



Application

- Suitable for applications in meteorology, industrial and explosion-hazard environments
- Measurement and control of heating, ventilation and air conditioning systems
- Measurement of air flow at air passages, in air conditioning chambers or in pipe and shaft junctions
- Capacity tests of compressors
- Measurement of air speed in open atmosphere

Complies With:

EN 50014-1997 + A1-A2	General requirements
EN 50020-2002	Intrinsic safety "I"
DIN EN 61326 2002-03	EMC requirements
DIN EN 61010-1 2002-08	Safety requirements
	General requirements

Designation

EC type-examination certificate: BVS 06 ATEX E 011

Designation:  II 2G EEx ia IIB T4

Description

The 3-arm cup anemometer with digital display unit is used for measuring and digitally displaying the wind speed.

The electronic circuit for the wind speed display is fastened to two insulated plates that are securely fastened to the plastic enclosure.

The 3-arm cup anemometer is permanently attached to the digital display unit by an approx. 3 m long data cable. The speed of the 3-arm cup is a measure of the wind speed and is converted to an electrical signal by a generator located in the anemometer handle.

The digital display unit is supplied by an Ni-MH rechargeable battery that can be recharged using a special charger socket.

The power supply ...

... for the digital display unit is an internal Ni-MH rechargeable battery. This battery is fully charged on delivery and can be operated for approx. 100 hours before having to be recharged.

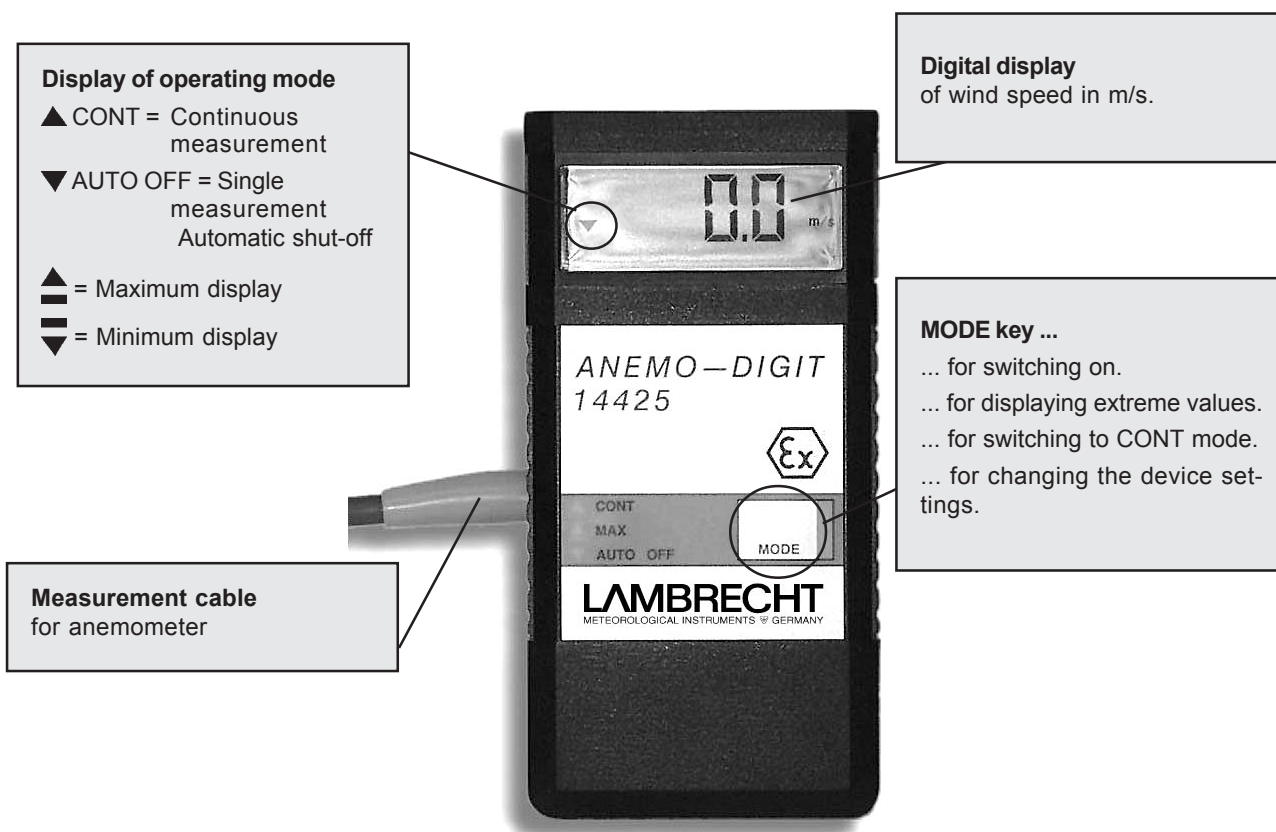
Warning!

