

WHERE IS THE FAULT ?

KMK 8 GIVES THE ANSWER !

KMK 8



Benefits

- ▶ Four instruments in one
 - Active Bridge
 - Passive Wheatstone Bridge
 - Graaf Fault Locator
 - TDR
- ▶ Extremely easy operation
- ▶ Automatic Test Sequences
- ▶ Remote controlled loop switch



sebaKMT

State of the art AC- and DC- Fault location bridge

► Properties

The Cable fault locator KMK 8 is a small, hand held instrument for the qualitative evaluation, fault location and qualification of existing telecommunication cables.

The KMK 8 calculates from the pre-programmed or the user specific entered cable parameters and the entered or measured cable temperature the cable lengths as well as the distance to the fault.

The KMK 8 consists of the measuring modules

- The Reflectometer (TDR) for reflexion measurements
- The active measuring bridge for high precision resistance and capacitance measurements as well as DC and AC location of faults on cables with low AC interference voltages levels. In connection with a active slave at the far end of the cable the active bridge allows fault location with the Graaf method.
- A passive Wheatstone bridge for resistance and capacitance measurements as well as DC and AC location of faults on cables with high AC interference voltages levels
- The Test Systems for Pre-measurement, Quick test and Quality testing
- The Voltage measuring module for the measurement of interference voltages in cable systems.
- The warning and information system to inform the user continuously about disturbances like, for example interference voltages
- The remote control for the operation of the electronic far end loop control switch

Due to the graphical display, the easily operated menu and extensive help functions, the handling and operation of the KMK 8 is very easy.

The displayed test results can be stored in the internal memory as a PDF or Excel file to transferred via the USB interfaces to an USB Stick or directly to a PC.

► Available Test Methods

Resistance Measurements

- Loop resistance
- Resistance difference
- Insulation resistance

Capacitance Measurements

- Cable capacitance
- Capacitive balance

DC Fault Location Methods

- Murray, 3 Point
- Repeated K pfm ller

AC Fault Location Methods

- Interruption
- Repeated K pfm ller

Graaf Fault Location Method

- End to end Master-Slave measurement
- Fault location on completely wet cables

TDR Measurements

- Single pair
- Double Pair Measurements
- XTALK
- Comparison to Memory

AC-DC Voltage measurements

Cable temperature measurement

USB Ports for Result Transfer

- USB B device-port for direct PC connection
- USB A host-port for USB stick (Indirect transfer). The indirect data transfer is advantageous for users, which do not have administrative rights to install a driver to their PC.

The KMK 8 is supplied by an integrated rechargeable NiMH battery. The recharging from 12 V DC Car Supply or 230 V AC Charger is controlled by a processor controlled charging system

Four instruments in one

- Active Bridge for accurate location of faults on cables with low interference voltages level
- Passive Wheatstone Bridge for location of faults on cables with high interference voltages level
- Graaf Fault Locator for accurate fault location on totally water-soaked cables with high and intermittent interference voltages.
- Reflectometer (TDR) for the location of low impedance faults and cross talk between pairs

The hand-held Cable fault locator KMK 8 is used to test the quality of telecom cables and to locate cable faults.

The combined instrument provides several tools for the accurate location of DC and AC faults:

Remote Controllable Far end Devices

KMK 8 has a function for the remote control of a far end loop closing device. This feature allows just one person to perform measurements, which require the operation of the far end loop (e.g K pfm ller).

- KLC 8 loop closing device to open or close the far end of the tested cable
- KMK 80S slave unit to perform synchronous end to end Graaf measurements

Large Memory

The test results can be stored in the internal memory and transferred to a PC. It is possible to view the results directly in the display and to print them from there. Alternatively the data can be viewed as table and transferred to the PC as PDF file. The results can also be converted into Excel format.

