# AD-8922

## Remote Controller

# INSTRUCTION MANUAL

A&D Company, Limited

WM+PD4000929A

The contents of this manual and the specifications of the instrument covered by this manual are subject to change for improvement without notice.

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# 1 INTRODUCTION

The AD-8922 is a remote controller. Read this manual completely before using the AD-8922 in order to ensure a sufficient understanding for proper use.

## 1-1 Outline

The AD-8922 is connected to an A&D manufactured weighing instrument, using the RS-232C serial interface.

- Displays the weighing data transmitted by the weighing instrument.
- Key operations remotely control the weighing instrument.

  (Entering the function setting mode of the weighing instrument or calibration using an external weight is not available. Available operations depend on the weighing instrument used. See Table 2 in "1-2 Applicable Instruments".)
- The data the AD-8922 receives can be output, using the RS-232C serial interface. So, external devices such as a personal computer or a printer can be connected to the AD-8922.
- Can be panel-mounted.
- Various options such as BCD output, comparator output, current loop input and analog output are available. For details, refer to "9 OPTIONS" and the following relevant chapters.

## 1-2 Applicable Instruments

Applicable weighing instruments and what is required are shown in the table below.

Table 1 Applicable weighing instruments and what is required

| Weighing instrument | What is required to connect to a weighing instrument | | Cable required to connect to an external device such as | |
|---|---|---|---|---|
| | Option for the instrument | Communications cable (Length 2 m) | Personal computer | AD-8121B compact printer |
| GX, GF, GX-K, GF-K, GP, FP, AD-4212, GR, HR | None (D-Sub 25-pin) | AX-KO1710-200 | AX-KO1786-200 | AX-KO462-200 |
| EK-*i*, EW-*i*, FC-*i*, FC-S*i*, GH, HR-*i* | None (D-Sub 9-pin) | AX-KO2466-200 | | |
| EK-G, EK-H, ET-W, EW-G | OP-03 (D-Sub 25-pin) | AX-KO1710-200 | | |
| HV-G, HV-WP, HW-G, HW-WP | None (DIN 7-pin) | AX-KO1786-200 | | |
| FG | OP-03 (DIN 7-pin) | AX-KO1786-200 | | |
| FS, FS-KL | OP-03 (DIN 8-pin) | AX-KO1786-200 | | |
| FG-L, FG-M | OP-23 (DIN 8-pin) | AX-KO1786-200 | | |

**Note: The standard communications cable is AX-KO1710-200. A substitute communications cable may be provided as specified when ordering the AD-8922.**

The AD-8922 functions in two ways as follows, depending on the weighing instrument used:

- A remote controller that displays the weighing data and remotely controls the weighing instrument.
- A remote display that displays the weighing data.

Available key operations depend on the weighing instrument used, as shown below. Set the command set "CSEt" of the function setting, appropriate to the weighing instrument.

Table 2 Applicable weighing instruments and key operations

| Weighing instrument | AD-8922 key | | | | | | Command set *4 |
|---|---|---|---|---|---|---|---|
| | ON:OFF | CAL | SAMPLE | PRINT | MODE | RE-ZERO | |
| GX, GX-K, GP, GH, ET-W | Turns the weighing instrument display on or off. | Calibrates using the internal mass. | Switches the minimum display. *1 | Outputs the received data to an external device. *2 | Switches the unit displayed. *3 | Sets the display to zero. | CSEt 1 |
| GR | | | | | | | CSEt 2 |
| GF, GF-K, EK-H, AD-4212, HR, HR-*i* | | — | | | | | CSEt 3 |
| EK-*i*, EW-*i* | — | — | — | | | | CSEt 4 |
| EK-G, EW-G, FC-i, FC-Si, FG, FG-L, FG-M, FP, FS, FS-KL, HV-G, HV-WP, HW-G, HW-WP | — | — | — | | — | — | CSEt 0 |

**Note: "—" in the table indicates that the key operation is not available.**

***1: Not applicable to the counting mode and the percent mode. Switching the minimum display is not available for the ET-W.**

***2: Available when the AD-8922 is in key mode ("out 1" or "out 2" of the function setting).**

***3: Not available for the ET-W and AD-4212**

***4: AD-8922 function settings**

# 1 - 3 Compliance

## 1 - 3 - 1 Compliance with FCC Rules

Please note that this equipment generates, uses and can radiate radio frequency energy. This equipment has been tested and has been found to comply with the limits of a Class A computing device pursuant to Subpart J of Part 15 of FCC rules. These rules are designed to provide reasonable protection against interference when equipment is operated in a commercial environment. If this unit is operated in a residential area, it may cause some interference and under these circumstances the user would be required to take, at his own expense, whatever measures are necessary to eliminate the interference.

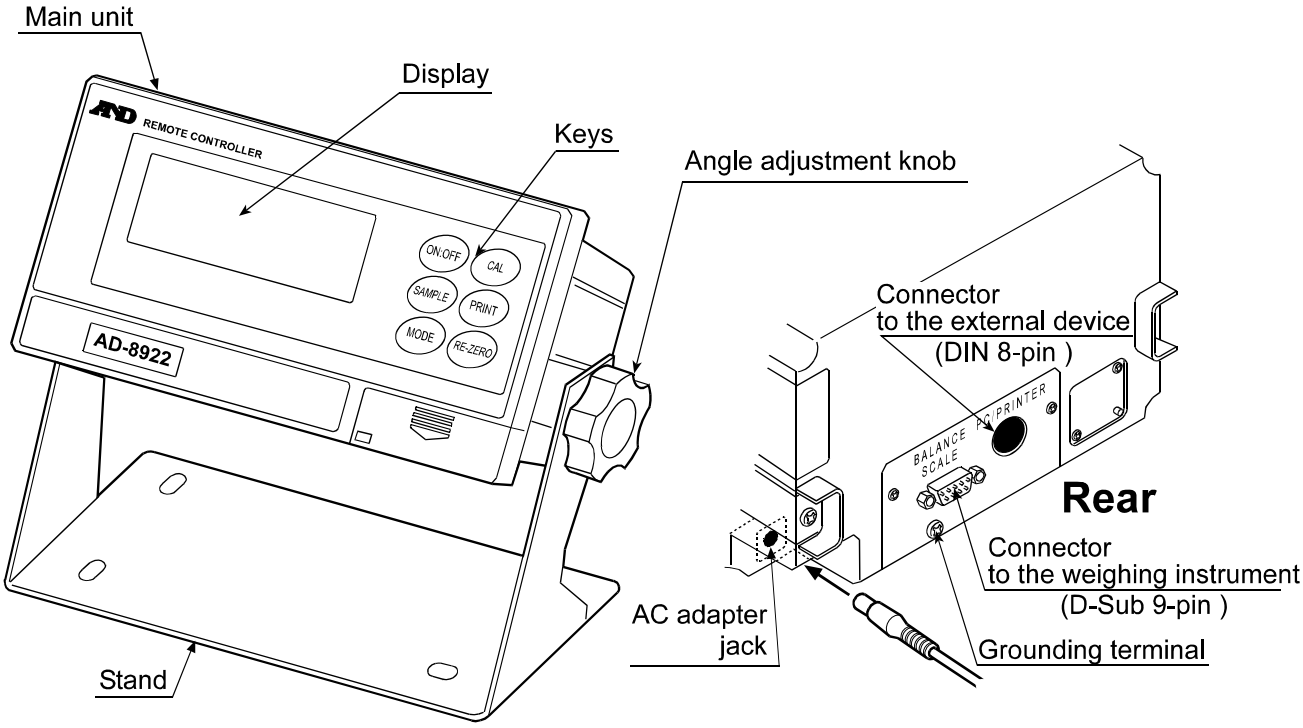
(FCC = Federal Communications Commission in the U.S.A.)

## 1 - 3 - 2 Compliance with EMC Directives

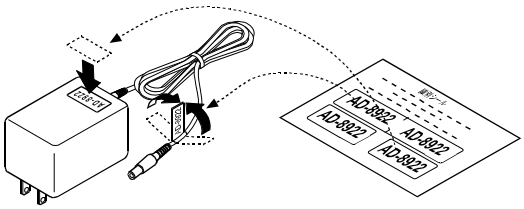
CE

This device features radio interference suppression in compliance with valid EC Regulation 89/336/EEC.

# 2 DESCRIPTION OF EACH PART

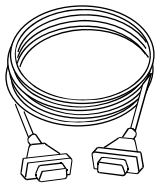



## Accessories




AC adapter

AC adapter identification label



Communications cable
to connect to a weighing instrument
(Length: Approx.2 m, 1 pc.)
D-Sub 25-pin to D-Sub 9-pin
(AX-KO1710-200)

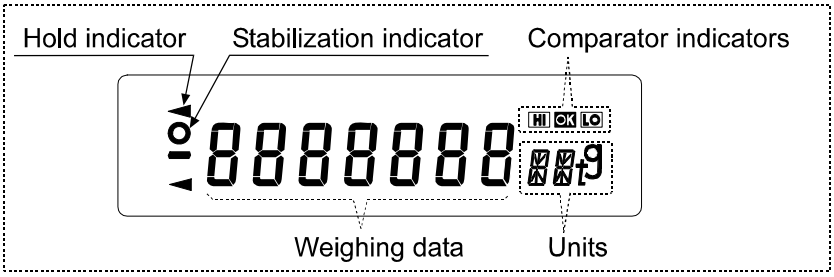
**See Note below.**

**Note: Please confirm that the AC adapter type is correct for your local voltage and receptacle type.**

**A substitute communications cable, listed below, may be provided as specified when ordering the AD-8922.**

- **D-Sub 9-pin to D-Sub 9-pin (AX-KO2466-200)**
- **DIN 7-pin to D-Sub 9-pin (AX-KO1786-200)**

## 2 - 1 Display




- Displays the weighing data and the unit (or mode) received. The unit (or mode) may be different from that of the weighing instrument.
- Turns on the stabilization indicator when the header of the weighing data received is "ST", "QT", or "WT".
- Turns on the comparator indicator when the comparison results are added to the data received. Applicable to GX-K, GF-K, GP and AD-4212. (Function setting "CP-r")
- When nothing has been received for two seconds or more, the bar display [- - - - -] appears. By changing the function setting, the previous data received is displayed until the next data is received (Hold display). During the hold display, the hold indicator is turned on.

**Note: When the data is in eight digits, the highest-order digit is displayed in the upper left corner as shown below.**

**For example, if the weighing data is 101.00000 g, the display is like**  **.**

## 2 - 2 Key Operation

Available key operations to control the weighing instrument depend on the weighing instrument used. For details, see Table 2 in " 1-2 Applicable Instruments".

Set the command set "CSEt" of the function setting, appropriate to the weighing instrument.

To enter the function setting mode of the AD-8922, press and hold the ON:OFF key and press the CAL key.

The weighing instrument has its own function settings and the AD-8922 can not change those settings.

## 2 - 3 Connectors

### 2 - 3 - 1 Connector to the weighing instrument (BALANCE / SCALE) ... D-Sub 9-pin male

Used to connect to the weighing instrument. The cable used for connection depends on the instrument. For details, refer to the instruction manual of the weighing instrument.

