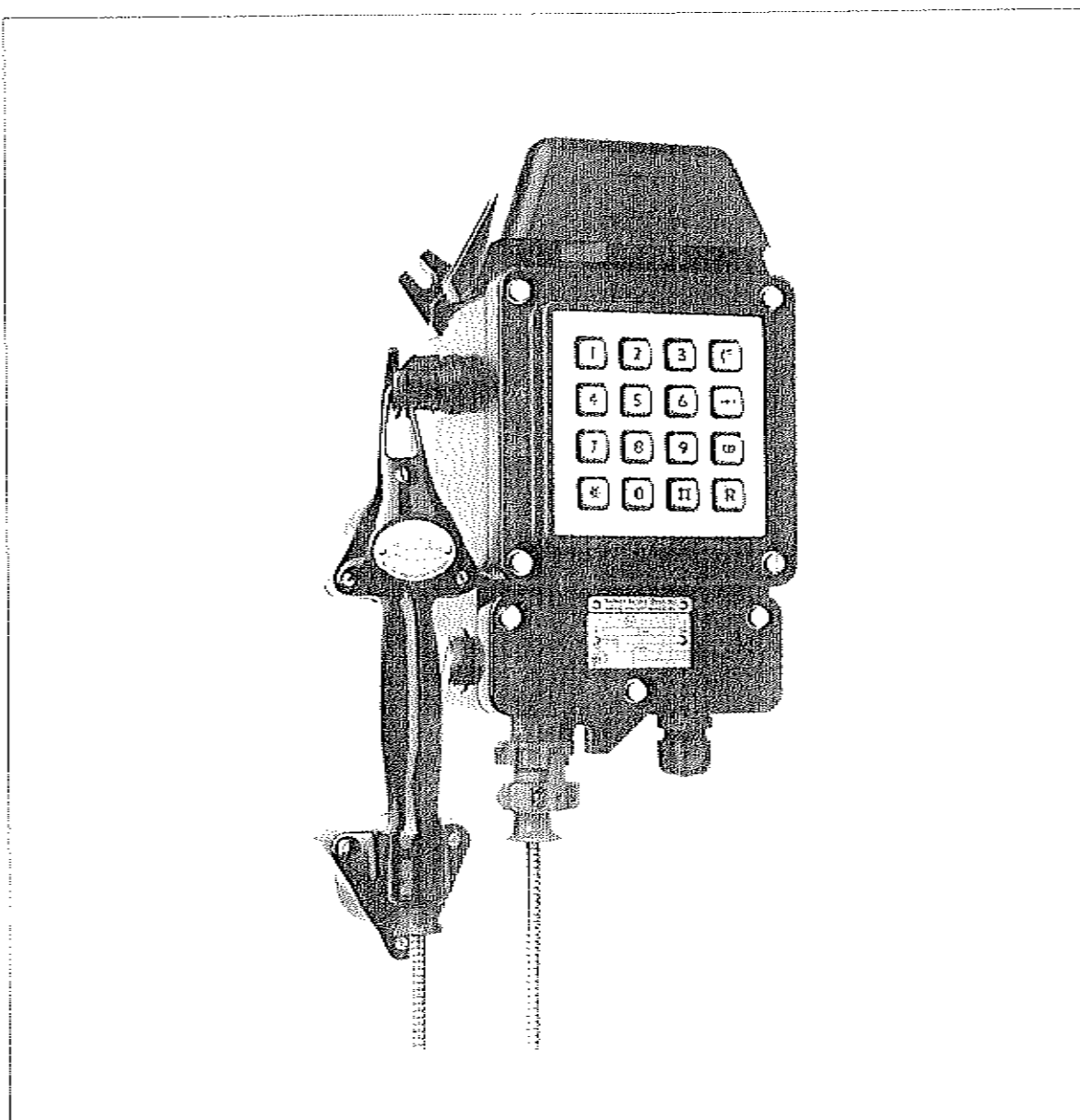


Wall mounted telephone

Type 5239



User manual

Funke+Huster · Fernsig

Fernsprech- und Signalbau GmbH & Co. KG

User manual

Intrinsically safe wall mounted telephone Type 5239

Note:

Prior to installing the telephone please read this user manual carefully. Make sure no equipment parts are missing.

