

THALES

Optical Multi Meter

KPG-opt 4FSM-IN



General Product Information KPG-opt 4FSM

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1 Introduction

1.1 Purpose

- 1 The Optical Multi Meter KPG-opt is designed to test fiber optic cable drums and entire fiber optic links.
- 2 The KPG-opt supports diagnosticians to detect possible failures in the fiber optic link.

1.2 Description

The following main measurements are foreseen:

- 3 **Construction teams:**
 - Attenuation measurement of an optical cable drum with 2 or 4 fibers, single mode.
 - Attenuation measurement of an optical signal of a complete optical link.
 - The KPG-opt automatically generates a Good/Bad calculation of the measured values.
- 4 **Diagnostic:**
 - Power measurement of an optical signal

- Optical power source with selectable power level
- Optional transmission of user specific data frames

2 Material

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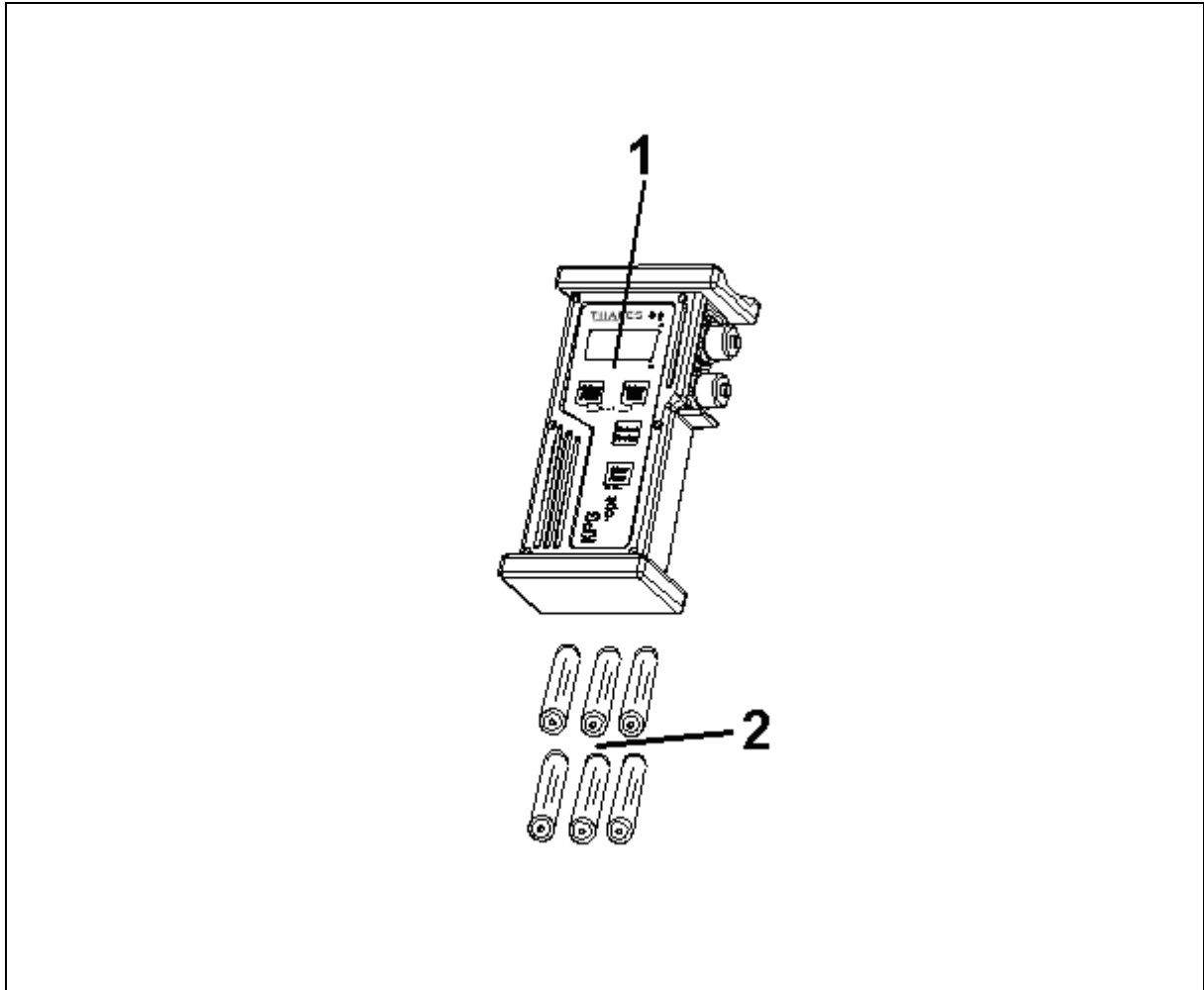


