CeoTronics
Audio · Video · Data Communication

Interface box for connection to control panel (CT-WireCom Digital Interface Box)

Operating manual

English

Contents

2. General operating and safety instructions

Ensure that you comply with national safety and accident-prevention regulations as well as the warnings and safety instructions in this document to avoid material damage and injury to persons when using the device.

- *Before using CeoTronics products, read the relevant operating instructions thoroughly. If in doubt, ask our technical staff.*
- *Keep this document for later use.*
- *Use only CeoTronics products without signs of damage or wear.*
- *Any servicing on CeoTronics products must be carried out only by CeoTronics or specialist workshops authorised by CeoTronics. In all other cases, our warranty and liability for the product will automatically lapse.*
- *Keep CeoTronics products out of the reach of children and any other persons who are not familiar with handling and operating them.*
- *CeoTronics products may only be used for the intended specific applications.*
- *Safe operation is contingent on clean devices. Ensure that the devices are clean and in good condition at all times.*
- *If equipment supplied to you by CeoTronics is to be taken out of service and no longer required, you may return it to CeoTronics. We will send the end-of-life equipment for recycling and/or environmentally compatible disposal on your behalf.*

Equipment damage

- *Do not immerse a CeoTronics product in water, unless it is expressly intended for this purpose.*
- *Connect or disconnect CeoTronics accessories to or from a device only when the device is switched off, unless otherwise described in the operating instructions.*
- *When using devices designed for outdoor use, always keep the devices closed when outdoors (e.g. CT-DECT Case) and cover unused ports with the appropriate caps – if available.*
- *Do not store CeoTronics products outdoors or in damp ambient conditions but always in a clean and dry place at normal air humidity. CeoTronics products must not be stored in areas with a temperature of over +80°C, e.g. on the parcel shelf of a car in summer. Unless otherwise indicated, the following temperature ranges are allowed for CeoTronics products: -10°C to +55°C during operation, -40°C to +80°C when in storage.*
- *Ensure that no moisture penetrates the inside of the device during cleaning. Do not use solvents (e.g. benzine, alcohol, etc.) for cleaning! Safe operation is contingent on clean devices. Ensure that devices (microphones, plug connectors, etc.) are always clean and in a good condition.*

Risk of injury from 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 from high speaker volume!

- *Please note that some audio devices (e.g. radios) can emit very loud signal tones as soon as the devices is switched on. Some devices generate different a variety of tones at different volumes. It may be necessary to adjust the volumes of the different tones separately. These tones could damage your hearing if they are set too high. It is therefore important to adjust the signal tone volumes to the desired levels before using CeoTronics accessories. Follow the audio device manufacturer's operating instructions to adjust the signal tones.*
- *Receiver volumes in excess of 85 dB(A) are possible with a range of CeoTronics products but these can be controlled by the user for safety reasons. After switching on the communication system, set the receiver volume to approx. 1/2 of the available volume and then test the speaker volume, e.g. by opening the squelch on the radio device.*

- *Do not set the volume any higher than necessary. Very high volume settings may damage hearing, especially over extended periods of use. At high volumes or noise levels, wear additional earplugs. If in doubt, ask your occupational health and safety officer or company doctor.*

Interference with road traffic!

- *Do not leave CeoTronics products lying around loose in cars, e.g. on the parcel shelf. Stow the products in a suitable, safe place in the car so that they do not present a danger to you or your passengers in the event of an emergency stop.*
- *When driving a car, do not operate a radio because it may distract you from other traffic and never use a CeoTronics product (headset, in-ear headsets, induction receiver etc.) that impairs your hearing.*

Interference with flight operations!

- *When on board an aeroplane, always keep transmitter/receiver devices switched off. Operation of a transmitter/receiver could affect the safety of the aircraft and is therefore prohibited. Never operate electronic devices on board an aircraft without the express approval of an authorised member of the on-board personnel.*
- *Always remove the device after the aircraft intercom announcement. Never remove the warning label "REMOVE BEFORE FLIGHT" from the CT-DECT GateCom Compact.*

Interference with radio transmission!

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

Danger of explosion!

- *CeoTronics products that are not intrinsically safe (explosion-proof) and therefore have no special explosion-proof designation must never be operated in potentially explosive environments. Potentially explosive environments include, for example, refuelling areas as well as storage and transport facilities for fuel and chemicals! Unprotected devices can cause explosions in those areas!*
  Strictly adhere to the applicable guidelines, regulations and requirements for your field of activity!

Risk of electric shock!

- *Always remove the mains plug from the mains socket first before opening mains-operated products (e.g. for service purposes)!*
- *Only use CeoTronics products that are in an undamaged condition. In case of any kind of damage, stop using the CeoTronics product and have it repaired.*

Interference with pacemakers!

- *If you wear a pacemaker, ask the manufacturer of your pacemaker for information about any interference that could be caused by high frequencies before operating a transmitter/receiver.*

Non-rechargeable and rechargeable batteries!

- *Dispose of used batteries free of charge at your local battery retailer or collection point or return them to CeoTronics in accordance with environmental regulations. Observe the battery regulation (BattV).*

Risk of injury from rechargeable batteries and non-rechargeable batteries!

