CH-SERIES

INSTRUCTION MANUAL

Instruction-CH-Series-v.1.c 5/99

Digital Platform Scale

A&D MERCURY PTY. LTD.

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1. Introduction

Thank you

We thank you for purchasing this Australian made industrial scale. We are sure you will get years of reliable and accurate weighing from this product and look forward to your continuing support in the future.

General

When using dry cell batteries as the power source this equipment functions as a fully portable platform scale capable of around 100 hours continuous use. It is also possible to to use this equipment with an AC adaptor connected to a mains power source.

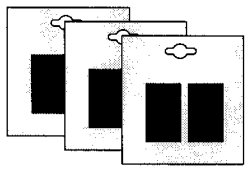
Because this scale employs a load cell that has damp and splash proofing characteristics it can safely be used for outside work and for weighing items that contain moisture.

2. Preparation for Use

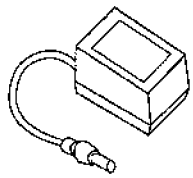
2-1 Unpacking

Open the carton and ensure that the following items are present.

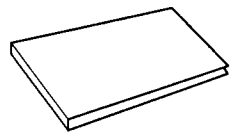
Batteries



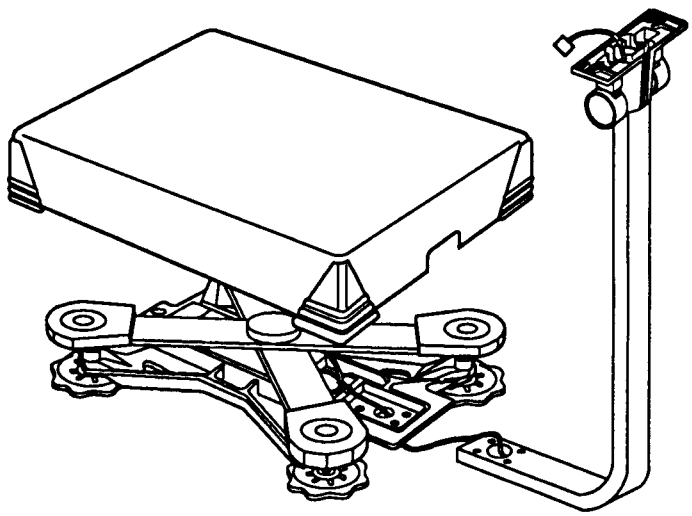
AC adaptor



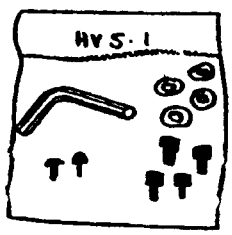
Instruction manual



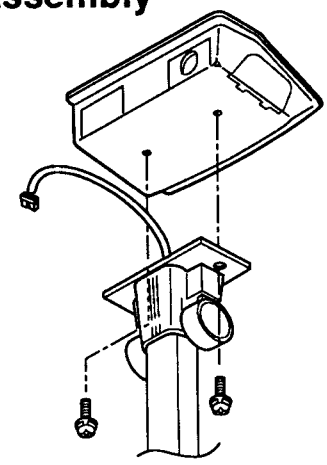
The partially assembled scale