Only re-charge the Ni-MH rechargeable battery outside of explosion hazard areas by attaching a suitable power cube transformer to the charger socket!

Do not open the battery cover until you are outside of the explosion hazard area!

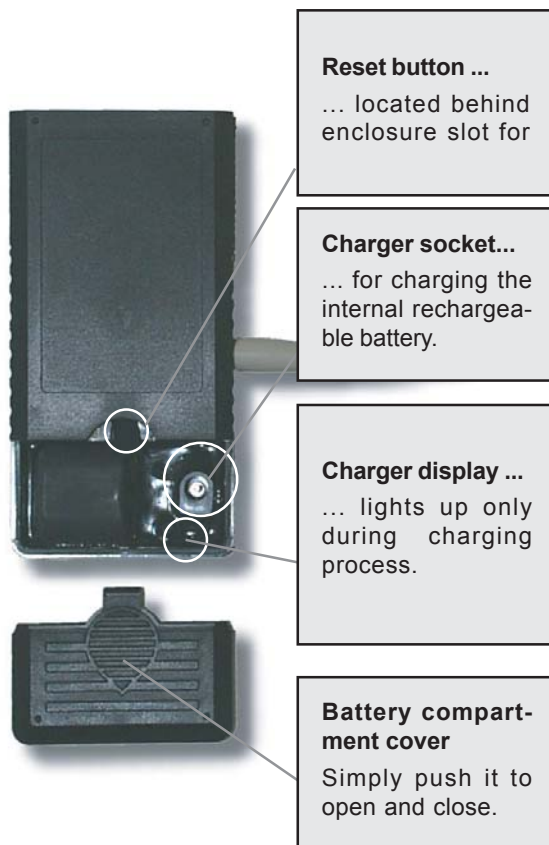
Never insert the power cube transformer into water. Operating the equipment in a wet environment such as a bathroom can cause fire, electrical shock and/or overheating.

To avoid electrical shocks or injuries, never insert or remove the power cube transformer with wet hands.



Charging Process

1. Slide open the battery compartment cover on the back of the digital display unit.
2. Insert a type FW 7333/24 adapter onto the charging plug of the power cube transformer.
3. Insert the adapter into the charger socket of the digital display unit.
4. Insert the power cube transformer into the socket. The charging display lights up and the digital display unit begins to charge. The required charging time depends on the charge level in the rechargeable battery and is maximum 14 hours.
5. The operator is responsible for checking the charging time. As soon as the charging process is complete, unplug the power cube transformer from the socket. Next, remove the charger plug together with the adapter from the charger socket.
6. Slide the cover back over the battery compartment.



Notes

- Always operate the power cube transformer with the correct voltage. See labelling on power cube transformer.
- Never exceed the maximum charging voltage of $V_{max} = 28 V_{DC}$!
- Charging times longer than 24 hours can reduce the life expectancy of the rechargeable battery.
- The rechargeable battery gradually heats up during the charging process. This is not a malfunction.
- Avoid recharging the battery in the immediate vicinity of a heater or in direct sunlight.
- Only charge the battery in temperatures ranging from 0 °C to 40 °C.
- If the digital display unit is not used for a longer period of time (more than a month), the rechargeable battery will lose some of its capacity. This is typical for rechargeable batteries and not a malfunction.
- The rechargeable battery gradually discharges when it is not in use. Always charge the battery before using the unit.
- The rechargeable battery utilises chemical processes. Hence, the capacity can also fluctuate within the prescribed temperature range. This is also not a malfunction.

