KCK

K-001.2 e

Automatic Color Camera for Studio and Outdoor Applications

The BOSCH FERNSEH KCK color camera was developed for professional use in television studios and mobile vans. The camera can be matched to all international television systems and standards. Being highly flexible, the camera, in conjunction with control panel and CCU, offers unique operational comfort. High reliability, an operator-oriented design and a variety of uses are valuable features making this camera as economical in operation as possible.

Features

- Automatic set-up
- Automatic line-up
- Coaxial or multi-wire camera cable
- 3-tube separate luminance camera (BOSCH FERNSEH WRB system)
- Weight-saving camera construction of injection-moulded aluminium
- High mechanical stability
- All TV standards and color TV systems (PAL/PAL-M/SECAM/NTSC)
- Compact camera control unit
- 1,2" Plumbicons or Leddicons with bias light or ACT/HOP

80/24378

BOSCH

KCK

KCK
color TV camera
with several automatic operating controls
for universal use

Alternative

KCK-R
broadcast-quality
reporter color camera
with related interface
electronics

Interface electronics

Camera system

The KCK color camera chain consists of the camera, CCU with the modularized color amplifier set, line-up control and operating control panels. The control panels are designed so as to satisfy present-day operational requirements: They offer maximum ease of operation and permit various combinations. The major operating functions are automated.

The connection between camera and CCU can be made by multi-wire cable for distances up to 800 m, or by coaxial cable for distances up to 2000 m. For coaxial

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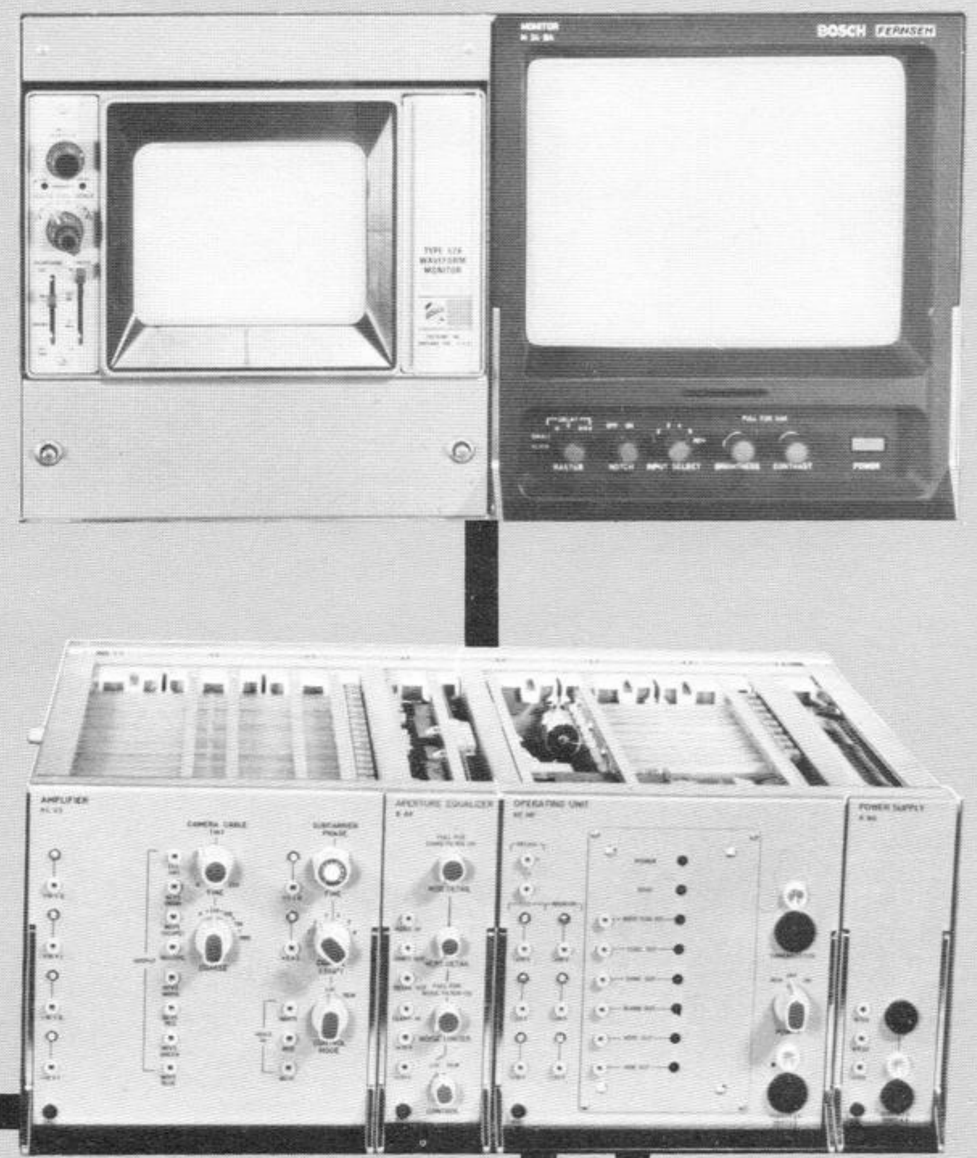
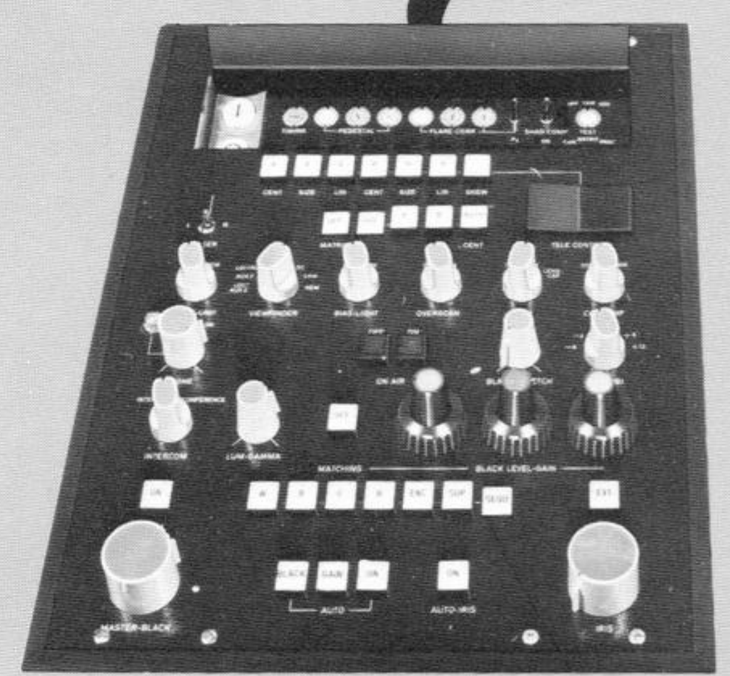


Monitoring
functionally arranged,
for video and
waveform monitoring

CCU
in modern
compact design



Line-up control panel
for adjustment and control
of all camera functions

Operating control panel
for operational
simplicity

cable operation, a coax adapter is integrated in the camera and a further plug-in unit is added to the amplifier chain. The change to the desired cable system can be effected with a few modifications.

* In place of the KCK camera, the portable KCK-R reporter camera can also be connected to the CCU, if desired. For this purpose, an interface electronics is inserted between the KCK-R and the camera cable leading to the CCU. It is possible to use multiwire or coaxial cables in this case, also for distances up to 2000 m.

* For more details, see pages 10 and 11.

KCK

Camera

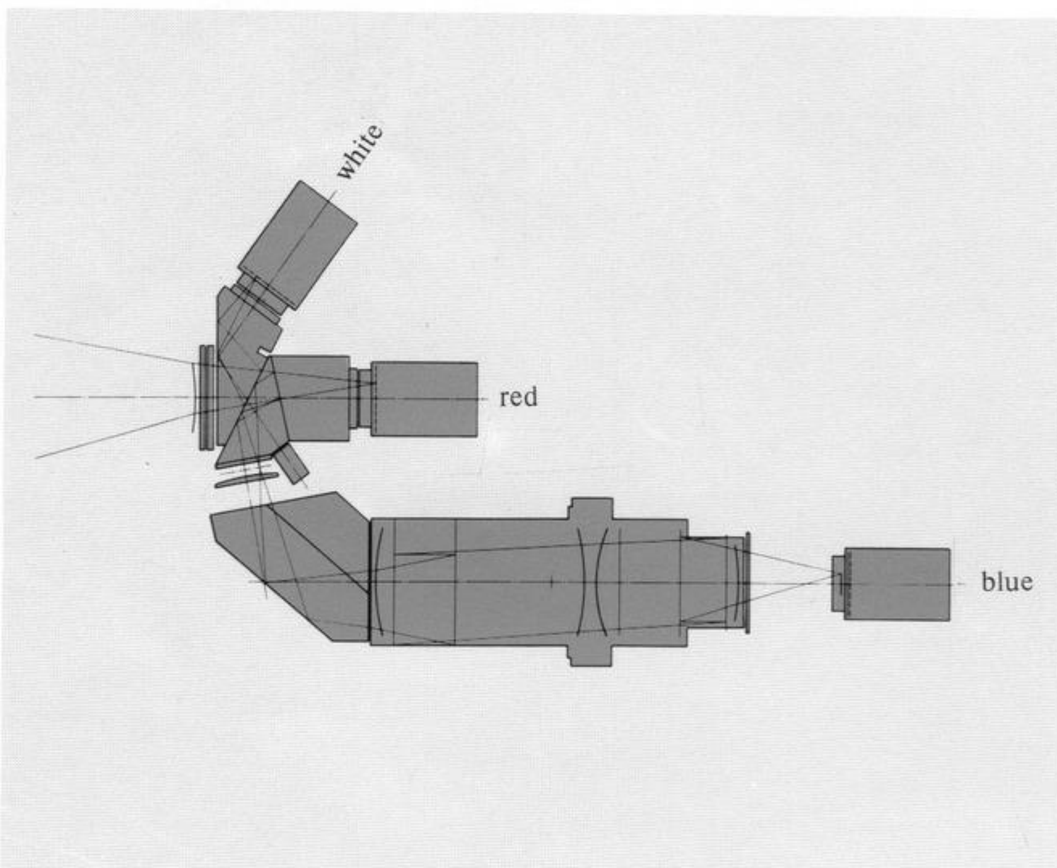
Lenses

A number of high-quality lenses of different make are available for the KCK. Lenses used for the KCU can also be used for the KCK. A quick-release attachment makes lens changing easy.