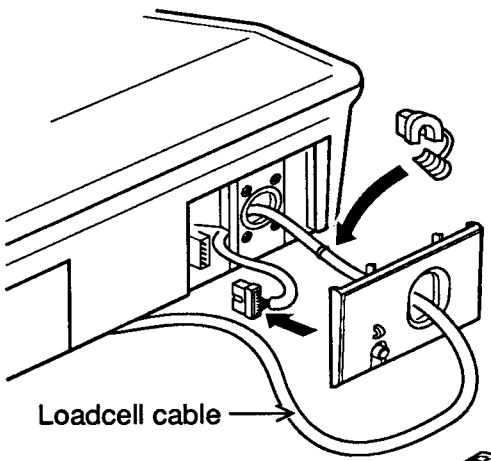
The column screws and wrench kit



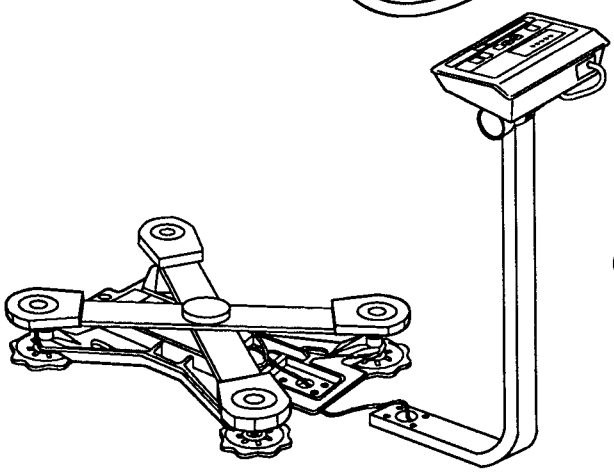
2-2 Assembly



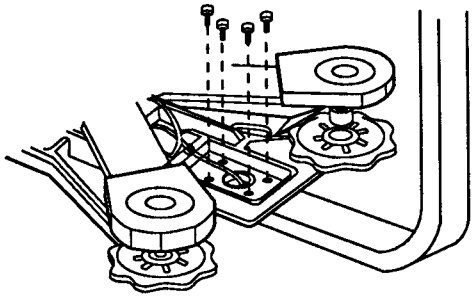
(1) Attach the indicator to the bracket on the top of the pole using the 2 round head screws in the fixing kit. Take care not trap the loadcell cable and ensure that it exits at the rear of the indicator. Also ensure that the indicator display is facing the short arm of the pole.



(2) Connect the loadcell cable to the indicator by first removing the display pod rear cover, then passing the cable through the holes, around the internal plate and then making the connection.



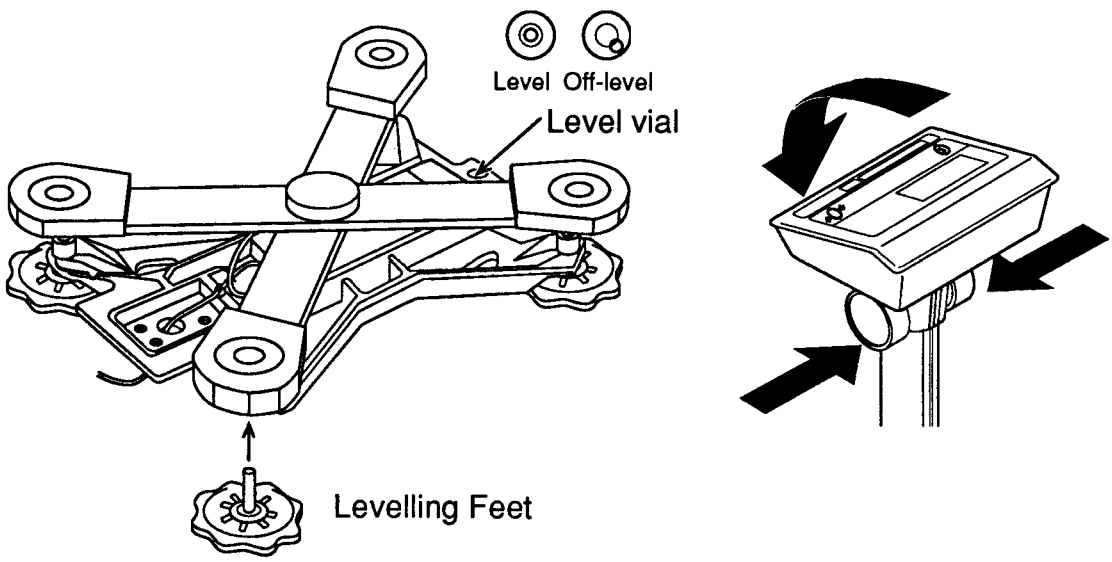
(3) Insert the surplus load cell cable into the lower part of the pole base.



(4) Attach the pole to the base using the 4 cap head screws provided. Tighten with the hexagonal wrench.

2-3 Installation

1. Install the scale in a level location that is not affected by vibration or wind.
2. Avoid locations that receive direct sunlight
3. Avoid power source noise, strong electric waves and magnetism etc.
4. Rotate the level adjusting feet to centre the bubble on the level indicator.
5. Depress the caps at the top of the column to adjust the viewing angle for the operator.

