Specifications

Humidity Input	from RHP probe
- moisture-content range	0...300 %
- relative-humidity range	0...75 %
- measurement error	0.2% from span
Temperature Input	☐ Pt1000 (IEC751)
- temperature range	-20…150 °C
- measurement error	0.1% from span
Supply Voltage	3 V from 2 batteries AA 1.5 V
Batteries	☐ no batteries, ☐ regular batteries, ☐ long-life, ☐ rechargeable
Operational Consumption	less than 8 mA
Stand-by Consumption	less than 1 µA
Non-linearity	negligible
Temperature Drift	0.01% from span for 1 °C
Voltage-to-Humidity Influence	0.2% from span for 1 V
Voltage-to-Temperature Influence	0.1% from span for 1 V
Ambient Temperature / Humidity	-10…65 °C / 0…85% RH
Protection Class	IP44

Warranty and Support

……
serial number

……
manufacturing date

QC check mark ……(passed)
(stamp)

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QD-8.2.4-WC

Warranty

COMECO warrants this product to be free from defects in materials and workmanship for 2 years. If your unit is found to be defective within that time, we will promptly repair or replace it. This warranty does not cover accidental damage, wear or tear, or consequential or incidental loss. This warranty does not cover any defects caused by wrong transportation, storage, installation, or operating (see '**Specifications**').

Technical support

In the unlikely event that you encounter a problem with your COMECO device, please call your local dealer or contact directly our support team.

RPH specifications

Sensors	
- humidity	capacitive
- temperature	Pt1000, class B (IEC751)
Measurement Ranges	
- moisture-content / RH	0...300 % / 0...75%
- temperature	-10...50 °C
Output Signal (humidity)	min. 0...max. 1 V DC
Power Supply	from H5850 handheld meter
Measurement Error	≤ ± 2.5 % from span
Temperature Drift	0.1 % from span for 1 °C
Cable Length / Insulation	..... m / ☐ PVC, ☐ SL
Operating (Ambient) Temperature	-10…50 °C
Ambient Humidity	0...75% RH
Protection Class	IP65

Operation with RPH probe

- Before applying new material always clean and dry the internal probe surface.
- Fill the probe with the material to its upper edge and flat the surface.

⚠ *Do not overfill or under fill!*
Do not press or stuff the material!

- For calibration purposes use two samples with enough different moisture content, but with the same size of the particles.
- In order to achieve the required measuring accuracy, the composition and the particles' size of the material being tested must be the same as the calibration samples.

v1-11.12

COMECO
CONTROL & MEASUREMENT

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HANDHELD HYGRO-THERMOMETER FOR SOLIDS

H5850

OPERATION MANUAL

Please read this Operation Manual before mounting and operating!
Save the Manual for future references!

Operation

⚠ ***Notes***

1. *If the resolution is integer (no decimal point), H5850 will round off the readings with a decimal part greater than or equal to 0.5 (e.g., if the measured value is 12.7, the unit will indicate* 13*)!*
2. *After recovery from power supply failure (for example, due to battery replacement), H5850 will display the readings without decimal point (integer) until the other resolution is selected!*

⚠ ***Notes***

1. *Using probes without Pt1000 sensor does not allow temperature measurement with H5850!*
2. *The default measuring channel (after power-on) is always moisture/RH!*

Turning ON/OFF

- Turn on by pressing the key once.
  The test string 8888 appears on display and H5850 enters measurement mode.
- Turn off by pressing the key once.
  The unit indicates OFF and turns itself off.

Display resolution selection

Display resolution can be changed alternatively with The reading can be displayed either as integer number or as number with one digit after the decimal point.
After pressing the key, read for half a second respectively 0 or 0.0.

Changing measured channel

Besides the material humidity, H5850 can also measure its temperature, if the probe is equipped with Pt1000 temperature sensor. Press once key to check which channel is being measured - moisture/RH (RH°o /rH°o) or temperature (t °C/t °F). Press and hold to change the channel.

Measurement mode

In measurement mode H5850 measures material moisture/RH or temperature depending device settings and connected probe and. One measurement cycle lasts approximately 0.5 s and display readings refresh after its end.

Low-battery indication

H5850 monitors the battery voltage, and when it drops bellow the critical (approx. 2.5V), each 10 seconds the device displays bAtt for about 0.5 s. It reminds you to replace the batteries.

