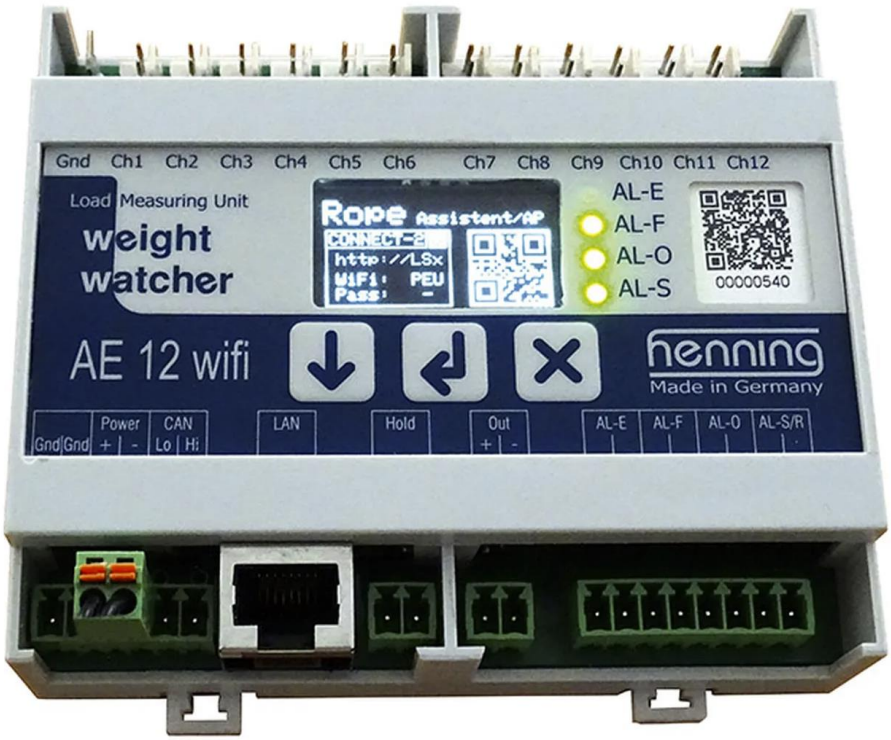
Operating Instructions
WeightWatcher AE12 WIFI



- AE12 WIFI Standard 455000-WIFI
- AE12 WIFI Analog 455002-WIFI

These operating instructions instruct technical personnel on the safe assembly, installation, commissioning and operation of the product.

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Change Log

Date (Y_M_D)	Author/Editor	Reviewer	Revision	Description
2025_06_05	MHO	TEB/MHA	766	initial release
2025_07_02	MHO/PMO	DMO	776	minor changes and EN translation

1 Safety information

The device may only be installed and put into operation by persons who meet the following qualifications and conditions:

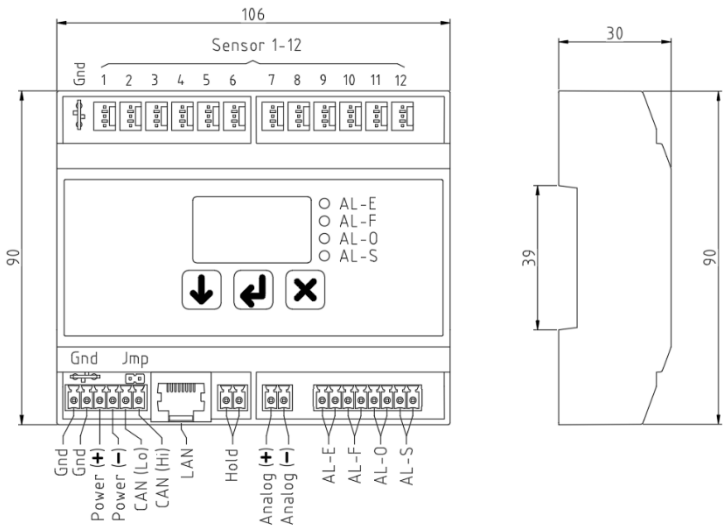
- Technical qualification
- Compliance with generally applicable global and local regulations, directives and laws, e.g. EN and VDE regulations
- Instruction in the operation by the machine operator
- Permanent access to this documentation

The device may only be used in environments that ensure the following properties:

