

OTDR FIBER MONITORING

uFT-2U

Intelligent OTDR-Based Remote Fiber Test System

Centralized remote fiber testing for dark fiber, live fiber and PON networks.



24/7

ONLINE MONITORING

1550 / 1625 nm

OTDR WAVELENGTH

45 dB

OTDR DYNAMIC RANGE

2U / 7U

CHASSIS

≤ 25 cm

X-AXIS RESOLUTION

≤ 300 ms

SWITCHING TIME

01 Overview

The UGRID uFT-2U is an intelligent remote fiber test system (iRFTS) for administering fiber optic cable networks. Its embedded microprocessor-based Main Control Unit (MCU) runs automatic OTDR testing, with centralized control and fiber network administration for dark fiber, live fiber and PON applications. The uFT-2U supports automatic fiber monitoring and cable commissioning — real-time fiber fault detection, accurate fault analysis, reduced service downtime, fiber degradation forecasting and optimized use of monitoring fibers for data services.

Automatic fault location

When the power detector sees a loss or drop in received power, the system triggers the OTDR to scan the fiber and identify the bend or failure point.

Dark, live and PON fiber

One system for dark fiber, live fiber and PON fiber networks, with centralized control and fiber network administration.

Low power, easy to expand

A microprocessor-based MCU control card replaces a separate industrial PC to reduce power consumption. Cascaded shelves grow system capacity with your needs.

02 Key Features

- **24/7 online monitoring** with light source and power detector
- **Flexible deployment** — on-premises FMS server, or a virtual machine in a private cloud, for PC and mobile access
- **Web-based GIS interface** with online or offline maps down to street level, plus Open API
- **OTDR ghost trace filtering**
- **Cascaded shelves** — system capacity grows with your needs
- **Fully automatic testing** built into the Remote Test Unit (RTU)
- **Microprocessor-based MCU** for stability, reliability and minimum power consumption
- **Lower power for ESG goals** — MCU control card instead of a separate industrial PC (IPC)
- **Forecast and historical fiber reports** for SLA fiber subscribers
- **Dark, live and PON fiber** monitoring from one system