- *Insert rechargeable batteries only after having read and understood all of the safety instructions. Rechargeable batteries carry potential risks, which could cause physical injury to persons and/or material damage.*
- *Never try to open a rechargeable battery and never throw a rechargeable battery into a fire. Ensure that rechargeable battery contacts and charging sockets do not cause a short circuit (risk of fire and injury) due to bridging (bent-open paper clip, key ring or similar). In such cases, the warranty will be rendered void.*
- *Transport spare rechargeable batteries in electrically non-conductive packaging material in order to avoid shorting the rechargeable batteries.*

- *Keep 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! Only charge and change rechargeable batteries in areas where no explosive gases, vapours, or dust could be present in the air.*

Damage to charger or rechargeable batteries!
- *Only charge rechargeable batteries using the correct, corresponding CeoTronics charger. Ensure the correct voltage and current data, also on the mains side (e.g. 230V AC or 115V AC).*
- *Never use the rechargeable battery charger for charging non-rechargeable batteries.*
- *Chargers are neither waterproof nor dust-tight and need protection against water, rain, and contamination. Only use chargers indoors in conditions of normal humidity and normal room temperature. Do not cover the ventilation openings.*
- *Do not charge rechargeable batteries outdoors.*

Radio software (firmware) – Risk of malfunction!
Please note that the operation of radio accessories may depend on which radio software version and software settings are used. Caution is required with software updates and/or changes to the software settings. If you update the software and/or change the software settings, check first on a radio whether the radio accessory is still functioning properly after these changes.

It may be the case that the receiver volume of some radios is unsatisfactory. In such cases, we suggest you check the parameters in the audio profile for your device to see whether it is possible to increase the receiver volume.

Please contact our customer advisers if you have any further questions on this matter.

Important information concerning the use of CT-DECT receivers/transmitters!
- *Legal notice for operation in the European Union*

The transmitter of the CT-DECT device may only be used in the European Union when it has the following label:

CE

- *Legal notice for operation in the USA*

The transmitter of the CT-DECT device may only be used in the USA when it has the following label:

FC

- *Legal notice for operation in Canada*

The transmitter of the CT-DECT device may only be used in Canada when it has the following label:

IC

Improper use!

It is the sole responsibility of the end user to check and decide whether the CeoTronics products are suitable for use and can be operated safely without risk during special applications, such as in potentially explosive environments, aviation, bomb disposal or other similar applications.

CeoTronics does not take responsibility for any material damage or loss nor injuries to persons caused by the uses described above or by any other improper use of the products.

The device is not designed for outdoor use. If the device is nevertheless used outdoors, then appropriate measures must be taken to protect the device from the elements.

2.1 Additional Safety Instructions

The CE conformity applies to the device in its as-delivered condition, it expires if any adjustments are made to the product.

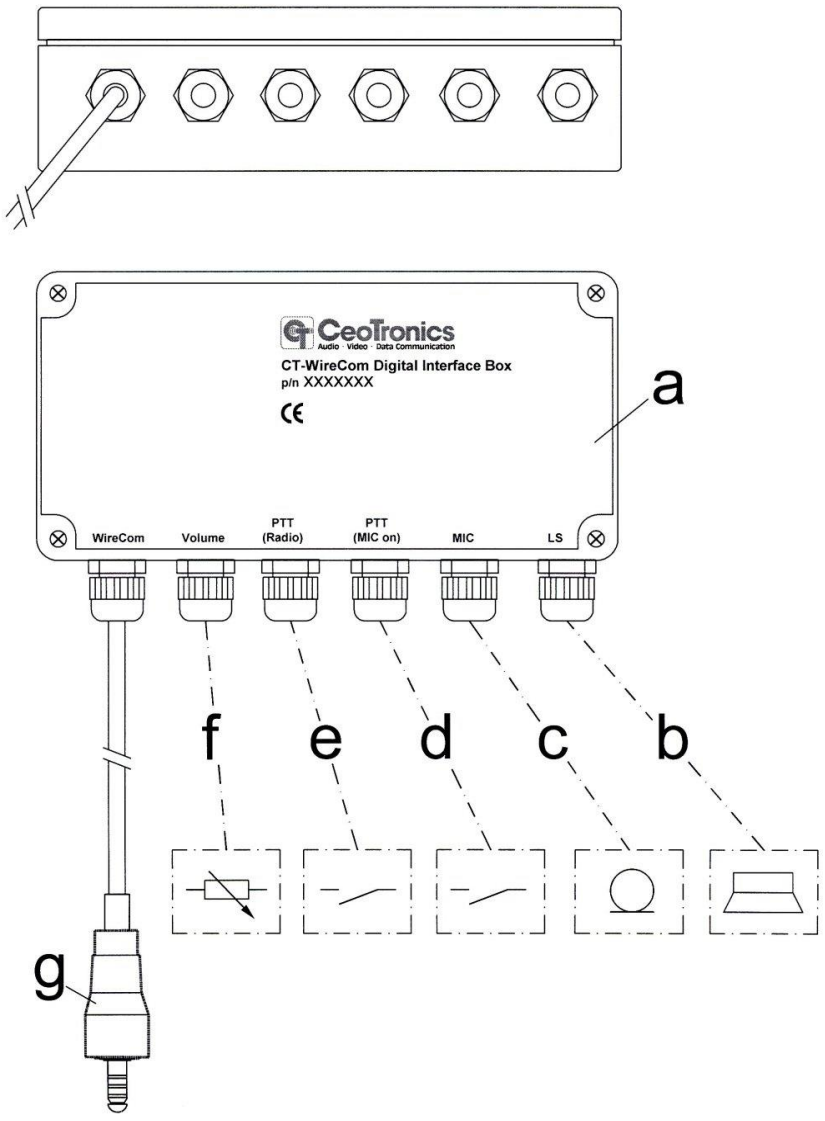
The device is not designed for outdoor use. If the device is nevertheless used outdoors, then appropriate measures must be taken to protect the device from the elements.