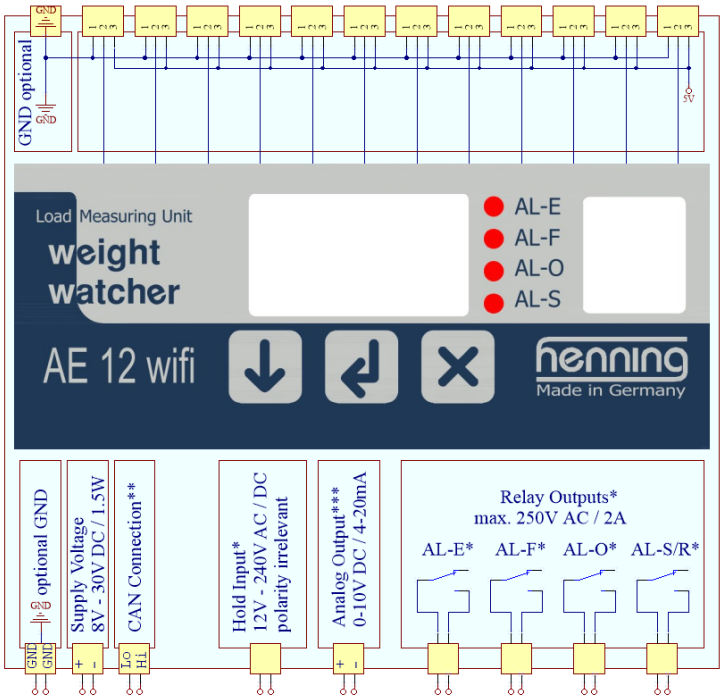
- Sufficient protection against moisture, dirt and mechanical damage
- Exclusion of accessibility for unauthorized persons
- Operation of the device within the product specifications

If necessary, measures must be taken by the operator or installer to ensure compliance with these conditions.

2 Dimensions



3 Wiring diagram



*not availabe on AE12 CANopen WiFi: 455005-WIFI
**only available on AE12 CANopen WiFi: 455005-WIFI
***only available on AE12 Analog WiFi: 455002-WIFI

4 Electrical characteristics

Feature	Value
Supply voltage	8 - 30 V DC
Power consumption	max. 1.5 W
HOLD input (optional)	12 V -240 V AC/DC
Relay outputs (optional)	
max. switching voltage	250 V AC
max. switching current	2 A
max. rated carry current	2 A
Analog output (optional)	
electrically isolated	no
Output voltage	2 V - 10 V or 0 V - 10 V
Output current (resistive load < 500 Ω)	0 mA / 4 mA - 20mA

5 Operating conditions

Feature	Value
Ambient temperature	-10°C to 60°C
relative humidity	up to 90% (non-condensing)
IP protection class	IP20

6 Description of the alarm relays

Note:

The operation of the relays as normally closed, or normally open contacts can be changed for each alarm output using the parameter Conf

AL-E (empty load relay)

Change of state if the load falls below the value programmed in AL-E.

AL-F (full load relay)

Change of state if the load programmed in AL-F is exceeded**.**

AL-O (overload relay)

Change of state if the load programmed in AL-O is exceeded.

AL-S (slack rope and rope difference relay)

Change of state as soon as the current weight falls below the load programmed in AL-S.

furthermore

Change of state as soon as one of the ropes deviates from the average of all ropes by at least the percentage load programmed in AL-R.

7 HOLD function (optional)

The HOLD input responds to AC and DC voltages between 12V and 240V. During elevator travel, the measured loads can fluctuate considerably (friction in the rails, etc.). As long as a voltage (e.g. the travel signal) between 12V-240V is applied to the HOLD input, any alarm will not be transferred to the relays. If a signal is applied to the HOLD input during elevator travel and no signal is applied when the elevator is at a standstill, the device automatically compensates for the rope weight in the case of elevators with multiple suspensions and compensates for the weight of any balancing chain present.

If the function is activated by a signal at the HOLD input, the display alternates between Hold and the weight.

8 Access to the parameters

The device is equipped with a menu via which the individual setting parameters can be accessed.

Pressing this button cycles through the individual menu items. If a menu item has already been selected, the button is used to navigate through the submenus. The value can be changed within the individual parameters using this button.

This button is used to select the menu item currently displayed or to accept the set value in the parameters.

This button is used to exit the menu items and parameter settings that have just been selected without accepting the newly set values. Press this button repeatedly to return to the total weight display.

Note:

After one minute without pressing a button, the device automatically switches back to the total weight display, regardless of which menu item was previously selected. After 10 minutes without pressing a button, the display switches to a screen saver, which can be deactivated again by pressing a button. In order to be able to work with the rope tension assistant, this time is extended to 3 hours when using it.

