

ComLink Unit

Operating Instructions

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Date: 06.01.2005

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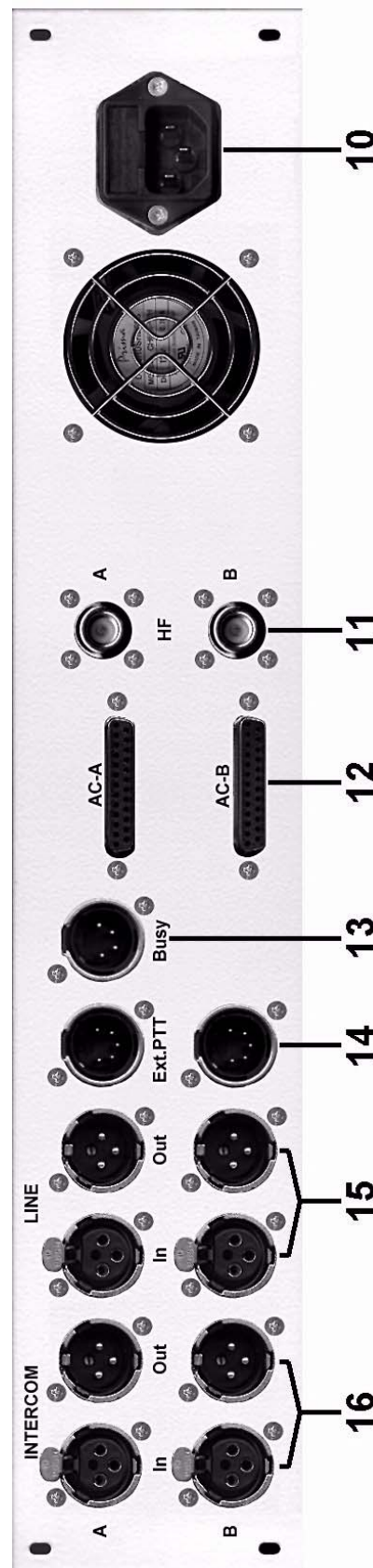
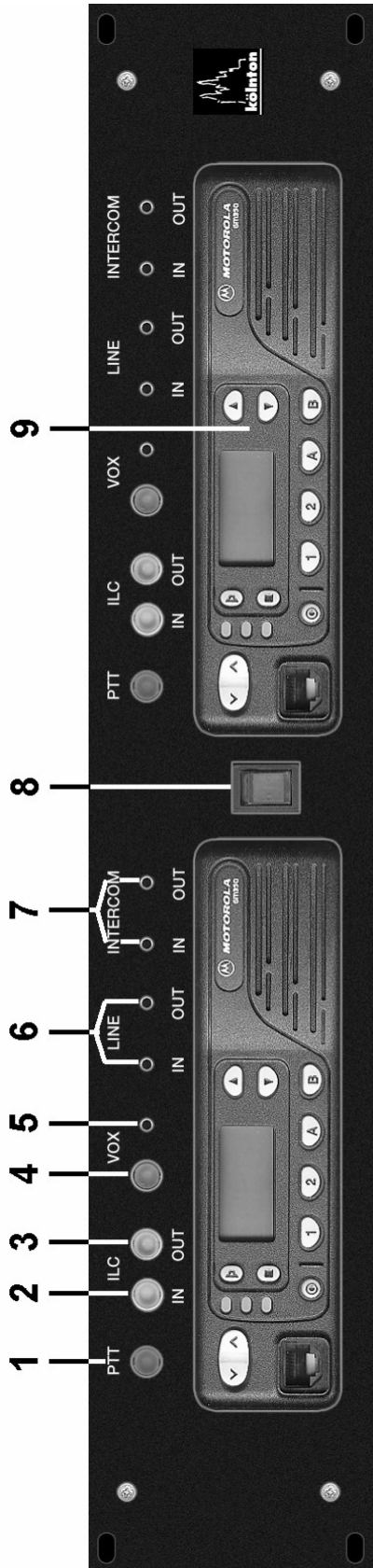
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1. Equipment opinion





2. Welcome to the club!

We are very happy about your decision for purchasing our ComLink Unit.