Figure 1 – KPG-opt Material

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No	QTY	Description
1	1	KPG-opt
2	6	Batteries (AA-Type, LR6)

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3 Technical Data

3.1 Electrical Data

7	Transmitter (Single Mode)	1310 nm \pm 40 nm
	Tx Power Level for cable test	- 5 dBm
	Tx Level for optical power source	- 3 ... - 12 dBm
	Stability of Tx Level	\pm 1 dBm
	Rx measurement range	- 35 dBm ... 0 dBm
	Accuracy	\pm 1 dBm
	max. Input Level	+ 3 dBm
	Resolution	0.1 dB
	Autonomy (Battery life):	at + 20°C
	- Cable test	400 Tests
	- Optical Transmitter	4 h
Battery life at - 10°C is reduced to approx. 50 %		

3.2 Mechanical and climatic data

8	Dimensions	L x B x H
	Equipment	270 x 145 x 80 mm
	Weight	
	Equipment	1.6 kg
	Temperature	
	Operation	– 10 to + 50 °C
	Storage	– 30 to + 60 °C
	Humidity	IP 64

4 Outline

4.1 Front View

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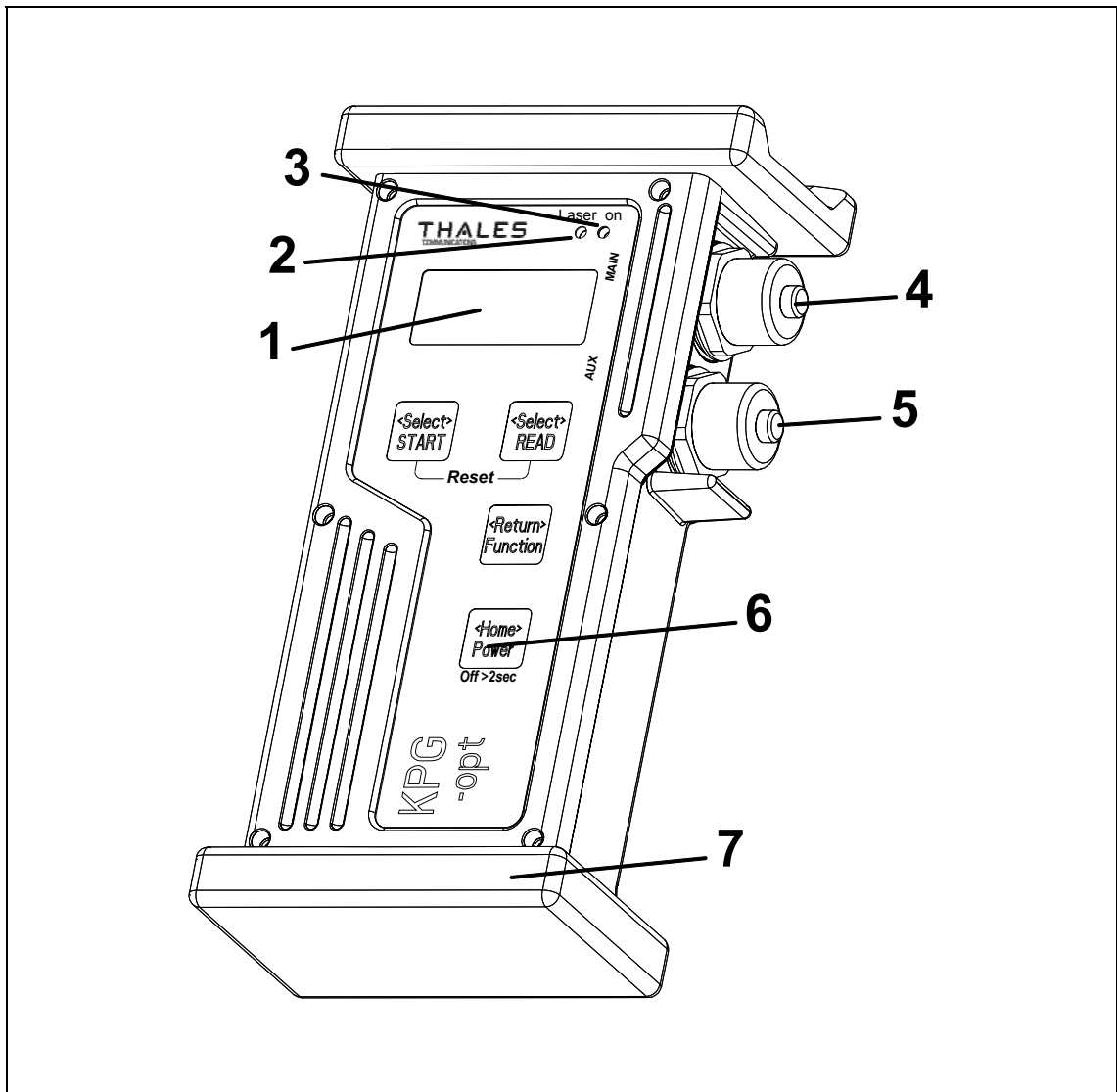


