OPTO-ELECTRONICS INC.

RESEARCH IN ELECTRO-OPTICS

THE OFM20
OPTICAL FIBER MONITOR

Wavelength Range: 640 to 980 nm

DESCRIPTION

The OFM20 Optical Fiber Monitor is a short haul, high resolution, short wavelength OTDR designed to operate in both Fresnel and Rayleigh modes. Operated in Fresnel mode it can measure high insertion losses or strong to very weak return loss values. In Rayleigh mode it can measure very small insertion losses or the backscatter profile from short fiber lengths.

The dynamic range which approaches 95 dB for return loss measurements in the Fresnel mode, is made possible by the great detector sensitivity combined with a high powered optical source. The high resolution allows these measurements to be made on components separated by as little as 0.5 m.

Insertion loss values to 0.02 dB can be measured in Rayleigh mode in series components separated by distances of less than 1 m. The OFM20 sensitivity is such that the backscatter structure of the fiber itself can be viewed.

OFM20 is optimized for short haul operation from the bulkhead to a distance of 80 m but is capable of operating to distances of 5 Km. In either case the normal high spatial resolution of some few centimeters is maintained with special procedures allowing for mm resolution.

Operation is in real-time (screen update about 32 Hz) with measurements normally taking a few seconds. Several minutes of averaging combined with display expansion allows for detailed observation of selected fiber lengths.

The OFM20 operation is menu driven. Also, simple routines may be programmed for single button initiation. These programs are stored internally, along with the measured waveforms and data, in non-volatile memory. Interfacing via the IEEE-488 port allows the OFM20 to be controlled remotely. Thus, an external computer can be programmed for specific tasks , simple or complicated, using the OFM20 as one of the system components to make its specific measurements. Data thus obtained can then be further processed and customized printouts can be prepared as desired.

The OFM20
Application: Optical Connector Losses

The high resolution and sensitivity of the OFM20 makes it ideal for bandwidth measurements on short or long runs of multimode fiber. The OFM20 measures pulse dispersion which allows an accompanying PC to Fourier transform the results to bandwidth numbers.

Precise location of point defects of fiber production runs aids in fault analysis. Approximate location with a standard OTDR is made precise utilizing the OFM20. In fact, some “point defects” turn out to be distributed defects, the distribution length being less than one meter.

A proprietary operating feature of the OFM20, called **MAP & TEST**©, permits the Mapping of a network, a link or a device. This Map is then stored in the OFM20 ready to be used as a templet in Testing the network, link or device. This feature is used extensively to test production quantities of devices against a Mapped standard; to detect changes in components due to environmental or mechanical cycling against a Mapped starting condition; or to trouble shoot operating links or systems which were previously Mapped.

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STANDARD MODELS

Single Wavelength Models

OFM20 - 850SM4
OFM20 - 850SM9
OFM20 - 850MM50
OFM20 - 850MM62
OFM20 - 850MM100

SPECIAL MODELS

Special models are available with additional features such as those listed here. Consult the factory for availability, price and delivery.

- Non-standard wavelengths
- Non-standard fiber sizes
- Non-standard connectors
- Extra output ports
- Polarization measurement ports
- Non-standard dual fiber outputs
- Wavelength selection

TYPICAL PERFORMANCE

The specifications listed below are for the 850 nm multimode system. For singlemode systems and for other wavelengths the specifications will vary somewhat. Contact the factory for further information.

DEADZONE	
Fresnel Mode	0
Rayleigh Mode	From 5 cm after RL ≈50 dB to 100 cm after RL ≈ 14 dB
DISTANCE	
Range	0 to 5,000 m
Accuracy	The larger of ±0.01% or ±3 mm
Resolution, Single point	±1 mm for SNR>50
Resolution, Two point	5 cm for SNR>50
RETURN LOSS	
Dynamic Range	>90 dB
Accuracy	±0.5 dB for RL<75: ±1.0 dB for RL>75 dB
INSERTION LOSS	
Dynamic Range, Fresnel	>40 dB
Accuracy, Fresnel	±0.3 dB for SNR>50
Dynamic Range, Rayleigh	>20 dB
Accuracy, Rayleigh	±0.02 dB for SNR>50

ORDERING and SHIPPING INFORMATION

Standard models:	Order from the list above.
Special models:	Order indicating wavelength and fiber size as per the standard model with the added suffixes and verbal description suggested after consultation with the factory.
Included Items:	Reference Manual, Training Kit, Launch Cable and a Metal Carrying Case.
Delivery:	10 to 14 weeks ARO.
Shipping weight:	Approximately 45 lbs (20 kg), This includes the metal carrying case.

OTHER INFORMATION

A booklet is available with detailed specifications, general information and over 60 short application notes.
A two-day training course is offered, at the Oakville plant, free of charge with an OFM purchase.
Detailed applications notes are being continuously prepared. An updated list is available at our website.

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