminal Ready
```
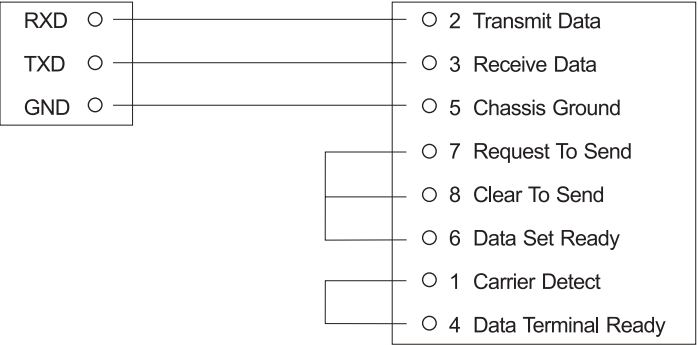
RS-232C port of EXP-2000A   PC RS-232C port.(Female)

F05 : 0(Printer is not used)	F07 : Baud rate set
F08 : Data set sent to PC	F09 : Device Number

(4) RS 422/485 Connection   -OPTION-

```
IN (+)    ○ ──────────────┐        ○  2  Transmit Data (+)
                          │
OUT(-)    ○ ────────────┐ │        ○ 15  Receive Data  (-)
                        │ │
IN (-)    ○ ──────────┐ │ │        ○ 14  Transmit Data (-)
                      │ │ │
OUT(+)    ○ ────────┐ │ │ │        ○  3  Receive Data  (+)
                    │ │ │ │
GND       ○ ──────┐ │ │ │ │        ○  1  Ground
                  │              ┌─ ○  7  Ground
                  └──────────────┘
                                   ○  4,5,6,8  wire connect

                                   ○ 16,17,18,19  wire connect
```
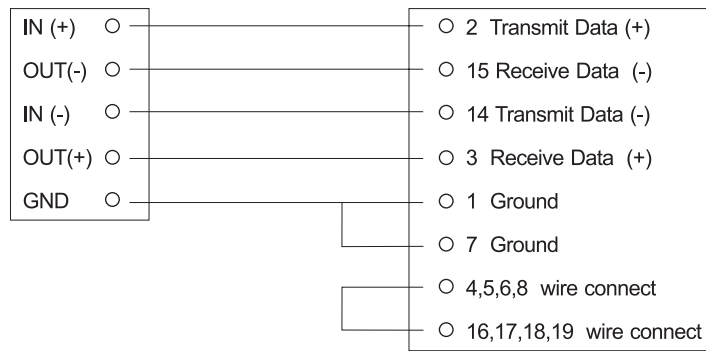
RS-232C port of EXP-2000A   PC Serial port.(Female)

F05 : 0(Printer is not used)	F07 : Baud rate set
F08 : Data set sent to PC	F09 : Device Number

9. Communication Program

■ C Language

```
#include <bios.h>
#include <conio.h>
#define COM1          0
#define DATA_READY 0x100
#define TRUE          1
#define FALSE         0
#define SETTINGS ( 0x80 | 0x03 | 0x00 | 0x00)
int main(void)
{ int in, out, status, DONE = FALSE;
   bioscom(0, SETTINGS, COM1);
   cprintf("... BIOSCOM [ESC] to exit ...\n");
   while (!DONE)
   { status = bioscom(3, 0, COM1);
      if (status & DATA_READY)
      if ((out = bioscom(2, 0, COM1) & 0x7F) != 0)   putch(out);
      if (kbhit())
      {   if ((in = getch()) == '\x1B')   DONE = TRUE;
         bioscom(1, in, COM1);
      }
   }
   return 0;
}
```

■ **GW-BASIC Language**