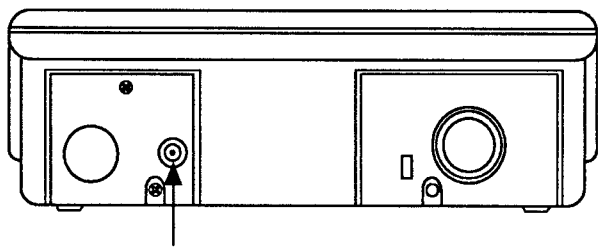


Although the load cell of the CH series scale has excellent water proofing and may be washed, do not scrub or scour with a brush, etc as there is a possibility of damaging the waterproof layer. After washing wait for a short time before using the scale.

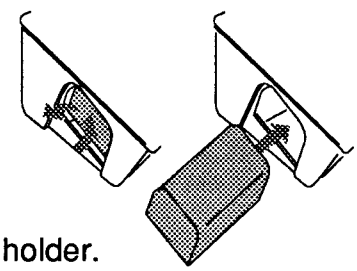
2-4 Power Sources

The power for the scale can be provided by using dry batteries, an AC adaptor or a rechargeable battery pack AD-1681.
Provided with the scale is the AC adaptor and the first set of batteries.
The batteries are 6 x 'C' cells and are readily obtainable throughout Australia.
The AD-1681 is an option and may be purchased through your A&D Authorised Dealer.

When using the AC adaptor:-
If the power source is unstable and liable to momentary power cuts then this may cause misoperation of the scale. To avoid this problem use a stable mains supply or a mains power conditioner.
When using the AC adaptor the batteries are disconnected. To avoid corrosion problems please remove the batteries from the case if using mains power for an extended period.



When using dry cell batteries:-
Insert the batteries into the holder and then push the holder into the indicator pod.
The battery container is shipped in the pod. To remove it first remove the cover and then press the battery holder in and up to allow it to slide out of the pod. Check for correct polarity when inserting batteries into the holder.

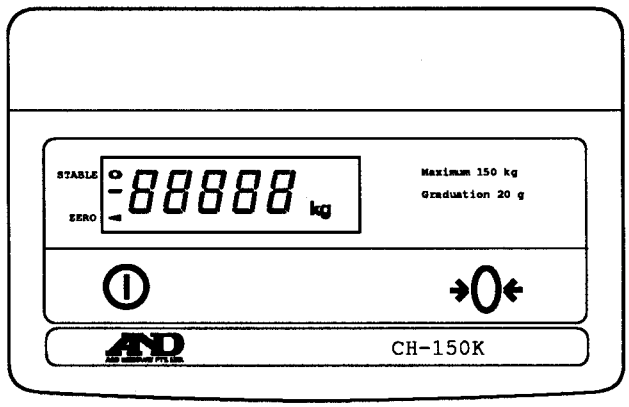


When using AD-1681 NiCd battery Pack:-
Insert the AD-1681 in place of the standard battery holder.
To recharge the AD-1681 remove it from the pod and connect to the charger supplied with the AD-1681. A discharged battery will take approximately 15 hours to recharge.

Be sure to use the charger provided with the AD-1681.

3. Controls and Indicators

3-1 Front Panel



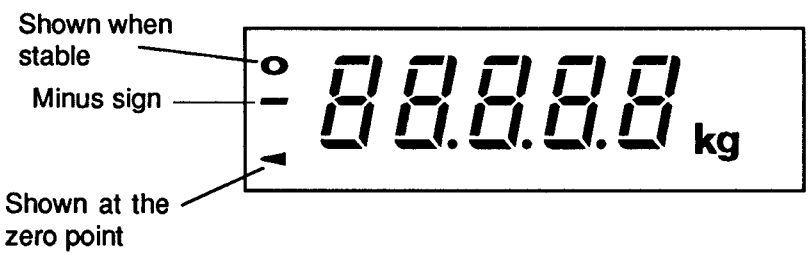
Power ON/OFF switch.
After power on, if zero continues to be displayed for about 3 minutes, this machine will automatically switch itself off. This automatic power off function can be disabled using the function settings.

RE-ZERO SWITCH

With an empty or loaded platform pressing this switch sets the display to zero.

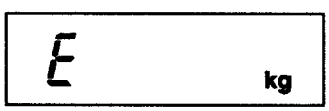
This switch will work only when the stable mark is displayed.

Display



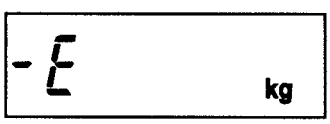
Weight Overload Displays

Plus overload



Displayed when the load applied exceeds the weighing capacity of the scale.

