

EOS 52

Instruction manual



May 2006
ELMED Elettronica industriale d. A. Rauch – Bolzano

The information in this document can be changed without notice before.

All the registered marks and names are of exclusive property of their owners.

E060503

Preface

Dear customer,
we thank you very much for purchasing the EOS52 equipment and we hope it can help you especially in the nights of frost and during the scab time.
Please read carefully this manual of instructions before using the **EOS52**.
If you still have questions about the EOS52 you can contact us or post them in the forum on our web site: www.elmed.it

This manual is about the **EOS52** connected with the V1.0 software version.

Instructions and warnings

The **EOS52** equipment respects the exigencies of the present European and international norms. Its compliance has been tested.

This manual contains detailed information about the EOS52 equipment so that you can use it in the correct way.

The information contained in this document can be changed without notice before.

The following symbols and writing forms will be used in the whole document as characteristics of text distinction.

Warning: to indicate a part of the text which must be read very carefully.

→ The arrow indicates information explaining how to reach a menu.

tⓄp: to indicate how to use the **EOS52** in an even more comfortable way.



To indicate the necessity of an authorization.




Important: indicates important information: if not respected an important data loss, a breakdown or a wrong alarm survey can follow.



Attention: This symbol informs you about possible dangers for things or people.

1 Content

PREFACE	3
1 CONTENT	4
2 SAFETY WARNINGS	6
In general	6
Power supply.....	6
Accumulator.....	6
Eliminating batteries	6
3 EOS52	7
3.1 EOS52-vision	7
3.2 Use of the accumulator	8
3.3 Antenna (aerial) and quality of reception	9
Assembly of the external aerial	9
Problems of reception:	9
4 USE	10
4.1 Menu structure	10
5 MAIN MENU	11
Menu structure (Main and secondary)	11
5.1 Frost data	13
5.1.1 Frost graphics	14
5.1.2 Detail	16
5.2 Scab (Venturia inaequalis)	17
5.3 Messages	18
5.3.1 Appointments	19
5.4 Setup	20
5.4.1 Alarm Setup	20
5.4.1.1 Time of the alarm beginning „From“	21
Data input window:.....	21
5.4.1.2 Alarm ending time „To”	22
5.4.1.3 Alarm thresholds.....	23
5.4.1.4 Alarm state	23
5.4.1.5 The alarm window	24
Alarm confirmation.....	24
5.4.2 Service	25

5.4.3	Stations.....	26
5.4.4	Equipment setup	27
5.4.4.1	Date and time	27
5.4.4.2	Aerial setup	28
5.4.4.3	Display configuration	28
	Intensity and contrast:	28
	The graphic bar:	28
	Display lighting duration and turn off (standby mode):.....	29
	Battery or Net:	29
	Standard set up:.....	29
	Touchscreen (Display calibration and Display test)	30
5.4.4.4	Language setup	30
5.4.4.5	Parameters.....	31
5.4.5	Central (Messages and appointments transmitter)	32
5.5	Key lock.....	32
5.6	Turning off the equipment	33
6	 AUTHORISATION:	33
7	TECHNICAL DATA:.....	34
7.1	Hardware:	34
7.2	Software:	35
7.3	Probes and sensors of the weather station Farg2000 (ELMED):.....	36

2 Safety warnings



ATTENTION: The following safety warnings must be used to get the personal safety of the user and to protect the equipment and the working surrounding from possible danger

In general

- Do not open the equipment on your own for maintenance.
- Do not insert any object in the equipment entrances. A possible short circuit might destroy the equipment or electrical attacks might derive.
- Take care not to let the equipment fall and do not bump it strongly.
- Do not keep the equipment near a heater or other heat sources
- Do not wet and do not leave it in wet places, near the bath tub, the sink or the pool for example,
- To avoid possible electrical shocks during a storm it is not advisable to use the net feeder.
- Keep the screen clean, removing dust or other agents that might dirty it.
- For general cleaning, use a clean and wet cloth.

Clean the screen if it is dirty

- Do not leave at extreme temperature; do not leave it on a heater or in the car and do not keep it near a window exposed at the sunlight directly.

Power supply

- Use only the battery-charger/feeder included to charge the EOS52.

Accumulator

- Use only the kind of accumulator suitable for the EOS52. It is the NiMH 1,2V AA(Mignon) type with a capability of at least 2200mAh.
- Do not cut, burn or destroying the batteries on fire. Eliminate the used batteries according to the producer instructions or the local



Eliminating batteries

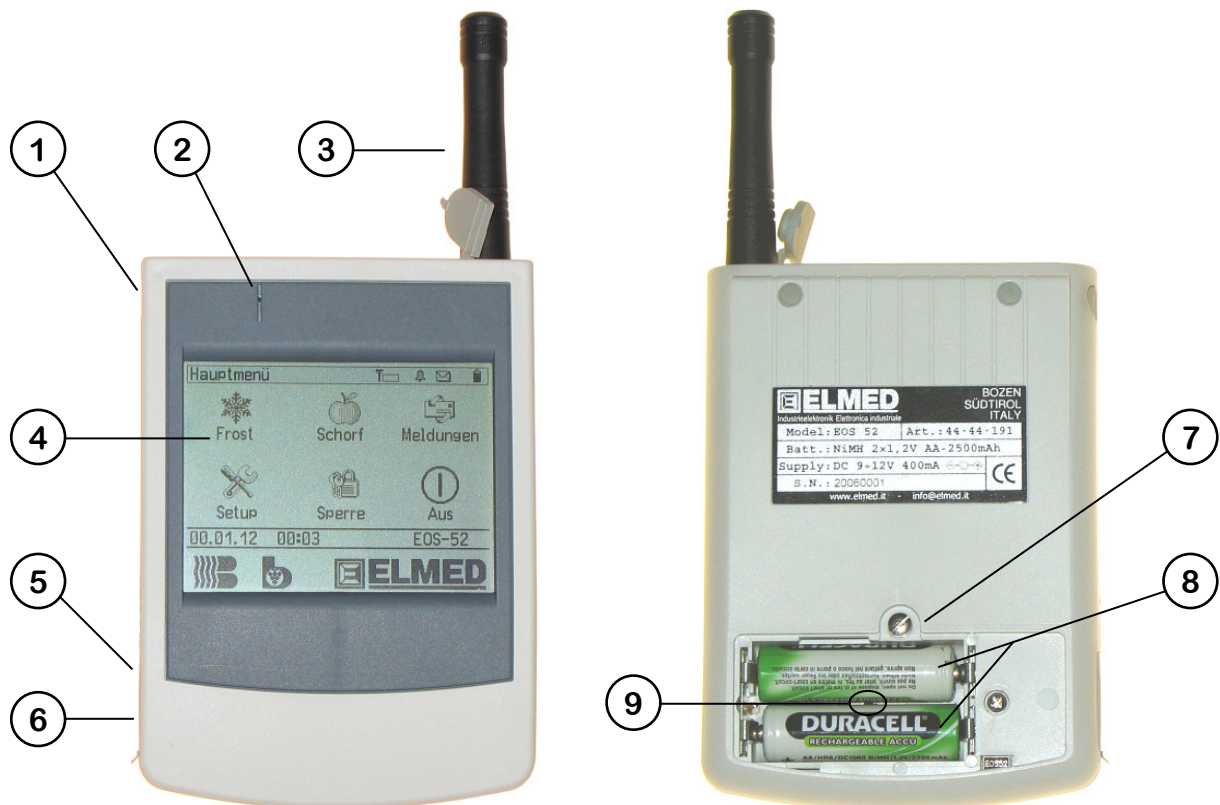
The equipment contains rechargeable batteries of NiMH 1,2V AA(Mignon) kind with a capability of 2500mAh. The chapter 3.2 „Use of the accumulator“ contains instructions about how the batteries can be substituted.

