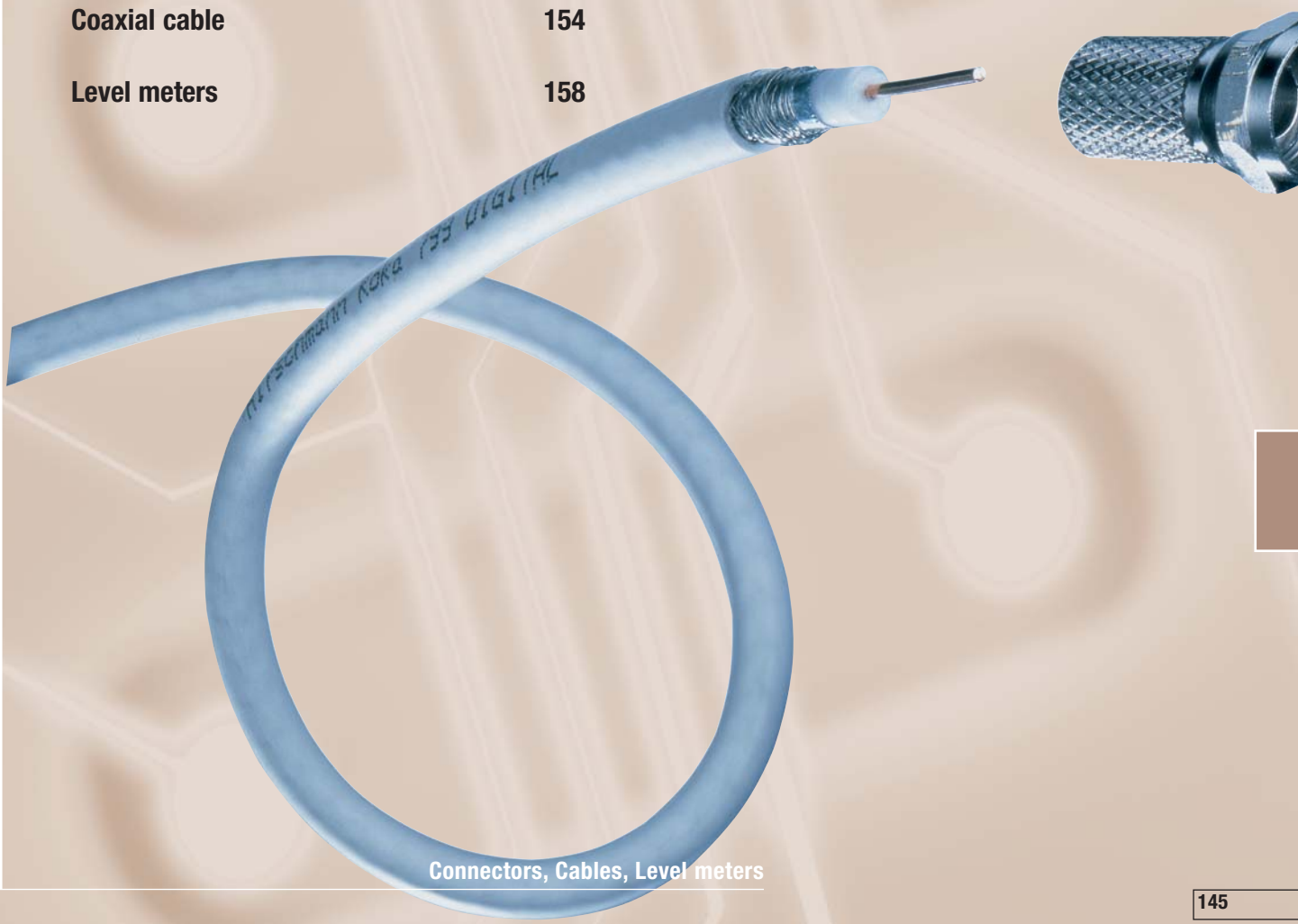
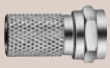
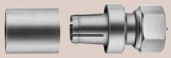
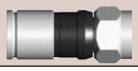
Connectors, Cables, Level meters

Page 145 – Page 162



Overview

RF cable with matching connectors

F-connectors	KOKA ...	702	780	7539	2200 SAT	709	799 Digi	F6 TSV	741	7 OK/7 MK
Screw-on plugs										
SFC 052			•	•						
SFC 070		•			•	•	•	•		
Crimp plug										
SFC 250		•				•	•			
CFS 56 SUV					•			•		
CFS 56 JUV		•				•	•			
SFC 273									•	
CFS 11										•
Compression plug										
Ex 11										•
Ex 649					•			•		
Ex 651		•				•	•			

IEC connectors

Plug, male										
KOS 1 Z		•			•	•	•	•		
KOS 3 N		•			•	•	•	•		
KOSWI 3		•			•	•	•	•		
Sockets, female										
KOK 1 Z		•			•	•	•	•		
KOK 3 N		•			•	•	•	•		
KOKWI 3		•			•	•	•	•		