Figure 2 – KPG-opt front view

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No	Description
1	LCD – Display
2	Sensor (Brightness control for display)
3	LED Laser on
4	optical Connector "MAIN" with protection cap
5	optical Connector "AUX" with protection cap
6	Keypad
7	Rubber bumper (Shock absorber)

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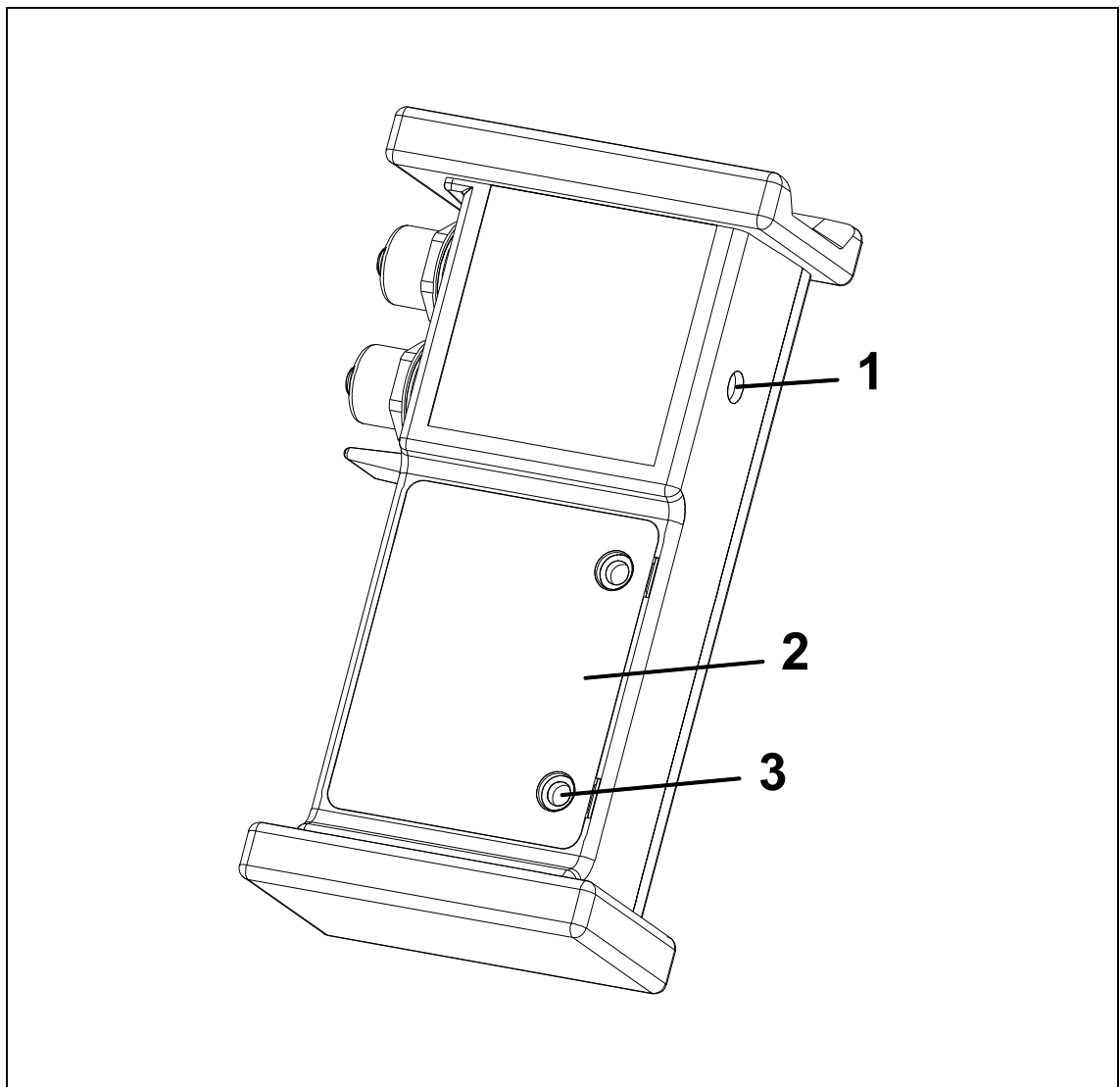


Figure 3 – KPG-opt Back view

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No	Description
1	Connector external power supply 10-36 VDC
2	Battery cover
3	Quick lock for battery cover

4.2 Design

- 13 The KPG-opt is built in an shock resistant plastic housing with a ruggedized keypad with four keys.
- 14 An LCD display with four lines shows the functions and the results of the measurements. The menu guidance simplify the operations.
- 15 Two optical connectors are mounted at the side to enable easy connection of the fiber optical cable.
- 16 The KPG-opt is battery operated. The battery cover is secured with two quick-lock screws which can be easily opened with a coin, knife or screw driver. On some versions of the KPG-opt a jack is located at the side to connect an external power supply.

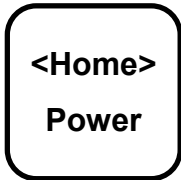



4.3 Operation

17 The KPG-opt is operated with four keys. The available menus are shown in the display and the required functions can be easily selected with the menu keys.

The results of the measurements are shown in the display and some tests are rated with a good/bad indication.

The device is switched off by pressing the power button for approx. 3 seconds or, in case of non-use, the automatic switch-off is activated after 3 minutes.