9 Changing a parameter

1. Use the button  to display the parameter to be changed.
2. Use the button  to select the parameter.
3. Use the  button to change the value of the currently flashing digit.
   Use the  button to move to the next digit.
4. After entering the last digit, use the  button again. The entire value now flashes.
5. **Press the  button again to accept the value.**

Note: An incorrect entry, for example if the parameter entered is outside the permitted value range, is indicated by the value flashing rapidly.

10 Menu scheme

	Weight in the unit set at 
	Setting the connected sensor type (chapter 11) (sensor model)
	Display of the individual rope loads (chapter 12) (rope)
	Setting the rope count/rope sensor count (chapter 13) (rope count)
	Setting the suspension ratio (chapter 14) (rope factor)
	Rope tensioning assistant (chapter 15) (rope tensioning)
	Zero point setting (tare) (chapter 16) (zero)
	Empty load alarm level (chapter 17) (alarm empty)
	Full load alarm (chapter 17) (alarm full)
	Alarm level overload (chapter 17) (alarm overload)
	Slack rope alarm (chapter 17) (alarm slack rope)
	Rope load difference alarm level (chapter 17) (alarm rope load)
	Setting the analog output (chapter 18) (only relevant for the AE12 device with analog output) (DC-out)
	Setting the weight unit (chapter 19) (unit)
	Device status (chapter 20) (info)

11 Setting the sensor type used

To ensure that the AE12 evaluation unit can interpret the measurement data from the connected sensors correctly, the sensor type used must be set beforehand. In the menu item Sens, the sensor type used can be selected from the following list:

LS12 Load sensor LS1 and load sensor LS2

DNUT Return for submenu

- 300 RC 300 sensor
- 500 RC 500 sensor
- 1000 RC 1000 sensor
- 3500 RC 3500 sensor

2000 Load sensor LS 2000

C800 CC800 cabin sensor

12 Display of the individual rope loads

a) Use ↓ to display the menu item Rope and select with ↵.

b) The display shows the weight (e.g. 00691 kg) and the display is constantly switching between the current load and the corresponding rope number R001 (rope 1).

c) Use ↓ to switch between the individual ropes (up to the maximum number of ropes set in RCnt). The load of the 12th channel is always displayed as the last channel, see chapter 21.

d) The menu item can be exited at any time with ✕.

13 Setting the number of wire sensors

a) Use ↓ to select the menu item RCnt (rope count) and then press the button ↵

a) Follow the instructions in chapter 8 "Changing a parameter" to set the correct number of cable sensors.

b) The menu item can be exited at any time with ✕.

14 Adjusting the suspension

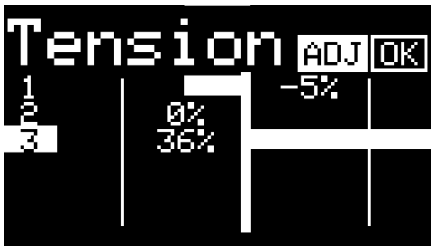
For multiple suspension, you must set the factor by which the rope loads are multiplied. The factory-set factor is 1 for directly suspended elevator systems.

a) Use ↓ to select the menu item RFct (rope factor) and then press the ↵ button.
b) Follow the instructions in chapter8 "Changing a parameter" to set the correct factor.

   Example: For a 2:1 suspension, you must enter 00002 as the factor
c) The menu item can be exited at any time with ✕.

15 Rope tension assistant

a) Use ↓ to select the menu item RTen (rope tensioning) and then press the ↵ button. The display shows an overview of the rope load difference in %.
b) Press the ↵ button and follow the instructions in chapter8 to set the desired rope tension tolerance in %, for example 0010%.
c) The rope tension assistant only becomes active with two or more ropes. The assistant automatically selects a reference rope before the adjustment process, which does not need to be adjusted by the user. The aim is to set the rope tensions so that all bars are within the two thin horizontal lines that represent the previously selected setting tolerance. Bars to the right of the center line represent ropes that are too tight. Bars to the left of the center line represent ropes with too little tension. If ropes exceed or fall below the setting tolerance, the numbers of the corresponding ropes are also highlighted in white. From a set number of sensors of 7, the display automatically switches to a vertical representation of the diagram.