```
10 OPEN "COM1:9600,N,8,1" As #1
20 IF LOC(1) = 0    THEN 60
30 A$ = INPUT$(1,1)
40 PRINT A$ ; " ";
50 GOTO 20
60 B$=INKEY$ : IF B$ ="" THEN 20
70 PRINT B$ ; " ";
80 PRINT #1,B$;
90 GOTO 20
```

10. Tramsmit Data Format

(1) Baud rate : 2400 bps - 19200 bps
    Choose Baud rate in SET mode(F07).
    Refer to SET mode.

(2) Data bit: 8 , Stop bit: 1   , Parity bit: None

(3) Code : ASCII

(4) When data is sent to computer ?
    Set in SET mode(F08).

(5) Data Format

		,		,		,	DATA(8 byte)		K	G	CR	LF

US(unstable)   GS(gross)

ST(stable)   NT(net)   lamp status byte   blank

OL(overload)   Device ID

11. TEST MODE

(1) How to enter this mode

Turn on the power while pressing the (ZERO/1) key on the front of the indicator.

(2) Test Menu (TEST 1 - TEST 5)

TEST 1 : Key test

TEST 2 : LED Display test

TEST 3 : Load cell test and A/D conversion test

TEST 4 : Serial interface test

TEST 5 : Printer test

TEST 1

FUNCTION: Key test		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET : to initial menu Other keys : Perform test	**KEY --**	TEST 1 condition. Press the key to be test and the no. and code corresponding to the key is displayed.

< Key List >

1 ZERO	2 HOLD	3 TARE	4 SUM	5 TOT	6 ID
01	02	03	04	05	06
7 PRT	8 G/N	9 K.T	0 TIME	• CLR	SET
07	08	09	00	10	11

TEST 2

FUNCTION : LED screen test		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET : to initial menu Other keys : Perform test	**dISP**	*8.8.8.8.8.8.* ■　■　■　■

TEST 3

FUNCTION : A/D converter test		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET : to initial menu	**23500**	TEST 3 condition Dispaly digital value of current weight. This value means converted digital value.

REF 1. Check whether digital value is changing.
     If the digital value is fixed or zero is displayed, please check the connection of load cell.

TEST 4

FUNCTION : RS-232 test with computer (SERIAL port)		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET : to initial menu Other keys : Transmit key	**01---03**	01 : Receive 03 : Transmit

REF 1. Do this test after the connection of serial port of computer and serial port
     of indicator is done.
REF 2. Send no.1 in computer keyboard and check if indicator receives no.1
     Send no.1 in indicator keyboard and check if computer receives no.1
REF 3. Do this test after baud rate is specified in SET mode (F07).

TEST 3

FUNCTION : Printer test (PRINTER)		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET : to next menu \Other keys : Perform test	**Good**	No error in printer

REF 1. Perform test only when the printer option are installed.
REF 2. Previously specify the printer which will be used in the conversion mode (F-08)
REF 3. "GOOD" message is displayed if the printer connection and specification is
     done correctly. If not, "Pr-Err" message is displayed.
REF 4. The test output format of printer is like follows.

