KAISON

STUDIOTECHNIK

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e-p

INTERCOM SYSTEM K800

for professional postproduction and
broadcast use as well as use in OB-van`s and theaters.

Everyone, who has the appropriate experience in the field of broadcast and television production, must admit, after a few thoughts, that the ways of communicating between different parties, participating in the creative process, belong to the very basic necessities.

Without communication, nothing works!
Nobody will really notice a flawless working talkback system during a normal production-day. It will very soon be noticed when in the middle of a production session part of or even worse, the entire talkback-system fails.

The weakest part of every talkback system is the central matrix, which is responsible for almost all failures.

Talkback-systems are usually too expensive, because the central matrix normally costs more than the connected keypanel-stations.

KAISON has, in relation to this, developed an absolute **"crash proof"** talkback-system based on many years of related experience in the field of planning and constructing of talkback systems.

KAISON requires **no** "central matrix" and has therefore found a way to transfer this intelligence into the key-panel stations. A total system-crash therefore **is just impossible!**

KAISON offers a robust, very cost effective talkback-system, available in 4 different key-panel station sizes. The active key-panel stations only are connected by means of a passive cascadable patch-panel, which may be implemented in a centralized or de-centralized way.

A nearly unlimited **"add-on" system**, highly flexible and expandable, which easily integrates into every studio environment.

Rackmount key-panel station 2RU-19"

K4 with 4 destination- and 4 special function buttons
K7 with 7 destination- and 4 special function buttons
K12 with 12 destination- and 4 special function buttons
K18 with 18 destination- and 4 special function buttons

K4-K18 for example may be connected together to achieve a higher number of destination buttons.

Desktop key-panel station

KT4 with 4 destination- and 4 special function buttons
KT7 with 7 destination- and 4 special function buttons
KT12 with 12 destination- and 4 special function buttons
KT18 with 18 destination- and 4 special function buttons

Camera-rackmount key-panel station

KC4 with 3 camera-buttons and micro-off-button
4 destination- and 4 special function buttons
KC6 with 6 camera-buttons and micro-off-button
6 destination- and 4 special function buttons
KC7 with 5 camera-buttons and micro-off-button
7 destination- and 4 special function buttons
KC12 with 6 camera-buttons and micro-off-button
12 destination- and 4 special function buttons

Parallel-rackmount key-panel station 2RU-19"

KP4 with 4 destination- and 4 special function buttons
KP7 with 7 destination- and 4 special function buttons
KP12 with 12 destination- and 4 special function buttons
KP18 with 18 destination- and 4 special function buttons
KCP4 with 3 camera buttons and micro-off button
4 destination- and 4 special function buttons
KCP6 with 6 camera buttons and micro-off button
6 destination- and 4 special function buttons
KCP7 with 5 camera buttons and micro-off button
7 destination- and 4 special function buttons
KCP12 with 6 camera buttons and micro-off button
12 destination- and 4 special function buttons

The parallel rackmount key-panel stations may be connected to the key-panel stations K4-18, KC4-12 and, being fully functional, by means of a conversation kit.

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External-interface 2RU-19"

KE4 for connection at 4 key-panel stations to 1 external 4-wire
KE7 for connection at 7 key-panel stations to 1 external 4-wire
KE12 for connection at 12 key-panel stations to 1 external 4-wire
KE18 for connection at 18 key-panel stations to 1 external 4-wire
KE7-7 for connection at 7 key-panel stations to 7 external 4-wire

KE4-18 and **KE7-7** offer the following connectivity:

- Different brand talkback systems
- Wireless headsets
- 4-wire lines telecom
- Studio IFB with programm sound
- ISDN using an additional ISDN codec
- AES-EBU using an additional converter
- Fiber optic using an additional converter

Patch-panel 1RU-19"

KS 4x9 for 9 key-panel stations with 4 buttons
KS7x10 for 10 key-panel stations with 7 buttons
KS12x6 for 6 key-panel stations with 12 buttons
KS18x4 for 4 key-panel stations with 18 buttons

Destination buttons

Busy destinations are indicated by a **red**, calling participants are indicated by a **green** light.

The **4 special function buttons** feature the following functions:

Answer button AT

AT tallies after a call during a 2 minute period. Last caller remains stored in memory. With **AT** or the destination button, the call is answered.

Group select button GW

With **GW** and the destination buttons, it is possible to preselect real N-1 group conferences.

Group call button GR

GR activate the preselected group conference.

Hand-free button FS

FS and **GW** enable different ways of "hands free" talking.