### 2 - 3 - 2 Connector to the external device (PC / PRINTER) ... DIN 8-pin female

Used to connect to an external device such as a personal computer or a printer (AD-8121B). The cable used for connection depends on the device. For details, refer to the instruction manual of the device.

# 3 GETTING READY

## 3 - 1 Setting the Weighing Instrument and the AD-8922

1. Set each item as shown below. Set the same value for the weighing instrument and the AD-8922.

Table 3

| Item | Weighing instrument | AD-8922 |
|---|---|---|
| Baud rate | 600, 1200, **2400,** 4800, 9600. 19200 bps | |
| Data bits, Parity bit | **7 bits - EVEN**, 7 bits - ODD, 8 bits - NONE | |
| Stop bits | **1 bit** or 2 bits | |
| Terminator | <CR> or **<CR><LF>** | |
| Data format | A&D standard format | — |
| Communication control | No RTS/CTS control | — |
| Data output mode | Stream mode* | — |

**Items in bold face type: Factory settings for both the AD-8922 and the weighing instrument.**

*** When connected to an external device, the settings can be changed to suit the use.**

2. Set the command set "CSEt" of the function setting, appropriate to the weighing instrument. See Table 2 in "1-2 Applicable Instruments".

**Note: Some items may not be available for the instrument used. For details on setting, refer to the instruction manual of each weighing instrument.**

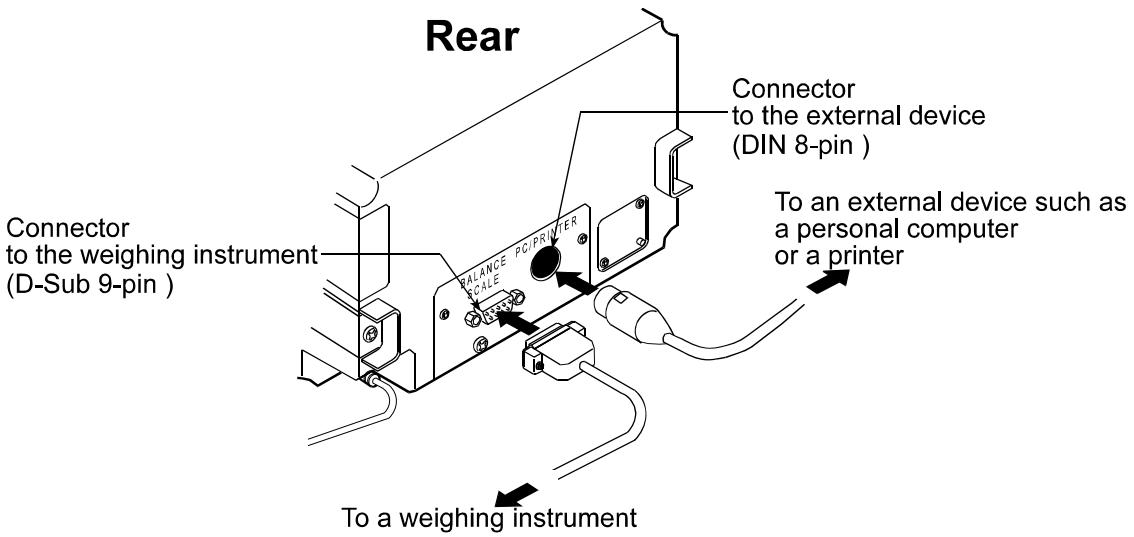
**When connected to an external device such as a personal computer or a printer, set the output mode "out" and time out "HoLd" of the function setting, and set the data output mode of the weighing instrument, appropriate to the use. (See Table 3 in "3-5 Example of Use".)**

## 3 - 2 Connecting the AD-8922

For information on cables required for connection, see Table 1 in " 1-2 Applicable Instruments".

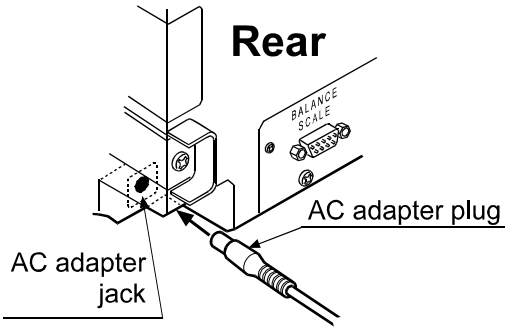
Connect the weighing instrument to the AD-8922 D-Sub 9-pin connector.

Connect an external device such as a personal computer or a printer to the AD-8922 DIN 8-pin connector.



## 3-3 Turning the Power on

Insert the AC adapter plug into the AC adapter jack located on the rear of the AD-8922. Plug the AC adapter into an appropriate electrical outlet.




## 3-4 Operation

- The AD-8922 displays the weighing data transmitted by the weighing instrument used.
- The AD-8922 key operations remotely control the weighing instrument.

Available operations depend on the weighing instrument. See Table 2 in "1-2 Applicable Instruments".

## 3-5 Example of Use

- A personal computer is connected to the AD-8922 and the weighing data can be transmitted to the personal computer, using Windows communication tools (WinCT).
- To protect against inadvertent operations, the AD-8922 keys can be disabled. (Function setting "CSEt 0").
- When nothing has been received for two seconds or more, the bar display [- - - -] appears. By changing the function setting, the previous data received is displayed until the next data is received (Hold display). (Function setting "HoLd 1")
- About details on the settings of the weighing instrument or the external device, see the relevant instruction manual.

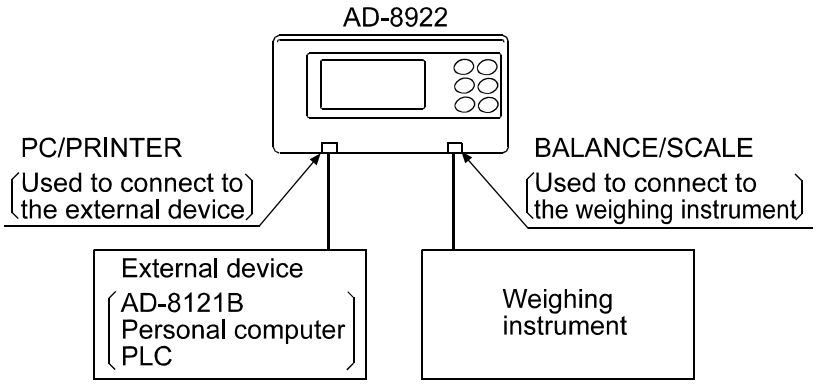



Table 4 Use of the AD-8922

| Example of use | Weighing instrument | AD-8922 setting | | | External device setting |
|---|---|---|---|---|---|
| Monitors the weighing data of the weighing instrument remotely. | Stream mode (Outputs the weighing data continuously.) | Through mode | "out 0" | Sends all of the received weighing data to the external device. | [AD-8121B] MODE 2 (Prints data in conjunction with theAD-8121B DATA key or interval setting.) |
| | | Key mode 1 | "out 1" | When the AD-8922 PRINT key is pressed, sends the latest weighing data received to the external device, regardless of the data status. | [AD-8121B] MODE 1 (Prints data when the AD-8121B DATA key is pressed.) |
| | | Key mode 2 | "out 2" | When the AD-8922 PRINT key is pressed, sends the latest weighing data received to the external device when the data is stable. | |
| | Key mode or Auto print mode (Outputs the weighing data when the key is pressed or outputs the data automatically when stable.) | Through mode | "out 0" | Sends all of the received weighing data to the external device. | [AD-8121B] MODE 1 (Prints data according to the data output mode of the weighing instrument.) |
| Monitors the weighing data of the weighing instrument that is built into a weighing system. | Command mode * (Outputs the weighing data by the data request command.) | Through mode | "out 0" | Sends all of the received weighing data to the external device. | [Personal computer or PLC] (The program to control the device is required.) |

* The command mode may not be available for weighing instruments of which command is always valid.

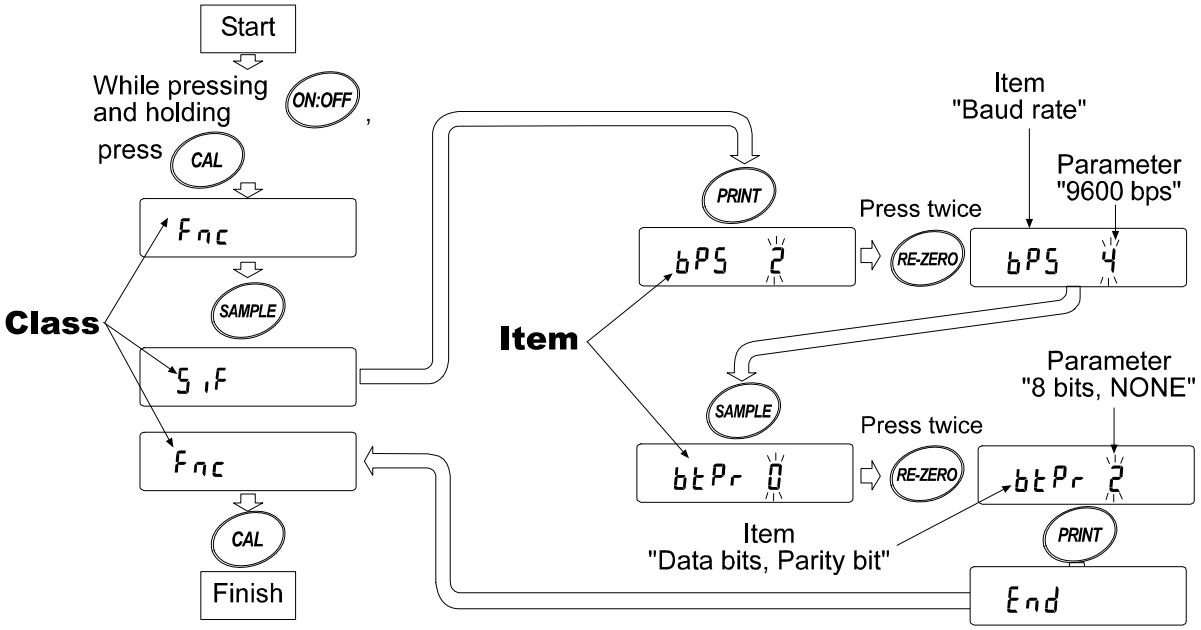
# 4 FUNCTION SETTINGS

The function settings specify the parameters for the AD-8922 performance. These parameters stored, even if the AC adapter is removed, are maintained in non-volatile memory.

The function menu consists of two layers. The first layer is the “Class” and the second layer is the “Item”. Each item is selected by the SAMPLE key. The parameter of the selected item is changed by the RE-ZERO key. Finally, the parameter is stored and is enabled by the PRINT key.

### Example

This example sets “9600 bps” for “Baud rate” and “8 bits NONE” for “Data bits, parity bit”.