```
CAS Corporation
TEL 02-475-4661
FAX 02-475-4668
TEST OK
```

12. CALIBRATION MODE

(1) How to enter

Turn on the power while pressing the (³TARE) key on the front of the indicator.

(2) CALIBRATION MENU (CAL 1 - CAL 5)

CAL 1 : Maximum Capacity

CAL 2 : Minimum Division

CAL 3 : Setting Weight

CAL 4 : Zero Calibration

CAL 5 : Span Calibration

CAL 1 (press 'SET' key to move to CAL 1)

FUNCTION : Maximum Capacity SET		
RANGE ---> 1 ~ 99,999		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET key : store and move into next menu NUMERIC key : set value change CLR key : initial value	**5000** **20000**	5000 kg 20000 Kg

REF 1. The maximum capa. means the maximum weight that scale can measure.

REF 2. Do not input the resolution, there is no need to input the resolution which is automatically calculated.

CAL 2

FUNCTION : Minimum Division SET		
RANGE ---> 0.001 ~ 500		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET key : store and move into next menu NUMERIC key : set value change CLR key : input the point, initial value.	**1** **0.2** **0.05** **0.001**	1 kg 0.2 kg 0.05 kg 0.001 kg

REF 1. The minimum division means the value of one division.

REF 2. External resolution is obtained by dividing the min. division by the maximum capacity. Set the resolution to be within 1/10,000.

REF 3. When you press other keys except '1', '2', '5' and '0', A retry beep will sound.

CAL 3

FUNCTION : Setting Weight In Span CALIBRATION		
RANGE ---> 1 ~ Maximum capacity of CAL1		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET key : store and move into next menu NUMERIC key : set value change CLR key : input the point, initial value.	**L= 5000** **L= 500**	5000 kg 500 kg

REF 1. The setting weight shall be within the range of 10 % ~ 100 % of maximum weight.

CAL 4

FUNCTION :Zero Calibration		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET key : Zero calibration	**UnLOAd**	Unload the tray and press SET The program moves into Span calibration automatically.

REF 1. If Zero calibration is done without any error, SUCCESS message is displayed and program moves into CAL 5 automatically.
REF 2. If the zero value is too low, high check message (CH 14) is displayed.

CAL 5

FUNCTION :Span Calibration		
KEY	**LED DISPLAY**	**DESCRIPTION**
SET key : Span calibration	**LOAd**	Load the weight which was set in CAL 3 and press SET key.

REF 1. If Span calibration is done without any error, Good message is displayed.
REF 2. If the span is low, check message (CH 13) is displayed.

13. SET MODE

(1) How to enter this mode ?

urn on the power while pressing the (HOLD) HOLD key on the front of the indicator.

(2) SET MENU (FO1 - F09)

GENERAL FUNCTION	
F01 Change DATE / TIME	Year, Month, Day / Hour, Minute, Second
F02 Digital Filter	1 7
F03 Weight Backup	Power-on actual weight

PRINT FUNCTION	
F04 Manual Print / Automatic Print	0 / 1
F05 Employed printer set	Serial 7000series printer, ND series printer
F06 Print-Form set	5 Type

SERIAL INTERFACE	
F07 Baud rate set	2400, 4800, 9600, 19200bps
F08 Data set sent to computer	0, 1, 2, 3
F09 Device number	00 99

GENERAL FUNCTION

F01

Function	Change of year, month, date	
Set value	Example LED	Meaning
	97.05.01	May 1st, 1997

Note 1. Modify the year, month and date by pressing the numerical keys.
Note 2. The program moves into Time adjustment automatically.

Function	Time adjustment	
Set value	Example LED	Meaning
	10.30.01	Ten thirty and one second, A.M.
	22.20.00	Exact time of ten twenty P.M.

Note 1. Modify the time by pressing the numerical keys.

F02

Function	Digital Filter	
Set value (from 1 to 7)	Example VFD	Meaning
	1	in high speed
	4	in normal speed
	7	very slowly

Note 1. Adjust the speed variation of the weight on the screen to be suitable for
the current usage.

F03

Function	Weight backup	
Set value (1, 7)	Example LED	Meaning
	0	weight backup is off
	1	weight backup is on

Note 1. If the AC power is OFF suddenly and weight backup is ON,
the scale recovers previous weight after the power is ON.
Note 2. On and Off are alternately displayed by pressing the numerical keys.

PRINT FUNCTION

F04

Function	Automatic print	
Set value (0, 1)	Example LED	Meaning
	0	Manual print
	1	Automatic print

Note 1. Upon setting the automatic print, the print is carried out without pressing the
print key when the weight is in stable state.

F05

Function	Employed printer set	
Set value (from 0 to 2)	Example LED	Meaning
	0	Printer is not used
	1	Serial printer 7000 series
	2	Serial printer ND series

Note 1. The default value is set to 0 at factory.

F06

Function	Print Form	
Set value (from 0 to 5)	Example LED	Meaning
	0	form 0 (date, time, Serial No., ID No., Net weight)
	1	form 1 (date, time, Weigh No., Net weight)
	2	form 2 (date, time, Gross, Tare, Net weight)
	3	form 3 (date, time, Net weight)
	4	form 4 (date, time, ID No., Net weight)
	5	form 5 (date, time, serial No., net weight)

Note 1. Serial No. increment from 1 to 999 and initialized to 1 after
"GRAND TOTAL" key pressed or power-off.
Note 2. Weigh No. increment from 1 to 999 and is not initialized to 1 after power-off.

【 Output Form 0 】
Date, Time
Serial No., ID No., Net weight

```
1997. 10. 1          12:30
001,   ID_11,     50.0 kg
002,   ID_12,    100.0 kg
003,   ID_19,    200.5 kg
```

【 Output Form 1 】
Date, Time
 Weigh No., Net weight

```
1997. 10. 1          12:30
No.10              50.0 kg
No.11             100.0 kg
No.12             200.5 kg
```

【 Output Form 2 】
Date, Time
Gross, Tare, Net weight

```
1997. 10. 1          12:30
Gross :        1000.0 kg
Tare  :             0 kg
Net   :        1000.0 kg

Gross :        2000.0 kg
Tare  :         500.0 kg
Net   :        1500.0 kg
```

【 Output Form 3 】
Date, Time
Time, Net weight

```
1997. 10. 1          12:30
10:10, Net:     100.0 kg
11:00, Net:     200.0 kg
12:30, Net:     200.0 kg

13:45, Net:     100.0 kg
15:20, Net:     200.0 kg
17:45, Net:     500.0 kg
```

【 Output Form 4 】
Date, Time
ID No., Net weight