Technical data

Rackmount key-panel station K4, K7, K12, K18, KC4, KC6, KC7, KC12

Dimensions	2RU-19", depth 100mm without connectors
Number of buttons	(K4)8, (K7)11, (K12)16, (K18)22 (KC4)12, (KC6)17, (KC7)17, (KC12)23
Electronical parts	SMD sub boards on a mother-board
Measurements	all audio measurements using 2 key-panel stations connected through a patch-panel
Microphone amplifier	input -46dBu at 4Kohm, signal to noise ratio better than 100dB with reference to the input
Loudspeaker amplifier	output 4V at 4Ohm, signal to noise ratio better than 78db with reference to +6dBu output
Frequency Response	160Hz -10KHz -3dB
Distortion	better than 1%
Microphone	condenser swanneck 4,5mV/1PA/1KHz
Frontcontrol	2 volume controls for main and aux
XLR 5F at front	headset-connector, switches off the internal loudspeaker and microphone
Rear connector plate	
(K4, KC4) connector A	1x9 pin male sub-D to patch-panel (cable type 8x0,14 with screen)
(K7, KC6, KC7) connector A	1x15 pin male sub-D to patch-panel (cable type 14x0,14 with screen)
(K12, KC12) connector A	1x25 pin male sub-D to patch-panel (cable type 24x0,14 with screen)
(K18) connector A	1x37 pin male sub-D to patch-panel (cable type 36x0,14 with screen)
Cable-length	max. 5km using 2x0,14 square mm single talkback connections over normal coax cable are possible
Connector B	1x9 pin female sub-D for aux, earth free in- and outputs +6dBu
Connector C	1x15 pin female sub-D for parallel key-panel station connection (modulation)
Conversation kit	
Connector DE	2x 25 pin female sub-D for parallel key-panel station connection (control)
(KC4, KC6, KC7, KC12)	
Connector FG	1x 25 pin male, 1x 25 pin female sub-D for 3-6 cameras, earth free in- and outputs +6dBu
Power supply	230V AC, built in power supply 2 x 15V/1A chassis-euro-connector
Temperature	+5 degrees- +40 degrees celsius
Weight	4 kg

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Desktop key-panel station KT4, KT7, KT12, KT18

Dimensions	width 256mm, depth 252mm, heigth 67mm
Weight	4 kg
Power supply	with separate power supply box 2 x 15V/1A typ KN15, 174 x 80 x 58 mm, weight 1 kg
Technical Data	see K4-18, without conversation kit for parallel key-panel stations

Camera rackmount key-panel station KC4, KC6, KC7, KC12

Technical data	see K4-12, additional +6dBu 4-wire connection for 3-6 camera`s on 25 pin male and female sub-D, 3-6 camera buttons and microphone-off button

Parallel rackmount key-panel station KP4, KP7, KP12, KP18
KCP4, KCP6, KCP7, KCP12

Dimensions	see K4-18, depth 67mm without connectors
Rear connector plate	see K4-18, without connector A, without power connector 230V AC

External interface KE4, KE7, KE12, KE18, KE7-7

Dimensions	see K4-18, front-indicator for send-receive status, external and internal
Rear connector plate	see K4-18, without connector D and E 9 Pin Sub-D for program-sound in, (KE7-7) 2x 15 pin sub-D for 7x modulation in- and out (KE7-7) 2x 15 pin sub-D for 7x control in- and out (KE7-7) 1x 15 pin sub-D for 7x program-sound in threshhold for modulation, signal input/output, external connection on connector B, switchable between 6dBu to 4-wire level -17/+9dBm

Patchpanel KS4x9, KS7x10, KS12x6, KS18x4

Dimensions	1RU-19", depth 54mm without connectors
Front-jacks:	
(KS4x9)	36 jacks divided in 9 divisions of 4 jacks
(KS7x10)	70 jacks divided in 10 divisions of 7 jacks
(KS12x6)	72 jacks divided in 6 divisions of 12 jacks
(KS18x4)	72 jacks divided in 4 divisions of 18 jacks
Rear connector plate:	
Earth connector	2x Weidmüller connector for technical earth and chassis, chassis-bolts
(KS4x9)	9x 9 pin female sub-D for K4, KT4, KE4
(KS7x10)	10x 25 pin female sub-D for K7, KT7, KE7
(KS12x6)	6x 25 pin female sub-D for K12, KT12, KE12
(KS18x4)	4x 37 pin female sub-D for K18, KT18, KE18

Operational explanations for the intercom system KAISON K800

1 Answering button AT

In case a panel is being addressed by more than one participant, it is possible to answer with **AT** to all communicating parties at the same time to tell them for example to communicate in a disciplinary matter. **AT** however, must be pressed during the time other parties are trying to address you, in order to achieve a summing function. If **AT** is activated a short time after the participants tried to contact you, the last participant is being stored in memory, overwriting the previous participant. The green tally-light of **AT** goes out independent of memory content after 3 minutes and immediately after activation of **AT**. It is possible to activate **AT** with a foot-switch, connected to female connector C at the rear connection panel, for „hands-free“ communication with all parties.
(Short-cut pin 1+11 on female connector C with a foot-switch)

2 Group select button GW

During simultanious activation of the **GW**-button and the destination buttons, it is possible to pre-programme one ore more participants.