Camera head

The separate luminance system, using only three 1,2" pick-up tubes (with or without ACT/HOP), was adopted for the KCK. It offers all the advantages of the WRB system:

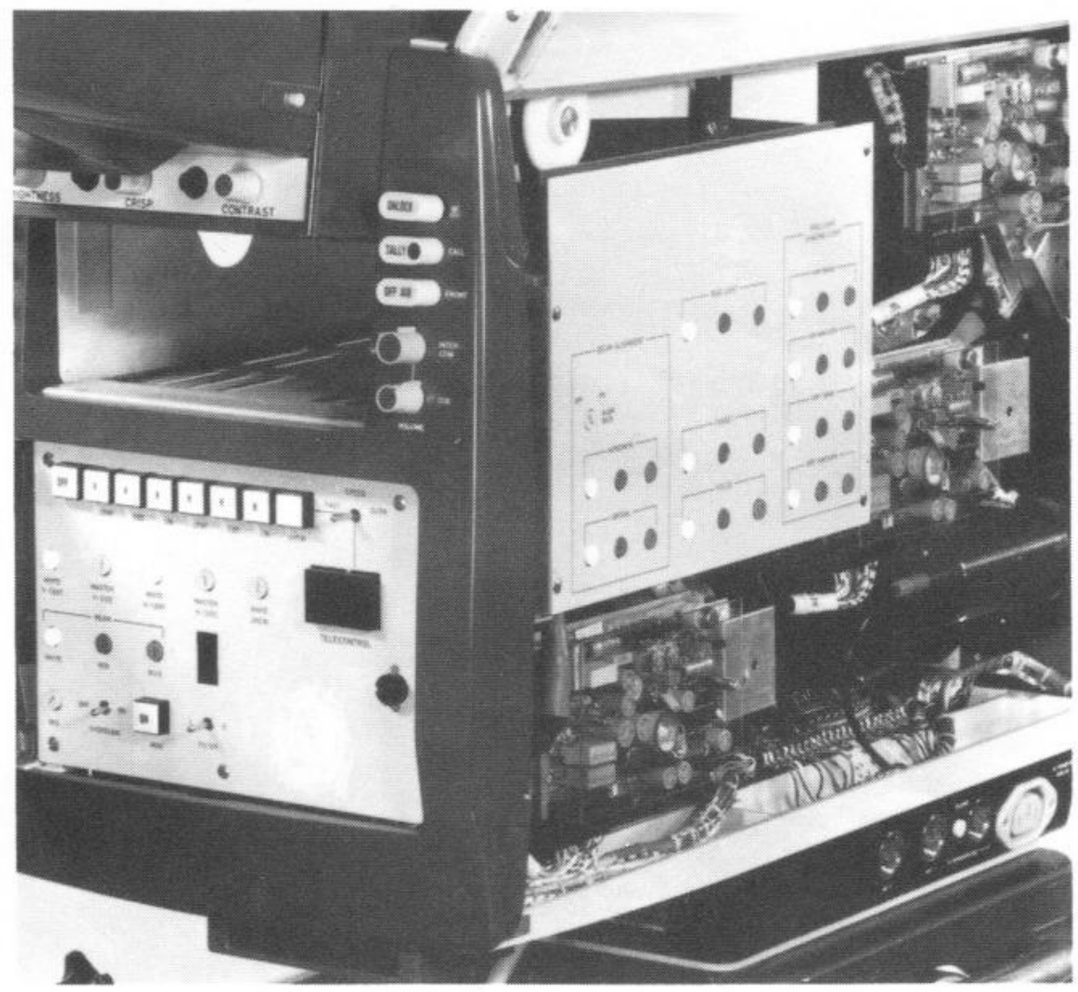
- Highest sensitivity due to wide white channel
- High fidelity in color reproduction
- High-quality compatible B/W picture
- Excellent resolution of details
- Optimization of registration problems
- High S/N ratio due to minimum optical loss and extremely low-noise preamplifiers.



71/17587

Opto-electronic converter section.

The converter section consists of a beam splitter (WRB), correction filters, relay optics in the blue channel as well as a polarisation filter and filter wheel with conversion filters for adapting to varying color temperatures and brightnesses. Color splitter and deflection assemblies including the preamplifiers, in conjunction with the case front, form a compact self-contained unit. The optical system contains a test projector permitting bias light operation, optical adjustment and automatic horizontal and vertical centering. Special interface optics in the blue channel prevents lag at low light levels by means of a reduced picture on the photocathode of the pick-up tube.



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Electronics

The whole camera head electronics package is made up of plug-in card units and is therefore easy to service. The package includes:

- fully electronic stabilizing circuits e.g. for centering
- deflection generators
- auto-centering circuit
- convergence store
- WRB Video preamplification.

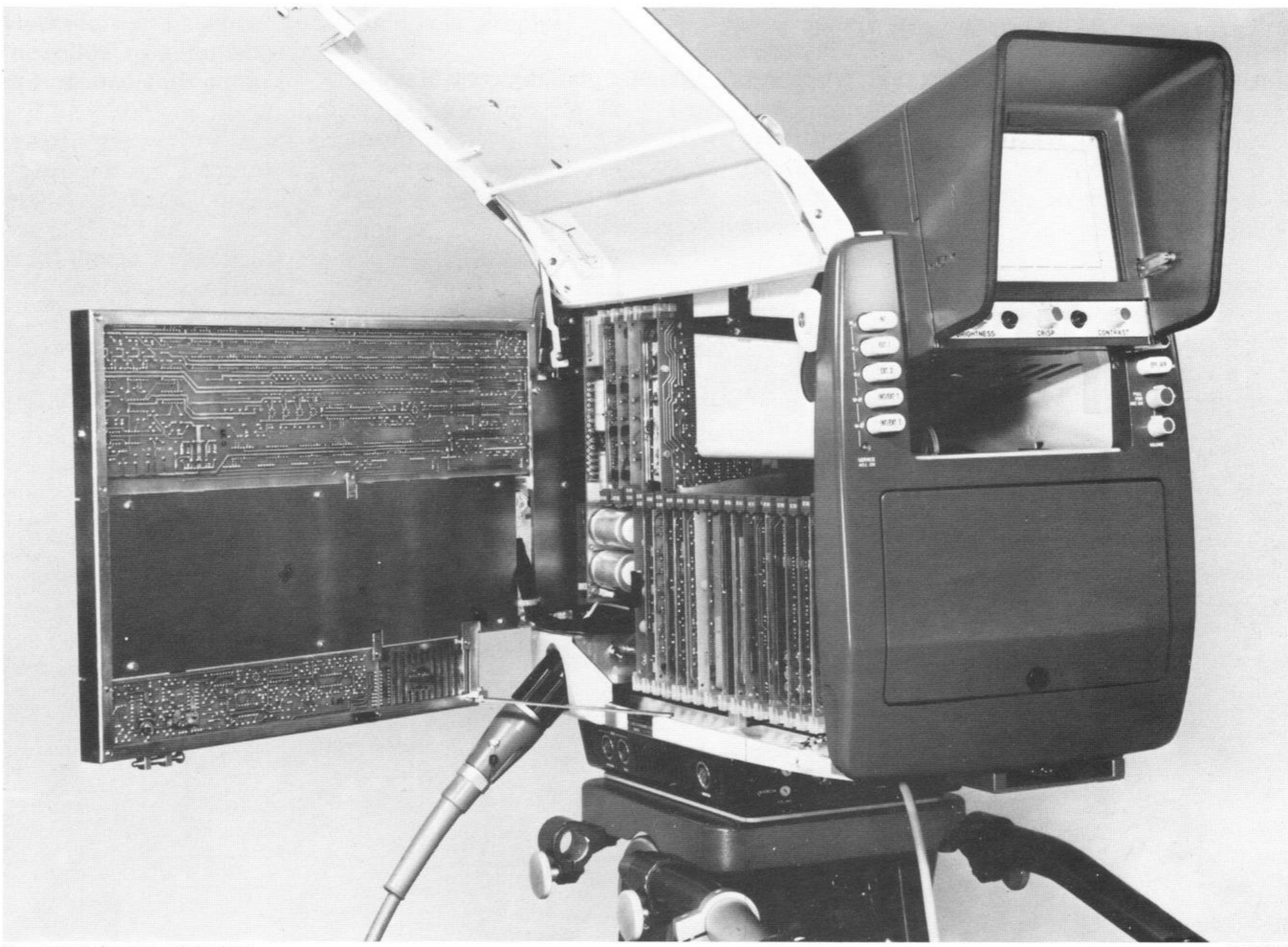
Since the deflection functions of the red and blue pick-up tubes are stored in a special electro-mechanical storage system, it is possible to interchange the camera heads with the same CCU without the necessity for new line-up. The storage is not time-bound, and does not require any special voltage source, if the cameras are switched off.

All the kinematics functions can be initiated either at the camera head or from the line-up control panel. The tele-control system for controlling the convergence store is in digital technology.

The coaxial adapter, a self-contained unit, is accommodated in a side-door of the camera case. Changeover from multi-wire to coaxial cable operation is a simple procedure.

The entire intercom system is in the removable bottom part of the camera. There are also the connections for two speaker microphones and a power outlet for a camera spot or soldering iron. Equalizing amplifiers and automatic dynamic compressors are also provided for the two microphone inputs.

KCK



Plug-in cards for easy maintenance. 75/20884

Viewfinder

The electronic viewfinder is provided with a 17-cm diameter precision tube of high brightness and resolution. It is tiltable and, being a separate unit, can be easily replaced. The viewfinder can be supplied alternatively with the internal camera signal or with two external composite signals. Due to this, mixed pictures of internal and various external signals can be fed to the viewfinder. Besides these all the necessary outlets for dolly operation are provided for red light, headset, monitor outlet, for example.

Camera cable system

- Multi-wire version for cable lengths up to 800 m (Ka 64; 13 mm type)
- Multi-wire version for cable lengths up to 100 m (Ka 100/1; 7 mm type)
- Adaptation to other widely used B/W and color camera cables is possible
- Coaxial cable version for cable lengths up to 800 m (9 mm type)
- Coaxial cable version for cable lengths up to 2000 m (22 mm type).

All commercially available coaxial and triaxial cables can be used. Maximum length that can be used is determined by the cable specification. In order to use coaxial and triaxial cables, the multi-wire version can be converted by inserting one coaxial multiplexer each in the camera head and in the CCU. (Triaxial cables will be used only when special shielding and additional safety precautions are required.) The transmission of all the signals from the head to the CCU and from the CCU to the head is possible by coaxial cable.

KCK

Camera chain:

consisting of camera, monitoring unit, processor, main and operating control units.

76/21838

75/20456

The new CCU of the KCK camera is of the most advanced compact design. It is housed in a single plug-in unit support and the total weight is less than 35 kg.

