CeoTronics
Audio · Video · Data Communication

CT-WireCom System for crane installations

Operating Instructions

Contents

1 CeoTronics Operating, Warning, and Safety Instructions

For the use of the device and for prevention of personal injury or property damage, notice the national safety and accident prevention regulations and the following warning and safety instructions in this document.

- *Before using CeoTronics products, read completely the appropriate operating instructions. If in doubt, ask our technical staff.*
- *Keep this document for later use.*
- *Use CeoTronics products only without damage and abrasion.*
- *If repair work of any kind needs to be done to CeoTronics products, arrange for it to be performed only by the company CeoTronics or by a specialized workshop that is authorized by CeoTronics. In all other cases, our warranty and liability for the product shall lapse.*
- *Keep CeoTronics products out of the reach of children and any other persons who are not familiar with the handling and operation thereof.*
- *CeoTronics products may only be used for the specific application envisaged.*
- *Safe operation requires clean devices. Ensure that the devices (microphones, connectors etc.) are clean and in good condition at all times.*
- *Should equipment, supplied by CeoTronics, be definitely put out of service you may return it to CeoTronics. We ensure recycling and / or disposal of outdated equipment in compliance with the applicable environment protection law.*

Product damage!

- *Do not immerse a CeoTronics product into water, unless expressly specified for this purpose.*
- *Connect CeoTronics accessories to a device or disconnect them from a device only after switching the device off, unless otherwise described in the operating instructions.*
- *Let devices that are designed for outdoor use during use outdoors always closed (e.g. CT-DECT Case) and close unused ports with appropriate cover – if available.*
- *Do not store CeoTronics products in the open air or in damp ambient conditions. At all times keep them clean, dry and at normal air humidity. CeoTronics pro- ducts must not be stored in areas with a temperature of over +80° C (+176° F), e.g. in the summertime on the parcel shelf of a car. If not stated otherwise, the following temperature ranges are acceptable for CeoTronics products:* -10 to +55°C *for operation, -40 to +80° C (-40 to +176° F) for storage.*
- *Pay attention that no humidity could penetrate into the device during cleaning. Do not use solvents (e.g. benzene, alcohol, etc.) for cleaning! Safe operation requires clean devices. Ensure that the devices (microphones, connectors etc.) are clean and in good condition at all times.*

Risk of injury by connection leads!

- *When using CeoTronics products that are equipped with connection leads ensure that the leads do not get caught up in operational machinery or wheels!*

Risk of injury by speaker volume!

- *Please, note that in some audio devices (e.g. radios) very loud signaling beeps could be present as the radio is switched on. There are various types of devices generating a series of tones in different loudness levels. It may be necessary to adjust the volumes of the tones separately. These tones could damage your hearing if they are set too high. Therefore, adjust signaling beeps to a convenient level as desired before starting to use CeoTronics accessories. Follow the instructions of the audio device manufacturer's operating manual to adjust the signaling beeps.*
- *For safety reasons reception volumes in excess of 85 dB (A) are possible with a whole series of CeoTronics products. However, these can be regulated by the user. After switching on the communication system, set the reception volume to approx. 1/2 the available loudness volume and then test the speaker volume, e.g. by opening the squelch on the radio set.*
- *Do not set the volume any higher than is necessary. A very high volume setting can lead to damaged hearing, particularly if it is continuous. For high volumes or noise levels, wear additional earplugs. If in doubt, ask your safety officer or company doctor.*

Road traffic hazard!

- *Do not leave CeoTronics products lying around loose in cars, e.g. on the parcel shelf. Stow these products in a suitable, safe place in the car so that they do not present a danger to you or to other occupants of the car, if emergency braking is effected.*
- *When driving a car, do not use the radio because it may distract you from the other traffic. Never use a CeoTronics product (headset, insert earphone, induction receiver etc.) that will impair your hearing.*

Impairment of flight operation!

- *When on board an airplane always keep a transmitter/receiver switched off. Operation of the transmitter / receiver could affect the safety of the aircraft, and it is therefore prohibited. Never operate electronic devices on board an airplane without the express approval of an authorized member of the cabin crew.*
- *The CT-DECT GateCom Compact must always be removed once the intercom communication is completed. Never remove the warning flag „Remove before flight" from the CT-DECT GateCom Compact.*

Impairment of radio transmission!

- *Transmit only when it is necessary. Unnecessarily occupying a channel can prevent the transmission of vitally important information.*

Risk of explosion!

- *CeoTronics products that are not intrinsically safe (explosion-proof) and there- fore have no special explosion-proof designation must never be operated in potentially explosive environments (e.g. when refueling cars, aircraft etc.). Devices that are not explosion-proof can unintentionally trigger off explosions in such areas!*

Risk of electric shock!

- *Before opening line voltage operated products (e.g. for service purposes), always disconnect first the mains plug from the mains socket!*
- *Use CeoTronics products only in undamaged condition. In case of any kind of damage, refrain from further using the CeoTronics product and have it repaired.*

Adverse effect on cardiac pacemakers!

- *If you are a cardiac pacemaker carrier, before operating a transmitter / receiver ask the manufacturer of your cardiac pacemaker for information about any impairment that could be caused due to high frequencies.*

Rechargeable batteries and batteries!

- *Observe the environmental regulations when handling storage batteries! Do not throw used (defective) storage batteries into the domestic refuse. Observe the battery ordinance (BattV).*

Risk of injury by Rechargeable batteries and batteries!