**Note: Use much care when changing parameters. The AD-8922 may not function properly when the settings and operational environment are not appropriate.**

## 4 - 1 Display and Keys

Table 5

| Display/Key | Description |
|---|---|
| o | The symbol “**o**” indicates that the parameter displayed is in effect. |
| SAMPLE | Selects the class or item in the function setting mode. |
| RE-ZERO | Changes the parameter. |
| PRINT | When a class is displayed, moves to an item in the class.<br>When an item is displayed, stores the new parameter and displays the next class. |
| CAL | When an item is displayed, cancels the new parameter and displays the next class.<br>When a class is displayed, exits the function setting mode. |

## 4-2 Function Table

Table 6

| Class | Item | Parameter | Description | |
|---|---|---|---|---|
| Fnc Environment Display | CSEt * Command set | 0 | Set 0 | When connected to EK-G, EW-G, FC-*i*, FC-S*i*, FG, FP, FS, FS-KL HV-G, HV-WP, HW-G or HW-WP. Disables the AD-8922 keys for use as a remote display. |
| | | ▪ 1 | Set 1 | When connected to ET-W, GH, GP, GX, GX-K. |
| | | 2 | Set 2 | When connected to a GR series balance. |
| | | 3 | Set 3 | When connected to GF, GF-K, AD-4212, HR, HR-*i*. EK-H. |
| | | 4 | Set 4 | When connected to an EK-*i*/EW-*i* series balance. |
| | out Output mode | 0 | Through mode | Always outputs the data received by the D-Sub 9-pin connector, to the DIN 8-pin connector. |
| | | 1 | Key mode 1 | Outputs the latest data received by the D-Sub 9-pin connector, to the DIN 8-pin connector, when the AD-8922 PRINT key is pressed. |
| | | ▪ 2 | Key mode 2 | Outputs the latest stable data received by the D-Sub 9-pin connector, to the DIN 8-pin connector, when the AD-8922 PRINT key is pressed. |
| | HoLd Timeout | ▪ 0 | Bar display | Bar display if nothing has been received for two seconds or more. |
| | | 1 | Hold display | Displays the previous data received if nothing has been received for two seconds or more, and turns on the hold indicator. |
| | bEP Data receipt buzzer | ▪ 0 | Not used | No buzzer upon data receipt. |
| | | 1 | At intervals | Sounds buzzer when the data is received with an interval of two seconds or more. |
| | | 2 | Used | Sounds buzzer upon each data receipt. |
| SiF Serial interface | bPS Baud rate | 0 | 600 bps | Choose a parameter appropriate to the weighing instrument. When the AD-8121B compact printer is to be connected, leave the factory settings of the AD-8922 as is and set the weighing instrument. |
| | | 1 | 1200 bps | |
| | | ▪ 2 | 2400 bps | |
| | | 3 | 4800 bps | |
| | | 4 | 9600 bps | |
| | | 5 | 19200 bps | |
| | btPr Data bits Parity bit | ▪ 0 | 7 bits - EVEN | |
| | | 1 | 7 bits - ODD | |
| | | 2 | 8 bits - NONE | |
| | StoP Stop bits | ▪ 0 | 1 bit | |
| | | 1 | 2 bits | |
| | CrLF Terminator | ▪ 0 | CR/LF | |
| | | 1 | CR | |

▪Factory setting

* See Table 2 in "1-2 Applicable Instruments" to set the command set "CSEt" of the function setting, appropriate to the weighing instrument.

Continued

| Class | Item | Parameter | Description | |
|---|---|---|---|---|
| bcd BCD (Available only when the BCD output is installed.) | dAtA data | 0 | ON when 0 | |
| | | ▪ 1 | ON when 1 | |
| | PoLP * Polarity | ▪ 0 | ON when positive or 0 | |
| | | 1 | ON when negative | |
| | StbP Stability | 0 | ON when the stabilization indicator is turned off | |
| | | ▪ 1 | ON when the stabilization indicator is turned on | |
| | oErP Over | 0 | OFF when E or -E | |
| | | ▪ 1 | ON when E or -E | |
| | StrP Strobe | 0 | Data refresh is complete when ON → OFF | |
| | | ▪ 1 | Data refresh is complete when OFF → ON | |
| | StrL Strobe pulse width | ▪ 0 | Approx. 10 ms | Strobe pulse width after data refresh |
| | | 1 | Approx. 20 ms | |
| | | 2 | Approx. 50 ms | |
| CP Fnc Comparator (Available only when the comparator output is installed.) | CP Comparator mode | ▪ 0 | No comparison | |
| | | 1 | Comparison, excluding "near zero" when the value is stable or overloaded | |
| | | 2 | Comparison, including "near zero" when the value is stable or overloaded | |
| | | 3 | Continuous comparison, excluding "near zero" | |
| | | 4 | Continuous comparison, including "near zero" | |
| | | 5 | Contact-outputs the second header information of the data received. (Applicable to AD-4212, GP and GX-K) | |
| | bEP_ LO buzzer | ▪ 0 | OFF | Selects whether or not to sound the buzzer when LO. |
| | | 1 | ON | |
| | bEP- OK buzzer | ▪ 0 | OFF | Selects whether or not to sound the buzzer when OK. |
| | | 1 | ON | |
| | bEP¯ HI buzzer | ▪ 0 | OFF | Selects whether or not to sound the buzzer when HI. |
| | | 1 | ON | |
| Aout Analog output (Available only when the analog output is installed.) | An Analog output mode | ▪ 0 | 2-digt output | Converts the consecutive 2 digits, with the digit selected in SEL as the least, to voltage and outputs. |
| | | 1 | 3-digt output | Converts the consecutive 3 digits, with the digit selected in SEL as the least, to voltage and outputs. |
| | SEL Analog output digit selection | ▪ 0 | Selects the first digit as the least. | |
| | | 1 | Selects the second digit as the least. | |
| | | 2 | Selects the third digit as the least. | |
| | | 3 | Selects the fourth digit as the least. | |
| | | 4 | Selects the fifth digit as the least. | |
| | | 5 | Selects the sixth digit as the least. | |

▪ Factory setting

* For Software version 1.10, the parameter 0 is "ON when negative" and the parameter 1 is "ON when positive or 0".
The software version is displayed as "Px.xx" for approx. one second before entering the function setting mode.

# 4-3 Initialization

Initialization restores the AD-8922 function settings to factory settings.

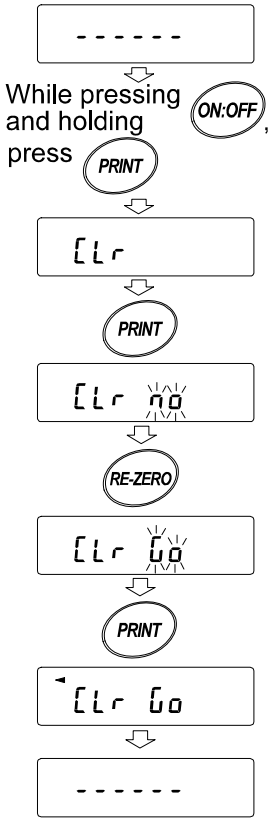
1. Connect the AC adapter. The bar display or the weighing data display appears.

2. While pressing and holding the ON:OFF key, press the PRINT key. "CLr" appears in the display.

3. Press the PRINT key. (To cancel the operation, press the CAL key.)

4. Press the RE-ZERO key to select "Go".

5. Press the PRINT key to perform initialization.
   After initialization, the bar display or the weighing data display appears.



# 5 TROUBLESHOOTING

Shown below is a list of various phenomena of the AD-8922 and the remedies.

Table 7

| Phenomenon | Cause and remedy |
|---|---|
| Error 10 appears. | • The communications settings of the AD-8922 and the weighing instrument are not the same.<br>Check the settings. |
| Error 11 appears. | • The weighing instrument data format is incorrect.<br>Set the data format to A&D standard format. Also check whether or not data other than weighing data is output. |
| The bar display remains and no weighing data appears. | • Is the weighing instrument in the stream mode?<br>Only the stream mode displays the weighing data continuously. Other modes display the data only when received. When the hold display is selected in the AD-8922 function setting, the previous data received is displayed until the next data is received.<br>• Are the communications settings correct?<br>• Is the cable correct? |
| The display flickers. | • Electrical noises may affect the display.<br>Using the grounding terminal located on the rear of the AD-8922, ground the AD-8922. |

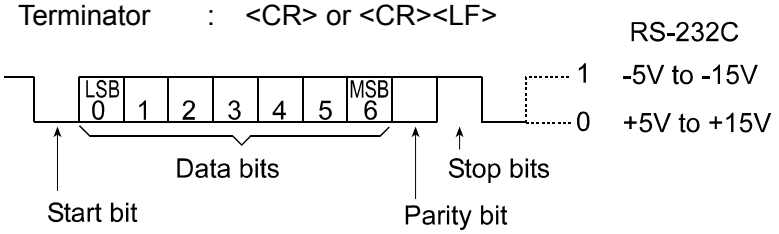
# 6 SPECIFICATIONS

| | | |
|---|---|---|
| Power supply | : | AC adapter<br>(Please confirm that the AC adapter type is correct for your local voltage and receptacle type.) |
| Power consumption | : | Approx.11 VA (Including the AC adapter, AD-8922: approx. 1.5 VA) |
| Transmission system | : | RS-232C |
| Baud rate | : | 600, 1200, 2400, 4800, 9600, 19200 bps |
| Refresh rate | : | Approx. 10 times/second (When Baud rate is 2400 bps or greater). |
| Applicable connectors | : | D-Sub 9-pin (Male) to connect to the weighing instrument<br>DIN 8-pin (Female) to connect to an external device |
| Dimensions | : | 238 (W) x 132 (D) x 170 (H) mm |
| Mass | : | Approx. 1.0 kg |
| Standard accessories | : | AC adapter, Communications cable (Approx. 2 m)<br>(Please confirm that the AC adapter type is correct for your local voltage and receptacle.) |

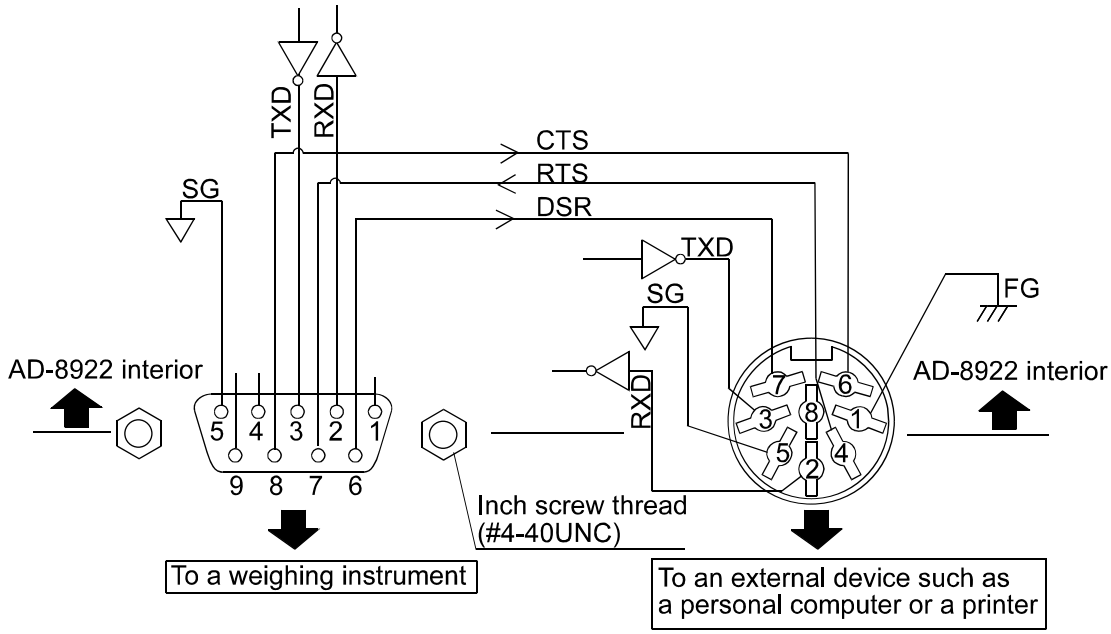
# 7 RS-232C SERIAL INTERFACE

## RS-232C

Transmission system : EIA RS-232C
Transmission form : Asynchronous, bi-directional, half duplex
Data format : Baud rate : 600, 1200, 2400, 4800, 9600, 19200 bps
Data bits : 7 bits or 8 bits
Parity bit : EVEN, ODD (Data bits 7 bits)
NONE (Data bits 8 bits)
Stop bits : 1 bit or 2 bits
Code : ASCII
Terminator : <CR> or <CR><LF>