```
1997. 10. 1          12:30
ID_11, Net:      50.0 kg
ID_12, Net:     100.0 kg
ID_19, Net:     200.5 kg
```

【 Output Form 5 】
 Date, Time
 Serial No., Net weight

```
1997. 10. 1          10:30
001,           1000.0 kg
1997. 10. 1          15:20
002,           2000.0 kg
```

SERIAL INTERFACE

F07

Function	Baud rate set			
Set value (from 0 to 3)	Example LED	Meaning	Example FIP	Meaning
	0	2400 bps	2	9600 bps
	1	4800 bps	3	19200 bps

F08

Function	Data set sent to computer	
Set value (0 - 3)	Example LED	Meaning
	0	No data output
	1	Transmission in an state of stable & unstable
	2	Transmission only in stable state
	3	Transmission only when requiring data

Note 1. The default value is set to 0 at factory.
Note 2. when F08 is set to 3, the command of transmission is the byte which is specified in F09.

F09

Function	Device number (Identification number of each indicator)	
Set value (from 00 to 99)	Example VFD	Meaning
	00	Device No. 00
	05	Device No. 05

Note 1. This device number is the data demanding signal in serial communication.

14. MAIN USAGE OF EXP-2000A

(1) HOLD FUNCTION

AUTO HOLD FUNCTION
Press HOLD key when display shows '0'.'AH-on' will displayed and blinking.
In case of weighing moving thing, "HoLd" will appear after the weight is
stable. After that, mean value will be displayed.
When you need to turn manual hold mode from the automatic hold mode, press
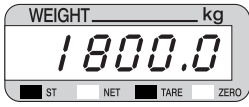HOLD key when the display shows "0"
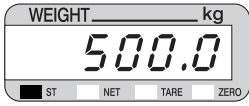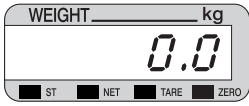
MANUAL HOLD FUNCTION
Press HOLD key after weighing moving things. "HoLd" message sill appear and
little while after mean value would be displayed.
To delete hold value, return to the normal mode by pressing HOLD key again.
Manual hold is automatically cancel When the display shows "0"
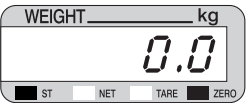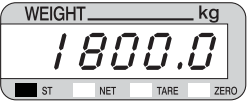
(2) TARE WEIGHT DEDUCTION

In case you don't know the tare weight

	LED DISPLAY or KEY	ON PLATFORM	DESCRIPTION
STEP 1	WEIGHT ___ kg *500.0* ST NET TARE ZERO	Container	Tare weight (Container) : 500.0 kg
STEP 2	**TARE KEY**		
STEP 3	WEIGHT ___ kg *0.0* ST NET TARE ZERO	Container	The indicator memorize the tare weight.
STEP 4	WEIGHT ___ kg *1300.0* ST NET TARE ZERO	Container + Content	Article weight : 1300.0 kg Net weight is displayed now
STEP 5	**G/N KEY**		
STEP 6	WEIGHT ___ kg *1800.0* ST NET TARE ZERO	Container + Content	Gross weight : 1800.0 kg

In case you know the tare weight

	LED DISPLAY or KEY	ON PLATFORM	DESCRIPTION
STEP 1	WEIGHT _____ kg `0.0` ST NET TARE ZERO	Empty	
STEP 2	WEIGHT _____ kg `1800.0` ST NET TARE ZERO	Container + Content	You know that tare weight is 500.0 Weight of article only?
STEP 3	**K.T KEY**		Type tare weight
STEP 4	WEIGHT _____ kg `500.0` ST NET TARE ZERO	Container + Content	5→0→0
STEP 5	**SET KEY**		
STEP 6	WEIGHT _____ kg `1300.0` ST NET TARE ZERO	Container + Content	Article weight is 1300 kg Net weight is displayed now. The indicator memorize the tare weight.

Clear tare weight.

	LED DISPLAY or KEY	ON PLATFORM	DESCRIPTION
STEP 1	WEIGHT _____ kg **0.0** ST NET TARE ZERO	Container	Tare Weight was memorized before. Assume that Tare Weight is 100.0 kg
STEP 2	WEIGHT _____ kg **- 100.0** ST NET TARE ZERO	Empty	The memorized tare weight is on the display.
STEP 3	**TARE KEY**		
STEP 4	WEIGHT _____ kg **0.0** ST NET TARE ZERO	Empty	Tare weight is initaized to "0.0"

(3) PRINT FUNCTION

Sub total print
Used to print total weight of previously weighed result by ID number.
(6/ID KEY   ID   SET KEY   4/SUM KEY)
for example, let's assume that the current specified ID number is 5.
the print form is as belows.