IEC connectors

Type	KOS 1 Z	KOK 1 Z
Order No.	947 537-100	947 541-100
		
Technical data		
Version	IEC male	IEC female
Cable inner conductor Ø	0.61 - 1.13 mm	0.61- 1.13 mm
Cable outer conductor Ø	max. 5.2 mm	max. 5.2 mm
Cable sheath Ø	max. 7.2 mm	max. 7.2 mm
Frequency range	0-2400 MHz	0-2400 MHz
Cable type	KOKA 702, 709, 799, 2200 SAT, F6 TSV	KOKA 702, 709, 799, 2200 SAT, F6 TSV
Packing unit		
Quantity	50	50

Connectors to IEC 60169-2

- *With srain relief*
- *Color: white*

KOS 1 Z

Coaxial connector plug, male

- *Screw-less connection for inner conductor, no need for tools*

KOK 1 Z

Coaxial connector socket, female

- *Screw-less connection for inner conductor, no need for tools*

Type	KOS 3 N	KOK 3 N
Order No.	947 539-100	947 546-100
		
Technical data		
Version	IEC male	IEC female
Cable inner conductor Ø	0.61- 1.13 mm	0.61- 1.13 mm
Cable outer conductor Ø	max. 5.2 mm	max. 5.2 mm
Cable sheath Ø	max. 7.8 mm	max. 7.8 mm
Frequency range	0-2400 MHz	0-2400 MHz
Cable type	KOKA 702, 709, 799, 220 SAT, F6 TSV	KOKA 702, 709, 799, 2200 SAT, F6 TSV
Packing unit		
Quantity	50	50

Connectors to IEC 60169-2

- *With srain relief*
- *Color: white*

KOS 3 N

Coaxial connector plug, male

- *Screw connection for inner conductor*

KOK 3 N

Coaxial connector socket, female

- *Screw connection for inner conductor*

IEC connectors

Type	KOSWI 3	KOKWI 3
Order No.	947 544-100	947 548-100
		
Technical data		
Version	Angled IEC male	Angled IEC female
Cable inner conductor Ø	0.61- 1.13 mm	0.61- 1.13 mm
Cable outer conductor Ø	max. 5.6 mm	max. 5.6 mm
Cable sheath Ø	4.5 - 7.2 mm	4.5 - 7.2 mm
Frequency range	0-2400 MHz	5-2400 MHz
Cable type	KOKA 702, 709, 799, 2200 SAT, F6 TSV	KOKA 702, 709, 799, 2200 SAT, F6 TSV
Packing unit		
Quantity	50	50

Connectors to IEC 60169-2

- *With srain relief*
- *Color: white*

KOSWI 3

Angled coaxial connector plug, male

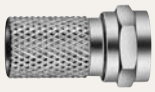
- *Screw connection for inner conductor*
- KLASSE A CLASS

KOKWI 3

Angled coaxial connector socket, female

- *Screw connection for inner conductor*
- KLASSE A CLASS

F-connectors

Type	SFC 052	SFC 070
Order No.	947 389-001	947 388-001
		
Technical data		
Cable outer Ø	approx. 5.2 mm	approx. 7.0 mm
Frequency range	0-2400 MHz	0-2400 MHz
Shielding rate	> 90 dB	> 90 dB
Cable type	KOKA 780 TWIN-SAT	KOKA 702, F6 TSV, 709, 799, 2200 SAT
Packing unit		
Single pack	10	10
Bulk pack	100	100

SFC 052

Screw on plug

SFC 070

Screw on plug

F-connectors

Type	SFC 273	CFS 11
Order No.	947 391-001	980 000-120
		
Technical data		
Cable braid Ø	approx. 7.3 mm	8.0 mm
Frequency range	0-2400 MHz	0-2400 MHz
Shielding rate	> 90 dB	> 90 dB
Protection class		IP 67
Dimension for crimp pliers	0,475 “	0,475 “ / 0,096 “
Cable type	KOKA 471	KOKA 7 OK/ 7 MK
Packing unit		
Quantity	100	5

SFC 273

Crimp plug

- *Fitting with crimp pliers*

CFS 11

Crimp plug

- *Fitting with crimp pliers*

Type	CFS 56 SUV	CFS 56 JUV
Order No.	981 000-104	940 017-001
		
Technical data		
Cable dielectric Ø	approx. 4.6 mm	approx. 4.8 mm
Frequency range	0-2400 MHz	
Shielding rate	> 90 dB	> 90 dB
Protection class	IP 67	IP 67
Dimension for crimp pliers	0.360”	0,360 “
Cable type	KOKA 2200 SAT, F6 TSV	KOKA 702, 709, 799
Packing unit		
Quantity	100	100

CFS 56 SUV

Crimp plug

- *Fitting with crimp pliers*

CFS 56 JUV

Crimp plug

- *Fitting with crimp pliers*

Type	SFC 250
Order No.	947 392-001
	
Technical data	
Cable dielectric Ø	approx. 4.8 mm
Frequency range	0-2400 MHz
Shielding rate	> 90 dB
Protection class	IP 67
Dimension for crimp pliers	0.324”
Cable type	KOKA 702, 709, 799
Packing unit	
Single pack	5 (poly bag)
Bulk pack	100