- *Insert the rechargeable batteries only after having read and understood all safety instructions. Rechargeable batteries imply potential risks, which could cause physical injury and material damage.*
- *Never intend to open a rechargeable battery and never throw it into open fire. Ensure that contacts and charging sockets of the rechargeable battery do not cause short circuit (risk of fire and injury) by bridging (bent-open paper clip, bunch of keys or similar). In such a case, the guarantee is void.*
- *Transport spare rechargeable batteries in electrically non-conductive packing material in order to avoid shorting the rechargeable batteries.*
- *Keep the rechargeable batteries away from persons who are not familiar with their handling and use (e.g. children).*
- *Charging rechargeable batteries in potentially explosive areas is strictly prohibited (risk of explosion!). Charge and change rechargeable batteries only in areas where no explosive gases, vapours, or dusts could be present in combination with air.*

Damage to charger or rechargeable batteries!

- *Charge rechargeable batteries only using the corresponding appropriate CeoTronics charger. Regard voltage and current data, also on the mains side (e.g. 230 V AC or 115 V AC).*
- *Never use the battery charger for charging non-rechargeable batteries.*
- *Chargers are neither waterproof nor dust-tight and need protection against water, rain, and contamination. Use them only in the appropriate environment, intended for the system. Don´t cover the ventilation openings.*
- *Don‘t charge rechargeable batteries outdoors.*

Radio Software – Risk of malfunction!

Please note that the function of radio accessories is depending on the software settings set up in your radio. Be careful with software updates and / or changes to the software settings. If you update the radio's software, or if you change the software settings, check first on a radio that the radio accessory is still functioning properly after these changes. It is possible that the receiving volume of some radios is not satisfactory. In these cases, we suggest you check if an increase of the receiving volume is possible via the parameters in the audio profile of your radio.
Follow the information of the radio manufacturer!
If you have any further questions in regards to this subject, do not hesitate to contact our sales back office.

Important safety information concerning the use of CT-DECT digital radio systems!

- *Legal note for operation in the European Union*

The transmitter of the CT-DECT device should be used in the European Union only when it is marked as following:

CE

- *Legal note for operation in the USA*

The transmitter of the CT-DECT device should be used in the USA only when it is marked as following:

FC

- *Legal note for operation in Canada*

The transmitter of the CT-DECT device should be used in Canada only when it is marked as following:

IC

Improper use!

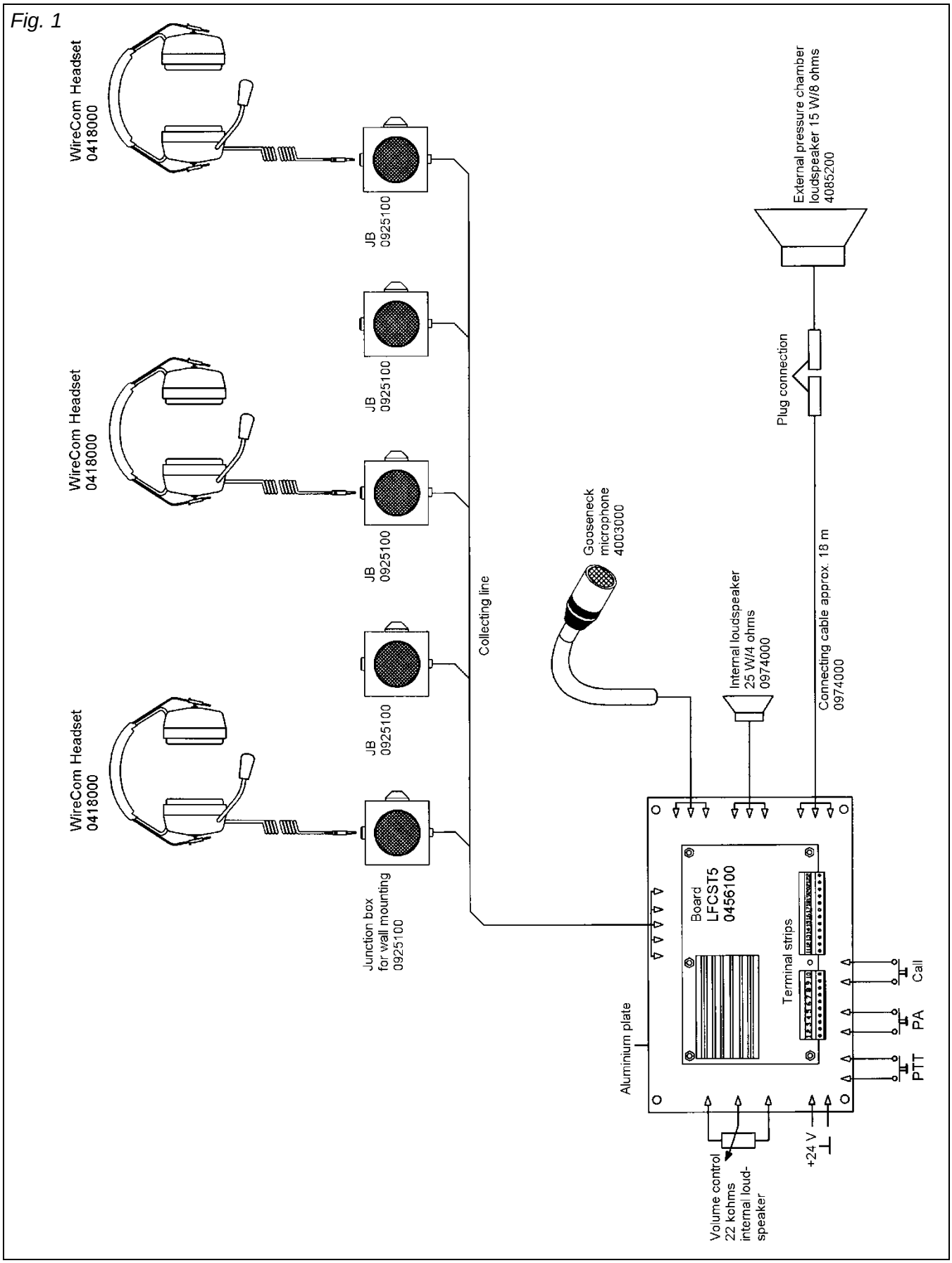
The use of CeoTronics products for special applications, such as explosive and hazardous areas, aviation, bomb disposal (EOD / IEED) or other similar applications, is in the sole responsibility of the end user. The end user has to check and decide that the products can be used without risk.