## Circuit




## Connection to the weighing instrument

D-Sub 9-pin

| Pin No. | Signal name | Direction | Description |
|---|---|---|---|
| 1 | — | — | N.C. |
| 2 | RXD | Input | Receive data |
| 3 | TXD | Output | Transmit data |
| 4 | — | — | N.C. |
| 5 | SG | — | Signal ground |
| 6 | DSR | Input | Data set ready |
| 7 | RTS | Output | Request to send |
| 8 | CTS | Input | Clear to send |
| 9 | — | — | N.C. |

(AD-8922 is a DTE. Connects to a DCE such as a weighing instrument using a straight through cable.)

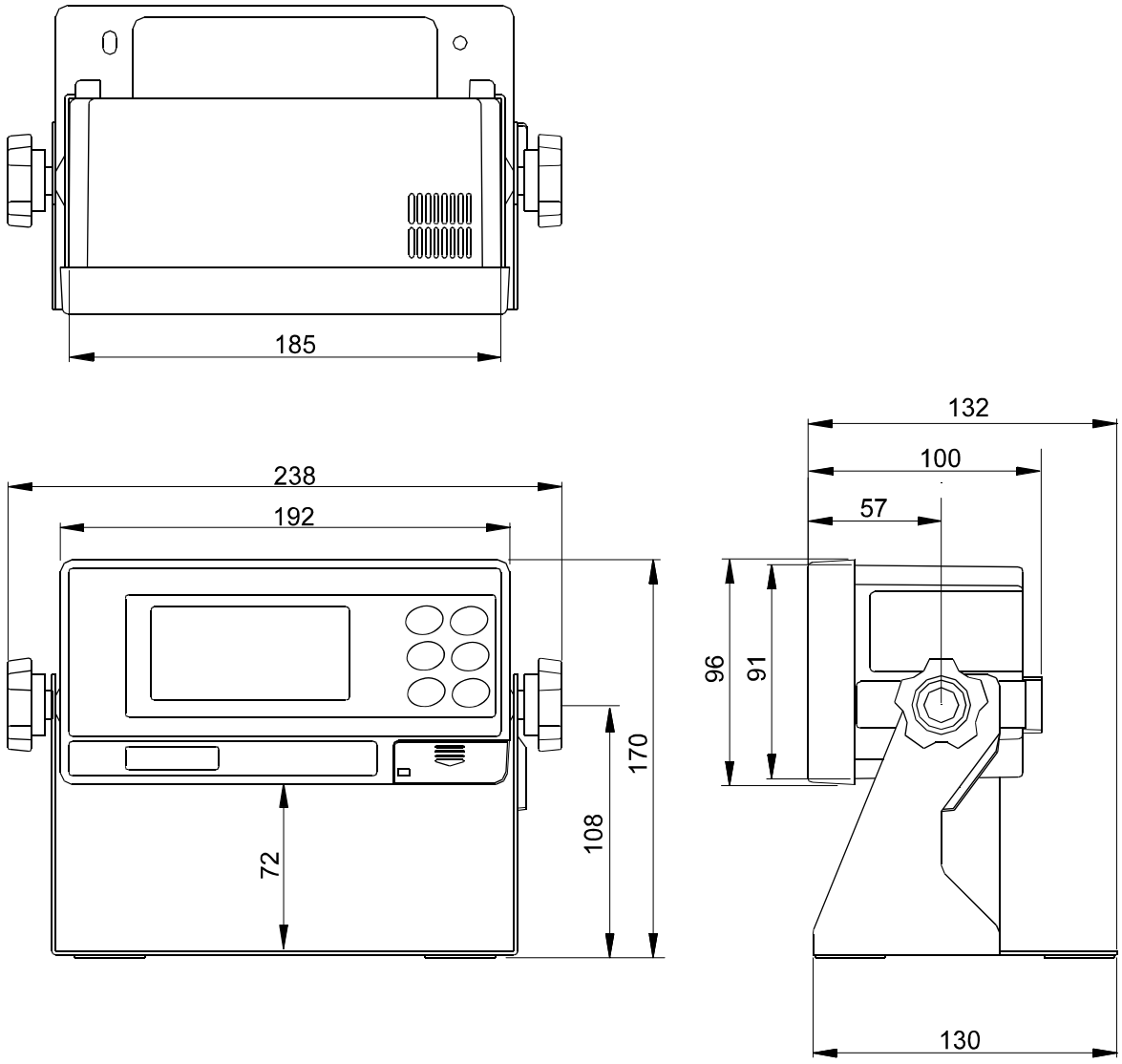
## Connection to an external device

DIN 8-pin

| Pin No. | Signal name | Direction | Description |
|---|---|---|---|
| 1 | FG | — | Frame ground |
| 2 | RXD | Input | Receive data |
| 3 | TXD | Output | Transmit data |
| 4 | RTS | Input | Request to send |
| 5 | SG | — | Signal ground |
| 6 | CTS | Output | Clear to send |
| 7 | DSR | Output | Data set ready |
| 8 | — | — | N.C. |

(The signal names except TXD and RXD apply to the DTE such as a personal computer.)

# 8 EXTERNAL DIMENSIONS




Unit: mm

# 9 OPTIONS

The AD-8922 has various options available as follows.

For details on each option, refer to the relevant chapter.

- AD-8922-01 BCD output
  Outputs the weighing data received from the weighing instrument using the RS-232C serial interface, in BCD format.

- AD-8922-04 Comparator output
  Compares the weighing data received from the weighing instrument using the RS-232C serial interface with the upper or lower limit value and contact-outputs the results.

- AD-8922-05 Current loop input
  Receives the current loop output from the weighing instrument and displays the weighing data.
  The weighing data received can be output using the RS-232C serial interface.

- AD-8922-06 Analog output
  Converts the specified digits of the weighing data received from the weighing instrument, using the RS-232C serial interface, into voltage and outputs the value.

## 9-1 Confirming the AD-8922 Software Version

Before installing an option, confirm the AD-8922 software version.

The software version is displayed as "Px.xx" for approx. 1 second before entering the function setting mode.

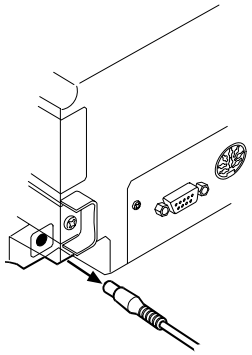
Each option is available for the software version 1.10 or later.

When the software version is 1.00 and an option is to be installed, contact the local A&D dealer.

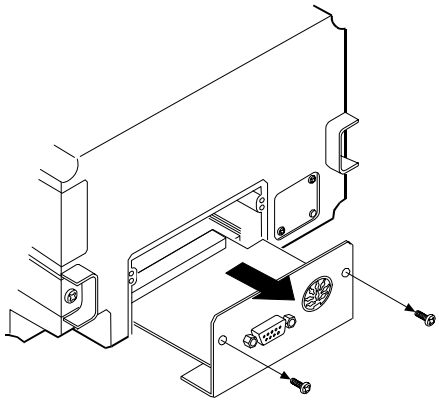
## 9-2 Installing the Option

Install the option as shown below. The installation procedure is the same for all the options.

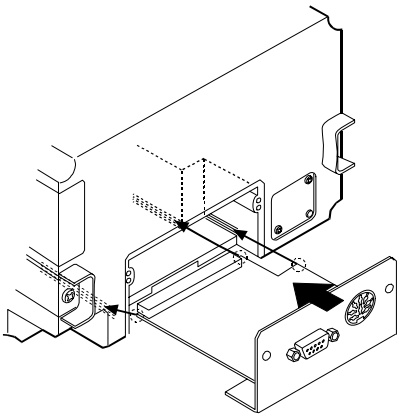
1. Disconnect the AC adapter.



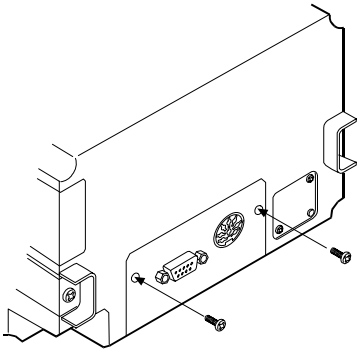
2. Remove the two screws and pull out the RS-232C board provided as standard as shown in the illustration.



3. Insert the option board, along the guides on the left and right sides.



4. Using the two screws removed in step 2, fasten the option board.



# 10 BCD OUTPUT (AD-8922-01)

Outputs the weighing data received from the weighing instrument in BCD format, along with the polarity (+/-) and the data status (stable/unstable and over/under).

Using the STROBE signal, the data can be read easily. BUSY input enables the data to be held or prevents data refreshing during the reading operation.

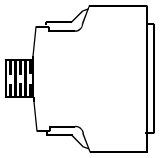
The logic of data, status and strobe can be switched in the function setting.