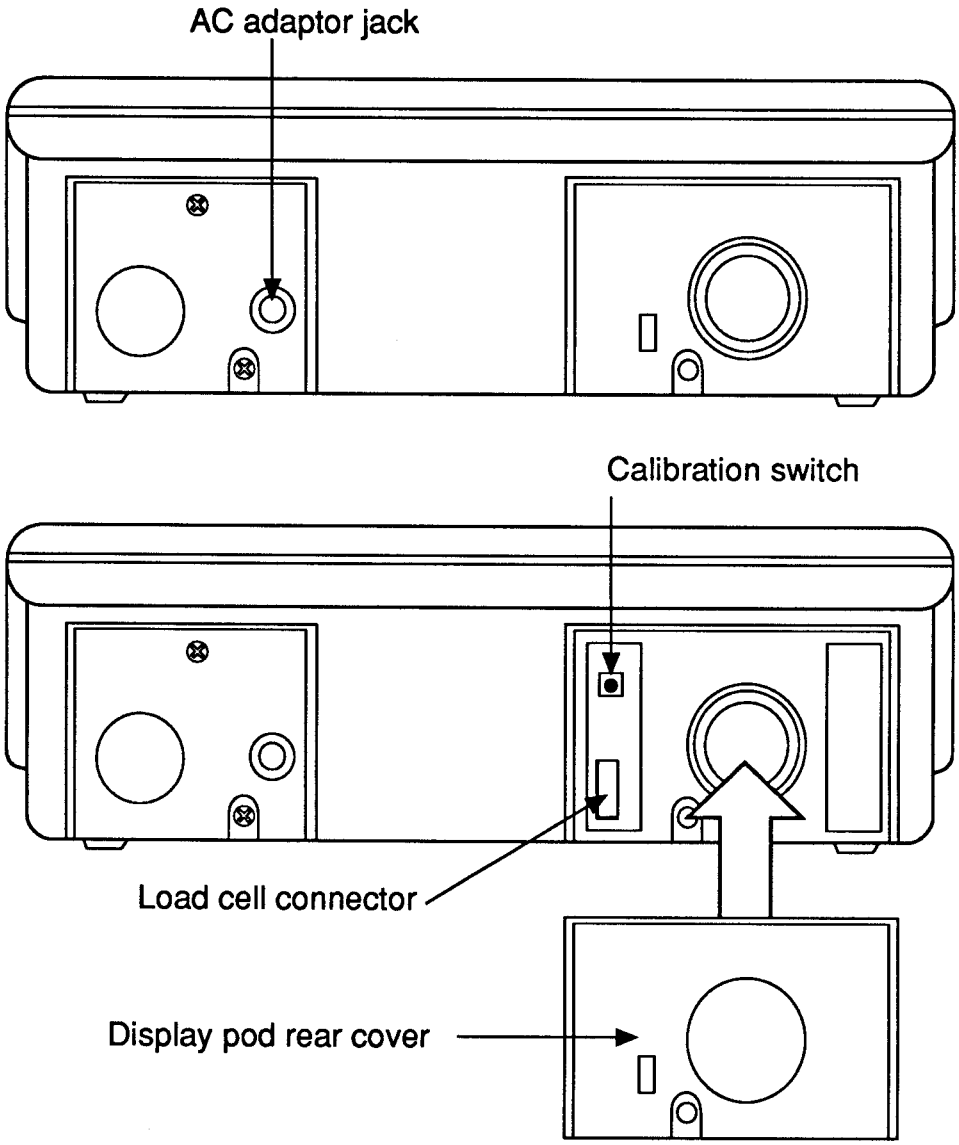
Minus overload



Displayed if at power on the zero fluctuates approximately 2% in the negative direction - for example if the weighing pan has been removed.

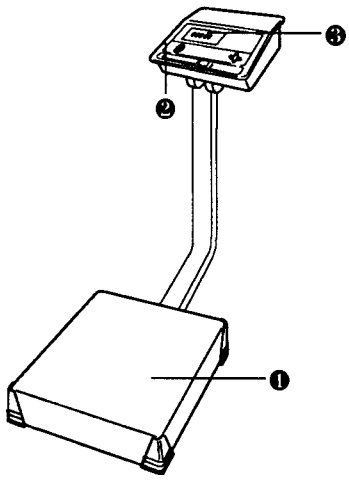
3-2 Rear Panel

Showing :- Calibration switch
Load cell connector
AC adaptor jack



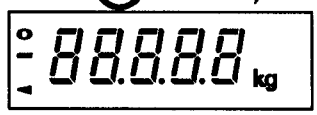
4. Method of use

4-1 Starting



(1) Ensure that there is nothing on the weighing platform.