The CCU consists of:
- Amplifier
- Contour corrector
- Operating unit
- Power supply unit
- Amplifier unit: the following assemblies deserve special mention:
- Cable length equalizer for frequency response and pulses
- Shading compensator
- Matrix converting the WRB into the YRGB signal and boosting the red signal
- Gamma correction
- Limiter for YRGB signal in the output amplifier

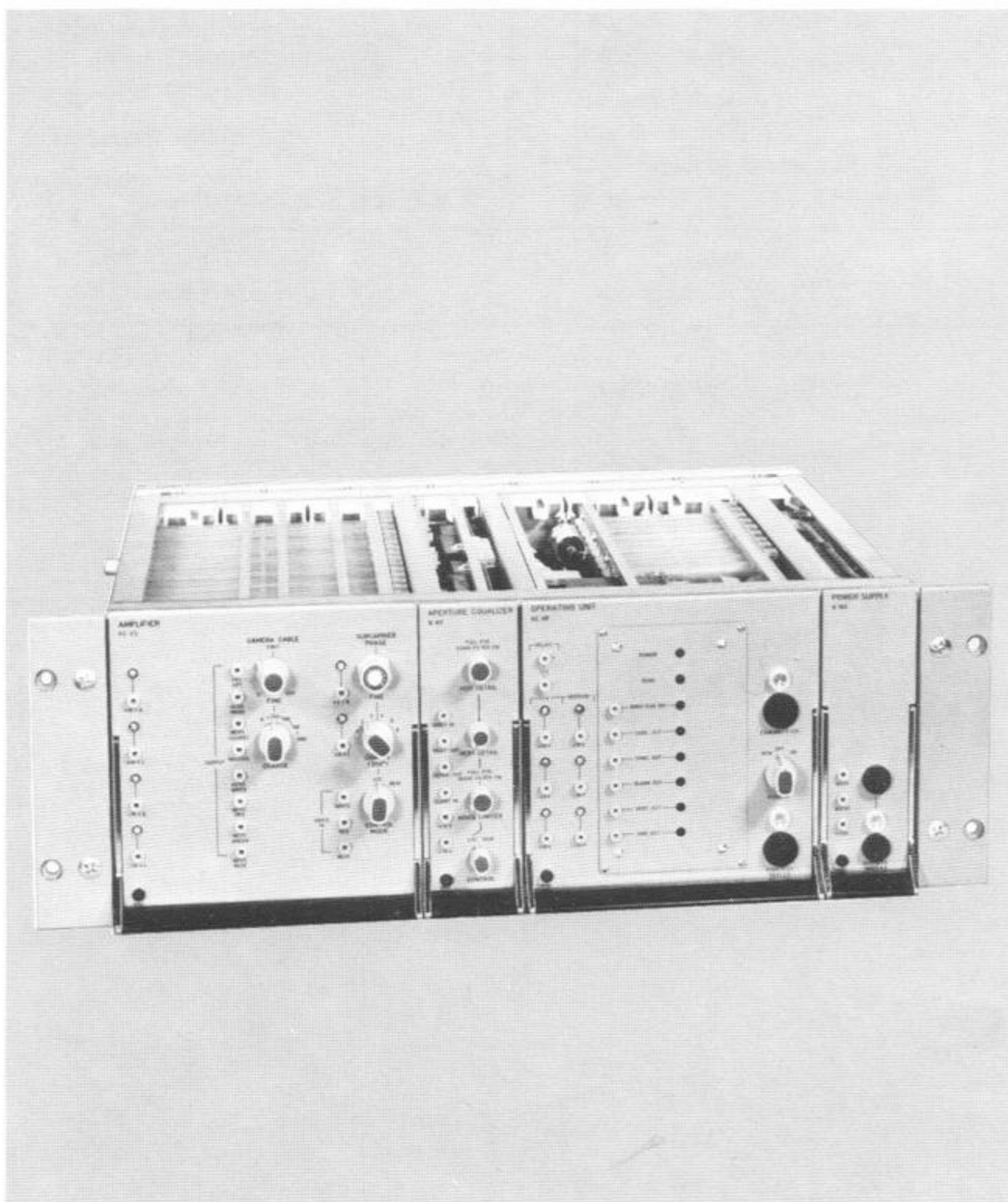
Operation and service are considerably simplified by the following automatic circuits:

- Automatic iris control
  The automatic iris control of the zoom lens can be switched off for manual control. In this case, the zoom lens iris control can be controlled manually by means of a potentiometer at the control panel.

- Automatic white balance and black balance
  It can also be switched off for manual adjustment. The storage of new nominal settings for given scenes is possible in a special store.

The ● contour corrector is a two-delay line system with a comb filter which can be overridden. The contours are enhanced symmetrically. Separate control for the horizontal and vertical contours is possible. The noise limiter and notch filter can also be overridden.

The ● operating unit controls the functions from the CCU to the camera head. The following sync systems can be used:



Camera amplifier 75/20652

- In PAL or PAL/M with the pulses: blanking, sync, subcarrier, burst flag or uni pulse.
- In SECAM with the pulses: subcarrier, blanking, sync, SECAM I.D. pulse, or composite color video.
- In NTSC with the pulses: blanking, sync, subcarrier, burst flag pulses or composite color video.
- Genlock operation with black burst is possible in NTSC.

The power supply is compensated automatically for various camera cable lengths, so that constant power is available at the head.
The automatic error indicator deserves special mention. This is a system for automatic surveillance of the

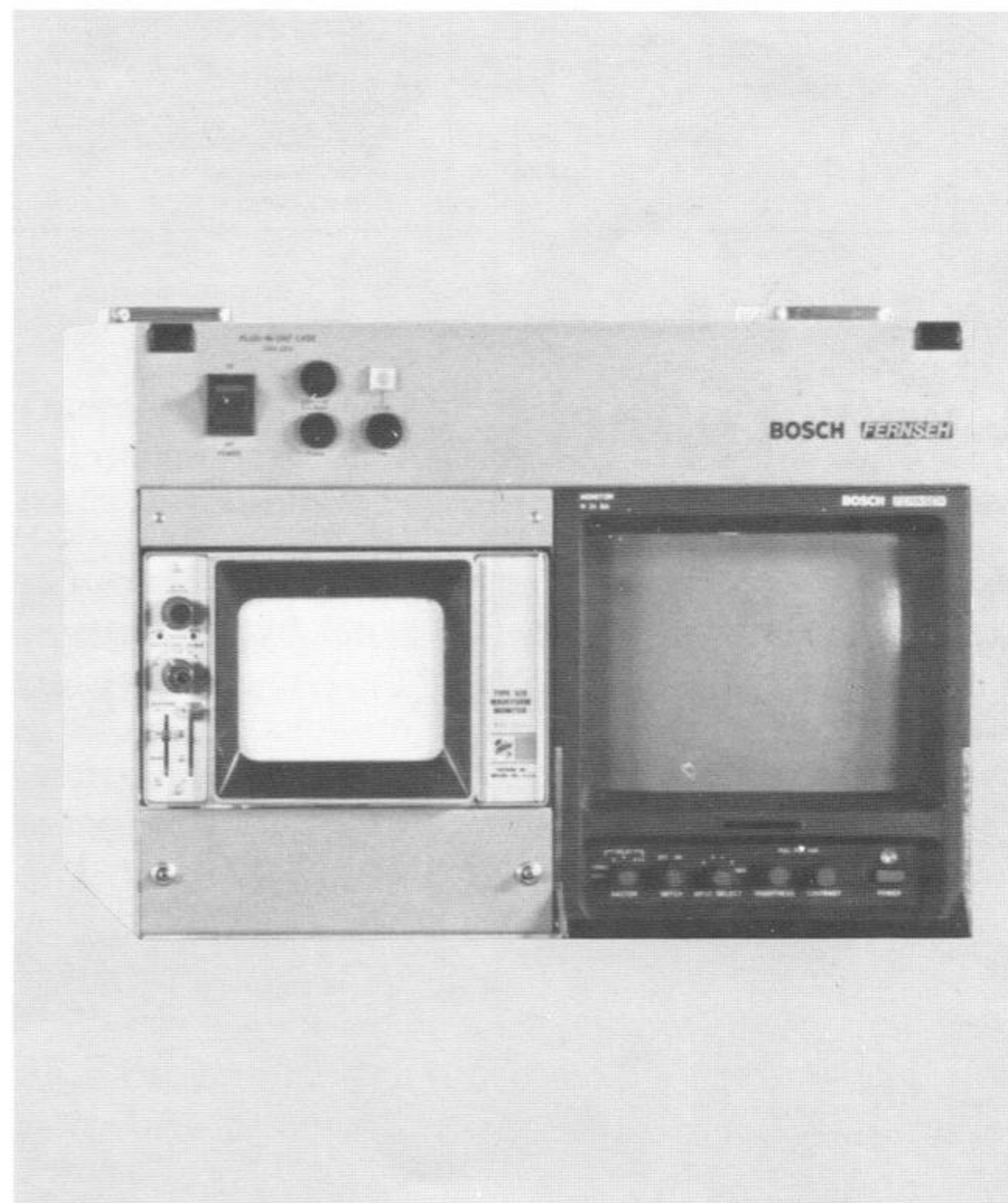
- Sync supply
- Primary voltage indication for the power supply unit
- Overload indication for the operating unit (specially the temperature).

The surveillance is performed by LED indicators.

The whole of the CCU receives its power from the ● power supply unit. It is equipped with an automatic electronic protective device and has short-circuit-proof circuitry.

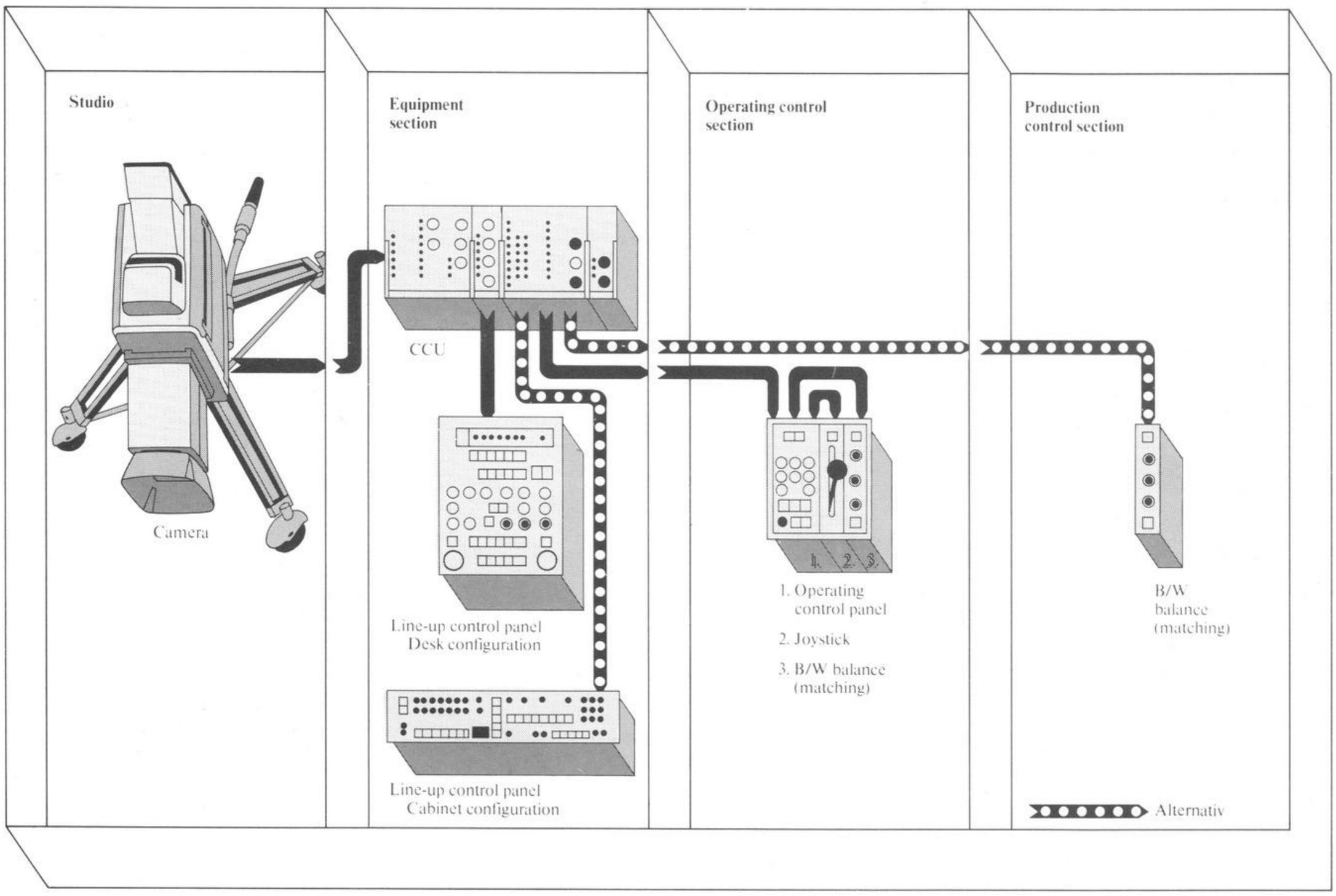
Monitoring

The amplifier unit contains the signal switcher for the picture and waveform monitors. A particularly favorable approach from the operational point of view is the arrangement of the two picture monitors side by side in a single plug-in unit support or box.



