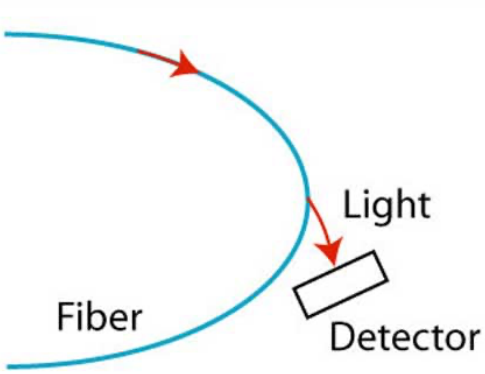
Fiber Identifier

By Vladimir Grozdanovic

A fiber identifier is used to detect the presence of an optical signal in a fiber – an active fiber. Additionally, these instruments can determine the direction of the signal and estimate the optical power. The instrument works by bending the fiber, causing stress loss, then measuring the light from the fiber. By a second detector on the other side of the bend, it can determine the direction of the light in the fiber also.



During measurement, the fiber is inserted into the instrument and gently bent, causing part of the light to escape from the fiber core, which the photodiodes detect. This enables the identification of the active fiber, the signal direction, and sometimes the estimation of optical power displayed on the screen.

Fiber identifiers also usually have a test mode that looks for a 2 kHz signal from a test source. By connecting a test source with a 2 kHz output to a fiber, the fiber identifier can detect that signal and identify that exact fiber, even a long distance away.

The fiber identifier can be universal or equipped with different adapters (3 mm, 2 mm, 900 µm, and 250 µm) to accommodate various fiber and cable diameters (fiber, pigtail, and patch cord).

In systems/networks where accurate documentation does not exist, this instrument can be very helpful, preventing interruptions of active fibers and thus important services.

VIAVI and Fujikura offer some of the best instruments of this kind. Therefore, in the following text, we present an interview about fiber identifiers with a representative of these companies in Serbia – Ibis Instruments, Marko Tasić.

1. Which models of fiber identifiers do you offer?

We offer the Fujikura FID-30R/31R/32R and Viavi FI-60 and FI-10/11 fiber identifiers.

Optical Fiber IdentifierFID-30R/31R/32R | Fujikura
Live Fiber Identifier & Optical Power Meter | VIAVI FI-60 (viavisolutions.com)
Optical Fiber Identifiers - FI-10/-11 from VIAVI, Try Free (viavisolutions.com)

2. What are their main features?

They use a non-destructive macro-bend method to detect the presence of signals in fiber across a wide range of wavelengths (900-1700nm or wider) without disrupting service. They detect CW traffic signals and modulated tones at frequencies like 270Hz, 1kHz, and 2kHz. They are compact, lightweight, portable, handheld, easy to use and maintain, battery-powered, and rugged for field use.

3. How do they differ from other fiber identifiers on the market?

Fujikura FID devices are known for their high sensitivity in signal detection (below -60dBm for certain fibers and wavelengths) and for their capability to detect the presence of connected GPON ONTs/ONUs on the tested fiber. They can determine whether specific fibers are available for connecting new users or already in use.

4. How accurate is the identification of the active fiber? Has the device been tested on all types of SM and MM fibers? Are tests possible on bend-insensitive fibers - ITU G.657.A1, G.657.A2, and specifically G.657.B2 and G.657.B3?

The identification of the active fiber is accurate with proper device usage, adequate fiber preparation/coverage (particularly important in environments with strong ambient light), and

with a solid present level of signal that is not very close to the lower limit of the detection range. The devices are applicable to both SM and MM fibers. Fujikura FID devices are applicable to ITU G.657 fibers, however, I do not have information on which specific subtypes.

5. How precisely is optical power measured?

Optical power in the fiber is generally not measured precisely with these devices; an estimated value is provided instead. The purpose of these devices is to detect the presence of optical signals and possibly their direction, while the power level is irrelevant or secondary. For users needing precise optical power measurements, some variants of these devices include an integrated standard broadband OPM with accuracy of +/-0.3dB or better, but they require connector coupling or active link breaking.

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