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1. List of contents

Parts enclosed:

- 1 telephone for wall mounting, type 5239
- 1 user manual
- 1 conversion kit IP 66 in the telephone's electrical enclosure
- 2 short code dialling tags

2. Device overview

Product name	Certificate BZT/BVS		Order number
Wall mounted telephone	D131 781 J	97.D.2065	5239.0.1000
Wall mounted telephone with second receiver	D131 781 J	97.D.2065	5239.0.1001
Wall mounted telephone with stabiliser bracket	D131 781 J	97.D.2065	5239.0.1002
Wall mounted telephone with second receiver and stabiliser bracket	D131 781 J	97.D.2065	5239.0.1003

The above mentioned telephones may be operated with the following barriers only:

Product name	Certificate BZT/BVS		Order number
Single line barrier	D131 781 J	97.D.2065	5241.0.1000
Rack mountable barrier	D131 781 J	97.D.2065	5241.0.1001
19" Assembly rack for 7 barriers	D131 781 J	97.D.2065	5241.9.0004

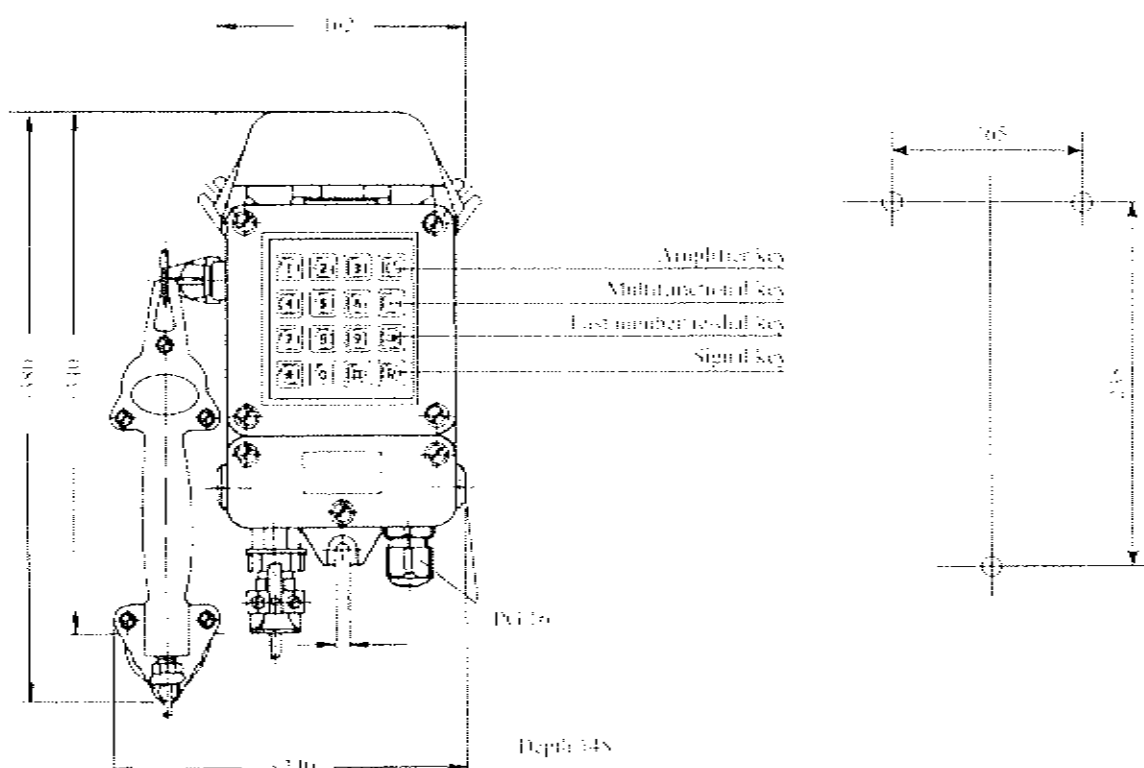
3. Mounting and installing

3.1 Wall mounting

The telephone has to be mounted on a vertical surface, e.g. a wall or a girder. Device measures are shown on figure 1, mounting measures on figure 2. The surface (wall, girder, etc.) must be even so as to let the three mounting feet rest securely on it, and it must be able to safely carry the weight of the 4.5 kg device. Use washers and spring washers with the 8 mm diameter fastening screws.