Do not throw the batteries in your home rubbish.

3 EOS52

! ATTENTION: Before executing the following instructions, please read carefully the safety warnings (chapter 2).

3.1 EOS52-vision



Im. 1 EOS52-vision

- (1) **Turn on/off key**, press this key to turn on the equipment and keep it pressed for at least 4 seconds to turn off the EOS52.
- (2) **Buzzer gate**: the gate must be kept free and clean not to reduce the buzzer volume.
- (3) **External aerial**
- (4) **Touchscreen display**, the equipment is commanded by graphical screen on the pressure sensible display.
- (5) **Tension connector**: Tension feeder connector.
- (6) **Serial interface**: possibility of connection to the computer (maximum cable length: 3 meters)
- (7) **Battery cover**: It covers the rechargeable batteries.
- (8) **NiMH AA rechargeable batteries** (2500mAh recommended).
- (9) **Accumulator temperature sensors**: to measure the accumulators temperature during the charging process.

3.2 Use of the accumulator

Warning: Before using the equipment for the first time it is advisable to charge the batteries fully.

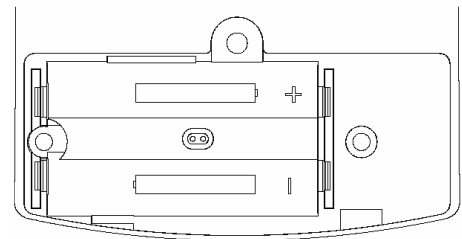
Kind of accumulator:

Rechargeable batteries (accumulators) NiMH (Nickel-Metall-Hydrid), type "AA" (Mignon).

To have at your disposal for a long time it is advisable to use accumulators with a capability of at least 2200mAh.

Setting and change of the accumulators

- Turn off the equipment
- Open the cover of the battery box with a suitable screwdriver
- Put or change the accumulators being careful to the batteries polarity (Be careful to the temperature sensor)



Im. 2 Batterie box

Charging the accumulator

- Remove the rubber cover on the tension connector (Im.1 (7))
- Connect the feeder with the EOS52 equipment
- Insert the feeder in the electric tap.

After 3 hours at most the charging process should be finished.

The charging state can be watched by the corresponding symbol (see: Symbols → chapter 5).

After charging the **EOS52** can be also kept connected to the tension feeder. In that case the **EOS52** is fed by the external feeder and the accumulators are in a state of charge keeping.

With totally charged batteries (2500mAh) it is possible to use the equipment for a period of two days. The available time depends on the way of use of the user and by the predefined setup (see: **Display configuration** → chapter 5.4.3.3).

Warning: The accumulators can be also recharged by an accumulator charger of NiMH kind available on sale. Eliminating all the accumulators all the data are lost and also date and time must be inserted again.

! ATTENTION: use only the suitable kind of accumulator. Do not use non rechargeable batteries (for instance: Alkaline). This advice is valid in particular in connection with the net feeder. The charging of alkaline batteries can cause fires and explosions.

Signal in case of powerless battery:

If the battery is very powerless, the EOS52 gives an advice in form of some straight acoustic signals. In this case it is time to recharge the batteries.

Otherwise the equipment turns off by itself.

3.3 Antenna (aerial) and quality of reception

Assembly of the external aerial

- Open the rubber cover of the aerial connector(Im.3)
- Now the external aerial can be screwed on the aerial connector.



Im. 3 External aerial

Problems of reception:

- **Internal or external aerial**
Reception is better if you use the external aerial instead of the internal one. In case of problems on reception it is advisable to mount the external aerial.
- **Placing and location**
The best reception is obtained when the EOS52 aerial is parallel with the broadcasting aerial. So it is advisable to keep the EOS52 in a vertical position. The quality of the reception depends on the place. A little geographic moving can increase the quality of the reception.
- **Reception at home and inside the car**
The car covering plate reduces the quality of the reception. Problems can be also inside your house. A position near a window is the best one.

4 Use

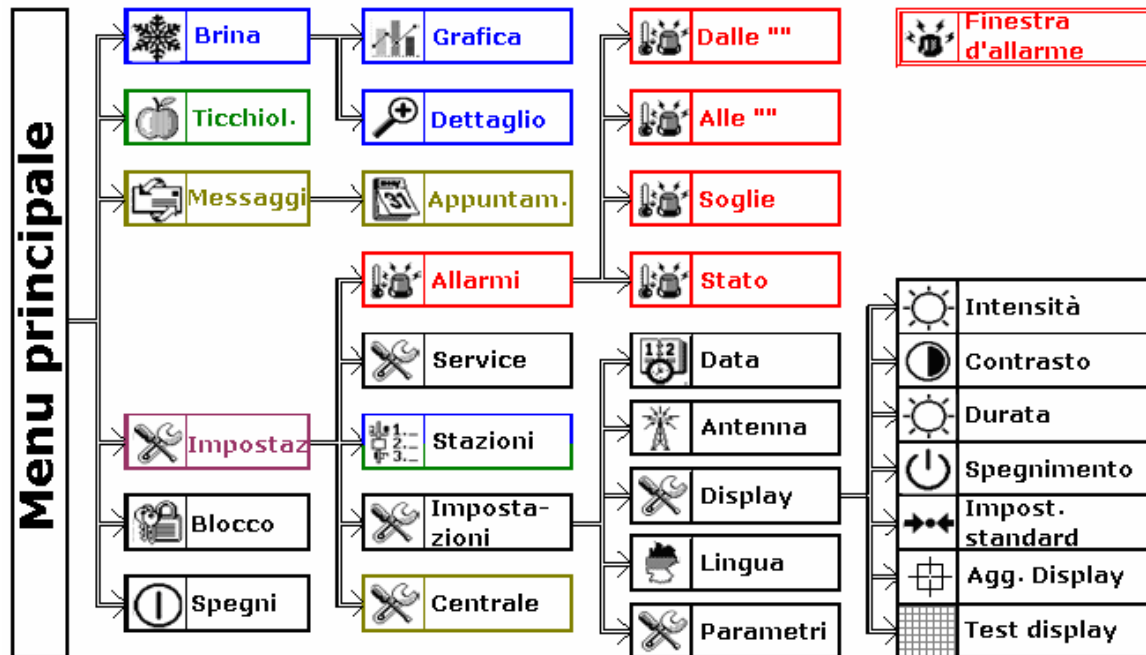
The equipment contains a **touchscreen** as visualisation and command element. The EOS52 is commanded by the symbols and the keys represented on the display. You can press the “keys” by using a finger or a pen suitable for the touchscreen.



You can enter the desired menu simply pressing on its symbol. By pressing the **Exit** key you can go out from each menu.

4.1 Menu structure

The following table shows the menu structure of the EOS52.



Im. 4 Menu structure

The following chapters (from the chapter 5 on) contain more detailed information about the single menus.