SFC 250

Crimp plug

- *Fitting with crimp pliers*

F-connectors

Type	EX 649	EX 651
Order No.	981 000-733	940 016-001
		
Technical data		
Cable dielectric Ø	approx. 4.6 mm	approx. 4.8 mm
Frequency range	0-2400 MHz	0-2400 MHz
Shielding rate	> 90 dB	> 90 dB
Return loss	> 30 dB	> 30 dB
Diameter cable sheat	7.0 mm	7.0 mm
Diameter cable dielectric	4.6 mm	4.8 mm
Operating temperature	-40 °C ... +140 °C	-40 °C ... +140 °C
Protection class	IP 67	IP 67
Compression tool	EX 59/6 CAT order no. 981 000-752	EX 59/6 CAT order no. 981 000-752
Cable type	KOKA 2200 SAT, F6 TSV	KOKA 702, 709, 799
Packing unit		
Quantity	100	100

EX 649

Comression plug

- *Fitting with compression tool*

**Only in Austria*

EX 651

Comression plug

- *Fitting with compression tool*

Type	EX 11
Order No.	981 000-734
	
Technical data	
Cable dielectric Ø	approx. 8.0 mm
Frequency range	0-2400 MHz
Shielding rate	> 90 dB
Protection class	IP 67
Compression tool	8720 ES order no. 981 000-740
Cable type	KOKA 7 OK/ 7 MK
Packing unit	
Quantity	100

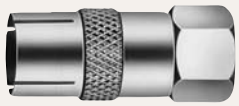
EX 11

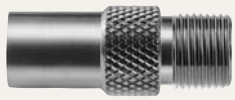
Crimp plug

- *Fitting with compression tool*

Adapter plugs, connection adapters, earth block

Type	SBFC 01	SBFC 02
Order No.	947 395-001	947 415-001





Technical data		
Adapter	IEC female / F male	IEC male / F female
Frequency range	0-2400 MHz	0-2400 MHz
Packing unit		
Single pack	10	10
Bulk pack	100	100

SBFC 01

Adapter plug F-IEC

SBFC 02

Adapter plug F-IEC

Type	KVFC 01	KVFC 02
Order No.	947 374-001	947 387-001

Technical data		
Adapter	F female / F female	F male / F male
Frequency range	0-2400 MHz	0-2400 MHz
Shielding rate	> 90 dB	> 90 dB
Packing unit		
Single pack	10	10
Bulk pack	100	100

KVFC 01

F-connector adapter

KVFC 02

F-connector adapter

Type	KVFC 03	WFC 01
Order No.	947 591-001	947 372-001

Technical data		
Adapter	quick F male/ quick F male	F female / F male
Frequency range	0-2400 MHz	0-2400 MHz
Packing unit		
Single pack	10	5
Bulk pack	100	100

KVFC 03

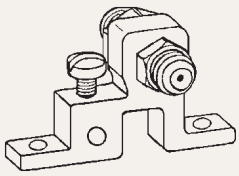
Quick F-connector adapter

WFC 01

Angled adapter plug F-F

Adapter plugs, connection adapters, earth block

Type	GBD-1
Order No.	980 000-160



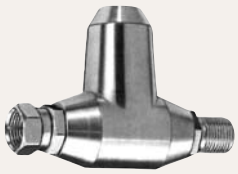
GBD-1

Earthing and F-connection block

Technical data	
Adapter	F female/ F female
Frequency range	0-2400 MHz
Shielding rate	> 90 dB
Packing unit	
Single pack	10
Bulk pack	100

Adjustable attenuators

Type	VDF 18 F	VDR 757 F
Order No.	947 590-001	947 504-001



- *For reducing excessive levels*
- *Remote feed voltage is passed on*
- *Conforms to EN 50083-2*
- CE

Technical data		
Frequency range	47 -2150 MHz	40 -2150 MHz
Attenuation adjustment range	18 dB	20 dB
Max. remote feed current	1 A / 24 V DC	1 A / 24 V DC
Connections	F socket, F plug	IEC
Dimensions	58 x 38 x 20 mm	44 x 47 x 24 mm

Fixed attenuators and terminating resitors

Type	FDFC 6	FDFC 10
Order No.	947 445-006	947 445-010
		
Technical data		
Frequency range	5-2400 MHz	5-2400 MHz
Attenuation	6 dB	10 dB
Packing unit		
Single pack	5	5
Bulk pack	100	100

F-Attenuators for reducing excessive input levels, especially when adjusting control amplifiers and converters.
Terminating resistors for termination of open F inputs and outputs

FDFC 6

F attenuator 6 dB

FDFC 10

F attenuator 10 dB

Type	RFC 75	RFC 75 DCB
Order No.	947 373-001	947 373-001
		
Technical data		
Frequency range	0-2400 MHz	10-2400 MHz
DC-path	75 Ω	electrically isolated
Packing unit		
Single pack	5	5
Bulk pack	100	100