Figure 1 "Device measures"

Figure 2 "Mounting measures"



3.2 IP ratings of housing (IP54 / IP66)

On delivery the device is rated IP 54. The IP 54 plugs are built in the lower part of the housing from outside. This degree of protection is very useful in most applications subject to quick and frequent changes in climate. Condensate, which under certain climatic conditions may gather in the telephone housing, finds its way to the outside through the "weep holes". Conversion to the IP 66 degree of protection is possible. The owner may use the enclosed conversion kit to carry through the conversion. The conversion to the IP 66 degree of protection is recommended only when the wall mounted telephone is subject to a combination of small temperature variations and heavy spray water.

3.3. Installation

Open the terminal chamber to connect the telephone line. To do this, loosen the cover screws and remove the cover.

The cable must have an outer diameter of 10 to 14 mm.

If the cable gland has to be replaced because the outer diameter of the connecting cable measures less than 10 mm, only IP 66 certified cable glands may be used.

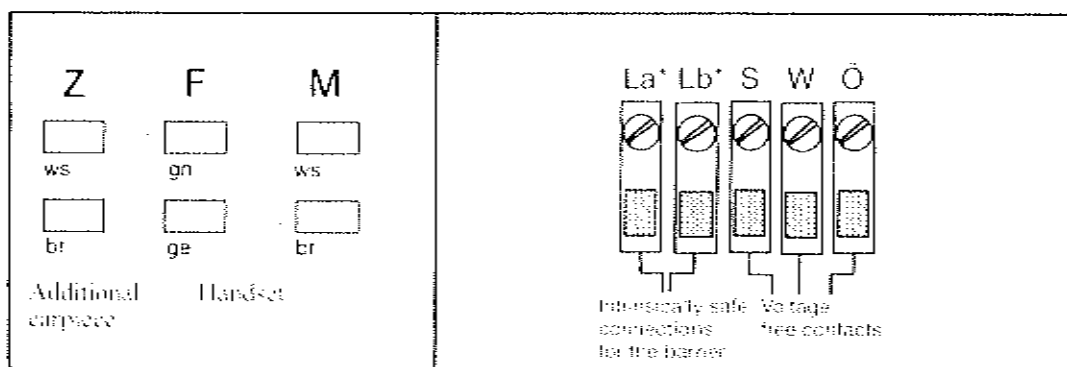
Keep the area around the cable gland clean and take care to lay the telephone line as straight as possible in this area. Remove the outer cable sheathing approx. 5 mm behind the sealing ring. Strip approx. 5-6 mm of the conductor ends to ensure good contact. Push the connecting cable into the cable gland and tighten the clamping nuts securely.

Connect the conductors as shown in Fig. 3. The terminals may not be used as distribution terminals.

Please protect the cover and housing edge sealing from dust and dirt.

After having connected the telephone line, please replace the cover and tighten the cover screws.

Figure 3 "Termination"



– **Factory connections**

– **Customer connections**

* Model dependent

4. As-delivered condition of the wall mounted telephone


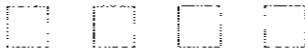
The factory adjusts the settings of the wall mounted telephone. Function is guaranteed only when the technical data of the telephone system correspond to those of the wall mounted telephone in its as-delivered condition. If the technical data deviate from those of the telephone system, please refer to chapter 5, "Basic settings".

Function	adjustable options	Factory settings
Dialling procedure		
Pulse dialling	PD 2:1	
Pulse dialling	PD 1,5:1	
Dual-tone multifrequency:	DTMF	X
Signal key		
Timed brake	80 ms	X
recall	110 ms	
(flash)	250 ms	
Earth recall	(500-1000) ms	
Dial delay		
Delay 3 s	X	
Delay 6 s		
Amplified listening function		
Amplified listening function (one step)	+6 dB	
Amplified listening function (two steps)	+6 dB +12dB	X
Ringing melody		
Melody 0-9	1	

5. Basic settings

5.1 Alerting tones




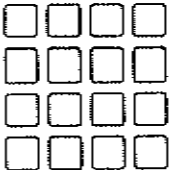


Alerting tones are intended to play a supporting role during programming and number entry or adjustments in connection with speed dialling, short code dialling, dialling procedure, inquiry key, direct exchange and main exchange code numbers, ringing melody, amplified listening function, and deleting and resetting memories to factory settings.

Tone	Tone number and duration	Significance
Acknowledgement tone	a long tone 	Programming has been successfully completed
Error tone	four short tones 	Erroneous programming

Having recognised a case of erroneous programming, the device immediately interrupts the programming sequence. None of the programming entries are accepted. The wall mounted telephone remains in the state it was in before programming started.

