TEMPO COMMUNICATIONS

SPECIALIZED PRODUCTS CATALOG

- Telecommunications
- Aeronautical
- Railway
- Industry
- Medical
- Defense
- Labs

TempoCom.com

Tempo® Communications offers a complete line of innovative and industry-leading test & measurement solutions for the communication service provider industry. Our expertise and innovative solutions address all stages of network deployment enabling the development, installation, and maintenance of xDSL, Fiber, Cable & Wireless networks.

Tempo has been building cables for over 30 years for the Military and Aerospace market. We are ITAR Registered and soon to be AS9100 certified to build extremely complex custom cable assemblies and harnesses to meet your specifications. Our in-house Engineering team is available to meet your needs.

Through our strategic acquisitions in Fiber & Ethernet segments, Tempo Communications has emerged as the leading provider of next generation test & measurement solutions in the global communications industry. We serve customers across the globe from the Americas , Europe, Africa and Asia. Our success is built on a long track record of delivering high quality innovative solutions enabling technicians to achieve their goals faster and with confidence.

Tempo Communications, Inc.

Quality Management Systems

Certificates:

ITAR REGISTERED

CERTIFIED ISO 9001:2015 COMPANY

AS9100 AEROSPACE CERTIFIED

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525 PRODUCT FAMILY
SMART CABLE ACCEPTANCE TESTING

The 525 family is a rugged and dependable line of smart cable acceptance testing instruments designed for telecom and datacom high count cable acceptance testing. The 525 delivers link losstesting the smarter way, creating the easiest means for testing fiber optic cable in the field.

- Automated bi-directional testing
- Optical return loss measurements
- Dual wavelength insertion loss measurements
- Multi-mode and Single-mode models user settable PASS/FAIL thresholds
- Communications between units via messaging
- Wide dynamic range optical power meter
- Test record storage and data management software
- Rugged outside plant instrument package
- Universal connector interface

The 525 Product Family

- **525N-30**
  850/1300nm Automated Insertion Loss - PC Connectors
- **525N-60**
  1310/1550nm Automated Insertion Loss - PC Connectors

The 525 family of products provides an accurate, fast and easy to use method to measure insertion and return loss on multi-mode and single-mode fiber optic cables. And, the one button AUTOTEST ensures the user is guided through the measurement to obtain dual wavelength (850/1300nm or1310/1550nm) bi-directional insertion loss measurements. Plus, the 525 single-mode family of products has a return loss measurement mode.

With a rugged and conveniently sized design, the 525 maybe used in the demanding and severe environment of the outside plant. The large backlit display and sealed membrane panel allows for use in the harshest of locations. The 525 can store up to 1500 measurement records to be downloaded to a database manager that can then organize and print certification reports.

Internal rechargeable batteries power the 525. When fully charged, the 525 provide 8 hours of continuous operation.

Automated Insertion Loss Measurement

The AutoTest button executes a bi-directional insertion loss test and displays an event table of measurement results in a matter of seconds. It informs the user of the PASS/FAIL condition of fibers tested based on user-set thresholds, and then automatically assigns a fiber ID and saves the test record to internal memory. This simple process helps to ultimately lower the cost of automated cable acceptance testing.

- Test Record File Name
- Wavelength
- PASS/FAIL Indicator
- Insertion Loss A-B
- Average Insertion Loss
- Test Record File Name
- (Threshold Setting - AVG Insertion Loss
- Next Screen
- (Threshold Setting - AVG Insertion Loss

Optical Return Loss Measurement

A return loss measurement characterizes the strength of reflections produced by variations in the refractive index along a fiber link, known as back reflection or Fresnel reflection. Quantified in decibel (dB) units, return loss is a logarithmic expression of the ratio of reflected power over the incident power. That is, the intensity of light reflected back to the return loss meter over the intensity of light injected into the fiber, expressed as a positive number.

A common source of back reflections is the junction where two fiber optic connectors are mated. Because of this, a connector with a high return loss, which sends very weak reflections back to the transmitter, is superior to a connector with a high return loss that sends back strong reflections. When measuring connectors, extremely low return loss values indicate a defect, such as core misalignment, poor fiber end face contact, scratches, breaks, or end face contamination.

- Turn Source ON/OFF
- Wavelength of Return Loss Measurement
- Wavelength of Return Loss Measurement
- Back to Main Menu
- Save Measurement
- Perform Reference for ORL Measurement

Optical Power Meter

The 525 incorporates an optical power meter calibrated at 850, 1300, 1310, 1550nm with a dynamic measurement range of +10dBm to -70dBm. The optical power meter interface utilizes the Tempo snap-on-connectors (SOC) enabling the user to configure the power meter for all industry standard optical connector interfaces.

- Wavelength of Power Meter and Active Source
- Turn Source ON/OFF
- Choose Measurement Mode dBm or WATT
- Measurement
- Back to Main Menu
- Save Measurement
- Perform Reference for ORL Measurement

Smart Cable Acceptance Testing

AS EASY AS 1...2...3...

Step 1: Instrument Set-up | Set-up Script requires 3 settings

User has the ability to select 1310, 1550nm or 1310 and 1550nm testing.

User has the ability to select 1310, 1550nm or 1310 and 1550nm testing.

User has the ability to select 1310, 1550nm or 1310 and 1550nm testing.

Step 2: Referencing | User selects reference method

Side by side reference is selected when both units are together and referencing can be accomplished. This method is more accurate due to cross calibration of units.

Loop back referencing method is chosen when the units are separated and it is not convenient to co-locate instruments.

Step 3: Running AutoTest

Instrument automatically assigns file name. User may select base name in start # and increment amount.

Instrument displays PASS/FAIL and detailed test results.

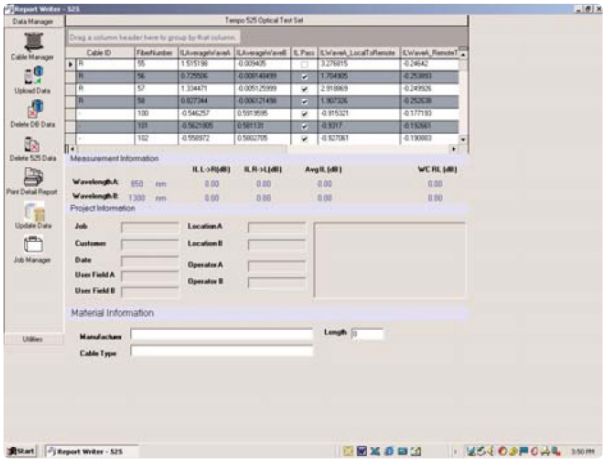
All instructions for running AutoTest given.

User can perform as many AutoTests as required to test entire cable. Instrument will return to the AutoTest Start screen and increment fiber count automatically. All test records are automatically saved.

DOCUMENTING ACCEPTANCE TESTS

Downloading Tests to Report Writer™

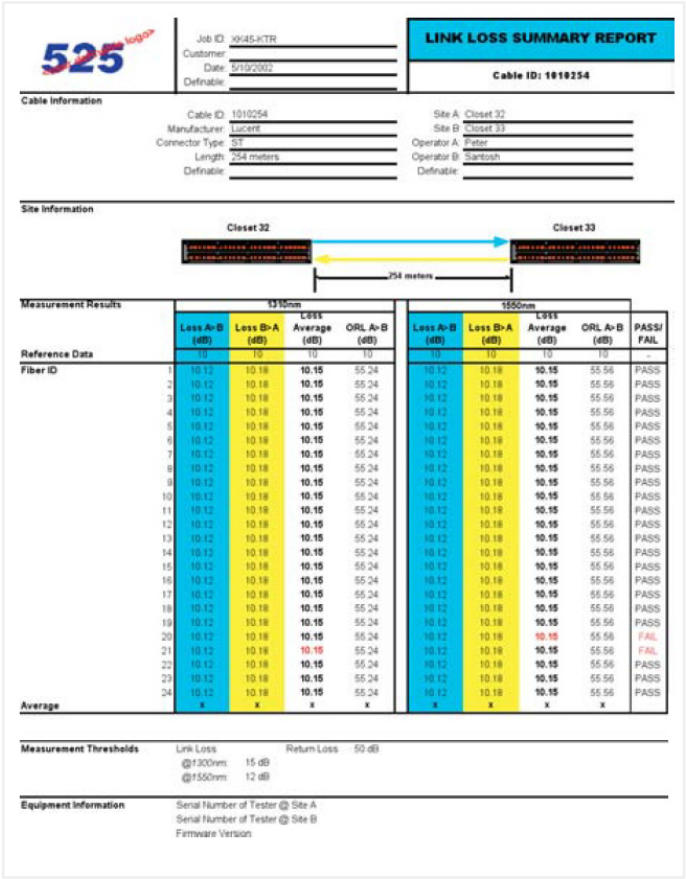
Download Test Records to Report WriterTM Software via RS-232 port on instrument.



- Report WriterTM is a database to manage your measurement records.
- Generate detailed single fiber reports.
- Generate entire cable reports detailing all fiber measurements contained within a cable.