F-Attenuators for reducing excessive input levels, especially when adjusting control amplifiers and converters.
Terminating resistors for termination of open F inputs and outputs

RFC 75

Termination resitor

- *For terminating open F connections*

RFC 75 DCB

Termination resitor

- *For terminating open connections*
- *DC blocked*

Cables

Type	KOKA 7539	KOKA 702	KOKA 2200 SAT
Order No.	128 111-002	198 702-100	128 144-001*
			
Product variants			
100 m (white), reel		1980702-100	128 114-001
200 m drum	128 111-002		128-114-004
500 m (white), drum		198 702-500	
Mechanical characteristics			
Inner conductor	0.61 mm/ Cu	0.75 / Cu mm	0.75 mm/ Steel Cu
Insulation	2.72 mm/ Cell PE	4.8 mm/ solid PE	4.6 mm / solid PE
Outer conductor Ø	3.7 mm	5.5 mm	
1st Foil	Al/ PET/ Al	Al/ PET/ Al	Al /PET/ Al
Braid	Alloy (60 %)	Tin-copper (40%)	Silver-copper (89%)
2nd Foil	Al/ PET/ Al		
Sheat-Ø	4.5 mm	6.8 mm	6.6 mm
Sheat material	PVC white	PVC white	PVC white
Electrical characteristics			
DC resistance	8,2 Ω	6,7 Ω	7,0 Ω
Propagation velocity	0,82	0,66	0.66
Return loss			
5 - 30 MHz	≥ 20 dB	≥ 23 dB	≥ 20 dB
30-470 MHz	≥ 20 dB	≥ 23 dB	≥ 20 dB
470-862 MHz	≥ 20 dB	≥ 22 dB	≥ 20 dB
862-2150 MHz	-	≥ 20 dB	≥ 15 dB
Shielding			
30-50 MHz	≥ 90 dB	≥ 75 dB	≥ 90 dB
50-1000 MHz	≥ 90 dB	≥ 75 dB	≥ 90 dB
1000-2150 MHz	≥ 90 dB	≥ 65 dB	≥ 85 dB
Attenuation (100 m/ 20 °C)			
5 MHz	2.82 dB	-	-
50 MHz	7.78 dB	5.7 dB	5.8 dB
100 MHz	10.59 dB	8.1 dB	8.5 dB
200 MHz	14.63 dB	11.7 dB	11.9 dB
2400 MHz	52.18 dB	46.5 dB	-
400 MHz	20.77 dB	17.1 dB	-
800 MHz	29.93 dB	24.8 dB	25.6 dB
1000 MHz	33.67 dB	27.7 dB	29.4 dB
1600 MHz	42.61 dB	36.9 dB	-
2150 MHz	44.36 dB	43.3 dB	44.2 dB
Operating conditions			
Fire loss	0.183 MJ/m	1.1 MJ/m	
Operating temperature	-25° ... +70°C	-25° ... +70°C	-25°... +70°C
Bending radius, min. one-time	4.5 cm	3.5 cm	3.5 cm
Reference standards			
Product standards	EN 50117 (2002)	EN 50117 (2002)	EN 50117 (2002)

- *marked by the meter*

KOKA 7539

- *Triple shielded, very high shielding rate*
- *Mini cable for space-saving installation*
- KLASSE A CLASS

KOKA 702

- *All-PE cable*
- *Standard building installation up to 862 MHz (MATV/GA)*

KOKA 2200 SAT

- *All-PE cable. high shielding rate*
- *Silver-plated braid*
- *Universal use for SAT IF and CATV building distribution systems*
- KLASSE A CLASS

* *Only in Austria; available in other countries on request.*

Cables

Type	KOKA 709	KOKA 799 DIGI	KOKA 799 FRNC
Order No.	198 709-100	198 799-101	198 799-105
			
