Operating instructions

GANN BlueLINE

HYDROMETTE *BL*

COMPACT TF 2

EN

GANN MESS- U. REGELTECHNIK GMBH
70839 GERLINGEN SCHILLERSTRASSE 63 INTERNET: http://www.gann.de
Verkauf National: TELEFON 07156-4907-0 TELEFAX 07156-4907-40 EMAIL verkauf@gann.de
Verkauf International TELEFON +49 7156-4907-0 TELEFAX +49 7156-4907-48 EMAIL sales@gann.de

Table of contents

➔ Graphical short operating instructions in the centre ← pp.14-15

0.1 Publication statement

0.2 General notes

This measuring device fulfils the requirements of the applicable European and national directives (2004/108/EC) and standards (EN61010). Appropriate declarations and documentation are held by the manufacturer. To ensure trouble-free operation of the measuring device and operational reliability, the user must carefully read the operating instructions. The measuring device may only be operated under the climatic conditions specified. These conditions can be found in Chapter 3.1 "Technical data". This measuring device may likewise only be used under the conditions and for the purposes it was designed for. Operational reliability and functionality are no longer ensured if the device is modified or adapted. Gann Mess- u. Regeltechnik GmbH is not liable for any damage arising from such modifications or adaptations. The risk is borne by the user alone.

- The notes and tables in these instructions on permitted or normal humidity conditions in practice and the general definitions of terms have been taken from the specialist literature. No responsibility can therefore be taken by the manufacturer for the correctness of this information. The conclusions to be drawn from the measurement results are related to the individual conditions and the knowledge drawn from professional experience for each user.

- The measuring device may be operated in residential and commercial areas, as the stricter class B for emitted interference (EMC) has been adhered to.

- The device may not be operated in the immediate area of medical equipment (heart pacemakers, etc.).
- The measuring device may only be properly used as described in these instructions.
- Keep the device and accessories out of the reach of children!

Gann Mess- u. Regeltechnik GmbH accepts no liability for damage resulting from non-adherence to the operating instructions or by not taking proper care during transport, storage or operation of the device, even if this requirement for care is not specifically addressed in the operating instructions.

0.3 WEEE directive 2002/96/EC law on electrical and electronic equipment

Disposal of packaging, the battery and the device must be undertaken in accordance with the legal requirements at a recycling centre.