Monitoring unit 75/20456

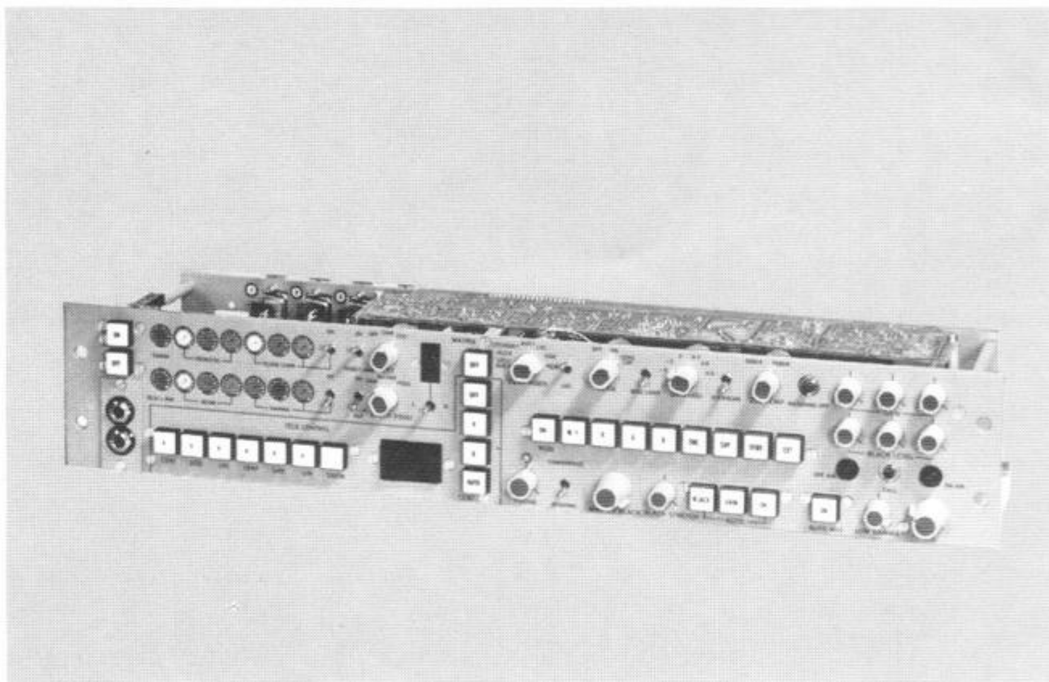
KCK



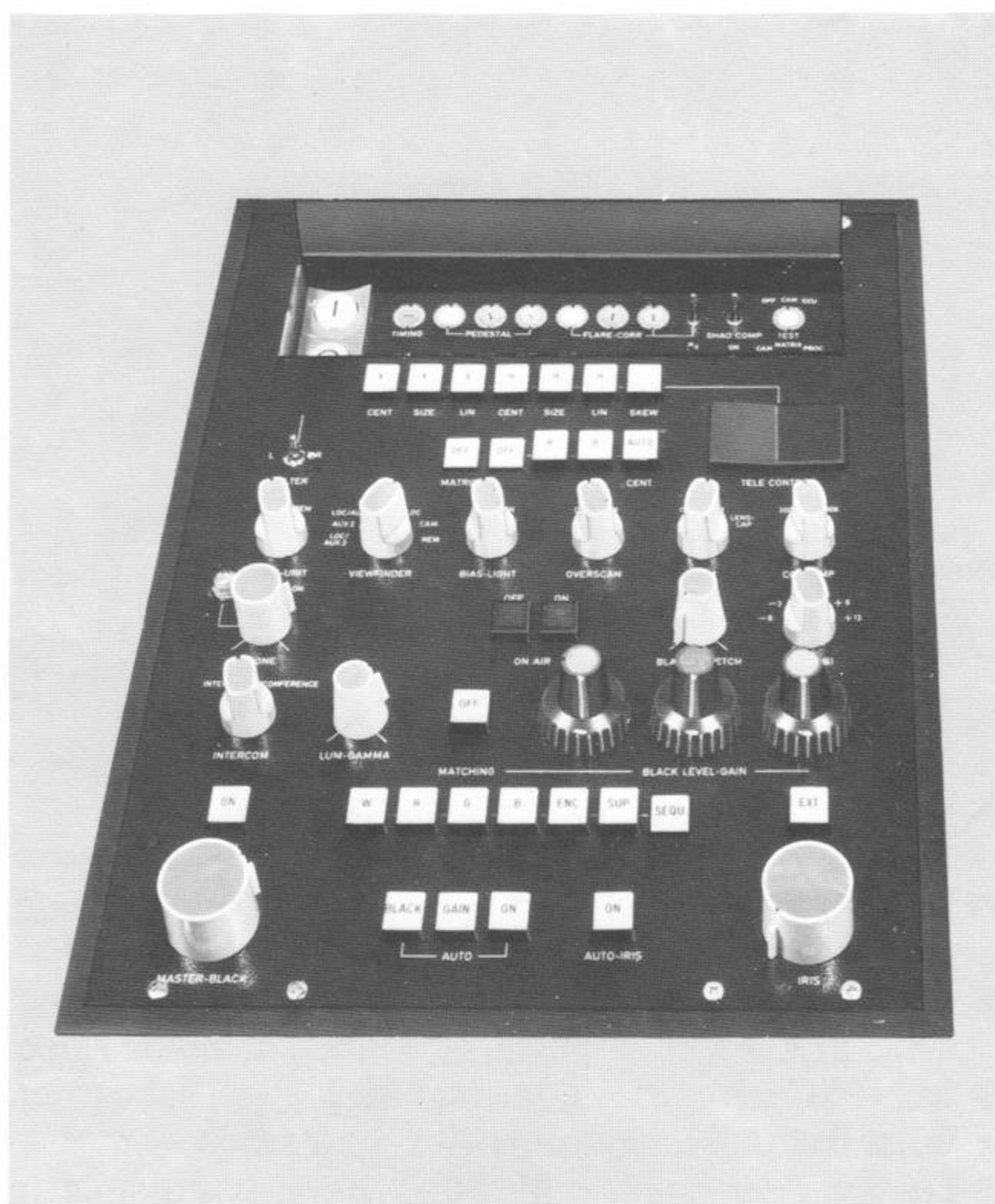
Control panel

Line-up control unit

All the operational camera adjustments can be done from the line-up control panel, i. e. the camera can be completely lined up from this panel by one person. The most important functions of the line-up procedure are automated. This unit can be mounted up to 200 m away from the camera amplifier set. The line-up control panel can be supplied in two configurations: Either in modular version or in the rack-mount version (DIN or 19").



Rack mountable line-up panel 75/20652



Main control panel. 75/20477

KCK

Line-up

Power supply*

Delay compensation
(Horizontal sync phase for cable equalization, only for coaxial operation)

Black level basis/
Black reference
(for auto-black)

Line-up functions for W, R, B:
Black level basis (manual)
Flare correction*
Gamma correction*
Shading*

Test functions
Color bar
Test signal
On/Off
Camera
CCU

Test point selection
Camera
Matrix
Output

Tele-control
with toggle switch for registration adjustment (H and V) by means of difference signals W-R or W-B

Automatic centering

Matrix*

* can be switched off

Operation

Operating mode
Line-up control panel
Operating control panel
Joystick

Viewfinder selection
Internal
Internal/external 1
External 2
Internal/external 2

Control of viewfinder selection
Camera
Remote

Matching* (remote)

Bias light*

Over-scan*

Lenscap*

Beam*

Color temperature
(electronically or filter wheel change)
3000 K up to ca. 10000 K

Black stretch

Gain
(jointly for WRB)
-6 dB/-3 dB/0 dB/+3 dB/
+6 dB/+9 dB

Gamma luminance
(continuous)
Manual black balance (R, G, B)
Manual white balance (R, G, B)

* can be switched off

Automatics

Automatic black balance*
In the "Lenscap" position the R, G, B signals are automatically set to the preselected "Black reference" value.

Automatic white balance*
This automatic control responds to a white pattern in the scene (10% area) and sets the W, R, G, B amplifiers in the CCU to the same values.

Blinking of the focal length mark in the viewfinder indicates the black and white functions. After performance of the automatic process (approx. 3-5 sec.) the operating condition of the camera is restored.

