Single fiber IRL Meter

The Dimension single-Core Insertion and Return Loss Tester adopts a high-stability light sourceand a high-precision optical power meter, enabling non-wrap return loss testing and high-speedinsertion loss measurement. A single wavelength loss test takes less than 0.6 seconds, and the system can detect return loss aslow as -80 dB. The RLM supports a total of six test wavelengths for both single-mode and multimode fibers(Multimode: 850 nm,1300 nm; Single-mode: 1310 nm, 1490 nm, 1550 nm, 1625 nm). With its fast and accurate measurement capabilities, RLM is an effective tool for improvingproduction efficiency and quality control.

Main Features

- Platform + modular design for easy application expansion
- Tangle-free RL testing; testing speed for single fiber with dual wavelengths is less than 0.6s
- Minimum detectable RL is -80dB (Single-mode)
- Minimum measurable fiber length: 0.7 meters
- Optical power meter's minimum detectable power: -70dBm (without using an integrating sphere)
- A wide range of interchangeable, highly reliable detector adapter connectors
- Supports multiple control methods such as Ethernet and USB
- Software UI is simple and intuitive for easy user operation
- Automatically saves test data reports and supports remote control

Applications

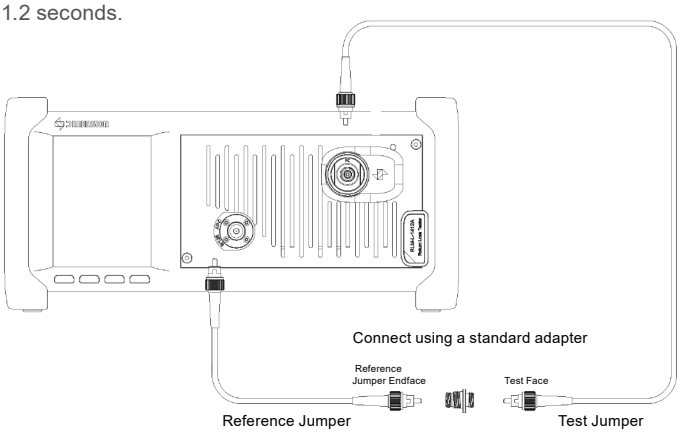
- Patch cord and connector performance testing
- Optical passive device performance testing

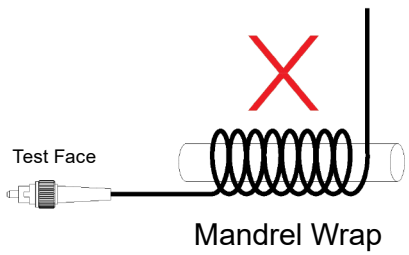
OMEGA test platform

ALPHA test platform

RL mandrel-free test, dual wavelength test speed less than 1.2s

Based on Optical Time Domain Detection principles, it enables tangle-free Return Loss (RL) testing. Its integrated design allows for simultaneous Insertion Loss (IL) and RL measurements. Utilizing high-speed sampling circuits and optimized algorithms, the dual-wavelength test speed is under 1.2 seconds.



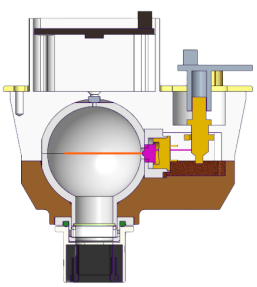


RL minimum detectable down to -80dB(single fiber single mode), Minimum measuring fiber length 0.7m

Using the dimension self-developed high-sensitivity detection circuit and the optimized software algo rithm, RL can achieve the detection of -80dB(single fiber single mode), which can meet the detection requirements of high-performance single mode patchcord (SM/APC).

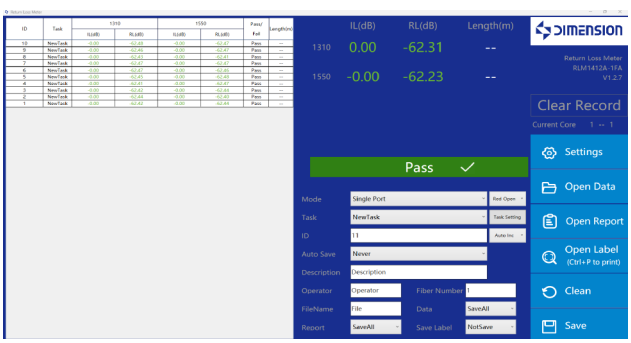
A wide range of interchangeable, highly reliable detector adapter connectors

To meet diverse customer requirements, Dimension has developed a series of versatile, interchangeable, and highly reliable detector adapter connectors. The user-friendly, optimally designed integrating sphere is compatible with MPO and duplex LC connectors, enabling complete testing without repeated plugging and unplugging.



Support PC control software, automatically save test data+ report, support remote network control

Concise and clear software UI design, users can customize test reports, and can automatically save and upload test data and reports to the sever.



