

User Manual

AGRETO Weighing Indicator HD1

11.09.2018



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1 Introduction

Thank you for choosing this AGRETO weighing display. You have just purchased a robust appliance for everyday use.

Please read this manual carefully before putting the weighing display to use.

As in common parlance, the word 'load' is used instead of 'mass' in this user manual.

2 Scope of delivery

The AGRETO Weighing Display HD1 consists of:

- The weighing display itself
- Brackets for wall and table mounting
- Bracket for stand mounting
- This user manual

3 Intended use

The AGRETO weighing indicator HD1 is suitable for all weighing applications, where no official calibration is needed.

It is designed for use in humid, dusty rooms. The protection class is IP67. It can therefore also be used in stables and other humid rooms.

The display can be connected to most of the common load cells, weighing platforms or other weighing devices.

The AGRETO HD1 isn't officially calibratable and therefore not authorized to determine weights for legal transactions.

4 Security

4.1 Safety Instructions for the Buyer



Important!

Make sure that each person who works for the first time with the AGRETO HD1 Weighing indicator, has read and understood this manual.

4.2 Safety instructions for the operator



DANGER!

The AGRETO HD1 Weighing indicator may only be operated by persons who are familiar with the operation of the device.



Precaution!

Keep the work area clean! Soiled areas contributes to accidents.



Attention!

Repairs and other technical interventions on the device may only be performed by qualified personnel. There is a danger of electric shock.

4.3 Residual Hazards

Working with the device residual risks may arise for persons and objects that cannot be prevented by design or technical protection measures.



WARNING!

The AGRETO Weighing indicator HD1 must not be operated in explosive environment.

5 Technical specifications

Size (W/H/D)	258 mm / 184 mm / 60 mm for table mounting 280 mm / 161 mm / 124 mm for wall mounting
Weight:	1890 g
Operating temperature:	-10 to +40 degrees Celsius
Maximum load:	adjustable (up to 999,999)
Resolution:	adjustable (from 0.001 to 50)
Unit:	choice between kg or lb
Power supply:	Internal PSU AC 85 to 245V, 50 to 60 Hz
Battery:	Accessible compartment
Battery power:	2 x AA 1.5V
Battery running time:	up to 80 h, depending on battery capacity
Accuracy class:	III, n=3000
Input sensitivity:	$\geq 1.5\mu\text{V/e}$
Weighing frequency:	80 x per second
Power supply load cells:	DC +3.3V
Signal input:	-16mV to +18mV
Amount of load cells:	1 to 6 load cells with 350 Ohm in parallel operation

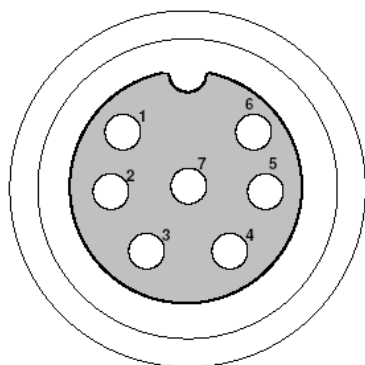
6 Getting started

6.1 Connecting the load cells

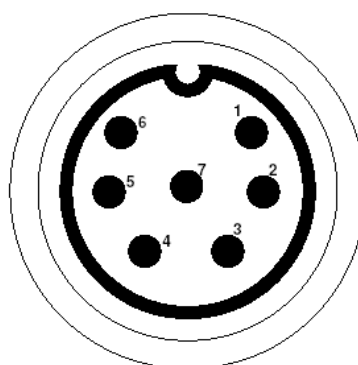
AGRETO weighing scales are supplied with a connection cable that fits in the weighing display. If you have one of those, you connect the cable's 7-pole round plug to the fitting round plug coming out of the weighing display (that's the plug without a protective cap).

To connect to other weighing scales you use the connection diagram as explained by the following table:

Front view cable socket
of the connector cable



Front view cable plug
of the weighing display



No	Description	Cable colour indicator side	Function
1	EX -	Black	Power supply -
2	EX +	Red	Power supply +
3	SI -	White	Signal -
4	SI +	Green	Signal +
5			
6			
7			

6.2 Connecting the power supply

Stick the power supply cable into the outlet.

The display can also be powered by 2 x 1.5V AA (rechargeable) batteries.

7 Weighing


7.1 Turning on the weighing display


Press the [] button. The weighing display will now run a self-test. The display is ready for use when the weight readout appears.