The device was manufactured after 1 May, 2010

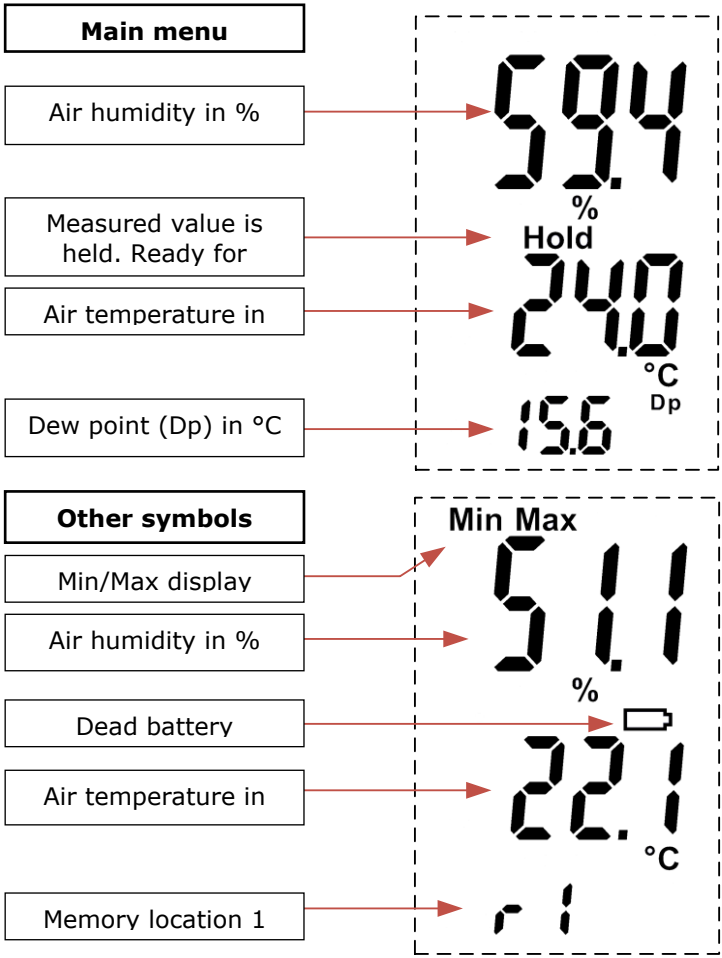
1 Introduction

1.1 Description

The Hydromette *BL* Compact TF 2 is a precise thermo-hygrometer for many areas of application such as the surveillance of living units, air conditioning systems, print shops, warehouses, etc. Additional features included: single-handed operation, integrated measurement probes and a 3-line LCD screen for the simultaneous display of air humidity, air temperature and dew point.

1.2 Device layout and button assignment

1.3 Display symbols



2 Basic functions

2.1 Switching on the device/Ready mode

The device is switched on by pressing the **On** button ⏻.

After the start phase, the main menu appears in the "rh" measuring mode (see also section 2.3.2)

Last value measured in %

"Hold" symbol

Last measured temp. in °C

Calculated dew point (Dp) in °C

Figure 2-1: main menu/measuring mode

In this menu, a new measurement can be started by pressing the measurement button **"M"**. See also Chapter 2.2

.

2.2 Display in measuring mode

Measured value in %

"Hold" symbol signals readiness to make a measurement

Measured temperature in °C

Calculated dew point (Dp) in °C

Figure 2-2: measuring mode

A measurement is started by pressing the **"M"** button. During the measurement process, the "%" symbol blinks and the values adapt to the surrounding conditions. After releasing the "M" button, the "%" symbol is displayed steadily and the "Hold" symbol also appears.

The device is now in Ready mode.

Press the "M" button again to start a new measurement.

Approx. 40 seconds after releasing the measurement button, the device switches itself off automatically to save battery power. If the device is switched on again, the last value measured is shown on the display.

2.3 Setting menus

If the **up** or **down** buttons are pressed in *Ready mode*, the various setting menus are shown in sequence:

1. **Measurement menu** (*Ready mode*)**:** The measuring process can be carried out here
2. **Measuring mode selection:** Here you can specify the measuring mode (section 2.3.2)
3. **Maximum value display:** The largest value measured is shown here (section 2.3.3)
4. **Minimum value display:** The smallest value measured is shown here (section 2.3.4)
5. **Saved menu:** The last 5 values measured can be called here (section 2.3.5)

2.3.1 Measurement menu (main menu)

The last measurement with the note **"Hold"** is shown here.

In this menu, a new measurement can be started by pressing the **"M"** button.

During the measuring process, the **"Hold"** symbol disappears from the display. After releasing the **"M"** button, the measured value is saved. The **"Hold"** symbol is displayed again.

If the new measured value is larger than the previous maximum value, **"Max"** flashes on the display. If the value is not to be saved, the **"M"** button must be pressed *briefly*. If the value is not to be saved, a new measurement is started with a *long* press on the **"M"** button without changing the previous maximum values.

2.3.2 Measuring mode selection menu

In this menu, the various modes for the BL Compact TF 2 can be set.

The currently active mode is selected with a short press of the M button. The mode then begins to blink. Now a mode can be selected with the Up and Down buttons and confirmed with a short press on the M button.

The BL Compact TF 2 has 2 different setting modes, which are run through in the following increasing sequence:

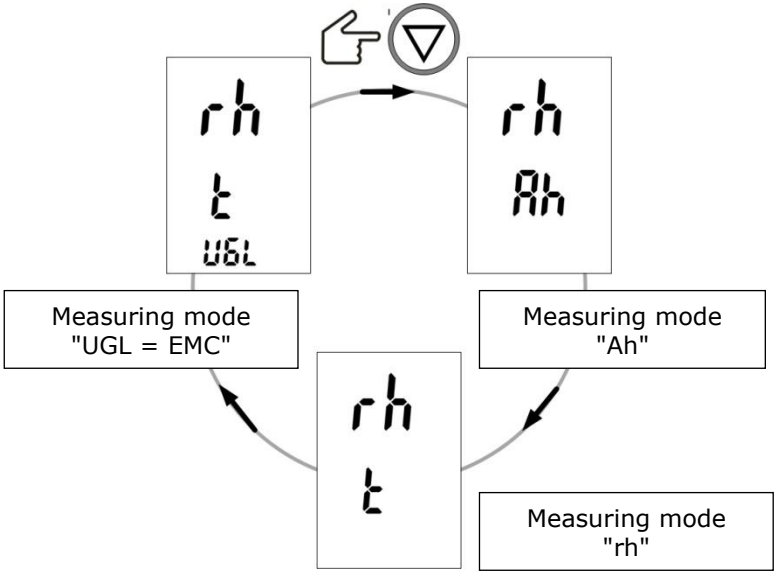
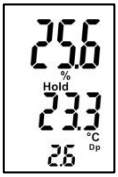