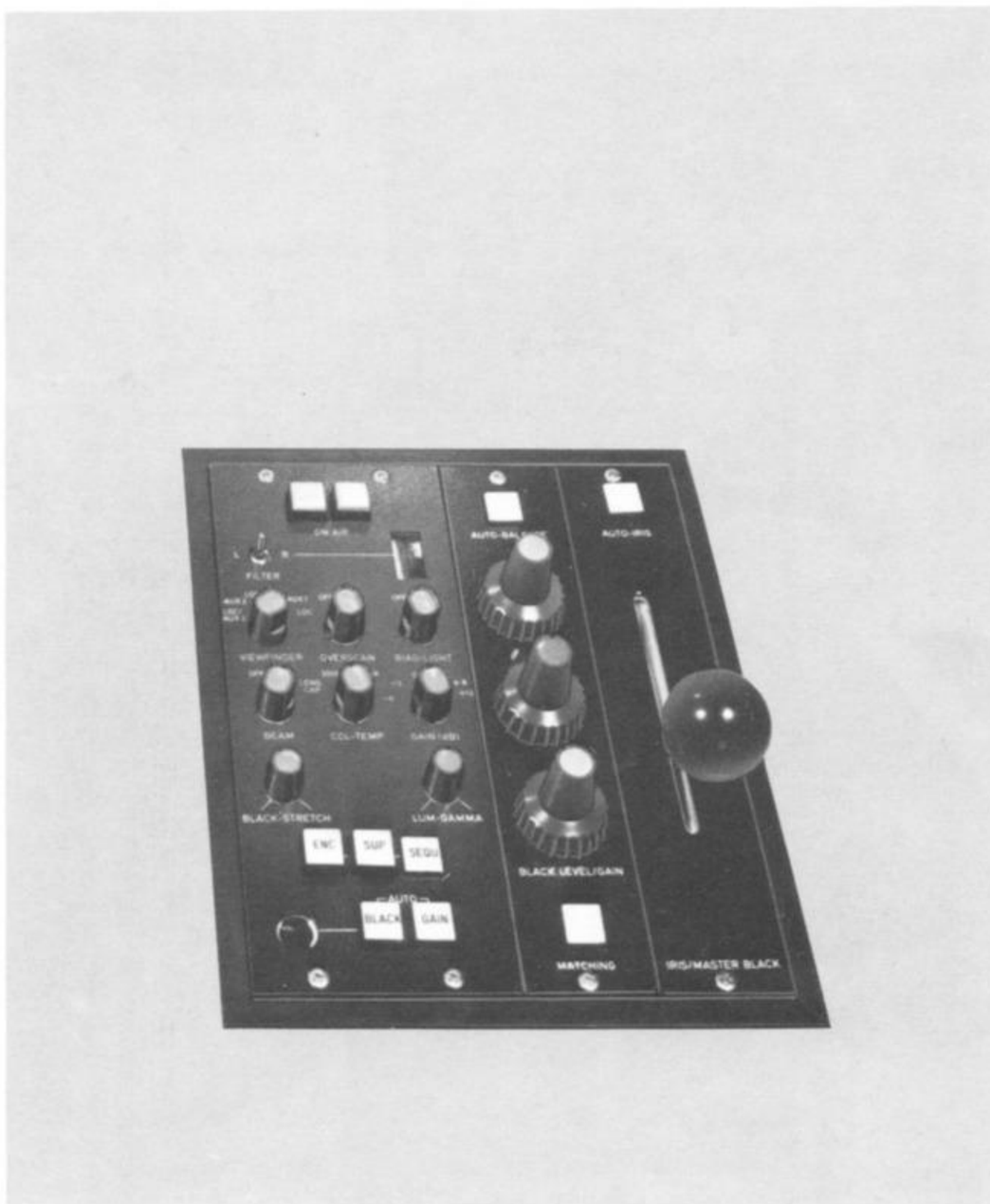
Automatic iris*
Automatically controls the iris of the lens (lenses 0 to + 5 V control), so that a 100% output level is achieved. The manual iris control enables continuous selection of values ranging from peak to mean values.

* can be switched off

Monitoring

(switchable from line-up control panel)

Signal monitor		Waveform monitor
White signal	W	White signal
Red signal	R	Red signal
Green signal	G	Green signal
Blue signal	B	Blue signal
NCCV signal	NCCV	White signal
W, R, G, B signals (superimposed)	SUP	White signal
W, R, G, B signals (side by side)	SEQU	White signal
External or internal R, G, B signals (side by side)	EXT	White signal



Operating control panel. 75/20477

Operating control unit

Following the camera line-up at the line-up control panel, the controls can be transferred to the operating control panel KC VS 525 (see table, column "operation"). In conjunction with a joystick control several cameras can be easily adjusted by one person. The following adjustments can be made by the joystick control:

- Master black
- Iris
- Auto-iris on/off
- Monitoring selection (as required)

White balance and black balance control panel

Controls for manual white balance and black balance are in this unit. It is thus possible to carry out white and black balance manually if the automatic balance functions are not desired.

KCK/R

KCK/R reporter camera

The BOSCH FERNSEH color camera family is extended by a further manageable broadcast-quality configuration: The KCK-R. The camera is integrated in the new KCK system and has the same excellent features. The KCK-R is a versatile "Hand held" production camera with full studio quality which can be easily carried on the shoulder by the cameraman. The compactness of this broadcast color camera and advanced electronic pick-up techniques permit the production of dynamic pictures.

The KCK-R can also be used as an independent camera chain with the KCN processor.

Special features

- The camera handles very well, particularly in conjunction with a shoulder bracket.
- Light weight
- High sensitivity
- Good S/N ratio at optimum resolution (similar to KCR)
- Good color reproduction (similar to KCK)
- Extreme stability under all operating conditions
- Integrated intercom system and cue light (similar to KCK)
- The CCU of KCK is used
- Thin camera cable of a 13-mm outside diameter
- Tiltable viewfinder, easily replaceable, since it is a separate unit. 1.5" tube with high resolution
- Optional large 5.6" viewfinder for tripod use
- Modern styling (E. Slany, DID), small bulk, compact design.

78/23000

KCK/R

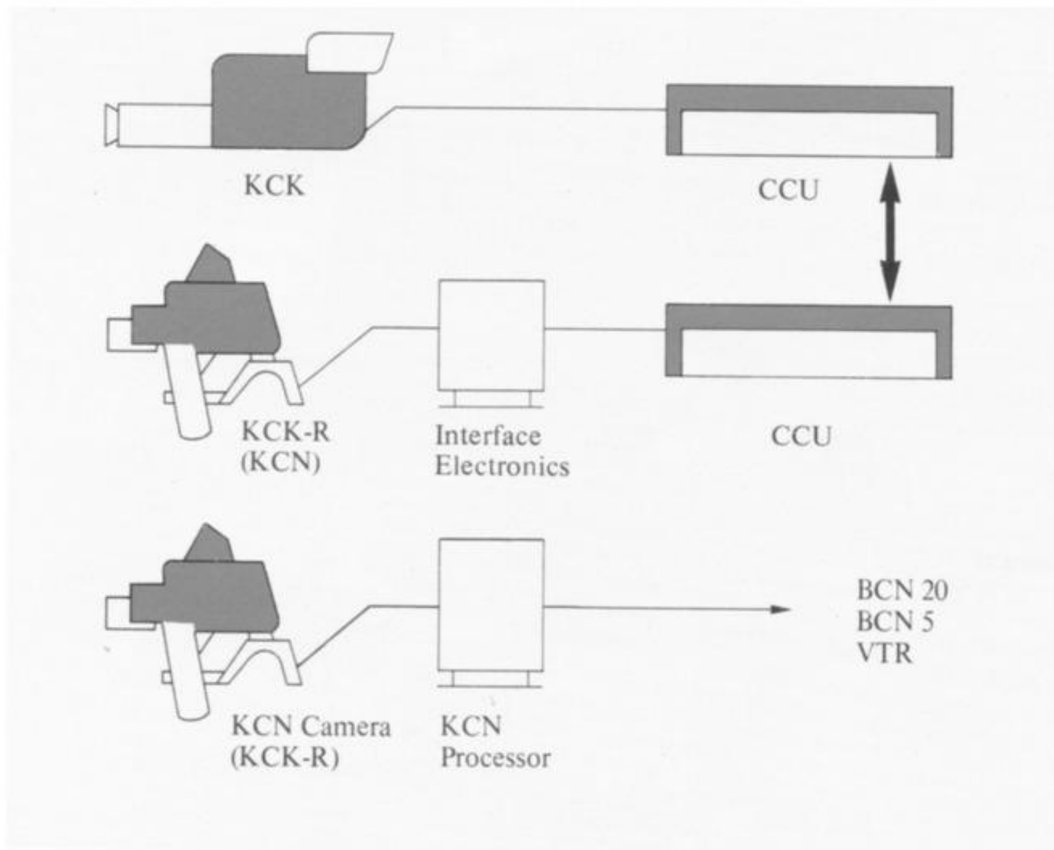
The color camera and interface electronics (backpack) correspond to the KCK camera head with only slight differences inherent in the system. The distance between the camera head and the interface can be up to 15 m. The shoulder camera including zoom lens and electronic viewfinder has approximately the same weight as a fully operational Arriflex 16 camera. Both the units can be connected together to the amplifier set of the KCK in place of the KCK head, with all the operational advantages.

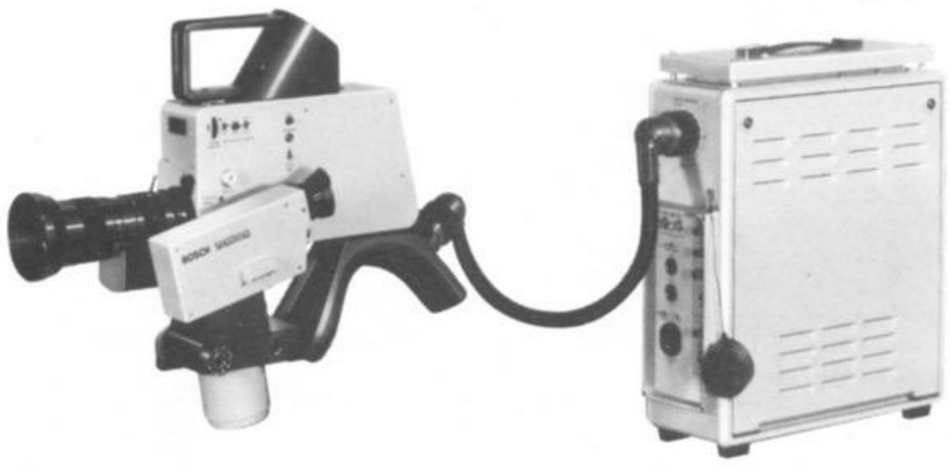
The KCK-R uses three 1-inch Plumbicon® tubes; storage tubes with ACT (anticomet tail gun) and increased sensitivity in red can also be used.

Like the KCK, the KCK-R is equipped with two high-quality audio channels. It is possible to feed back via the camera cable to a separate monitor a picture which did not originate in the camera (e. g. continuity mixer output). The electronic viewfinder is an independent unit. It can be adjusted in two planes to suit to the cameraman's eye level. The tally lamps are integrated within the viewfinder.

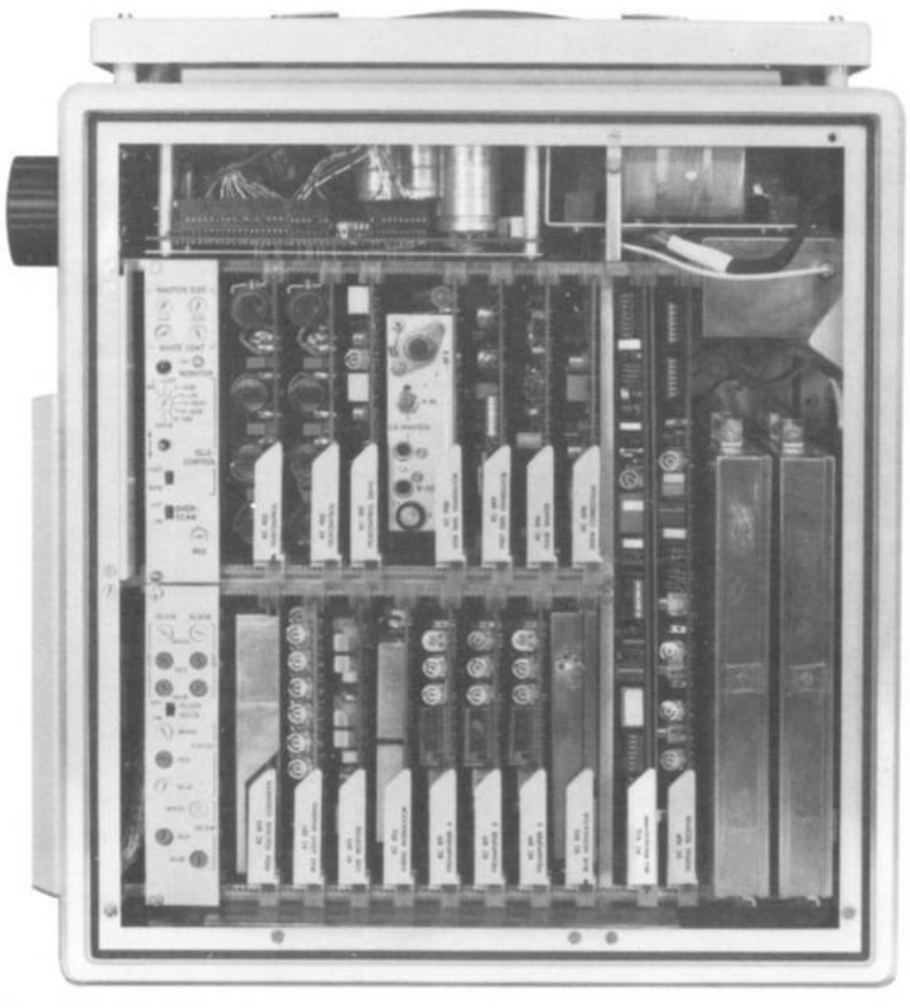
The KCK-R can be equipped with various lenses. These lenses can be easily fixed to the camera because of the fast clamp mechanism. The iris can be adjusted manually or electronically by remote control. Of course the setting of the iris can also be left to the integrated automatic control circuit, if desired.

