Package Contents

Product	Order number[1]	
VarioFon noise detecting unit (with/without power supply unit)	990.613.xx	depending on the call system connector
Instruction manual	LE 324	

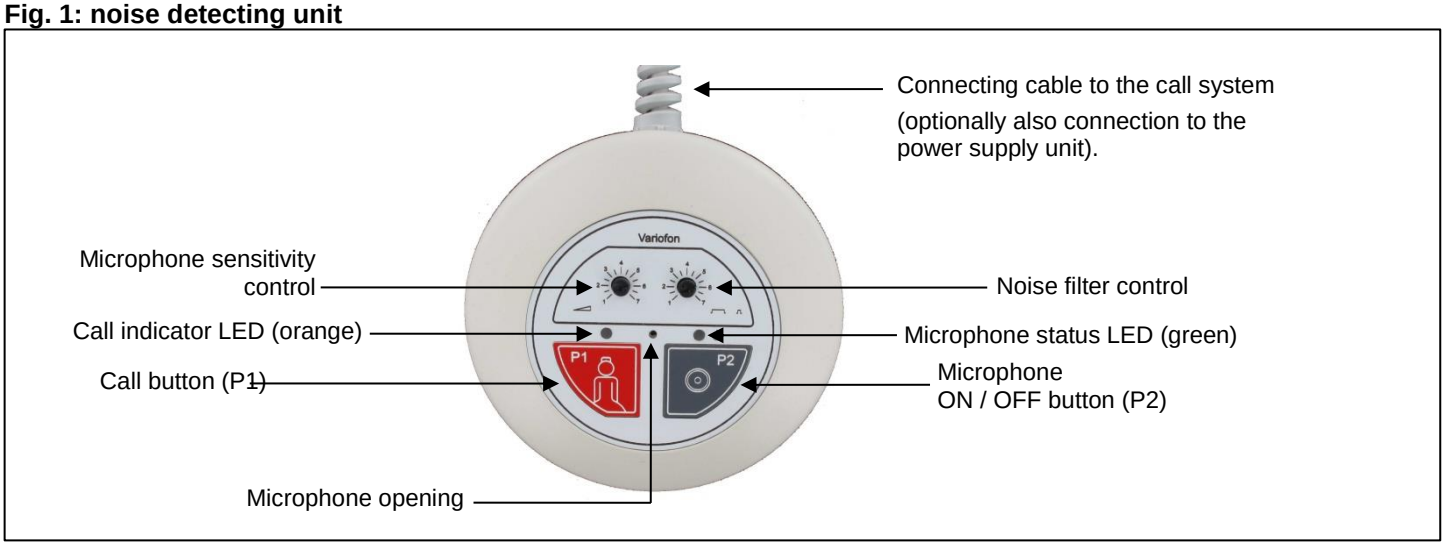
[1]The order number is printed on the identification decal.
Note: While unpacking, each shipment should be inspected for completeness and damage.
Note: In this manual, the "VarioFon noise detecting unit" is also referred to as "noise detecting unit".

Use and Function

The microphone of the noise detecting unit (Fig. 1) detects noises a patient generates as calls and uses them to trigger a patient call. In addition, a call can be triggered via the front mounted call button. The unit comprises several operating indicators, and various adjustments can be made on the unit. Descriptions thereof can be found in Fig. 1 and in the chapter "Setting the noise detecting unit". Place the noise detecting unit where it can detect noises a person in need of care generates as calls and where he/she can reach the call button, if possible, on a bedside table, for example.

The call is transmitted to a call system by the nurse call connecting cable. The nurse call system defines how call transmissions are performed and where they are directed to. The functions and actions of the nurse call system are stated in the technical descriptions thereof.

Fig. 1: noise detecting unit



Placement of the Noise Detecting Unit

Place the device such that the noise detecting unit can unambiguously detect noises a person in need of care generates as calls and that the person in need of care can operate the call button, if possible.

Putting into Operation

Procedure:

- Carefully read these instructions before putting the unit into operation.
- Connect the power supply unit to a power outlet if necessary.
- Insert the connecting cable to the call system into a suitable auxiliary plug contact.
  Now the noise detecting unit is ready for operation.
- **Important:** Make sure to set and/or check the sound reception level and check for correct call triggering before using this unit.

Power Supply

Depending on the type, either the call system or the supplied power supply unit supplies power to the noise detecting unit.

Warning
A power failure results in the failure of the noise detecting unit. This possibility of failure must be taken into consideration when using the device.
Note: Normally, an outage message is sent to the call system in the event of a power failure. This has to be checked before putting the device into operation.

Switching off Call Messages

At each triggering the noise detecting unit sends one call signal. It is not necessary to perform a call reset on the noise detecting unit.

Operation

During operation, the measures described in the "Regular Maintenance" paragraph have to be performed.

Warning
The noise detecting unit enables persons to trigger calls despite significant motoric restrictions. The detection of noises as calls is limited by physical laws. Therefore, call triggering cannot be guaranteed. This must be taken into consideration when using the device.