Repair Information

The anemometer and digital display unit are intended for a long operating life. If the anemometer or digital display unit show signs of wear and tear (e.g., ball bearing is worn) or damage (e.g., 3-arm cup is damaged), send the product to the manufacturer for inspection and repair.

The internal rechargeable battery can be recharged approximately 1000 times. As the rechargeable battery becomes older, the capacity decreases until it is no longer possible to recharge the battery. The rechargeable battery is used and can be replaced during repairs.

Performing Measurements

To measure the wind speed, remove the 3-arm cup anemometer and digital display unit from the carrying case.

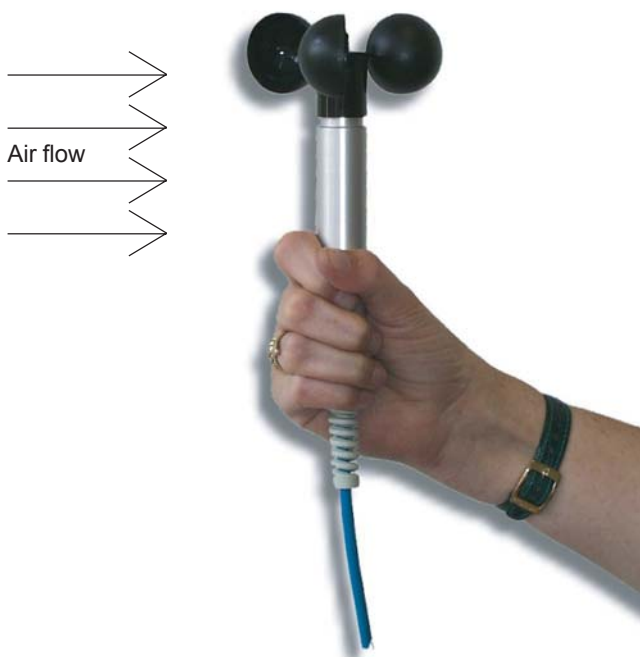
Both components are permanently fastened to each other so that no other connections have to be made.

Hold the 3-arm cup anemometer ...

... in the air flow to be measured.

Note!

In general, wind speed measurements made using a 3-arm cup anemometer are independent of the wind direction as long as the rotation plane of the 3-arm cup is not tilted by more than 5° relative to the wind direction. Tilting the anemometer by more than this amount will affect the speed of the 3-arm cup and cause a measurement error.



Turning off the digital display unit

In **AUTO OFF** mode, the display turns off automatically after approximately 20 seconds.

Note!

Reset: If strong electromagnetic fields interfere with the WGA8EX unit, press the Reset button on the unit to restart the unit.

1. Slide open the battery compartment cover on the back of the digital display unit.
2. Press the Reset button using a screwdriver or other suitable tools.
3. Close the battery compartment cover.

Warning: Do not reset the unit unless you are outside of an explosion hazard area.



The digital supply unit ...

... processes the electrical signals from the 3-arm cup anemometer using a microprocessor. The displayed values are averaged across the last 3 measurements and a new measurement is made every second. The display is updated once per second.

To turn on the digital display unit ...

... you must press the **MODE** button.

The digital display unit is now in **AUTO OFF** mode. This operating mode is indicated using an upwards arrow "▲" in the screen and allows air flow measurements for approximately 20 seconds.