KCK/KCK-R/KCN System

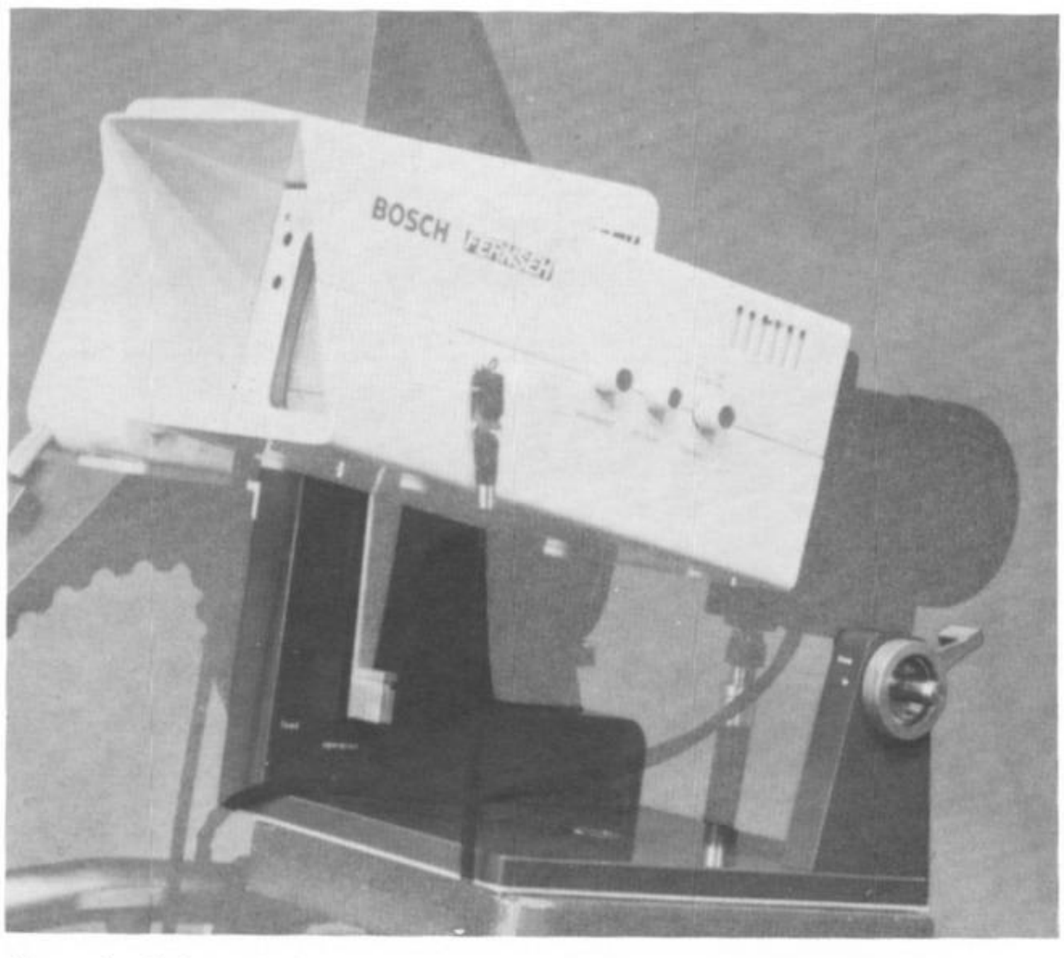




KCK-R and interface electronics 77/22697



Interface electronics-inside view 77/22116



14 cm viewfinder and tripod adapter

KCK

Technical specifications

KCK

System	3-tube separate luminance (WRB) 1,2" Plumbicons or Leddicons with bias light and ACT/HOP.
Dimensions (Camera without lens)	Height 480 mm Width 291 mm with connector Length 540 mm
Weight	36 kg
Power supply	220 V $^{+5\%}_{-10\%}$ 50/60 Hz 117 V $^{+5\%}_{-10\%}$ 60 Hz Total power consumption ca. 440 W
TV standard	625 lines 50 fields/sec (CCIR standard) 525 lines 60 fields/sec (U.S. standard) PAL/PAL-M/NTSC/SECAM

KCK/R

System	3-tube separate luminance (WRB) 1" Plumbicon®
Dimensions (Camera without lens)	Height 470 mm Width 193 mm Length 305 mm
Weight	approx. 7 kg
Power supply	220 V $^{+5\%}_{-10\%}$ 50/60 Hz 117 V $^{+5\%}_{-10\%}$ 60 Hz Total power consumption ca. 110 W
TV standard	625 lines 50 fields (CCIR standard) 525 lines 60 fields (U.S. standard) PAL/PAL-M/NTSC/SECAM

Interface electronics
(Backpack related to KCK/R)

Dimensions	Height 430 mm Width 385 mm Length 142 mm
Weight	approx. 10 kg

Amplifier set

Dimensions (with box)	Height 255 mm Width 445 mm Length 444 mm
Weight	approx. 37.4 kg

Inputs

1 x color subcarrier (F)	2 Vpp ± 0.7 Vpp (1 Vpp SECAM) 75 Ω loop-through filter Return loss > 40 dB at 4.43 MHz > 40 dB at 3.58 MHz
1 x burst flag pulse (K) (PAL, PAL-M, NTSC) **1 x blanking signal (A)** **1 x sync signal (S)**	− 4 Vpp ± 30% into 75 Ω (loop-through filter) Return loss > 34 dB up to 7 MHz
1 x external composite video signal (scope)	1 Vpp into 75 Ω (loop through filter) Return loss > 24 dB up to 7 MHz
1 x uni-pulse	1 Vpp into 75 Ω (loop-through filter) Return loss > 40 dB up to 5 MHz
2 x composite video signal (viewfinder)	External viewfinder signals 1 Vpp into 75 Ω
1 x composite video signal (mod.)	1 Vpp into 75 Ω carrier-frequency signal (27.5 MHz) for feeding a separate monitor at the camera

Outputs

4 x color composite video signal	1 Vpp at 75 Ω Return loss > 40 dB up to 7 MHz
1 x non-composite video signal for W, R, G, B each	0.7 Vpp at 75 Ω Return loss > 27 dB up to 7 MHz
1 x non-composite video signal for W, R, G, B each	0.7 Vpp at 75 Ω Return loss > 27 dB up to 7 MHz
2 x non-composite video signal (osc.)	0.7 Vpp at 75 Ω Special measuring signal for controlling the waveform monitor
2 x non-composite video signal (mon.)	0.7 Vpp at 75 Ω Special measuring signal for controlling a monitor
1 x sync signal	− 4 Vpp at 75 Ω
1 x blanking signal	− 4 Vpp at 75 Ω

Subject to change without notice

KCK

Video characteristics

Frequency response	Luminance channel ± 0.5 dB up to 5 MHz Chrominance channel ± 0.5 dB up to 5 MHz
Pulse response	50 Hz ≦ 2% 15.6/250 kHz ≦ 1%
Amplifier linearity (without controur corrector)	≧ 0.95
Gain control	Fine adjustment in all channels ± 40% Coarse adjustment in 6 steps − 6, − 3.0, + 3, + 6, + 9 dB
Black level control	Fine adjustment in all channels γ = 1 Luminance ± 10% for red, green, blue ± 10%
Sensitivity	150 ft. candles Reflection factor for white = 60% KCK Color temperature 3200 K Iris 5.6 (KCK-R Color temperature 3200 K Iris 4.0)
Resolution	Modulation depth when transmitting a 5 MHz bar pattern without aperture correction (depending on pick-up tubes used) ≧ 40% with aperture correction 100%
S/N ratio	measured at γ = 1 and 40% Level having the above mentioned sensitivity and resolution ≧ 45 dB unweighted
Registration accuracy	Within a circle having a diameter of 0.9 times the picture height ≦ 40 nsec Variations
Raster geometry	Variation without taking into account the distortion of the lens ≦ ± 0.5% (KCK-R ≦ ± 1%)
Permissible environmental temperatures	from − 20° to + 45°C
Stability	No change in the transfer characteristics for temperature ranges of ± 10% C (within the above-mentioned temperature range) Color registration and color matching are maintained with such accuracy that no readjustment is required under normal studio conditions.