CeoTronics does not take over responsibility for any damage or material losses nor injuries to persons, caused by the use described above or by any other abnormal use of the products.

2. Description

2.1 System overview

Fig. 1



2.2 Purpose

The CT-WireCom system for crane installations allows cable-bound communication between the crane driver and the co-workers outside the crane, which wear CT-WireCom headsets.

The WireCom headsets have to be connected via plugs to wall mounted junction boxes and are interconnected via a collecting line to the WireCom station of the crane driver.

All wall mounted junction boxes are equipped with a call button. By means of the call button the participants can transmit a call tone between each other as long as the call button is kept pressed, e.g. to prearrange an announcement. The tone call is audible via the buzzers on the wall mounted junction boxes.

By pressing the PTT button (PTT = push to talk) and the PA button (PA = power amplifier) simultaneously and speaking in the gooseneck microphone, the crane driver is able to make an announcement via the pressure chamber loudspeaker, as long as he keeps the PTT button and the PA button pressed.

By pressing the PA button on the WireCom headset and speaking in the headset microphone, the headset wearers are also able to make an announcement via the pressure chamber loudspeaker, as long as the PTT button on the WireCom headset is kept pressed.

The components of the WireCom system are installed by qualified personnel on customers site.

2.3 Scope of delivery

- One WireCom board LFCST5 (Part No. 04 56 100) including a separate volume potentiometer 22 kΩ (Part No. 60 04 561) for the built-in loudspeaker 25 W/4 Ω
- One dynamic gooseneck microphone 200 Ω (Part No. 40 03 000)
- One built-in loudspeaker 25 W/4 Ω (Part No. 40 85 025)
- Three WireCom headsets (Part No. 04 18 000)
- Five junction boxes for wall mounting (Part No. 09 25 100)
- One pressure chamber loudspeaker 15 W/8 Ω (Part No. 40 85 200)
- One connecting cable, approx. 18 m (19.7 yd) long, for the pressure chamber loudspeaker 15 W/8 Ω (Part No. 09 74 000)

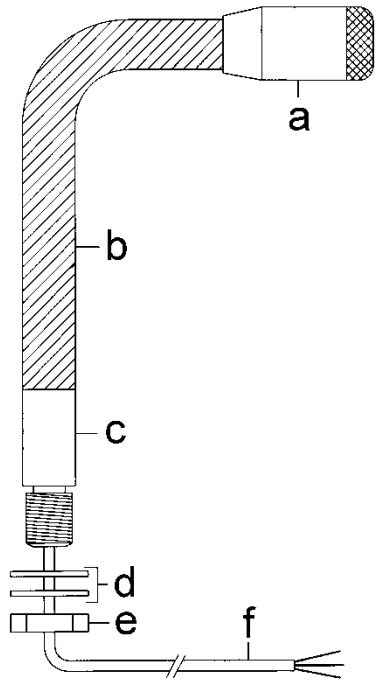
2.4 Gooseneck microphone

Gooseneck microphone Part No. 40 03 000 (Fig. 2):

- Dynamic microphone 200 Ω (Fig. 2/a)
- Flexible gooseneck approx. 600 mm (23.6 in.) long (Fig. 2/b)
- Extension piece approx. 100 mm (3.94 in.) long for the gooseneck (Fig. 2/c)
- Two toothed washers (Fig. 2/d)
- One nut (Fig. 2/e)
- Connecting cable approx. 3 m (3.28 yd) long without plug (Fig. 2/f)

The speaking distance for the microphone is approx. 30 cm (approx. 12 in.).

