CW/SW Series

CW-6KA / CW-15KA / CW-30KA

SW-6KA / SW-15KA / SW-30KA

Calibration Manual

A&D MERCURY PTY. LTD.

CW_SW_OZ_v1c

Contents

1. Introduction

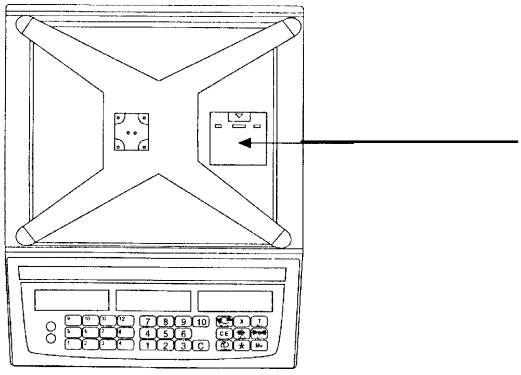
This manual describes how to calibrate the CW series check weighing scale and the SW series simple weigher. The manual also describes how to set the various software functions.

2. Calibration Notes

The CW/SW series scales have been calibrated at a factory located in an area with a gravitational acceleration of 9.798m/s^2. If the scale is used in an area where the gravitational acceleration differs by more then 0.002m/s^2 from the value above then calibration is required.

There are two calibration modes : zero calibration and span calibration. Usually span calibration is performed using a calibration mass. If a calibration mass is not available you can alternatively enter your local gravitational acceleration value instead, to minimise errors due to the difference in gravitational acceleration.
Zero calibration can be performed independently.

Location of the CAL key.
Remove the weighing pan and locate the cover on the centre right. Opening the cover reveals the CAL key inside.
Press the CAL key so that the scale is in calibration mode. Replace the weighing pan.

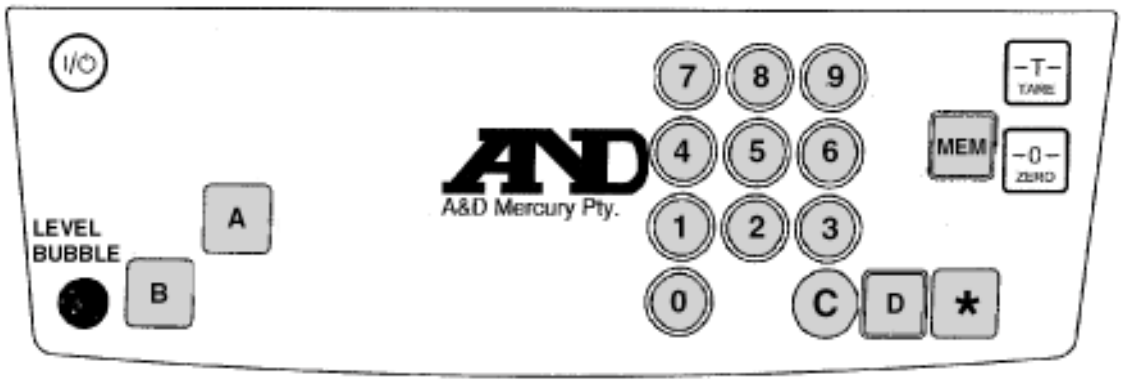


The CAL key is located under this cover.

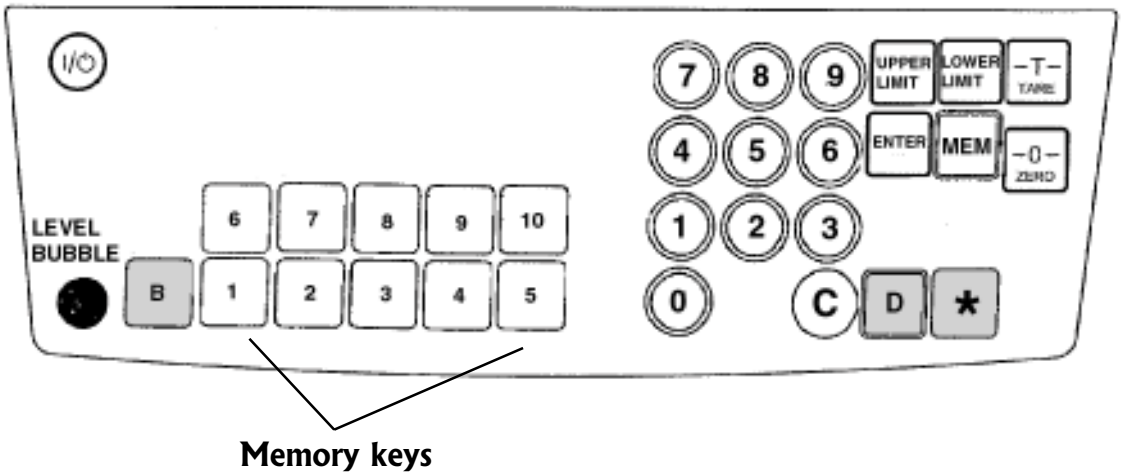
Keyboard layout.