REPORT WRITERTM CABLE ACCEPTANCE REPORT

The 525 Report Writer™ is a database that manages measurement records. It details single fiber reports, and can also generate entire cable reports detailing all fiber measurements contained within a cable. The efficient Report Writer™ splits the report into four sections: Customer Information, Cable Information, Site Information, and Measurement Results. The user can also place customized graphics in the upper right corner.



LINK LOSS SUMMARY REPORT

Cable ID: 1010254

Cable Information

Site Information

Closet 32 — Closet 33

254 meters

Measurement Results

Fiber ID	1310nm Loss A>B (dB)	1310nm Loss B>A (dB)	1310nm Loss Average (dB)	1310nm ORL A>B (dB)	1550nm Loss A>B (dB)	1550nm Loss B>A (dB)	1550nm Loss Average (dB)	1550nm ORL A>B (dB)	PASS/FAIL
Reference Data	10	10	10	10	10	10	10	10	-
1	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
2	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
3	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
4	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
5	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
6	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
7	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
8	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
9	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
10	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
11	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
12	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
13	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
14	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
15	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
16	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
17	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
18	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
19	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
20	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	FAIL
21	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	FAIL
22	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
23	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
24	10.13	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
Average	x	x	x	x	x	x	x	x	

Measurement Thresholds — Link Loss @1300nm: 15 dB; @1550nm: 12 dB; Return Loss: 50 dB

Equipment Information — Serial Number of Tester @ Site A; Serial Number of Tester @ Site B; Firmware Version

Cable Header Information

Graphical epresentation of Cable System

Detailed Measurement Results

Measurement Threshold Settings

Instrument Information and Serial Numbers

ORDERING INFORMATION

The 525 is a Smart Optical Loss Test Set. The user will require two units (one at the near end and one at the far end of the fiber under test) to perform automated optical loss testing. Each kit is configured with all the accessories required to perform testing.

Each Kit includes the following items:

Smart Loss Test Sets

MODEL	DESCRIPTION
525N-30	850/1300nm Smart Optical Loss Test Set - PC Connectors
525N-60	1310/1550nm Smart Optical Loss Test Set - PC Connectors

SOC Adapter Interface [2]

MODEL	DESCRIPTION
T1030	OPM ST Adapter
T1020	OPM FC Adapter
T1062	OPM SC Adapter

UCI Universal Connector Interface [1]

MODEL	DESCRIPTION
ATS108	UCI ST Adapter
APC108	UCI FC Adapter
ASC108/C	UCI SC Adapter

SPECIFICATIONS:	525N-30	525N-60
Instrument Type	Multimode Smart Loss Test Set	Singlemode Smart Loss Test Set
Interface Connector	PC Connector Interface	PC Connector Interface
AUTOTEST measurements	AUTOTEST performs Insertion Loss Test	AUTOTEST performs Insertion Loss Test and Manual Return Loss
Power Meter Specifications		
Detector Type	InGaAs	InGaAs
Display Range	+10dBm to 70dBm	+10dBm to 70dBm
Calibrated Wavelengths	850, 980, 1300, 1310, 1550, 1480, 1625	850, 980, 1300, 1310, 1550, 1480, 1625
Absolute Accuracy	±0.25dB	±0.25dB
Resolution	0.01dB	0.01dB
Measurement Units	dBm, dB, W	dBm, dB, W
Connector Type	UCI-UPC flat polish adapter 62.5/125 SM	UCI-UPC flat polish adapter 9/125 SM
Source Specifications		
Center Wavelength	850nm ±30nm 1300nm ±30nm	1310nm ±30nm 1550nm ±30nm
Spectral Width	<170 <170	<5 <5
Output Power	>-21 dBm >-21 dBm	>-10 dBm >-10 dBm
Output Stability	±0.10dB/ ±0.10dB/ 8 hours 8 hours	±0.15dB/ ±0.15dB 8 hours 8 hours
Coupled Power Ratio (CPR)	25dB to 29dB 21dB to 22dB ±1dB ±1dB	
HOMP	0.30dB to 0.80dB	
Autotest Insertion Loss Specifications		
Test Port Measurement Range	25dB	40dB
Calibrated Wavelengths	850, 1300nm	1310, 1550nm
Return Loss Specifications		
Measurement Range	n/a	10 to 45dB
Accuracy	n/a	.5dB
General Descriptions		
Display Type	Graphics Liquid Crystal with Backlight	Graphics Liquid Crystal with Backlight
Fiber Type	Multimode 62.5/125 um	Singlemode 9/125 um
Standard Connector Type	FC, SC, ST other connector options available	FC, SC, ST other connector options available
Laser Classification	Class 1 CFR 1040	Class 1 CFR 1040
Operating Temperature	0°C to +50°C	0°C to +50°C
Storage Temperature	-20°C to +60°C	-20°C to +60°C
Relative Humidity	0 to 95% RH non-condensing	0 to 95% RH non-condensing
Size	0 to 95% RH non-condensing (7.6 x 4.3 x 2.3 in)	0 to 95% RH non-condensing (7.6 x 4.3 x 2.3 in)
Weight	1.0kg (2.2 lbs)	1.0kg (2.2 lbs)
Power	Internal rechargeable NiMH	Internal rechargeable NiMH
Battery Life	>8 hours	>8 hours

SPECIAL LAUNCH CONDITION

OPTICAL POWER METERS & SOURCES

INSTRUMENTS DESIGNED FOR POF & FIBER OPTIC CABLE TESTING:

The Special Launch Condition Sources and Optical Power Meter XL fiberTOOLS™ are designed for the professional to perform installation and maintenance measurements on both Plastic & Glass fiber optic networks.

The instrument family consists of standard instruments for routine cable testing, through to Stabilised Light Sources with stringent Launch Conditions for the Avionics and Defence Industries and Research Laboratories.

Tempo's LED Light Sources have been manufactured with specific launch conditions to overcome the inconsistent measurements caused by standard Light Sources.

The Multimode products that have specific launch conditions are designed for greater accuracy and repeatable results.

Tempo also manufacture instruments to test POF links. POF links are being used in a number of industries particularly on short links where optical budgets aren't too tight. The automotive industry is a good example of this.

The XL fiberTOOLS™ are fully featured, general purpose fiber optic instruments and easy to operate to outfit all technicians performing fiber optic installation and maintenance.

Tempo also manufacture a range of Optical Light Sources and Power Meters with enhanced EMI performance, manufactured to Military standards, these offer the ultimate in accuracy.

Tempo's range of Optical Light Sources and Power Meters were designed specifically for: avionics, automotive, defence and research.

567XL

Silicon Fiber Optic Power Meter (Formerly 557B)

OPTICAL SPECIFICATIONS	
Detector Type	3 x 3.5mm Silicon
Calibration Wavelengths	650nm, 780nm, and 850nm
Power Range	+3dBm to -60dBm
Accuracy	±0.25dB
Linearity at	+3dBm to -3dBm ±0.5db -3dBm to -50dBm ±0.1db -50dBm to -60dBm ±0.5db
Resolution	0.01dB
Power Requirements	Two AA 1.5V batteries (approx. 100 hours continuous operation)
Connector Interface	SOC
Operating Temperature	-15° C to +55° C
Storage Temperature	-35° C to +70° C
Humidity	0 to 95% non-condensing
Dimensions	7.2 x 14.2 x 3.5 cm (2.8 x 5.6 x 1.4 in.)
Weight	241g (8.5 oz.)
CE	EN61010; EN50081-1:1992; EN55011,Group1, Class A EN50082-1: 1992 IEC 801-2, -3, -4
Typical Power Output (µm)	
200/230 SI Fiber	-15dBm ±0.5dB
Modulation Frequencies	270Hz, 1kHz and 2kHz
Power Requirements	Two AA 1.5V batteries (approx. 24 hours continuous operation)

Features:

- Absolute (dBm) & Referenced (dB) measurements
- Long battery life
- User selectable auto shut-off
- SOC interface adapts to all commonly used connectors
- Rugged and splash-proof

573XL & 573XL-UNIV

650nm LED Source for Large Core Plastic and Glass Fiber
(Formerly 253B-POF)

Features:

- Stable Calibrated output Storage
- Continuous wave and modulated output
- Easy to use
- Long battery life
- User selectable auto shut-off
- 650nm wavelength
- Rugged and splash-proof
- Fixed ST and SOC Adapter options are available

577XL M90

Features:

- Stable calibrated output
- Easy to use
- Continuous wave and modulated output
- Long battery life - approx. 24 hours
- User selectable auto shut-off
- Rugged and splash-proof
- Economically priced
- UCI Adapter options are available
- 850nm wavelength

577XL AS100

850nm LED Source with AS-100 Launch Condition (100/140µm Fiber) / Formerly 257A-AS100

Features:

- Stable calibrated output
- Easy to use
- Continuous wave and modulated output
- Long battery life - approx. 24 hours
- User selectable auto shut-off
- Rugged and splash-proof
- Economically priced
- UCI Adapter options are available
- 850nm wavelength

578XL M90

1300nm LED Source with M90 Launch Condition (62.5/125µm Fiber)

Features:

- Stable Calibrated output Storage
- Continuous wave and modulated output
- Easy to use
- Long battery life
- User selectable auto shut-off
- 1300nm wavelength
- Rugged and splash-proof
- UCI Adapter options available (options are available)