3. Description

3.1 General

The CT-WireCom Digital Interface Box is used to connect an external control panel and its components to a CeoTronics WireCom Intercom System. The interface box has a modular connection design that enables different external components of a control panel, such as a microphone, loudspeaker, PTT and controller to be connected separately. The external components are connected by separate cables via a PG cable gland in the interface box to terminal strips. The power for the interface box is supplied via a connection cable (Figure 1/g) to the CeoTronics WireCom communications interface. The CT-WireCom Digital Interface Box is available in several versions. The versions differ in terms of the type of connection cable for connecting to the WireCom communications interface.

1



a Housing
b PG cable gland / connector for external loudspeaker
c PG cable gland / connector for external microphone
d PG cable gland / connector for external PTT (MIC on)
e PG cable gland / connector for external PTT (Radio)
f PG cable gland / connector for external loudspeaker controller
g plug / connector for WireCom communication system

3.2 Technical Features

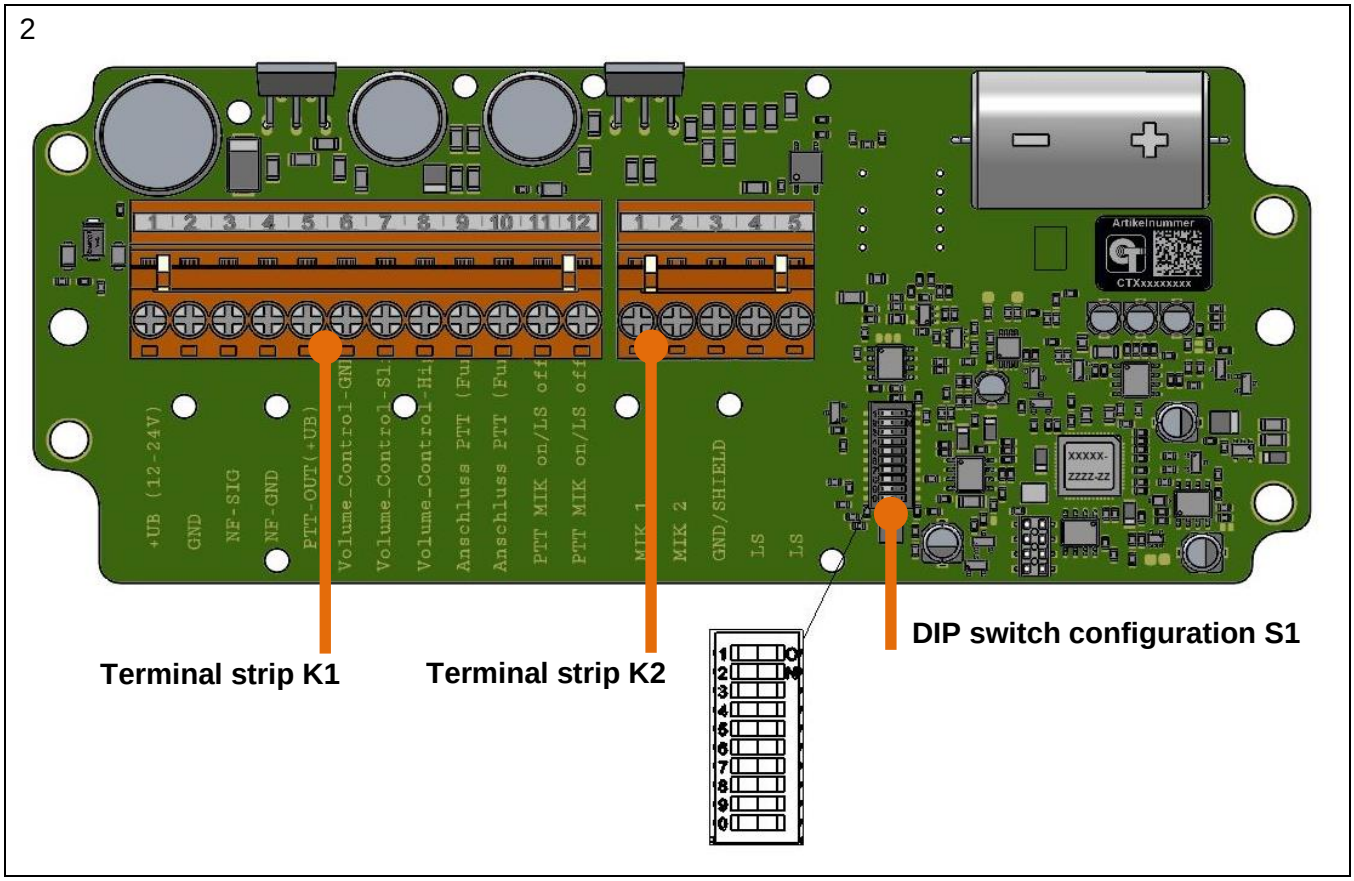
The interface box has an interfacing electronic circuit that enables a connection from different external components to a CT-WireCom communication system. This makes it possible to change the microphone gain as well as the loudspeaker settings using the corresponding switch positions on the printed circuit board and to adjust the external components used.