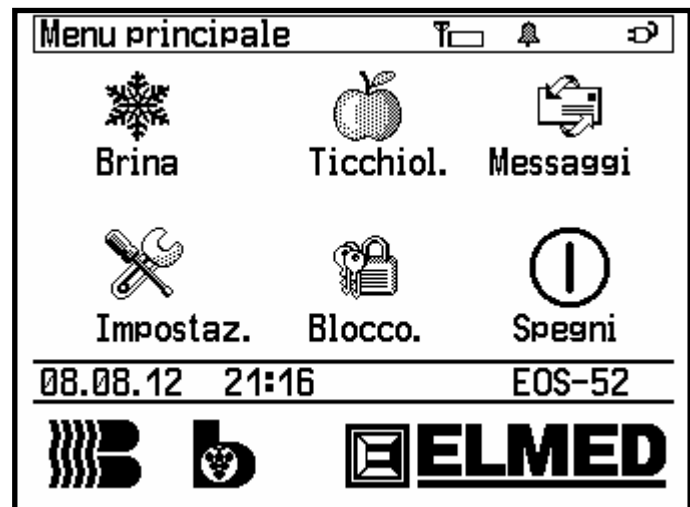
5 Main menu

→ Soon after the turn on of the EOS52 with a turn on/turn off (Im.1 (1)) the main menu appears as shown in the image (Im. 5).

All the secondary menus can be recalled by the main menu.

Menu structure (Main and secondary)

The menus are made of different symbols as follows.



Im. 5 Main menu

List of symbols

It is always located on the edge at the top.(Imm.5).

- The list contains the following symbols:
 - The name of the menu (left), for example, “Main menu”
 - 🔋 - Symbol of battery, indicating the state of the accumulator. The state can be: full (🔋), used (🔋) and empty (🔋).
 - 🌐 - Net symbol: it is shown when the tension feeder is connected to the EOS52.
 - 🌐🔋 - During the charge the net and the battery symbol are shown. When the charge is finished the battery symbol disappears and only the net symbol remains.
 - ✉️ - The Mail symbol, indicates that in the secondary menu there is at least one message not read.
 - 🚨 - The alarm symbol shows the alarm survey state. Turned off (🚨) and with the turned on survey (🚨). (→ more detail in the chapter 5.4.1 „**Alarm Setup**“)
 - 📶 - The symbol of aerial is shown if the external aerial has been selected. If the internal one is used the symbol is not shown (*Aerials*→ chapter 5.4.4.2).
 - 📶 - With this symbol the quality of the signal is evidenced. A full bar (📶) indicates a very strong signal. A half empty bar (📶) appears if the signal is a little weak and an empty bar (📶) indicates the complete loss of any signal. More details in the chapter(“**Service**”→ 5.4.2).

- **Current state list**

It is over on the ELMED logo in the main menu (Imm.5) and over the keys in the secondary menus. The list includes the current date and time (Date and time can be set up in the menu “**Setup**” → chapter 5.4.3)

In the different secondary menu additional information can be also shown. (Explanations in the following chapters)

- **Symbols field**

In the middle of the display you can find symbols with their name. Pressing on the symbol the requested secondary menu is opened.

- **Keys field**

At the end of the display, near the edge (except of the main menu) you can find the keys field which contains, in the different secondary menus, various symbols with different functions.



5.1 Frost data

→ The menu „Frost“ can be reached through the main menu.

To enter the menu of frost containing the frost graphics and the detailed view a valid authorization is necessary. (→chapter 6).

The menu „Frost“ includes a table with every available station (Im.6)
(the stations can be inserted and configured in the Setup)

(→ chapter 5.4.2)

The table shows near the station name all the data necessary to the survey of frost.

- **Column „WT“** = *wet temperature* in celsius grades (°C)
- **Column „DT“** = *dry temperature* in celsius grades (°C)
- **Column „Wind“** = *wind speed* in meters per second (m/s)
If available the wind direction is also indicated. „N“ „E“ „S“ „W“ for North, East, South and West.
- **Column „I“** = *irrigation* A mark (☑) indicates the watered stations.
- **Column „A“**: = *alarm* If for a station an alarm has been selected (chapter 5.4.1), a bell is shown (🔔).
An already executed alarm is substituted by a ringing bell (🔔).

The symbol „-.-“ instead of a temperature or another measured value, means that the value is not available in the current station.

If instead of the data, nothing is shown the equipment has not received the station data or more than 20 minutes have passed since the last reception.

The present state list includes the present date and time. On the right side measurement time is indicated („Data from [hh:mm]“). The indication is referred to the selected station. A station can be selected thanks to the keys “up” and “down”.

There is also the possibility to select a station pressing over the key. The selected station is shown in an inverted way with white writing and black background (for example in the image 6 „Gargazon 1“).

	TU	TA	Vento	I	A
Marein					
Erhard					
Gargazon 1	18.8	29.5	1.0		
Lana 3	21.3	31.5	0.0		
Gries 2					
Gries 1					

17.05.06 15:07 Dati delle 15:01

Im. 6 Frost data



You can also watch the graphic of frost about each station. To see the graphics, press the key “graphic”.

(→ chapter 5.1.1)



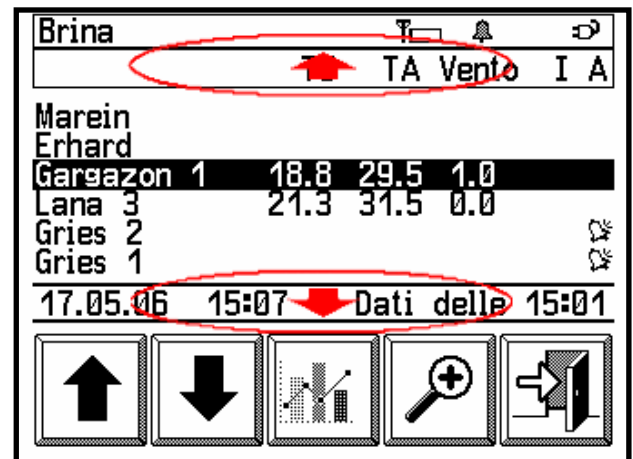
If you press the key **Detail** the menu with the most detailed information about the selected station opens.

(→ chapter 5.1.2)



top: Hidden keys:

The image 7 shows the hidden keys present on the screen. Over and below the table with the stations you can find 2 keys allowing to browse the list page by page, up and down. It is very useful with a long list especially if you want to go to the end of the list.



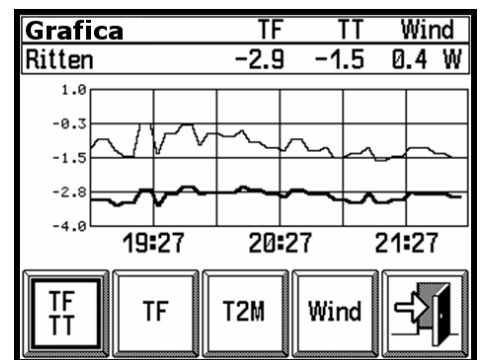
Im. 7 Hidden keys

5.1.1 Frost graphics

➔ The frost graphics can be reached through the menu „Frost“, pressing the key „**Graphics**“ (→ chapter 5.1.0).

The screen is made by a list with two rows on the top, the graphics in the middle and the keys in the bottom of the screen. (Im.8).

The list on the top of the left side shows the name of the menu. In this case “Graphics”. In the following row you can find the selected station. The right side includes the measured data interesting regarding frost.



Im. 8 Frost graphic

- **Wet temperature (WT)**
- **Dry temperature (DT)** respectively in celsius grades (°C)
- **Wind speed (Wind)** in meters per second (m/s)
If available there is also the indications of:
- **Wind direction** (N E S W) (North, East, South, West).

The keys field includes 4 keys: thanks to them you can select the measured values shown in the diagram. You can also select:

- **WT and DT: Wet temperature and dry temperature:** pressing on this key the diagram shows the two temperatures together in the same graphics. The thin line belongs to the dry temperature.
- **WT:** Pressing the key the diagram shows the data curve about wet temperature.
- **T2M:** the 2-meters temperature is shown in the graphics.
- **Wind:** this key shows the wind speed in the diagram.