Fig. 2 Gooseneck microphone

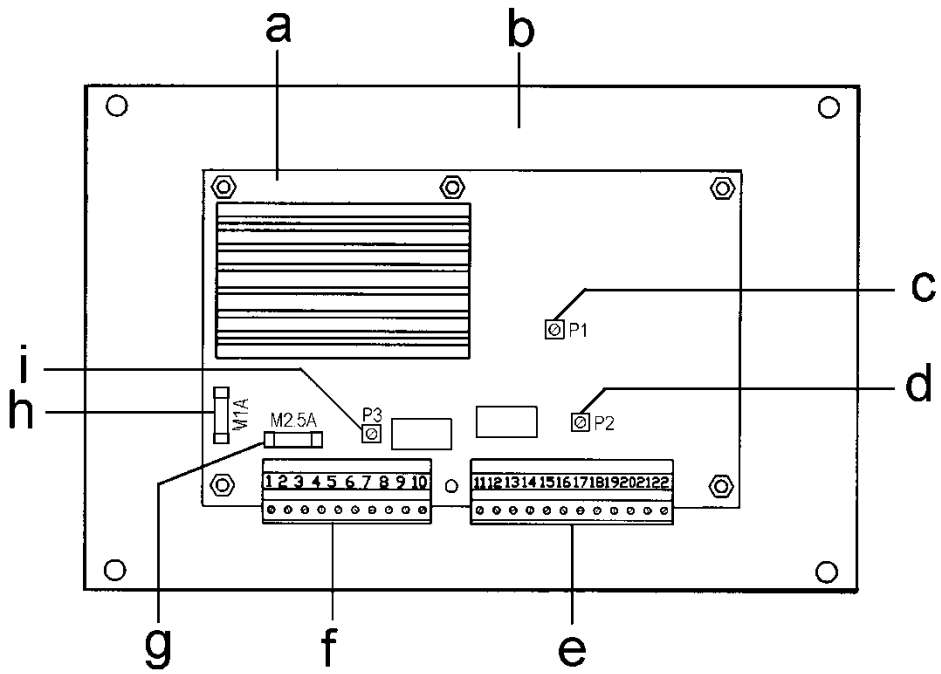


2.5 WireCom board LFCST5

WireCom board LFCST5, Part No. 04 56 100, (Fig. 3):

- WireCom board LFCST5 (Fig. 3/a) mounted on an aluminium plate (Fig. 3/b)
- External power supply 24 V DC
- Power amplifier 15 W for the pressure chamber loudspeaker 15 W/8 Ω
- Trimming potentiometer P1 (Fig. 3/c) to adjust the amplification for the gooseneck microphone
- Trimming potentiometer P2 (Fig. 3/d) to adjust the input signal for the built-in loudspeaker 25 W/4 Ω
- Trimming potentiometer P3 (Fig. 3/i) to adjust the signal amplification for the pressure chamber loudspeaker at PA operation
- Terminal strip 1 – 10 (Fig. 3/f) and terminal strip 11 – 22 (Fig. 3/e)
- Fuse M 2.5 A (Fig. 3/g) for the power amplifier 15 W
- Fuse M 1 A (Fig. 3/h) for the WireCom board LFCST5

Fig. 3 WireCom board LFCST5



Pin assignment of terminal strips

Pin	Description
1	$+U_b$ (24 V DC external)
2	⊥
3	MC/AF gooseneck microphone
4	MC/⊥ gooseneck microphone
5	+12 V PTT button in the crane
6	PTT PTT button in the crane
7	+12 V PA button
8	PA PA button
9	+12 V
10	Call button
11	+12 V

Pin	Description
12	Int. loudspeaker 25 W in the crane
13	Int. loudspeaker 25 W in the crane
14	Ext. pressure chamber loudspeaker 15 W
15	Ext. pressure chamber loudspeaker 15 W
16	⊥
17	⊥
18	LFC (AF signal)
19	LFC/⊥
20	Pot 22 kΩ for int. loudspeaker (GND)
21	Pot 22 kΩ for int. loudspeaker (slider)
22	Pot 22 kΩ for int. loudspeaker (audio)

2.6 Built-in loudspeaker 25 W/4 Ω

The loudspeaker 25 W/4 Ω (Part No. 40 85 025) (Fig. 4) is destined for installation in the crane driver cabin.

Fig. 4 Built-in loudspeaker 25 W/4 Ω

2.7 WireCom headset

The WireCom headset, Part No. 04 18 000 (Fig. 5), protects against harmful ambient noise and allows cable-bound communication in high ambient noise areas. Via the coiled cord and the 4-pole plug it has to be connected to one of the five wall mounted junction boxes.

The headset is equipped with two dynamic speakers (32 Ω) and with a noise cancelling electret microphone with windshield and flexible gooseneck.

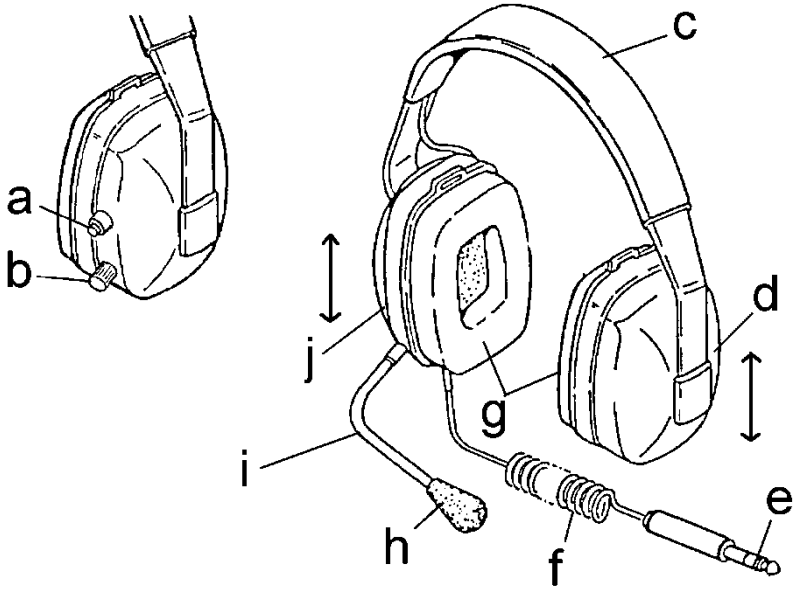
On the rear of the right-hand hedset muff is a control knob for microphone amplification and a PA button.