The components are connected via two terminal strips. The configuration for both terminal strips 1 and 2 is shown in the following section “Configuration of terminals”. Depending on the external component, different types of connections at the terminals are also necessary. The corresponding wiring for the different components is shown in the section “Connection types”. In addition to the wiring, the configuration is also dependant on the external components. Configuration is carried out via a miniature DIP switch on the printed circuit board. The necessary settings according to the component type are also shown in the section “Connection types”.

3.2.1 Dimensions

175 x 80 x 57 mm (width x depth x height)

2



3.3 Configuration of terminal strips K1, K2 and switch S1

Terminal strip K1

Pin	Component / connection	Description	PG cable gland / Cable core
K1.01	WireCom	Supply voltage (12-24V)	g / brown
K1.02	WireCom	Ground power supply	g / green
K1.03	WireCom	Audio signal WireCom communication	g / white
K1.04	WireCom	Ground WireCom communication	g / -
K1.05	WireCom	PTT signal WireCom communication	g / yellow
K1.06	Volume	Potentiometer connection / input (volume control)	f
K1.07	Volume	Potentiometer connection / wiper (volume control)	f
K1.08	Volume	Potentiometer connection / output (volume control)	f
K1.09	PTT (radio)	PTT button for radio device in WireCom system (Pin 1)	e
K1.10	PTT (radio)	PTT button for radio device in WireCom system (Pin 2)	e
K1.11	PTT (MIC)	PTT button for speaking to one another in WireCom system (Pin 1)	d
K1.12	PTT (MIC)	PTT button for speaking to one another in WireCom system (Pin 2)	d

Terminal strip K2

Pin	Component / connection	Description	PG cable gland / Cable core
K2.01	MIC	Power supply microphone	c
K2.02	MIC	Microphone signal	c
K2.03	MIC	Ground microphone signal	c
K2.04	LS	Loudspeaker signal, LS+	b
K2.05	LS	Loudspeaker signal, LS-	b

DIP switch S1

Pin	Component / connection	Description	ON	OFF
S1.01	LS	Output gain for loudspeaker +0dB	on	off
S1.02	LS	Output gain for loudspeaker +6dB	on	off
S1.03	MIC	Input gain for microphone +0dB	on	off
S1.04	MIC	Connection +8V supply voltage at pin K2.01	on	off
S1.05	MIC	Microphone type	dynamic	electret
S1.06	MIC	Microphone type	electret	dynamic
S1.07	MIC	Microphone type	dynamic	electret
S1.08	MIC	Connection +8V supply voltage at pin K2.02 for electret microphone (MIC bias)	on	off
S1.09	MIC	Input gain microphone +14dB	on	off
S1.10	MIC	Input gain microphone +30dB	on	off

3.4 Connection types

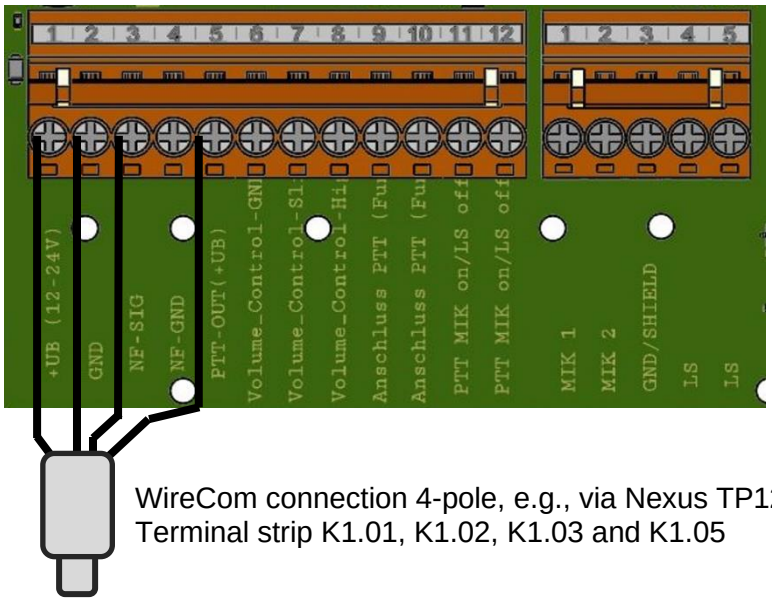
3.4.1 WireCom connection cable

Depending on the product version, a WireCom connection cable is pre-connected to the circuit board at the factory. There are two possible connection options depending on the type of cable and the corresponding connector.