Figure 2-3: measuring mode selection menu

The selected mode changes the display of the measurement menu. Depending on the mode, the appropriate physical dimension is displayed:



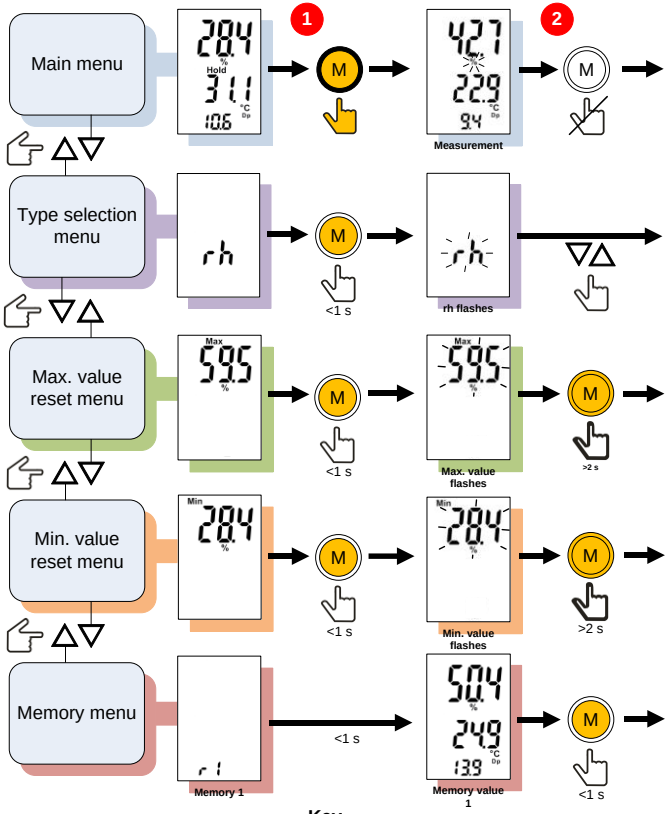
Measuring mode "rh" (relative humidity):
the *relative humidity (in %)*, the *temperature (in °C)* and the *dew point* (in °C) are displayed.

Measuring mode "Ah" (absolute humidity):
the *relative humidity (in %)* and the *absolute humidity (in g/m³ i.e. grammes of water in 1m³ of air)*

Measuring mode "UGL=EMC" (equilibrium moisture content):
if wood is exposed to a constant climate (constant humidity and constant temperature) long enough, it will finally adopt a certain moisture content. Tis is called the equilibrium moisture content.

Information and explanations on the individual measuring modes can be found in Chapter 4 "Application instructions".