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Key	Function
	<ul style="list-style-type: none"> - Switch on - / off - Menu change
	<ul style="list-style-type: none"> - Function change (scroll) - Function leave
 	<ul style="list-style-type: none"> - Function start (select) - Menu select

5 Main Functions

5.1 Operations construction team

5.1.1 Cable drum test

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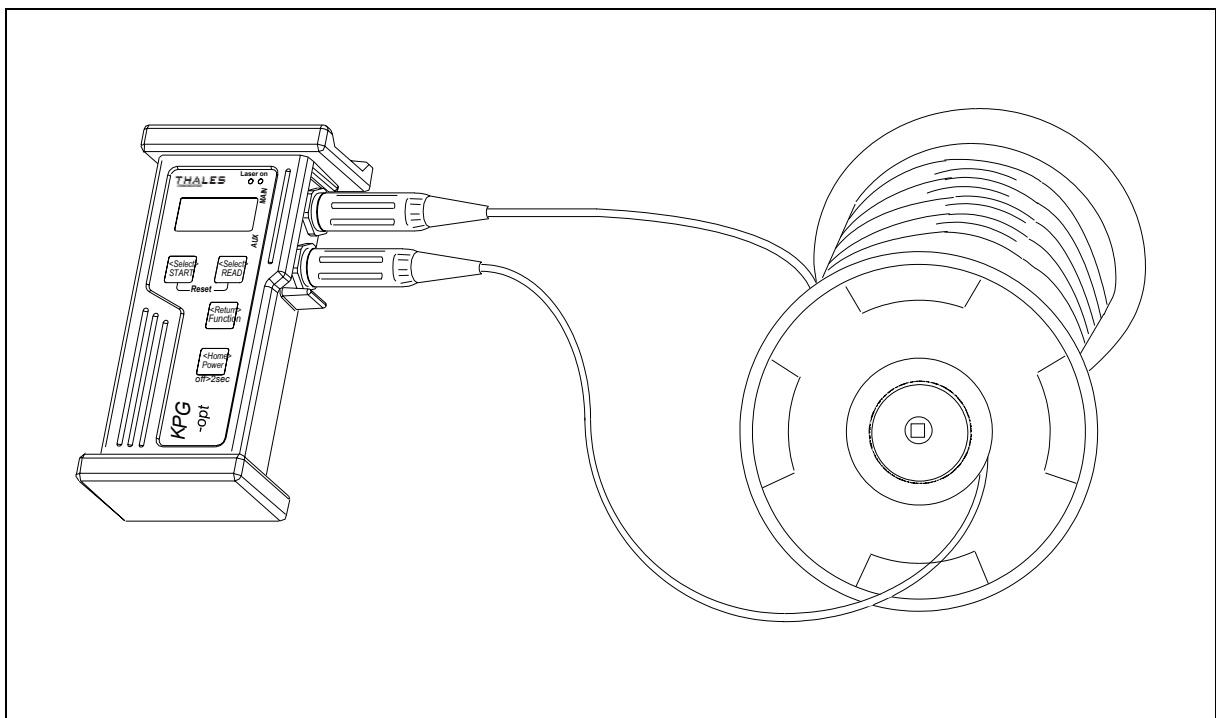


Figure 4 – Drum test

20 Attenuation measurement of a cable drum in dB using the „CABLEDRUM“ - test. To test 4 fibers, a loop connector is required.

