SmartClass™ Fiber

ORL-85 and -85P Inspection-Ready Optical Return Loss Meters

The SmartClass Fiber ORL-85 and -85P combine fiber inspection microscope, optical power meter (OPM), light source (OLS), and continuous wave return loss meter (OCWR) in one versatile test instrument. The compact instrument is ideal for measuring optical return loss and inspecting fiber connector end faces to verify optical connection quality.

Optical systems with high-speed lasers, analog transmission (CATV), or Raman amplifiers require high return loss for maximum performance. Furthermore, optical return loss measurements can be used to prove that an installation was completed carefully and accurately; for example, they can show that the optical connectors were inspected and are clean. The ultra-sensitive power meter combined with stabilized light sources enable up to a 70 dB measurement range. The angled single-mode test port (APC) guarantees highly accurate return loss measurements without requiring external termination for up to 50 dB return loss measurements.

The ORL-85 and -85P are compatible with the P5000i digital analysis microscope for checking fiber end-face quality and getting pass/fail acceptance results at the push of a button.

The ORL-85P features an integrated patch-cord microscope (PCM) for added value and improved workflow efficiency.

Threshold settings for pass/fail indications and the intuitive touch screen user interface transforms users into instant fiber experts without the need for special training. Automatic functions, such as Auto-λ and real-time Multi-λ functionalities avoid handling errors and speed up test time significantly. The ORL-85 and -85P are fully compatible with other members of the SmartClass Fiber family (OLS, OLP, and OLT) with these automatic functions.

Users can easily save test results (power, return loss, and fiber inspection) with real-time stamp to generate certification reports. Test results can be easily uploaded to a PC for post-processing with FiberChekPRO™ PC software.

The ORL-85 and -85P inspection-ready optical return loss meters can be used anywhere today's fiber technicians go, up poles or down holes. Technicians gain ultimate flexibility and performance from this powerful easy-to-use solution that can instantly transform any technician into a fiber expert.

Key Benefits

- Complete jobs faster, correctly, and on time—the first time—with a uniquely integrated fiber inspection microscope, optical power meter, optical light source, and optical return loss meter
- Battery-operated, field-portable instrument provides a full day of autonomy
- Ability to transfer data and control remotely via USB or Ethernet interface
- Shielded housing for extreme accuracy in RF environments
- Rugged, weather-proof design for outdoor use

Key Features

- Real-time simultaneous return loss measurements at multiple wavelengths
- Automated pass/fail fiber inspection analysis with optional P5000i microscope; a version is available with an integrated PCM
- Onboard fiber inspection and test results storage with time stamp
- 70 dB high precision return loss meter
- 3.5" color touch screen with integrated stylus
- In-service loss test option

Specifications

		ORL-85 (2311/21) ORL-85P (2312/21)	ORL-85 (2311/23) ORL-85P (2312/23)
Operating Modes		Return Loss, Power Meter, Light Source	
Return Loss Meter			
Nominal wavelengths[1]		1310, 1550 nm	1310, 1550, 1625 nm
Resolution		0.01 dB	
Measurement range		0 to 70 dB	
Measurement accuracy[2]		±0.7 dB (0 to 50 dB)	
		±0.9 dB (50 to 60 dB)[3]	
Power Meter			
Detector type		InGaAs	
Power measurement range		–85 to +15 dBm	
Max. permitted input level		+15 dBm	
Measurement accuracy[4]		±0.4 dB	
Automatic offset nulling		Yes	
Wavelength range		1260 to 1650 nm	
Wavelength settings		1260 to 1650 nm, in 1 nm steps	
Calibrated wavelengths		1310, 1490, 1550, 1625 nm	
Display resolution		0.01 dB/0.001 µW	
Measurement units		dB, dBm, W	
Power meter functions		Abs, rel, pass/fail	
Auto functions[5]	Auto-λ	Auto single-wavelength detection	
	Multi-λ	Auto multi-wavelength detection	
Tone detection		270 Hz, 1 kHz, 2 kHz	
Warm up time		None, instant On	
Light Source			
Nominal wavelengths[1]		1310, 1550 nm	1310, 1550, 1625 nm
Spectral width		<5 nm	
Output power (settable in 0.01 dB steps)		–3 to –6 dBm	–6 to –9 dBm
Stability[6] 15 min/8 hr		0.02/0.2 dB	
Source modes		CW, tone, Auto-λ[7], Multi-λ[7]	
Tone generator		270 Hz, 1 kHz, 2 kHz	
Optical interfaces		APC connector with interchangeable SC, FC, ST adapters	
General			
Laser Class		Class 1 Laser Product (IEC 60825-1:2007)	
Display		3.5-in color LCD touch screen, 4:3 ratio	
Data readout		Via USB interface	
Remote control capability		Via USB or Ethernet	
Inspection functions		Live, freeze, store end-face image, auto pass/fail	
Data storage		Up to 10,000 test results. Abs, rel. power with time stamp, inspection jpg	
Electrical interfaces		USB 2.0 (2 x host, type A, 1 x device, Micro-B)	
Power source		AC adaptor, 8x AA alkaline, or rechargeable LiON battery pack (option)	