Illustrated quick-start- guide



Key

On/Off key: Instrument deactivates after 30 sec. of inactivity

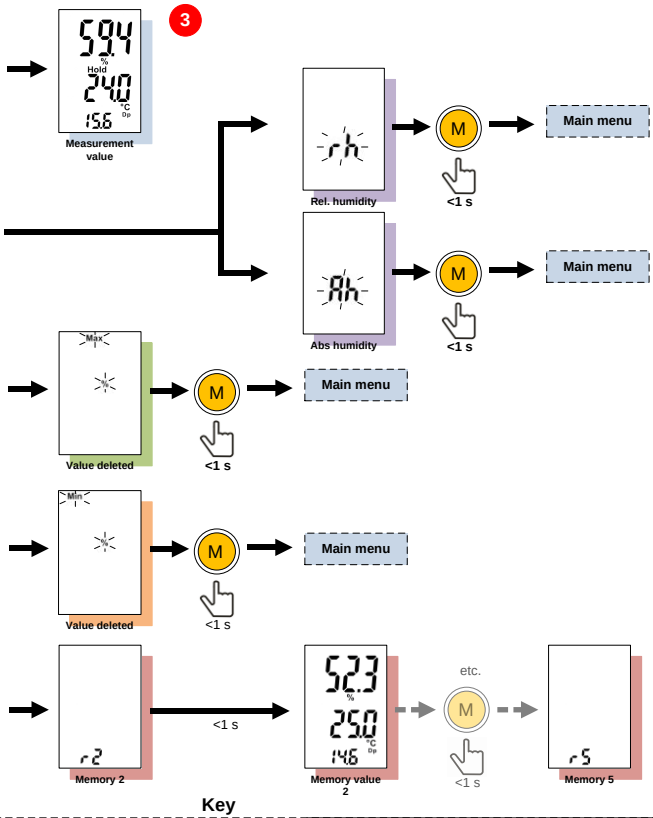
Press the measuring key for any length of time

Release the measuring key

Hold the measuring key down for more than 2 seconds

Press the measuring key briefly

Illustrated quick-start- guide



Key

Press the up or down key

Up or down for menu selection

First steps for an easy measurement:

1. Power on device, Main menu is displayed
2. Press the measuring key for any length of time
3. Release measuring key, measure value will be hold (Symbol “Hold” is displayed)

2.3.3 Maximum value display

In this menu, the maximum air humidity value measured in a measurement sequence is displayed. **This function is only available in the "rh" measuring mode.**

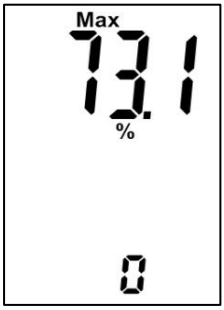


Figure 2-4: maximum value 1

If a maximum value is to be deleted, the displayed value must be selected with a *short* press on the **"M"** button.

The value blinks and can now be deleted with a *long* press of the **"M"** button.

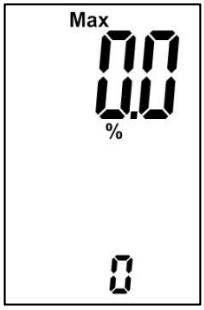


Figure 2-5: deleted max. value

Afterwards, only the "Max" symbol and the % symbol are still blinking. With a further *short* press of the "M" button, the entry is confirmed and the device returns to the Ready mode.

With the **"M"** button, a new measurement can then be carried out immediately.

2.3.4 Minimum value display

In this menu, the minimum air humidity value measured in a measurement sequence is displayed. **This function is only available in the "rh" measuring mode.**

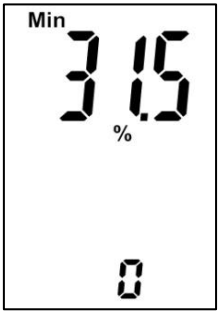


Figure 2-6: min. value

If a minimum value is to be deleted, the displayed value must be selected with a *short* press on the **"M"** button.

The value blinks and can now be deleted with a *long* press of the **"M"** button.

Afterwards, only the "Min" symbol and the % symbol are still blinking. With a further *short* press of the "M" button, the entry is confirmed and the device returns to the Ready mode.

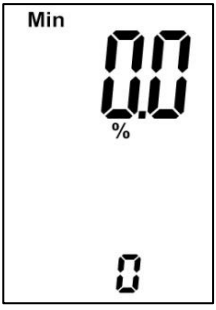


Figure 2-7: deleted min. value

With the **"M"** button, a new measurement can then be carried out immediately.

2.3.5 Saved menu

In this menu, the last 5 measured values are saved. The view and the respective units depend on the measuring mode selected.

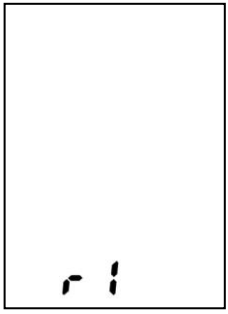


Figure 2-8:
memory location "r1"

The memory location number "r1" is displayed for approx. 1 second, and then the last measured saved value contained there is displayed.

You can recognize saved values as there is no "Hold" symbol in the display.

As soon as you select the saved menu, the memory location number "r1" is displayed for approx. 1 second, and then the last measured saved value contained there is displayed.