5.2 Programming the dialling procedure, inquiry key, and pulse ratios

The wall mounted telephone may be used with a main exchange or a private branch exchange (P(A)BX), in both cases using pulse dialling (PD) with one of the optional pulse ratios or dual-tone multifrequency dialling (DTMF). The inquiry key may further be used with PD or DTMF as earth key or with DTMF as timed break recall (flash) key with one of the optional flash pulses.




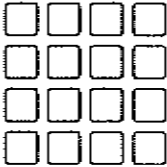

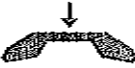
Entries	Explanations
	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the "1" numeric key.
	Push the re-dial key.
	Enter the parameters of the preferred dialling procedure, pulse ratio, signal key and flash pulse. 003 for PD, 1.5:1, earth 034 for PD, 2:1, earth 036 for DTMF, earth 037 for DTMF, flash pulse 80ms 038 for DTMF, flash pulse 250ms 039 for DTMF, flash pulse 110ms
	Push the re-dial key.
	Hang up receiver.

5.3 Using the telephone with a telephone system

If the wall telephone has been connected to a private branch exchange (P(A)BX) or to a satellite exchange connected to a main exchange, an automatic dial delay must be entered (one time only). This is done by entering the direct exchange code number for a P(A)BX or, for a combination of a satellite exchange and a main exchange, by entering both the main exchange and the direct exchange code numbers, causing an automatic dial delay of 3 seconds.




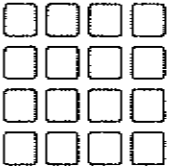


If this is not enough, the dial delay may be set to 6 seconds.

5.3.1 Programming the direct exchange code number

Entries	Explanations
	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the "0" numeric key
	Push the multifunctional key
	Enter the direct exchange code number (max. 15 digits)
	Push the re-dial key
	Hang up receiver

While programming the direct exchange code number, please observe the technical documentation of the corresponding exchange.




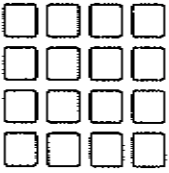


5.3.2 Programming the main exchange code number

Entries	Explanations
	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the "0" numeric key
	Push the multifunctional key twice
	Enter the main exchange code number (max. 15 digits)
	Push the re-dial key
	Hang up receiver

While programming the main exchange code number, please observe the technical documentation of the corresponding exchange.

5.3.3 Programming the dial delay

The dial delay is the time necessary for the private branch exchange to establish a connection with the public telephone network. In most cases a dial delay of 3 seconds will suffice.

Entries	Explanations
	Push the "*" and the "#" keys simultaneously while lifting the receiver, then release the keys!
	Push the "1" numeric key
	Push the re-dial key
	Enter the parameter corresponding to the preferred dial delay: 020 3 seconds 021 6 seconds
	Push the re-dial key
	Hang up receiver






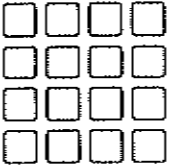

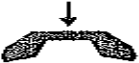
While programming the dial delay, please observe the technical documentation of the corresponding exchange.

6. Performance features








6.1 Amplified listening function

The wall telephone is equipped with an amplified listening function, which may be programmed to raise the sound pressure to a level 6 or 12 dB above normal. When the receiver is lifted, the amplifier key may be used to raise the receiver sound level in one or two steps. After hanging up, the receiver sound level returns to its normal setting.

6.1.1 Programming the amplified listening function (one or two steps)

Entries	Explanations
  	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the "1" numeric key
	Push the re-dial key
	Enter the parameter of the preferred amplifier key function: 906 6 dB/12 dB two steps 907 6 dB one step
	Push the re-dial key
	Hang up receiver



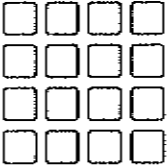


6.1.2 Adjusting the receiver sound level during a call

Entries	Explanations
	Call active (normal receiver sound level)
	Push amplifier key
	Call active (receiver sound level raised by 6 dB)
	Push amplifier key*
	Call active (receiver sound level raised by 12 dB)*
	Push amplifier key
	Call active (normal receiver sound level)

* Two-step sound adjustment only




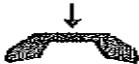
6.2 Programming the ringing melody

10 different ringing melodies may be set using the keys 0 - 9. The newly chosen melody is audible during programming.

