

Mätman 3



Operating manual

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Mätman 3, overview

IMPORTANT NOTE! Do not install the software on the diskette included with the IrDA unit package. Mätman Plugin, included in Mätman XL software, contains a driver for the IrDA unit.

IrDA unit for wireless communication with PC



Function description

General

Mätman 3 with Rotronic HygroClip measures temperature and air humidity with set time intervals and stores the measured values in a memory together with time data and alarm information. The measured values can be transferred to a PC and studied as diagrams or figures. The data transfer to the PC will be carried out through infrared light. The sensor is exchangeable.

Data acquisition

Logging can be initialised either from the PC or from Mätman 3. The data transfer is always started from Mätman 3 (see menu 2.1, Connect PC). The memory for the measured values (acquired data) is not affected by power failure. If the battery power is too low, the acquired data in the memory are still intact. They can be dumped when the battery has been replaced.

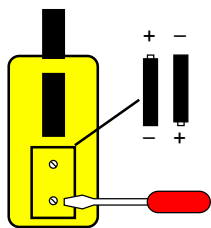
Dump logged values

The memory dump is carried out from Mätman 3, even during data acquisition in progress (see menu 2.2, Memory dump).

Clock

The clock, shown on the first line in a main menu, will be automatically synchronized with the PC when a logging commences. Synchronisation can also be carried out through the Mätman XL program, see help file in Mätman Plugin.

Batteries



Open the battery cover by releasing the two screws. Insert two Alkaline batteries size AAA/LR03, Ø10 x 44 mm.

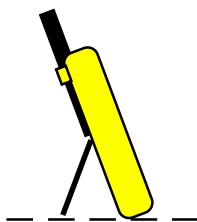
2 x **Alkaline, AAA / LR03**

NOTE! Fit the batteries correctly, or Mätman could be damaged.

Tighten the screws with care, until the cover is tight.

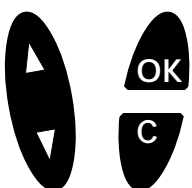
Low battery level is indicated on the display at start-up, and by a red flashing LED during logging.

Support



On the back of Mätman 3 there is a wire supporting bracket to be used when Mätman is placed on a flat surface.

Keys

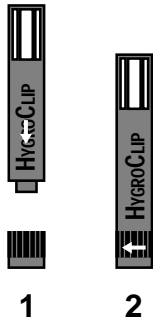
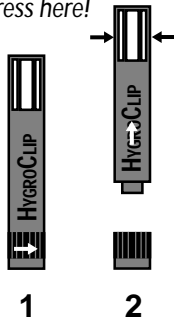


Key functions:

- | | | |
|----|------------|---|
| ▲ | Up arrow | Increase value/Step up in menus (circulating) |
| ▼ | Down arrow | Decrease value/Step down in menus (circulating) |
| OK | | Start/Select/Confirm operation/Go to sub menu |
| C | Clear | In main menu: go to menu 1
In menu 1: turn off the display
In sub menu: go to main menu |

Sensor

NOTE! Do **not** press here!



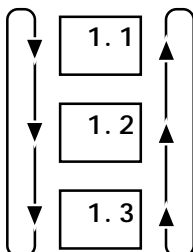
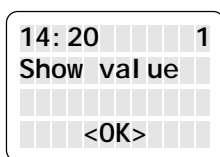
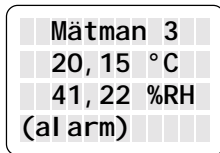
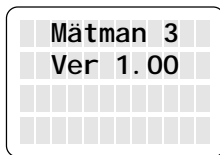
Release the sensor

1. Rotate the locking ring in the direction as indicated by the arrow.
2. Remove the sensor by pulling straight out without rotating.

Fitting the sensor

1. Press the sensor into the connector. It fits only one way.
2. Rotate the locking ring in the direction as indicated by the arrow.

Display



Press OK to turn on the display. The program version is displayed for a few seconds. During start an IR signal is sent to a possible PC for direct contact, see Menu 2.1.

The display will then show the present measuring values. If you do not press any key, the display will turn off after set time to conserve batteries (see menu 7, Settings).

Alarm messages, if any, are displayed on the bottom line. Press OK, and go to menu 1.

Most menus are numbered in the top right corner of the display. Some menus are extended, and will have no number on the second part of the menu.

On a main menu (one digit) the time is shown in the top left corner. The clock is synchronised from the PC.

A menu with the text <OK> on the bottom line is confirmed with OK. If the menu says **OK** without brackets, adjust the value or setting and confirm with OK.

Down arrow will step down to next menu in number order. From the last menu you will step to the first menu at the present menu level.