Operating Modes in Digital Display Unit

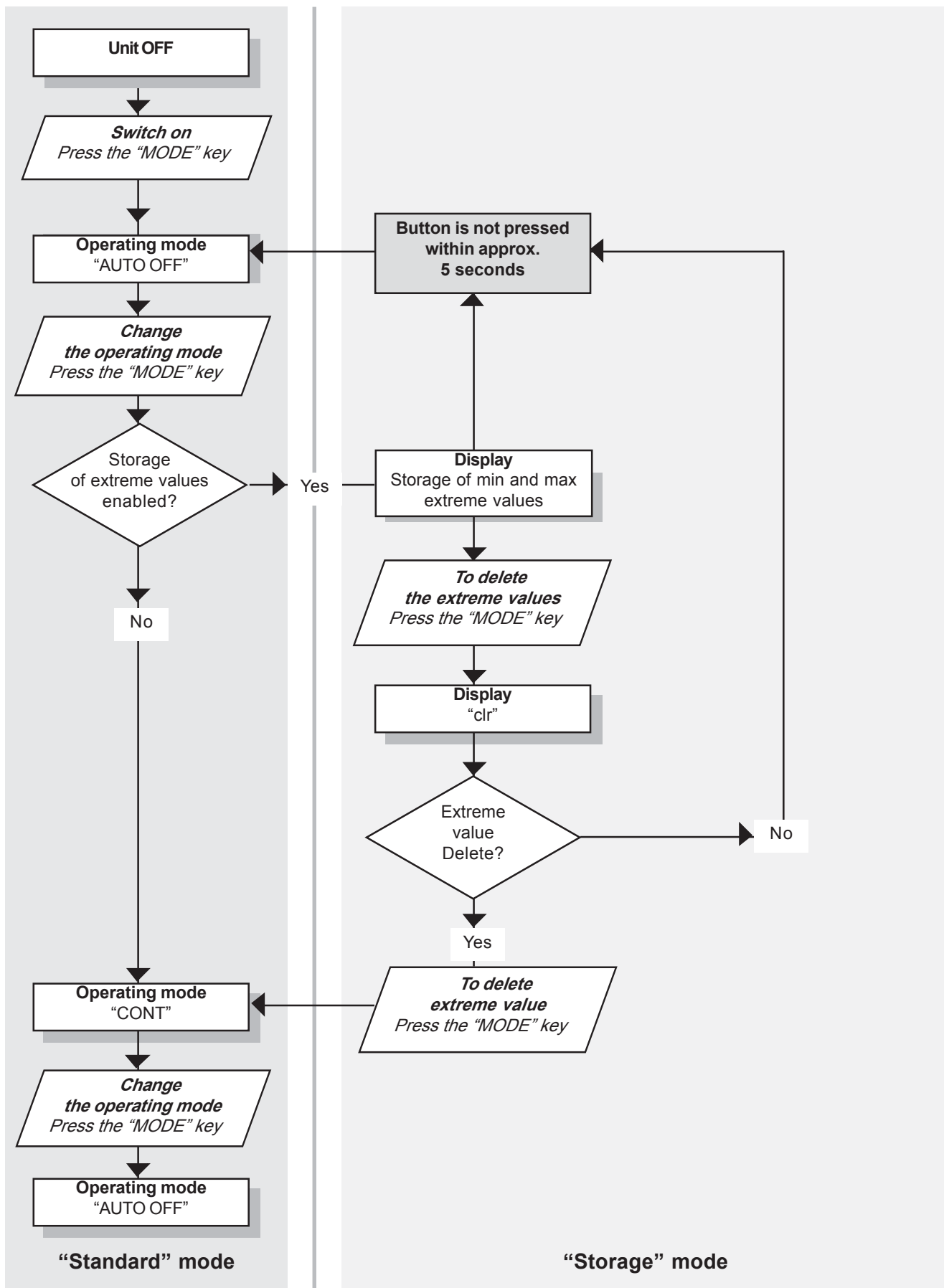
The **AUTO OFF** operating mode is intended for separate wind speed measurements.

CONT mode is available for permanent measurements and can be configured to store all extreme values.

The measurement duration in **CONT** mode is determined by the time set in **SETUP** mode (in hours). This can be set to any value between 1 and 24 hours or continuous.