Audio characteristics

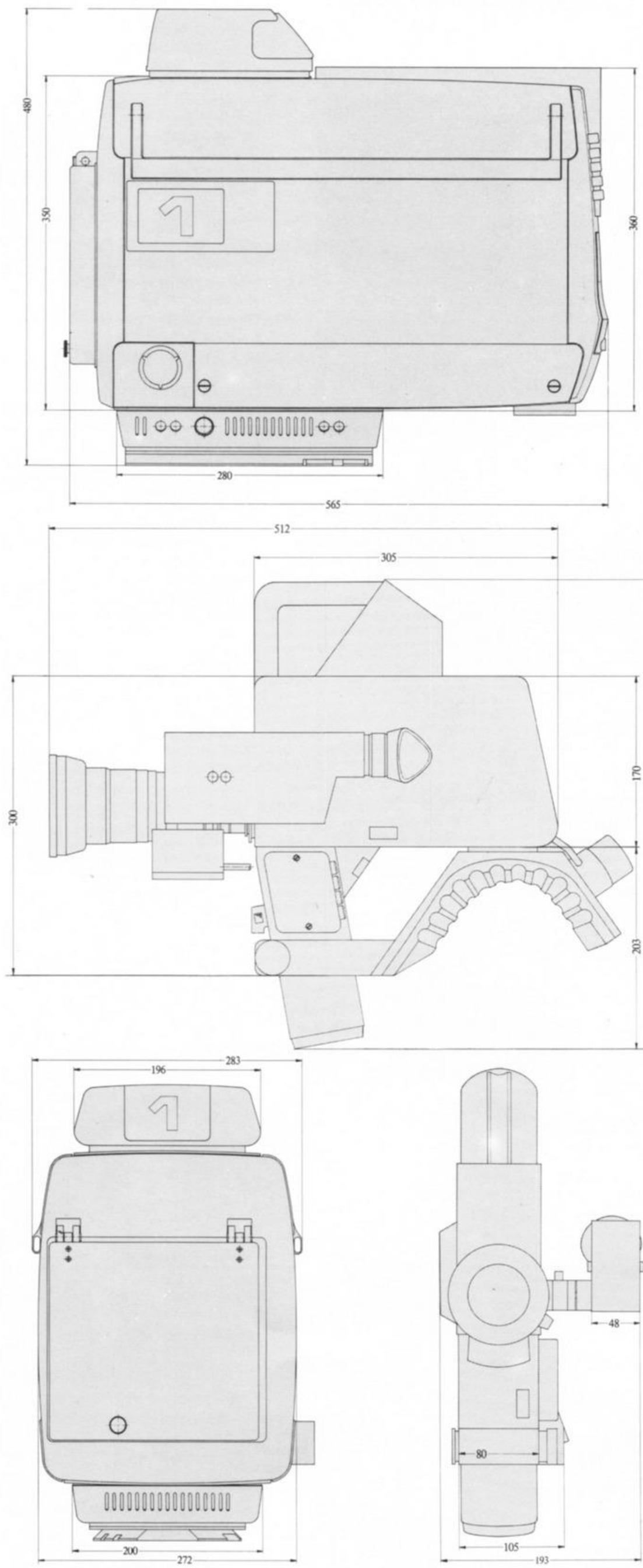
Talk-back system (4-wire)

Cameraman		Frequency response (without headsets)		k	S/N (RMS)
1. Intercom	CCU-Camera	0.3 up to 3 kHz	- 3 dB	≦ 3%	≧ 36 dB
2. Program audio	CCU-Camera	0.3 up to 3 kHz	- 6 dB	≦ 3%	≧ 36 dB
3. Intercom	Camera-CCU	0.3 up to 10 kHz	- 3 dB	≦ 3%	≧ 40 dB
Dolly					
1. Intercom	CCU-Camera	0.3 up to 3 kHz	- 3 dB	≦ 3%	> 36 dB
2. Program audio	CCU-Camera	0.3 up to 3 kHz	- 6 dB	≦ 3%	> 36 dB
Reporter					
Cue	CCU-Camera	0.3 up to 3 kHz	- 6 dB	≦ 3%	≧ 36 dB

Microwave input

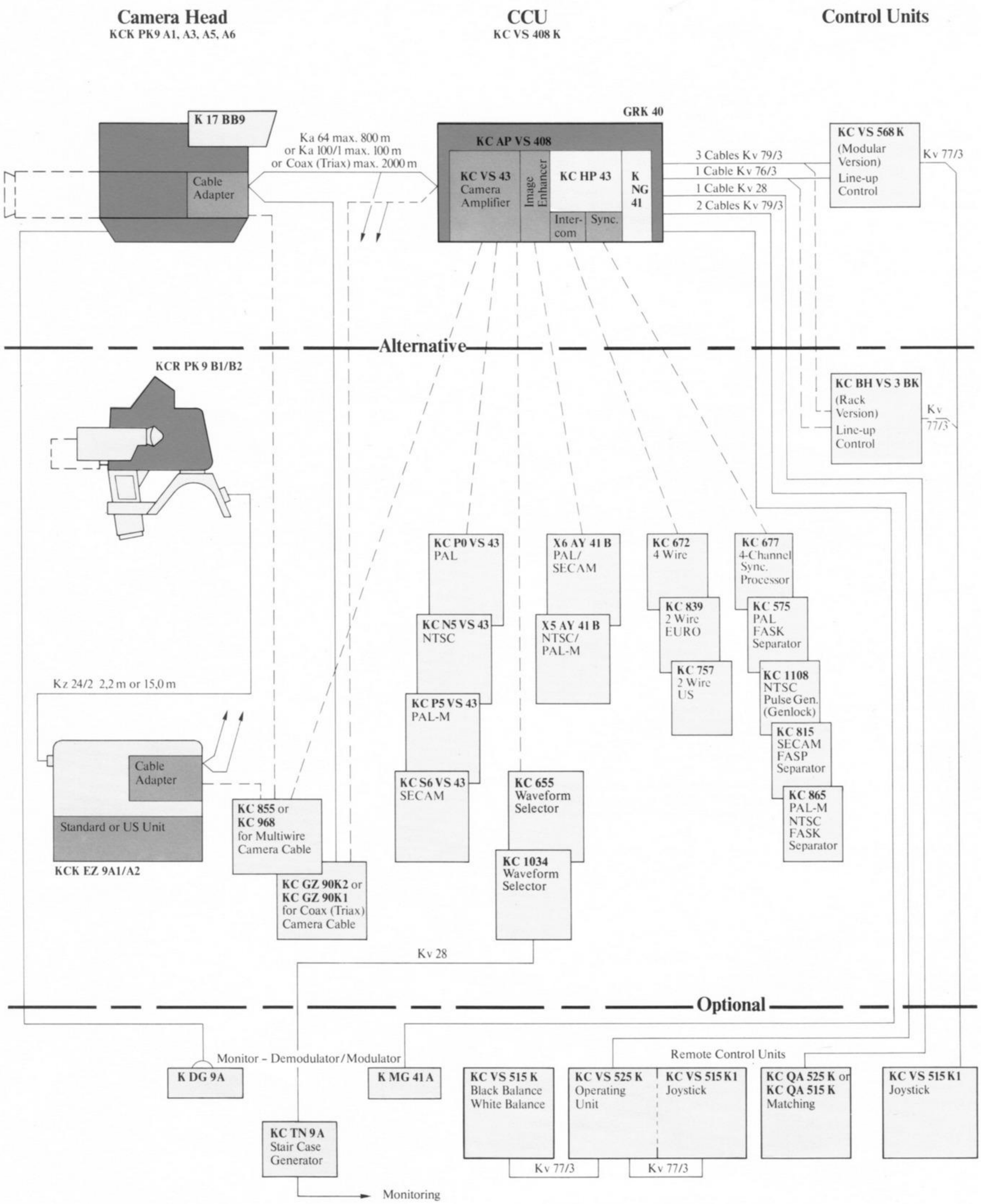
	U_E	U_A	Frequency response		kgs	S/N (RMS)
Microphone 1/2	-60 dB	+6 dB (± 1 dB)	20 Hz up to 15 kHz	− 6 dB	≦ 3%	≧ 50 dB

Dimensions KCK / KCK-R



Subject to change without notice

KCK


Camera Head
KCK PK9 A1, A3, A5, A6
CCU
KC VS 408 K
Control Units
K 17 BB9
Cable Adapter
Ka 64 max. 800 m
or Ka 100/1 max. 100 m
or Coax (Triax) max. 2000 m
GRK 40
KC AP VS 408
KC VS 43 Camera Amplifier
Image Enhancer
KC HP 43
Inter-com
Sync.
K NG 41
3 Cables Kv 79/3
1 Cable Kv 76/3
1 Cable Kv 28
2 Cables Kv 79/3
KC VS 568 K (Modular Version) Line-up Control
Kv 77/3
Alternative
KCR PK 9 B1/B2
KC BH VS 3 BK (Rack Version) Line-up Control
Kv 77/3
KC P0 VS 43 PAL
X6 AY 41 B PAL/ SECAM
KC 672 4 Wire
KC 677 4-Channel Sync. Processor
KC N5 VS 43 NTSC
X5 AY 41 B NTSC/ PAL-M
KC 839 2 Wire EURO
KC 575 PAL FASK Separator
KC 757 2 Wire US
KC 1108 NTSC Pulse Gen. (Genlock)
Kz 24/2 2,2 m or 15,0 m
KC P5 VS 43 PAL-M
KC 815 SECAM FASP Separator
Cable Adapter
Standard or US Unit
KCK EZ 9A1/A2
KC S6 VS 43 SECAM
KC 655 Waveform Selector
KC 865 PAL-M NTSC FASK Separator
KC 855 or KC 968 for Multiwire Camera Cable
KC GZ 90K2 or KC GZ 90K1 for Coax (Triax) Camera Cable
KC 1034 Waveform Selector
Kv 28
Optional
Monitor - Demodulator/Modulator
Remote Control Units
K DG 9A
K MG 41 A
KC VS 515 K Black Balance White Balance
KC VS 525 K Operating Unit
KC VS 515 K1 Joystick
KC QA 525 K or KC QA 515 K Matching
KC VS 515 K1 Joystick
KC TN 9 A Stair Case Generator
Kv 77/3
Kv 77/3
Monitoring