In standard mode the display isn't put to zero, but shows the actual load, based on the null position that was last used.

NOTE: Calibration parameter 3 allows you to configure if and up to what load the display automatically reverts to the zero position during start-up.

7.2 Zeroing

With the [] button the display's zero position is reset. Use this function before every weighing if the display isn't set to zero.

When the display is set to zero the symbol  will light up in the top left corner of the display screen.

NOTE: Calibration parameter 2 allows you to configure the range for manual zero positioning.

7.3 Standard weighing procedure

- Make sure that the display is set to zero.
- Put the weighing object on the scales.
- Wait until the weighing display shows a stable value, or until the symbol for weight stability lights up in the top left corner of the display screen.
- Read the weighing result.

7.4 Weighing with Tare function

When you'd like to weigh an object in a container or package, the weight of the empty container can be automatically subtracted without changing the zero position, by using the tare function.

- Make sure the display is set to zero.
- Put the empty container on the scales.
- Wait until the display shows a stable value, or until the symbol for weight stability lights up in the top left corner of the display screen.
- Press the [→T←] button. The display goes back to zero and the NET symbol appears.
- Now put the weighing object in the container.
- Wait until the display shows a stable value, or until the symbol for weight stability lights up in the left top corner of the display screen.
- Read the weighing result. This is the net weight of the object without container.
- If you would like to weigh several objects in the same container, you can put them on the scales one after the other. As long as the NET symbol is visible, the previously measured tare will be subtracted and only the net weight shown.
- To end the tare function you take the load from the scales and press the [→T←] button again.

7.5 Weight summation

Do the following if you would like to perform several weighings and add up all the loads:

- Make sure the display is set to zero.
- Put the weighing object on the scales.
- Wait until the weighing display shows a stable value, or until the symbol for weight stability lights up in the top left corner of the display screen.
- Read the weighing result.

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- Shortly press the [Σ] button. The display will show the sum of the objects weighed so far, followed by the amount of weighed objects so far (n 0001), after which it returns to the normal weighing mode. The AUTO symbol lights up as long as the sum and amount of weighed objects are displayed.
- Remove the first load from the scales and introduce the next load.
- Shortly press the [Σ] button again. Again, the display shows the sum of the objects weighed so far, followed by the amount of weighed objects so far (n 0002) after which it returns to the normal weighing mode.
- Repeat this procedure with all weighing objects.

ATTENTION: The summation function will only start after a load of at least 5 increments (for instance: for scales with a 1 kg resolution the summation function starts at a load of 5 kg)

Displaying the sum

- For a permanent display of the sum of weighed objects you keep the [Σ] button pressed for 3 seconds. The total sum will be displayed when you release the button.
- While the sum is displayed, you can use the [$\rightarrow 0 \leftarrow$] button to switch to the amount of weighed objects. By pressing the [$\rightarrow 0 \leftarrow$] button again you return to the normal weighing mode. The sum remains stored, so you can add additional weighings.

Deleting the sum

- Keep the [Σ] button pressed for 3 seconds. The total sum will be displayed when you release the button (as above).
- Press the [$\rightarrow T \leftarrow$] button. The CLEAR symbol appears on the display screen.
- Press the [$\rightarrow 0 \leftarrow$] button to confirm the deletion. The sum and amount are set to 0 again, and the display reverts to the normal weighing mode.
- Press the [Fn] button to cancel the deletion.

7.6 Animal weighing mode

If you'd like to weigh restless animals or unstable loads, you can use the animal weighing mode. Take the following steps:

- Make sure the display is set to zero.
- Put the weighing object on the scales.
- If you shortly press the [Fn] button, the weight display will be replaced by dashes for approximately 5 seconds. During this time the load is weighed continuously. The result that is displayed, is the average of all weighings during those 5 seconds.
- The result remains displayed until you press the [Fn] button again, or remove the weighing object from the scales (and the load is lower than 5 increments).

ATTENTION: The animal weighing mode will only start after a load of at least 5 increments (for instance: for scales with a 1 kg resolution the animal weighing mode starts at a load of 5 kg).

ATTENTION: If you press the [Fn] button for too long, parameter configuration will start up instead of animal weighing mode.

8 Parameters

The Weighing Display HD1 has several configurable parameters that influence the way the system functions. Normally these parameters have been pre-configured correctly and need only be altered in special circumstances.

Take the following steps to start parameter configuration:

- Keep the [Fn] button pressed for 3 seconds and then release the button. The FN SET symbol appears on the display screen.
- Press the [←] button to start parameter configuration.