**Note: When the AD-8922-01 is installed, the RS-232C serial interface can not be used.**

## 10-1 BCD Output Specifications

### Accessories

| | |
|---|---|
| I/O plug applicable to the BCD output port | 1 pc. |
| Instruction manual | 1 copy |
| Cable to connect to a weighing instrument (Length: Approx. 2 m) | 1 pc. |



D-Sub 25-pin to DIN 7-pin (AX-KO577A-200)

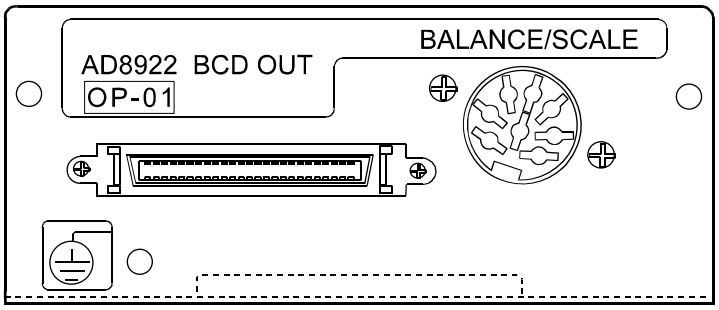
**Note: A substitute cable may be provided as specified when ordering the AD-8922.**

D-Sub 9-pin to DIN 7-pin (AX-KO1786-200)

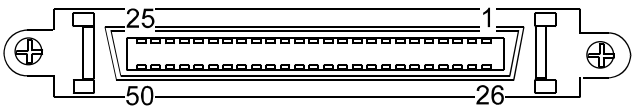
DIN 7-pin to DIN 7-pin (AX-KO507-W200)

**Note: When the AD-8922-01 is installed, the communications cable provided with the AD-8922 will not be used.**

### Panel view




### BCD output port (BCD-OUT)




Half pitch 50 pin

**Plug (Provided)**

| Part name | Product number | Manufacturer |
|---|---|---|
| Over mold cover | DX30M-50-CV | Hirose Electric |
| Plug unit (Soldered type) | DX40M-50P | |

**Note: The products above are subject to be replaced with the equivalent.**

**Cable**

| | |
|---|---|
| Wire size | AWG #28 |
| Core configuration | 7/0.127 |
| O.D. of insulator | 0.58 |

**Pin assignments and I/O logic**

| Output pin assignments | | | |
|---|---|---|---|
| Pin No. | Signal | | |
| 26 | 1 | $10^0$ | Data |
| 27 | 2 | | |
| 28 | 4 | | |
| 29 | 8 | | |
| 39 | 1 | $10^1$ | |
| 40 | 2 | | |
| 41 | 4 | | |
| 42 | 8 | | |
| 12 | 1 | $10^2$ | |
| 13 | 2 | | |
| 14 | 4 | | |
| 15 | 8 | | |
| 16 | 1 | $10^3$ | |
| 17 | 2 | | |
| 18 | 4 | | |
| 19 | 8 | | |
| 20 | 1 | $10^4$ | |
| 21 | 2 | | |
| 22 | 4 | | |
| 23 | 8 | | |
| 46 | 1 | $10^5$ | |
| 47 | 2 | | |
| 48 | 4 | | |
| 49 | 8 | | |
| 24 | 1 | $10^6$ | |
| 25 | 2 | | |
| 30 | 4 | | |
| 31 | 8 | | |
| 32 | 1 | $10^7$ | |
| 33 | 2 | | |
| 34 | 4 | | |
| 35 | 8 | | |
| 50 | Polarity | | Status |
| 45 | Stability | | |
| 44 | Over | | |
| 43 | Strobe | | |
| 1 | Output signal GND | | |

| Input pin assignments | |
|---|---|
| Pin No | Signal |
| 7 | BUSY |
| 3 | Input signal GND |

- The pins, which are not specified, have no connection.
- All output, open collector; withstand voltage 30 V; no pull-up resistor; low-level output current 48 mA
- All input, no voltage contact or open collector (connected to 5 V internally)
- Output logic of data, status, and strobe can be switched individually in the function table *bcd*.

Input/output logic

| Output | Factory settings | |
|---|---|---|
| Data | *1* | ON |
| Polarity | Positive or zero | ON |
| Stability | Stabilization indicator ON | ON |
| Over | *E*, *-E* | ON |

| Input | |
|---|---|
| BUSY | Data will be held during ON (when connected to input signal GND). |

## Output example

**Display**


**BCD output**

The example above is when the output logic has been set at the factory.

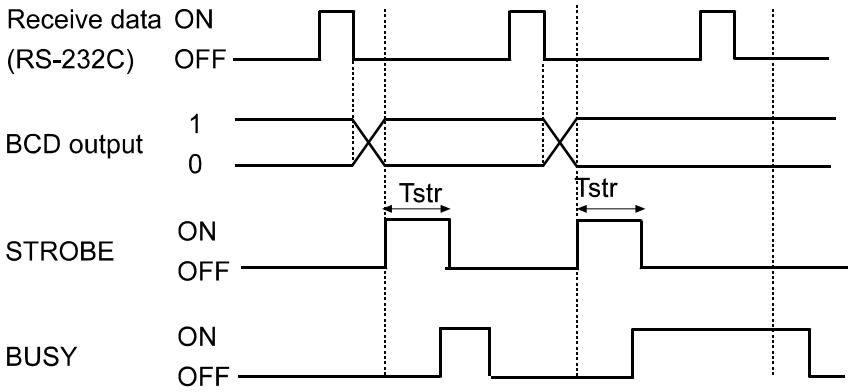
The decimal point information will not be output.

| Output pin assignments | | | |
|---|---|---|---|
| Pin No. | Signal | | Output |
| 26 | 1 | $10^0$ | 1 |
| 27 | 2 | | 0 |
| 28 | 4 | | 0 |
| 29 | 8 | | 1 |
| 39 | 1 | $10^1$ | 1 |
| 40 | 2 | | 1 |
| 41 | 4 | | 1 |
| 42 | 8 | | 0 |
| 12 | 1 | $10^2$ | 1 |
| 13 | 2 | | 0 |
| 14 | 4 | | 1 |
| 15 | 8 | | 0 |
| 16 | 1 | $10^3$ | 1 |
| 17 | 2 | | 1 |
| 18 | 4 | | 0 |
| 19 | 8 | | 0 |
| 20 | 1 | $10^4$ | 1 |
| 21 | 2 | | 0 |
| 22 | 4 | | 0 |
| 23 | 8 | | 0 |
| 46 | 1 | $10^5$ | 0 |
| 47 | 2 | | 0 |
| 48 | 4 | | 0 |
| 49 | 8 | | 0 |
| 24 | 1 | $10^6$ | 0 |
| 25 | 2 | | 0 |
| 30 | 4 | | 0 |
| 31 | 8 | | 0 |
| 32 | 1 | $10^7$ | 0 |
| 33 | 2 | | 0 |
| 34 | 4 | | 0 |
| 35 | 8 | | 0 |
| 50 | Polarity | | 1 |
| 45 | Stability | | 1 |
| 44 | Over | | 0 |

0:OFF

1:ON

## I/O timing chart

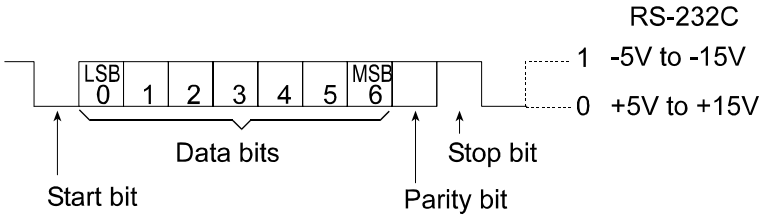



“BUSY input ON” is the condition that BUSY is connected to input signal GND (Pin 3).

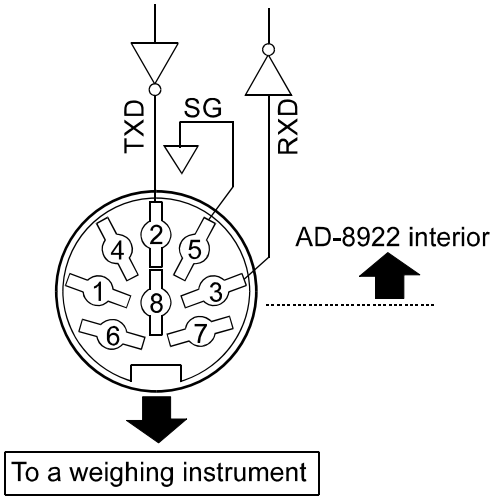
The factory setting of Tstr (Strobe pulse width) is approx. 10 ms. It can be changed to approx. 20 ms or approx. 50 ms in the function setting of "StrE".

## RS-232C (BALANCE/SCALE)

| | | | | |
|---|---|---|---|---|
| Transmission system | : | EIA RS-232C | | |
| Transmission form | : | Asynchronous, bi-directional, half duplex | | |
| Data format | : | Baud rate | : | 600, 1200, 2400, 4800, 9600, 19200bps |
| | | Data bits | : | 7 or 8 bits |
| | | Parity | : | Even, Odd (Data bits 7 bits) |
| | | | | None (Data bits 8 bits) |
| | | Stop bit | : | 1 or 2 bits |
| | | Code | : | ASCII |
| | | Terminator | : | <CR> or <CR><LF> |




## Circuit




DIN 8-pin

Pin assignment（BALANCE／SCALE）

| Pin No. | Signal name | Direction | Description |
|---|---|---|---|
| 1 | — | — | — |
| 2 | TXD | Output | Transmit data |
| 3 | RXD | Input | Receive data |
| 4 | — | — | — |
| 5 | SG | — | Signal ground |
| 6 | — | — | — |
| 7 | — | — | — |
| 8 | — | — | — |

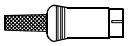
# 11 COMPARATOR OUTPUT (AD-8922-04)

The weighing data is compared with the upper and lower limit values and the results of the comparison are contact-output in three levels of HI OK LO . The upper and lower limit values are set in the function setting. Whether or not to sound the buzzer according to the results can be selected.

**Note: When the AD-8922-04 is installed, the pin assignment (DIN 8-pin), of the RS-232C serial interface, to connect an external device, will be changed.**

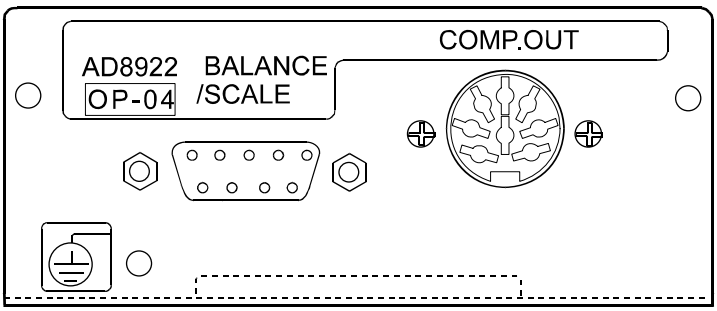
## 11-1 Comparator Output Specifications

### Accessories

DIN connector (Plug) 1 pc. 

Instruction manual 1 copy

### Panel view




### Comparator output (COMP.OUT)

Maximum contact voltage: 100 VDC

Maximum contact current: 100 mA DC

Maximum contact resistance: 20 Ω

Comparator output judgement conditions (when upper limit value≥lower limit value):

Weighing data>upper limit value: Activates the HI comparator output.

Upper limit value≥weighing data≥lower limit value: Activates the OK comparator output.

Weighing data<lower limit value: Activates the LO comparator output.

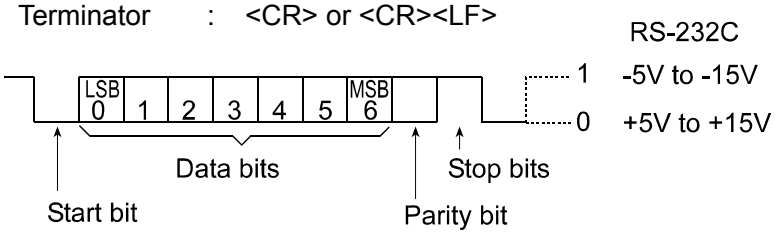
Reference value setting: Input the upper and lower limit values digitally.