The calibration and function setting routines require the use of 'hidden' keys to set the required data into memory. The drawing below shows these hidden key positions relative to the actual scale keys.

SW hidden key positions.



CW hidden key positions.



Memory keys

A **Denotes hidden button.**

3. Calibration

3.1 Entering the calibration mode.

While the scale is in weighing mode press the CAL key. The lower display will show 'CAL', indicating that the scale is now in calibration mode.

1. To return to the previous state, weighing mode, without calibration, press the C key [CW], hidden key C [SW].

2. To calibrate the scale press the hidden * key [CW/SW]. The lower display shows 'G9.XXX' the previously set gravitational acceleration value.

3.2 Zero calibration.

This routine performs a zero calibration of the scale. This can be performed independently of span calibration.

1. With the gravitational acceleration being displayed in the lower display, press the C key [CW], hidden key C [SW]. 'CAL 0' appears in the lower display,
indicating that the scale is now in zero calibration mode. When the scale has stabilised the stable indicator will illuminate. The stable indicator is a solid triangle on the vacuum fluorescent display. If you wish to cancel the calibration simply press the C key [CW], hidden key C [SW], and 'CAL End' will show. Press the C key [CW], hidden key C [SW], again to return to normal weighing.

2. Verify that the weighing pan is empty and the stable indicator is on.

3. Press the hidden * key [CW/SW]. '------' appears for about two seconds in the lower display.
After the scale has acquired the zero point data 'CAL XX' appears.
If zero calibration failed 'Err 4' appears for about two seconds and the lower display returns to 'CAL 0'.
If the weight value exceeds the weighing capacity or the display is unstable, the hidden * key will be disabled.

4. To finish calibration without span calibration press the C key [CW], hidden key C [SW], 'CAL End' appears. Press the C key [CW], hidden key C [SW], again to return to normal weighing.

5. To perform span calibration proceed to the next section.

3.3 Span calibration.

This routine performs the span calibration using a standard mass. The lower display shows 'CAL XX' when the zero calibration has been completed. 'XX' represents the maximum capacity of the scale, eg 30 for a scale with a weighing capacity of 30kg.
To cancel span calibration press the C key [CW], hidden C key [SW]. 'CAL End' will show in the lower display.

1. Place a calibration mass equivalent to the value displayed in the centre of the weighing pan and wait for the stable indicator to show.

2. Press the hidden * key [CW/SW]. '------' appears for about two seconds in the lower display. After the scale acquires the weight value of the calibration mass 'CAL End' appears. Calibration is complete. Remove the calibration mass and press CAL to return to normal weighing mode.
If span calibration failed ;Err 5' appears for about two seconds and the lower display returns to 'CAL XX'.
If the weight value exceeds the weighing capacity or is unstable the hidden * key [CW/SW] will be disabled.

Note: Generally for span calibration the calibration mass equivalent to the weighing capacity is used. If such masses are not available a mass with a smaller value can be used. To do so change the 'XX' value by pressing the hidden D key [CW/SW]. Each time the hidden D key [CW/SW] is pressed the value changes as follows.

Weighing Capacity 30kg: 30->20->10->30
15kg: 15->10->5->15
6kg: 6->4->2->6

3.3 Setting the gravitational acceleration.

As described above, a calibration mass is used for span calibration. If a mass is not available, errors due to the difference in the gravitational acceleration can be minimised by setting the local value of gravitational acceleration.

1. While the scale is in weighing mode press the CAL key. The lower display will show 'CAL' indicating that the scale is now in calibration mode.
Press the hidden * key [CW/SW] to show 'G9.XXX' in the lower display.

2. Use the numeric keys [CW], hidden numeric keys [SW] to enter the local value of gravitational acceleration with a maximum of four digits. The range is between 9.835 m/s^2 and 9.770 m/s^2.

3. Press the hidden * key [CW/SW], to confirm the setting. '------' appears for about two seconds in the lower display and then 'CAL 0' is displayed.
To finish the operation without calibration press the C key [CW], hidden key C [SW], 'CAL End' appears.
If the entered value is beyond the range 'Err 3' appears for about two seconds and the display returns to '09.XXX'.

3.3 Quitting calibration

When calibration is complete or cancelled 'CAL End' appears. Press the C key [CW], hidden key C [SW], to return to normal mode.

4. Function list.

4.1 Functions

There are three function setting types - for factory adjustment, for dealers to meet the user's demands and for the end user to set optionally. They are called 'A' functions, 'C' functions and 'F' functions respectively. If the scale is sealed for commercial use, 'A' and 'C' functions are not available to be changed.