Entries	Explanations
	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the "6" numeric key
	Set the preferred ringing melody by pushing the keys 0 - 9
	Push the re-dial key
	Hang up receiver

6.3 Last number re-dial




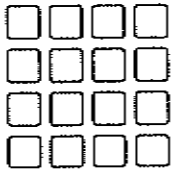

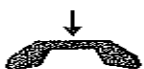
The last entered number may be re-dialled by pushing the re-dial key. The number will be kept in the re-dial memory and not be deleted until a new number is dialled.

Entries	Explanations
	Lift the receiver
	Push the re-dial key
	Call active
	Hang up the receiver




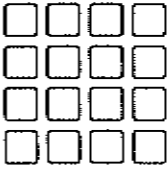


6.4 Deleting memories, return to factory settings

The following table shows the programming steps necessary to delete the speed dial and short code dial memories, as well as the direct exchange and main exchange code number. In addition these programming steps will reset the wall telephone to factory settings.

6.4.1 Deleting memories

Entries	Explanations
	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the "1" numeric key
	Push the re-dial key
	Enter the parameters corresponding to the memory you want to delete: 252 Deletes the speed and the short code dialling memories 253 Deletes the direct exchange and main exchange code number
	Push the re-dial key
	Hang up receiver

6.4.2 Return to factory settings

Entries	Explanations
	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the "1" numeric key
	Push the re-dial key
	Set the preferred factory setting to reset to. 250 Deletes memories and resets to factory setting
	Push the re-dial key
	Hang up receiver

7. Additional performance features

7.1 Multifunctional key

The following programming steps describe how to use this key for speed dialling or short code dialling.

7.1.1 Speed dialling

If a telephone number is already entered into the speed dialling memory, pushing the multifunctional key once will automatically start the dialling procedure.



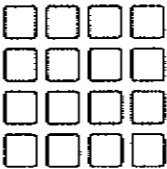

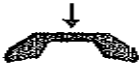
This key may be reserved for the number of an important user, but may for instance alternatively be used as an emergency key to alarm the police, fire brigade, medical assistance, etc. It is further possible to use this key together with a public announcement (PA) system to make announcements directly from the wall telephone.

Depending on the technical details of the telephone system, this key may also be used to forward incoming calls to other users or to request an automatic call-back from a busy number the moment the user hangs up.

If the number you have called is busy, you may push the multifunctional key to signal to the user that a call is waiting. This function is known as call-wait signalling.

If the telephone system in question provides functions like call forwarding, call-back and call waiting signalling, please refer to the corresponding technical documentation for details on the necessary feature parameters.




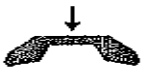
7.1.2 Programming the speed dialling memory with the numbers or parameters for call forwarding, or call-back, or call-wait signalling

Entries	Explanations
	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the multifunctional key twice
	Enter the telephone number (max. 23 digits) <u>or</u> parameter for call forwarding, <u>or</u> call-back, <u>or</u> call-wait signalling.
	Push the re-dial key
	Hang up receiver

During speed dialling programming any already programmed short dialling codes will be disabled. The stored numbers will still be kept in the short code dialling memory.



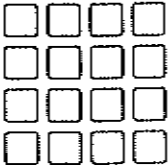
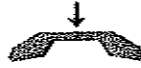
7.1.3 Using speed dialling

A telephone number must have been programmed in order to use speed dialling (see clause 7.1.2).



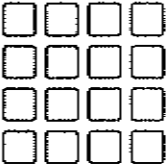

Entries	Explanations
	Lift the receiver
	Push the multifunctional key
	Call active
	Hang up receiver

7.1.4 Call forwarding

Call forwarding presupposes the programming of the parameter of the private branch exchange for call forwarding (see clause 7.1.2).


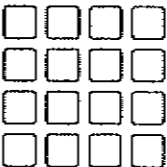



Entries	Explanations
	Lift the receiver
	Push the multifunctional key
	Enter the target number
	Hang up receiver

7.1.5 Deleting call forwarding number

Entries	Explanations
	Lift the receiver
	Push the multifunctional key
	Enter your own telephone number
	Hang up receiver


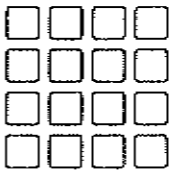






7.1.6 Automatic call-back

Automatic call-back presupposes the programming of the parameter of the private branch exchange for automatic call-back (see clause 7.1.2).