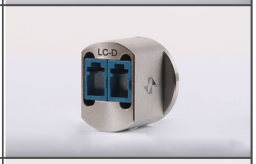
Specifications

Basic product model		RLM-HP-1412A-1FA	RLM-HP-5456A-1FA	RLM1112A-1FA	RLM5156A-1FA	RLM-L-2175A-2FA	RLM-L-5156A-1FA
Product series		High Performance	High Performance	Professional	Professional	Lite	Lite
light source	Fiber Type	SM 9/125	MM 50/125	SM 9/125	MM 50/125	SM 9/125	MM 50/125
	Wavelength	1310/1550nm	850/1300nm	1310/1550nm	850/1300nm	850/1310/1550nm	850/1300nm
	Source Type	Laser	LED/Laser	Laser	LED/Laser	LED/Laser	LED/Laser
	Encircled Flux Standard	NA	IEC-61280-4-1	NA	IEC-61280-4-1	IEC-61280-4-1	IEC-61280-4-1
IL section	IL Stability*	168h, ±0.02db		±0.01dB(<0.5H); ±0.02dB(<8H)		±0.02dB(<0.5H); ±0.03dB(<8H)	
	IL Repeatability*	±0.02dB					
	IL Accuracy*	0~1dB: ±0.02dB 1~10dB: +0.1dB 10~15dB: +0.5dB	0~1dB: ±0.02dB 1~10dB: +0.1dB 10~15dB: +0.5dB	0~1dB: ±0.02dB 1~10dB: +0.1dB 10~15dB: +0.5dB	0~1dB: ±0.02dB 1~10dB: ±0.1dB 10~15dB: ±0.5dB	0~1dB: ±0.02dB 1~10dB: ±0.1dB 10~15dB: ±0.5dB	0~1dB: ±0.02dB 1~10dB: ±0.1dB
RL section	RL Range	-30~-80dB	-15~-60dB	-30~-80dB	-15~-60dB	-30~-72dB	-15~-55dB
	RL Accuracy	-30~-70dB: ±1.0dB -70~-75dB: ±2.0dB	-15~-50dB: ±1.0dB -50~-55dB: ±2.0dB	-30~-70dB: ±1.0dB -70~-75dB: ±2.0dB	-15~-50dB: ±1.0dB -50~-55dB: ±2.0dB	-30~-65dB: ±1.0dB -65~-70dB: ±2.0dB	-15~-50dB: ±1.0dB -50~-55dB: ±2.0dB
Others	Fiber length (Min)	DUTreflections (both ends)<-50dB: 0.7m; DUTrefections (both ends)>-50dB: 1.5m					
	Once Testing Time	HP<1.0s per channel(<1.0s Per channel) Lite/Pro<1.1s per channel(<1.0s Per channel)					
	Display resolution	0.01dB					
Mainframe	Input power	AC90~ 260V/50HZ					
	Warming up time	30minutes (if the storage temperature is different from the service temperature, the preheating time is 90 minutes)					
	Working temperature	10°C~40°C					
	Storage temperature	-40°C~70°C					
	Size	ALPHA platform: 359mmx274mmx115mm, OMEGA platform: 462mmX374mmX171mm, Module: 285mmX133mmX71mm					

*Default test conditions for related parameters: Equipment warm-up time of 30 minutes; Ambient temperature of 23+/-1°C; FC/PC single-fiber patch cord. If multi-fiber cables are used for verification, an additional error variable of +/-0.03dB introduced by the optical switch must be accounted for in the parameters.

Detector Adaptors Selection Guide

Number	PN	Name	Description	Image
1	204810002	OPM FC adapter	Detection interface, suitable for FC connector	
2	204810003	OPM SC adapter	Detection interface, suitable for SC connector	
3	204810004	OPM LC adapter	Detection interface, suitable for LC connector	
4	204810007	OPM 2.5 ferrule adapter	Detection interface, suitable for FC/SC/ST ... connector and 2.5mm ferrule	

Number	PN	Name	Description	Image
5	204810006	OPM 1.25 ferrule adapter	Detection interface, suitable for LC/duplex LC /SN ... connector and 1.25mm ferrule	
6	204810014	OPM Integrating Sphere	Provide wide numerical aperture, can be used with MPO/ duplex LC adapters	
7	204810015	OPM MPO adapter	Detection interface, suitable for MPO12/MPO16connector	
8	204810016	OPM duplex LC adapter	Detection interface, suitable for LC/duplex LC connector	
9	204810017	OPM Bare- fiber adaptor	Detection interface, suitable for bare-fiber power test application	

Ordering Information

Based on the principle of optical time domain reflection(OTDR) detection, the return loss test is realized without winding. The integrated design test module can realize insertion loss and return loss testing simultaneously. Using high speed sampling circuit and algorithm optimization, the speed of dual wave engths test is less than 1s (Fast mode: 1310/1550 dual wavelength test speed 0.6S).

RLM □ □ □ □ □ — □ □ □ □

Series	
/	Professional
-L	Liter
-HP	High Performance

Laser fiber type	
1	SM 9/125
2	SM 9/125& MM 50/125
5	MM 50/125

Detector type	
1	InGaAs 2mm PD
4	Standard Integrating Sphere
5	External Standard Integrating Sphere

Laser wavelength	
1	1310-SM
2	1550-SM
3	1490-SM
4	1625-SM
5	850-MM
6	1300-MM
7	1310+1550-SM

RL test	
A	Mandrel-Free OTDR

Laser output port	
1	1CH
2	2CH

Laser connector type	
FA	FC/APC

Fiber Core Count	
01	Single-core or Dual-core; Compatible with the ALPHA chassis

Eg:
RLM1112A-1FA Tangle-Free Insertion and Return Loss Module, Wavelength 1310/1550, Single-Mode 9/125, InGaAs, 2mm Source Output Port, 1CH, Interface FC/APC.

Note: [1] The two digits represent two laser positions. Customers can select the laser wavelength from a predefined list or request a custom wavelength.
For RL implementation, Model A supports four different wavelengths. The digital coding facilitates the selection of red light and laser types, and the wavelengths are also available for customer customization.

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