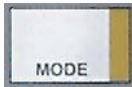
For information on the various operating steps, see process diagram "Performing Measurements".

Process Diagram: "Performing Measurements"



Operating Examples

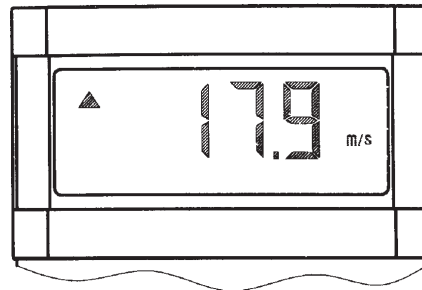
Measuring in AUTO OFF mode



Press

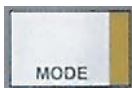
- Perform measurement within 20 seconds. The measurement value is displayed.
- The display turns off automatically 20 seconds after turning on the unit.
- By pressing the mode button you can repeat the measurement as often as required.
- In AUTO OFF mode you cannot store extreme values.

Screen display



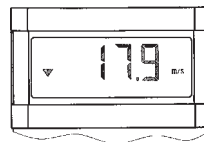
Measuring in CONT mode

When extreme value storage is selected

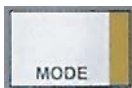


Press

- AUTO OFF mode is enabled

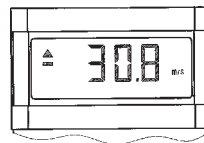


AUTO OFF mode

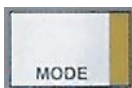


Press

- Maximum values are stored and displayed.

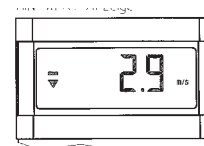


Display of maximum values

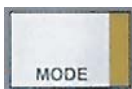


Press

- Minimum values are stored and displayed.

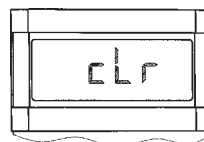


Display of minimum values



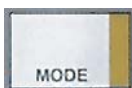
Press

- Confirmation is required before deleting extreme values that have been stored.



Note

If not confirmed by pressing the MODE button, the unit switches to AUTO OFF mode after approximately 5 seconds and the stored extreme values are not deleted.

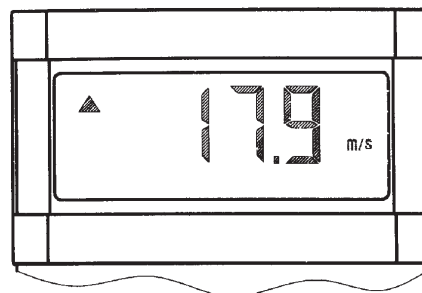


Press

- Extreme value is deleted.
- Unit switches to CONT mode for continuous measurement.
- The measurement and display are enabled for the time defined in SETUP mode (selectable between 1 and 24 hours or continuous mode with no shut-off)

Note

Pressing the MODE button again switches the unit back to AUTO OFF mode.



Device settings for digital display screen

You can adapt the various operating modes of the digital display unit to various measurement tasks using the *Device Settings*.

A differentiation is made between two settings here:

The memory setting ...

... defines whether or not extreme values are stored in CONT mode.

Warning!

In CONT mode with extreme value storage, make sure that a sufficient shut-off time has been set under "Select Shut-off Time".

The shut-off time ...

... defines when the digital display turns off automatically in CONT mode.