Up arrow will step up to next menu in number order. From the first menu you will step to the last menu at the present menu level.

LED

During logging the LED will flash every 5 seconds:

Green = Data acquisition in progress, OK.

Orange = Alarm limit override.

Red = Technical error / Battery low. Even after logging is finished.

Menus, overview

- 1 Show value**
 - 1.1 Real value
 - 1.2 Min. value
 - 1.3 Max. value
- 2 Connection**
 - 2.1 Connect PC
 - 2.2 Memory dump
- 3 Start log**

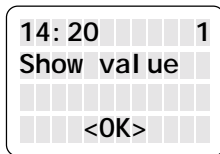
Interval

 - 3.1 Stop at full memory
 - 3.2 Replace oldest value
 - 3.1.1 Start now
 - 3.1.2 Start later
- 4 Stop log**
- 5 Alarm**

Alarm channel 1

Alarm channel 2
- 6 Information**
 - 6.1 Mätman Info
 - 6.1.1 Name of the present logging
 - 6.1.2 Serial no.
 - 6.1.3 Memory
 - 6.2 Sensor Info
 - 6.2.1 Type
 - 6.2.2 Serial no.
- 7 Settings**
 - 7.1 Display
 - 7.1.1 Auto off
 - 7.1.2 Contrast
 - 7.2 Min - Max
 - 7.3 Change name of the present logging
 - 7.4 New name of the present logging

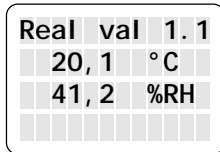
Menus



Turn on the display, press OK for 2 seconds.

1 Show value

When Mätman displays the real values (after some seconds), press OK display menu 1. Press OK to select menu 1.1. (Down arrow will select menu 2 and up arrow will select menu 7).



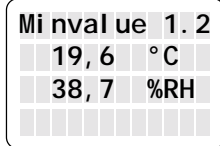
1.1 Real value

This is the same information as when you light the display, e.g. the present temperature and air humidity (with Rotronic HygroClip®).

1.2 Min. value

These are the lowest values measured in the resp. measuring channels since the present logging commenced or since Mätman was turned on/min.-max. memory was resetted.

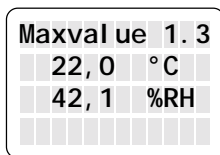
NOTE! This is a separate function which has nothing in common with the logged values (these min. values could have been measured between the loggings).



1.3 Max. value

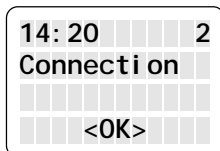
These are the highest values measured in the resp. measuring channels since the present logging commenced or since Mätman was turned on/min.-max. memory was resetted.

NOTE! This is a separate function which has nothing in common with the logged values (these max. values could have been measured between the loggings).



2 Connection

Connection to the PC for commencing a logging session or dumping the memory in Mätman 3.



IR sensor

Place Mätman in front of the IrDA unit as shown on the picture.

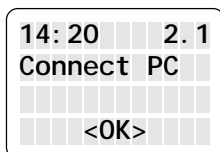
Maximum distance approx. 1 m.



2.1 Connect PC

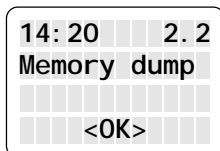
Press OK, and Mätman will connect to the PC via IR communication.

NOTE! The PC program Mätman XL must be operating first.

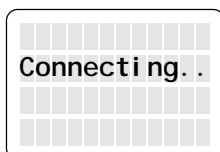


2.2 Memory dump

For future use. Not used in this version.

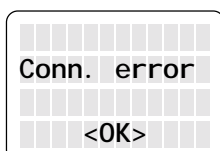


Mätman connects to the PC.



If Mätman is unable to connect to the PC, or the data transfer is disconnected, this message is displayed. Confirm with OK, display returns to to Menu 2.

Place Mätman 3 closer to the IrDA unit and check that the PC software is ready. Try again.



```

  3
  Start log
  <OK>

```

```

  Log interval
  00: 00: 05
  OK

```

```

  3.1
  Stop at full
  memory
  <OK>

```

```

  3.2
  Replace
  oldest value
  <OK>

```

```

  3.1.1
  Start now
  <OK>

```

```

  Start
  Mätman
  <OK>

```

```

  Mätman
  is logging
  (alarm)

```

```

  3.1.2
  Start later
  <OK>

```

```

  Start at
  Mon 00: 00: 00
  OK

```

```

  Start
  Mätman
  <OK>

```

```

  Mätman
  will start
  later
  (alarm)

```

3 Start log

Start of a logging operation (session) (data acquisition). The “Start log” menu is not available during a logging session (data acquisition). **NOTE!** Before you start logging, set alarm limits in menu 5 Alarm and Measurement Name in menu 7.4 New name (or 7.3 Change name).