The parameter menu is operated as follows:

- With the [←] button the entry is confirmed and the next parameter will be shown. After the last parameter is shown the parameter menu is closed and the display reverts to normal weighing mode.
- The [↑] button allows you to select the desired parameter value.
- The [→] button allows you to switch between digits for multi-digit entries.
- The parameters are described in the following table.

Parameter Nr	Description	Display	Comment
1	Function of the [Fn] button	Fn **	Lb = switch between kg and lb ANL = animal weighing mode function (standard) -- = no function
2	Power Save Mode	PS **	OFF = no power save mode oN = power save mode after 5 minutes without change in weight onP = turn off the display after 5 minutes without change in weight (standard)
3	Background lighting	Bl	Off = lighting off On = lighting on Aut = lighting on when load

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			changes (standard)
4	Baud rate RS232 interface	Br ****	600 1200 2400 (standard) 4800 9600
5	Communication mode RS232 interface	Co *	1 (standard)
6	Filter (Stabilization of the display in an animal weighing mode)	Flt *	1 low stabilization 2 (Standard) 3 4 5 high stabilization
7	Sensibility Response weight of the display in the number of sub-steps for animal weighing mode	Stb *	1 high (standard) 2 3 4 5 6 7 8 9 low reaction

9 Calibration

If you bought the weighing display together with AGRETO weighing scales, the display is already fully calibrated and checked.

Calibration is only needed:

- If you didn't buy the weighing display together with AGRETO weighing scales.
- If you use the scales for a special construction, for example when you want to retrofit mechanical scales.
- If the location of the weighing system is outside of the geographical area between 45 and 52 degrees latitude.
- If the location of the weighing system is at an altitude higher than 1000 m above sea level.
- If for whatever reason you do not succeed in using the scales in the prescribed mounting position.

9.1 Performing a calibration

ATTENTION: A calibration determines the accuracy of the scales. A calibration cannot be undone!

To perform a calibration you need a reference load that is as close as possible to the nominal load. It should be at least 20% of the nominal load of the load cells. This means that scales with a nominal load of 4000 kg need to be calibrated with at least 800 kg.

Take the following steps to start the calibration procedure:

- Keep the [Fn] button pressed for 3 seconds and then release the button. The FN SET symbol appears on the display screen.
- Press the [↑] button to enter the calibration menu. The CAL symbol appears on the display screen.
- Press the [←] button to start the calibration.

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The calibration menu is operated in the following way:

- With the [←] button the entry is confirmed and the next parameter will be shown. After the last parameter is shown the parameter menu is closed and the display reverts to normal weighing mode.
- The [↑] button allows you to select the desired parameter value.
- The [→] button allows you to switch between digits for multi-digit entries.
- All the steps of the calibration process are described in the following table. They must be performed in this order.

Step Nr	Description	Display	Comment
1	Division	E **	01 02 05 10 20 50 Depending on the weighing scales
2	Amount of decimal places	dC ****	0 0.0 0.00 0.000 Depending on the weighing scales
3	Nominal load	F *****	Nominal load of the load cells
4	Zero position	noLoAd	No load on the scales
5	Calibrating load	AdLoAd *****	Introduce the calibrating load and enter the weight of the calibrating load

9.2 Calibration parameters

ATTENTION: These parameters change the characteristics of the weighing display. Improper use can cause a distortion of weighing results.

Take the following steps to enter the calibration settings:

- Keep the [Fn] button pressed for 3 seconds and then release the button. The FN SET symbol appears on the screen display.
- Press the [↑] button twice to enter the calibration settings. The Zero symbol appears on the screen display.
- Press the [←] button to start the calibration parameters.

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The calibration menu is operated as follows:

- With the [←] button the entry is confirmed and the next parameter will be shown. After the last parameter is shown the parameter menu is closed and the display reverts to normal weighing mode.
- The [↑] button allows you to select the desired parameter value.
- The [→] button allows you to switch between digits for multi-digit entries.
- The parameters are described in the following table.

Parameter Nr	Description	Display	Comment
1	Zero point stabilisation	Zot **	0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 division units Standard setting: 2.0
2	Range for manual zero positioning	Nt ***	0 2 4 10 20 100 percent of nominal load can be zero positioned Standard setting: 100%
3	Range for automatic zero positioning	At	-- 0 2 4 10 20 100 percent of nominal load can be automatically zero positioned Standard setting: --
4	Responsiveness	FL ***	Stb: slow responsiveness Sen: fast responsiveness (standard)
5	AD-sampling rate	SPd	0 (standard) 1

10 RS232 Interface

The weighing indicator has a serial interface for controlling an additional display, a printer, or to communicate with a PLC or a PC.

