

Fiber-Optic Camera Cable Checker (FCT-FCKIT, FCT-OCKIT) Instruction Manual

This model is the 2nd generation and cannot be used with the 1st generation. 1st gen: BLACK caps | 2nd gen: RED caps

Safety Precautions

Caution – use of controls or adjustments or performances other than those specified herein may result in hazardous radiation exposure.



- If you detect a strange smell, unusual heat generation, or smoke coming from the cable checker, immediately switch off the power, remove batteries, and contact your nearest Canare dealer.
- Do not expose this product to rain or the environment where it may be splashed by water or other liquids to prevent failure.
- Be sure to use the specified type of batteries with correct polarity (+ and - direction) when loading them. The wrong polarity installment of batteries could cause damage or failure to this product.

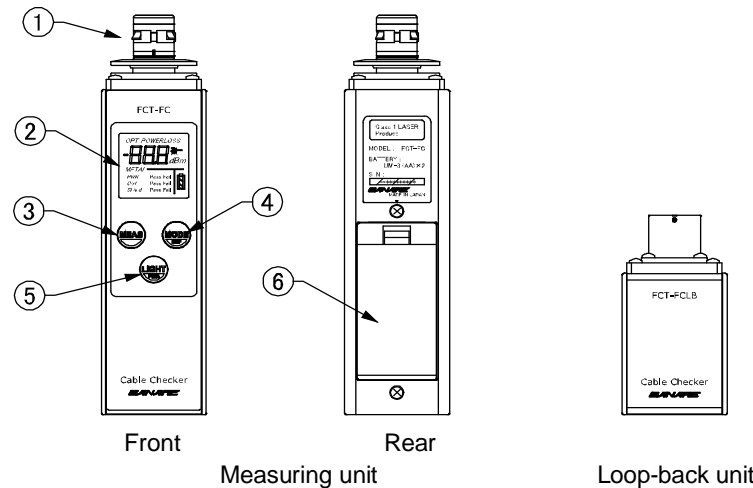
- Do not give a strong shock to this product.
- Do not disassemble this product.
- This product belongs to Class 1 laser products with IEC 60825-1:2014.
- Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

Highlights

- Check your HFO (Hybrid Fiber Optic) camera cables instantly.
- Indicating optic insertion loss, optic power, as well as detecting electrical open circuit and short circuit at the same time.
- Available in two most common HFO camera connector interfaces.
SMPTE connector version: FCT-FCKIT, and Japanese style connector version: FCT-OCKIT

Outline & Functions

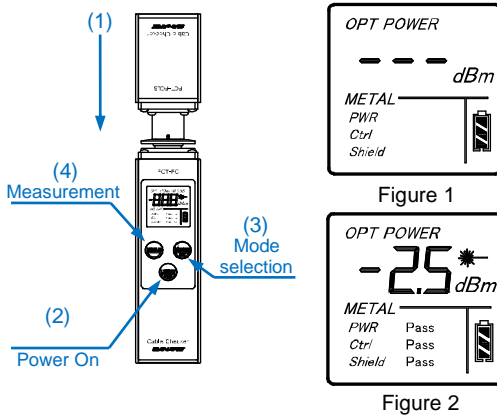
* FCT-FCKIT is shown below.



① Fiber-optic Camera connector	Connects this product to fiber-optic camera connectors. The FCT-FCKIT is used for Canare FC-Series connectors and the FCT-OCKIT is used for Canare OC-Series connectors.
② LCD	<ul style="list-style-type: none"> ● Displaying the optical measurement mode OPT POWER : Power Measurement OPT LOSS : Transmission Loss Measurement ● Test status Brinks when continuous measurement. ● Measured value or error status (Error status) Lo : Optical power too low HI : Optical power too high Err : Calibration failed EEE : Laser failed ● Battery indicator Indicates the remaining battery charge levels in four steps. We recommend replacing the batteries when the indicator begins to blink. ● Displaying metal lines condition. PWR : Power line Ctrl : Control line Shield : Shield metal Pass : Normal Fail : The metal line is broken or short circuit.
③ Measurement Button	For measurements start Short push : Single measurement Long push (more than 2 seconds) : Continuous measurement
④ Mode Button	For measurement mode selecting Short push : Selecting optical transmission loss or optical power measurement *Measurement mode toggles push by push. Long push (more than 2 seconds) : Calibration *After calibration, optical transmission loss measurement automatically selected.
⑤ Light Button	Short push : Illuminating the backlight when power on *After 10 seconds, the backlight goes off automatically. Long push (more than 2 seconds) : Power on/off
⑥ Battery Compartment	For two AA batteries (Alkaline batteries are recommended.)

How to Measure

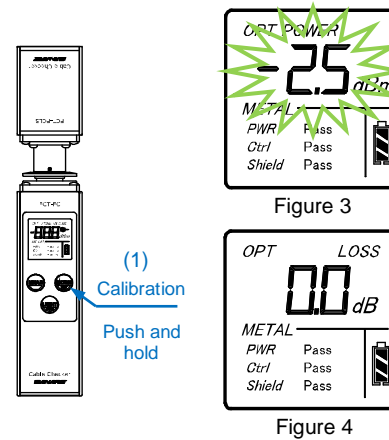
I Preparation to measure For optical measurement correctly



- (1) Couple the measuring unit and the loop-back unit together.
- (2) Push the light button ⑤ for more than 2 seconds to turn the power on.
- (3) Push the mode button ④ for setting power measurement mode (See Figure 1).
- (4) Push the measurement button ③. The product is working correctly if the optical power reading is between -2.0dBm and -3.5dBm, and if all of the metal line conditions are "Pass" (See Figure 2).