Log interval

Set **Hours** with up/down arrow, press OK. Set **Minutes** with up/down arrow, press OK. Set **Seconds** with up/down arrow, press OK. Back to previous value with C. Confirm with OK.

Log interval can be set 5 seconds – 12 hours.

3.1 Stop at full memory

If you require the logging to stop when the memory is full, press OK, continue with menu 3.1.1 Start now.

If, instead, you require to overwrite the oldest value, when the memory is full, press down arrow to the menu 3.2 Overwrite the oldest value.

3.2 Replace oldest value

If you want to replace the oldest logged value, when the memory is full, press OK, continue with menu 3.1.1 Start now.

3.1.1 Start now

If you want to start measuring immediately, press OK.

(If, instead, you require to start measuring at a set time, press up/down arrow to menu 3.1.2).

Start Mätman

The logging will commence according to the settings above. Confirm with OK. Regret with C, back to menu 3.

Mätman has commenced the logging operation. OK will go to menu 1.

If you turn on the display during a logging, this information will show. If there is an alarm condition, it will be displayed on the bottom line.

3.1.2 Start later

The logging will commence at a later time.

Start at

The start time can be delayed up to one week.

Set **Day** with up/down arrow, press OK. Set **Hour** with up/down arrow, press OK. Set **Minute** with up/down arrow, press OK. Confirm with OK. Regret with C, back to menu 3.1.1.

Start Mätman

The logging will commence according to the settings above. Confirm with OK. Regret with C, back to menu 3.

Mätman will start the logging operation at the set time. OK will go to menu 1.

If you turn on the display during a logging, this information will show. If there is an alarm condition, it will be displayed on the bottom line.

```
14:20 4
Stop log
<OK>
```

4 Stop logging

This menu is only available if a data logging is in progress.

Continue with OK.

```
Stop the
present
logging
<OK>
```

Stop the present logging

Confirm with OK, and the present logging will be stopped. Back to menu 1. Regret with C, back to menu 4.

```
14:20 5
Al arm
<OK>
```

5 Alarm

Under this menu you will find the settings for the alarm limits.

```
Al arm ch. 1
-50,00 Min
200,00 Max
OK
```

Alarm channel 1

Set the alarm limits for channel 1 (HygroClip® = temperature), digit for digit with up/down arrow. The default values are the total range for the present sensor. HygroClip will show -50°C/200°C.

Pressing OK moves the cursor to the next digit. Pressing C will return to the previous digit. When there are brackets around <OK>, confirm the setting with OK. If the sensor has two channels (e.g. Rotronic HygroClip®) continue with setting Alarm channel 2, otherwise back to menu 5 Alarm.

```
Al arm ch. 2
00,00 Min
100,00 Max
OK
```

Alarm channel 2

Set the alarm limits for channel 2 (HygroClip® = humidity), digit for digit with up/down arrow. The default values are the total range for the present sensor.

Pressing OK moves the cursor to the next digit. Pressing C will return to the previous digit. When there are brackets around <OK>, confirm the setting with OK. Continue with menu 5, Alarm.

```
14: 20 6
Information
<OK>
```

6 Information

Information about technical data for the hardware and the name of the present logging. Continue with OK.

```
14: 20 6.1
Mätman Info
<OK>
```

6.1 Mätman info

Information about the connected sensor.

```
Name 6.1.1
LOG 1 AT ELT
EX
```

6.1.1 Name of the present logging

The first 36 characters of the measurement name will be displayed.

```
Ser No 6.1.2
2000160022
Art 18800
Ver 1.02
```

6.1.2 Serial no

Shows data for Mätman 3: serial no., article no. and internal software version.

```
Memory 6.1.3
Values per
channel
15551
```

6.1.3 Memory

The maximum number of measured values per channel that can be stored in the memory.

```
14: 48 6.2
Sensor Info
<OK>
```

6.2 Sensor info

Information about the connected sensor.

```
Sensor 6.2.1
Temp. /Humi d.
Rotronic
HygroClip
```

6.2.1 Type of sensor

```
Ser No 6.2.2
13107073
Art 18901
```

6.2.2 Serial no. and Article no. for the sensor

An Eltex sensor displays both serial number and article number. Rotronic HygroClip® displays only the serial number.

14:20 7
Settings
<OK>

7 Settings

Settings for the display, name of present logging and the memories for minimum and maximum values. Continue with OK.

14:20 7.1
Display
<OK>

7.1 Display

Settings for the display.