General		
Power mode		Active, Auto-Off (programmable)
Battery life		>10 hr (LiON)/>8 hr (alkaline)
Dimension (H x W x D) & Weight	ORL-85	208 x 112 x 64 mm (8.2 x 4.4 x 2.5 in) 750 g (1.6 lb)
	ORL-85P	208 x 153 x 64 mm (8.2 x 6.0 x 2.5 in) 850 g (1.85 lb)
Operating temp. range		–5 to +45°C (23 to 113°F)
Storage temp. range		–25 to +55°C (–13 to 131°F)

Ordering Information

ORL-85 and ORL-85P Optical Return Loss Meters include

- SmartClass Fiber instrument
- SC2 Soft Shoulder Case, for SCF tools
- Electronic tool kit with manual, datasheet and reporting-software
- Optical adapter: SC-type (mounted) and FC-type (interchangeable)
- Quick start manual and safety instructions
- Alkaline batteries (8x)

Description	Part Number
ORL-85 Return Loss Meter 1310, 1550 nm, APC	2311/21
ORL-85 Return Loss Meter 1310, 1550, 1625 nm, APC	2311/23
ORL-85P Return Loss Meter 1310, 1550 nm, APC, with integrated patch cord microscope (PCM)	2312/21
ORL-85P Return Loss Meter 1310, 1550, 1625 nm, APC, with integrated patch cord microscope (PCM)	2312/23
Options and Accessories	
P5000i digital analysis microscope with 4 tips	FBP-SD101
RBP2 Rechargeable LiON battery pack 3.7 V/20 W	2305/90.02
PS4 power supply, 12 V, 2 A	2305/90.01
RBP2 Rechargeable LiON battery pack with PS4 power supply	2305/90.04
UC4 hands-free carrier	2128/01
SC2 soft shoulder case	2128/03
FC-type optical adapter	2155/00.05
SC-type optical adapter	2155/00.26
ST-type optical adapter	2155/00.32
USB cable USB-A to Micro-USB	K807

1. ±20 nm
2. Under reference conditions 23°C ±3K, 45% to 75% rel. humidity, 9 µm test fiber with FC/APC ceramic connector, Normalization after a warm-up time of 20 minutes
3. Normalization with single-mode mandrel wrap >70 dB return loss
4. Under reference conditions: at calibrated wavelengths ±1 nm, –20 dBm (CW), 23°C ±3K, 45% to 75% rel. humidity, 9 µm test fiber with FC/APC ceramic connector
5. Works in conjunction with OLS-3x, OLS-5x, OLS-85, OLT-85 and ORL-85
6. Between –10 to +55°C with ΔT = ±0.3 K after a 20-minute warm-up
7. Works in conjunction with OLP-3x, OLP-55, OLP-85, OLT-85, and ORL-85

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