With the control knob for microphone amplification the speech volume is adjustable which the communication partner will receive. The headset wearer can monitor his speech volume and every alteration of his speech volume by hearing his own voice via a sidetone in the speakers of the headset.

By pressing the PA button and speaking in the headset microphone the headset wearer can make an announcement via the pressure chamber loudspeaker 15 W, as long as the PA button is pressed.

Power (12...30 V DC) for the headset is supplied externally via the collecting line.

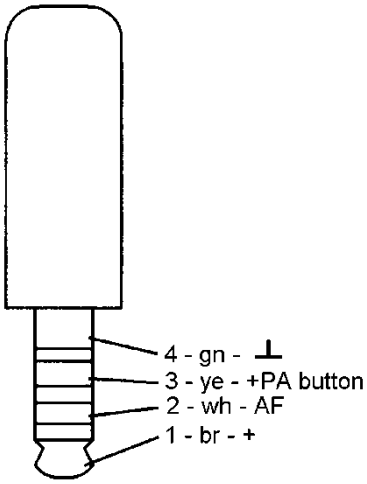
Fig. 5 WireCom headset



a PA button
b Volume control knob for microphone
c Adjustable headband
d Left-hand headset muff
e 4-pole connection plug
f Coiled cord approx. 500 mm (19.7 in.) long
g Ear cushion made of foam material
h Microphone and windshield
i Flexible gooseneck
j Right-hand headset muff

Pin assignment of the 4-pole connection plug of the WireCom headset

Fig. 6



2.8 Junction box for wall mounting

The WireCom headsets have to be connected via plug connection to the wall mounted junction boxes Part No. 09 25 100 (Fig. 7). The five wall mounted junction boxes and the WireCom station in the crane are interconnected via a collecting line. In each junction box is a 5-pole terminal strip for connection of the collecting line.

All wall mounted junction boxes are equipped with a call button. By means of the call button the participants can transmit a cable-bound call tone between each other, e.g. to prearrange an announcement. The call tone is transmitted as long as the call button is kept pressed. The tone call is audible via the buzzers of all wall mounted junction boxes.

Explanations to Fig. 7

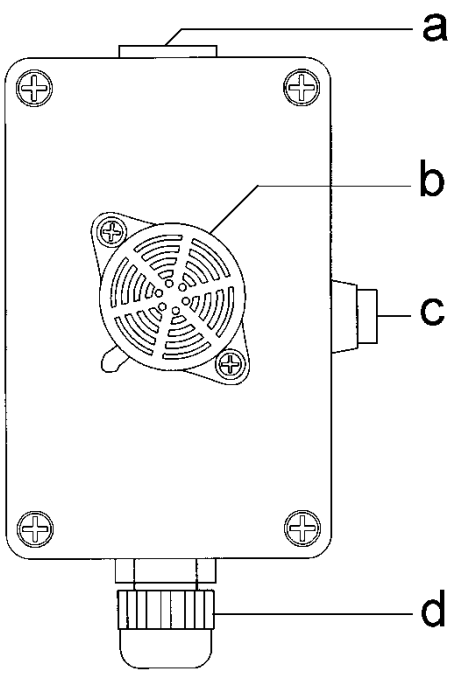
a 4-pole female connector for the WireCom headset