The ComLink unit provided by kölnton GmbH is the best product in this category, which is known. We know all “attempts” of our competitors.

Only besides or also completely purposefully, not only did you decide to choose a first class product. You did also decide to work with one of the most leading companies in modern radio communication.

Please be sure, to take the time to read these following pages attentively.

3. Safety reference

Please respect all safety references beside the usual ones.

- The correct supply voltage (230V).
- The correct main fuse.
- Protection from overheating.
- Avoidance of direct sun exposure.
- For sufficient ventilation in use with 19” racks.



4. Device structure

There are two Radio Units A and B in one 19" rack which are using the same power supply, but which can be operated separated from each other.

Beside some controlling elements, every unit includes a single main board using a micro controller for providing all functions.

The main components of a ComLink are:

- A switch mode power supply, which is providing the power for the micro controller, both main boards and both radios.
- A similar power supply, which is only providing the power for the audio.
- Two main boards which includes audio and logical circuits.
- Two operating radios.

5. Operating the Radio

The main components of the ComLink unit are the two radios, which can do different operations independently or simultaneously.

For additional details to the control and functions of the radios, please read the according operation manual of the radio.

Please make sure that the radios contain a valid permission in the respective country.

Independently from the permission of the radios, you have to assume that operating the radios is in subject to approval.

You can request this at the local responsible authority.



6. Operation

ComLink was developed to connect intercom systems to operating Radios.

The connection of the ComLink is done by:

- **2-Wire** Intercom systems usually are like a normal belt-pack over the parallel XLR-connectors “Intercom IN” and “Intercom OUT”.
In this case both units of the ComLink have to be used like an independent belt-pack.

The use of 2-wire intercom systems requires an external power supply!

- **4-Wire** Intercom- and command systems within symmetrically “Line IN” and “Line OUT” XLR-connectors.

The audio and the intercom level of the connectors can be individual adjusted with the attenuators (6 / 7) on the front panel.

Particular functions like (PTT / ILC and VOX) can be controlled easily from the front panel. You can check the active function by the LED keys (1 / 2 / 3 / 4) on the front panel.

Depending upon operation and configuration, the ComLink unit and the handheld radios can work in two main operational states, which are simplex or a semi-duplex connection.



Simplex mode

For simplex combining only one radio of the ComLink is used. In this case a connection of two channels is possible.

The used radio in the ComLink is receiving the signal of the handheld radio and provides the received information automatically to the output of the intercom and the “Line OUT” connector.

The information from the intercom system can be transmitted to the radios. In this case the concerned radio of the ComLink unit has to be prepared for sending.

This can take place in three different ways:

a) VOX-Controlling

The VOX-control is activated by pressing the green LED key (4) on the Front Panel and affects only the “Line IN” input.

As soon as the adjusted Level (5) has exceeded, the radio will switch to the transmit mode.

b) ILC-Light Call

There can be two different states a “light-call INPUT” (2) and “light-call OUTPUT” (3). Both can separately be activated by pressing the yellow LED keys on the Front Panel.

If the “light-call INPUT” is used (ILC IN / (2)), the intercom system activates the radio in the concerned unit to switch to the transmit mode, while it is receiving a “light-call”.

If the “light-call OUTPUT” is used (ILC OUT / (3)) the ComLink system will generate a “light-call” to the intercom system.

c) External controlling

The radio can be switched to transmit mode by an external switch, which is assigned to the connector “EXT. PTT” (14) or the accessory connector (12).



ComLink Unit

Semi-duplex mode

In the case of semi-duplex combining both radios in the ComLink are used. Additionally it is necessary that the handheld radios are using different transmitting and receiving frequencies.

One of the radios in the ComLink unit, usually the radio on the left side, is continuously switched to transmit mode by pressing the red PTT- LED Key (1).