10.1 Connection pin-out

For using the interface a cable must be prepared or ordered.

The 3-pin cable is connected to the G (Ground), T (Transmit) and R (Receive) terminals on the 5-pin spring connector on the mainboard in the display and passed through the free cable gland.

10.2 Configuration

With the parameter 4, the baud rate is set. The other interface parameters of the RS232 interface can be used by default.

The parameter 5, the operation of the interface is defined.

1: Automatic output of the net weight without a unit in toppled sequence of digits, 8 digits

i.e.: 23,45 kg -> 54.3200
-23,45 kg -> 54.320-

2: Automatic output of the gross weight without a unit in toppled sequence of digits, 8 digits

i.e.: 23,45 kg -> 54.3200
-23,45 kg -> 54.320-

3: Automatic output of the net weight with unit, 14-digit

i.e.: 23,45 kg -> 0023.45 (kg) + HEX(0D) + HEX(0A)

4: Automatic output of the gross weight with unit, 14-digit

i.e.: 23,45 kg -> 0023.45 (kg) + HEX(0D) + HEX(0A)

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5: command mode, issue on the request

Gross weight request

command: HEX(02) + "A" + "HEX(03), answer: GW:0023.45 (kg)

Net weight request

command HEX(02) + "B" + "HEX(03): answer: NW:0013.45 (kg)

Tare weight request

command HEX(02) + "C" + "HEX(03): answer: TW:0010.00 (kg)

Trigger zero position

command HEX(02) + "D" + "HEX(03): answer: D

Trigger Tare funktion

command HEX(02) + "E" + "HEX(03): answer: E

6: Output of the weight when pressing the SUM function on the display, for connecting a printer directly

11 Troubleshooting

The following error messages can appear on the display screen:

Display	Description	Solution
Err 01	Range for zero positioning has been exceeded	Reduce the load on the scales or set calibration parameter 2 to a higher value.
Err 02	Load for this function is too low	Some functions are only available for loads of 5 increments onwards.
Err 03	Overloaded	Reduce the load on the scales.
Err 04	Weight not stable	The weight isn't stable during calibration. The calibration procedure can't be performed.
Err 05	Weight is too low	A higher load must be used for the calibration procedure. The calibration procedure can't be performed.
Err 06	Weight not stable	For some functions the weight must be stable.

12 Warranty

Over and above statutory warranty for the AGRETO weighing indication HD1 following warranty provisions apply:

- The AGRETO electronics GmbH guarantees the function and repairs or replaces all the parts that have a material or manufacturing damage within the warranty period.
- Warranty services will be performed by the AGRETO electronics GmbH.
- The decision on the existence of a warranty claim is sole responsibility of the AGRETO electronics GmbH.
- The warranty period begins with the first accounting to an end customer and ends 5 years from this date of invoice.
- Prerequisite for warranty service are the presentation of the original invoice and compliance with all elements of this instruction manual.
- Excluded from warranty are wear, normal wear and tear, damage due to misuse, negligence or accident.
- When processing a warranty claim transport costs incurred will be charged to the buyer.

13 Disposal



Dispose the product in the definitive shutdown or parts of environmentally friendly (metal to the respective metal scrap, plastic to plastic waste, etc. - Do not dispose as household waste!)

Detailed information can be found in Directive 2002/96/EC

14 Declaration of Conformity



EC Declaration of Conformity

For the following named product

AGRETO HD1 Weighing Indicator

This is to confirm that it complies with the essential protection requirements of Council Directive on the approximation of the laws of Member States relating to electromagnetic compatibility (2004/108/EC) and Low Voltage Directive (2006/95/EG).

For the evaluation the following standards were applied:

EN 61010-1:2001, EN 61326-1:2006, EN 61000-3-3:2008, EN 61000-3-3:2008,
EN 61326-1:2006

This explanation is given by the manufacturer

AGRETO electronics GmbH
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3820 Raabs

Submitted by:

Anton Eder
Business Manager

Pommersdorf

06.03.2014



legally binding signature

15 Imprint

All information, specifications and images are correct according to the status in 2018, and subject to technical adjustments or changes in design.

Despite careful treatment and examination of the contents, no warranty is made with respect to information in this user manual. Any liability of the author is excluded.

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