Preference should be given to the 5-wire option. Here, the reference ground for the audio signal is separate from the power supply ground. In the case of a 4-pole connector, the 4-wire option can be used. The audio signal connection at pin K1.03 then uses the power supply ground at pin K1.02.

4-Wire option

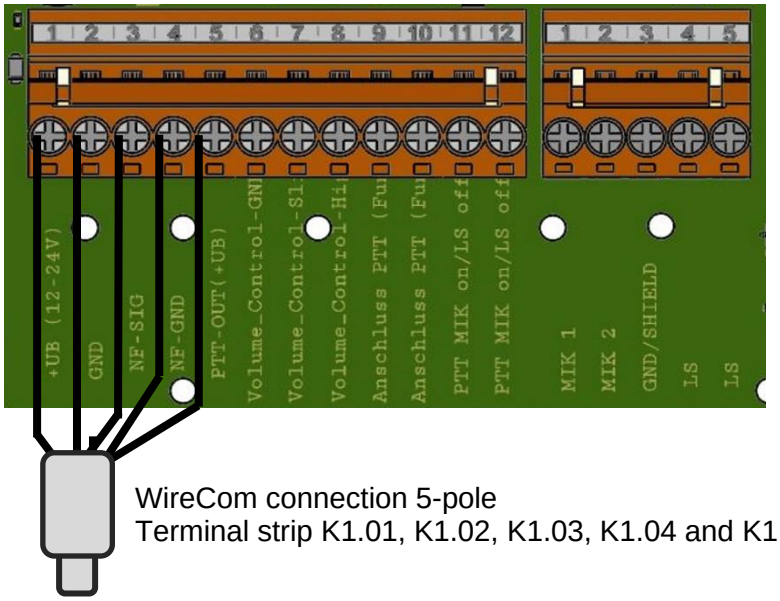
3



WireCom connection 4-pole, e.g., via Nexus TP120
Terminal strip K1.01, K1.02, K1.03 and K1.05

5-Wire option

3

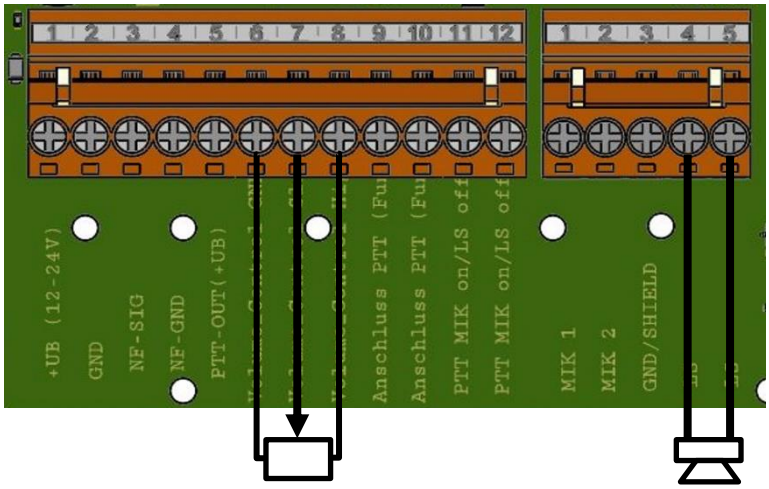


WireCom connection 5-pole
Terminal strip K1.01, K1.02, K1.03, K1.04 and K1.05

3.4.2 Loudspeaker and loudspeaker controller

The loudspeaker controller and loudspeaker are connected as shown in Figure 3. Note the position of the wiper terminal when installing the controller. If necessary, you might have to swap the configuration of K1.06 and K1.08 if turning clockwise reduces the volume instead of increasing it.

3



Volume control connection
Terminal strip K1.06, K1.07 and K1.08

Loudspeaker connection
Terminal strip K2.04 and K2.05

The connecting cable to the external volume control must be at least 3-wire and shielded to avoid interference.

The gain for the loudspeaker can be configured using the first two DIP switches S1.01 and S1.02. There are two permitted gain levels.

Gain 0dB

DIP switch	OFF	ON
S1.01		O
S1.02	O	

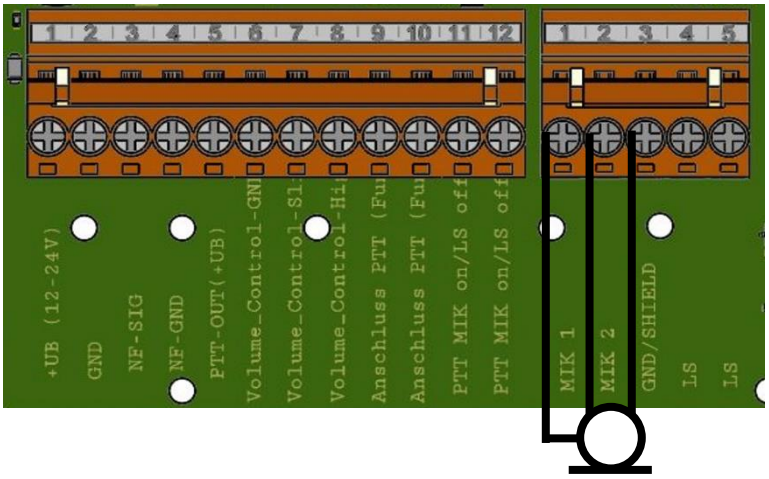
Gain +6dB (recommended)

DIP switch	OFF	ON
S1.01	O	
S1.02		O

Other switch settings are not permitted and must not be selected.