Product variants			
100 m (white), coil		198 799-101	198 799-103
100 m (white), reel	198 709-100	198 799-103	
100 m (black), coil		198 799-102	
500 m (white), drum	198 709-500	198 799-501	198 799-505
500 m (black), drum		198 799-502	
Mechanical characteristics			
Inner conductor	1.1 mm/bare Cu	1.13 mm/bare Cu	1.13 mm/bare Cu
Insulation	4.8 mm/ Cell PE	4.8 mm/ Cell PE	4.8 mm/ Cell PE
Outer conductor Ø	5.6 mm	5.6 mm	5.6 mm
1st Foil	Al/PET/Al	Al/ PET/ Al	Al/PET/Al
Braid	Alloy	Tin-copper	Tin-copper
Sheat-Ø	6.8 mm	6.8 mm	6.8 mm
Sheat material	PVC white	PVC white	FRNC white
Electrical characteristics			
DC resistance	6,8 Ω	3,5 Ω	3,5 Ω
Propagation velocity	0,82	0,82	0,82
Return loss			
5 - 30 MHz	-	-	
30-470 MHz	≥ 18 dB	≥ 23 dB	≥ 23 dB
470-862 MHz	≥ 16 dB	≥ 20 dB	≥ 20 dB
862-2150 MHz	≥ 14 dB	≥ 18 dB	≥ 18 dB
Shielding			
30-50 MHz	≥ 75 dB	≥ 90 dB	≥ 90 dB
50-1000 MHz	≥ 75 dB	≥ 95 dB	≥ 95 dB
1000-2150 MHz	≥ 65 dB	≥ 85 dB	≥ 85 dB
Attenuation (100 m/ 20 °C)			
5 MHz	1.6 dB	1.4 dB	≥ 1,4 dB
50 MHz	4.4 dB	4.2 dB	≥ 4,2 dB
100 MHz	5.9 dB	5.8 dB	≥ 5,8 dB
200 MHz	8.2 dB	8.3 dB	≥ 8,3 dB
2400 MHz	33.4 dB	30.8 dB	≥ 30,8 dB
400 MHz	12.1 dB	11.8 dB	≥ 11,8 dB
800 MHz	18.0 dB	17.0 dB	≥ 17,0 dB
1000 MHz	20.5 dB	19.2 dB	≥ 19,2 dB
1600 MHz	27.2 dB	25.1 dB	≥ 25,1 dB
2150 MHz	31.6 dB	29.1 dB	≥ 29,1 dB
Operating conditions			
Fire loss	0.66 MJ/m	0.68 MJ/m	0.74 MJ/m
Operating temperature	-25° ... +70°C	-25° ... +70°C	-25° ... +70°C
Bending radius, min. one-time	7 cm	7 cm	7 cm
Reference standards			
Product standards	EN 50117 (2002)	EN 50117 (2002)	EN 50117 (2002)

- *marked by the meter*

KOKA 709

- *Cell-PE cable*
- *Preferred for SMATV installations and SAT IF*

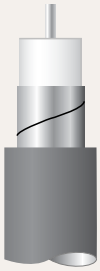
KOKA 799 DIGI

- *Cell PE cable, phys. foamed*
- *Low attenuation*
- *High shielding rate*
- *Universal use for SAT IF and CATV building distribution systems*
- KLASSE A CLASS

KOKA 799 FRNC

- *FRNC-type also halogen-free, (IEC 60754-1) flame-resistant*
- *Cell PE cable, phys. foamed*
- *Low attenuation*
- *High shielding rate*
- *Universal use for SAT IF and CATV building distribution systems*
- KLASSE A CLASS

Cables

Type	KOKA F6 TSV	KOKA 780 TWIN	KOKA 741
Order No.	981 000-756	198 780-100	198 780-500
			
Product variants			
100 m (white), coil		198 780-100	
305 m drum	981 000-756		
500 m (black), drum			189 741-500
Mechanical characteristics			
Inner conductor	1.02 mm/ Steel-Cu	0.8 mm/ Cu	1.1 mm/ Cu
Insulation	4.6 mm/ Cell PE	3.5 mm/ Cell PE	7.2 mm/ Solid PE
Outer conductor Ø	6.3 mm	4.2 mm	7.7 mm
1st Foil	Al /PET/ Al	Al/ PET/ Al	Cu strip
Braid	Al (60 %)	Tin-copper	Overlapping
2nd Foil	Al /PET/ Al		
Sheat-Ø	6.8 mm	5.4 x 11.5 mm	10.4 mm
Sheat material	PVC white	/ PVC white	PE black
Electrical characteristics			
DC resistance	-	7,0 Ω	2,4 Ω
Propagation velocity	0,85	0,85	0,66
Return loss			
5 - 30 MHz	≥ 20 dB	≥ 20 dB	≥ 24 dB
30-470 MHz	≥ 20 dB	≥ 20 dB	≥ 26 dB
470-862 MHz	≥ 20 dB	≥ 20 dB	≥ 23 dB
862-2150 MHz	≥ 15 dB	≥ 15 dB	-
Shielding			
30-50 MHz	≥ 95 dB	≥ 75 dB	≥ 75 dB
50-1000 MHz	≥ 100 dB	≥ 75 dB	≥ 75 dB
1000-2150 MHz	≥ 90 dB	≥ 65 dB	
Attenuation (100 m/ 20 °C)			
5 MHz	1.90 dB	-	-
50 MHz	4.97 dB	5.6 dB	3.4 dB
100 MHz	7.01 dB	8.1 dB	5.3 dB
200 MHz	9.74 dB	11.7 dB	7.7 dB
2400 MHz	33.90 dB	45.9 dB	-
400 MHz	13.61 dB	16.9 dB	11.5 dB
800 MHz	19.16 dB	24.8 dB	17.0 dB
1000 MHz	21.49 dB	27.7 dB	-
1600 MHz	27.99 dB	29.4 dB	-
2150 MHz	31.94 dB	42.3 dB	-
Operating conditions			
Fire loss	0.665 MJ/m	0.8 MJ/m	
Operating temperature	-25° ... +70°C	-25° ... +70^C	-25° ... +70°C
Bending radius, min. one-time	7 cm	3.5 cm	10 cm
Reference standards			
Product standards	EN 50117 (2002)	EN 50117 (2002)	EN 50117 (2002)