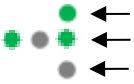
Setting the Noise Detecting Unit

Note: The positions of the controls and indicators can be seen in Fig. 1.

Adjusting the Microphone Sensitivity

Adjust the amplification using the microphone sensitivity control such that the call is securely triggered when the calling person generates the noise intended as a call.
Important: A high sensitivity results in a reliable generation of a message, however, it also **increases** the possibility of false calls. However, it is safer to allow false calls than to set the sensitivity too low.

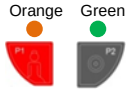
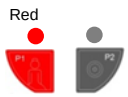
Table 1: Controls and Indicators

Indicator/control element	Illustration	Operating state / function
Call button (P1) (red)		Enables triggering of a call independently of the call microphone.
Call indicator LED (orange) (above the call button)		Lights up as long as a call is active.
Microphone **ON/OFF** button (P2)		The microphone status LED displays the current status.
LED microphone status		Lights up when the microphone is switched off. Flashes for approx. 10 seconds when the microphone is switched ON. The LED indicator is off when the microphone is switched on.
Microphone sensitivity control		Turn clockwise to increase the amplification and thus the sensitivity.
Noise filter control		See the following chapter “Adjusting the noise filter”.

Adjusting the noise filter (from left to right, corresponds to from top to bottom in table 2)

The noise filter allows for digitally filtering out background noise for reducing false alarms.
Four general filter levels with slight plus/minus offsets according to table **2** can be set with the seven-stage scale.
Rotate the noise filter rotary knob. The respective filter level is indicated by the call indicator (orange) and microphone status (green) LEDs according to table **2**. When the rotation stops, these LEDs revert to the normal indicator mode after approx. 1 second and indicate the current microphone status (ON or OFF according to table **1**).

Table 2: Noise Filter Settings

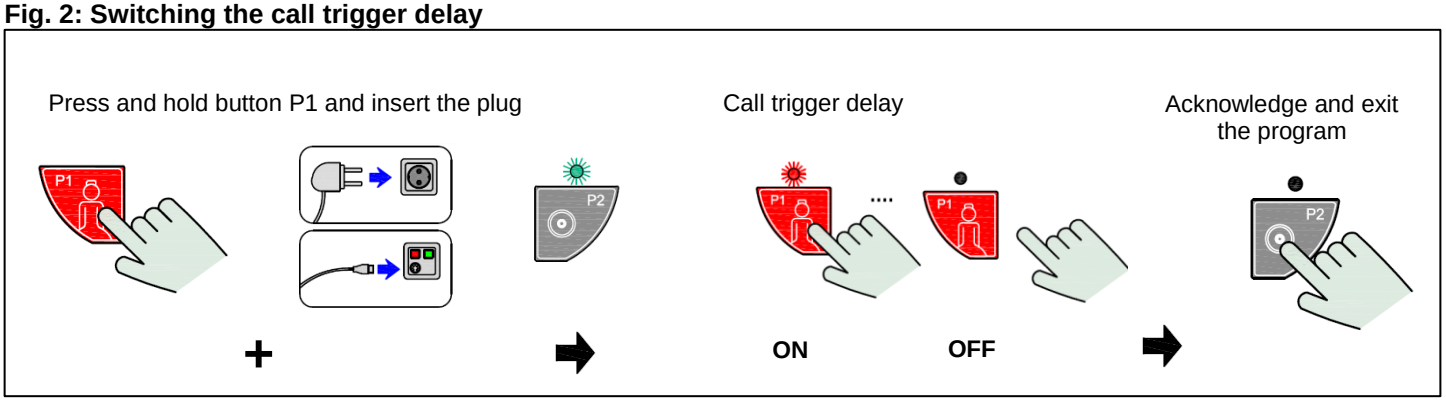
LED	**Function** (note: the description of operation serves only as a guideline for presetting. The optimum setting must be determined by trial and error.)
	**Low response characteristics:** **Low risk of false alarms** Loud background noise such as talking, music from radio or TV is filtered out. Short and louder noises such as the loudly enunciated word “hello” or “help”, for example, result in call triggering.
	**Medium response characteristics:** **Medium risk of false alarms** Constant background noise is filtered out. Noises exceeding the background noise and being of medium length, such as enunciation of the word “nurse”, for example, results in call triggering.
	**High response characteristics:** **High risk of false alarms** Nearly every noise differing from relatively low-level noise and constant background noise results in call triggering. High risk of false alarms.
	**Maximum evaluation:** **Very high risk of false alarms** Background noise is filtered out only to a very small extent and may result in call triggering.

Call Trigger Delay after Call (Version 1.01 or higher)

If nursing staff is present, call triggering can be delayed by 20 minutes as illustrated in Fig. 2 to prevent emergency calls.

The delivery status is "Call trigger delay switched off".

Fig. 2: Switching the call trigger delay



Regular Maintenance

A weekly inspection with test call triggering and control of all adjustment and indicator elements of the unit is suggested. Make sure that the microphone opening is always free of obstructions. Check the connection cables for damage.
Important: Do not use the noise detecting unit if you doubt the correct operation of the unit during use or checking.