Electret microphone 3-wire

4



Connection electret microphone 3-wire
Terminal strip K2 – K2.01 (MIK1=+8V), K2.02 (MIK=NF) and K2.03 (GND)

Configuration microphone type

DIP switch	OFF	ON
S1.04		O
S1.05	O	
S1.06		O
S1.07	O	
S1.08	O	

Configuration 0dB gain (recommended)

DIP switch	OFF	ON
S1.03		O
S1.09	O	
S1.10	O	

Configuration +14dB gain

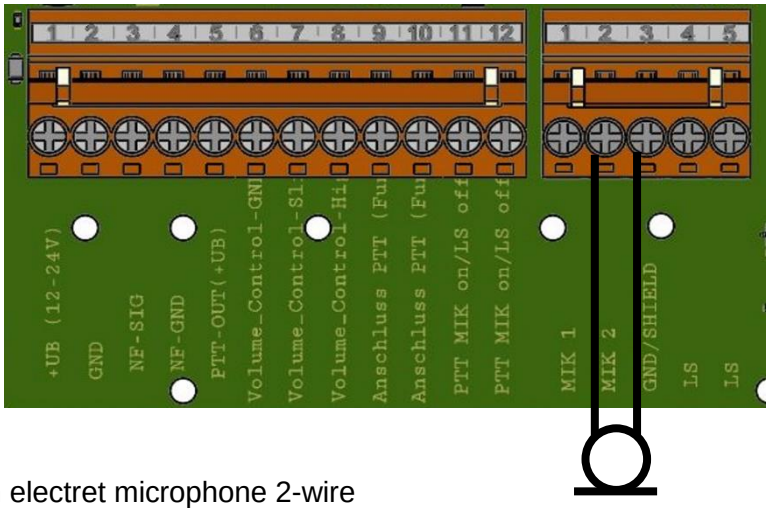
DIP switch	OFF	ON
S1.03	O	
S1.09		O
S1.10	O	

Configuration +30dB gain

DIP switch	OFF	ON
S1.03	O	
S1.09		O
S1.10		O

Electret microphone 2-wire

5



Connection electret microphone 2-wire
Terminal strip K2 – K2.02 (MIK2=AF/+AF) and K2.03 (GND)

Configuration microphone type

DIP switch	OFF	ON
S1.04	O	
S1.05	O	
S1.06		O
S1.07	O	
S1.08		O

Configuration 0dB gain

DIP switch	OFF	ON
S1.03		O
S1.09	O	
S1.10	O	

Configuration +14dB gain (recommended)

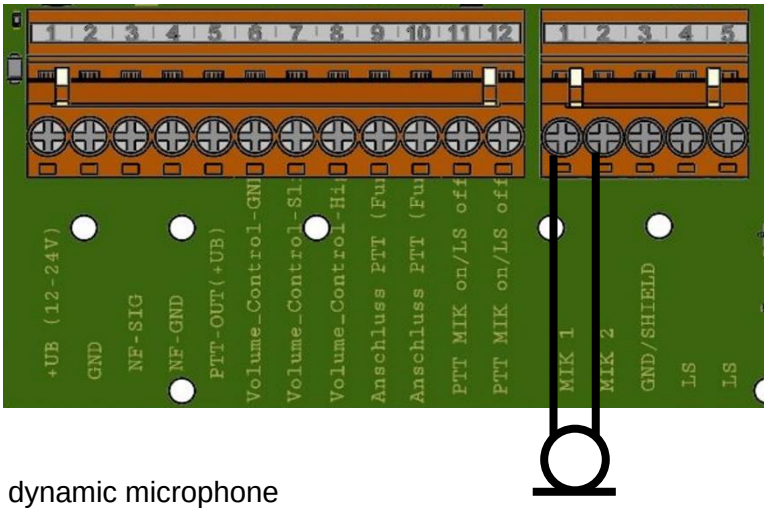
DIP switch	OFF	ON
S1.03	O	
S1.09		O
S1.10	O	

Configuration +30dB gain

DIP switch	OFF	ON
S1.03	O	
S1.09		O
S1.10		O

Dynamic microphone (optional, depending on product version)

4



Connection dynamic microphone
Terminal strip K2 – K2.01 (MIK1) and terminal K2.02 (MIK2)

Configuration microphone type

DIP switch	OFF	ON
S1.04	O	
S1.05		O
S1.06	O	
S1.07		O
S1.08	O	

Configuration 0dB gain (recommended)

DIP switch	OFF	ON
S1.03		O
S1.09	O	
S1.10	O	

Configuration +14dB gain

DIP switch	OFF	ON
S1.03	O	
S1.09		O
S1.10	O	

Configuration +30dB gain

DIP switch	OFF	ON
S1.03	O	
S1.09		O
S1.10		O

Microphone gain

The appropriate microphone gain depends on the installation situation and speaking distance. The recommended settings relate to the installation of reference microphones.