Warning: To indicate which value is presently shown in the diagram, a frame surrounds the corresponding key, as shown in the Image 8. (WT and DT has been selected).

Graphics:

Graphics consists of a diagram on line with X and Y axes.

On the X axis (Horizontal axis) time is shown. The range revealed is of three hours and begins on the left side of the screen with the data, measured three hours ago and goes to the current measured value.

The diagram also includes some auxiliary rows for time and space axis (X and Y): between two rows there is a time of 30 minutes.

Warning: All the data older than 3 hours are no longer available so that they cannot be visualised.

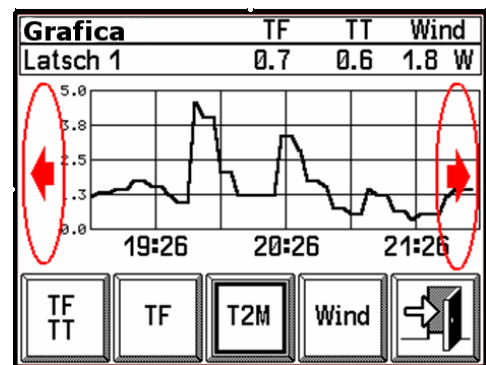
On the axis Y (Vertical Axis) the measured data or temperature in Celsius grades or wind speed (m/s) are located.

The scale on the Y axis is updated in relation with the minimum and maximum data so that a very good visualisation is guaranteed.

tⓘp: Hidden keys:

Inside of the frost graphics it is possible to change the weather station by using the hidden keys indicated in the image (Im.9).

Pressing on the left side you select the previous station and on the right side you can select the following station. The great advantage is to have soon the available graphic data even without leaving the menu.



Im. 9 Hidden keys



5.1.2 Detail

→ The secondary menu Detail can be reached through the menu „Frost“, pressing on the key „**Detail**“ (→ chapter 5.1.0).

The screen on the menu “**Detail**” shows extra measured data. If in a station there is not a sensor the symbol „-.-“ appears on the screen. (for ex. in the image10 the wind direction is absent)

Dettaglio			
Frangart			
TU	14.7	Vel. vento	0.0
TA	17.7	Dir. vento	-.-
T2m	17.1	Umidità	71.0
T25	-.-	Bagnatura	0.0
		Irrigazione	No
18.05.06 08:05 Dati delle 07:42			
↑		↓	
			→

The following values can be shown:

- *The stations name:* (under the name of the menu: “Detail”)
- *WT. (=Wet temperature)* in celsius grades (°C)
- *DT. (=Dry temperature)* in celsius grades (°C)
- *T2m. (=Temperature 2-meters)* in celsius grades (°C)
- *T25. (=Temperature -25cm)* in celsius grades (°C)
- *Wind speed* in meters per second (m/s)
- *Wind direction:* N E S W for North, East, South, West.
- *Moisture. (=Relative moisture)* in (%)
- *Wetting.* from 0 (dry) to 100 (wet)
- *Irrigation.* „Yes“ or „No“
- The measurement time (visualisation in the list of the state,, from [hh:mm]“)

Im. 10 Detail

Using the arrow keys, a different station can be selected.



5.2 Scab (*Venturia inaequalis*)

→ The most important data regarding scab can be reached by the “**Main menu**”, pressing on the key “**Scab**”.

An authorization is needed to watch the current data(→chapter 6).

These remarkable data are:

- The station name (on the top, on the left after “Scab”)
- **Rain beginning** Data [dd.mm.yy] (day.month.year) and time [hh:mm] (hours:minutes)
- **Wetting duration** time in hours and minutes (for ex.: 5h 03')
- **Wetting** from 0 (dry) to 100 (wet)
- **Rain** in millimeters (mm) – (from the rain beginning)
- **Wind speed** in meters per second (m/s)
- **T2m** (=Temperature 2-meters) in celsius grades (°C)(Current value)
- **T2m average** (=Temperature 2-meters average) in gradi celsius (°C) – (from the rain beginning)
- **Irrigation** “Yes” or „No“
- **Measurement time** (in the list of the state „Data of [hh:mm]“)

Ticch.: Pfatten 4				
Inizio pioggia				
Durata bagnatura				
Bagnatura	0.0			
Pioggia				
Velocità vento	0.0			
T2m	17.7			
T2m media				
Irrigazione	No			
18.05.06 08:09		Dati delle 07:42		

Im. 11 Scab data

The symbol „-.-“ instead of the measured value indicates that the station has not the necessary sensors or the data have not been received yet. (for example: rain has not begun yet).

By the arrow keys you can select another station.


tⓂp: **To find the desired station more quickly:**

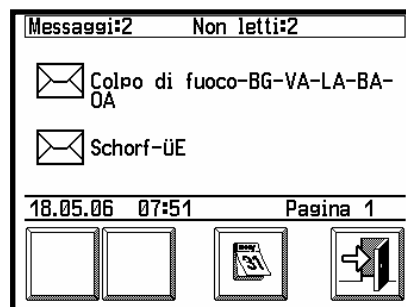
If the list contains so many stations, the use of the keys can be a little slow. But if on the frost menu (→ chapter 5.1) you can select the desired station; also in the scab menu this station is shown.



5.3 Messages

→ The secondary menu **“Messages”** contains messages and appointments and it can be reached by the symbol present in the **“main menu”**.

 For the reception of messages and appointments an authorization is needed. (→chapter 6).



Only the data central stations broadcast messages.

Im. 12 Messages

Warning: Only messages sent by a central station activated in the menu Setup „Central“ (→ chapter 5.4.4) will be received and shown.

The number of available messages is shown in the symbol list. (After the note “Messages:”).

The menu also indicate show many messages have not been read yet by the user (Im.12).

In the middle of the screen, in the symbol area, the received messages are shown. Two messages per page, if at least two are available. If there is not any message on the screen this text appears (no message).

In front of the title an envelope symbol indicates the state of the message. The closed envelope indicates a not read message while the opened envelope is in front of the already read messages.



Near the symbol the message object is shown.

The state list shows the length (in pages) of the message on the right side.

The message can be read by pressing on the title of the desired message. So the screen shows the text and at the bottom, the arrow keys: by them you can browse up and down page by page.




Im. 13 Content of a message



Pressing on the keys „Appointments“ (Im.12) the appointment menu is opened. (→ chapter 5.3.1)

5.3.1 Appointments

→ The key „**Appointments**” is indicated in the menu “**Messages**”.(→ chapter 5.3).

 For the reception of the appointments an authorization is necessary (→chapter 6).

The data central broadcasts the appointments. The appointments received are listed beginning from the first basing on date. The beginning of the description of the appointment is shown near the date belonging to h same appointment.

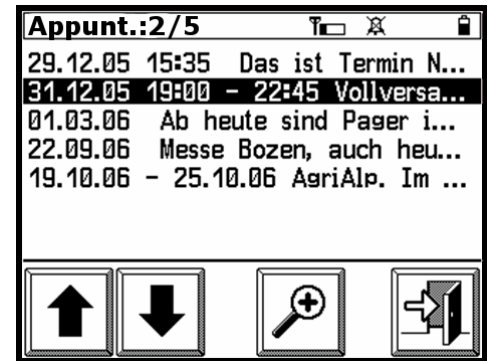
By using the arrow keys you can select the desired appointment.