```
------------------
      SUB TOTAL
------------------
DATE :        1997. 9. 25
TIME :            09:30
CODE :               3
COUNT:               5
TOTAL:         350.0 kg
```

After printing is done, the total weight and count corresponding to the ID
number is initialized to 0.

Overall total print
Used to print total weight regardless of ID number.
the print form is as belows.

```
------------------
     OVERALL-TOTAL
------------------
DATE :        1997. 9. 25
TIME :            16:30
COUNT:              25
TOTAL:         750.0 kg
```

After printing is done, the total weight and count remains.
If you want to initialize them, press this key and then 'CLR' key.
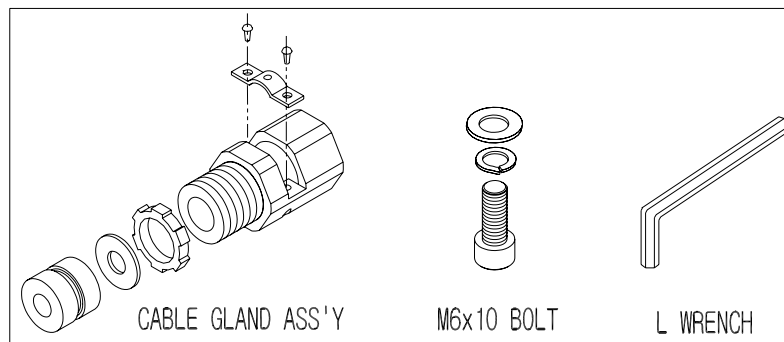
Initialization of number measured daily
./CLR   "CLEAr"   ./CLR   1
('0' and '1' are alternately displayed pressing the numerical keys.)

15. ACCESSORY

NAME	QUANTITY
1. CABLE GLAND ASS'Y (PF 1/2″)	1 EA
2. Bolt (M6×10)	4 EA
3. L Type wench	1 EA

CABLE GLAND ASS'Y   M6x10 BOLT   L WRENCH

16. CHECK MESSAGE

(1) Operating Mode

CH 01

Reason
Internal RAM is erased.

Solution
Confirm the setting value in SET Menu.

CH 02

Reason
Load cell connection failure or error in A/D conversion part.

Solution
Check the Load Cell connector to see if the polarity of signal is reversed.

CH 03

Reason
stable to initialize the scale.

Solution
Place the scale on a stable surface.

CH 04

Reason
Zero range deviate from the set range (±10% of Max.)

Solution
Confirm that there is nothing on the weighting platform.

Over

Reason
The display weight is larger than the Maximum Capacity you've set.

Solution
Don't load the article whose weight is larger than the Max. Capacity on the platform scale. This may damage Load Cell.

(2) Calibration Mode

CH 11

Reason
The resolution is set to be exceeded the limit 1/10,000.

Solution
lower the resolution. modify the allowed weight in CAL1 or modify the
division in CAL2 so that the resolution should be below 1/10,000.

CH 12

Reason
The weight for span calibration is set to be lower than 10% of the maximum
capacity of the scale, or exceeded 100% of the maximum capacity of the scale.

Solution
Set the weight for span calibration to be within the maximum capacity of
the scale in CAL1.

CH 13

Reason
Load cell output is too small(large) at SPAN calibration.

Solution
Setting of current resolution is not possible due to the error in load
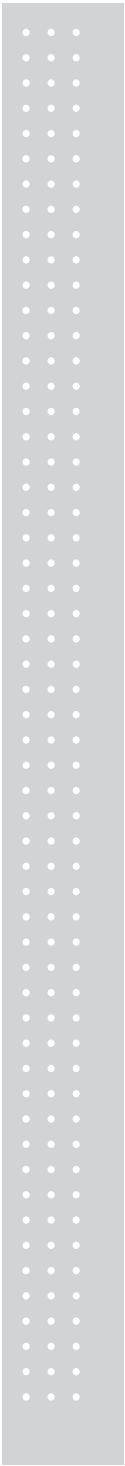cell. proceed calibration again with less resolution.

CH 14

Reason
Load cell output is too small(large) at ZERO calibration.

Solution
Check whether the ;platform empty.
Proceed calibration again after checking in A/D TEST mode.

MEMO

CAS

S · C · A · L · E