Cleaning

Use of a soft, slightly moist cloth with a small amount of cleaning agent, optionally with disinfecting agents according to EN 16615, is recommended.
Do not use abrasive and/or caustic cleaning agents.

Disposal Instructions

Used devices must not be disposed of together with domestic waste. Dispose of used devices according to local laws and disposal regulations (through a recycling centre or your speciality retailer). Dispose of packaging material according to local laws and disposal regulations (in recycling bins for cardboard, paper, and plastic material).

Specifications

Type:	Acoustic call signalling unit with call button
Microphone sensitivity:	-38 +-3 dB
Message:	Transmission of calls to a call system
Power supply:	By the call system or the supplied power supply unit, depending on the type
Controls:	Call button, ON/OFF button, microphone sensitivity control, noise filter control
Indicators:	LED operating indicator, LED call indicator
Rating:	IP 30 (do not use in wet areas or under humid conditions)
Dimensions:	110x20x50 mm (DiaxHxH)
Weight:	approx. 500 g

Accessory and Replacement Parts

Accessory and replacement parts can be found on the homepage of Lehmann Electronic GmbH.

Warranty

The manufacturer shall not be liable for any damage resulting from improper or inappropriate use. During the legal warranty period we shall correct, free of charge, all defects of the device attributable to material or manufacturing defects, either by means of repair or replacement.

The warranty shall become void in the case of interference by a third party or improper use. The warranty shall not apply to wear and tear of moving parts.

Service Address

If problems occur despite correct handling or if the product has been damaged, please contact your dealer.

Conformity and Legal Provisions

Lehmann Electronic GmbH declare that, if applicable, the product complies with the essential requirements and the other relevant provisions of the EMC Directive 2014/30/EU, the Radio Equipment Directive (RED) 2014/53/EU, and the RoHS Directive 2011/65/EU. You will find the complete declarations of conformity in the Internet under: www.lehmannweb.de.

CE RoHS

REACH Regulation Within the meaning of the Regulation we are a downstream user. The product is exempt from the specific labelling requirements of the Regulation. Further information is available on the website.

Information on Electrical Connections for the Version with Open Cable Ends:

Colour	Assignment of the version without power supply unit	Assignment of the version with power supply unit
Red	Ub + 24 V DC or 12 V DC	Power supply connection +Ub
Blue	0 V	Power supply connection 0 V
White	Relay – potential-free centre contact (m)	Relay – potential-free centre contact (m)
Brown	Relay – potential-free NO contact (a)	Relay – potential-free NO contact (a)
Green	Relay – potential-free NC contact (r)	Relay – potential-free NC contact (r)
Orange	BL input - reassurance light 0 V 20 mA max.	BL input (1) - reassurance light **0 V**
Purple		BL input (2) - reassurance light **+24 V/12 V** 20 mA max.

Additional Information on Operation

Microphone Control:

The device comprises an electret microphone. At maximum sensitivity it can correctly detect any room noise within a distance of 4 to 5 metres.
If the device is placed in the vicinity of a patient, amplification should only slightly be increased.

Noise Filter:

The device should not permanently trigger false alarms during radio / TV usage or normal conversations, for example.
Use the “noise filter” control to adjust the basic noise level.
The noise level can be adjusted in seven not exactly linear steps using the rotary knob and the LED indicators according to table 2 on page 2 of this instruction manual.
At the same time, the noise recognition detection time changes proportionally with noise level.

The purpose is as follows:
First example - in the case of a “normal” room situation, that is, when the TV/radio is not too loud and the talk volume is normal (corresponding to a medium response characteristics), any noise up to this noise level will not result in a triggering.
A noise **exceeding** this preset noise level results in a call triggering only if it exceeds this basic level for a certain **uninterrupted period**.
When a gunshot is fired on television or someone loudly places a food tray on the bedside table, this louder noise is too short to trigger the alarm or stopped before the minimum period is exceeded, when coughing, for example.
Therefore, when medium response characteristics are selected, the patient should use a longer word as a call, that is, “nuuuurse” and not simply “hello”, for example.
In most cases this “normal” setting with medium response characteristics is the best choice.

Sometimes, it seems as if that the sensitivity changes on its own.
The reason is as follows:
Usually, during the day there is a certain basic noise level that exceeds the set threshold value from time to time but usually not long enough to trigger a call.
Therefore, triggering a call seems to require that the basic level and its noise peaks is exceeded for a longer time and at a higher volume.
During the night the basic level is usually completely absent. Therefore, the evaluation unit can much more easily recognise a word or a sound.
Loud snoring can be problematic since the evaluation unit cannot distinguish the loudness and the duration of the generated noises from a deliberate call triggering.

Second example – maximum evaluation, rotary knob fully clockwise.
In this case the **basic evaluation level is very low** and at the same time the noise **triggering time** is reduced.
Then, in most cases a “hello” spoken in a quieter voice is sufficient to trigger a call.