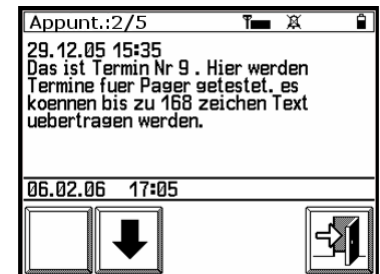
Pressing the key **Detail** (Im.14) a new screen presents the complete text of the appointment. (Im.15)

In this window, by the arrow keys the visualised appointment can be changed.

Warning: In the appointment list only appointments coming from activated centrals are shown. (→ chapter 5.4.4)



Im. 14 Appointment



Im. 15 Description of the appointment





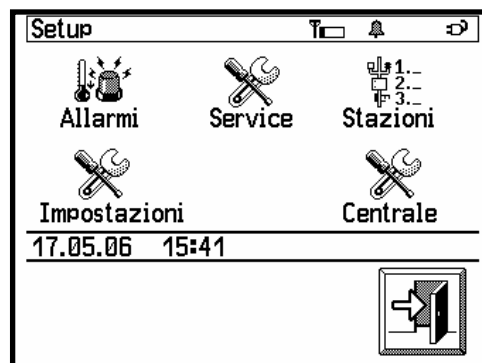
5.4 Setup

→ The **Setup** can be reached by the main menu pressing on the key **"Setup"**.

The menu Setup contains different secondary menu, where the user can act all the available functions.

(Im.16) The secondary menus are:

- „**Alarms**“; (→ chapter 5.4.1)
Setup for frost alarms.
- „**Service**“ (→ chapter 5.4.2) Here are the serial number of the **EOS52**, the software version and the quality of the reception signal.
- „**Stations**“ (→ capitolo 5.4.3)
It is possible to select and to order the stations regarding the data about frost and scab.
- „**Setup**“; (→ chapter 5.4.4) The equipment configuration can be executed in this menu. For example, date and hour, language, lighting, etc.
- „**Central**“ (→ chapter 5.4.5) Selection of the centrals which messages and appointments will be accepted.



Im. 16 Setup menu

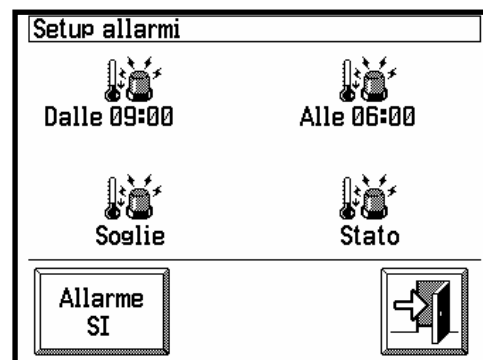


5.4.1 Alarm Setup

→ The menu can be reached through the menu Setup („**Alarms**“ → chapter 5.4).

All the setup regarding alarms can be managed here. (Im.17)

- **Time of the alarm beginning:**
„From [hh:mm]“
From now on, alarms can be executed. (→ chapter 5.4.1.1)
- **Time of alarm ending „To**
[hh:mm]“
The alarm can be executed until this hour (→ chapter 5.4.1.2)
- **Alarm „Threshold“**
The alarm thresholds can be fixed for the wet temperature WT. (→ chapter 5.4.1.3)
- **Alarm „State“**
Full vision of the station state regarding alarms. (→ chapter 5.4.1.4)
- **The key „Alarm” [Yes|No] (in the symbol field)**
Pressing on this key you can turn on or off the survey of the alarm thresholds. The same key show the current state, if active or not, with a “Yes” or a “No”. Moreover the alarm symbol indicates the alarm state. (→ chapter 5 „Symbol list“).



Im. 17 Alarm setup



Important: If the alarm key is in state of „**No**“, no alarm is executed or shown.

5.4.1.1 Time of the alarm beginning „From“

→ This screen can be recalled in the menu *Alarm Setup*, pressing on the key („From [hh:mm]“ → chapter 5.4.1).

The image (Im. 18) shows the screen of data input with a keyboard by which the beginning time of the alarm survey is inserted.


By setting the beginning and ending time the period of the alarm survey is established. (Examples: Table1 on the following page).

Impostazione ora HH:MM				21:30
7	8	9	-	ESC
4	5	6	:	CE
1	2	3	0	OK

Im. 18 Data input window

Before of the inserted beginning time of the alarm survey no alarm is shown. This aspect is referred to the wet temperature as for the alarms indicating a breakdown in a station.

If as beginning or ending time the same hour is inserted (example: beginning time 00:00 and ending time 00:00) the alarm survey is active during the whole day, for 24 hours.

 **Important:** To define the period of the survey it is very important to insert the ending time, too. „To“ (→ chapter 5.4.1.2)
It is important to notice that the survey is active. It can be activated by an alarm key. (→ chapter 5.4.1).

Data input window:

The data input window contains the description of the entered value, the field of the entered numbers and the keyboard. (Im.18).

The keyboard is structured as a keyboard recalled by a calculator or a pc. It consists of:

- **10 numbers** 0 to 9,
- a mark “-“ minus, to enter negative values. For example for the alarm threshold of the wet temperature WT.
- The division mark. If there is a time to enter, the mark „ : “ must be used to separate hours from minutes. To enter other numbers a full stop must be used, . “ (For example, for figures with a comma or for a date [dd.mm.yy] day month year).
- „**ESC**“ („Escape“), by this key you can cancel the data input and the data input window closes.
- „**CE**“ („Clear entry“), this key cancels the last datum entered.
- „**OK**“, by this key you can confirm the input and exit the data input menu.



5.4.1.2 Alarm ending time „To”

→ This window can be recalled in the Alarm setup menu by pressing the key („To [hh:mm]“ → chapter 5.4.1).

The data input screen appears (Im. 18): by that the ending time of the alarm survey can be defined.

By the definition of beginning and ending time the period where the alarm survey is active can be established. (Examples: Table1).

Then it is possible to enter the time when alarms are no longer executed. (Do not forget “:” as separation between hours and minutes.

Some examples as follows:

Begin „From“	End „To“	Duration
20:00	08:00	12 hours (during the night)
08:00	20:00	12 hours (during the day)
23:00	07:00	8 hours
00:00	00:00	24 hours
17:26	17:26	24 hours

Table 1: Alarm time

 **Important: Out of this time no alarm will be executed!**

Warning: If the selected time is over all the confirmed alarms will be put in a beginning state and are active again at the start of the new alarm survey time.

5.4.1.3 Alarm thresholds

→ The alarm thresholds menu is activated by the Threshold key in the menu Alarm **Setup** („**Threshold**” chapter 5.4.1)..

The table shows all the defined **stations** (Im.19).
(The **station** can be entered in the **Setup menu** → chapter 5.4.2)

Stazioni	Allarme
Gries 2	5.2
Gries 1	5.6
Unterrain 2	4.9
Plars	-.-
Alگرد 2	-.-
Dorf Tirol 2	-.-
Schenna	-.-
Kastelbell	5.3
Riffian	-.-



Im. 19 Alarm thresholds

The column „**Alarm**“ shows the threshold of the respective station.

The **alarm threshold** is shown in celsius (°C) grades and it is referred to the wet temperature (**WT**)!
If the wet temperature reaches or overcomes the defined threshold the alarm will be executed.

The stations, as usual, can be selected by the help of the arrow keys.



By the **input key**, you can open the data input window and then enter the alarm threshold (Im. 20). (Description of the data input window: → chapter 5.3.1.1).



Pressing on the cancel key it is possible to cancel the alarm threshold.