DEPLOYMENTS

Dark Fiber

Live Fiber

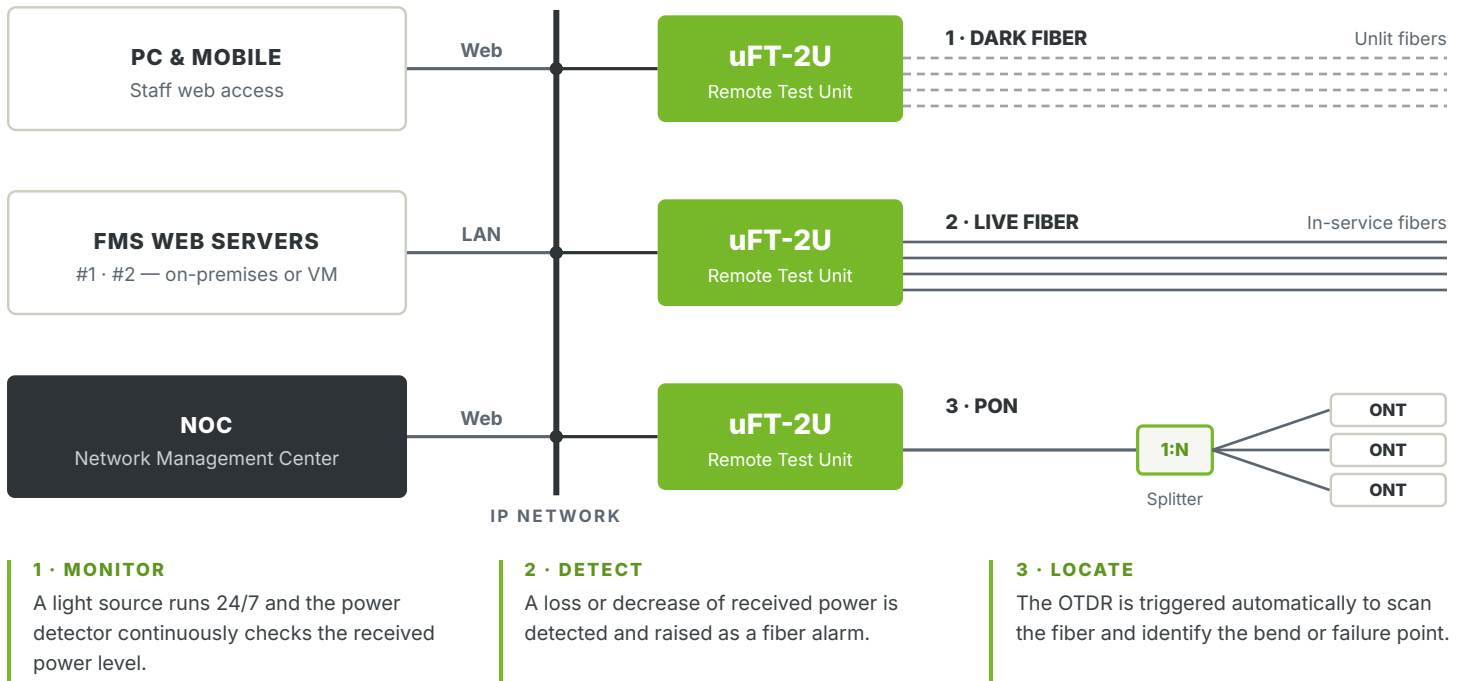
PON Networks

Point-to-Point Links

Ring Routes

03 System Architecture

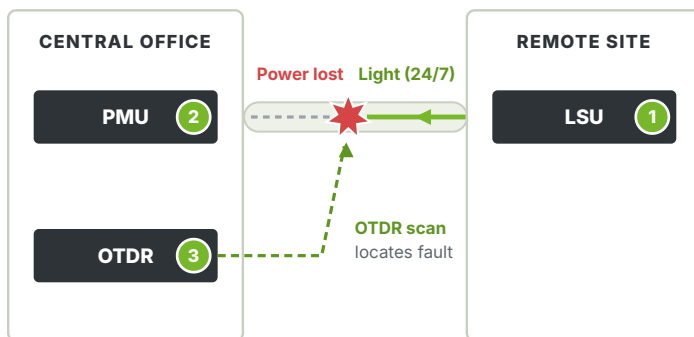
CENTRALIZED CONTROL



04 Application Scenarios

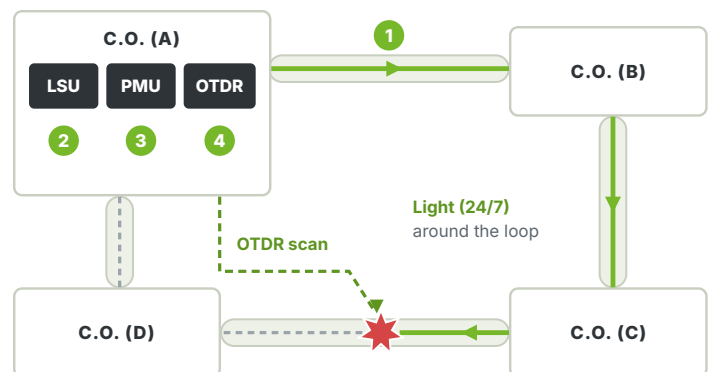
FAULT DETECTION AND LOCATION

SCENARIO 1 Point-to-Point



- 1 The LSU at the remote site emits light continuously (24/7) to the PMU at the central office.
- 2 The PMU detects a loss or decrease of the received power level.
- 3 The OTDR is triggered to scan the fiber and identify the bend or failure point.

SCENARIO 2 Ring Loop



- 1 One fiber core on each path is connected into a ring loop (A → B → C → D → A).
- 2 The LSU emits light continuously (24/7) around the loop to the PMU.
- 3 The PMU detects a loss or decrease of the received power level.
- 4 The OTDR is triggered to scan the fiber and identify the bend or failure point.

LSU light source · PMU power detector · OTDR optical time-domain reflectometer · RTU remote test unit (the uFT-2U chassis)

05 Management

Web GIS interface

Online or offline maps down to street level, from PC and mobile devices.