In the example above, three sensors are connected. The device automatically selects the rope with sensor 2 as the basis for the rope tension assistant and therefore does not display a bar for this rope. Rope 1 is slightly under-tensioned at -5%, but is within the previously selected setting tolerance of -10% and is therefore OK. Rope 3 is too tight at +36%. It clearly exceeds the setting tolerance of +10%. The excess is also indicated by the white highlighting of the "3".

16 Zero point setting (tare)

This function is used to reduce the weight displayed on the AE12 by the currently measured total weight. If the points listed below are carried out correctly, the device will only display the payload of the cabin.

a) Use  to select the menu item Zero and then press the  button. Now Zero starts to flash on the display.

b) Check that the cabin is really unloaded. After pressing  again, a countdown of 10 seconds begins.
The cabin weight must not be changed during this time.

c) The zero point is then calibrated.

17 Alarm levels

The alarm levels correspond to the loads at which the relays change state. You can also select whether the individual relays should operate as normally closed or normally open contacts.

AL-E (empty load)

Change of state if the load falls below the value programmed in AL-E.

AL-F (full load)

Change of state if the load programmed in AL-F is exceeded.

AL-0 (overload)

Change of state if the load programmed in AL-0 is exceeded.

AL-S (slack rope)

Change of state as soon as the current weight is undershot by the load programmed in AL-S.

AL-R (rope difference)

Change of state as soon as one of the ropes deviates from the average of all ropes by at least the percentage load programmed in AL-R.

a) Use  to select the appropriate alarm level and then press the  button.

b) You can now use  to choose between Load (load) and Conf (configuration).

c) In Load, set the load switching threshold in the selected weight unit (default: kilogram [kg]).

In Conf you can choose between clos (close) for the normally open operating mode and open (open) for the normally closed operating mode. The setting is only applied after pressing the  button twice (selection flashes after the first time).

Note: When using the zero point function (see Chapter 16), the threshold values of the respective alarms always refer to the load value that is also shown in the display after the zero point function has been executed. Please note this when setting the threshold values.

18 Setting the analog output (optional)

In the parameter DCOu you set the weight at which the analog output should supply the maximum output value of 10V or 20 mA. This menu item has three parameters to be set:

Load	Set the load at which the analog output should supply its maximum value (10V or 20mA).
offs	Set a live offset (dead man's threshold). This is entered as a voltage in volts between 0.0 and 9.9. An offset of 0.0 V means that the live offset is switched off. This volt specification corresponds linearly to the output as a current, whereby 0 V = 0 mA and 10 V = 20 mA. An industry standard is an offset of 4mA. (4 mA – 20mA signal).
Tara	You can select whether only the payload should be output via the analog output (the prerequisite for this is that you have used the zero point setting function Zero). If you set this option to on, only the payload is output. If the option is switched off with off, the analog output signal corresponds to the sum of payload and empty cabin weight.

19 Setting the display unit

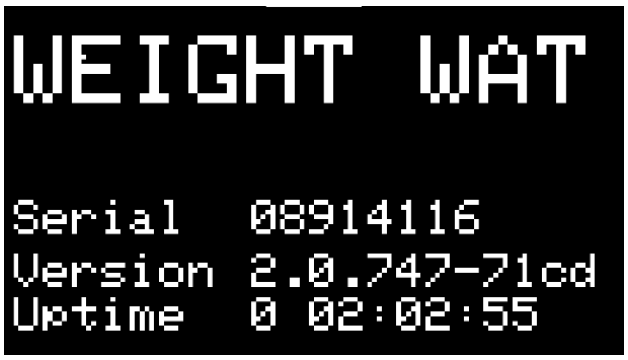
In the menu item Unit you can choose between two different weight units. All displayed weights and alarm thresholds are shown in the selected unit. All internal calculations are carried out in kilograms, so rounding errors are possible.

You can choose between the following units:

Metr	**(metric**)	All weights are displayed in kg.
Impe	**(imperial)**	**All weights are displayed in pounds "lbs"!!!**

20 Device status - Info

The Info menu item provides information about the serial number, the installed version of the firmware and the operating time (d/hrs/min/sec) since the device was last reset.



21 Use of a sensor for tensioning cables or chains under the car

The device supports the use of a sensor for tensioning cables or chains under the car. Contrary to the rule in chapter 23 d), the corresponding sensor must always be connected to channel 12. The number of sensors (chapter 13) must be set to the number of sensors for the suspension ropes, without the sensor for the under-tensioning rope.