Burstall Biotop				-0.5	
7	8	9	-	ESC	
4	5	6	.	CE	
1	2	3	0	OK	

Im. 20 Input of alarm thresholds

The symbol „-.-“ indicates that a value has not been set up.

Warning: If for a station an alarm has been activated, an alarm is also executed, if from the station no more updated data have been received for a period definable at the menu „**Parameters**“. (→ chapter 5.4.4.5, *Standard: 20 minutes*). In this case the alarm is indicated with the note „**Station error**“.

5.4.1.4 Alarm state

→ The **State (of alarm)** can be found in the menu **Alarm Setup** („**State**“ → chapter 5.4.1).

The screen shows a table (Im. 21), which contains all the stations with an alarm threshold (→ chapter 5.4.1.3) activated. The column „**State**“ contains the following information:

Stazioni	Stato
Marein	-
Gries 2	🔔 00:28
Gries 1	🔔 00:28
Unterrain 2	🔔 00:28
Kastelbell	🔔 00:28

Im. 21 Alarm state

- The alarm symbols (🔔) indicates executed alarms even if they have been already confirmed. If no alarm has

been executed for the respective station, the indication is of a Minus mark (-).

- Time, if present, indicates when the alarm has been executed.

5.4.1.5 The alarm window

- The alarm window automatically appears when an alarm is executed. (Exception: the alarm state menu is active).

If an alarm has been executed the alarm window appears with the list of all the station where some alarms have been executed.



Im. 22 Alarm window

The window indicates the current wet temperature (**WT**) and the defined alarm threshold respectively in Celsius grades. If the alarm is caused by the absence of data from a station, there is the text „**Station error**“.



The key „**Sound turn off**“ turns off the alarm sound. However the alarm is still active and the alarm window is still open.

Alarm confirmation

Only after pressing the key Alarm confirmation, all the alarm present in the window will be confirmed and the alarm window will be closed.

Confirmed alarms remain turned off until they are again set up to the beginning state. The alarms can be reviewed in the secondary menu „**Alarm state**“ (chapter 5.4.1.4 Alarm state).

The set up of the beginning state (**Reactivation**) of the alarm will be automatically executed. After that the wet temperature overcomes the alarm threshold of more than (0,3 °C). The value (0,3 °C) can be changed in the menu „**Parameters**“ → chapter 5.4.4.5).

In case that no more data are available from a station, the alarm will reactivate when the station will send data again.

The alarm will reactive even after a predefined specific period of time. (→ chapter 5.4.1.1 e 5.4.1.2).

5.4.2 Service

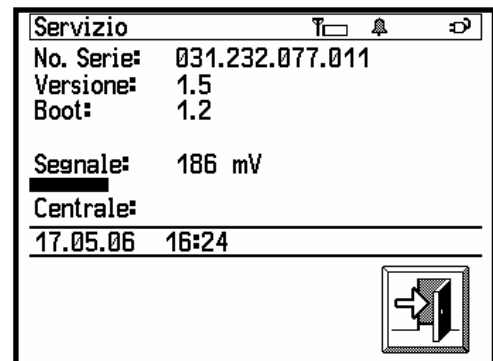
- Pressing on the key **Service** in the Setup menu Setup (→ chapter 5.4).

The service menu screen shows the following information:

- **Serial number:**
This is the serial number of the **EOS52**. It is unique and is used as identification.

 It is also used for registering and to activate authorization. (→chapter 6).

- **Software version:**
Here the present software version installed on the EOS52 is shown. In case of error and the equipment does not work as desired, it is useful that the software version is indicated in the error description.
- **Quality of reception:**
The quality of reception is indicated by a graphic bar and a value measured in mV [mV]. A long bar (high value) indicates a strong signal while a short bar or its absence indicates a weak signal or the absence of the same one.
Warning: The data centrals broadcasts at precise intervals, which means that even the reception quality can be calculated only after the data reception.
- **Central:**
It is listed the name of the central, which is broadcasting at the moment.



Im. 23 Service



1.-
2.-
3.-

5.4.3 Stations

→ To set up the **Stations** you must press the key „**Stations**“ in the menu **Setup** (→ chapter 5.4).

The menu contains a list of all the available stations where at most 30 stations can be selected.

Selecting a station:

A station is selected by giving it a number (1-30), also establishing the order of the stations in the tables of the different menus (for example: frost menu).

The non selected stations are indicated with the symbol „--“



Pressing on the input key the data input window appears.(see Im. 25). Now a number can be entered. (Data input window description: → chapter 5.3.1.1).

Eliminating a station:

To cancel a station from the list you must enter a zero “0” as order number.

Speciality:

The “holes” in numeration automatically close. If, for example, the station with order number 3, is cancelled by the list, the number of the following stations will be reduced. The station with number 4 becomes 3, etc.

If an existing number is given to a station, the “old” number will be not overwritten. The selected station and all the following stations will be moved a position upwards. (Only until the place with number 30, the „31“ will be eliminated from the list). So it is possible to put a station at the beginning or in the middle of the list in every moment.

Arrow keys: browsing by row and by page



By the two arrow keys the stations can be selected row by row, if the respective key shows the symbol present in the image (Im.24).



Pressing on the key, the function changes and the browsing page by page is active (9 rows per page). If many stations are present, this function is very useful to reach quickly the bottom of the list.

Stazioni	No. ordine
Station 31	--
Saltaus	--
Riffian	18
Schenna	16
Gratsch	--
Dorf Tirol 2	15
Algund 2	14
Algund 1	--
Plars	13

Im. 24 Stations

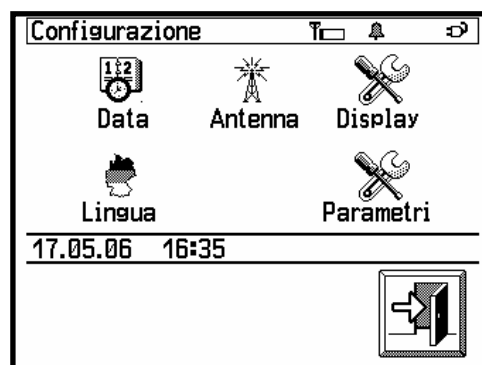
Saltaus				5	
0= Cancelli / <1-30>:					
7	8	9	-	ESC	
4	5	6		CE	
1	2	3	0	OK	

Im. 25 Input of the order number

5.4.4 Equipment setup

→ The equipment setup can be reached through the setup menu (→ chapter 5.4), by pressing on the setup key present in this secondary menu.

This menu (Im.26) offers some possibility to configure especially the EOS52 with all its parts (Im.26).



Im. 26 Configuration Setup

- **Date** (and **time**) can be defined here (→ chapter 5.4.4.1)
- **Aerial**: Selection of the used aerial (internal or external). (→ chapter 5.4.4.2)
- **Display**: Intensity, contrast, duration and display calibration (→ chapter 5.4.4.3)
- **Language**: Language selection (German or Italian). (→ chapter 5.4.4.4)
- **Parameters**: Duration of the tone if the key is pressed, the alarm reactivation value can be changed. (→ chapter 5.4.4.5)

5.4.4.1 Date and time

→ Date and hour can be entered in the secondary menu through the **configuration menu** (→ chapter 5.4.3).

After pressing the key „**Date**“ in the **configuration menu**, the data input window appears. (Im.27)
Now you can enter the current date using the following form: **[dd.mm.yy]** day, month and year. (Use the full stop „.“ as separation mark).

Impostazione data: TT.MM.JJ				21.11.05
7	8	9	-	ESC
4	5	6	.	CE
1	2	3	0	OK

Im. 27 Date input

After the termination of the input, another data input window opens. Now the current time must be entered. (Im.28).