(2) Switch ON the power.
(Press the ⏻ switch.)



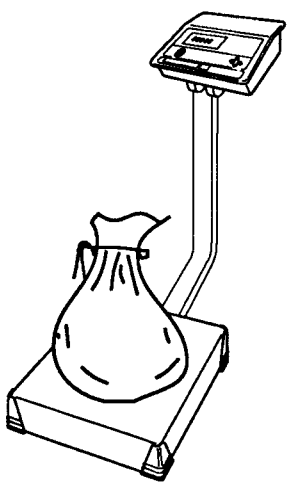
(3)

Display check
(All the display segments light for 3 seconds.)

(4)

The display then shows zero.

4-2 Weighing



(1) Simply place the item to be weighed onto the pan and read the weight display when the "O" stable mark is lit.

(2) If a container is to be used, first place the empty container onto the pan, wait for the "O" stable mark to light and then press the →0← button to zero the weight.

(3) Place the item to be weighed into the container and observe the weight when the "O" stable mark lights.

5. Setting the Functions

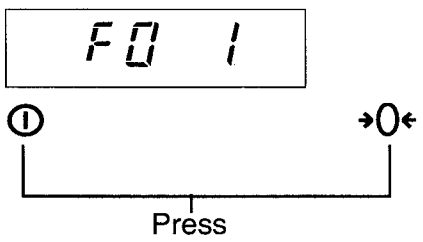
In the function setting mode the following functions can be selected:

5-1 Automatic Power Off

With this function, if zero is displayed continuously during use for approximately 3 minutes, the power will automatically switch off to conserve the batteries.
Using this function the auto power off can be enabled or disabled.

Setting Method

Auto power off enabled

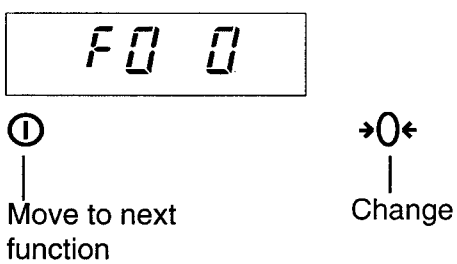


(1) Start with the power off. Hold the →0← switch down and switch on the power.

(2) If the set value is correct then press the ⏻ switch to move on to the next function. The current value will not be changed.

(3) To change the setting press the →0← switch,
F0=0 : Auto power off disabled.
F0=1 : Auto power off enabled.
Select the appropriate setting.

Auto power off disabled



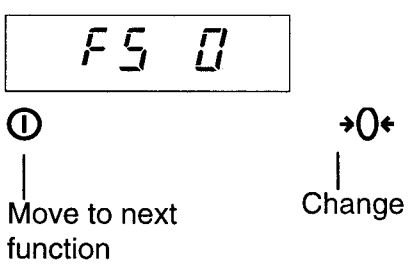
(4) When the setting is completed press the ⏻ switch and the new setting will be stored in memory.

(5) The display will show F5 0:- the RS232C function see 5-2 below.

5-2 RS232C Mode

It is possible to fit the RS232C serial data option, OP-03, from the HV/HW range of industrial scales. When using this option either Stream or Command modes can be selected as the RS232C operating mode.
For the differences between the two modes see section 8-2 later in this manual.

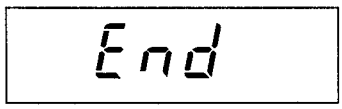
Stream Mode



(1) If the set value is correct then press the ⏻ switch to move on to the next function. The current value will not be changed.

(2) To change the setting press the →0← switch
F5=0 : Stream Mode.
F5=1 : Command Mode; Terminator CrLf.
F5=2 : Command Mode; Terminator Cr.
Select the appropriate setting.

(3) When the setting is completed press the ⏻ switch and the new setting will be stored in memory.



⏻

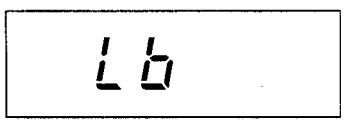
Switch off
then on

→0←

End is displayed when the setting of function values is completed. Press the ⏻ switch to turn the scale off then on to resume weighing.