5.1.2 Measurement of a deployed cable

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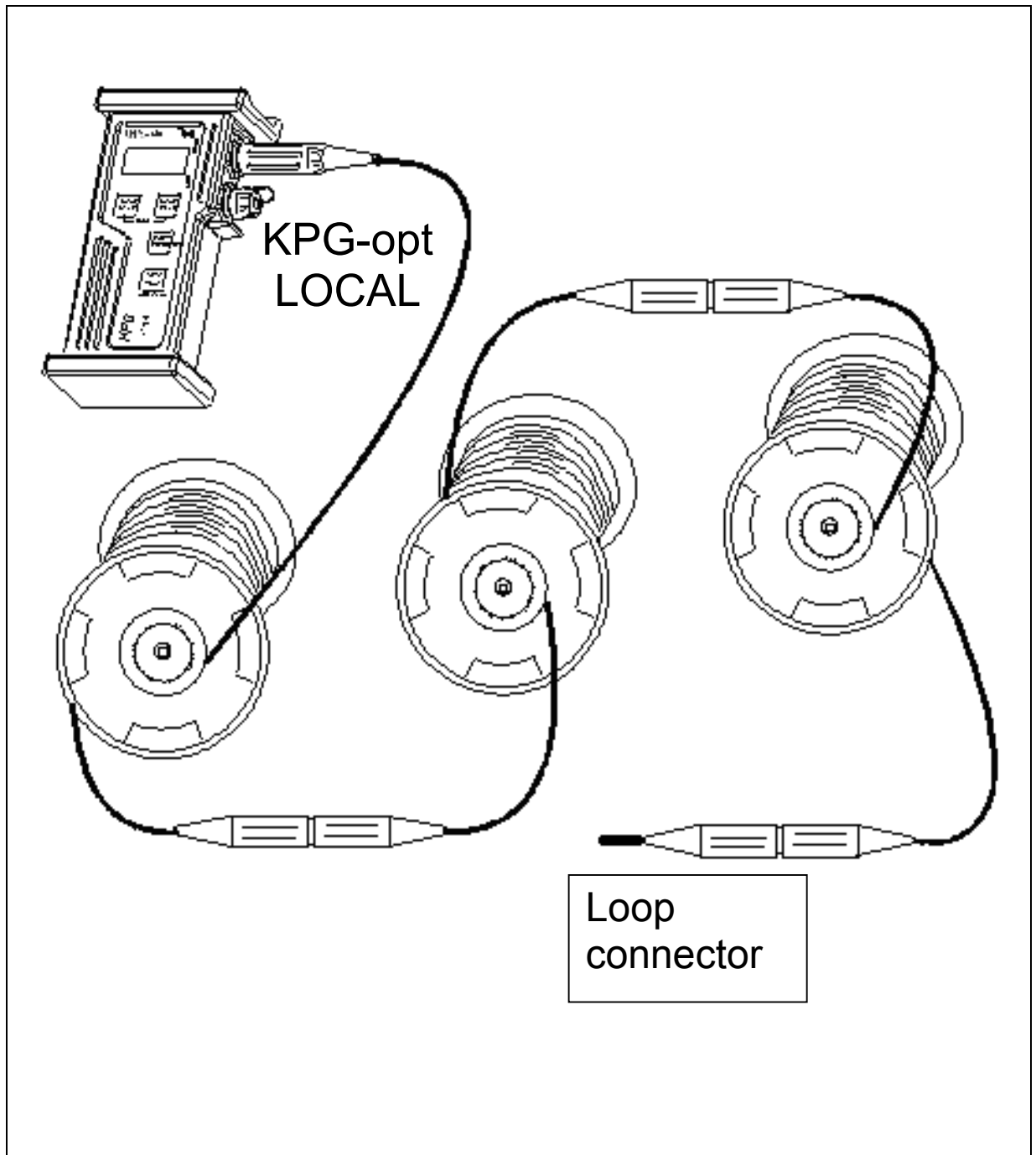