b Buzzer

c Call button

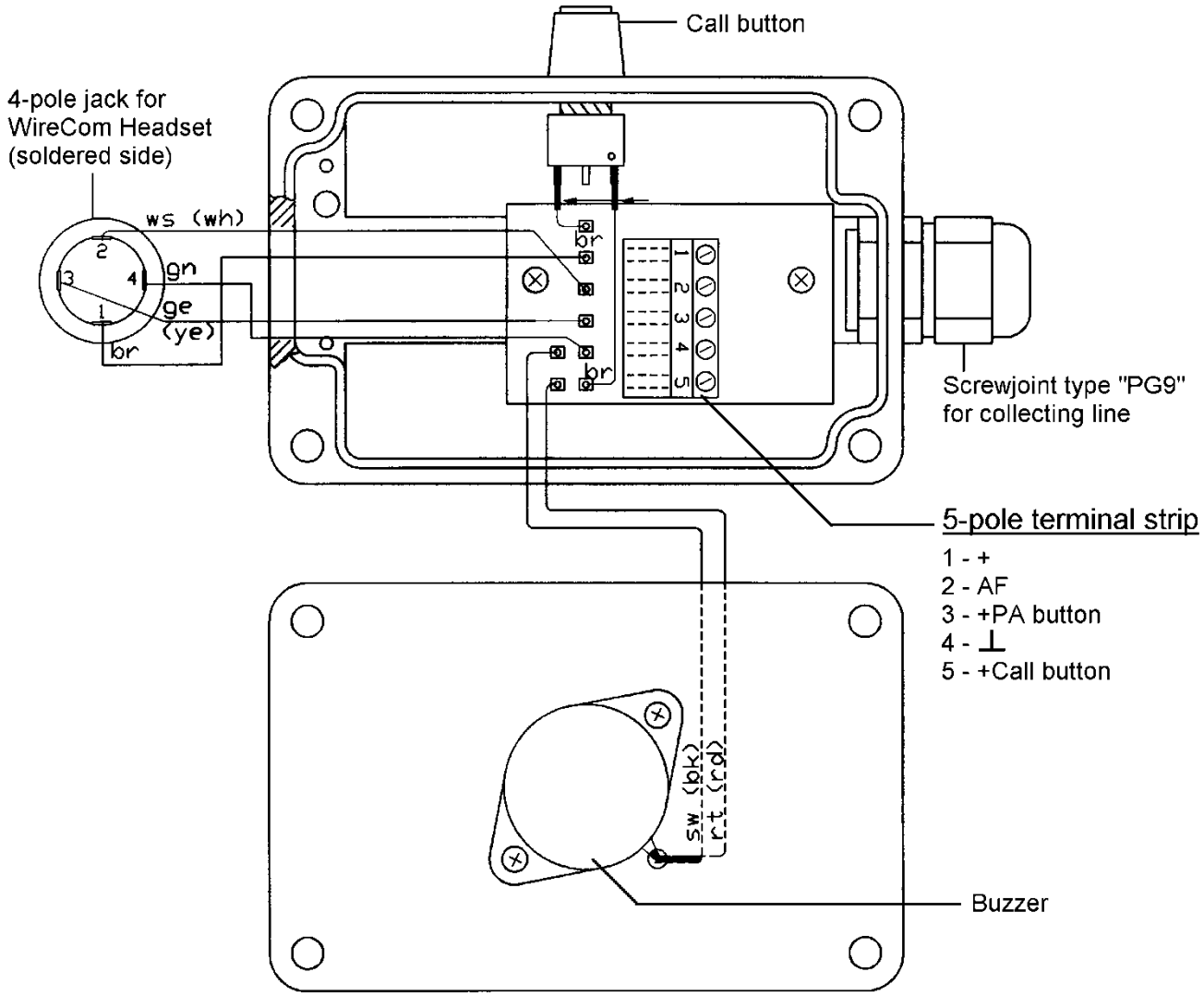
d Screwjoint type "PG9" for the collecting line

Fig. 7 Junction box for wall mounting



Connection diagram for wall mounted junction box

Fig. 8 Connection diagram for wall mounted junction box



2.9 Pressure chamber loudspeaker 15 W/8 Ω and connecting cable

The pressure chamber loudspeaker 15 W/8 Ω (Part No. 40 85 200) will be installed outdoors.

Connection to the WireCom station in the crane is made via the 18 m (19.7 yd) long connecting cable (Part No. 09 74 000).

By pressing the PTT button and the PA button simultaneously and speaking in the gooseneck microphone, the crane driver is able to make an announcement via the pressure chamber loudspeaker, as long as he keeps the PTT button and the PA button pressed.

By pressing the PA button on the WireCom headset and speaking in the headset microphone, the headset wearers are also able to make an announcement via the pressure chamber loudspeaker, as long as the PTT button on the WireCom headset is kept pressed.

Explanations to Fig. 9

a Pressure chamber loudspeaker 15 W/8 Ω (Part No. 40 85 200)