3 Group call button GR

With the **GR**-button all **GW**-button pre-programmed participants are being called. If all participants programme their panels in exactly the same way, and if they push the **GR**-button while speaking, an **n-1 conference** takes place. It is possible to activate **GR** with a foot-switch, connected to female connector C at the rear connection panel, for „hands-free“ communication with all parties.
(Short-cut pin 1+10 on female connector C with a foot-switch)

4 Hands-free button FS

The **FS**-button enables „hands-free“ communication with all **GW**-button pre-programmed participants. In order to activate this feature, the **FS**-button must be pushed, after which it lights up green. After this, the **GW**-button must be pushed. The **FS**-button changes colour from green to red and the **GW** pre-programmed participants illuminate red as well. The internal loudspeaker is not attenuated in order to hear answering participants. Answering participants should, before pressing their answering button **AT**, push the **FS**-button in peparation. The **FS**-button illuminates green on all panels of the answering parties. In this way it is achieved, that the loudspeaker is muted completely during activation of the destination button or the answering button **AT** in order to make sure that feedback does not take place. All **FS**-modes, **green** or **red,** can be de-activated by pushing the **FS**-button once more. Besides the conference-feature with **GW** and **GR**, which must be programmed on all panels of the conference parties, a conference with **FS** as previously described, is built up much faster, because the conference is programmed on one single panel only. It has the additional advantage of having the „hand-free“ speaking feature on this panel.

5 Headset

If a **headset** is connected to the 5 pin XLR female front-connector, the built-in loudspeaker and swanneck microphone are disconnected. Standard internal loudspeaker attenuation, during which a key is being pushed, does not take place in this case, because feedback from a headset-speaker to the headset-microphone is not possible.
(Male XLR, pin 1 hot + pin 2 shield for microphone, pin 3 hot + pin 4 shield for loudspeaker in headset, pin 4+5 must be bridged to activate this function).

6 Headphone

In case a **headphone** is connected to the pin XLR female front-connector, it makes sense only to disconnect the internal loudspeaker, but not the internal swanneck microphone. Mount a 5-pin-male-XLR to the headset (Pin 3 hot, pin 4 shield, no bridge between pin 4+5). To disconnect the internal loudspeaker, please bridge pin 1+8 on female connector C on the rear connection panel.

7 „on-air“ tally loudspeaker mute

During **„on-air“ tally**, the internal loudspeaker in a **studio-panel** should always be muted. To mute the loudspeaker, the **studio-tally-system** must supply an earth-free contact-closure between pin 1+8 on female connector C at the rear connection panel. Operation with **headset** or **headphone** is always possible during **„on-air“ tally** operation.

8 D-contact

The **d-contact** on female connector B, pin 8+9 is earth-free. Its contacts are rated max. 140mA, 200V. It is always closed when a key on the panel is activated. With **d-contact** for example it is possible to attenuate existing monitoring loudspeakers for clear unterstanding purposes.

9 N-contact

The **n-contact** on female connector B, pin 6+7 is earth-free. Its contacts are rated max. 140mA, 200V. It is not used so much as the d-contact**.** The **n-contact** is always closed, when the panel get a call from another panels. During **headset** operation for example it is possible, to activate a large „attention-light“, to signalise an incoming call from a greater distance, which can used for example in theatres.

10 Producer listening

In a broadcast environment, the camera-control (shading), lighting and VTR operators prefer to hear permanent the producer on the intercom system. To realise this feature, female connector B, pin 2+3+1 (transformer output, a+b+shield) on the producer-panel must be connected to female B, pin 4+5+1 (transformer input, a+b+shield) of the panels, who`s operators want to listen to the producer. These operators can control their volume with the **AUX** control.

11 Listen (monitoring), pre-listen +6dBu externally

External sources, +6dBu, such as a CD player, or programme sound are simply connected to female connector B, pin 4+5+1 (transformer input, a+b+shield). Monitoring operators can control the volume with the **AUX** control.

12 Producer talkback without external interface KE

On female connector B, pin 2+3+1 (transformer output, a+b+shield), the unswitched microphone signal with a level of +6dBu is present. Therefore it is possible, to distribute this signal via a 2 prong external pushbutton-switch to a studio loudspeaker.