14:20 7.1.1
Auto off
<OK>

7.1.1 Auto off

Mätman 3 turns off the display after a set time. Press OK to enter the setting menu.

Auto off
after, min.
5
OK

Turn off the display after ... minutes

Select time delay, 1–10 minutes, with up/down arrow, press OK, and confirm the setting with OK. Back to menu 7.

14:20 7.1.2
Contrast
<OK>

7.1.2 Contrast

Press OK to enter the setting menu.

Adjust the
contrast
15
OK

Adjust the contrast

Adjust the display contrast with up/down arrow. Setting range 0–40. Default 15. Press OK and confirm the setting with OK, back to menu 7.

14:20 7.2
Min - Max
<OK>

7.2 Min - Max

Press OK to enter the setting menu.

Reset
min and max
<OK>

Reset min and max memories

Reset the memories for minimum and maximum values with OK, back to menu 7. The Min/max reset will be performed automatically every time you start Mätman 3 (if a logging is not running) and when a logging has commenced.

14:20 7.3
Change name
<OK>

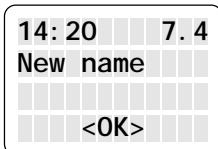
7.3 Change name

Press OK to enter the setting menu.

LOG 1 AT ELT
EX
OK

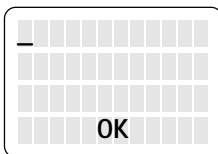
Change name for the present logging

Select character with up/down arrow (only UPPER CASE). Pressing OK moves the cursor to the next character, pressing C moves the cursor to the previous character. After the last character, press OK. When the display says <OK>, confirm with OK, back to menu 7.



7.4 New name for the present logging

Press OK to enter the setting menu.



Enter a new name

Select character with up/down arrow (only UPPER CASE). Pressing OK moves the cursor to the next character, pressing C moves the cursor to the previous character. After the last character, press OK. When the display says <OK>, confirm with OK, back to menu 7.

IrDA unit



The IrDA unit communicates wireless with Mätman 3 by means of infrared light.

Connection

Connect the IrDA unit to the serial port, COM1 or COM2, on the PC. Start the software Mätman XL, press the button "Setting..." and select the COM port you are using.

NOTE! Do not install the software on the diskette included with the IrDA unit package. Mätman Plugin, included in Mätman XL software, contains driver for the IrDA unit.

Communication

Place Mätman 3 within 1 m from the IrDA unit. If an error message "Conn. error" appears, reduce the distance and try again.

Technical data

Art. no.	18800
Dimensions	length 129 mm (173 mm incl. HygroClip®)
	width 67 mm
	depth 30 mm
Weight	158 g (incl. HygroClip® and batteries)
Encapsulation class	IP65
Batteries	2 alkaline type AAA/LR03, 10 x 44 mm. Battery lifetime approx. 150 000 logged values or max. 6 months.
Working temperature	-20°C – +60°C
Storing temperature	-25°C – +70°C
Environment	ESD standard SS-EN61000-4-2
Memory	31 102 measured values

Data and this manual is valid for Mätman 3, art. no. 18800, software version 1.02.
We reserve the right to modify data and design.

Error and handling messages

Message

(ver. 1.02)

Explanation / Measure

Start message during logging

"Mätman will start later"	Mätman is waiting for logging to start.
"Mätman is logging"	Logging is in progress.
"Logging is completed"	Logging is successfully completed.
"Logging is terminated"	Logging is terminated for technical reason. The measured values, already stored, are still available in the memory.

Logging error message

"Low battery"	Replace the batteries immediately.
"Sensor error"	The sensor head is faulty.
"Log stop err"	Logging is terminated for technical reason.
"Min alarm"	The min. alarm limit has been overridden.
"Max alarm"	The max. alarm limit has been overridden.

Handling message

"Conn. error"	Mätman is unable to connect to the PC, or the data transfer is disconnected. Place Mätman closer to the IrDA unit and check that the PC software is ready. Try again.
"Can't change name during logging"	The name is in use during logging.
"Logging is not saved. Overwrite?"	The logging in the memory is not saved. Press C and save the present logging before you make a new logging. Press OK overwrites the logging in the memory.
"Other sensor in memory. Cant show.."	Cannot show value, because the sensor has been exchanged since the logging in the memory was stored. Dump the logging in the memory, turn off and turn on Mätman.

Error message

"Battery too low"	Replace the batteries immediately.
"Sensor head missing or is faulty"	No contact with the sensor head.
"Transfer error from sensor"	Mätman cannot read data from the sensor head.

Other start messages

"Read sensor"	Checking the connected sensor.
"Save sensor"	Shows if the sensor has been exchanged. Saving data for the connected sensor. Can take a few seconds depending on sensor type.

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