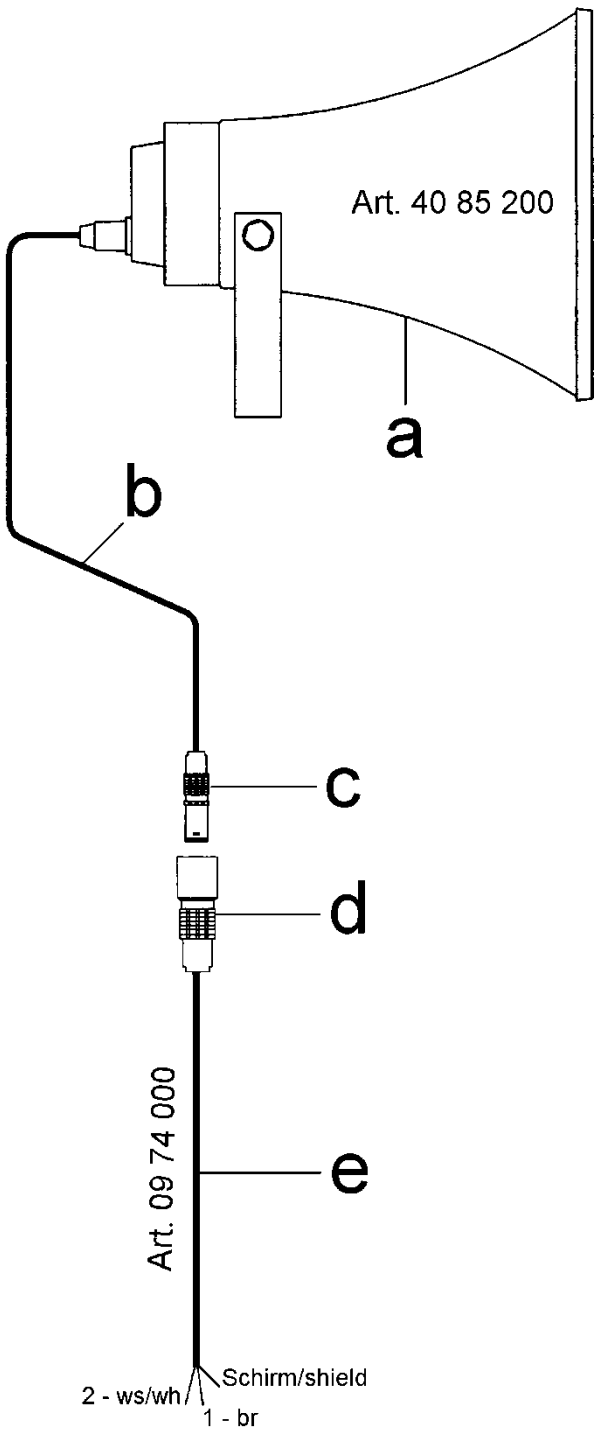
b Cable approx. 35 cm (13.8 in.) long

c 2-pole cable plug

d 2-pole cable coupling

e 4-core connecting cable, approx. 18 m (19.7 yd) long, with two single shields and open wires for connection to the WireCom station in the crane

Fig. 9 Pressure chamber loudspeaker 15 W/8 Ω and connecting cable



2.10 Power supply

The external power (+24 V) for the WireCom system is supplied to the WireCom station in the crane via the terminal strip (Fig. 3/f) on the WireCom board LFCST5.

3. Commissioning and operation

3.1 Installation and connection

The components of the WireCom system are installed and interconnected by qualified personnel on customers site. System overview see section 2.1 and Fig. 1.

When the external power (+24 V) is applied to the WireCom station, the system is ready for operation.

3.2 Crane driver

3.2.1 Overview

You can carry out cable-bound communication with the wearers of the WireCom headsets. Prerequisite is, that the headset wearers have put on their headset and the headset is connected to one of the five wall mounted junction boxes.

By pressing the PTT button and the PA button simultaneously and speaking in the gooseneck microphone, you can make an announcement via the pressure chamber loudspeaker, as long as you keep the PTT button and the PA button pressed. The pressure chamber loudspeaker is installed outdoors.

3.2.2 Transmitting a call tone

With the call button you can switch on the buzzers of the five wall mounted junction boxes, as long as you keep the call button pressed. With it you signalize the headset wearers, that you want to make an announcement. The headset wearers hear the call tone and then they connect their headset to one of the five wall mounted junction boxes.

3.2.3 PTT operation – communication with the headset wearers

Prerequisite is, that the headset wearers have put on their headset and the headset is connected to one of the five wall mounted junction boxes. Notice section 3.2.2 »Transmitting a call tone«.

Press the PTT button, keep the PTT button pressed, and speak in the gooseneck microphone from a distance of approx. 30 cm (12 in.). You can speak via the gooseneck microphone as long as you keep the PTT button pressed. The loudspeaker in the crane is switched off while the PTT button is pressed to avoid any feedback.

If you release the PTT button the loudspeaker in the crane is switched on again. A message received from the headset wearers is audible via the loudspeaker in the crane.

3.2.4 Announcement via the external pressure chamber loudspeaker

Press the PTT button and the PA button simultaneously, keep both buttons pressed, and speak in the gooseneck microphone from a distance of approx. 30 cm (12 in.). You can speak via the gooseneck microphone as long as you keep the PTT button and the PA button pressed.

3.3 Headset wearer

3.3.1 Overview

You can carry out cable-bound communication with the crane driver and the other headset wearers.

Prerequisite for communication with the crane driver is, that you have put on your headset and that you have connected your headset to one of the five wall mounted junction boxes.

Prerequisite for communication with the other headset wearers is, that the headset wearers have put on their headset and that they have connected their headset to one of the five wall mounted junction boxes.

By pressing the PA button on your headset and speaking in the headset microphone, you can make an announcement via the pressure chamber loudspeaker, as long as you keep the PA button pressed. The pressure chamber loudspeaker is installed outdoors.

3.3.2 Putting the headset into operation

a. **Connecting the headset** – Connect the headset via the connection plug to one of the five wall mounted junction boxes.

b. **Putting on the headset** – Put on the headset. Take care for a perfect comfortable fit. Only when the ear cushions are properly located around the ears the best noise attenuation of the ear muffs is provided. Adjust the hight of each ear muff equally on both sides while holding the headband down until the ear cushions have a tight and comfortable fit. The headband should sit straight and comfortable on the top of the head.

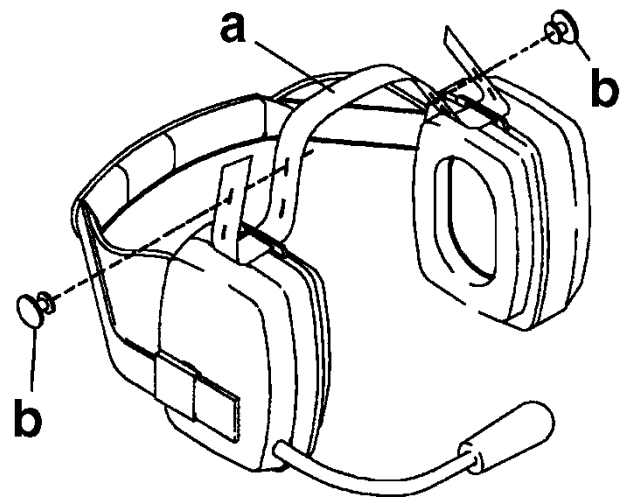
   For hygiene reasons we recommend the use of the washable sweat absorbing cotton pads on the ear muffs. These are pulled over the ear cushions and are for the purpose of wear comfort and hygiene.

c. **Wearing the headset with an additional headstrap** – In the event of rapid body movements or extreme body postures or in conjunction with a protective helmet the headset can be fixed to the head additionally by means of the headstrap supplied (Fig. 10/a). Pull the headstrap in accordance with Fig. 10 through the slits in the headset muffs and fasten it by means of the two holding studs (Fig. 10/b).