Order information

Item	Description	Unit Type	Order Number
	Camera head		
K-001.01	**basic unit** with electronic viewfinder without lenses, tripots		
K-001.01.01	**standard version** for 1.2" tubes (Plumbicon®/Leddicon®) and 1.2" tubes with biaslight	KCK PK 9 A 1	0 105 700 000
K-001.01.02	**us-version** for 1.2" tubes (Plumbicon®/Leddicon®) and 1.2" tubes with biaslight	KCK PK 9 A 3	0 105 720 000
K-001.01.03	**standard version** for 1.2" Plumbicon® tubes with biaslight (ACT) and 1.2" Leddicon® tubes with biaslight (HOP)	KCK PK 9 A 5	0 105 790 000
K-001.01.04	**us-version** for 1.2" Plumbicon® tubes with biaslight (ACT) and 1.2" Leddicon® tubes with biaslight (HOP)	KCK PK 9 A 6	0 105 800 000
K-001.01.05	**portable standard version** for 1" tubes	KCR PK 9 B 1	0 105 740 000
	interface amplifier	KCK EZ 9 A 1	0 113 160 000
	standard accessoires	KC 1026	0 113 165 100
K-001.01.06	**portable us-version** for 1" tubes	KCR PK 9 B 1	0 105 740 000
	interface amplifier	KCK EZ 9 A 2	0 113 570 000
	back pack		2 113 160 035
K-001.01.07	**portable standard version** for 1" tubes with ACT	KCR PK 9 B 2	0 105 750 000
	interface amplifier	KCK EZ 9 A 1	0 113 160 000
	standard accessoires	KC 1026	0 113 165 100
K-001.01.08	**portable us-version** for 1" tubes with ACT	KCR PK 9 B 2	0 105 750 000
	interface amplifier	KCK EZ 9 A 2	0 113 570 000
	back pack		2 113 160 035
Y-015	a special camera cable X-735 is required for item K-001.01.05-08		
X-735.01	special camera cable 2,2 m	Kz 24/2	0 794 730 400
X-735.02	special camera cable 15,0 m	Kz 24/2	0 794 730 200
K-001.02.01	**standard accessory** for KCK camera head	KC 866	0 105 568 600
K-001.02.02	standard accessory for KCK-R camera head	KC 1018	0 105 740 900
K-001.03	**pick-up tubes sets**		
K-001.03.01	Plumbicon set 1.2" with biaslight	XQ 1410 L/B XQ 1415 R	0 920 500 000
K-001.03.02	Plumbicon set 1.2" with biaslight and ACT	XQ 1520 L/B XQ 1525 R	0 921 540 000
K-001.03.03	Leddicon set 1.2" with biaslight	P 8130 L/B P 8132 RF	0 920 530 000
K-001.03.04	Leddicon set 1.2" with HOP	P 8136 L/B P 8138 RF	0 920 710 000
K-001.03.05	Plumbicon set 1"	XQ 1070 G/B XQ 1075 R	0 920 100 000
K-001.03.06	Plumbicon set 1" with ACT	XQ 1080 G/B XQ 1085 R	0 920 510 000
K-001.04	**camera cable adapter set**		
K-001.04.01	for multiwire camera cable operation (KCK) consisting of: multiwire adapter, data receiver	KC 855	0 105 568 000
K-001.04.02	for multiwire camera cable operation (KCK-R) consisting of: multiwire adapter, data receiver	KC 968	0 113 163 700
K-001.04.03	for coax camera cable operation (KCK) consisting of: coax adapter, coax modulator coax demodulator, connection plate connection cable set	KC GZ 90 K 2	0 113 500 000
K-001.04.04	for coax camera cable operation (KCK-R) consisting of: coax adapter, coax modulator coax demodulator, connection plate connection cable set	KC GZ 90 K 1	0 113 460 000
Y-016	necessary for coax demodulator:		
K-001.04.91	**plug-in unit support** DIN-version with 1 partition	GRK 40 DIN	2 016 048 030 2 015 231 001
K-001.04.92	**plug-in unit support** 19" version with 1 partition	GRK 40 Zoll	2 016 048 031 2 015 231 001
K-001.04.93	**plug-in unit case** with 1 partition	GRK 49 F	0 536 530 000 2 015 231 001
K-001.05	**Camera cable**		
K-001.05.01	**camera cable** (max. 800 m, 13 mm) cable per metre	Ka 64 753-5	0 791 100 000 5 136 201 009
K-001.05.02	**camera cable** (max. 100 m, 7 mm) cable per metre	Ka 100/1 753-6	0 795 670 000 5 136 201 007
K-001.05.03	**coax cable** (max. 800 m) cable per metre	Kv 194.9 1,0/6,6	0 795 820 000 5 136 121 000
K-001.05.04	**triax cable** (max. 900 m) cable per metre	Kv 194.11 1,4/6,6 s	0 795 820 100 5 136 124 000
K-001.05.05	**triax cable** (max. 1300 m) cable per metre	Kv 194.14 2,1 Ls/10 s	0 795 820 200 5 136 150 000
K-001.05.06	**triax cable** (max. 1600 m) cable per metre	Kv 194.16 2,5 Ls/11,5	0 795 820 300 5 136 125 000
	CCU		
K-001.06.01	**basic unit** consisting of: operation unit, power supply, connection plate	KC VS 408 K	0 112 690 000
K-001.06.91	**plug-in unit support** DIN-version with 3 partitions	GRK 40 DIN	2 016 048 030 2 015 231 001
K-001.06.92	**plug-in unit support** 19" version with 3 partitions	GRK 40 Zoll	2 016 048 031 2 015 231 001
K-001.06.93	**plug-in unit case** with 3 partitions	GRK 49 F	0 536 530 000 2 015 231 001
K-001.07	**camera amplifier** (incl. encoder)		
K-001.07.01	PAL version	KC P0 VS 43 K	0 113 090 000
K-001.07.02	NTSC version	KC N5 VS 43 K	0 113 100 000
K-001.07.03	SECAM version	KC S6 VS 43 K	0 113 120 000
K-001.07.04	PAL-M version	KC P5 VS 43 K	0 113 110 000
K-001.08	**standard accessoires** for CCU	KC 862	0 112 690 100
K-001.09.01	**waveform selector** H-frequency	KC 1034	0 112 702 400
	staircase generator additional per waveform monitor	KC TN 9 A	0 113 600 000
K-001.09.02	**waveform selector** V-frequency	KC 655	0 112 700 700
K-001.10.01	**4 wire intercom**	KC 672	0 112 710 400
K-001.10.02	2 wire intercom (Euro-version)	KC 839	0 112 712 100
K-001.10.03	2 wire intercom (US-version)	KC 757	0 112 711 900
K-001.11.01	**4 channel sync** for PAL, NTSC, SECAM, and PAL-M	KC 677	0 112 710 900
K-001.11.02	FASK separator for PAL	KC 575	0 112 511 300
K-001.11.03	genlock for NTSC	KC 1108	0 112 712 300
K-001.11.04	FASP separator for SECAM	KC 815	0 112 711 800
K-001.11.05	FASK separator for NTSC, PAL-M	KC 865	0 113 170 100
K-001.12	**H and V contour corrector**		
K-001.12.01	PAL/SECAM version	X 6 AY 41 B	0 673 120 000
K-001.12.02	NTSC/PAL-M version	X 5 AY 41 B	0 673 130 000
K-001.13	**transport case**		
K-001.13.01	for camera head KCK		2 112 750 100
K-001.13.02	for camera head KCR		2 115 790 300
K-001.13.03	for interface amplifier		2 115 790 400
	Control units		
K-001.14.01	**control unit** modular version (black) (incl. sound socket)	KC VS 568 K	0 281 280 000
K-001.14.90	phone jack (US)	KC 1005	0 281 281 000
K-001.14.02	**control unit** cabinet version (grey) (incl. sound socket)	KC BH VS 3 BK	0 281 250 000
K-001.14.03	**control unit** cabinet version (black) (incl. sound socket)	KC BH VS BK 1	0 281 410 000
K-001.14.91	phone jack (US)	KC 843	0 281 250 700
K-001.14.92	**connection cable** (CCU-control unit)		
	3 connection cables 3 cables per metre	Kv 79/3 52 x 18 x 0,1	0 793 340 000 5 136 301 010
	connection cable cable per metre	KV 76/3 32 x 18 x 0,1	0 794 970 000 5 136 301 004
K-001.14.93	**control unit joy stick** (modular version)	KC VS 515 K 1	0 281 210 000
	connection cable cable per metre	Kv 77/3 16 x 18 x 0,1	0 794 980 000 5 136 301 003

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KCK

Order information (cont'd)

Item	Description	Unit Type	Order-Number
	Remote control unit (modular version)		
K-004.01	**control unit operation**	KC VS 525 K	0 281 230 000
K-004.01.90	2 connection cables (max. 200 m) 2 cables per metre	Kv 79/3 52 x 18 x 0,1	0 793 340 000 5 136 301 010
K-004.02	**control unit joy stick**	KC VS 515 K 1	0 281 210 000
K-004.02.91	connection cable	Kv 77/3 (0,5 m)	0 794 980 200
K-005	**control unit b/w balance**	KC VS 515 K	0 281 290 000
K-005.90	connection cable cable per metre	Kv 77/3 16 x 18 x 0,1	0 794 980 000 5 136 301 003
K-006.00.01	**control unit matching** with separate control for RGB	KC QA 515 K	0 281 240 000
K-006.00.02	**control unit matching** with joy stick	KC QA 525 K	0 281 400 000
K-006.00.90	connection cable (max. 200 m) cable per metre	Kv 28 12 x 18 x 0,1	0 790 340 000 5 136 301 008
	Accessories		
K-007	**spare part kit** components	Z KC 9-011	0 113 130 000
K-008.01	**spare part kit** printed circuits (CCU)	Z KC 9-012	0 113 140 000
K-008.02.01	**printed circuit set** camera head (KCK)	Z 314	0 113 140 100
K-008.02.02	**printed circuit set** portable camera head (KCK-R) with interface amplifier	Z 315	0 113 140 200
K-008.02.03	**spare parts set** printed circuit from coax demodulator components of coax modulator	Z 316	0 113 140 300
K-009.00.01	**test projector** incl. test slides for camera head KCK	O PP 9 C	2 736 600 000
K-009.00.02	for portable camera head KCK-R	O PP 9 A	2 736 580 000
K-164	**modulation system**		
K-164.01	monitor modulator	K MG 41 A	0 111 420 000
K-164.02	connection plate	K AP MG 41-U	0 506 430 000
K-164.03	demodulator	K DG 9 A	0 111 430 000
K-010.00	**weather covers for KCK** consisting of: weather cover for camera incl. blower and covers for lens control and weather covers for lens:		
K-010.00.01	Angenieux J 11 10 x 18		2 105 560 210
K-010.00.02	Angenieux E 61 15 x 18		2 105 560 215
K-010.00.03	Schneider TV 11		2 105 560 211
K-010.00.04	Schneider TV 25.1/31.1/33.1/37.1		2 105 560 218
K-010.00.05	RTH Varotal 30		2 105 560 216
K-011.00	**weather covers for KCK-R**		
K-011.00.01	for camera head with 1 inch viewfinder		2 105 740 060
K-011.00.02	for camera head with heavy lenses on pedestal adapter K UO 9R		2 112 960 020
K-011.00.03	for interface amplifier (back pack)	on request	
K-012	**camera viewfinder** for camera head KCK/KCU	K 17 BB 9 A 1	0 112 790 000
K-012.90	service cable (1,5 m long) for KCK viewfinder	Kv 64	0 791 220 000
K-118.00.01	**camera viewfinder 6"** for camera head KCK-R	K 14 BB 9 A	0 113 450 000
K-118.00.02	**pedestal adapter** (holder for viewfinder and camera)		2 112 410 030
K-118.00.90	weather cover		2 105 380 704
K-118.00.91	service adapter	K 301.1	0 112 410 900
K-118.00.92	service adapter	K 305.1	0 112 411 000
K-118.00.93	light protection (long)		2 112 410 270
K-126	**trolly** (back pack) for interface amplifier		on request
K-127	**waistband** for camera cable		1 105 380 282
K-128.00.01	**simulator** for 1 inch Plumbicon	P PM 9 C	0 448 540 000
K-128.00.02	simulator for 1 inch Plumbicon with ACT	P PM 9 D	0 448 620 000
K-128.00.13	simulator for 1.2 inch Plumbicon (with ACT)	P PM 9 B	0 448 480 000
K-129.00	**camera viewfinder 1"**	K BB 9 C	0 113 360 000
K-129.00.90	connection cable for 1 inch viewfinder service (1,5 m)	Kv 191	0 795 780 000
K-129.00.91	ocular for 1 inch viewfinder		2 105 740 040
K-130	special for CCU service **simulator** for camera head KCK-R	KC AD 9 A	0 112 980 000
K-131	**filter turret** complete with star light filter		2 105 560 153
K-800	**test plate set**		2 105 630 010

Compact O.B. van
with two portable KCR color TV cameras
in action

Type: A 22 includes
2 portable color cameras KCK/R
2 videotape recorders 1" BCN 40/50
1 video switcher AB system
1 audio mixer 6/2
power 220 V/AC or separate generator
1 air conditioner

Chassis VW LT 35
Weight: 3500 kg
Length: 4.48 m
Width: 2.02 m
Height: 2.16 m
Speed max.: 117 km/h

77/22444

Your Video System Partner
BOSCH
Television System Division

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Geschäftsbereich Fernsehanlagen
Robert-Bosch-Straße 7 · D-6100 Darmstadt
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Sachnummer 0 981 100 043
1.80-15 (Be) WEB · Printed in West Germany