XL Series LED Sources

	573XL	577XL	578XL
Nominal	650nm	850nm	1300nm
Range (nm)	630 - 670	840 - 880	1270 - 1345
Max. spectral width (FWHM)	40nm	55nm	150nm
Stability, 1 hour	±0.05dB	±0.05dB	±0.05dB
POWER OUTPUT			
200/230µm SI MM fiber	-15dBm ***		-
100/140µm GI MM fiber	-	-20dBm**(AS-100)	-20dBm
62.5/125µm GI MM fiber**	-	-20dBm** (M90)	-20dBm** (M90)
50/125µm GI MM fiber	-		-21dBm
9/125µm SM fiber	-	-	-38dBm
Power output uncertainty	±0.5dB	±0.5dB	±0.5dB
Connector interface	SOC or ST	Universal connector interface	
Functions	MOD: Modulated output mode (270Hz, 1kHz, 2kHz) CW: Continuous Wave output mode Freq: selectable modulation frequency		
Modulation frequencies	270Hz, 1kHz, and 2kHz (±0.5%) using switch inside battery compartment		
Power requirements	Two AA-size alkaline batteries		
Battery life	> 24 hours		
ENVIRONMENT			
Operating Temperature	-15°C to 55°C		
Storage Temperature	-35°C to 70°C		
Humidity, Non-Condensing	0% to 95%		
Dimensions	7.2 x 14.2 x 3.5cm (2.8 x 5.6 x 1.4in)		
Weight	215g (7.6oz)		

* Within specified operating environment of 20°C to 25°C

** Calibrated launch level, equilibrium modal distribution

*** Calibrated launch level

560XL-EMI

Fiber Optic Power Meter with enhanced EMI performance

Features:

- 0.01dB measurement resolution
- Multi-Wavelength Storage
- SOC interface adapts to all commonly used connectors*
- Long battery life
- Absolute (dBm) & Referenced (dB) Power measurements
- User selectable auto shut-off
- Rugged and splash-proof
- Economically priced
- Enhanced EMI performance: MIL-STD-461E, Method RS103, tested to 190 V/m
- Engineered for use in areas with high electrical interference

OPTICAL SPECIFICATIONS	
Detector Type	1mm InGaAs
Calibration Wavelengths (nm)	850, 1300, 1310, 1550
Power Range	+3dBm to -60dBm
Accuracy	±0.25dB
Resolution	0.01dB
Power Requirements	Two AA 1.5V batteries (approx. 100 hours continuous operation)
Connector Interface	SOC

570XL-AS100-EMI

850/1300nm LED Source with enhanced EMI Performance

Features:

- Stable calibrated output
- 850nm / 1300nm wavelength LED Source
- Long battery life - approx. 80 hours
- Continuous wave and modulated output
- User selectable auto shut-off
- Supports a wide range of UCI connectors, including FC, SC, and ST
- Economically priced
- Enhanced EMI performance: MIL-STD-461E, Method RS103 tested to 200 V/m
- Easy to use
- Configured to meet AS100 launch conditions
- Rugged and splash-proof

OPTICAL SPECIFICATIONS	
Detector Type	1mm InGaAs
Calibration Wavelengths (nm)	850nm, 1300nm
Power Range	820nm to 880nm; 1270nm to 1345nm
Accuracy	±0.25dB
Resolution	0.01dB
Power Requirements	Two AA size 1.5V batteries (approx. 40 hours continuous operation)
Connector Interface	UCI

580XL-EMI

1310/1550nm Laser Source with enhanced EMI Performance

Features:

- Stable calibrated output
- 1310nm / 1550nm wavelength Laser Source
- Long battery life - approx. 80 hours
- Continuous wave and modulated output
- User selectable auto shut-off
- Easy to Use

OPTICAL SPECIFICATIONS		
Centre Wavelength	1310nm	1550nm
Range (Typical)	1280nm to 1340nm	1520nm to 1580nm
Max. Spectral Width (FWHM)	<5nm	<5nm
Stability (1 hour)	±0.05dB	±0.05dB
Typical Power Output (9/125µm)		
Minimum	-8dBm	-8dBm
Typical	-7dBm	-7dBm
Modulation Frequencies	270Hz, 1kHz and 2kHz	270Hz, 1kHz and 2kHz
Power Requirements	Two AA 1.5V batteries (approx. 80 hours continuous operation)	
Connector Interface	UCI	

Ordering Information- XL fiberTOOLS™ Series:

PART NO.	CAT. NO.	DESCRIPTION
52058723	567XL	567XL Silicon Fiber Optical Power Meter
52058784	573XL	573XL 650nm LED Source with Fixed ST Connector
52061770	573XL-UNIV	573XL 650nm LED Source with SOC Adapter Interface
52058727	577XL-AS100	577XL-AS100, 850nm LED Source with 100/400µm Launch Condition
52058726	577XL-M90	577XL-M90, 850nm LED Source with 62.5/125µm Launch Condition
52061054	578XL-M90	578XL-M90, 1300nm LED Source with 62.5/125µm Launch Condition
52060994	560XL-EMI	560XL-EMI HH OPM, INGAAS, EMI SHIELDING
52060995	570XL-AS100-EMI	570XL-AS100-EMI HH DUAL LED SOURCE, EMI SHIELDING
52060996	580XL-EMI	580XL-EMI HH LASER SOURCE, EMI SHIELDING

What is the purpose of EMI testing?

EMI tests ensure any emission from the device is below the limits outlined for that specific device type; thus, providing assurance it will not cause interference to other devices operating in the same environment.

Snap On Connector (SOC) Sources | for XL Series Instruments

Snap On Connectors (SOC) are used on the XL Fiber Optic Power Meters and 573XL LED light source.The Snap On Connectors configure the instruments for various optical connectors. Contact Tempo Communications for other available adapters.

FC

T1020

ST

T1030

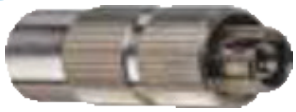
SC

T1062

Universal Connector Interface (UCI) | for XL Series Instruments

Users will need to purchase a Universal Connector Interface (UCI) adapter for use with specific light sources. Please specify the desired connector adapter type when ordering.

FC



APC-108

SC

ASC-108/C

ST

ATS-108

SOC & UCI Adapters

- Our SOC and UCI adapters provide direct connectivity for Tempo Communications fiberTOOLS® to a wide range of industry-standard fiber optic connectors
- Adapter design ensures maximum accuracy and repeatability when performing critical measurements on fiber optic systems
- Easy to clean and use
- Single-mode and multimode compatible
- SOC adapters are compatible with both PC and APC interfaces
- UCI adapters feature durable phosphor bronze alignment sleeve

CONNECTOR	SOC Adapter			UCI Adapter	
DESCRIPTION		PART NO.	CAT. NO.	PART NO.	CAT. NO.
1.25 mm Quick-Connect Universal Adapter (LC, MU, etc.)		50605881	T1026	USE HYBRID CABLE	
FC		50605768	T1020	50605720	APC-108
LC		50606000	T10LC	USE HYBRID CABLE	
MIL-T-29504/4 & /5 Termini		50605898	T1038	USE HYBRID CABLE	
SC		50605751	T1062	52039964	ASC-108/C
ST		50605775	T1030	50605737	ATS-108
Versatile Link - V/Z PIN		50606048	T10ZP	USE HYBRID CABLE	
SMA 905/906		50605966	T1087	N/A	
ST		52040191	T1030-POF	N/A	

ACCESSORIES

fiberTOOLS™

Hard Carry Case

Features:

- Designed to hold Tempo handheld instruments and a full range of test accessories.
- Top tray holds up to 3 handheld instruments and a 180XL Visual Fault Finder
- Compact, waterproof and lockable
- Bottom compartment of both models stores additional instruments and test accessories
- Moulded from black structural foam resin

ORDERING INFORMATION:

PART NO.	CAT. NO.	DESCRIPTION
50606840	900B	Carry Case Ruggedised 3 Unit

SPECIFICATIONS:

Weight: 500g
Dimensions: 380 x 185 x 180mm

HANDHELD FIBER TEST INSTRUMENTS

T9000 SERIES POCKET OPTICAL POWER METER (OPM)

FEATURES

- 8-12 calibration λ, ±2% accuracy, ISO/IEC 17025 traceable
- Small size, easy to use, rugged & reliable
- dBm / dB / linear, 0.01 dB resolution
- Display hold & max/min recording
- Tone detection
- Multi-Fiber ID
- Interchangeable connectors

ORDERING INFORMATION:

PART NO.	CAT. NO.	DESCRIPTION
	T9600A	General power meter for Multimode and Singlemode applications (Single fiber)
	T9600A-H3B	High power meter for Multimode and Singlemode applications (Single fiber)
	T9600XL-GE5	Large area detector for MPO 12f / 24f and single-fiber applications
	T9600XL-SI5	Pocket Optical Power Meter for Plastic Optical Fiber (POF) applications