► Features

Easiest Operation

- Easy to use menu system
- Many-sided topic oriented help system
- Large Graphic Display with Backlight
- Pre-defined, automatic test sequences

Automatic Test Sequences

- Cable State Survey to find the best test method
- Quick Test of main parameters
- Quality Test Sequence

Optional accessories

- KMK 80S slave unit to perform synchronous end to end Graaf measurements
- KMK 8 – Calibration Certificate
- KTS 8 – PT 1000 Temperature sensor

Technical data	
TDR	
Measuring Ranges	
For non loaded cable (at V/2=100)	16 m ... 32 km
Evaluation of Results	
With Cursor and Marker	In meters
Refreshing of waveform	~4/sec
Zoom	Maximum 16

Accuracy	
Fault location	0.2 % of range
Resolution	0.01 m
Propagation Velocity	
For non loaded cables	V/2 45 ... 149 m/�s
	VOP 30 ... 99 %
For loaded cables	V/2 1.2 ... 30 m/�s
	VOP 0.8 ... 20 %

Technical data

Pulse Characteristics	
Widths for non loaded cable	4 ns ... 6 µs
Widths for loaded cable	330 µs
Amplitude	1.3 ... 12 Vpp into 120 Ω
Line Connection	
Impedance	120 Ω balanced
Balance control	50 ... 270 Ω
Gain Control	
Range	0 ... 90 dB
Steps	6 dB/Step
Distance Dependent Amplitude Correction	
Number of steps	10

Active Bridge	
Voltage	
DC voltage	up ... 400 V
AC voltage	up ... 250 V _{eff}
Accuracy	±3% ±1 V
Frequency range	15 ... 300 Hz
Input resistance	2M Ω
Loop Resistance	
Measuring range	1 Ω ... 10 kΩ
Accuracy	±0.3 % ±0.1 Ω
Resistance Difference	
Loop resistance range	10 Ω ... 5000 Ω
Accuracy	±0.2 % of R _s ±0.2 Ω
Insulation Resistance	
Measuring range	10 kΩ ... 300 MΩ
Measuring voltage	100 V
Accuracy	±2 to 5% ±1 kΩ
Capacitance	
Measuring range	10 nF ... 2 (10) µF
Measuring voltage	11 Hz, 100 V
Accuracy	±2 % ±0.2 nF
Capacitive Balance	
Measuring range	10 nF ... 2000 nF
Measuring voltage	11 Hz, 100 V
Accuracy of Lx/L value	±0.2 %
DC Fault Location	
Test Methods	Murray, Küpfmüller, 3 Point
Loop resistance range	1 Ω ... 10 kΩ
Fault resistance range	up ... 100 MΩ
Measuring voltage	100 V
Accuracy	(R _l =2 kΩ, L _x /L=0,1 to 1)
Fault resistance	< 1MΩ ± 0.2 %
	1 MΩ ... 5 MΩ ± 0.3 %
	5 MΩ ... 25 MΩ ± 0.5 %
	25 MΩ ... 100 MΩ ±2%
AC Fault Location Interruption	
Range	up to 20 km (Depends on cable typ)
Accuracy	±2 % ±0.2 nF

PASSIVE BRIDGE	
Loop Resistance	
Measuring range	1 Ω ... 10 kΩ
Accuracy	±0.3 % ±0.3 Ω
Insulation Resistance	
Measuring modes	Quick measurement, Quality measurement
Measuring ranges	
Quick measurement	10 kΩ ... 300 MΩ
Quality measurement	up to 10 GΩ
Measuring voltage	100 V
Accuracy 10 kΩ ... 50 MΩ	5 % ±1 kΩ
	50 MΩ ... 100 MΩ 10 %
	100 MΩ ... 5 000 MΩ 20 %
	5 000 MΩ ... 10 000 MΩ 30 %
Resistance Difference	
Loop resistance range	1 Ω ... 5000 Ω
Accuracy	±0.2 % of R _s ±0.2 Ω
Resolution of Lx/L (Mk)-value	
In range ⊗R < 10 %	1/10000
In range ⊗R > 10 %	1/1000
DC Fault Location	
Test methods	Murray, Küpfmüller, 3 Point
Loop resistance range	1 Ω ... 10 kΩ
Fault resistance range	up to 100 MΩ
Measuring voltage	100 V
Accuracy	(R _s =2 kΩ, L _x /L=0.1 to 1)
Fault resistance < 1 MΩ	0.2 %
	1 MΩ ... 5 MΩ 0.3 %
	5 MΩ ... 25 MΩ 0.5 %
	25 MΩ ... 100 MΩ 2%
Resolution of Lx/L (Mk) value	1/1000
AC Fault Location Küpfmüller Method	
Loop resistance range	1 Ω ... 10 kΩ
Fault resistance range.	up to 25 MΩ
Measuring voltage	11 Hz, 100 V
Accuracy	(R _s =2 kΩ, L _x /L=0.1 to 1)
Fault resistance < 1 MΩ	±0.3 %
	1 MΩ to 5 MΩ ±0.5 %
	5 MΩ to 25 MΩ ±1.0 %
Resolution of M value	1/1000
AC Capacitive Balance	
Measuring range.	10 nF ... 2000 nF
Accuracy of Lx/L value	±0.2 %
Measuring voltage	11 Hz, 100 V
Resolution of Lx/L value	
In range L _x /L=0.9 ... 1.1	1/10000
In range L _x /L<0.9 or L _x /L>1.1	1/1000
Fault Location Graaf Method	
Loop resistance range	10 Ω ... 10 kΩ
DC current range.	5µA ... 1A
Accuracy (I>10 µA)	±0.3 % ... ±2 %