Overview

H5850 is a versatile handheld device for humidity measurement of solids and bulk materials, designed to operate with COMECO bulk-material moisture probe RHP. Using a built-in Pt1000 sensor, H5850 can also indicate the medium temperature. The device is equipped with a 4-digit display showing moisture-content, relative humidity and medium temperature. The device is offered with two 1.5 V AA batteries and features a special automatic-battery-control function. The numerous features of H5850, along with its high accuracy and low consumption, make it a useful instrument for bulk-material moisture measurement.

Declaration of Conformity

CE

The undersigned hereby declares, on behalf of COMECO Inc., that this device has been manufactured in compliance with standards EN 61010 and EN 61326 and meets the requirements of Directives 89/336/EEC, 2004/108/EC and 2011/65/EU (batteries not included).

Vladimir Sakaliyski
CEO, COMECO Inc.

Waste Disposal

Do not dispose of electronic devices together with household waste material!

If disposed of within European Union, this product should be treated and recycled in accordance with the laws of your jurisdiction implementing the WEEE Directive 2002/96/EC on the Waste Electrical and Electronic Equipment.

Programming - I

Display offset *and* **Temperature unit** *appear only if RTD is installed and temperature is selected as measured channel!*

Humidity type *and* **Preset material** *appear only if humidity is selected as measured channel!*

If no key have been pressed for5 s, H5860 exits programming mode storing only the confirmed changes!

The default temperature unit is degree Celsius! H5850 will switch to degree Celsius after power reset.

The following parameters can be set by the user in Programming mode:
- **Display offset** (OF t)
- **Temperature unit** (Un It)
- **Auto power-off time** (toFF)
- **Humidity type** (RHrH)
- **Preset material** (StUF)

Enter programming mode by pressing + keys simultaneously. Use one of the same keys to select one of the above parameters. Confirm your choice with .

Auto power-off time

The toFF parameter defines the time between the moment a key has been pressed for the last time and the moment the device turns itself off automatically. The auto-power-off time is user-selectable in the range from 0 to 30 min.
In programming mode, select toFF parameter with or and confirm it with .
Read the last parameter value on the display.
Use to increase and to decrease the value and confirm with .
Press + to exit without change.

Display offset

The OS t parameter linearly offsets the temperature reading on H5850 display.
In programming mode, select OS t parameter and proceed as above.

Temperature unit

The Un It parameter defines the temperature measuring unit. In programming mode, select Un It parameter and proceed as above selecting Celsius or Fahrenheit degrees (°C or °F).

Calibration

Calibration *is available in programming mode only if humidity is selected as measured channel!*

The samples' moisture content must differ at least on 5%. As bigger is the difference as accurate will be the calibration!

The calibration procedure can be interrupted at any time by pressing + simultaneously.

A humidity measurement calibration MUST be done when use H5850 with an "unknown" (new) material. It can also be done every time in order to improve measurement accuracy.

Calibration procedure requirements

- H5850 with connected RHP probe
- 2 samples of material with preliminarily known (laboratory defined) moisture content or relative humidity

Calibration procedure steps

1. While H5850 is in programming mode, select CAL and confirm with .
   For a half second the display shows Lo P, which reminds the user to go to step #2.
2. Enter the moisture content value of the sample with lower humidity by changing the previously stored value with + .
3. Fill the RHP probe with the material from the sample with lower humidity and wait approx. 10 seconds.
4. Press to start lower-point calibration.
5. When H5850 display shows Hi. P, enter the moisture content value of the sample with higher humidity by changing the previously stored value with + .
6. Fill the RHP probe with the material from the sample with higher humidity and wait approx. 10 seconds.
7. Press to start higher-point calibration and calculating calibration coefficients.
8. If the calibration has been successful, H5850 shows the message donE and, after 0.5 seconds automatically exits calibration mode.
9. After an unsuccessful calibration H5850 will show Err message. It may happen if the samples' moisture content difference is lower than 5% or if the RHP signal is too small (under 2mV/%). In this case change the samples or check the probe for damages.

Programming - II

Humidity type

The RHrH parameter defines what kind of "humidity" will measure H5850 - moisture content (absolute humidity) or relative humidity of the material tested. In programming mode, select the RHrH parameter and proceed as the other parameters selecting moisture (RH°o) or relative humidity (rH°o) to be measured.

Preset material

H5850 can store calibration data (see **'Calibration'**) for up to 5 different materials. The StUF parameter defines what calibration data will be used by H5850 to calculate humidity value. This feature is helpful when the same type of material must be tested very often. In programming mode, select the StUF and proceed as above selecting the desired pre-calibrated "material" from 1 to 5 (StF 1 ... StF5).