MODEL	T9600A	T9600A-H3B	T9600XL-GE5	T9600XL-SI5
Detector type	InGaAs		GE (5 mm)	Si (5 mm)
Response wavelength	600 ~ 1700 nm	800 - 1700 nm	600 ~ 1650 nm	350 ~ 1100 nm
Calibration wavelengths	(see website for specifics)			
Power range	+5 ~ -60 dBm	+24 ~ -40 dBm	+10 ~ -40dBm	+5 ~-60dBm
Mid-range linearity	0.04 dB (typical)		0.06 dB (typical)	0.04 dB (typical)
Total uncertainty	0.3dB (Max)			
Wavelength sensitivity (± 30 nm)	0.2 dB (Typical)			
ID tone detection sensitivity	-50 dBm	-30dBm	-37 dBm	-45 dBm
Calibration Accuracy	±2 %			
Calibration validity	3 Years (ISO/IEC 17025)			
Resolution	0.01 dB			
Polarization sensitivity	< 0.05 dB (typical)			
Tone detection	200 ~ 2500 Hz ± 2 %			
Power	2 x AAA (LR-03) Alkaline			
Battery life	300 Hours			
Auto-off	Selectable			
Size	124 x 81 x 25 mm			
Unit weight	0.15 kg			
Shipping weight	0.5 kg			
Operating / storage temperatures	-15 to 55 / -25 to 70 °C			
Relative humidity	0 ~ 95 %			
Warranty	3 Years			

T9000 SERIES POCKET STABILIZED LIGHT SOURCE (SLS)

FEATURES

- Encircled Flux compliant modal distribution
- Rugged, drop-resistant construction
- User defeatable auto turn-off
- Excellent stability
- Lanyard, shirt pocket clip & padded pouch
- Tone generator & Multi-Fiber ID function
- Easy use TamperLock mode
- Multi wavelength AutoTest
- Interchangeable connectors

PART NO.	CAT. NO.	DESCRIPTION
55505293	T9809AM	Plastic Optical Fiber (POF) Applications
55505055	T9812A	Multimode Applications
55505054	T9822A	Singlemode Applications

Model	T9812A	T9822A	T9809AM
Output wavelength	850, 1300 nm LED	1310, 1550 nm Laser	660 nm LED
Output power	-20 dBm ±1 dB (@ 62.5/125 µm) / -22.5 dBm (@ 50/125 µm) / -32 dBm (@ 9.5/125 µm)	0dBm ± 1dB	-6 dBm ±1 dB (@ 1 mm POF) / -13 dBm ±2 dB (@ 200 µm PCF)
Short term stability (for 15 min, typical ±2 °C, after warm-up)	0.01 dB	0.04 dB	0.01 dB
Stability over temperature	0.35 dB (typical)	0.6 dB (typical)	0.35 dB (typical)
Wavelength drift	0.4nm/°C (typical)		
Mode Controlled	Mode distribution @ 50/125 µm is compliant with: IEC 61280-4-1 {Ed.1.0}, TIA/EIA 526-14A and TIA TSB-178.		
Reconnection repeatability (95% confidence)	0.05dB	0.1 dB	
Calibration validity (ISO/IEC 17025)	3 years		
Modulation	270 Hz, 1 kHz, 2 kHz ±2 %		
Multi-fiber ID	12 fibers		
Autotest	Compatible with KI Autotest power meter port & matching		
Power	2 x AAA (LR-03) Alkaline		
Battery life	Laser/LED source: 40/35 hours (typical) in Autotest		
Auto off	Selectable		
Case	Polycarbonate with captive dust cap, 2.5-meter drop tested		
Size	124 mm x 81 mm x 25 mm		
Unit weight	0.15 kg		
Shipping weight	0.5kg		
Operating / storage temperature	-15 to 55 °C / -25 to 70 °C		
Relative humidity	0 ~ 95%		
Warranty	3 years		

T2000 SERIES HANDHELD OPTICAL POWER METER **(OPM)**

FEATURES

- Easy to use, rugged & versatile
- 25 calibration λ, 1% accuracy ISO/IEC 17025 traceable
- Improved high power accuracy
- Autotest with up to 3 λ displayed
- Long battery life, USB external power, charges NiMH AA batteries
- Large back-lit LCD, sunlight readable
- Interchangeable connectors
- Large memory with text naming & time stamp
- KITS™ reporting software with data security
- One button memory dump to USB key
- Tone generator & Multi-Fiber ID function
- Full QA & linearity test report

ORDERING INFORMATION:

PART NO.	CAT. NO.	DESCRIPTION
55505051	T2600	General power meter for Multimode and Singlemode applications (Single fiber)
55505053	T2600-H5	High power meter for Multimode and Singlemode applications (Single fiber)
55505052	T2600XL-GE5	Large area detector for Multimode and Singlemode applications (MPO12/24 and Single fiber)
55505255	T2600XL-GE7	Large area detector for 16f/32f applications (MPO 12/24, plus MPO 16/32 and Single fiber)

MODEL	T2600A	T2600-HS	T2600XL-GE5	T2600XL-GE7
Detector type	InGaAs	InGaAs - High Power	GE (5 mm)	Ge (7 x 3.5 mm)
Response wavelength	600 ~ 1700 nm	800 - 1700 nm	600 ~ 1650 nm	
Calibration wavelengths	(see website for specifics)			
Power range	+10 ~-70dBm	+24 ~-60dBm	+15 ~ -40dBm	+15~-40dBm
Mid-range linearity	0.04 dB (typical)		0.06 dB (typical)	
Total uncertainty	0.3 dB (max)	0.35 dB (max)		
Wavelength sensitivity (± 30 nm)	0.2 dB (typical)			
ID tone detection sensitivity	up -50 dBm	Up to -38 dBm	-37 dBm	-30 dBm
Calibration Accuracy	1% (0.06 dB)			
Calibration validity	3 Years (ISO/IEC 17025)			
Resolution	0.01 dB			
Polarization sensitivity	< 0.05 dB (typical)			
Tone detection	150 ~ 9999 Hz ± 1 %			
Power	2x AA (LR4) Alkaline / 2x AA NiMh (rechargeable via USB)			
Battery life	Up to 1000 hours			
Auto-off	Selectable			
USB interfaces	USB-micro for power & software / USB-A for memory key			
Software	KITS (free download)			
Memory	1000 (4-⍰ tests) / Unlimited on USB memory key			
Size	124 x 81 x 25 mm			
Unit weight	0.42kg			
Shipping weight	1.5kg			
Operating / storage temperatures	-15 to 55 / -25 to 70 °C			
Relative humidity	0 ~ 95 %			
Warranty	3 Years			

T2000 SERIES HANDHELD STABILISED LIGHT SOURCE (SLS)

FEATURES

- Easy to use, rugged & versatile
- Long battery life, USB external power, charges NiMH AA batteries
- Interchangeable connectors
- Superior re-connection repeatability, < 0.1 dB
- Excellent stability
- Tone generator & Multi-Fiber ID function
- Multi wavelength AutoTest
- Full QA & test reports ISO/IEC 17025 traceable

ORDERING INFORMATION:

PART NO.	CAT. NO.	DESCRIPTION
55505070	T28010-APC	Triple Laser Source for Singlemode applications
55505059	T2803	Multimode applications
55505058	T2822	Singlemode applications
55505057	T2824	Quad Light Source for Multimode and Singlemode applications

MODEL	T28010-APC	T2803	T2822	T2824
Output wavelength	Port 1: 1310, 1550, 1625 nm Laser APC	Port 2: 850, 1300 nm LED	Port 1: 1310, 1550 nm Laser	Port 1: 1310, 1550 nm Laser / Port 2: 850, 1300 nm LED
Output power	-3 dBm ±1 dB (@ 9/125 µm)	-20 dBm ±1 dB (@ 62.5/125 µm)	0 dBm ±1 dB (@ 9/125 µm)	0 dBm ±1 dB (@ 9/125 µm for 1310, 1550nm) / -20 dBm ±1 dB (@ 62.5/125 µm for 850, 1300 nm)
Adjust output power	Adjustable over 7 dB in 0.01 dB steps			
Short term stability (for 15 min, typical ±2 °C, after warm up, ORL < -25 dB)	0.04 dB (for 1310, 1550 nm) / 0.06 dB (for 1625 nm)	0.01 dB	0.6dB	0.04 dB (typical for 1310, 1550 nm) / 0.01 dB (typical for 850, 1300 nm)
Stability over temperature	0.6 dB (typical)	0.35 dB (typical)	0.06 dB (typical)	0.6 dB (for 1310, 1550 nm) / 0.35 dB (for 850, 1300 nm)
Wavelength initial tolerance (@ 25 °C)	20 nm		20 nm	20 nm (for 1310, 1550 nm)
Spectrum width (FWHM)	3 nm (typical)		3 nm (typical)	
Wavelength drift	0.4 nm per °C (typical)			0.4 nm /°C (typical for 1310, 1550 nm) / 0.4 nm /°C (typical for 850, 1300 nm)
Reconnection repeatability (95% confidence)	0.1 dB	0.05 dB	0.1 dB	0.1 dB (for 1310, 1550 nm Laser) / 0.05 dB (for 850, 1300 nm LED)
Calibration validity (ISO/IEC 17025)	3 years			
Modulated output	270 Hz, 1 kHz, 2 kHz ± 2 %, 12 Multi-Fiber ID tones			
Autotest (not available for 470, 540 nm LED sources)	Compatible with KI Autotest power meter port & matching			
Power	Battery / External power via USB			
Battery types	2x AA (LR6) Alkaline / 2x AA NiMH AA (rechargeable via USB)			
Battery life	Laser/LED source: 90/80 hours in Autotest, typical			
Auto-off	Selectable			
Case	Polycarbonate (body) / rubber (edges & corners), moisture resistance, 1-meter drop tested			
Size	190 mm x 105 mm x 35 mm			
Unit weight	0.42 kg			
Shipping weight	1.5 Kg			
Operating / storage temperatures	-15 to 55 °C / -25 to 70 °C			
Relative humidity	0 ~ 95 %			
Warranty	3 Years			