In this case all the information from the intercom system, is provided to the handheld radios all the time.

The handheld radio which is configured to receive mode, can send on another frequency if it is required. At the same time the second radio in the ComLink unit can receive this signal.

The channels of the radios in the ComLink unit, which are working with a different transmitting frequency and a receiving frequency, are shown in the first character of the display. There is an "A" for transmitting unit or an "E" for the receiving unit.

Attention: Using the interface in semi-duplex operation is in subject to approval.



Repeater / Relays

The ComLink unit can be operated and configured as a simplex repeater or a relay station.

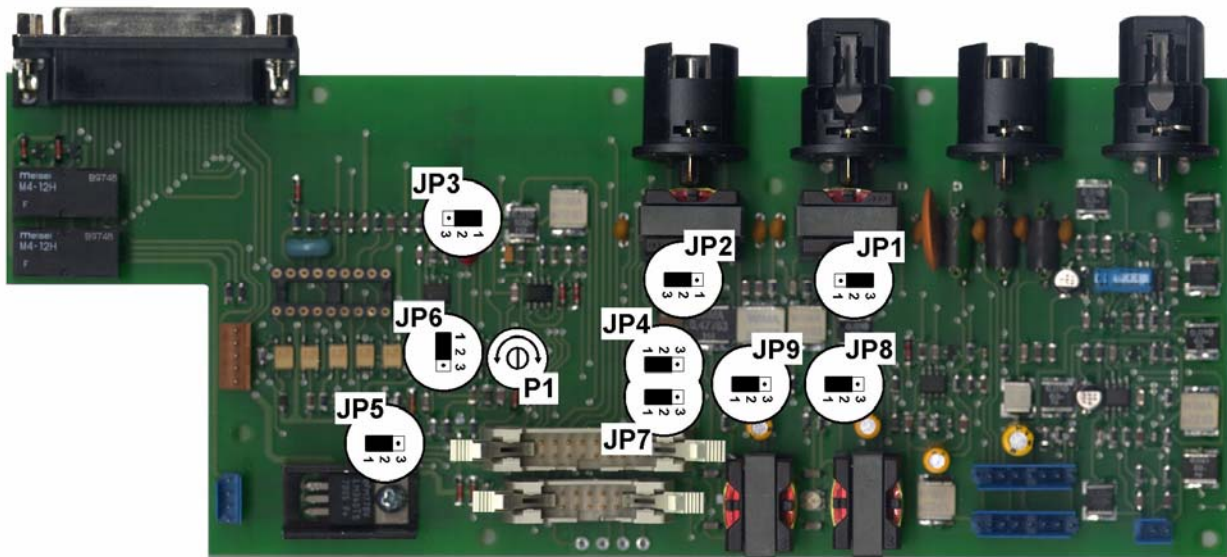
Therefore both units have to be connected with a special audio patch cable.

Therefore the receiver is scanning the transmitter, an adapter cable is required, which is connecting the “EXT. PTT” connector(14) of the receiving Unit to the “busy” connector(13).

In the same way like in semi-duplex mode, the channels with different receiving and transmitting frequencies are shown as the first display character.

7. Configuration

Jumper Main board



JP		Contact Pin 1 + 2	Contact Pin 2 + 3
1	XLR, Line IN, Pin1	Analog GND	Soft GND, Note 1
2	XLR, Line OUT, Pin 1	Analog GND	Soft GND, Note 1
3	Line OUT	Audio Gate active	Audio Gate inactive, Note 2
4	Line OUT	RX Audio from FuG	Intercom, Note 3
5 + 6	function TX ext.	PTT with switching contact	PTT with 24V Light-Call voltage
7	COR, Busy Polarity	Low active	High active
8	PTT Diode (decoupling)	with Diode, Note 4	Without Diode
9	Hook, Note 5	Pin 14 acc.conn. to GND	Pin 14 acc.conn. opened
P1	Light-Call	Adjust the voltage of the Light-Call Plotter	