3.5 DIP switch default configuration

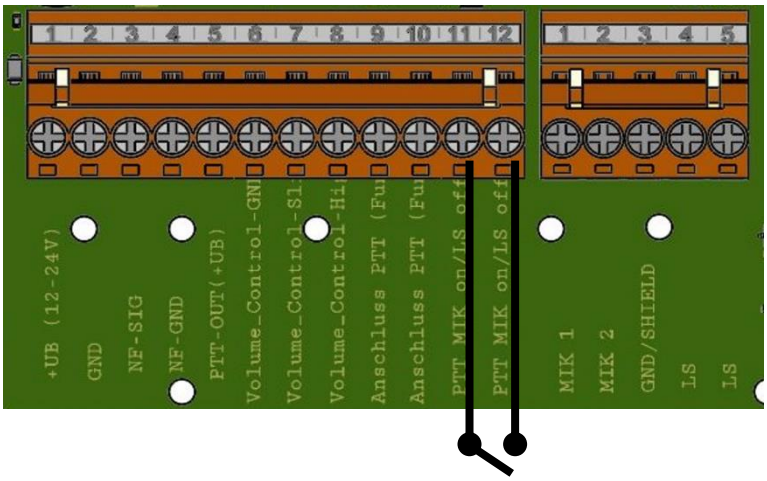
On delivery, the DIP switch is configured to the settings for connecting a 3-wire microphone and has the volume gain of +6dB. In this configuration, the printed circuit board electrically corresponds to previous products, which did not allow adjustments to be made to the switch positions. The products are mutually compatible.

DIP switch	OFF	ON
S1.01	O	
S1.02		O
S1.03		O
S1.04		O
S1.05	O	
S1.06		O
S1.07	O	
S1.08		O
S1.09	O	
S1.10	O	

3.6 PTT button (MIC on)

An external button can be connected via the two PTT cables. Pressing the button activates the microphone and makes it possible to speak into the WireCom communication system. In order to suppress feedback, the loudspeaker is switched off during speaking.

5



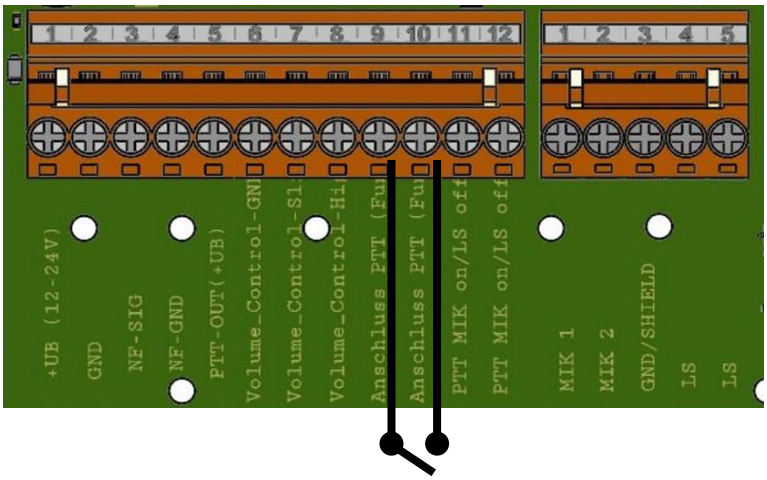
Connection PTT button
Terminal strip K1 – K1.11 (PTT MIK on / LS off) and terminal K1.12 (PTT MIK / LS off)

3.6 PTT button (Radio)

An external button can be connected via the two PTT wires. Pressing the button activates the PTT signalling for a connected radio device in the WireCom system. PTT signalling is via pin K1.05 on terminal strip 1. When the button is pressed, the input voltage is supplied there from pin K1.01.

To speak into the connected radio device, the PTT button (MIC on) connection must be connected in parallel to the PTT button (Radio). The connection must occur via a separate normally open contact. Parallel connection of the terminals K1.09/K1.11 and K1.12 to a physical button is not permitted. Depending on the desired function, a button with two separate normally open circuits may be required.

6



Connection PTT button
Terminal strip K1 – K1.09 (Connection PTT) and Terminal K1.10 (Connection PTT)

4. Installation

4.1 Connecting the cables

Before the connection cable is connected to the communication device via the connector plug (Figure 1/g), ensure that all cable connections are present in accordance with Section 3.
In the event that not all the connections are present, carry out the necessary installation steps.

Please note that the installation of the interface box may only be carried out by trained technical personnel.