POCKET KITS

TK038 Pocket Loss Test Kit for Singlemode & Multimode

- Fiber Optic Laser Test Source **T9822A**
- Fiber Optic LED Test Source **T9812A**
- Pocket Fiber Optic Power Meter **T9600A**
- Canvas Carrying Pouch

TK052 Pocket Loss Test Kit for Multimode

- Fiber Optic LED Test Source **T9812A**
- Pocket Fiber Optic Power Meter **T9600A**
- Canvas Carrying Pouch

TK054 Pocket Loss Kit for POF Applications

- Fiber Optic LED Test Source **T9809AM**
- Pocket Fiber Optic Power Meter **T9600XL-SI5**
- Canvas Carrying Pouch

TK056 Pocket Loss Test Kit for Singlemode

- Fiber Optic Laser Test Source **T9822A**
- Pocket Fiber Optic Power Meter **T9600A**
- Canvas Carrying Pouch

HANDHELD KITS

TK076 Advanced Test Kit for Singlemode & Multimode

- LED & Laser Quad Optical Test Source **T2824**
- Handheld Optical Power Meter **T2600**
- Padded Canvas Carry Pouch **OPT149**

TK077 Advanced Test Kit for Singlemode Applications

- Dual Laser Optical Test Source **T2822**
- Handheld Optical Power Meter **T2600**
- Padded Canvas Carry Pouch **OPT149**

TK081 Pocket Light Source and Handheld Power Meter Kit for Singlemode

- Fiber Optic Laser Test Source **T9822A**
- Handheld Optical Power Meter **T2600**
- Padded Canvas Carry Pouch **OPT149**

PART NO.	CAT. NO.	DESCRIPTION
55505064	TK038	Pocket Loss Test Kit for Singlemode & Multimode
55505062	TK052	Pocket Loss Test Kit for Multimode
55505294	TK054	Pocket Loss Kit for POF Applications
55505060	TK056	Pocket Loss Test Kit for Singlemode
55505063	TK076	Advanced Test Kit for Singlemode & Multimode
55505061	TK077	Advanced Test Kit for Singlemode applications
55505150	TK081	Pocket Light Source and Handheld Power Meter Kit for Singlemode

T27600 SERIES
MM & SM OPTICAL LOSS TEST SETS, (OLTS) 1-WAY

FEATURES

- Easy to use, slim, rugged & versatile
- EF compliant multimode sources
- Excellent source stability
- Large clear LCD is sunlight readable & backlit
- Large memory with Text Tag & time stamp
- One button memory dump to USB key
- KITS™ reporting software for acquisition and reporting
- AutoTest with up to 3 λ displayed
- 1 % accuracy & 31 calibrated λ, ISO/IEC 17025 traceable
- Interchangeable connectors
- Multi-Fiber ID Test tone generator / detector
- Long battery life, USB external power, charges NiMH AA batteries
- VisiTester test port intergrated VFL

PART NO.	CAT. NO.	DESCRIPTION
55505066	T27622	Optical Loss Test Set for Singlemode Applications
55505065	T27603	Optical Loss Test Set for Multimode Applications
55505056	T27624	Quad Optical Loss Test Set for Singlemode and Multimode Applications

MODEL	T27603	T27622	T27624
Detector type Response wavelength Calibration wavelengths	InGaAs 600 ~ 1700 nm (see website for specifics)		
Power range	+10~-70dBm		
Mid-range linearity	0.04 dB (typical)		
Total uncertainty	0.3 dB (max)		
ID tone detection & Autotest sensitivity (meter)	Up to -50 dBm		
Modulated output (source)	270 Hz, 1 kHz, 2 kHz ± 2 %, 12 Multi-Fiber ID tones		
Output wavelength (source)	850, 1300nm LED, Visitester	1310-1550 nm Laser,	1310-1550 nm Laser, : 850, 1300 nm LED
Adjust output power (source)	Fixed for 850,1300 nm and Visitester	Adjustable over 7dB in 0.01 steps for 1310,1550 nm . Fixed for Visitester	Adjustable over 7dB in 0.01 steps for 1310,1550 nm . Fixed for 850,1300 nm and Visitester
Short term stability for 15 min, typical ±2 °C, after warm up, ORL < -25 dB (source)	0.01 dB (for 850, 1300 nm)	0.04 dB (for 1310, 1550 nm)	0.04 dB (for 1310, 1550 nm) / 0.01 dB (for 850, 1300 nm)
Wavelength initial tolerance @ 25 °C (source)		20 nm	20 nm (for 1310, 1550 nm)
Wavelength drift (source)	0.4nm/°C		
Reconnection repeatability @ 95% confidence (source)	0.05 dB (for 850, 1300 nm), 0.1 dB (for VisiTester)	0.1 dB (for 1310-1550 nm, VisiTester)	0.1 dB (for 1310-1550 nm Laser, VisiTester) / 0.05 dB (for 850, 1300 nm LED)
VisiTester laser safety	Class 1, IEC60825-2		
Accuracy (meter)	1 % (0.06 dB)		
Resolution (meter)	0.01 dB		
Tone detection (meter)	150 ~ 9900 Hz ± 1 %		
Battery life	Laser/LED source: 90/80 hours (typical) in Autotest		
Power	2x AA Alkaline, NiMH for internal charging, External power vis USB / External power via USB		
USB interfaces	USB-micro for power & software / USB-A for memory key		
Auto off	Selectable		
Memory	1,000 four□ tests with date & time / Unlimited on USB		
Case	Polycarbonate (body) / rubber (edges & corners), moisture resistance, 1-meter drop tested		
Display size	74 mm x 55 mm		
Size, Unit weight, Shipping weight	190 x 105 x 35 mm, 0.42kg, 1.5kg		
Operating / storage temperatures	-15 to 55 / -25 to 70 °C		
Warranty & Calibration validity (ISO/IEC 17025)	3 Years		

T27600 SERIES OPTICAL LOSS TEST SET
BI-DIRECTIONAL LOSS AND ORL TESTING

FEATURES

- 25% of the size / weight, 7x the battery life of competitors
- Bidirectional Autotest loss & ORL testing on one fiber
- Real time Pass / Fail display
- 8,000 fiber memory and USB Flash Drive file dump
- KITS™ reporting software
- Autotest optical power meter, >25 λ, 1 % accuracy
- Traceable calibration reports: power meter & linearity, source λ & stability
- Long battery life, USB external power, charges NiMH AA batteries
- 3 Year warranty and calibration cycle
- EF compliant multimode sources

PART NO.	CAT. NO.	DESCRIPTION
55505078	T27403LV	Two Way (bi-directional) Loss & Length Test Set for Multimode Applications; Standalone Light Source & Power Meter, VFL, tone generator / detector; can be used in Pairs
55505067	T27422LV	Two Way (bi-directional) Loss & Length Test Set for Singlemode Applications; Standalone Light Source & Power Meter, VFL, tone generator / detector; can be used in Pairs
55505079	T27424LV-APC	A Quad, Two Way (bi-directional) Loss & Length Test Set for Singlemode and Multimode Applications; Standalone Light Source & Power Meter, VFL, tone generator / detector; can be used in Pairs