Entries	Explanations
	Lift the receiver
	Enter target telephone number
	Busy signal
	Push the multifunctional key
	Hang up receiver

7.1.7 Automatic call-wait signalling

Automatic call-wait signalling presupposes the programming of the parameter of the private branch exchange for automatic call waiting signalling (see clause 7.1.2).

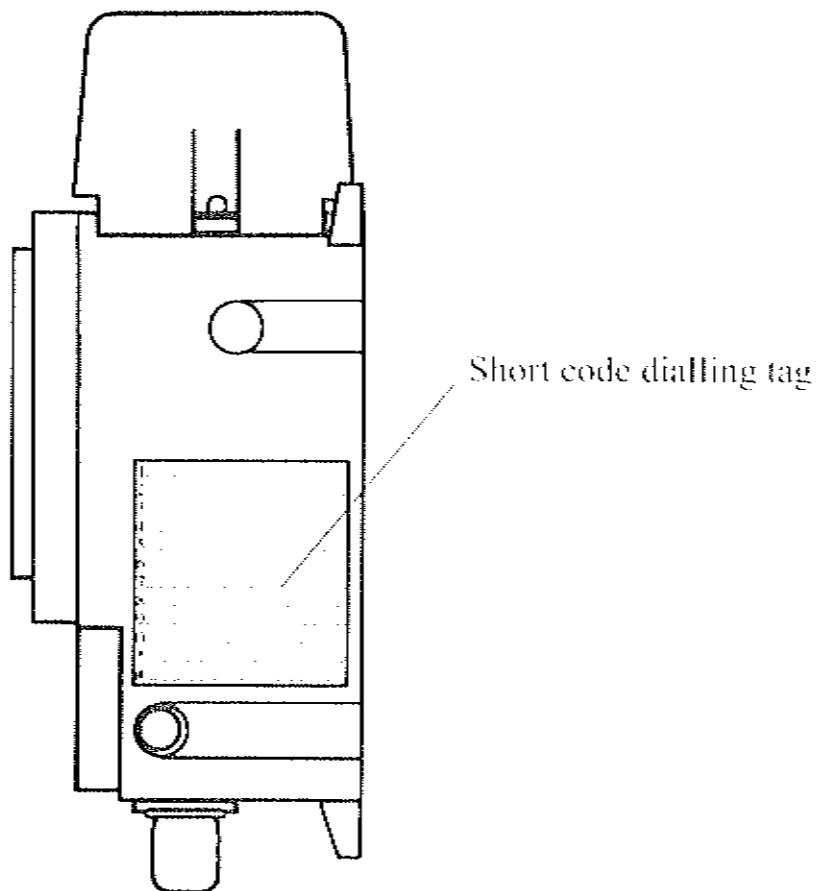
Entries	Explanations
	Lift the receiver
	Enter telephone numbers
	Busy tone
	Push the multifunctional key
	Busy signal - until the person you tried to reach hangs up
	Free line - target telephone number is dialled automatically
	Call active
	Hang up receiver

7.2 Short code dialling



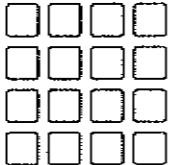
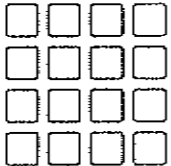


The telephone has 12 memories, each capable of storing a 23-digit telephone number. To dial one of these numbers, push the multifunctional key and subsequently the key corresponding to the number you want to dial. The telephone number will now be dialled automatically.

A short code dialling tag as shown in fig. 4 helps to identify stored numbers, and to find out under which key they are stored.

Figure 4 "Attachment surface for short code dialling tag"



7.2.1 Programming the telephone number in the short code dial memory

Entries	Explanations
	Push the "*" and the "#" keys <u>simultaneously</u> while lifting the receiver, then release the keys!
	Push the multifunctional key
	Push one of the numeric keys "0" through "9", "*", or "#" to choose the corresponding short code dialling memory.
	Enter the telephone number (max. 23 digits)
	Push the re-dial key
	Hang up receiver



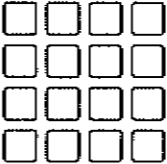


If several different telephone numbers are to be stored, do not leave programming mode by pushing the re-dial key after having entered the first number, but push the multifunctional key once more to continue programming. You may now enter the second telephone number. After having entered the last number you want to store in memory you may push the re-dial key and hang up the receiver to end the programming session.

If you have used speed dialling, programming short code dialling will delete the speed dial memory.