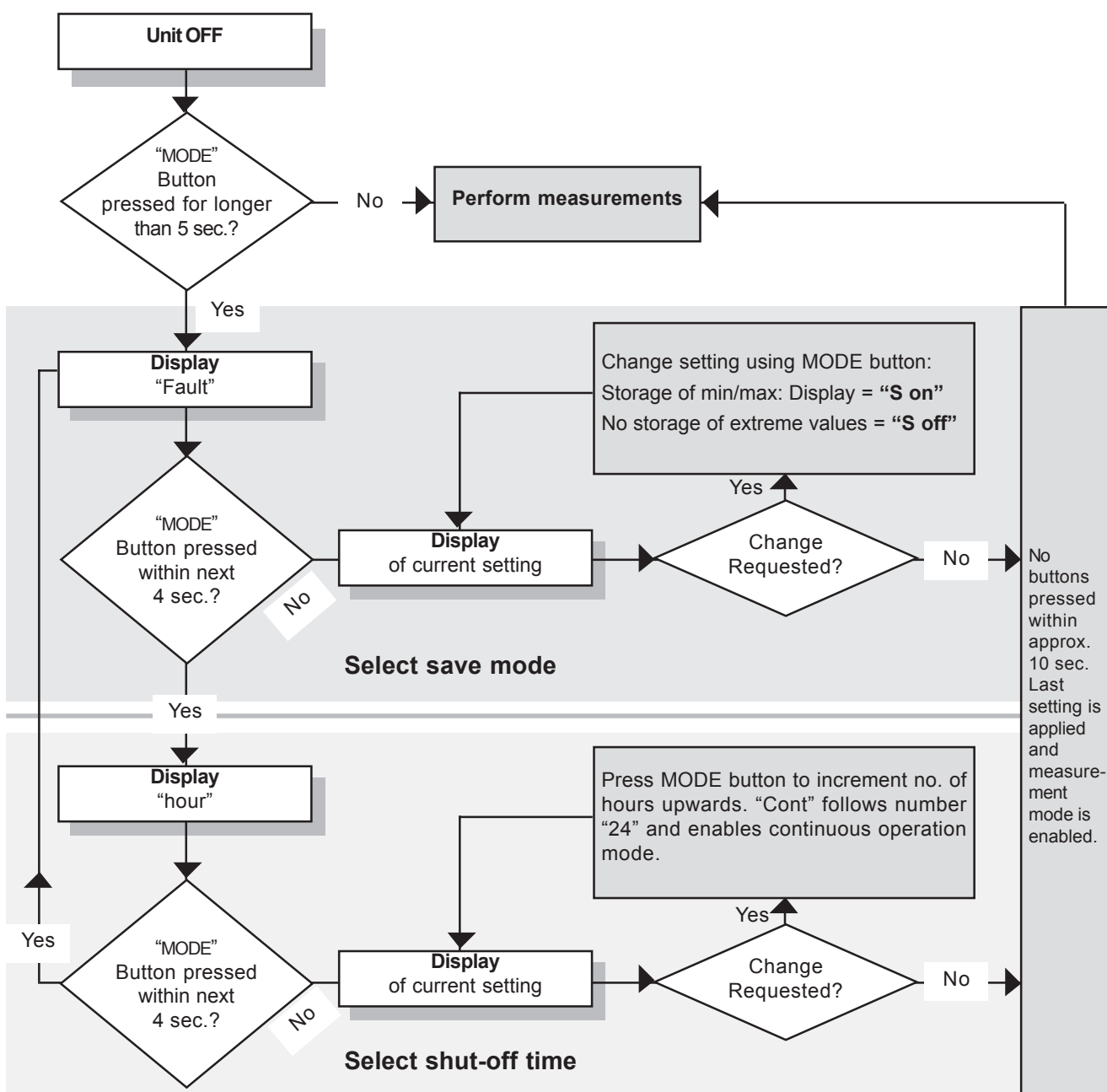
You can apply the device settings in **SETUP mode**.

To activate SETUP mode ...