MODEL	T27403LV	T27422LV	T27424LV-APC
Modulated output (source)	270 Hz, 1 kHz, 2 kHz ± 2 %, 12 Multi-Fiber ID tones	270 Hz, 1 kHz, 2 kHz ± 2 %, 12 Multi-Fiber ID tones	270 Hz, 1 kHz, 2 kHz ± 2 %, 12 Multi-Fiber ID tones
Output wavelength (source)	850-1300 nm LED APC, VisiTester	Port 1: 1310-1550 nm Laser	Port 1: 1310, 1550 nm Laser APC / Port 3: 850, 1300 nm LED APC
Adjust output power (source)	Fixed	Adjustable over 7 dB in 0.01 dB steps	Adjustable over 7 dB in 0.01 dB steps (for 1310, 1550 nm) / Fixed (for 850, 1300 nm)
Short term stability for 15 min, typical ±2 °C, after warm up, ORL < -25 dB (source)	0.01 dB	0.04 dB	0.03 dB (for 1310, 1550 nm) / 0.01 dB (for 850, 1300 nm)
Stability over temperature (source)	0.35 dB	0.6 dB (max)	0.2 dB (max for 1310, 1550 nm) / 0.35 dB (max for 850, 1300 nm)
Wavelength initial tolerance @ 25 °C (source)		20 nm	20 nm (for 1310, 1550 nm)
Spectrum width @ FWHM (source)		3 nm (typical)	3 nm (typical for 1310, 1550 nm)
Length range (2-way Autotest only)	4.5 dB @ 50 µm	27 dB	6 dB @ 62.5 µm (for 850, 1300 nm) / 30 dB (for 1310, 1550 nm)
Length accuracy (2-way Autotest only)	0.01% ± 4 meters		
Length resolutions	1 meter (0.000~9.999 Km), 10 meters (10.00~99.99 Km), 100 meters (100.0~127.9 Km)		
Loss range (2-way Autotest)	21.5 dB @ 50 µm	44 dB	27 dB @ 62.5 µm (for 850, 1300 nm) / 47 dB (for 1310, 1550 nm)
Loss repeatability & loss linearity (2-way Autotest)	0.06 dB	0.04 dB	0.06 dB (for 850, 1300 nm) / 0.04 dB (for 1310, 1550 nm)
ORL range	0 ~ 27.5 dB @ 50 µm		0 ~ >60 dB (1310, 1550 nm) / 0 ~ 30 dB @ 62.5 µm
VisiTester wavelength	650 ± 5 nm		
VisiTester laser safety	Class 1, IEC60825-2		
VisiTester power	0 dBm ± 1 dB @ SMF		
Detector type (meter) Response wavelength (meter) Calibration wavelengths (meter)	InGaAs 600 ~ 1700 nm (see website for specifics)		
Accuracy (meter)	1 % (0.06 dB)		
Mid-range linearity (meter)	0.04 dB (typical)		
Power range (meter)	+10 ~ -60 dBm (780 ~ 980, 1590 ~ 1650 nm) / +10 ~ -70 dBm (1270 ~ 1650 nm)		
VisiTester laser safety	Class 1, IEC60825-2		
Total uncertainty (meter)	0.3 dB (max)		
ID tone detection & Autotest sensitivity (meter)	Up to -50 dBm		
Resolution (meter)	0.01 dB		
Polarization sensitivity (meter)	< 0.05 dB (typical)		
Tone detection (meter)	150 ~ 9999 Hz ± 1 %		

Cont.

MODEL	T27403LV	T27422LV	T27424LV-APC
Autotest	1-way: compatible with other T23400 & T27400 models / 2-way: compatible with identical model only		
USB interfaces	USB-micro for power & software / USB-A Flash Drive		
Software	KITS (free download)		
Power Battery life Battery type	Battery / External power via micro-USB Laser/LED source: 80 hours (typical) in Autotest, Power Meter: 1000 hours (typical) 2x AA (LR6) Alkaline / 2x AA NiMH AA (rechargeable via micro-USB)		
Display size	74 mm x 55 mm high contrast LCD		
Case	Laser/LED source: 80 hours (typical) in Autotest, Power Meter: 1000 hours (typical)		
Size	190 mm x 105 mm x 35 mm		
Unit weight	0.42 kg		
Shipping weight	1.5 Kg		
Operating / storage temperatures Relative humidity	-15 to 55 / -25 to 70 °C 0 ~ 95 %		
Warranty Calibration validity (ISO/IEC 17025)	3 Years		

T23400 SERIES OPTICAL LOSS TEST SET (OLTS)
BI-DIRECTIONAL LOSS, ORL AND LENGTH

FEATURES

- 25% of the size / weight, 7x the battery life of competitors
- Bidirectional Autotest loss, ORL and length testing on one fiber
- Real time Pass / Fail display
- 8,000 fiber memory and USB Flash Drive file dump
- KITS™ reporting software
- Autotest optical power meter, >25 λ, 1 % accuracy
- Traceable calibration reports: power meter & linearity, source λ & stability
- Long battery life, USB external power, charges NiMH AA batteries
- 3 Year warranty and calibration cycle
- EF compliant multimode sources

PART NO.	CAT. NO.	DESCRIPTION
55505068	T234030LV-APC-50U	Ultra-Stable 2W Loss, Length & ORL Tester
55505080	T234220LV	Ultra-Stable 2W Loss Length ORL Tester
55505069	T234240L-APC	Ultra-Stable 2W Loss Length ORL Tester
55505151	T234100LF-APC	Ultra-Stable 2W Loss Length ORL Tester

MODEL	T234030LV-APC-50U	T234220LV	T234240L-APC	T234100LF-APC
Modulated output (source)	270 Hz, 1 kHz, 2 kHz ± 2 %, 12 Multi-Fiber ID tones			
Output wavelength (source)	850-1300 nm LED APC, VisiTester	Port 1: 1310-1550 nm Laser	Port 1: 1310, 1550 nm Laser APC / Port 3: 850, 1300 nm LED APC	1310, 1550, 1625 nm Laser APC, VisiTester APC
Output power (source)	-27 dBm ±1 dB @ 62.5 µm	-7 dBm ±1 dB @ SMF	-3 dBm ±1 dB (@ 9/125 µm for 1310, 1550 m) / -23 dBm ±1 dB (@ 62.5/125 µm for 850, 1300 nm)	-7dBm ±1 dB @ SMF
Adjust output power (source)	Fixed	Adjustable over 7 dB in 0.01 dB steps	Adjustable over 7 dB in 0.01 dB steps (for 1310, 1550 nm) / Fixed (for 850, 1300 nm)	Adjustable over 7 dB in 0.01 dB steps
Short term stability for 15 min, typical ±2 °C, after warm up, ORL < -25 dB (source)	0.01 dB	0.04 dB	0.03 dB (for 1310, 1550 nm) / 0.01 dB (for 850, 1300 nm)	0.03 dB (for 1310, 1550 nm), 0.04 dB (for 1625 nm)
Stability over temperature (source)	0.35 dB	0.6 dB (max)	0.2 dB (max for 1310, 1550 nm) / 0.35 dB (max for 850, 1300 nm)	0.2 dB (max)
Wavelength initial tolerance @ 25 °C (source)	20 nm	20 nm	20 nm (for 1310, 1550 nm)	20 nm for 1310, 1550 nm, 6.5 for 1625 nm
Spectrum width @ FWHM (source)	3 nm (typical)	3 nm (typical)	3 nm (typical for 1310, 1550 nm)	3 nm (typical for 1310, 1550 nm), < 1 nm (typical for 1625 nm)
Mode controlled (source)	50/125µm compliant: IEC 61280-4-1 {Ed.1.0}, TIA 526-14A & TIA TSB-178			
Length range (2-way Autotest only)	4.5 dB @ 50 µm	27 dB	6 dB @ 62.5 µm (for 850, 1300 nm) / 30 dB (for 1310, 1550 nm)	27 dB
Length accuracy (2-way Autotest only)	0.01% ± 4 meters			
Length resolutions	1 meter (0.000~9.999 Km), 10 meters (10.00~99.99 Km), 100 meters (100.0~127.9 Km)			
Loss range (2-way Autotest)	21.5 dB @ 50 µm	44 dB	27 dB @ 62.5 µm (for 850, 1300 nm) / 47 dB (for 1310, 1550 nm)	44 dB
Loss repeatability & loss linearity (2-way Autotest)	0.06 dB	0.04 dB	0.06 dB (for 850, 1300 nm) / 0.04 dB (for 1310, 1550 nm)	0.04 dB
ORL range	0 ~ 27.5 dB @ 50 µm	0 ~ 60 dB	0 ~ >60 dB (1310, 1550 nm) / 0 ~ 30 dB @ 62.5 µm	0 ~ 60 dB

Cont.

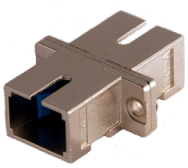
MODEL	T23403OLV-APC-50U	T23422OLV	T23424OL-APC	T23410OLF-APC
ORL accuracy	0.2 dB			
ORL resolution	0.01 dB (@ 0 ~ 30 dB), 0.1 dB (@ 30 ~ 45 dB)	0.01 dB (@ 0 ~ 50 dB), 0.1 dB (@ 50 ~ 65 dB)	For 1310, 1550 nm: 0.01 dB (@ 0 ~ 50 dB), 0.1 dB (@ 50 ~ 65 dB) / For 850, 1300 nm: 0.01 dB (@ 0 ~ 30 dB), 0.1 dB (@ 30 ~ 45 dB)	0.01 dB (@ 0 ~ 45 dB), 0.1 dB (@ 45 ~ 60 dB)
VisiTester wavelength	650 ± 5 nm			
VisiTester power	0 dBm ± 1 dB @ SMF			
VisiTester laser safety	Class 1, IEC60825-2			
Blink rate (manual)	CW or 2 Hz			
Detector type (meter) Response wavelength (meter) Calibration wavelengths (meter)	InGaAs 600 ~ 1700 nm (see website for specifics)			
Accuracy (meter)	1 % (0.06 dB)			
Mid-range linearity (meter)	0.04 dB (typical)			
Power range (meter)	+10 ~ -60 dBm (780 ~ 980, 1590 ~ 1650 nm) / +10 ~ -70 dBm (1270 ~ 1650 nm)			
Total uncertainty (meter)	0.3 dB (max)			
Resolution (meter)	0.01 dB			
Tone detection (meter)	150 ~ 9999 Hz ± 1 %			
Autotest	1-way: compatible with other T23400 & T27400 models / 2-way: compatible with identical model only			
USB interfaces	USB-micro for power & software / USB-A Flash Drive			
Software	KITS (free download)			
Power Battery life Battery type	Battery / External power via micro-USB Laser/LED source: 80 hours (typical) in Autotest, Power Meter: 1000 hours (typical) 2x AA (LR6) Alkaline / 2x AA NiMH AA (rechargeable via micro-USB)			
Display size	74 mm x 55 mm high contrast LCD			
Case	Laser/LED source: 80 hours (typical) in Autotest, Power Meter: 1000 hours (typical)			
Size Unit weight Shipping weight	190 mm x 105 mm x 35 mm 0.42 kg 1.5 Kg			
Operating / storage temperatures Relative humidity	-15 to 55 / -25 to 70 °C 0 ~ 95 %			
Warranty Calibration validity (ISO/IEC 17025)	3 Years			

ADAPTERS

A wide range of Adapters are available to suit the different Kingfisher models and your applications. Please contact your Tempo Customer Service Representative for more information.