Standard adjustments written bold

Note 1 with 100 nF Capacitor to PE (protection Earth) of the case

Note 2 If JP4 Pin 1-2 is connected, the Line OUT only depends on the Squelch of the FuG
If JP4 Pin 2-3 is connected, the FuG Audio is only controlled by the FuG and the Intercom is sending continuously to the Line OUT (Program)

Note 3 Line OUT is a mix of FuG Audio and Intercom Audio

Note 4 Specific to the radio

Note 5 Specific to the radio (Activate the PL Decoder)



8. Pin Assignment

Accessory Interface 25-pol D-Sub (12)

Pin		Type of signal	Function	Signal-Activity
1	+12 V		ext. Power supply	Non adjustable voltage
2	+5 V		ext. Power supply	Non adjustable voltage
3	RX Audio	Audio Out	receiving-audio of FuG	Fug specific
4	Line IN +	Audio In	Audio input	lt. adjust
5	Line OUT -	Audio Out	Audio output	lt. adjust
6	Speaker -	Audio Out	Loudspeaker FuG	AC with an DC offset
7	Speaker +	Audio Out	Loudspeaker FuG	AC with an DC offset
8	Ext. Alarm	Digital Out	output FuG	Vcc
9	VOX decode	Digital Out	Vox-Decoder Line In	low active
10	ILC REQ	Digital In	Light Call request	low active
11	BUSY COM	Relay contact	Look forward to Pin 23/24	Potential free
12	PTT ACK NC	Relay contact	On Standby and receiving at Pin 25	Potential free
13	PTT ACK NO	Relay contact	On Tx at Pin 25	Potential free
14	GND	Ground	Ground	
15	TX Audio (flat)	Audio In	FuG-Specific	
16	Line IN -	Audio In	Audio input	lt. adjust
17	Line OUT +	Audio In	Audio output	lt. adjust
18	RSSI	Analog Output	RX field strength	prop. Field strength
19	HOOK	FuG specific	PL-Decoder	low active
20	PTT REQ	Digital In	Transmitting request	low active
21	ILC DEC	Digital Out	Light Call plotter	low active
22	NO PTT	Digital In	Deny transmitting	low active
23	BUSY NC	Relay contact	On Standby und TX an Pin 11	Potential free
24	BUSY NO	Relay contact	On RX an Pin 11	Potential free
25	PTT ACK COM	Relay contact	Look forward to Pin 12/13	Potential free

<i>Line IN / Line Out</i>	3-Pin XLR	<i>Intercom In / Out</i>	3-Pin XLR	<i>Busy</i>	4-Pinl XLR	<i>ext. TX</i>	5-Pin XLR
Pin 1	Ground	Pin 1	Ground	Pin 1	Busy Com A	Pin 1	PTT Req. -
Pin 2	Audio +	Pin 2	+Ub	Pin 2	Busy No A	Pin 2	n.c.
Pin 3	Audio -	Pin 3	Audio	Pin 3	Busy Com B	Pin 3	n.c.
				Pin 4	Busy No B	Pin 4	n.c.
						Pin 5	PTT Req. +



9. Technical Data

9.1. Power Supply

230V AC 50 Hz
Fused with 2 x 2A

Both internal power supplies (für FuG und Audio) are separately fused.

9.2 Funk

Frequency and HF-power in depends on the used radio models and their programming or adjustments.

Supported radios of Motorola, Kenwood, Tait and Grundig in the frequency range of VHF, UHF and UTV.

9.3 Audio

Line In	symmetrical +6dB, adjustable
Line Out	symmetrical +6dB, adjustable
Intercom	ClearCom-Compatible
VOX	

9.4 Mechanical Data

19" 2HE Case
made of 1,5mm Steel.

3mm Aluminium Frontplate, black laked
with 2 Aluminium handles.

Width	484 mm
Height	875 mm
Depth	380 mm (without connectors)
Depth with handles	420 mm
Weight	9,25 kg (with Motorola GM350)