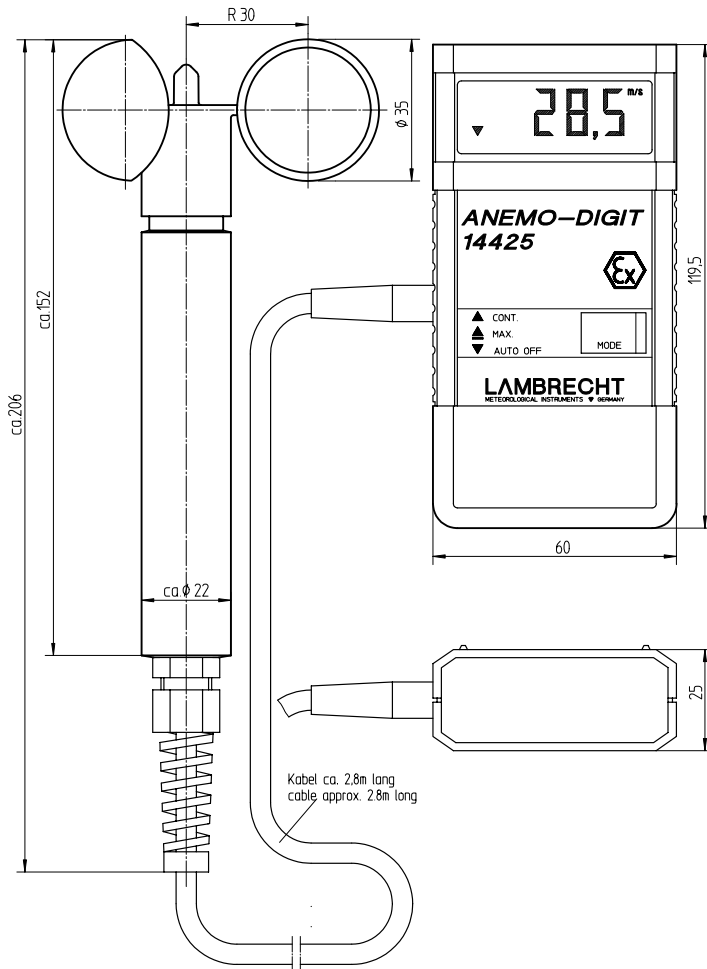
... press the MODE button for longer than 5 seconds when the digital display unit is turned off.

For information on the other operating steps, see process diagram "Changing Device Settings".

Process Diagram: "Changing the Device Settings" [SETUP mode]



Dimensioned Drawing



Technical Data

Measurement range:	0 – 90 m/s
Measurement precision	± 0.3 m/s for 0 – 10 m/s ± 0.6 m/s for 10 – 20 m/s ± 0.9 m/s for 20 – 90 m/s
Linearity:	Typically ± 1%, max. 2.5%
Precision:	0.1% full scale
Starting value:	1.2 m/s
Measurement cycle (also: display refresh rate):	1 sec • Displayed value is averaged from last 3 measurements
Application areas ...	Display 0 – +40 °C Anemometer -30 – +65 °C
Storage temperature:	-10 – +50 °C
Power supply:	4.8 V. rechargeable battery Charged beyond ex-range using power supply plug
Operating time:	Max. 100 hours for full charge of battery • Maximum 1000 charging cycles
Power consumption:	Approx. 5 mA • (clocked measurements)
Protection type:	Display unit IP40 • Anemometer IP 43
Display:	LCD 12 mm
Supply line:	Approx. 3 m cable length, permanently fastened to display enclosure
Weight incl. sensor:	Approx. 360 g

1 set with ID no. 00.14425.000 000
Consists of following components:

Anemometer with digital display unit WGA8EX
 ID no. 00 .14425. 090 010

Carrying case made of plastic
 ID no. 50 .09163. 002 000

Power cube transformer FW7333/24
 Power supply voltage 100 – 240 V_{AC}
 Output voltage 24 V_{DC}
 ID no. 68 .02060. 340 000

Coupling For connecting power cube transformer to charging socket of digital display unit
 ID no. 68 .02060. 340 100

Enclosure: EG Baumusterprüfbescheinigung



Quality System certified by DQS according to
 DIN EN ISO 9001:2000 Reg. No. 003748 QM

We reserve the right to make technical modifications

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MessCom GmbH
Augustinusstrasse 11c
50226 Frechen
Germany

Tel +49-(0)2234-9641-0
Fax +49-(0)2234-9641-10
E-Mail info@messcom.de
Internet www.messcom.de