5. Switching on and operation

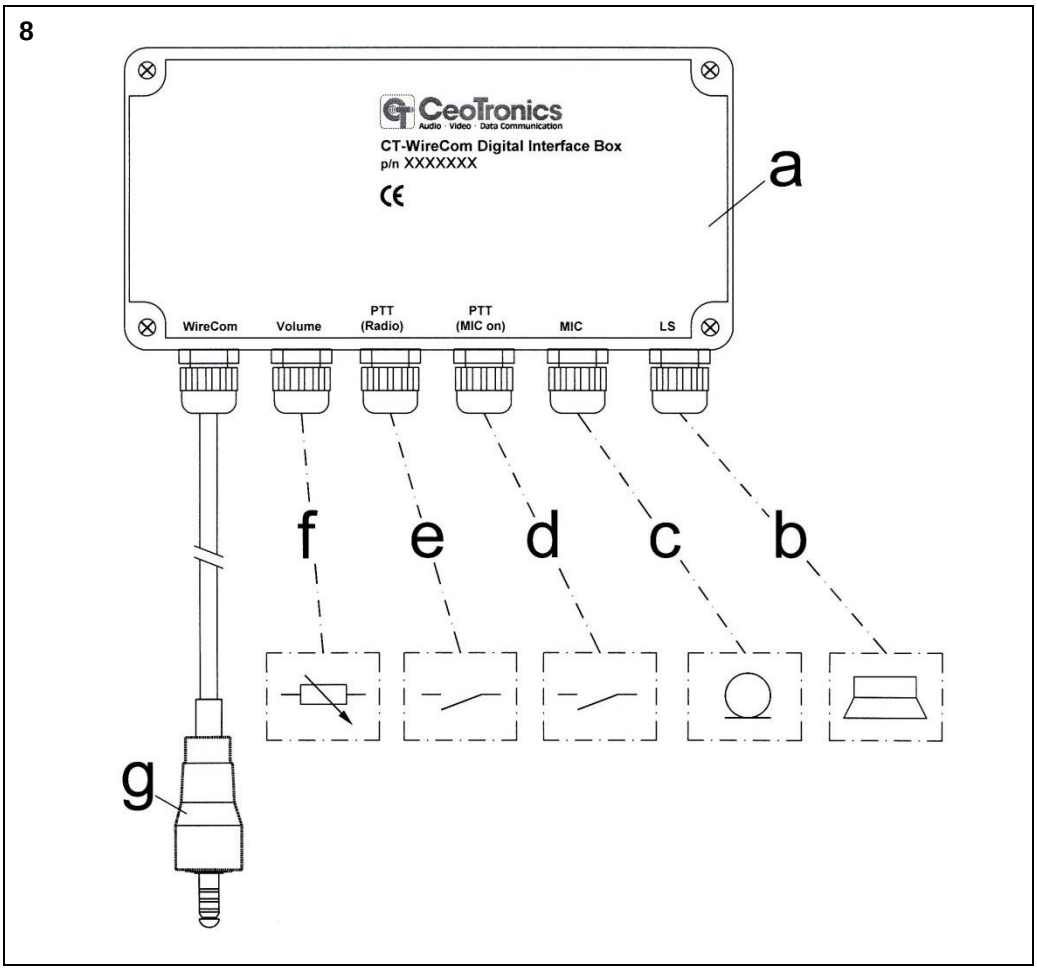
a. Connect the connector plug (Figure 8/g) to the communications interface. The interface box is then ready for full-duplex communication. The desired volume for the external loudspeaker is adjusted on the external loudspeaker controller (Figure 8/f).

b. First set the receiver volume to approx. 1/2 of the available loudspeaker volume. Then check the speaker volume. Do not set the final volume any higher than necessary. Very high volume settings may damage hearing, especially over extended periods of use.

c. To speak over the microphone in the control panel, you must press and hold the external PTT button (MIC on; Figure 8/d) for as long as you are speaking.

Depending on the application requirements, an external PTT button (Radio; Figure 8/e) can be used to manually key the transmitter of a radio device that is connected to the WireCom system via a radio interface. Push the external PTT button (Radio; Figure 8/e) to key the radio device transmitter and the external PTT button (MIC on; Figure 8/d) to activate the microphone. You can speak into the microphone for as long as you hold down both external PTT buttons. After releasing the external PTT buttons, the interface box returns to standby/receive mode. If the radio device receives calls, these are also fed into the WireCom system. For “normal” wired communication, the external PTT button has no function.

8



a housing, **b** PG cable gland / connector for external loudspeaker, **c** PG cable gland / connector for external microphone, **d** PG cable gland / connector for external PPT (MIC on), **e** PG cable gland / connector for external PTT (Radio), **f** PG cable gland / connector for external loudspeaker controller, **g** plug / connector for WireCom communication system

6. Product liability

Please note that any repair, modification or replacement of components – including connectors and cables – must be carried out only by CeoTronics or specialist companies authorised by CeoTronics. In all other cases, our warranty and liability for the product will automatically lapse and transfer to the party requesting the repair, modification or replacement concerned.

7. Storage

After use, keep the cleaned device clean and dry and store at normal room temperature and in normal humidity levels.

8. Maintenance

8.1 Visual inspections

Regularly check the device and especially the plug connectors for signs of breakage, cracks and wear. Send defective devices to CeoTronics for repair.

8.2 Cleaning

Remove loose dust with a soft brush. If necessary, clean the outside of the device with a suitable clean cloth slightly moistened with clean water and then rub the device dry. A little detergent can also be used if the device is very dirty. Clean plug contacts with a commercially available contact cleaner.

	Certificate No.: 01100004023 (ISO9001) Certificate No.: 01220004023 (ATEX, Directive 2014/34/EU)
	Certificate No.: 461801 (PPE, Regulation (EU) 2016/425)
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