6. Changing the batteries

Low Battery Display

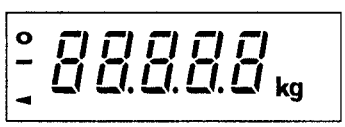


If "Low Battery" is displayed during use, discontinue use and either replace the batteries (Shown in 2-5) or use the optional AC adaptor.

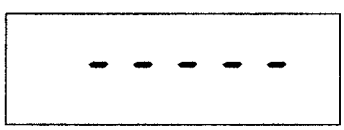
7. Method of Calibration.

Zero Adjustment

Power on display check

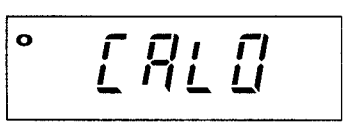


Bar Display



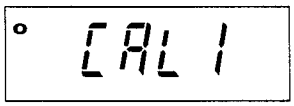
It may be necessary to calibrate the scale if the zero point has become displaced. This situation will be shown by a bar display after the power on display check.

(1) Switch on the scale and allow it to warm up for at least ten minutes. Disable the auto power off function or place an object on the pan.



(2) Press the CAL switch (See 3-2 for, location). The display will show CAL 0.

(3) Ensure nothing is on the pan, wait for the stable mark, then press →0← switch. When the zero data has been stored the display will move to CAL 1, the span adjusting mode. If only the zero point is to be calibrated then press the CAL switch at this point to leave the routine.

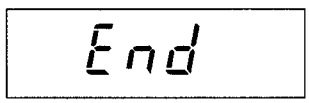


Span Adjustment

To carry out span adjustment of the CH Series scale, 150 kg or 300 kg of standard masses are required.

Place the 150 kg or 300kg masses onto the pan and wait for the "O" stable mark.

Press →0← switch to store the calibration data.



After the data has been stored the display will show End.

Press the CAL switch to complete the calibration of the scale.

Replace the display pod rear cover previously removed to gain access to the calibration switch.

8 Options & Accessories

In the CH Series scales the following options and accessories are available:

(1) HV/HW OP-03 RS232C serial data board.
(2) AD-1861 NiCd rechargeable battery pack.
(3) TB-108 AC adaptor
(4) AD-8121 Compact printer

8-1 HV/HW RS232C option

This interface is used to connect the CH Series scale to the AD-8121 compact printer or to a personal computer. The RS232C has two modes, either of which can be set using the 5-2 Function setting.

(1) Stream Mode

The value being displayed is output normally, and the data transmission speed is four or five times per second. When the AD-8121 printer is to be connected use the Stream mode.

(2) Command Mode

Commands can be sent from a personal computer etc. to the CH Series scale causing the displayed data to be output and to allow zero setting of the scale to be carried out.

The commands that can be used are:

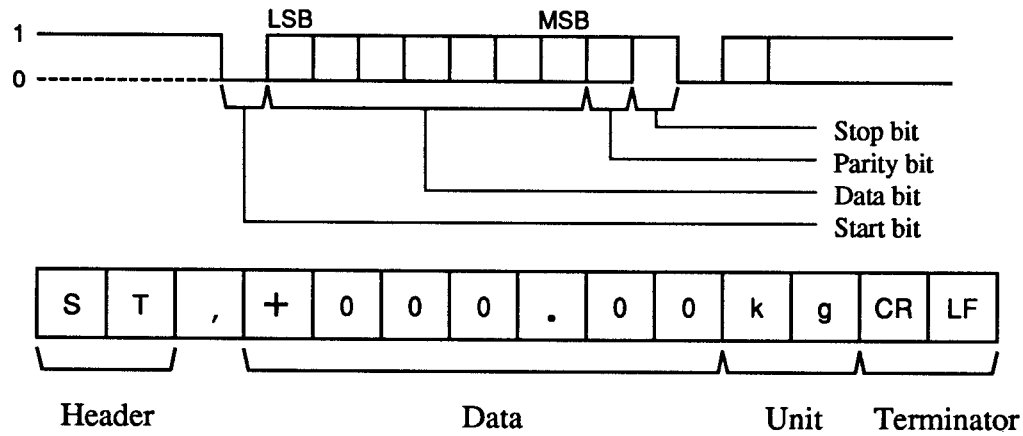
R term: The RE-ZERO operation is carried out only when the display is stable.
Z term: The RE-ZERO operation is carried out only when the display is stable.
Q term: Regardless of stable or unstable the displayed weight data is output once.