Time must be entered using the following form: **[hh:mm]** hours and minutes (use „:“ as division mark).

(data input window description: → chapter

5.3.1.1).

Impostazione ora: HH:MM				09:38
7	8	9	-	ESC
4	5	6	:	CE
1	2	3	0	OK

Im. 28 Time input



5.4.4.2 Aerial setup

- The aerial setup is in the menu **Equipment configuration** (→ chapter 5.4.3). Press on the key „**Aerial**“.

The **EOS52** has an included internal aerial and a connector for the external aerial (**External aerial** Im.1 (3)). If the reception is very good you can use the internal aerial. On the contrary, use the external one.

The menu „**Aerial setup**“ (Im.29) indicates, which aerial is currently selected. („Selected aerial: [internal | external]“).

Pressing on the keys, selection can be changed.



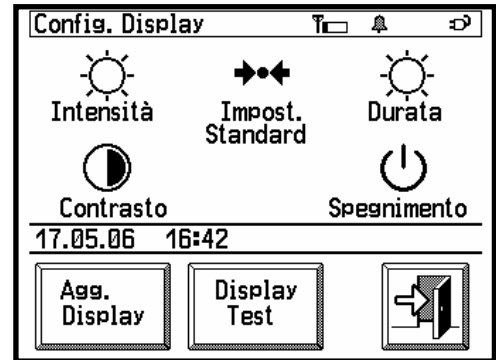
Im. 29 Aerial setup

5.4.4.3 Display configuration

- The menu **equipment configuration** (→ chapter 5.4.3) contains the menu „**Display**“.

Intensity and contrast:

Pressing on the keys for intensity and contrast (Im.30) you can modify the display lighting intensity and the contrast. The respective setup windows appear with their graphic bar. (Im.31)



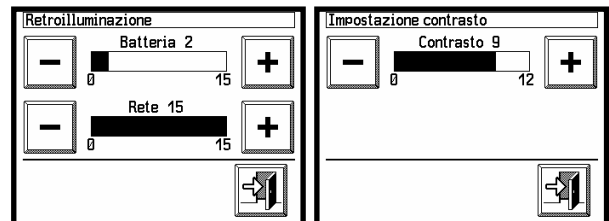
Im. 30 Display configuration

The graphic bar:

The graphic bar is filled depending on the defined value.

Over there is a written notice informing about what is to be configured with the current value. The value is among the minimum and maximum values shown under the graphic bar. By using the keys with “+” and “-” the value can be changed step by step.

Alternatively you can press directly on the bar which is filled until the pressure point.



Im.31 Intensity and contrast setup



Display lighting duration and turn off (standby mode):

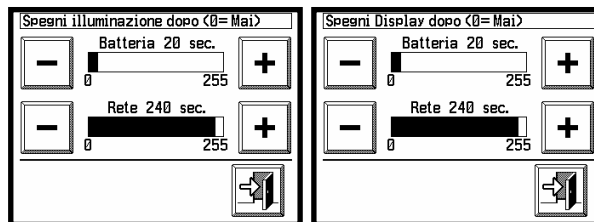
Activating the keys „Duration“ and

„Turn off“ (Im.30) the respective configuration window appears with its graphic bar. (Im.32)

Configuring these 2 times is particularly important because it allows you to save electrical energy, so that it is useful if your EOS 52 is fed by batteries.

The lighting duration decides the time during which the light is on if, in the mean time, the display is not touched again.

The turn off time defines the time when the display will turn off definitely, if not touched again. Touching again the display the screen turns on and the EOS52 is completely working again. Times must be entered in seconds and the possible values are from 1 to 255 sec. If a 0 is entered, lighting and display never turn off.



Im. 32 Turn off and lighting duration of the display

Battery or Net:

To be able to use the **EOS52** for a long time, when it is fed by batteries, it is necessary to configure the display in a suitable way. The display uses a lot of the available electrical energy. You can save that reducing the display lighting duration or to make the display turn on duration shorter. If the EOS52 is connected to the net by the 12Vdc feeder, the consumption is no so critical. For this reason in the menus there are 2 graphic bars to define the set up in both cases. (Im.31 and 32)

The **EOS52** realizes which kind of feeding is used and uses the suitable setup.

The table 2 contains some examples for intensity and duration of the display turn off, showing the respective consumption.

Intensity (0-15)		Con- sumpt.	Turn off in seconds (for lighting and display)		Con- sumption
0	No intensità	-	0	Never turns off	Very high
1	Minimum intensity	Low	15	Turns off after 15 seconds	Low
8	Medium intensity	Medium	60	Turns off after one minute	Medium
15	High intensity	High	255	4 min e 15 sec. (max duration)	High

Table 2 Consumption: Intensity and duration

Standard set up:

Pressing the key „**standard setup**“ (Im.30), the program use standard values for display setup. The values are shown in the images Im.31 and Im.32. The standard values are a compromise between a low consumption and a long duration of display turn off.

Touchscreen (Display calibration and Display test)

By the menu „**Display test**“ (Im.30) it is possible to act a precision test of the touch display. After pressing on the display in any place, a little panel must appear in that place. (→ Im.33)

If the panel is too far from the pressed point a display calibration is necessary.

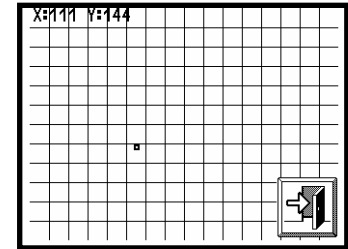
As additional help the pressed point is indicated on the screen upwards on the left, using the display resolution (320x240 pixel) (Im.33)

The display updating it is only necessary when the display does not work any longer in a precise way.

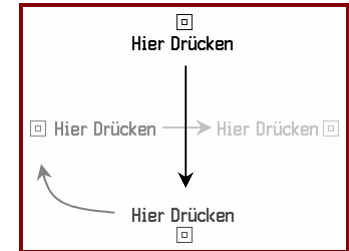
To act the **display updating** you must press on the key Display updating in the configuration menu (Key „**Display Updating**“. Im.30)

During calibration it is necessary to press 4 times exactly on the panel indicated on the screen.

(Im.34). To reach a high precision it is advisable to use a touch pen.



Im. 33 Display test



Im. 34 Display calibration

5.4.4.4 Language setup

→ Key **Language** in the equipment **configuration menu** (→ chapter 5.4.3)

The chosen language is soon active after being selected by pressing the right key. (Im.35).



Im. 35 Language



5.4.4.5 Parameters

- Pressing on the key „**Parameters**“ in the menu **Equipment configuration** (→ chapter 5.4.3).

The menu offers the following setup possibilities:

- **Tone duration:**

Duration is indicated in ms (milliseconds). The insertable range is from 0 to 255ms.

The longer the duration is, the higher the volume sounds. Here is a table with some examples:

Duration in ms	Description:
0	Turned off tone: the keys action does not produce any sound
1÷3	Silent beep
4÷31	Beep: short and silent
32÷63	Beep: strong
64÷255	Beep very long and strong

- **Cancelling data in case of data absence:**

This parameter indicates after how many minutes the received data will be cancelled, if in the meantime new data have not been received. That can happen if the EOS52 is out of the reception area. Only the data about frost and punctuation and of the menu Detail, will be cancelled but not graphics, diagrams, messages and appointments.

The insertable values are between 10 and 30 minutes.

If, on the contrary, a zero (0) is inserted, the data will never be cancelled. (Standard = 20min).