Note: If the measured optical power is less than -3.5dBm, the fiber-optic connector may be dirty. Clean it using a recommended stick type cleaner.

II Calibration For optical transmission loss measurement

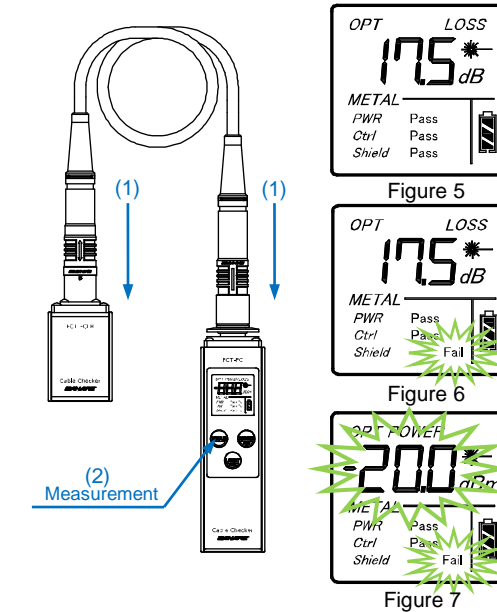


- (1) Push the mode button ④ for more than 2 seconds. The optical power indicator blinks and the indicated value are stored for the reference (See Figure 3). After calibration completed, a reading of 0.0dB is indicated (See Figure 4). After this calibration, the measurement mode goes automatically optical transmission loss.

Note: When the optical power indicator displays Lo or HI, calibration cannot be performed.

- Check the fiber-optic connector, and clean it using recommended cleaner.
- The reference value is stored in a internal memory even if the power is switched off.

III Measurement For checking of optical and metal lines within fiber-optic camera cables.



- (1) Connect the measurement unit to the end of the fiber-optic camera cable, and then connect the loop-back unit to the other end of the cable.

Please NOTE the followings before connection in order to prevent the product from being damaged.

- Discharge static electricity from HFO camera cable by grounding its metal part.
- Connect the Loop-back Unit first.
- Do not connect anything other than the Cable Checker and HFO camera cable.

- (2) Push the measurement button ③. The display indicates both the optical transmission loss and the condition of the metal lines (See Figure 5). Push the measurement button ③ for more than 2 seconds, the optical transmission loss is measured continuously.

Note: Indicated optical transmission loss is the total value of Channel 1 and 2.

- The indication "Fail" blinks when the metal line is broken or short circuit. (See Figure 6).
- The metal line checking to detect failures caused by broken or short circuit.
- After measurement is complete, the optical power measuring is available by pushing the mode button. When the optical power is equal or less than -20dBm, the indicator blinks (See Figure 7).

Other Functions

- The power automatically goes off when the voltage drops below the minimum operating level.
- The power is automatically switched off if the cable checker stays idle for longer than ten minutes.
- Holding down the measurement button for more than two seconds places the cable checker in continuous measurement mode. This mode is useful to measure fluctuating optical loss in real time.
- Once a zero-calibration has been performed, the reference value resulting from it is stored in a built-in memory even if the power is switched off, eliminating the need to perform the zero-calibration again.

Quick Reference Table for Loopback Loss

The following table shows reference values of fiber-optic loss within a typical fiber-optic camera cable. (dB)

Cable Length	N														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Under200m	1.1	2.2	3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2	11.2	12.2	13.2	14.2	15.2
500m	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5
1000m	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2000m	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3000m	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Loopback loss = Number of connected fiber-optic cables (N) + Cable length (km)

Cleaning Fiber-Optic Connectors

Clean the fiber-optic connector according to the "Cleaning the Hybrid Fiber-Optic Camera Connector".

- ⚠ Performing the cleaning without referring to the instructions provided in "Cleaning the Hybrid Fiber-Optic Camera Connector" could result in a deterioration of the optical transmission performance.
- ⚠ Fiber-optic connectors must be kept clean for stable optical signal transmission. Even slight scratches and dust on the tip of the ferrule, which is an integral part of the connector, can have detrimental effects on fiber-optic transmission.

Specifications

General Specifications

Storage Temperature	: -20~70°C
Operating Temperature	: -10~60°C
Power Source	: AA batteries x2
Battery Life	: Approx. 20 hours (continuous use; alkaline Batteries)
Dimensions	: Measuring Unit 46mm(W)×46mm(H)×150mm(D) Loop-back Unit 46mm(W)×46mm(H)×65mm(D) *excluding connectors
Weight	: Measuring Unit 380g Loop-back Unit 180g

Optical Measurement Specifications

Laser Diode	: FP-LD
Wavelength	: 1310nm
Optic Power Output	: -2.5dBm
Photo Diode	: PIN-PD
Optic Power Input	: -24dBm to -2dBm

Metal Line Measurement Specifications

Subject	: Power line, Control line, shield (Individual Measurement)
Maximum length	: Approx. 3.5km

Please note that this model (caps: RED) does not work with previous model (caps: BLACK)

Accessories

Carrying case (2pcs.), Strap (2pcs.), cleaning stick (10pcs.), AA batteries (2pcs.), sleeve extraction driver, Instruction manual, hard case, and "Cleaning the Hybrid Fiber-Optic Camera Connectors" manual.