

**SCIENTEX**

# High resolution optical fiber test instrument

Model OTDR-2100POF

For plastic optical fiber

## Measure and image the defect of fiber

The transmission loss of optical plastic fiber is large and back scatter light against input pulse light becomes ultra weak light. Therefore, the back scatter measurement of the plastic optical fiber is difficult in the usual method.

This instrument solves this problem using a high sensitivity photon counting mode.



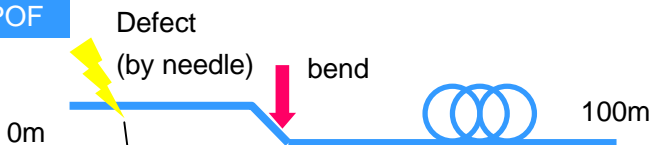
Using high sensitivity photon counting mode

Analyzed variously. (Defect, Transmission loss etc.)

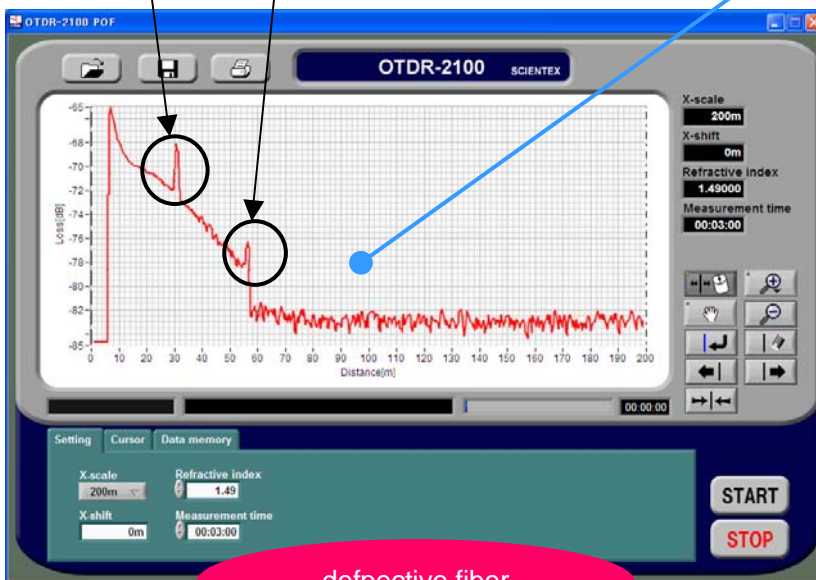
**\*Conformable to CE marking**  
**(EU safety standard)**

**\*The power supply is AC100V~240V**

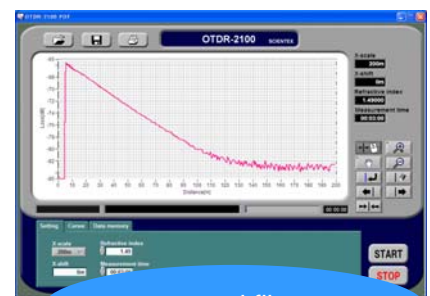
POF



High position resolution ability: 1cm (at100m).  
A defective position can be indicated clearly.



The defect of the plastic optical fiber can be measured with this instrument. That position resolution ability is 1cm at 100m. And, operation is easy by the software of the windows conformity.

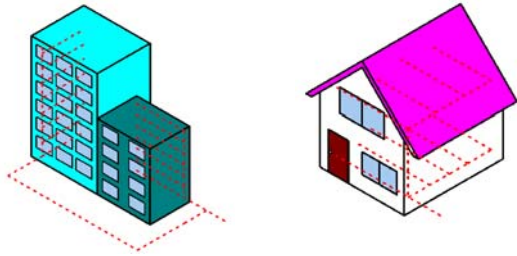


# OTDR of SCIENTEX can be applied to the wide field.

## <Application>

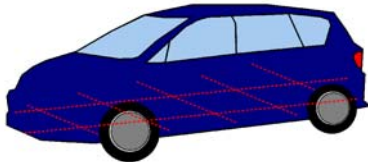
1. Check of the optical circuit which plastic optical fiber is being used

2. Check of the optical fiber circuit inside the building.



4. The connection test of the optical fiber for the car

There is a large quantity of electric wiring in the car to work various electric device. It is called wire harness, and the weight ratio of these is big. The manufacture cost of the wire harness is expensive. The use of the optical fiber is examined instead of these metal wiring. The length of the optical fiber is about 1m~10m inside the car. Therefore the high resolution type OTDR is necessary to measure it precisely



3. Check of the optical fiber circuit for the house

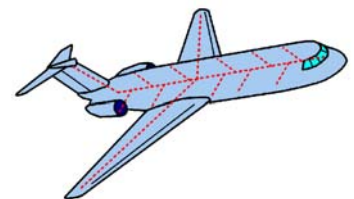
Recently the trial of integrated controlling a machine for the house synthetically is being done. For example, in such cases as the crime prevention, a home network, household electric appliances, an air conditioner, solar optical generating electricity. It is very effective to use optical fiber for the data transmission of this large quantity.

5. The connection test of the optical fiber wiring in the airplane

Recently airplanes are supported by electronic technology. Therefore there are large quantity of signal circuits in the airplane.

Safe flight is threatened when noise comes in the signal circuit.