Contact output: Select whether or not to compare, using "CP" of the function setting.

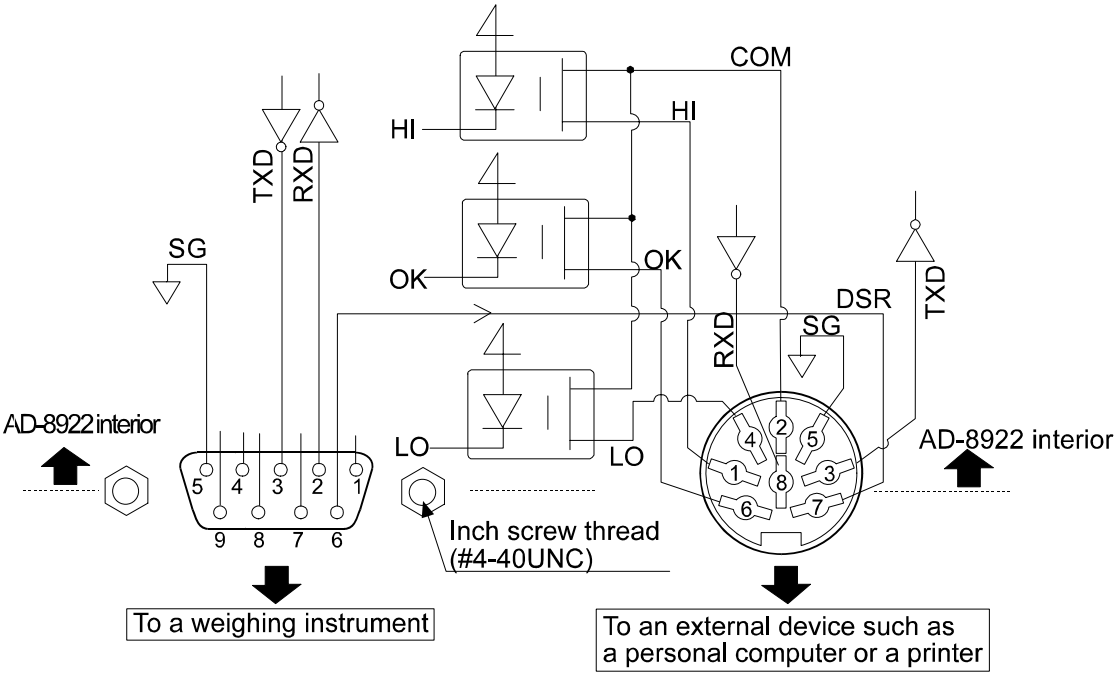
Buzzer: Select whether or not to sound the buzzer, using "bEP" of the function setting.

## RS-232C

| | | | | |
|---|---|---|---|---|
| Transmission system | : | EIA RS-232C | | |
| Transmission form | : | Asynchronous, bi-directional, half duplex | | |
| Data format | : | Baud rate | : | 600, 1200, 2400, 4800, 9600, 19200 bps |
| | | Data bits | : | 7 bits or 8 bits |
| | | Parity bit | : | EVEN, ODD (Data bits 7 bits) |
| | | | | NONE (Data bits 8 bits) |
| | | Stop bits | : | 1 bit or 2 bits |
| | | Code | : | ASCII |
| | | Terminator | : | <CR> or <CR><LF> |




## Circuit




## Connection to the weighing instrument

D-Sub 9-pin (BALANCE/SCALE)

| Pin No. | Signal name | Direction | Description |
|---|---|---|---|
| 1 | — | — | N.C. |
| 2 | RXD | Input | Receive data |
| 3 | TXD | Output | Transmit data |
| 4 | — | — | N.C. |
| 5 | SG | — | Signal ground |
| 6 | DSR | Input | Data set ready |
| 7 | RTS | Output | Request to send |
| 8 | — | — | N.C. |
| 9 | — | — | N.C. |

(AD-8922 is a DTE. Connects to a DCE such as a weighing instrument using a straight through cable.)

## Connection to an external device

DIN 8-pin (COMP.OUT)

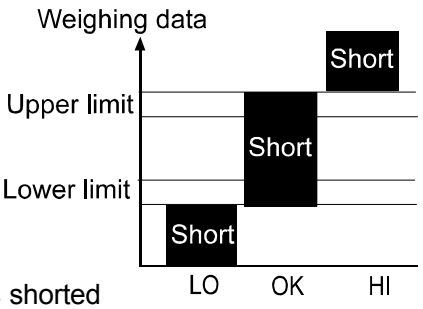
| Pin No. | Signal name | Description |
|---|---|---|
| 1 | HI | HI contact-output |
| 2 | COM | COM contact-output |
| 3 | TXD | Transmit data (RS-232C output) |
| 4 | LO | LO contact-output |
| 5 | SG | Signal ground |
| 6 | OK | OK contact-output |
| 7 | DSR | Data set ready (RS-232C output) |
| 8 | RXD | Receive data (RS-232C output) |

# 11-2 Using the Comparator Output

To use the comparator output, perform the following four steps.

1. Connect the peripheral to the AD-8922-04 DIN connector.
2. Set the “Comparator (CP Fnc)” of the AD-8922 function setting. For details, see “4. FUNCTION SETTINGS”.
3. Set the upper and lower limit values. For details, see “11-3 Setting the Upper and Lower Limit values”.
4. When the weighing data is received, the comparison results will be output.
   When the weighing data is equal to or less than the upper limit value, and equal to or greater than the lower limit value, the OK comparator will be output.

| Comparator output | LO | OK | HI |
|---|---|---|---|
| Weighing data>upper limit | Open | Open | Short |
| Upper limit ≥weighing data≥lower limit | Open | Short | Open |
| Weighing data<lower limit | Short | Open | Open |




Whether or not to sound the buzzer when the contact output is shorted can be set in the “Buzzer mode (bEP) of the “Comparator (CP Fnc)”.

**Note: When setting the upper and lower limit values, make sure that the upper limit value is greater than the lower limit value.**

### Function setting

The function setting "CP Fnc” is available only when the AD-8922-04 is installed.

| Class | Item | Parameter | Description | |
|---|---|---|---|---|
| CP Fnc Comparator | CP Comparator mode | ▪ 0 | No comparison | |
| | | 1 | Comparison, excluding "near zero" when the value is stable or overloaded | |
| | | 2 | Comparison, including "near zero" when the value is stable or overloaded | |
| | | 3 | Continuous comparison, excluding "near zero" | |
| | | 4 | Continuous comparison, including "near zero" | |
| | | 5 | Contact-outputs the second header information of the data received. (Applicable to AD-4212, GP and GX-K) | |
| | bEP_ LO buzzer | ▪ 0 | OFF | Selects whether or not to sound the buzzer when LO. |
| | | 1 | ON | |
| | bEP- OK buzzer | ▪ 0 | OFF | Selects whether or not to sound the buzzer when OK. |
| | | 1 | ON | |
| | bEP¯ HI buzzer | ▪ 0 | OFF | Selects whether or not to sound the buzzer when HI. |
| | | 1 | ON | |

▪Factory setting

**Note: “Near zero” indicates the amount of ten digits (Digit = the smallest displayable weighing value).**

# １１-３ Setting the Upper and Lower Limit Values

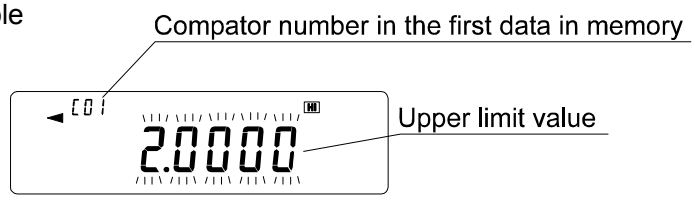
- Up to 10 set of upper and lower limit values can be stored.
- Using the stored upper and lower limit values, comparison can be performed easily. To recall the stored values, press and hold the ON:OFF key and press the MODE key.

## １１-３-１ Storing the upper and lower limit values

To store new upper and lower limit values, recall the stored data ("C01" to "C10") and change them.

1. While pressing and holding the ON:OFF key, press the RE-ZERO key to enter the confirmation mode. The upper limit value data (Comparator number and the upper limit mass (blinking)) of the comparator number that was selected last.

   Displaying example




2. Select the comparator number using the following keys.

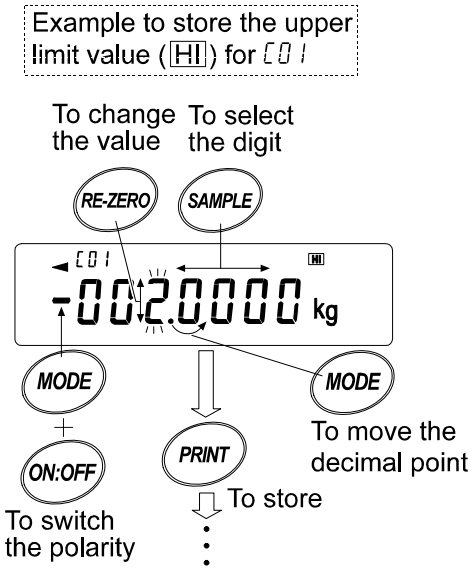
   RE-ZERO key　To increase the comparator number by 1.
   MODE key　To decrease the comparator number by 1.

   Each time the key is pressed, the upper limit value and the lower limit value of the comparator number selected is displayed alternately. (C01 HI ⇔ C01 LO ⇔ C02 HI ⇔ C02 LO ⇔…)

3. Press the SAMPLE key to go to the storing mode to change the stored values.

**Digital input mode**

| | |
|---|---|
| SAMPLE key | To select the digit to change the value. |
| RE-ZERO key | To change the value of the digit selected. |
| MODE key | To move the decimal point position to the right by 1 digit. |
| ON:OFF key+MODE key | To switch the polarity. |
| PRINT key | To store the new setting and return to step 2. |
| CAL key | To cancel the new setting and return to step 2. |




4. Press the CAL key to return to the weighing data display.

### １１-３-２ Recalling the upper and lower limit values

The procedure below describes an easy way to recall the upper and lower limit values to be used for weighing.

1 While pressing and holding the ON:OFF key, press the MODE key to enter the selection mode.

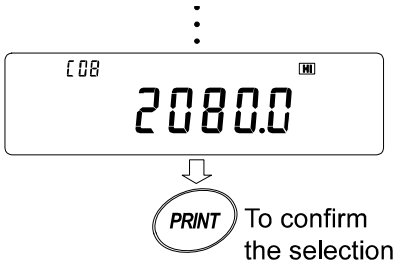
2 The upper limit value last selected with its comparator number appears.

3. Select the comparator number using the following keys.

| | |
|---|---|
| RE-ZERO key | To increase the comparator number by 1. |
| MODE key | To decrease the comparator number by 1. |

Each time the key is pressed, the upper limit value and the lower limit value of the comparator number selected is displayed alternately. (C01 HI ⇔ C01 LO ⇔ C02 HI ⇔ C02 LO ⇔…)
Only the stored comparator numbers are displayed.