- *marked by the meter (except KOKA 741 and KOKA 7 OK/MK*

KOKA F6 TSV

- *Triple shielded, very high shielding rate*
- *Cell-PE cable physical foamed*
- CLASSE A CLASS

KOKA 780 TWIN

- *Twin cable*
- *Cell-PE cable physical foamed*
- *Preferred SAT IF for all two- and four-cabel solutions*

KOKA 741

- *Solid PE cable*
- *Low attenuation*
- *Halogen-free*
- *Preferred for CATV networks, trunk lines*

Cables

Type	KOKA 7 OK	KOKA 7 MK
Order No.	980 000-395	980 000-393 (MK)
		
Product variants		
305 m drum	980 000-395	980 000-393
Mechanical characteristics		
Inner conductor	1.63 mm/ Steel Cu	1.63 mm/ Steel Cu
Insulation	7.11 mm/ Cell PE	7.11 mm/ Cell PE
Outer conductor Ø	7.29 mm	7.29 mm
1st Foil	Al/ PET/ Al bonded	Al/ PET/ Al, bonded
Braid	Al (60%)	Al (60 %)
2nd Foil	Al shield	Ai shield
Sheat-Ø	10.03 mm	10.03 mm
Sheat material	PE black	PE black flooded
Electrical characteristics		
DC resistance	6,8 Ω	6,8 Ω
Propagation velocity	0,85	0,85
Return loss		
5 - 30 MHz	≥ 23 dB	≥ 23 dB
30-470 MHz	≥ 23 dB	≥ 23 dB
470-862 MHz	≥ 20 dB	≥ 20 dB
862-2150 MHz	≥ 20 dB	≥ 20 dB
Shielding		
30-50 MHz	≥ 95 dB	≥ 95 dB
50-1000 MHz	≥ 95 dB	≥ 95 dB
1000-2150 MHz	≥ 90 dB	≥ 90 dB
Attenuation (100 m/ 20 °C)		
5 MHz	1.2 dB	1.2 dB
50 MHz	2.7 dB	2.7 dB
100 MHz	3.8 dB	3.8 dB
200 MHz	5.6 dB	5.6 dB
2400 MHz	23.2 dB	22.3dB
400 MHz	8.5 dB	8.5 dB
800 MHz	12.0 dB	12.0 dB
1000 MHz	14.3 dB	13.9 dB
1600 MHz	18.1 dB	17.9 dB
2150 MHz	21.6 dB	21.0 dB
Operating conditions		
Operating temperature	-25° ... 70°C	-25° ... 70°C
Bending radius, min. one-time	10 cm	10 cm
Reference standards		
Product standards	EN 50117 (2002)	EN 50117 (2002)

KOKA 7 OK

- *Triple shielded*
- *Very low attenuation cell-PE cable*
- *Preferred as trunk line for SAT-IF and CATV building distribution systems*
- KLASSE A CLASS

KOKA 7 MK

- *Triple shielded*
- *Very low attenuation cell-PE cable*
- *Preferred as trunk line for SAT-IF and CATV building distribution systems*
- *Flooded sheat for underground installations*
- KLASSE A CLASS

Level meters

Type	SPM 1
Order No.	940 140-001

The handy digital satellite level meter for past and efficient alignment of satellite antennas. The automatic satellite selection system detects the correct satellites using a preselected, preprogrammed channel.
It is especially handy and practical thanks to its compact size and weight of only 1.5 kg.

- *Automatic satellite selection*
- *preprogrammed for 20 different orbit positions*
- *62 presets in total, reprogrammable at any time via PC (RS 232 adapter option)*
- *Simultaneous display of level and signal quality*
- *With audible signal for good signal quality*
- *DiSEqC 1.0*
- *DVB standard DVB/DSS*
- *Up to 5 hours operation away from mains*
- *With sturdy protective bag*

Measurement range	
Frequency range	950 -2150 MHz
SAT	34-90 dBµV
DVB measuring	QPSK level measurement
	Bar display
Ausstattung	
Audio signal	Audible level tendency indicator
Memory	62 station memory
Operating conditions	
Remote feed voltage/ LNC-support	Feed voltage 13/18 V DiSEqC 1.0 22 kHz switching
RF connectors	F connectors/ 75 Ω
Power supply	Power supply 230 V/ 12/17V external Ni-MH battery, 9.6 V/ 2.2 A
Weight	approx. 1.5 kg
Dimensions WxHxD	120x60x235 mm