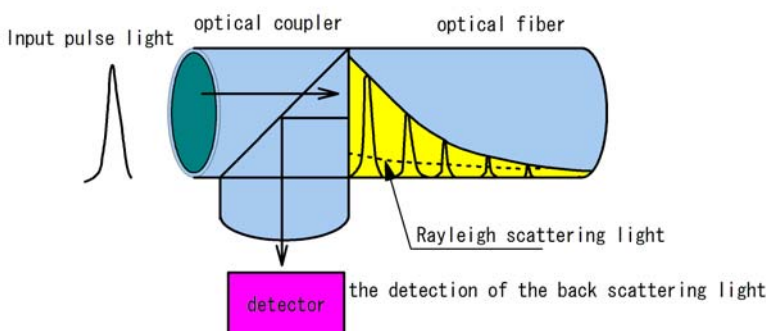
It is considered using optical fiber instead of the metal wire to avoid a thunderbolt and jamming.



## About the measurement principle of photon counting type OTDR.

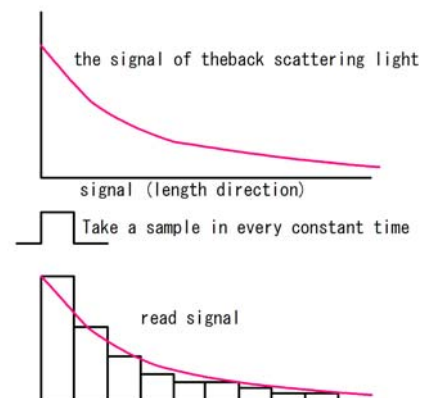
### The fundamental principle of OTDR.

As for the optical scattering in the optical fiber, Rayleigh scattering is the most part. The light returned to the entrance side in this Rayleigh scattering is called the back scattering light. That occurrence efficiency can be considered the index of the loss. When back scattering light is recorded in time series, a loss curve in the length direction is indicated.



### Conventional signal processing.

As for the signal treatment of traditional OTDR, it takes the sample of the analog signal in the constant time width. Then, it averages a signal, and it is indicated. Therefore, it is difficult to get a high resolution than constant time width by using these OTDRs .

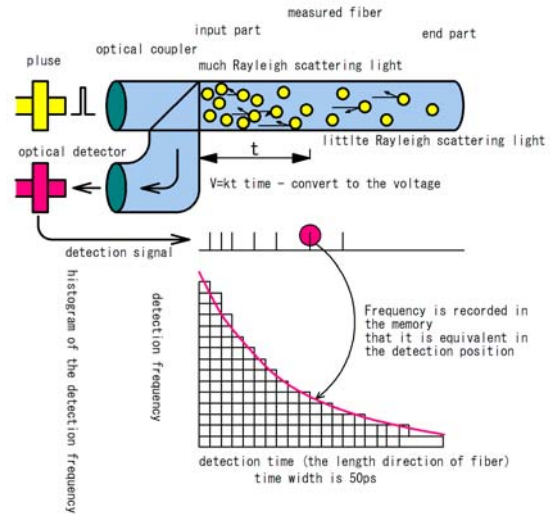


**The OTDR principle of photon counting method.**

When back scattering light is weak, it becomes discrete photon signal. Photon counting is the very excellent method to detect a very weak light signal. Detection signal density reflects the density of the back scattering light. Then, instrument can get the wave shape of OTDR.

<The outline of the measurement>

When optical pulse is inputted one signal detects. Then, detection time is changed into the voltage. Detection time is recorded by histogram memory.



**Series list**

Model	Range(m)	Material	Wavelength (nm)	Mode	Core diameter (um)
OTDR-2100POF-650-1	100-1000	PMMA, Fluorine plastic	650	MM*	100
OTDR-2100POF-650-2	100-1000	PMMA, Fluorine plastic	650	MM	200
OTDR-2100POF-650-3	100-1000	PMMA, Fluorine plastic	650	MM	400
OTDR-2100POF-650-4	100-1000	PMMA, Fluorine plastic	650	MM	500
OTDR-2100POF-650-5	100-1000	PMMA, Fluorine plastic	650	MM	750
OTDR-2100POF-650-6	100-1000	PMMA, Fluorine plastic	650	MM	1000
OTDR-2100POF-850-1	100-1000	PMMA, Fluorine plastic	850	MM	100
OTDR-2100POF-850-2	100-1000	PMMA, Fluorine plastic	850	MM	200
OTDR-2100POF-850-3	100-1000	PMMA, Fluorine plastic	850	MM	400
OTDR-2100POF-850-4	100-1000	PMMA, Fluorine plastic	850	MM	500
OTDR-2100POF-850-5	100-1000	PMMA, Fluorine plastic	850	MM	750
OTDR-2100POF-850-6	100-1000	PMMA, Fluorine plastic	850	MM	1000

MM: Multi mode fiber

## The construction of the system

OTDR-2100

<Accessories> AC adapter, USB cable, Instruction manual, Notebook computer, Software CD-ROM, Refractive index adjustment oil, Cotton swab



## Software specification

Windows XP

Real time indication, cursor function, the change of the concern area, expansion, reduction function, loss calculation, indication, data save, reading, printing.

## Hardware specification (Model :OTDR-2100POF-650-1)

Measurement wavelength	650nm	Vertical axis indication range	18dB (one way)
Measurement range	200m	Distance resolution ability	5.5mm (at the time of the X axis scale 20m)
Connector	FC	The type of fiber	Plastic optical fiber
Interface	USB2.0	Power supply voltage	DC 12V AC adapter is attached
Power consumption	12W	Environment temperature	+15~+30°C
Weight	About 3.0kg	Dimension	250 (width) × 99 (height) × 300 (depth) mm

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\* The contents which appeared on this journal were mentioned as a reference data, and it didn't assent to them about each industry possessions and so on.

\*The specification of our product may be changed for the reason such as improvement and the progress of technology without notice

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