Flexible deployment

On-premises FMS server, or a virtual machine in a private cloud.

Fiber reports

Forecast and historical fiber reports for SLA fiber subscribers.

Open integration

Open API. Northbound integration commands and protocols on request.

06 Specifications

CHASSIS

Open slots	Power supply, MCU, OTDR, OCS
Optional modules	LSU, PMU and WDM, installed in a separate 2U chassis
Chassis	Stand-alone 2U; 19" or 23" rack mount
Operating temperature	0 to 50 °C
Weight	< 10 kg

POWER SUPPLY MODULE

DC power	–36 to –72 V DC
AC power	110 to 220 V AC, 50/60 Hz ± 5%
Maximum output	50 W
Fuse	3 A
Ethernet port	Optional 10/100 Mbps LAN port for remote power reset
LED indicators	AC PWR, DC PWR, +5V, +12V

MCU MODULE

Memory	512 k or higher
Storage	24 MB or higher
Interfaces	2 × 10/100 Ethernet (LAN1, LAN2), RS-232 console, 2 × RS-485
System maintenance	Watchdog self-diagnostic
LED indicators	RUN / FAIL; RS-485 #1, RS-485 #2 and RS-232 TXD / RXD; LSU, PMU, OCS, OTDR and FIBER GOOD / FAIL; LAN 100M / LINK
System protocols	Northbound system integration commands and protocols on request

OCS MODULE

Capacity	4 / 8 / 12 / 16 ports
Switching time	≤ 300 ms
Passband	±20 nm @ 1550 nm / 1625 nm
Return loss	≥ 45 dB
Insertion loss	≤ 1.5 dB
Crosstalk	≤ –70 dB
Repeatability	≤ 0.1 dB
Lifetime	10 million switching cycles
Optical interface	SC/PC, SC/APC or LC/PC
LED indicators	RUN, ALM

OTDR MODULE

Operating wavelength	1550 nm or 1625 nm ± 20 nm
Dynamic range	30 to 45 dB
X-axis resolution	≤ 25 cm
Y-axis resolution	≤ 0.001 dB
Refractive index	1.2000 to 1.6000, 0.0001 step
Accuracy	±(1 m + 3 × 10 ^{–5} × distance + sampling resolution)
Pulse width	At least 5 pulse widths: 3 ns, 5 ns, 10–100 ns, 200–500 ns, 1–5 μs, 10–20 μs
Max. sampling points	256,000
LED indicator	PWR

06 Specifications

CONTINUED

LSU MODULE (OPTIONAL)		PMU MODULE (OPTIONAL)	
Operating wavelength	1550 nm	Operating wavelength	1280 to 1655 nm
Laser sources	2	Dynamic range	+5 to -65 dBm (dark fiber) +15 to -40 dBm (live fiber)
Center wavelength	≤ 25 nm	Accuracy	≤ 0.5 dB
Linewidth	≤ 5 nm	Resolution	≤ 0.1 dB
Output power	≥ -7 dBm @ 4 ports	Optical interface	SC/PC, SC/APC or LC/PC
Stability (25 °C, 24 h)	≤ 0.3 dB		
Optical interface	SC/PC, SC/APC or LC/PC		
		WDM MODULE (OPTIONAL)	
		Operating wavelength	1310 nm & 1550 nm / 1625 nm
		Directivity	≥ 50 dB
		Insertion loss	≤ 1.5 dB
		Isolation	≥ 30 dB
		Optical interface	SC/PC, SC/APC or LC/PC

Available Configurations SPECIFY WHEN ORDERING					
OTDR WAVELENGTH	OCS PORTS		OPTICAL INTERFACE	OPTIONAL MODULES	RACK MOUNTING
1550 nm	4 ports	8 ports	SC/PC	LSU module	19-inch rack
1625 nm	12 ports	16 ports	SC/APC	PMU module	23-inch rack
			LC/PC	WDM module	
In a separate 2U chassis					

Revision History

REV.	DATE	DESCRIPTION
01	2026-10-25	Initial release.

Specifications are subject to change without notice. Product images are for illustration only. Copyright © 2026 UGRID Network Inc. All rights reserved.