If telephone numbers are already stored in short code dial memory and short code dialling is to be enabled again, the programming steps of clause 7.2.1 must be repeated while one or more of max. 12 numbers are entered into the short code dialling memory.

You may store only prefixes in short code dial memory. The necessary missing digits can be manually entered using the keypad. These digits as well as the prefixes stored in the short code dial memory will not be stored in the last number re-dial memory.

7.2.2 Using short code dialling

Entries	Explanations
	Lift the receiver
	Push the multifunctional key
	Push one of the numeric keys "0" through "9", "*", or "#" to choose the corresponding short code dialling memory.
	Call active
	Hang up receiver

8. Care and maintenance

The telephone is maintenance free. In areas strongly contaminated by dust, grease or oil, however, the telephone should be cleaned from time to time.

Use a damp cloth to clean the receiver and the device.

Warning! Never use sharp objects for cleaning purposes.

9. Keeping the telephone operational

To maintain operational reliability and safety the telephone should be visually inspected and checked for external damage from time to time. Even if the telephone is built for use in rough industrial environments, the risk of damage due to extreme physical impact which may limit functions or tightness cannot be completely eliminated.

Replace damaged parts by original spare parts only.

10. Technical data

Connection data	
- Dual-tone multifrequency (DTMF)	
- make-to-break ratio (PDR)	1.5:1 or 2:1
- make-to-break time (PDR)	60 ms - 40 ms or 66,7 ms - 33,3 ms
- Dialling frequency (PDR)	10 Hz
- Intermediate dialling time (PDR)	800 ms - 40 ms
- Flash time	80 ms or 110 ms or 250 ms
- Ringing frequency	15 Hz to 63 Hz
Certification regulations of the German federal department of post and telecommunications (BAPT)	
- Switching specification	- BAPT 223 ZV 5 Typical ringing impedances: $Z_r = 18,2 \text{ k}\Omega$ at 25 Hz $Z_r = 13,5 \text{ k}\Omega$ at 50 Hz
- Transmission specification	BAPT 223 ZV 24
Voltage free contacts S, W, O	
- Function	Two-way switch for connection of intrinsically safe circuits. Switching function synchronous to ringing signal
- Contact material	Silver, gilded
- Switching power and switching voltage range	100 μ A - 100 mVDC to 1 A - 23 V peak
- Allowed limit values for meeting the protection mode according to the Conformity Certificate	Max. voltage at the contacts: up to 23 V Max. current across the contacts: up to 1 A
Housing	
- Height	Approx. 380 mm (including handset)
- Width	Approx. 240 mm (including handset)
- Depth	Approx. 148 mm
- Weight	Approx. 5,3 kg
- Material	Impact resistant, glass fibre reinforced polyester, 25 % fibreglass, sea water and acid proof (Ferradur BMC® 14311-9005-R01, colour: black)
Handset	
- Material	Impact resistant (Durethan extra, sea water and acid proof). Colour: black
- Handset cord	Armoured stainless special steel cord. Length approx. 1000 mm, tensile strength: 1600 N. The handset cord is part of the apparatus. It may be replaced by a handset cord from the same manufacturer only.
- Transmitter capsule	Electret-foil microphone
- Receiver capsule	Dynamic receiver capsule
Main cover	
- Material	Impact resistant, glass fibre reinforced polyester, 25 % fibreglass, (Ferradur BMC® 14311-9005-R01, Colour: black)

- Screws - Cord anchorage - Keys - Front plate	4 lid screws (slotted head screws), captive Cord anchorage of the lid via flexible cable 16 function keys, stainless special steel V4A Sandblasted stainless special steel V4A
Cover of terminal chamber	
- Material - Screws - Termination plan	Impact resistant, glass fibre-reinforced polyester, 25 % fibreglass, (TetraDur BMC T4311-90015-R0). Colour: black 3 lid screws (slotted head screws), captive Termination plan attached to the inner side of the lid
Optional extras	
- Second receiver - Stabiliser bracket	Type 5113, FHF Fernsig (other second receivers not allowed)
Protection types	
- Protection mode - Protection class - IP rating	EFx III C T6 II according to VDE 0106 T1 – 0100 T410 IP 54 upon delivery, upgrading to IP 66 by customer possible
Cable glands	
- Cable glands of IP 66	1 x PG 13.5 downwards for armoured cord (handset) 1 x 13.5 or metric downwards only with second receiver 1 x 13.5 or metric on the left side, delivered with blanking plug 1 x PG 16 or metric downwards for contacts a2, b2 1 x PG 16 or metric on the right side, delivered with blanking plug
Ambient conditions	
- Operating position - Ambient operating temperature - Transport and storage temperature	Wall mounting, vertical - 20 °C ... + 40 °C - 25 °C ... + 70 °C
Terminal	
- Screw terminals	Max. cross section: 1.5 mm ² solid and stranded conductor
Ringling melodies	
- Melodies - Sound settings - Sound pressure	10 melodies (2-tone and 3-tone ringing); procedure setting none, always maximum sound setting Typical value (melody dependent): approx. 88 dB(A) at one meter distance