13 Producer talkback with external interface KE

When panels are routed via the patch-panel to the **external interface KE**, it is possible, that more than one panel can talkback into a studio loudspeaker. To achieve this feature, connect female connector B, pin 2+3+1 (transformer-output, a+b+shield) of the **external interface KE** to the studio loudspeaker. It is also possible, to feed in +6dBu programm sound on male connector D, pin 7+3+1 (transformer input, a+b+shield). Programme sound can be continiously heard on the studio loudspeaker and will be attenuated through the talkback panels by 20dB (**IFB**, **I**nterrupted **F**old **B**ack).

14 Duplex wireless radio connection with external interface KE

If more then one panel is connected to a **duplex wireless radio system**, the input on female connector B, pin 4+5+1 (transformer input, a+b+shield) and the output on female connector B, pin 2+3+1 (transformer output, pin a+b+shield), must be connected to the Wireless Radio Base Station. The built-in threshold switch in **KE**, makes sure, that during an incoming radio-call tallying takes place on all panels, which are routed via the patchpanel to the **external interface KE.**
It is also possible, to feed in +6dBu programm sound on male connector D, pin 7+3+1 (transformer input, a+b+shield). Programme sound can be continiously heard on the wireless radio and will be attenuated through the talkback panels by 20dB (**IFB**, **I**nterrupted **F**old **B**ack).

15 Simplex wireless radio connection with external interface KE

Connection is made as described in pos.14. However, in a **simplex wireless radio connection** the transmitter of the base-station must be activated by the earth-free contact closure on female connector B, pin 6+7 on the **external interface KE** (max. 140mA, 200V).

16 4-wire telecom lines with external interface KE

The **external interface KE** can also be delivered with 4-wire telecom line level. The connection is made as described in pos.14. The input level is -17dBm at 600Ω, the output level is +9dBm at 600Ω as required by German Telekom. Other input- and output-levels are adjustable.

17 ISDN with external interface KE

The **external interface KE** can be connected to commercially available **ISDN** telephone systems by means of a „hands-free“ door talkback interface. Several panel-participants, who are routed via the patch panel to **KE**, are able to select a pre-programmed number on the **ISDN** telephone system by using the destination button. When the connection is made, the same destination button or the answering button is used, to communicate with the other party on the telephone. Vice versa an external telephone caller can call the connected panels, speak and listen. The telephone caller closes the connection.

18 Camera talkback with camera panel KC

The **camera panel KC** contains a maximum of 6 self locking keys enabling communication with 6 cameras in duplex mode. These keys switch the listen and hear path to the cameras simultaniously, because cameramen do not use a destination button on their headsets. Activation of the camera keys causes the illumination on these buttons to change from red to green. The CCU`s are connected in a 4-wire way to male connector F at the rear connection panel of **KC**. Female connector G enables the connection of additional **camera panels KC** to the CCU`s. The **AUX** control on the **camera panel KC** controls the volume level of the hearing of the cameramen. The **MIC OFF** button (locking) switches off the microphone of **KC** to the cameramen. The listen function on **KC** remains activated.

19 Signalisation of active panels K

All **panels K** should be disconnected (230V AC) with the studio, in which they are situated, when not in use. Trying to reach a panel in a deactivated studio, is indicated by the lack of illumination in the panel`s destination key. Switched off studios are instantly recognized this way.

20 AUX control for external interface KE

In standard configuration the **AUX control** is connected via jumper on the **AUX input** (see pos.11). Should **external interface KE,** as destination button on **panel K**, be controlled by the **AUX control** on **panel K**, at least 2 jumpers should be relocated in **panel K**. After this is done, an individual level control is possible in **panel K**. This is very useful, if the modulation level on a remote line fluctuates and is connected to **external interface KE**.
Example: If the **external interface KE** is connected via the patch panel to the 4th button of a **panel K, K** should be opened and on **basecard KF18**, **jumper T4** must be relocated (see documentation **KF18**). Also **microphone-loudspeaker-amplifier KM9,** positioned on **KF18**, must be pulled out, and **jumper J2** must be relocated (see documentation **KM9**).

21 Testing the panels K

By using a **sub-D adapter female to female**, 2 equal sized **panels K** can be connected by means of placing a **1 to 1 cable** between **connector A**. In this way it is possible to test all functions of the **panels K** against each other. If a destination button is pushed on one **panel K**, the light on the other panel`s destination button illuminates green. Also the answering button on the panel being called, lights up green for 3 minutes. All remaining destination buttons are illuminated red, because of the „busy“ signalisation. Deviations on this are errors.