PART NO.	CAT. NO.	DESCRIPTION
55505081	OPT040	TEST SET ADAPTER, SC/ST CERAMIC SLEEVE
55505082	OPT046	TEST SET ADAPTER, SC/SC CERAMIC SLEEVE
55505253	OPT051	TEST SET ADAPTER, SC/FC CERAMIC SLEEVE
55505083	OPT076	TEST SET ADAPTER, SC/LC METAL BODY CERAMIC SLEEVE
55505084	OPT081	TEST SET ADAPTER, SC/UNIVERSAL 2.5mm CERAMIC SLEEVE
55505085	OPT085	TEST SET ADAPTER, SC/UNIVERSAL 1.25 MM CERAMIC SLEEVE
55505161	OPT200	TEST SET ADAPTER, XL- CS
55505146	OPT201	TEST SET ADAPTER, XL- SC
55505254	OPT202	TEST SET ADAPTER, XL- ST
55505301	OPT204	TEST SET ADAPTER, XL- FC
55505298	OPT224	TEST SET ADAPTER, XL- Universal 1.25mm
55505162	OPT225	TEST SET ADAPTER, XL- Universal 2.5mm
55505147	OPT226A	TEST SET ADAPTER, XL- LC
55505148	OPT227	TEST SET ADAPTER, XL- MPO12
55505160	OPT228	TEST SET ADAPTER, XL- MPO16
55505299	OPT229	TEST SET ADAPTER XL 7/8-28, POF MULTI

OPT040



OPT046

OPT076

OPT081

OPT085

FIB-TRN

FIBER TRAINER

The Tempo Communications Fiber Trainer provides a compact platform used to train fiber optic technicians. The Fiber Trainer has loss events that simulate a faulty connector, a Macrobend and a damaged fiber optic cable. The 1km fiber link provides the student technician a typical fiber link that has a fault midway. This allows the technician setup the OTDR, test and evaluate the 1km link. The two fiber spools provide sufficient fiber for fusion splicing exercises. The connectors on the ends of the fiber spools allow for convenient connections for loss testing so that the student technician can measure and validate fusion splice loss.

Learning Components:

- Fiber Optic Basics
- Cleaning and Inspection
- Visual Fault Locating
- Fiber Optic Loss Testing
- Fusion Splicing & Fiber Dressing
- Optical Time Domain Reflectometers

SPC01 Consumable Kit Contents:

- 50 Pack of Cleaning Swabs
- 100 Pack of Cleaning Wipes
- Fiber Disposal Unit
- Cleaning Fluid
- Safety Glasses
- 50 Pack of Fusion Splice Sleeves
- Two SC/UPC Bulkheads
- Two 15m Pigtail (900 micron)
- One SC/APC to SC/APC 3mm, 0.5m Cable
- Three SC/UPC to SC/UPC 3mm, 0.5m Cable
- One Sharpie Pen
- Two SC/UPC to SC/UPC 3mm, 5m Cable
- One SC/APC to SC/UPC 3mm, 1m Cable

Learning Instruments

OPM210

SLS520

915FS

915CL

OFL100

MSS100

PA1822

TCDCS

TCCPS

Ordering Information

CAT. NO.	DESCRIPTION
FIB-TRN	Fiber Trainer
SPC01	Fiber Trainer Consumable Kit (Not included with FIB-TRN)
OPM210	Standard Power OPM with VFL
OFL100-NA	OFL100 with North American Power Supply
SLS520	1310/1550nm Dual Laser
915FS-KIT1	915FS Fusion Splicer & Cleaver Kit
PA1171	Pro Grip Fiber Stripper
PA1511	Kevlar Cutter
PA1175	Pro Grip Cutter
REEL-CLN	Opti-Clean Reel Cleaner
FIP100 KIT	Fiber Inspection Probe Kit
DFE100	Drop Fiber Enclosure Kit, 2 PORT
SOCSCUPC-10	SOC SCUPCSMF 10 Pack
2.5 SWAB	2.5mm Cleaning Swabs, 100 Pieces
TCLTH	Tablecloth
PA1822	Cable Slitter
MSS100	Midspan Slitter
TCCPS	Slit and Ring Stripper
TCDCS	Drop Cable Stripper
SD6-in-1	Six in one screwdriver

Specifications

CONNECTOR INTERFACES:	SC/UPC (3) SC/APC (2)
FIBER:	G.652 Ultra
WEIGHT:	3.73 lb (2.14 kg)
DIMENSIONS:	12.2 x 9.0 x 4.1" (310 x 229 x 104mm)

* One SPC01 Kit, DFE100, SCUPCSOC-10, TCLTH and 2.5 SWAB needs to be ordered with each Fiber Trainer to complete all training exercises.

Optional Instruments

CAT. NO.	DESCRIPTION
FI-100-KIT	Fiber Identifier Kit
LC-500	500m Launch Cable, Singlemode
SLS525	850/1300nm Dual LED

Available Kits

CAT. NO.	DESCRIPTION
JTK-PA	Pre-Apprentice Kit
JTK-T	Trainer Kit
JTK-SP	JTK-T & 915FS-KIT1
JTK-OFL	JTK-T & OFL100-NA
JTK-FULL	JTK-T & 915FS-KIT1 & OFL100-NA

Pre-Apprentice Kit Contents (JTK-PA)

CAT. NO.	DESCRIPTION
PA1822	Cable Slitter
PA1511	Kevlar Cutter
PA1177	3 In 1 Fiberoptic Stripper
PA1179	Cable Cutter
MSS100	Midspan Slitter
TCCPS	Slit and ring Stripper
TCDCS	Drop Cable Stripper
SD6-in-1	6 in 1 Screwdriver

Trainer Kit Contents (JTK-T)

CAT. NO.	DESCRIPTION
FIB-TRN	Fiber Trainer
SPC01	Consumable Kit
JTK-PA	Pre-Apprentice Kit
REEL-CLN	Reel Cleaner
2.5 SWAB	2.5mm Cleaning Swabs (100)
OPM210	Optical Power Meter

FIBER INSPECTION PROBE

FIP100
FIBER OPTIC CONNECTOR INSPECTION SYSTEM

The FIP100 is a fully automated inspection tool that provides fast and reliable analysis of fiber optic connector end faces and bulkheads. With a single button press, the FIP100 automatically focuses, captures an image of the connector endface and provides a pass/fail result. The pass/fail status of the connector is instantly reported via a red/green LED on the probe. Detailed results are shown on the iOS or Android app, which provides PDF report generation and sharing. Both apps are pre-loaded with pass/fail requirements from IEC 61300-3-35, as required by all major telecommunications service providers.

Product Features:

- Test ferrule end faces and bulkheads compliant to IEC61300-3-35
- SIngle handed, one button operation
- Auto focus, auto capture, auto test
- LED pass/fail indicator on probe
- Small form factor enables inspection of difficult to reach ports
- Create and share reports on Android and iOS devices
- IEC, IPC and user defined inspection criteria
- Wide range of adapter tips

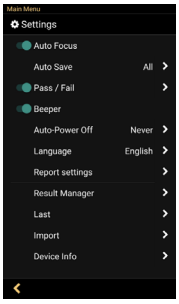
Applications:

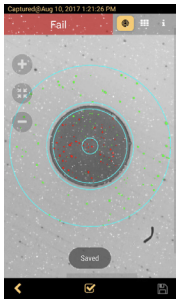
- Verify connector cleanliness before connecting
- Certify connector condition on installation
- Document connector damage when troubleshooting
- Inspection is an essential for proper fiber handling in all networks

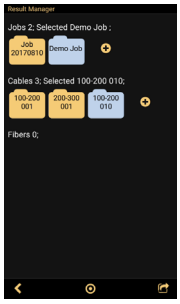
Pass/fail results in seconds: With the press of a single button, the FIP100 auto-focuses, captures, centers and analyzes the end-face image to industry standard IEC 61300-3-35, IPC-8497-1, AT&T TP-76461 and other user-defined criteria.
Untethered operation: One-button operation and pass/fail LED indicator enables operation without reference to the mobile app.
Wide range of adapter tips: Interchangeable adapter tips support fiber connector inspection for a wide range of patch cords and bulkhead-mounted connectors having either PC/UPC or APC polished end-faces.