The last 5 measured values are automatically saved and stored in memory locations "r1" to "r5". The last measured value is in memory location "r1". This is a ring buffer. As soon as the sixth measured value is recorded, the "first" (first measured) measured value is automatically removed from the buffer.

With a *short* press of the **"M"** button, the next memory location "r2" is selected and the value contained there is displayed. After reaching the 5th memory location, the first is shown again.

The menu can be exited with the **up** and **down** buttons.

2.4 Other functions

2.4.1 Automatic switch-off

If no button is pressed within approx. 40 seconds, the device switches itself off automatically. The current values are retained and are displayed again after it is switched back on.

2.4.2 Battery monitoring

If the battery symbol appears in the display, the battery is dead and must be renewed.

A list of battery types that can be used can be found in the "Technical data" chapter.

3 Specifications

3.1 Technical data

Display:	3-line display
Display resolution:	0,1 %
Response time:	< 2 s
Storage conditions:	+ 5 to + 40 °C
	- 10 to + 60 °C (short-term)
Operating conditions:	0 to + 50 °C
	- 10 to + 60 °C (short-term)
Power supply:	9 V block battery
Approved types:	type 6LR61 or type 6F22
Dimensions:	180 x 50 x 30 (L x W x H) mm
Weight:	approx. 310 g

3.2 Prohibited environmental conditions

- Condensation, air humidity continuously too high (> 85%) and damp
- Permanent presence of dust and combustible gases, fumes and solutions
- Ambient temperatures continuously too high (> +50 °C)
- Ambient temperatures continuously too low (< 0 °C)

3.3 Measuring ranges

Measuring ranges:

Damp:	
0 – 100 % r.F.	20 – 80 % r.F. (± 2% r.F.)
Temperature:	
-20 – +80 °C	-10 – +60 °C (± 0,3 °C)

4 Application instructions

On the following pages, you will find information on the various measuring modes of the BL Compact TF 2 (Chapters 4.1, 4.2 and 4.3) and on the operation of the device.

4.1 Measuring air humidity

4.1.1 Absolute humidity

The amount of water vapour in g/m³ in the air is termed absolute humidity. The amount of water vapour cannot exceed a fixed specified amount.

$$Humidity\ (absolute) = \frac{mass\ of\ water\ (g)}{volume\ of\ air\ (m^3)}$$

4.1.2 Moisture saturation

Moisture saturation is the maximum amount of water that can be contained in a certain volume of air. The higher temperature the larger the amount of water that can be held in the air.

$$Humidity\ (saturation) = \frac{maximum\ \ mass\ of\ water\ (g)}{volume\ of\ air\ (m^3)}$$

4.1.3 Relative air humidity

The relative air humidity is the ratio of the actual water vapour content (absolute humidity) to the moisture saturation. The relative humidity is heavily dependent on the temperature.

$$Humidity\ (relative) = \frac{humidity\ (absolute)\ x\ 100\ (\%)}{humidity\ (saturation)}$$

4.2 Measuring the temperature

Handling

The device is only suitable for measuring the air temperature (and the rel. air humidity), not for recording the temperature of solid materials and liquids. For particularly precise measurements, particularly for temperatures under +10°C or above +40°C, or for significant differences between the temperature of the sensor or measuring device and the surrounding

atmosphere, the device should be exposed to the surrounding atmosphere of the measurement location for approx. 10-15 minutes or until the temperature has equalised. The measuring range of -40°C to +80°C only applies to the sensor tip of the electrode (length of the protective/filter cap). The measuring device may only be exposed to temperatures above 50°C for short periods. False measurements can arise from shielding with body parts (e.g. hand) as well as blowing or speaking/breathing in the direction of the sensor.

The setting time of the air temperature sensor in moving air is approx. 3 minutes for 90% of the temperature difference.

The air temperature sensor adapts to the surrounding temperature even when stored (not switched on).

4.2.1 Dew point

The dew point is the temperature at which the air is saturated with water vapour. Condensation occurs below this temperature. The dew point generally lies below the air temperature, except with 100% r.h, where both temperatures are the same.