Figure 5 – Cable test

22 Test of a fiber optical cable before, during and after field deployment.

23 Attenuation:
Attenuation of the entire link in dB.

5.2 Measurements Diagnostics

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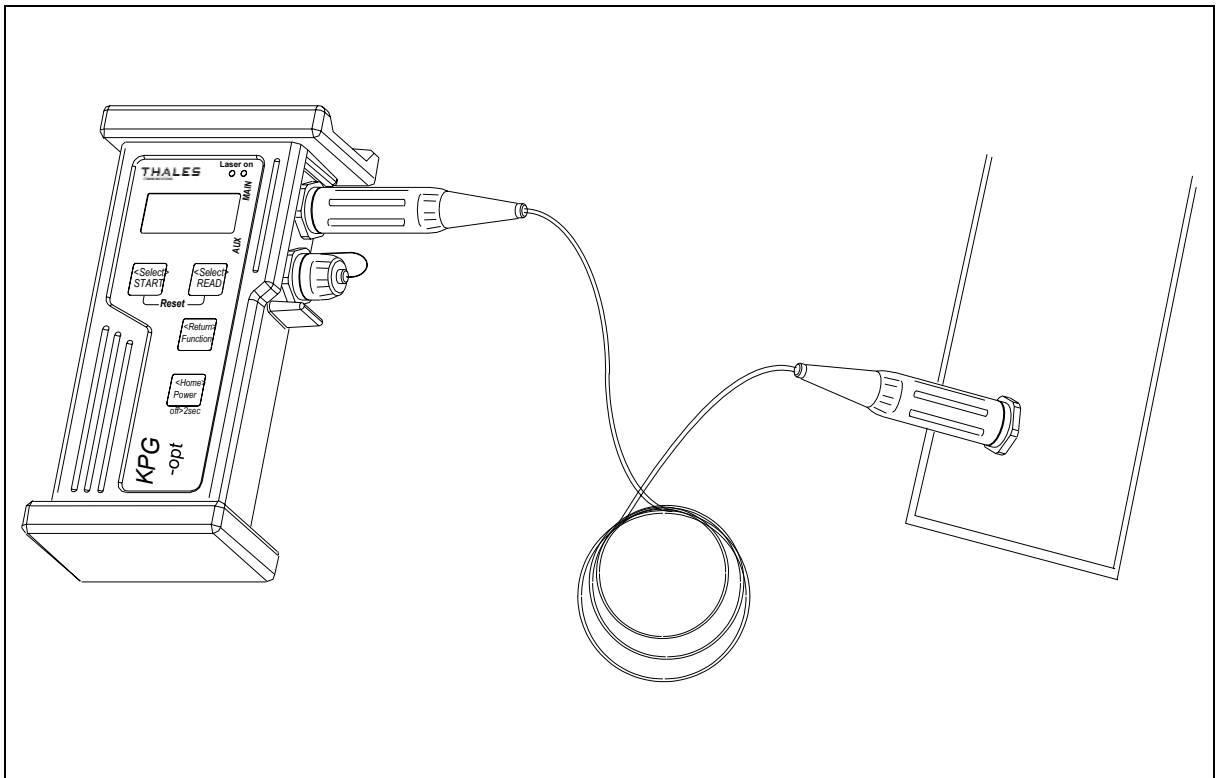


Figure 6 - KPG-opt with optical interface cable

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- Measurements and diagnostics on the equipment:
- Power meter function
 - Optical source (unmodulated)

5.2.1 Power meter

- 26 The KPG-opt measures the optical power which is received through the optical cable.
- 27 The Receiver is calibrated between a range of -35 dBm to 0 dBm to measure optical power at the main connector.
- 28 An optional attenuator cable can be used to lower the signal.

5.2.2 Test frame (option)

- 29 The KPG-opt can be optionally prepared to generate „Test Frames“ which can be detected by the equipment in the system. This feature can be used for diagnostics and function checks.
- 30 The output power can be adjusted with the <Select> key within the range of -5 to -15 dBm in 1 dB Steps.
- 31 The max. data rate for test frames is limited to <34 Mbps.

5.2.3 Optical Source

- 32 KPG-opt used as optical source (Laser transmitter).
- 33 A continuous optical signal is generated and sent to the main connector with constant power.
- 34 The output power can be adjusted with the <Select> key within the range of -3 to -12 dBm in 1 dB Steps.
- 35 An optional attenuator cable (PK-opt -18 dB) can be used to lower the signal by 18dB.

6 Safety regulations

6.1 Operator protection

- 36 The safety regulations within the customer organizations have to be followed.
- 37 Obey the grounding regulations and all electrical rules.
- 38 Prior to opening the battery compartment the KPG-opt has to be separated from the optical cable.

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6.2 Protection of equipments

- 39 Check optical connector prior to connection. To be cleaned first if necessary.
- 40 If connector cleaning is required, the guidelines of the cable supplier have to be followed.

- 41 The predetermined procedures for activities have to be followed.
- 42 Equipments and accessories shall be transported in the foreseen compartments. The protection caps have to be in place for transportation.