Level meters

Type	UPM 900
Order No.	940 143-001

Measurement range	
Frequency range	174.0-867.5 MHz/ 910-2150 MHz
DVB-T	25-110 dBµV
SAT	30-110 dBµV
Metering precision	+/- 1.5 dB (20°C); +/- 2.5 dB (0°-40°C)
DVB measuring	Level measurement for QPSK and QAM BER for QPSK and 16/64 QAM MPEG-2 decoder SI evaluation/NIT COFDM front end for DVB-T S/N
SAT-audio-IF-frequency	5.00-9.99 MHz in 10 kHz increments Freely adjustable.
Standards	
Ausstattung	
TV display	4" TFT color display
CI slot	PCMCIA slot for CA module
Audio signal	Built-in speaker Audible level tendency indicator
Spectrum analyszer	DVB-T: No analysis function SAT: Real time analyzer with vertical frequency axis
Memory	99 station memory
Operating conditions	
Remote feed voltage/ LNC-support	DVB-T: - Feed voltage 5/18 V - Current measurement 0-100 mA SAT: - Feed voltage 14/18 V - DiSEqC V1.0, V1.1, V1.2, V2.0, V2.2 - 22 kHz switching - LNC current measurement
RF connectors	IEC socket / 75 Ω (DIN 45 325)
Power supply	100-250 V mains operation 50-60 Hz/ 2 V external Ni-MH battery pack 12 V/ 4.5 Ah
Weight	Approx. 3.5 kg with built-in battery pack
Dimensions WxHxD	252x135x272 mm
Degree of protection (IP)	II as per VDE 0411

The compact combination level measuring device offers an impressive range of functions and value for money. Can be used for all measurements concerning analog SAT, digital SAT and DVB-T. Accurate to +/- 1.5 dB (at 20°) or +/- 2.5 dB (40°C) for maximum reliability. Its compact size makes it a very handy portable unit

- *DiSEqC 1.0, 1.2, 2.0, 2.2*
- *4" TFT color display*
- *Operation using membrane keypad and rotary encoder*
- *With built-in Ni-MH battery pack 12 V/ 4.5 Ah*
- *Built-in speaker*
- *99 station memory*
- *SAT real time analyzer with vertical frequency axis*

Level meters

Type	UPM 1600
Order No.	940 013-001

This level meter for analog and digital TV has an analog analyzer with fast automatic wobble function in all bands.
DiSEqC 1.0/2.2 and 0/22 kHz frequency bands can be selected.
Particularly light and handy at only 6.8 kg.

- *DiSEqC 1.0, 1.2, 2.0, 2.2*
- *Backlit function display in three languages*
- *Water- and dirt-resistant keypad*
- *12-V output*
- *Accessories supplied:*

- Power cord
- IEC-IEC testing cable
- Adapter
- F plug

- *Optional accessories:*

- MPEG-2 decoder incl. NIT evaluation
- COFDM front end for DVB-T
- 12 V/ 2.2 Ah battery
- Leather bag

**Not supplied. Optionally available.*

Measurement range	
Frequency range	47 -2150 MHz
UKW / TV	20-126 dBµV
SAT	40-126 dBµV
Metering precision	+/- 1.5 dB (20°C); +/- 2.5 dB (0°-40°C)
DVB measuring	Level measurement for QPSK and QAM
	BER for QPSK and 16/32/64/128/256 QAM
	MER for 10-30 dB
	MPEG-2 decoder*
	SI evaluation/NIT*
	COFDM front end for DVB-T*
Audio measuring	TT 1 testing
SAT-audio-IF-frequency	5.00-9.75 MHz in 10 kHz increments
	Freely adjustable.
Standards	
Colour-TV standard	PAL/ SECAM/ NTSC
TV standard	Standard B/G, I, L, M/N, D/K
Ausstattung	
TV display	5.5” b/w screen
Audio signal	Built-in speaker
	Audible level tendency indicator
	SAT audio subcarrier
Spectrum analyszer	Analog analyzer for broadband and narrowband view in all ranges
Memory	50 tuner memory
Operating conditions	
Remote feed voltage/ LNC-support	Feed voltage 14-18 V
	DiSEqC 1.0/2.2
	22 kHz switching
	LNC current measurement
RF connectors	IEC socket / 75 Ω (DIN 45 325)
Power supply	100-250 V mains / 12 V internal/external
	12 V/ 2.2 Ah battery (2nd battery optional)
Weight	6.8 kg with battery
Dimensions WxHxD	365x150x285 mm
Degree of protection (IP)	II as per VDE 0411