Cable

Cable specifications of the intrinsically safe connection between barrier and telephone

According to DIN VDE 0165 "Building electrical systems in hazardous areas", paragraph 6.1.3.23, the following requirements must be met: "Cables and wires of intrinsically safe circuits must be marked. If sheathing or isolation is marked by colour, the colour blue is to be chosen."

The cable in use must meet EN50039 requirements and be of type A, having a conductive shielding if there is more than one intrinsically safe power circuit in the cable in use, or be of type B.

The following absolute limit values may not be surpassed by the cable length:

maximum allowed loop resistance: 38 Ω
maximum allowed operational capacity: 68 nF
maximum allowed inductivity: 950 μ H

Calculation example

Typical subscriber-telephone cable

Diameter: 0.8 mm (0.5 mm²)
Resistance per distance unit: 73.2 Ω -km
Capacitance per distance unit: 55 nF-km
Inductivity per distance unit: 0.82 mH-km

$$\text{Line length } l_{\text{max}} = \frac{\text{max. allowed loop resistance}}{\text{Resistance per distance unit}} = \frac{38 \Omega}{73.2 \Omega/\text{km}} = 0.52 \text{ km}$$

$$\text{or} \\ \text{Line length } l_{\text{max}} = \frac{\text{max. allowed operational capacity}}{\text{Capacity per distance unit}} = \frac{68 \text{ nF}}{55 \text{ nF/km}} = 1.24 \text{ km}$$

$$\text{or} \\ \text{Line length } l_{\text{max}} = \frac{\text{max. allowed inductivity}}{\text{Inductivity per distance unit}} = \frac{950 \mu\text{H}}{0.82 \text{ mH/km}} = 1.16 \text{ km}$$

Result

The limiting factor in the above calculation example is the loop resistance. Accordingly, operation will be allowed up to 0.52 km.

11. Warning and safety notes

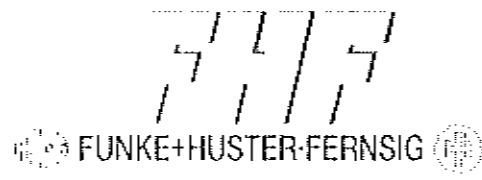
Although the wall mounted telephone has been explicitly constructed for use in hazardous atmospheres in industrial areas, the following warning and safety notes must be observed:

The wall telephone may be connected to and operated with the voltage for which it has been constructed only:

1. Ensure that the blue intrinsically safe cable is properly connected.
 2. The wall mounted telephone has been constructed according to protection class II.
 3. The wall mounted telephone may be operated under the environmental conditions laid down in "Technical Data" only. Operation in hostile environmental conditions, for instance too high or too low ambient temperatures, is not allowed.
 4. Ensure that the housing, the cable glands, seals, the blue intrinsically safe cable etc. are undamaged. If the wall mounted telephone has been damaged it may not be operated.
 5. Only trained and skilled personnel is allowed to connect the wall telephone and set it up for operation.
 6. During operation of the wall mounted telephone legal and professional regulations, regulations to prevent accidents, and electrical regulations must be observed.
 7. If the telephone has to be repaired, the repair must be done professionally, using original spare parts only. Spare parts from other sources may cause damage.
 8. Prior to maintenance or replacement of a wall mounted telephone the electrical power must be disconnected. Maintenance or repair works which have to be performed while electrical power is connected may be carried out by trained and skilled personnel only.
 9. The wall mounted telephone may be electrically connected to and operated with the barrier mentioned in the Conformity Certificate only.
 10. It is prohibited to connect the telephone directly and without barrier to the public telephone network or a private branch exchange.
 11. The manufacturer of this product reserves the right to technical alterations without further notice.
-

We reserve the right to alter
technical specifications. © 99

Ident.-Nr. 5239160004



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