By cancelling the old data it is guaranteed that only present data are shown in the menu. In case that a station with activated survey no longer receives current data, an alarm will be executed „Station **Error**“.



Important: If the parameter is set on zero (0), data will not be cancelled, but no alarm caused by a station error will ever be executed!

- **Reactivation of the alarm, if the temperature grows up:**

The confirmed alarm will be reactivated so that the temperature will go up more than the predefined value over the alarm threshold.

It is possible to enter a value between 0,2° and 3,0°C. (Standard = 0,3°)

More detailed information about the alarm reactivation can be found in the → chapter 5.4.1.5 „**Alarm window**“.

The screenshot shows a menu titled "Parametri" with the following settings:

- Durata tono: 1
- Cancella Dati in assenza di ricezione dopo (20): 20 Min.
- Resetta allarme quando temperatura sale di (0.3°): 0.3°

At the bottom right of the menu is a navigation icon showing a right arrow and a square.

Im. 36 Parameters





5.4.5 Central (Messages and appointments transmitter)

→ The menu **“Setup”** (→ chapter 5.4)
Contains the secondary menu **“central”**.

Data central transmit all the weather data and the messages. The various centrals responsible for a certain district transmit also interesting messages for the customers of this area. In the

menu it is possible to select the centrals you want to receive messages and appointments from.

For messages and appointments you can select different centrals.



By the keys, messages and appointments, you can activate a central or, using the key again, deactivate it again.

For the reception of messages and appointments, authorizations are necessary (chapter 6).

Accettare:	messaggi	appuntam.
Lana	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Terlano	-	<input checked="" type="checkbox"/>
Laives	<input checked="" type="checkbox"/>	-
Naturno	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Laces	-	-
Bressanone	-	-
Egna	-	-
Lasa	-	-
Caldaro	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Im. 37 Central



5.5 Key lock

→ The menu Key block can be found in the main menu.

To receive the current data or to execute the alarm survey, the EOS52 must be always turned on. To avoid the undesired activation during transportation, you can insert the key block. If the key block is on, a screen with the symbol “Exit” is shown.

To deactivate the key block, you must press 3 times on the symbol “Exit” (Im.38). Then the symbol will change position. After this process the menu can be used again.



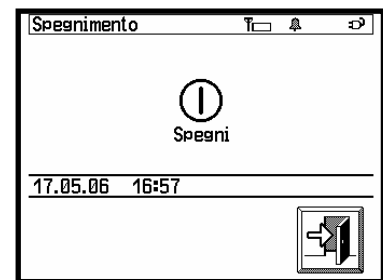
Im. 38 Key lock

5.6 Turning off the equipment

- The equipment turns off by pressing the key “**Turn off**” in the main menu.

By pressing the key (Im.4 → chapter 5), the turn off screen appears. (Im.39). You can also turn off the equipment by pressing again on the symbol shown or you can return to the main menu.

The equipment can also be turned off by pressing the feeling key on the side at the equipment, for 4 seconds at least.



Im. 39 Turn off



Important: After turning off the equipment the alarm survey will not be executed again. All the messages, weather data and diagrams will be cancelled. The equipment setup is stored permanently, inside the EOS52.

6 Authorisation:

Each menu showing data can request an authorization.

The menus and the windows requesting an authorization are:

- „Frost data“
- „Scab data“
- „Messages“
- „Appointments“


There are different grades of authorization. It is possible, that a user has only the right to watch the frost data, but not the scab data.

Acquiring rights and authorizations depends on the organization (Beratungsring, Landesverband), which puts the data at your disposal.

To register your personal EOS52 the serial number indicated in the menu, is needed. „Service“ → chapter 5.4.2.

7 Technical data:

7.1 Hardware:

Model		EOS-52
Display	Width	3,5 inch
	Resolution	320×240 pixel (black/white)
	Display illumination	White LED; 7,0 cd/m ²
Touchscreen „key pressure“	Pen	10÷70 grams
	Finger	20÷80 grams
Connectors	Connector Net	12V DC (500mA)
	Serial interface	RS-232 (max. cable length: 3m) Transmission speed: 57.600 Baud
	External aerial	Type: SMA 50Ω Reception frequency: 458,525MHz
Buzzer	Resonance frequency	2300 ± 300Hz
	Sound intensity at 10 cm	85dB
Temperature range	Usage temperature	0° to 40°C
	Preservation temperature	-20° to 60°C
Relative moisture		10% to 80% (not condensed)
Dimension (without external aerial):		(H × W × L) 138mm × 100mm × 28mm
Weight (Without accumulators):		300g
CE symbol (European Union) EM norm CEE 89/336 		EN55022 class B, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11

7.2 Software:

Measured values	Frost data:	Wet temperature (WT) [°C]	
		Dry temperature (DT) [°C]	
		Temperature 2-meters (T2m) [°C]	
		Temperature 25cm (T-25cm) [°C]	
		Wind speed [m/s]	
		Wind direction [N/E/S/W]	
		Relative moisture [%]	
		Leaves moisture (0÷100)	
		Irrigation (On/Off)	
		Measurement time	
	Scab:	Rain beginning (Date and time)	
		Leaves moisture duration (in hours and minutes)	
		Leaves moisture (0÷100)	
		Wind speed [m/s]	
		Temperature 2-meters (T2m) [°C]	
		Temperature 2-meters average (T2m) [°C]	
	Duration of frost and scab data visualisation (adjustable)		10 to 30 min. or continuously
Frost graphics: limits recording:		3 hours	
Stations	Maximum available stations number:	252 stations	
	Among them at most selectable: 30 stations	30 stations	
Messages	recordable message number	12 messages	
	Limit number of marks per message:	1600 signs	
Appointments	recordable appointment number:	20 appointm.	
	Limit number of marks per appointment:	168 signs	
Alarms	Per each selected station (30 at most), an alarm level can be fixed.		
	An alarm is executed only if the wet temperature reaches or is under the fixed alarm level or if the station is out of work.		
	Automatic reactivation after the alarm confirmation if the threshold will be overcome by the settable value.	0.2° to 3.0°C	

7.3 Probes and sensors of the weather station Farg2000 (ELMED):

Abbr.	Measurement value	Sensor	Measurement interval / Tolerance
WT	Wet temperature	Platinum temperature sensor; PT100 4mm×100mm; without ray protection; with water equipment	-20 to +150°C / class 1/3 DIN B+ ±0,1°C (at 0°C)
DT	Dry temperature	Platinum temperature sensor PT100 4mm×100mm; without ray protection;	-20 to +150°C / class 1/3 DIN B+ ±0,1°C (at 0°C)
Wind	Wind speed	Star Anemometer	0,4÷40m/s / Linearity tolerance max. 0,15% (at 32°C)
I	Irrigation	Pressure switch	On or Off
-	Leaves moisture	Leaves moisture probe	0 (dry) to 100 (wet)
-	Rain	Downfall sensor	Resolution: 0.1mm per tip ±2% at 25mm/hr; ±3% at 50mm/hr
T2m	Temperature 2-meters	Platinum temperature sensor PT100 with ray protection;	-200 to +400°C / class 1/3 DIN B+ ±0,1°C (at 0°C)
RM	Relative moisture (2m)	Capacitive moisture sensor, with ray protection	0 ÷ 100 % r. m. / Tolerance max. 0,15% (0 ÷ 98 % r.m.)
Tb25	Temperature-25cm	Platinum temperature probe PT100 6mm×250mm	-20 a +200°C / class 1/3 DIN B+ ±0,1°C (at 0°C)
-	Wind direction	Wind direction sensor	0÷360° / 5,625° 64 steps