Level meters

Type	UPM 3100
Order No.	948 407-001

Measurement range	
Frequency range	5 -2150 MHz
UKW / TV	20-126 dBµV
SAT	40-126 dBµV
Return path	30-126 dBµV
Metering precision	+/- 1.5 dB (20°C); +/- 2.5 dB (0°-40°C)
DVB measuring	Level measurement for QPSK and QAM BER for QPSK and 16/32/64/128/256 QAM MER for 10-30 dB Configuration diagram MPEG-2 decoder* SI evaluation/NIT* COFDM front end for DVB-T* S/N with Scope/Brumm*
Audio measuring	Separate TT 1 and TT 2 measurement NICAM sound carrier measurement* ADR sound carrier measurement optional*
SAT-audio-IF-frequency	5.00-9.75 MHz in 10 kHz increments Freely adjustable.
Standards	
Colour-TV standard	PAL/ SECAM/ NTSC
TV standard	Standard B/G, I, L, M/N, D/K
Equipment	
TV display	5.5” b/w screen
CI slot	2 x CI for CA module*
Audio signal	Built-in speaker Stereo socket for headphones Audible level tendency indicator SAT audio subcarrier
Spectrum analyzer	Digital analyzer with switchable measuring bandwidths for broadband and narrowband view in all ranges
Printer	24-character thermo printer
Memory	200 tuner memory 24k measured value memory
Operating conditions	
Remote feed voltage/ LNC-support	Feed voltage 10-20 V in 0.1 V increments / DiSEqC 1.0 and 2.0 22 kHz activation / terr. remote supply LNC current measurement
RF connectors	IEC socket / 75 Ω (DIN 45 325)
Power supply	100-250 V mains / 12 V internal/external 12 V/ 2.2 Ah battery (2nd battery optional)
Weight	6.9 kg with battery
Dimensions WxHxD	365x150x285 mm
Degree of protection (IP)	II as per VDE 0411

This high-quality device offers all the measuring functions, interfaces and additional options of the top-of-the-range UPM 3300. With its high-resolution 5.5” monochrome screen it is especially suitable for measuring BK signals, but also for FM, SAT and terrestrial signals.

- *Teletext available for every station*
- *DiSEqC 1.0, 1.2, 2.0, 2.2*
- *Backlit function display in three languages*
- *Water- and dirt-resistant keypad*
- *12 V internal/external connection socket*
- *Stereo headphone socket*
- *12 V/2.2 Ah battery integrated as standard (plus upgrade option with additional battery)*
- *Accessories supplied:*

- Power cord
- IEC-IEC testing cable
- RF and F adapter

- *Optional accessories:*

- Printer
- Other options as UPM 3300

**Not supplied. Optionally available.*

Level meters

Type	UPM 3300
Order No.	948 404-001

This top-of-the-range model is suitable for measuring FM, TV, BK, SAT and return channel signals. It can be used to measure bit error rates (BER) before and after Viterbi for QPSK and 16/32/64/128 QAM, configuration diagrams and modulation error messages (MER) All standard interfaces can be used: MPEG 2 (optional), RS-232, RDS output and SCART. The UPM 3300 is an all-round talent which unites trend-setting technology and ease of use.

- *Teletext available for every station*
- *DiSEqC 1.0, 1.2, 2.0, 2.2*
- *Backlit function display in three languages*
- *Water- and dirt-resistant keypad*
- *12 V internal/external connection socket*
- *Stereo headphone socket*
- *12 V/2.2 Ah battery integrated as standard (plus upgrade option with additional battery)*
- *Accessories supplied:*

- Power cord
- IEC-IEC testing cable
- RF and F adapter
- Printer paper roll

- *Optional accessories:*

- MPEG 2 decoder with NIT evaluation
- COFDM front end for DVB-T testing
- S/N measuring module
- S/N measuring module with SCOPE/BRUMM.
- ADR decoder or NICAM decoder
- Logging software
- Leather bag
- 2 x CI (Common Interface) for all popular CA modules

Not supplied. Optionally available.

Measurement range	
Frequency range	5 -2150 MHz
UKW / TV	20-126 dBµV
SAT	40-126 dBµV
Return path	30-126 dBµV
Metering precision	+/- 1.5 dB (20°C); +/- 2.5 dB (0°-40°C)
DVB measuring	Level measurement for QPSK and QAM
	BER for QPSK and 16/32/64/128/256 QAM
	MER for 10-38 dB
	Configuration diagram
	MPEG-2 decoder*
	SI evaluation/NIT*
	COFDM front end for DVB-T*
	S/N with Scope/Brumm*
Audio measuring	Separate TT 1 and TT 2 measurement
	NICAM sound carrier measurement*
	ADR sound carrier measurement optional*
SAT-audio-IF-frequency	5.00-9.75 MHz in 10 kHz increments
	Freely adjustable.
Standards	
Colour-TV standard	PAL/ SECAM/ NTSC
TV standard	Standard B/G, I, L, M/N, D/K
Ausstattung	
TV display	5.5” TFT color display
CI slot	2 x CI for CA module*
Audio signal	Built-in speaker
	Stereo socket for headphones
	Audible level tendency indicator
	SAT audio subcarrier
Spectrum analyszer	Digital analyzer with switchable measuring bandwidths for broadband and narrowband view in all ranges
Printer	24-character thermo printer
Memory	200 tuner memory
	24.5 k measured value memory
Operating conditions	
Remote feed voltage/ LNC-support	Feed voltage 10-20 V in 0.1 V increments / DiSEqC 1.0 and 2.0
	22 kHz activation / terr. remote supply
	LNC current measurement
RF connectors	IEC socket / 75 Ω (DIN 45 325)
Power supply	100-250 V mains / 12 V internal/external
	12 V/ 2.2 Ah battery (2nd battery optional)
Weight	7.2 kg with battery
Dimensions WxHxD	365x150x285 mm
Degree of protection (IP)	II as per VDE 0411