The dew point is dependent on the air temperature and water vapour partial pressure and equal to the temperature whose saturation pressure is equal to the water vapour partial pressure present. The water vapour partial pressure is calculated as follows:

$$Water\ vapore\ pressure = \frac{rel.humidity\ x\ sat.water\ vapour\ press.}{100}$$

Further information can be found in the Internet.

4.2.2 Dew point dependent on the air temperature and the rel. humidity for condensation calculation

Air temperature	Dew point in °C at a relative humidity of:							
°C	30%	40%	50%	60%	70%	80%	90%	Moisture saturation = amount of water in g/m³
	°C	°C	°C	°C	°C	°C	°C	
30	10.5	14.9	18.5	21.2	24.2	26.4	28.5	30.4
28	8.7	13.1	16.7	19.5	22.0	24.2	26.2	27.2
26	7.1	11.3	14.9	17.6	19.8	22.3	24.2	24.4
24	5.4	9.5	13.0	15.8	18.2	20.3	22.2	21.8
22	3.6	7.7	11.1	13.9	16.3	18.4	20.3	19.4
20	1.9	6.0	9.9	12.0	14.3	16.5	18.3	17.3
18	0.2	4.2	7.4	10.1	12.4	14.5	16.3	15.4
16	-1.5	2.4	5.6	8.2	10.5	12.5	14.3	13.6
14	-3.3	-0.6	3.8	6.4	8.6	10.6	14.4	12.1
12	-5.0	-1.2	1.9	4.3	6.6	8.5	10.3	10.7
10	-6.7	-2.9	0.1	2.6	4.8	6.7	8.4	9.4
8	-8.5	-4.8	-1.6	0.7	2.9	4.8	6.4	8.3
6	-1.,3	-6.6	-3.2	-1.0	0.9	2.8	4.4	7.3
4	-12.0	-8.5	-4.8	-2.7	-0.9	0.8	2.4	6.4
2	-13.7	-10.2	-6.5	-4.3	-2.5	-0.8	0.6	5.6
0	-15.4	-12.0	-8.1	-5.6	-3.8	-2.3	-0.9	4.8

5 USB-Connection with GANN DIALOG Software

The Hydromette *BL* Compact TF 2 can be connected with a computer, which uses Windows, via an USB cable. By using GANN DIALOG Software measured data can be directly displayed and saved. The software can display measured data graphically or data can also be exported to Excel for further use.

General advice: The Hydromette *BL* Compact TF 2 only saves the last five measured values. In order to save more than five measured values, a computer, which uses Windows, (e.g. a netbook/laptop) needs to be connected as data storage.

GANN DIALOG (Ref. No. 16083) :

Computer program used for controlling and transferring measured data onto an IBM- compatible computer, analysis and printout, including a CD, manual, and an USB cable MK26, executable for Windows XP, Vista and 7

6 Appendix

6.1 General concluding remarks

The notes and tables in these operating instructions on permitted or normal humidity conditions in practice and the general definitions of terms have been taken from the specialist literature. No responsibility can therefore be taken by the manufacturer of the measuring device for the correctness of this information.

The conclusions to be drawn from the measurement results are related to the individual conditions and the knowledge from professional experience for each user. In cases of doubt, for example concerning the permitted moisture content in coating or screed substrates when laying floor coverings, it is recommended to contact the manufacturer of the coating or floor covering and to take account of the recommendations of trade organisations.

Guarantee conditions

Gann Mess- u. Regeltechnik GmbH shall rectify material or manufacturing defects at no cost by repair or replacement of the defective parts at its choice that occur within six months of purchase or one year of dispatch from the factory, whichever period ends first. Neither the replacement nor the repair of a part is grounds for a new guarantee or an extension of the original guarantee.

Batteries and other wearing parts such as cables or filter material are excluded from the guarantee.

When claiming under the guarantee, the device must be sent post-free to Gann Mess- u. Regeltechnik GmbH or the

supplier with details of the claim and accompanied by proof of purchase. The guarantee is void if repairs or other manipulations have been carried out by the owner or a third party.

Gann Mess- u. Regeltechnik GmbH accepts no liability for damage or defective functions caused by improper or incorrect handling or storage of the device. Gann Mess- u. Regeltechnik GmbH will on no account accept liability for damage, lost profits, lost usage or other consequential damage that arise from the use of the product or the inability to use it.

-Subject to technical changes-

KNOWHOW