We are happy to provide you with information!

PRE MEASUREMENTS	
Interference Voltage	
DC voltage.	up to 400 V
AC voltage	up to 250 V _{eff}
Loop Resistance	
Measuring range	1 Ω ... 10 kΩ
Insulation Resistance	
Measuring mode	Repeated measurement
Measuring time	~ 3 sec
DC Current	
Measuring range.	10 μA ... 1A
Temperature (with Pt 1000 temperature probe)	
Temperature range	-20 ... +60 °C
Automatic quick test	
Interference Voltage	
Measuring range	up to 400 V DC, 250 V AC
Test results	Vab, VaE and VbE
Insulation	
Measuring range	10 kΩ ... 300 MΩ
Measuring time	~3 x 15 sec
Capacitance	10 ... 2000 nF
Capacitive Balance	
Test result	Unbalance %
Measuring voltage	11 Hz, 100 V
Automatic quality test	
Insulation	10 kΩ ... 10 000 MΩ
Measuring time	~3 x 30 sec
Capacitance	10 ... 2000 nF
Capacitive Balance	
Test result	Unbalance %
Resolution	1/1000
Loop Resistance	
Measuring range	1 Ω ... 10kΩ
Accuracy	±0.3 % ±0.1 Ω

Resistance Difference	
Loop resistance range	10 Ω ... 5 kΩ
Resolution	1/1000
General specifications	
Power Supply	Internal rechargeable NiMH battery pack
Operation time	approx. 8 hours (Without backlight)
Charging (without taking the battery pack out)	From 100 ... 240 V mains with mains adapter. From 12 V car battery with car adapter
Charging time	less than 3 hours (Fast charging mode)
Display	320 x 240 dot graphic LCD
Connectors	
Connector for mains adapter	2.1/5.5mm coax
L1 and L2 line connectors	4 mm banana sockets
Ground connector	4 mm banana socket
USB A	USB 1.1 host port for USB-Stick
USB B	USB 1.1 device port to connect PC
Over Voltage Protection (Ri >5 kΩ)	
Between a and b or ground	500 V DC, 350 V AC
Longitudinal voltage	60 V AC
Ambient temperature ranges	
Reference	23 ±5 °C Rel. humidity 45% ... 75%*
Normal operation	0 ... +40 °C Rel. humidity 30% ... 75% *($<25 \text{ g/m}^3$)
Limits of operation	-5 ... +45 °C Rel. humidity 5% ... 95% *($<29 \text{ g/m}^3$)
Storage and transport	-40 ... +70 °C Rel. humidity 95% at +45 °C *($<35 \text{ g/m}^3$)
For test results	50
For cable parameter	50
Dimensions	224 x 160 x 75 mm
Weight (Including battery pack)	ca. 1.8 kg

* Without condensation

For more information, see:
www.kmtservices.nl

v d kunstraat 10
 4251LN Werkendam
 Tel. +31(0) 183 304012
 Fax +31(0) 183 302008
info@kmtservices.nl
www.kmtservices.nl

sebaKMT

Our range of products: Equipment and systems to locate faults in power and communications networks, as well as for leak location on pipe networks · line location equipment · CCTV inspection · seminars · service · contracting.

Technical data subject to change without notice.

ISO 9001:2008