Example: An elevator has 6 ropes and an additional under-tension rope. The number of sensors to be set in chapter 13 is 6. The normal rope sensors are connected to channels 1 to 6. The sensor for the under-tensioning cable is connected to channel 12.

22 Error messages

All 4 alarm LEDs light up

At least one load sensor has failed, or the wrong number of sensors has been set under the menu item RCnt (see chapter 13).

Procedure:

Go to the menu item RCnt and check the set number of cable sensors. If this is set correctly and the error is still present, go to the menu item Rope and check the individual cables.

If Err1 is displayed for one of the channels, the relevant sensor has failed.

If Err2 is displayed for one of the channels, the sensor in question is supplying an excessive signal and is probably overloaded.

23 Installing the LS1, LS2 & LS 2000 sensors

A load sensor must be provided for each suspension cable.

a) **Selecting a suitable installation location**

The location in the rope where the load sensor LS is installed must meet the following conditions:

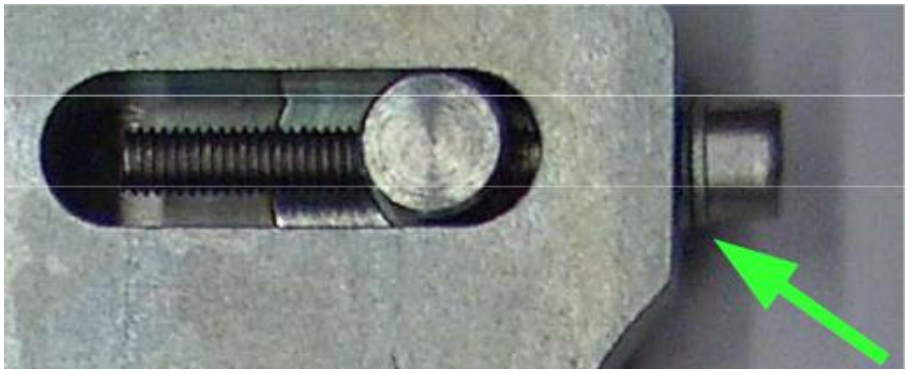
- The sensor must not come into mechanical contact with any other components during travel over the entire delivery head.
- The cable must run in a straight line and be undamaged at the selected installation location.
- There must not have been any previous mechanical influences such as other cable sensors, multiple installations etc. at the selected location.
- There must be at least 10 cm of free cable between the cable lock and the load sensor.

b) Inserting the load sensor LS into the cable

Open the cable clamp on the M5 screw until the cable can rest in the groove of the load sensor over the entire length of the sensor.

c) Closing the rope clamp

Tighten the M5 screw to 4 Nm (check: both lock washers are pressed flat, see image).



d) Connecting the sensor to the AE12 evaluation unit

The LS load sensors must be connected to the AE12 in sequence, starting with sensor socket 1 at the top left of the housing.

An exception to this rule is the use of a sensor for tensioning cables or chains (see chapter 21)

Repeat steps 1 to 4 for all sensors to be connected.

Note: For an exact measurement result, the sensor may only be inserted once into the selected rope position.

24 Quick start guide

a) Installing the AE 12 evaluation unit at a suitable location
b) Installing the sensors (see chapter 23)
c) Setting the number of sensors (see chapter 13)
d) Set the sensor type (see chapter 11):
Use ↓ to switch to the menu item RCnt and use ↓ and ↵ to set the number. Press ↵ twice to confirm the setting.
e) Setting the suspension factor:
Only necessary if it is not a 1:1 suspension (see chapter 10).
Use ↓ to switch to the menu item RFct. And set the number with ↓ and ↵. Press ↵ twice to confirm the setting. (e.g. enter 2:1 suspension factor 02)
f) Set the alarm thresholds (see chapter 17):
Use ↓ and ↵ to select the corresponding alarm level. Set the load switching threshold in Load with ↓ and ↵. In Conf, set the operating mode clos for NO contact and open for NC contact. Press ↵ twice to confirm the setting.
(If you use the zero point function, please remember the note in **chapter 17** to set your thresholds correctly.)
g) Zero the device with an empty elevator (see chapter 16):
Use ↓ to switch to the menu item Zero. Press ↵ twice and the countdown begins.

25 Software update

The device can be updated in the field if necessary. If an update is required, please contact customer service.

26 Decommissioning the device

The device can be switched off simply by disconnecting the power supply plug.

27 Waste disposal

After use, please dispose of this product as electronic waste in accordance with the country-specific regulations and applicable waste disposal regulations.

28 Contact us

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