   Putting together the holding stud elements
   If this has not already been done ex-works, press the stud of the small holding element into the round opening of the large holding element until it engages.

   Put on the headset, swing back the headband and wear the headband as a neckband. Ensure taut seating of the headstrap and neckband.

Fig. 10 Attaching the additional headstrap



⚠ NOTE

Do not twist the flexible gooseneck. Do not carry the headset by the gooseneck.
Use the microphone only with a windshield.

3.3.3 Transmitting a call tone at the wall mounted junction box

By means of the call button on each of the five wall mounted junction boxes, you can switch on the buzzers of the five wall mounted junction boxes, as long as you keep the call button pressed. With the call tone you signalize the other headset wearers, that you want to make an announcement. The headset wearers will hear the call tone and then they will connect their headset to one of the five wall mounted junction boxes.

3.3.4 Communication with the crane driver and the other headset wearers

Prerequisite is, that the headset wearers have put on their headset and that they have connected their headset to one of the five wall mounted junction boxes. Notice section 3.3.3 »Transmitting a call tone at the wall mounted junction box«.

a. **Adjust the flexible gooseneck of the headset microphone** so that the microphone is positioned at a distance of approx. 5 mm (0.2 inch) in front of your lips. Optimal voice transmission and the best possible noise compensation are then provided.
b. **Speaking and hearing** – The headset doesn't have a PTT button. You speak in the headset microphone and hear via both speakers in the headset muffs.
c. **Adjustment of microphone amplification (volume)** – On the rear of the right headset muff is a volume control knob to adjust the microphone amplification. With this control knob you can adjust the speech volume which your communication partner will receive. Turn the control knob clockwise to increase the volume and turn it counter-clockwise to decrease it. You can monitor your speech volume and every alteration of your speech volume by hearing your own voice via a sidetone in the speakers of your headset. Don't choose a level which is too high because the headset may transmit too much environmental noise. Do not adjust the volume to a level higher than necessary. Excessive volumes over long periods can damage the hearing.

3.3.5 Announcement via the external pressure chamber loudspeaker

Press the PA button on your headset, keep the PA button pressed, and speak in the headset microphone from a distance of approx. 5 mm (0.2 in.). You can speak via the headst microphone as long as you keep the PA button pressed.

4. Maintenance

4.1 Visual inspections

Regularly examine the devices and in particular the headset muffs, ear cuhions, cable and plugs for signs of breakage, cracks and wear. Send any defective devices back to CeoTronics for repair. Replace any damaged or worn ear cushions in accordance with section 4.4 at the latest after 6 months of usage. If necessary, also change any dirty foam covers in the headset muffs.

4.2 Cleaning

Remove any loose dust with a soft brush. If necessary, clean the outside of the devices with a suitable clean tissue only slightly moistened with clear water and subsequently rub the unit dry again. If heavily soiled, a little dishwashing liquid can be used in addition.

Clean the contacts of connectors with a commonly available contact cleaning agent.

4.3 Replacing the windshield on the headset microphone

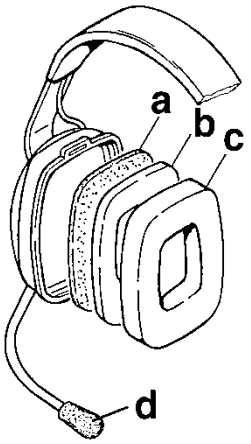
Pull the windshield (Fig. 11/d) off the microphone and replace it.

4.4 Replacing the ear cushions and foam covers

4.4.1 Ear cushions

Pull the ear cushion (Fig. 11/c) off the headset muff and replace it. Ensure that the new ear cushion fully engages into the headset muff.

Fig. 11



4.4.2 Foam cover

⚠ CAUTION

When removing the cover ring (Fig. 11/b) proceed with care so that you do not injure your fingers or break your finger nails.

Pull the ear cushion (Fig. 11/c) off the headset muff.

Hold the headset muff with one hand. Push four fingers of the other hand inside between the foam cover (Fig. 11/a) and the cover ring (Fig. 11/b). With your fingers pull the cover ring hard, but carefully, away from the headset muff and at the same time use your thumb to press the headset muff hard in the opposite direction. Change the foam cover.

When reassembling, ensure that the cover ring and the ear cushion engage fully into the headset muff.

5. Consumable parts

Designation and description	**Part No.**
Hygiene set consisting of: 2 pieces ear cushion, 2 pieces foam cover, 2 pieces windshield for microphone	50 00 500
Ear cushion, 2 pieces	50 00 501
Windshield for microphone, 10 pieces	50 02 201
Comfort set consisting of 25 pairs of cotton perspiration absorbers	40 10 025

Certificate No. 01100004023 (ISO 9001)

Certificate No. 01220004023 (ATEX)

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