4 Press the PRINT key to confirm the selection and return to the weighing data display with the selected upper and lower limit values ready for use (In the example shown below, the values of "C08". )




**Note: When no operation is performed in step 4 (after a few seconds of inactivity), the AD-8922 selects the value currently displayed and returns to the weighing data display automatically.**
**To cancel the operation, press the CAL key.**

# 12 CURRENT LOOP INPUT (AD-8922-05)

Can be received the current loop output from the weighing instrument. The data received can be output to an external device such as a personal computer and a printer, using the RS-232C serial interface. The weighing instrument can not be operated using the AD-8922 keys.

**Note: When the AD-8922-05 is installed, the pin assignment (DIN 8-pin), of the RS-232C serial interface, to connect an external device, will be changed.**

## 12-1 Current Loop Input Specifications

### Accessories

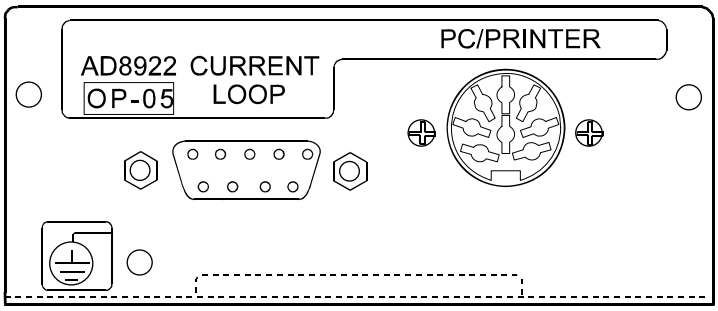
Cable to connect to a weighing instrument (AX-KO1786-200: Length: Approx.2 m )

DIN 7-pin to D-Sub 9-pin

Instruction manual 1 copy

**Note: When the AD-8922-05 is installed, the communications cable provided with the AD-8922 as standard will not be used.**

### Panel view

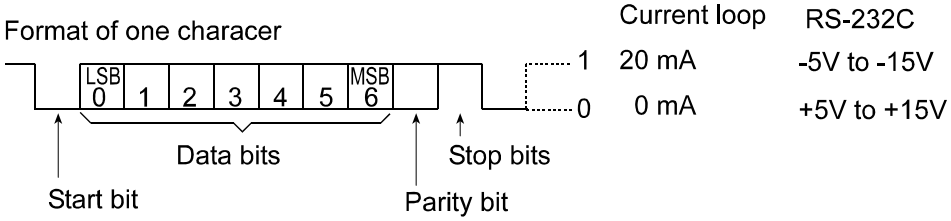



### Current loop input / PC/PRINTER output

Transmission system : Input: 20 mA current loop (Active) D-Sub 9-pin (Current loop)
Output: EIA RS-232C DIN 8-pin (PC/PRINTER)

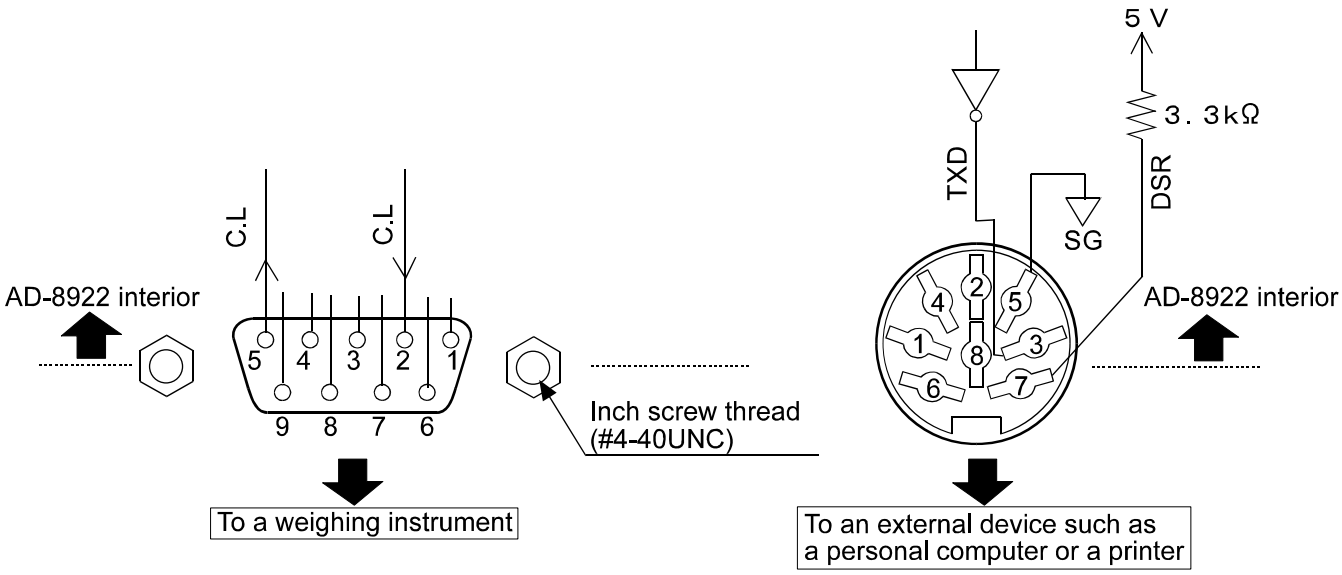
Transmission form : Asynchronous, uni-directional

Data format : Baud rate : 600, 1200, 2400, 4800, 9600, 19200 bps
Data bits : 7 bits or 8 bits
Parity bit : EVEN, ODD (Data bits 7 bits)
NONE (Data bits 8 bits)
Stop bits : 1 bit or 2 bits
Code : ASCII




**Note: When a baud rate of 4800 bps or higher is used, communication may not be performed properly.**

## Circuit




## Connection to the weighing instrument

D-Sub 9-pin (Current loop)

| Pin No. | Signal name | Description |
|---|---|---|
| 1 | — | N.C. |
| 2 | C.L | Current loop |
| 3 | — | N.C. |
| 4 | — | N.C. |
| 5 | C.L | Current loop |
| 6 | — | N.C. |
| 7 | — | N.C. |
| 8 | — | N.C. |
| 9 | — | N.C. |

## Connection to an external device

DIN 8-pin (PC/PRINTER)

| Pin No. | Signal name | Description |
|---|---|---|
| 1 | — | N.C. |
| 2 | — | N.C. |
| 3 | TXD | Transmit data (RS-232C output) |
| 4 | — | N.C. |
| 5 | SG | Signal ground |
| 6 | — | N.C. |
| 7 | DSR | Data set ready (RS-232C output) |
| 8 | — | N.C. |

# 1 3 ANALOG OUTPUT (AD-8922-06)

Converts the specified digits of the weighing data received from the weighing instrument to voltage and outputs. The output voltage can be selected from "0 to 1 V" and "0.2 to 1 V".

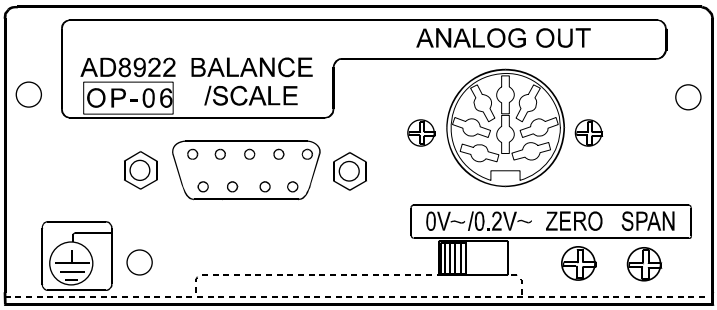
**Note: When the AD-8922-06 is installed, the pin assignment (DIN 8-pin), of the RS-232C serial interface, to connect an external device, will be changed.**

## 1 3 - 1 Analog Output Specifications

### Accessories

| | | |
|---|---|---|
| DIN connector (Plug) | 1 pc. |  |
| Screwdriver | 1 pc. | |
| Instruction manual | 1 copy | |

### Panel view

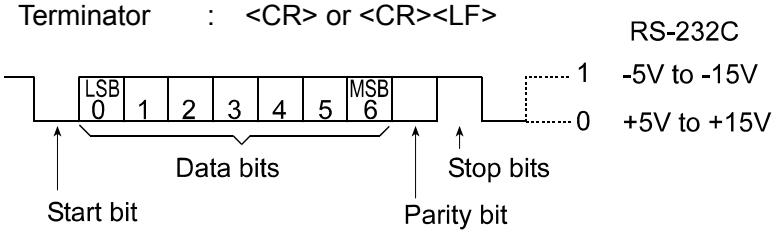



### Analog output

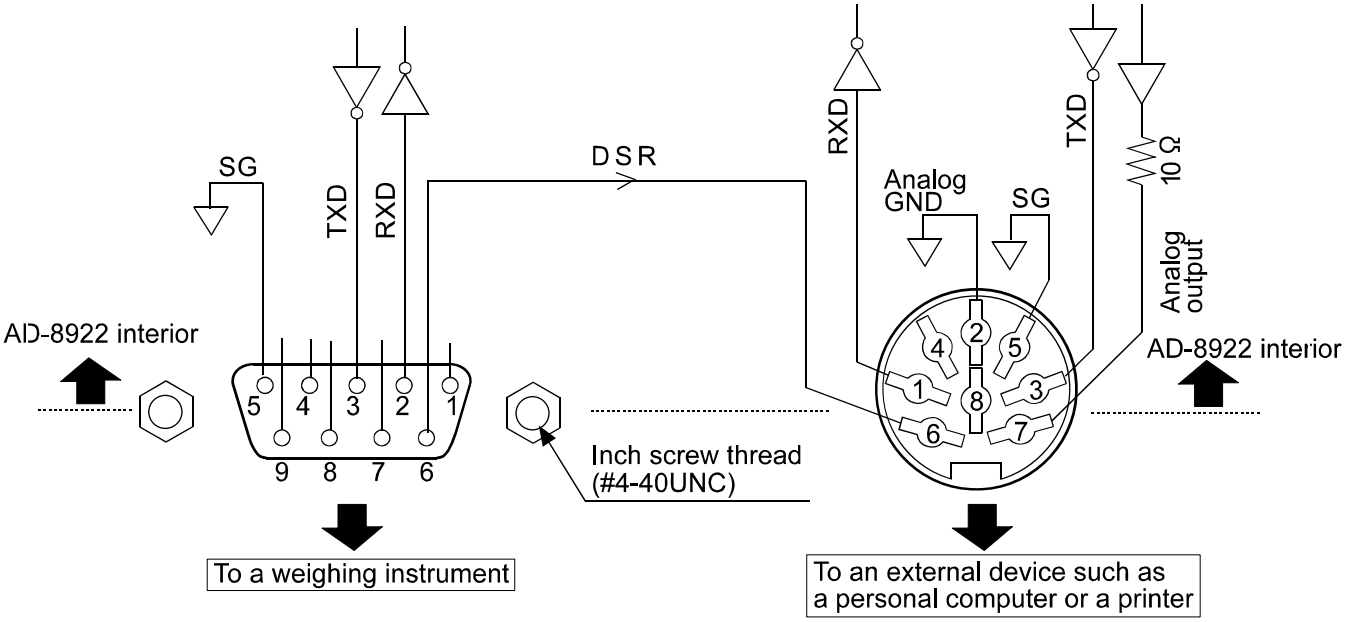
| | |
|---|---|
| Output impedance | 100 Ω or less |
| Linearity | 0.3% or less |
| Output range | 0 V-1 V (With the slide switch set to “0V～“) |
| | 0.2 V-1 V (With the slide switch set to “0.2V～“) |