"term" is the terminator chosen, using the 5-2 function. This can be set to match the type of personal computer etc. that is connected. When sending commands ensure that there is an interval of 500msec minimum between commands.

(3) Interface Specifications

Output standards: According to EIA RS-232C
Transmission format: Start/Stop synchronous transmission
Signal speed: 2400 bps (fixed)
Data bit length: 7 bits
Parity: 1 bit (even)
Stop bit: 1 bit
Code: ASCII

(4) Data Format



There are 3 possible headers:

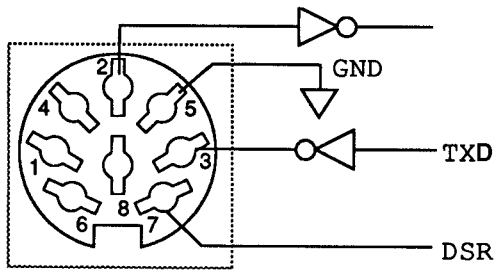
ST The data is stable
US The data is unstable
OL The scale is overloaded (the maximum display is exceeded)

The data is 7 figures including the sign and the decimal point.
When the data is overloaded either "+999.99" or "-999.99" will be transmitted.

Note that the terminator will always be CrLf regardless of function 5 setting.

(5) Interface Circuit

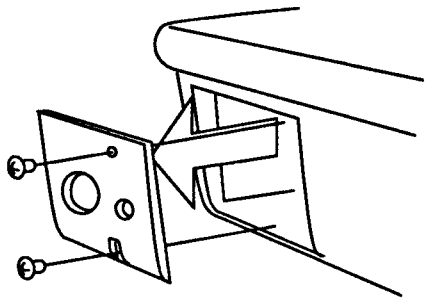
Uses a DIN 8 pin connector



Internal connection diagram

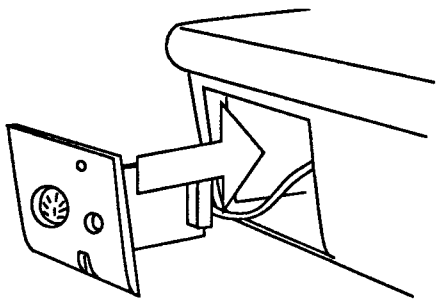
Short the RTS and CTS pins of the connected personal computer.

Method of mounting the data output board



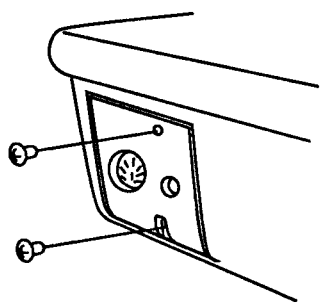
(1) Take out the two screws and remove the cover.

(2) Cut the cable clamp which secures the cable to the cover.



(3) Connect the captive flying lead to the option board.

(4) Insert the data output board into the main unit.



(5) Install the cover with the two screws.