1. 'F' functions (User functions)
Start with the power switch off. To enter the user function mode, while holding down the ZERO key turn on the power switch. For details about the user function mode see the instruction manual.

2. 'A' and 'C' functions
Start with the power switch off. To set the 'A' and 'C' functions the scale should be in the factory setting mode first. While holding down the STANDBY/OPERATE key and memory 6 key [CW], or hidden key A [SW], turn on the power switch. Continue to hold the keys for more than 4 seconds and then release all of the keys. Now hold down the hidden key B [CW/SW], and press the STANDBY/OPERATE key. The scale is now in factory setting mode with the lower display showing 'SEt inG'. With 'SEt inG' displayed hold down the numeric 2 key [CW], hidden numeric key 2 [SW], and press the CAL key to be in the 'A' function setting mode. 'A- 1' appears in the lower display.

With 'SEt inG' displayed hold down the numeric 3 key and press the CAL key to be in the 'C' function setting mode. 'C - 1' appears in the lower display.

The setting operation is as follows:

Numeric keys [CW]:	**Enter a function number and a data number up to two digits.**
Hidden numeric keys [SW]:	
Hidden * key [CW/SW]:	**Confirms the function number or data entered. When the existing function number is entered, 'Axx-yy' or 'Cxx-yy' (xx = function number and yy = data currently saved) appears. If a non-existing function number is entered 'Err 1' appears for about two seconds and the display returns to the previous state. When the correct data number is entered the next function number appears. If a non-existing data number is entered 'Err 1' appears for about two seconds and the display returns to the previous state.**
C key [CW]:	**Clears the number entered with the numeric keys and returns to the previous display.**
Hidden C key [SW]:	
MEM key [CW]:	**Stores the setting into EEPROM (memory) and terminates the function setting mode and displays 'SEt inG'.**
Hidden MEM key [SW]:	

To finish the factory setting mode, with 'SEt inG'displayed, turn the power switch off.

The following function tables describe each function.

4.2 F functions

No. Item	Data No.	Description	Default
F1 Auto display off	0	Yes	1
	1	No	
F2 NOT USED			
F3 Output mode	0	Key trigger mode format1	5
	1	Key trigger mode format 2	
	2	Command mode	
	3	Stream mode	
	4	Key trigger mode format 3 with delay	
	5	Key trigger mode format 3	
	6	Towa-Meccs special mode	
	7	Towa-Meccs special mode	
F4 Baud rate	0	600bps	2
	1	1200bps	
	2	2400bps	
	3	4800bps	
	4	9600bps	
F5 Parity bit	0	7 bits even parity	0
	1	8 bits no parity	
F6 Factory Use	0		Fixed at 0
	1		
	2		
F7 Factory Use	0		Fixed at 1
	1		

4.3 A functions

No. Item	Data No.	Description	Remarks
A1 Weighing capacity	0	6kg	Depends on the scale type
	1	15kg	
	2	30kg	
	3	15lb	
	4	30lb	
	5	60lb	
A2 Decimal point position	0	none	Default is 2
	1	10^1	
	2	10^2	
	3	10^3	
	4	10^4	
A3 NOT USED			
A4 Decimal point type	0	full stop	
	1	comma	
A5 Factory use	1		Fixed to 1
A6 Scale type	0	SFA/B	Must be set to 0
	1	SFC	
A7 Factory use	0		Fixed to 0

4.3 A functions

No.	Item	Data No.	Description	Remarks
C1	Tare range	0	Full capacity	Default = 0
		1	2/3 of capacity	
		2	1/2 of capacity	
C2	Allow new tare of lower value	0	Allowed	Default = 1
		1	Prohibited	
C3	NOT USED	0		
		1		
C4	Tare computation	0	Internal count	Default = 0
		1	Display count	
C5	NOT USED	0		
		1		
C6	Zero range	0	+/-2% capacity	Default = 0
		1	+/-5% capacity	
		2	+/-20% capacity	
C7	Zero acquisition	0	10% capacity	Default = 0
		1	50% capacity	
C8	NOT USED	0		
		1		
C9	NOT USED	0		
		1		
		2		
		3		
C10	Zero tracking	0	On	Default = 0
		1	Off	
C11	Motion detection	0	1d/1sec	Default = 2
		1	1d/0.5sec	
		2	1d/0.25sec	
		3	0.5/1sec	
		4	0.5/0.5sec	
		5	0.5d/0.25	
C12	Zero in NET	0	Enabled - Clears tare	Default = 0
		1	Enabled - tare remains	
		2	Disabled	
C13	CW / SW	0	Sets SW type scale	
		1	Sets CW type scale	
C14	Centre Zero in NET	0	Displayed	
		1	Disabled	
C15	Factory Use			
C16	Not used			

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