### RS-232C

| | | | | |
|---|---|---|---|---|
| Transmission system | : | EIA RS-232C | | |
| Transmission form | : | Asynchronous, bi-directional, half duplex | | |
| Data format | : | Baud rate | : | 600, 1200, 2400, 4800, 9600, 19200 bps |
| | | Data bits | : | 7 bits or 8 bits |
| | | Parity bit | : | EVEN, ODD (Data bits 7 bits) |
| | | | | NONE (Data bits 8 bits) |
| | | Stop bits | : | 1 bit or 2 bits |
| | | Code | : | ASCII |
| | | Terminator | : | <CR> or <CR><LF> |



## Circuit




## Connection to the weighing instrument

D-Sub 9-pin (BALANCE/SCALE)

| Pin No. | Signal name | Direction | Description |
|---|---|---|---|
| 1 | — | — | N.C. |
| 2 | RXD | Input | Receive data |
| 3 | TXD | Output | Transmit data |
| 4 | — | — | N.C. |
| 5 | SG | — | Signal ground |
| 6 | DSR | Input | Data set ready |
| 7 | — | — | N.C. |
| 8 | — | — | N.C. |
| 9 | — | — | N.C. |

(AD-8922 is a DTE. Connects to a DCE such as a weighing instrument using a straight through cable.)

## Connection to an external device

DIN 8-pin (ANALOG.OUT)

| Pin No. | Signal name | Direction | Description |
|---|---|---|---|
| 1 | — | — | N.C. |
| 2 | AG | — | Analog ground |
| 3 | TXD | Output | Transmit data |
| 4 | — | — | N.C. |
| 5 | SG | — | Signal ground |
| 6 | DSR | Output | Data set ready |
| 7 | AOUT | Output | Analog output |
| 8 | RXD | Input | Receive data |

# 13-2 Function setting

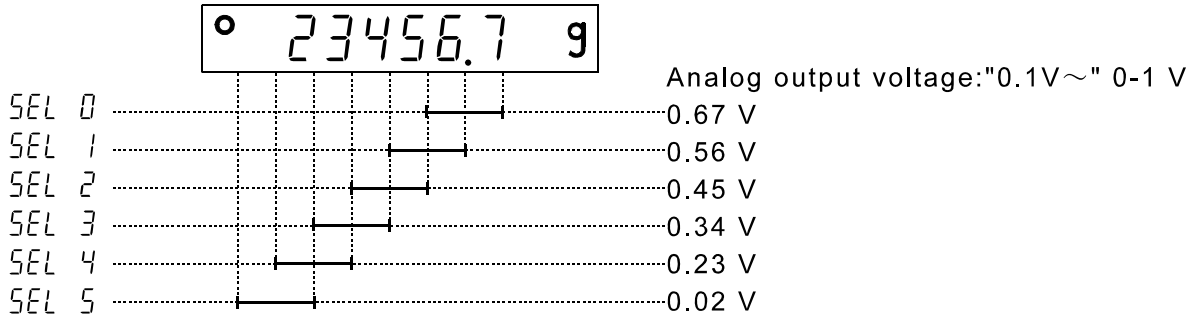
The function setting " Aout" is available only when the AD-8922-06 is installed.

| Class | Item | Parameter | Description | |
|---|---|---|---|---|
| Aout Analog output | An Analog output mode | ▪ 0 | 2-digt output | Converts the consecutive 2 digits, with the digit selected in SEL as the least, to voltage and outputs. |
| | | 1 | 3-digt output | Converts the consecutive 3 digits, with the digit selected in SEL as the least, to voltage and outputs. |
| | SEL Analog output digit selection | ▪ 0 | Selects the first digit as the least. | |
| | | 1 | Selects the second digit as the least. | |
| | | 2 | Selects the third digit as the least. | |
| | | 3 | Selects the fourth digit as the least. | |
| | | 4 | Selects the fifth digit as the least. | |
| | | 5 | Selects the sixth digit as the least. | |

▪Factory setting

### Setting example

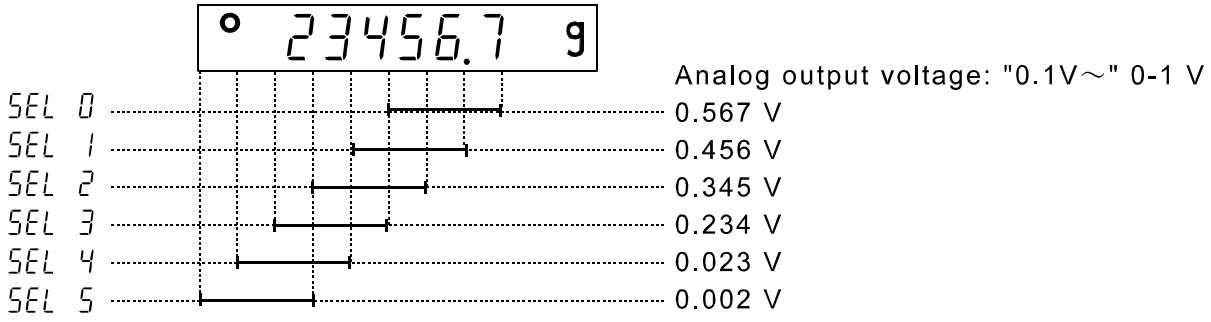
When An 0 is set:




### Notes

**The invisible high-order digits are regarded as zero.**

When An 1 is set:

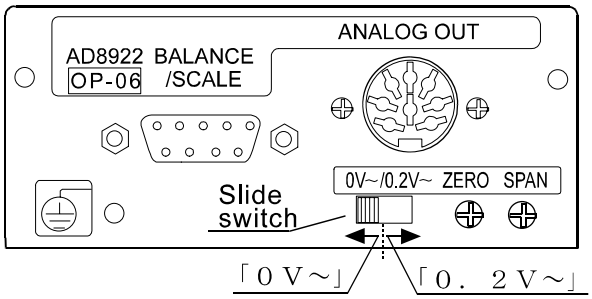


## １３-３ Switching Output Voltage

The output voltage can be switched using the slide switch on the option panel. “0V～” has been set at factory before shipment.

“0V～” (0-1 V): At zero=0.000 V At full scale=1.000 V

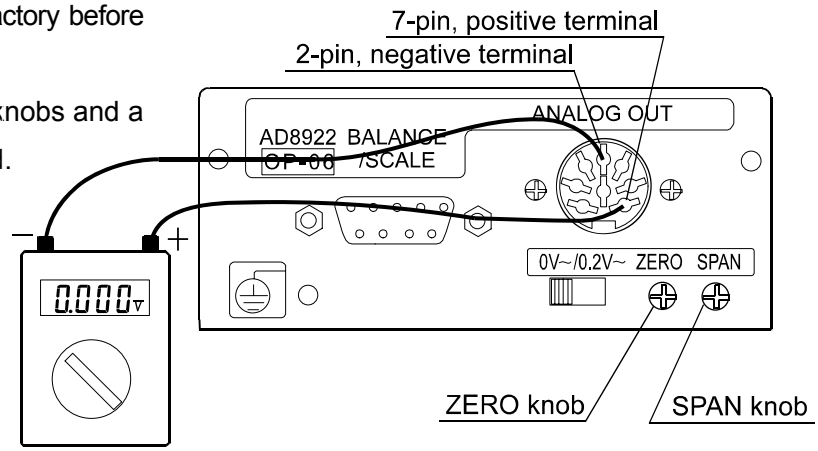
“0.2～” (0.2-1 V): At zero =0.200 V At full scale=1.000 V




## １３-４ Output Voltage Fine Adjustment

The output voltage has been adjusted at the factory before shipment.

Using the ZERO and SPAN fine-adjustment knobs and a voltmeter, output voltage can be fine adjusted.




### １３-４-１ Fine-adjustment procedure

1. While pressing and holding the ON:OFF key, press the RE-ZERO key. At this time, the output voltage will be at zero.

2. Turn the ZERO knob so that the voltmeter indicates 0.000 V when the slide switch is set to “0V～”; 0.200 V when the slide switch is set to “0.2V～”.

3. Press the RE-ZERO key. At this time, a voltage of 1 V is generated. Turn the SPAN knob so that the voltmeter indicates 1.000 V.

4. Press the RE-ZERO key again to return to step 2. Repeat steps 2 and 3 until the correct output voltage is obtained.

5. Press the CAL key to return to the weighing data display.

Display for setting the output to 0 V (0.2V)


Display for setting the output to 1 V.

# 13-5 Fixed Output Voltage

The output voltage is fixed under the following conditions:

1. While the weighing data is not displayed (e.g., the bar display, function setting operation) :0 V (or 0.2 V)
2. When "-E" (Weighing pan error) is being displayed: :0 V (or 0.2 V)
3. When "E" (Overload error) is being displayed: :1V

# 1 4 ACCESSORIES (CABLE LIST)

1. Cable to connect the AD-8922, AD-8922-01, AD-8922-04, or AD-8922-06 and the weighing instrument

Table 8 Applicable weighing instruments and what is required

| Weighing instrument | What is required to connect to a weighing instrument | | |
|---|---|---|---|
| | Option for the instrument | Communications cable (Length 2 m) | |
| | | ・AD-8922 standard<br>・To connect AD-8922-04 or AD-8922-06 | To connect AD-8922-01 |
| GX, GF, GX-K, GF-K, GP, FP, AD-4212, GR, HR | None (D-Sub 25-pin) | AX-KO1710-200 | AX-KO577A-200 |
| EK-*i*, EW-*i*, FC-*i*, FC-S*i*, GH, HR-*i* | None (D-Sub 9-pin) | AX-KO2466-200 | AX-KO1786-200 |
| EK-G, EK-H, ET-W, EW-G | OP-03 (D-Sub 25-pin) | AX-KO1710-200 | AX-KO577A-200 |
| HV-G, HV-WP, HW-G, HW-WP | None (DIN 7-pin) | AX-KO1786-200 | AX-KO507A-200 |
| FG | OP-03 (DIN 7-pin) | AX-KO1786-200 | AX-KO507-W200 |
| FS, FS-KL | OP-03 (DIN 8-pin) | AX-KO1786-200 | AX-KO507-W200 |
| FG-L, FG-M | OP-23 (DIN 8-pin) | AX-KO1786-200 | AX-KO507-W200 |

**Note: A substitute communications cable may be provided as specified when ordering the AD-8922 or AD-8922-01.**

2. Cable to connect the AD-8922-05 and the weighing instrument: AX-KO1786-200 (AD-8922-05 accessory)

3. Cable to connect the AD-8922 or AD-8922-05 and an external device

   When connecting to a personal computer: AX-KO1786-200

   When connecting to the compact printer AD-8121B: AX-KO462-200

MEMO