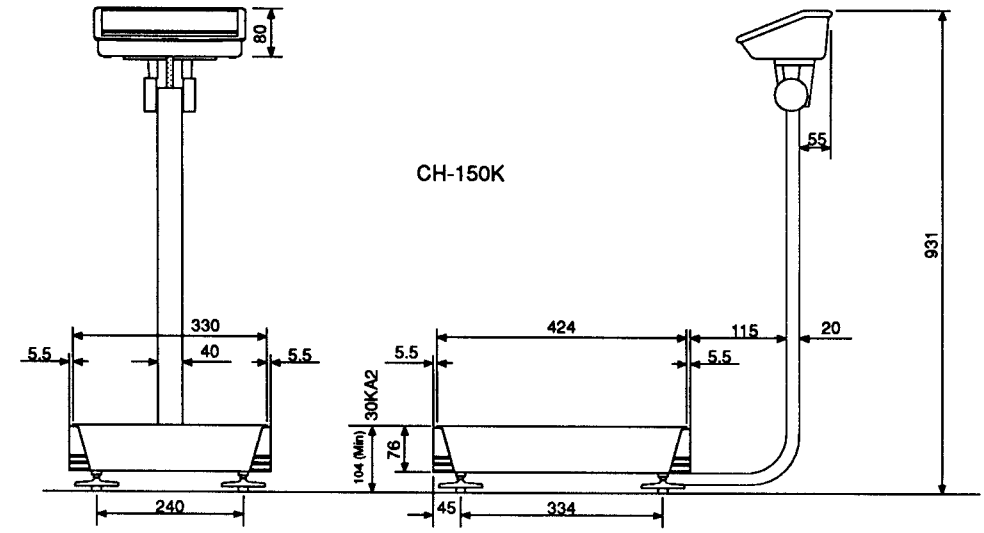
9 Specifications CH Series

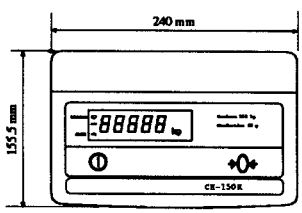
Model CH-150K (CH-300K)
Maximum load = 150 kg (300kg)
Minimum display = 20 g (100g)
Display type = 7 segment Liquid Crystal with 22mm high characters.
Ambient Temperature Range = -10°C~+40°C
Ambient Humidity Range = Maximum 85% relative humidity non-condensing
Repeatability = ± 40 g (± 200g)
Linearity = ± 40 g (± 200g)
Span Drift = 20 ppm/°C (5°C~35°C)
Power Source = DC 9 volts; 6 x 'C' size dry cell batteries; AC adaptor (TB-108); AD-1681 NiCd pack
Battery Life = 80 hours approx. with Manganese dry cells
= 200 hours approx. with Alkaline dry cells.
Platform Size = 330mm x 424 mm (390mm x 530mm)
Weight = Approx. 15 kg (20kg)

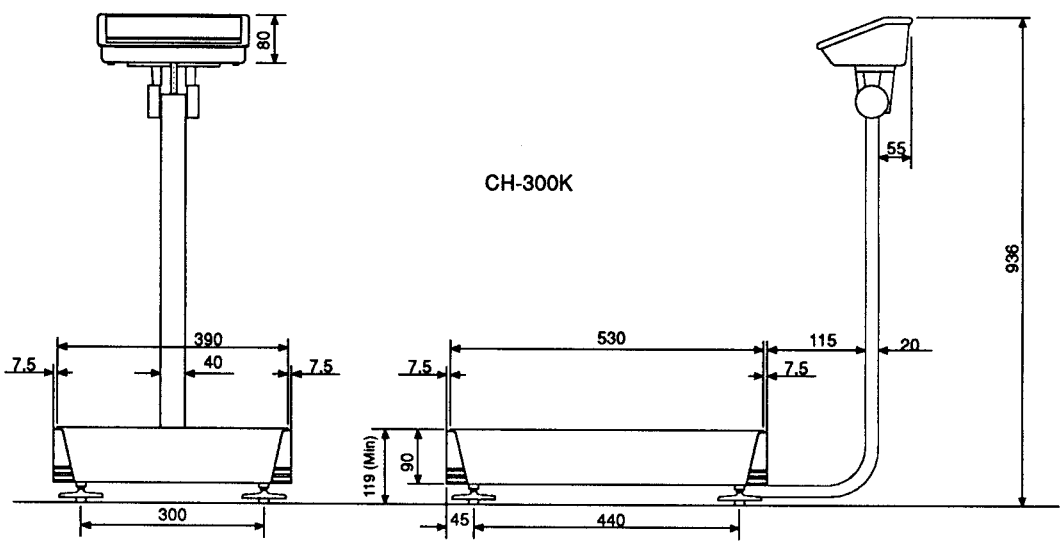
10 Checklist when malfunction is suspected.

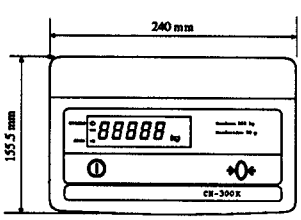
Problem	Confirm these points
The instrument does not switch ON.	Are the batteries correctly inserted? Are the batteries dead? Is the AC adaptor properly connected? Is the correct AC adaptor in use?
The display shows 888.88	Is the scale subject to wind or vibration? Is there a generator of electrical noise nearby? Is the platform correctly fitted? Is anything touching the platform? Is the loadcell cable correctly fitted?
The display shows "-----"	Was the scale switched on with a loaded platform? Press the →0← switch.
The weight value is not correct	Is the machine level? Is something touching the platform? Re-calibration may be required.
The display shows -E	Is the platform fitted correctly?

11. External Dimensions









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