SMART DEVICE APPS: FIP100

- Auto focus, auto capture and auto test functions
- IEC, IPC, industry standard, and user-defined inspection rules
- Pinch-to-zoom fiber end-face images
- Report generation
- Multi-language Graphical User Interface (GUI)
- Day/time stamped job saving







GET IT ON Google Play

Download on the App Store

SPECIFICATIONS:

OPTICAL PERFORMANCE	
Field of View (FOV) [b]	Live and Captured: 612 x 460 µm;
Manual Detection Capability (minimum)	0.25 µm
Auto Analysis Resolution	<1.0 µm
Stored [c] Image Size	2592 x 1944 (5M) pixels
End-face Illumination	Coaxial blue LED 476 nm
Maximum No Damage Live Fiber Power Level	+20 dBm
OPERATING FEATURES	
WiFi Characteristics	IEEE 802.11bng
Focus	Auto-focus (≤3 sec) and manual focus
Centering	Auto-centering (<1 sec)
Button Functionality	Power On/Off (>3 secs); Capture/Analysis/ Auto-save/Live
Main LED Functionality	Blue = Connected to App, Green = Pass, Red = Fail
Magnification [b]	Variable from 80X to 700X, in Live and Capture modes
Applications Compatibility	Android ≥4.0.3, iOS ≥8.1
Image Capture with Pass/Fail Analysis [c]	IEC 61300-3-35, AT&T TP-76461, IPC-8497-1, user-set criteria
Image File Format	JPEG, GIF
Image & Pass/Fail Results Storage [c]	Yes
File Storage Capacity [c]	Unlimited
Result Manager [c]	Storage, rename, delete, transfer
Reporting [c]	Built-in fillable PDF reporter
Supported Languages [c]	English, French, German, Japanese, Korean, Russian, Spanish
PHYSICAL AND POWER CHARACTERISTICS	
Battery Type	Li-Ion, non-replaceable by user
Maximum Charger Current Draw	1.2A, battery charge current + device consumption current
Operating Time (typical)	60 hours [d]; 8 hours continuous
Recharge Time	≤4 hours
Low-Battery Warning	Viewed on smart device
Charging LED Status; viewed on smart device	Red = Charging, Green = Fully Charged, Blinking Red/Green = Battery Fault
Power Save Features (Controlled by App)	Probe Auto-Off – disabled, 5, 10, 30, 60 minutes; Probe WiFi Not Connected – 5 minutes
AC Charger Voltage, Frequency, Current	100-240VAC, 50/60Hz, 5VDC, 2A
Charger Jack	0.9 x 3.2 mm barrel, center (tip) positive
Size (Max Diameter x Length)	Ø 40 x 226 mm (Ø 1.6 x 8.9 in)
Weight	150 g (5.3 oz)
ENVIRONMENTAL CHARACTERISTICS	
Operating Temperature	0 to +50 °C; 95% RH, non-condensing
Storage Temperature	-40 to +70 °C; 95% RH, non-condensing

Notes:
a. All specifications valid at 23°C ±2°C (73.4°F ±3.6°F).
b. Viewed on Smart Device.
c. In iOS & Android Apps.
d. Operating conditions: 60 tests in 20 minutes, then auto-off; Repeat each hour

CERTIFICATIONS:

CE/UKCA	EU	Compliant to relevant EU Directives on health, safety, and environmental protection, and certified with CE marking
Safety /EMC /EMI	IEC	Compliant to IEC 61010-1 for safety requirements for electrical equipment
	EN	Compliant to EN 55011 for EMC requirements for industrial, scientific and medical equipment
	FCC	Compliant to code of federal regulations FCC 47 CFR 15 on unlicensed transmissions
RoHS	EU	Compliant to EU regulations Directive 2011/65/EU (RoHS 2) and Directive 2015/863 (RoHS 3)
Test Method	IEC	Compliant to IEC 61300-3-35 for visual inspection of fiber optic connectors and fiber-stub transceivers
	IPC	Compliant to IPC-8497-1 for cleaning methods and contamination assessment for optical assembly

ORDERING INFORMATION:

CAT NO	Description
FIP100 KIT	FIP100, power supply (NA, UK & EU), carry case, SC/UPC bulkhead tip, SC/UPC bulkhead and quick reference card.
FIP100 KIT-SC/APC	FIP100, SC/APC bulkhead tip, SC/APC bulkhead, SC/UPC bulkhead tip, SC/UPC bulkhead, power supply (NA, UK & EU) and quick reference card.
FIP100 KIT-LC/UPC	FIP100, LC/UPC bulkhead tip, LC/UPC bulkhead, SC/UPC bulkhead tip, SC/UPC bulkhead, power supply (NA, UK & EU) and quick reference card.
FIPCC	FIP100 carry case
FIPPS	FIP100 power supply with NA, EU and UK adapters
SCUPC BH	SC/UPC Bulkhead Tip
LCUPC BH	LC/UPC Bulkhead Tip
2.5MMUPC	2.5mm Universal UPC Tip
1.25MMUPC	1.25mm Universal UPC Tip
SCAPC BH	SC/APC Bulkhead Tip
LCAPC BH	LC/APC Bulkhead Tip
2.5MMAPC	2.5mm Universal APC Tip
1.25MMAPC	1.25mm Universal APC Tip
OTAP BH	OptiTap® Bulkhead Tip
LCUPC BH L60	LCUPC Long Reach 60mm Bulkhead Tip
U60 BH	Universal 60 Degree Adapter for Bulkhead Tip
MPO BH	MPO UPC and APC Bulkhead Tip
FIPT ADAPT	Adapter for VIAVI Tips

FIBER OPTIC TOOL KITS

The Tempo Communications Fiber Optic Tool Kits provides four kit options to satisfy varying tasks that the fiber optic technician may encounter. The tool kits contain all the common tools required to effectively and safely complete the job in an efficient manner.

Each tool kit is supplied in a rugged carry case to safely keep all tools organized for easy storage and retrieval for use. Extra pockets are incorporated to hold accessories and other tools.

FTK-B BASIC TOOLS KIT

A basic tool kit allows the technician cut, strip and prepare fiber optic cables for termination.

Features:

- Kevlar Cutter
- 3-in-1 Fiber Optic Stripper
- Universal Slitter
- 6-in-1 Multi Tool
- Long Nose Pliers
- Fiber Optic Tool Case
- Side cutters
- Drop Cable Stripper
- Mid Span Slitter
- Ring and Slit Stripper

FTK-P PRO TOOLS KIT

Same tools as the FTK-B but with a 180XL Visual Fault Locator (VFL) to visually locate faults and two fiber cleaning pens.

Features:

- Kevlar Cutter
- 3-in-1 Fiber Optic Stripper
- Universal Slitter
- 6-in-1 Multi Tool
- Visual Fault Locator
- Long Nose Pliers
- Fiber Optic Tool Case
- Side cutters
- Drop Cable Stripper
- Mid Span Slitter
- Ring and Slit Stripper
- 2.5mm Fiber Cleaning Pen
- 1.25mm Fiber Cleaning Pen

FTK-PP PRO PLUS TOOLS KIT

Same tools as the FTK-P but with a Micro OPM which has an Optical Power Meter (OPM) and Visual Fault Locator (VFL).

Features:

- Kevlar Cutter
- 3-in-1 Fiber Optic Stripper
- Universal Slitter
- 6-in-1 Multi Tool
- Micro OPM
- Long Nose Pliers
- Fiber Optic Tool Case
- Side cutters
- Drop Cable Stripper
- Mid Span Slitter
- Ring and Slit Stripper
- 2.5mm Fiber Cleaning Pen
- 1.25mm Fiber Cleaning Pen

FTK-T TERMINATION TOOLS KIT

Contains all of the tools needed to terminate fiber optic cables with a mechanical connector.

Features:

- Kevlar Cutter
- 3-in-1 Fiber Optic Stripper
- 915CL Cleaver
- Fiber Optic Tool Case
- Visual Fault Locator
- Side Cutter

ORDERING INFORMATION:

PART NO.	CAT. NO.	DESCRIPTION
52086508	FTK-B	Basic Fiber Tool Kit
52086509	FTK-P	Pro Fiber Tool Kit
52086510	FTK-PP	Pro Plus Fiber Tool Kit
52086866	FTK-T	Termination Fiber Tool Kit

OTHER TOOLS AVAILABLE:

PART NO.	CAT. NO.	DESCRIPTION
52087221	FCL100	Field Fiber Optic Cleaver
52082727	920CL	920CL Optical Fiber Cleaver
52080175	BFA-1	Bare Fiber Adapter
52050560	PA1820	AM25 Slitter (0.18" - 1.0")
52050561	PA1821	AM35 Slitter (1.0" - 1.4")
52050605	PA1162	Economy Stripper
52049188	PA1915	Pocket Probe / Pick
52050965	PA1922-1	Fiber Optic Carbide Scribe

INDIVIDUAL TOOL FROM KITS:

PART NO.	CAT. NO.	DESCRIPTION
52051283	PA1511	Kevlar Cutter
52055938	PA1177	3-in-1 Fiber Optic Stripper
52050604	PA1822	Universal Slitter
52024842	TCBMD	6-in1 Multi Tool
55500025	OPM210	Standard Power OPM with VFL
52055941	PA1180	Long Nose Pliers
52085476	FIBKIT CASE	Fiber Optic Tool Case
52055936	PA1175	Side cutters
52086521	TCDCS	Drop Cable Stripper
52076413	MSS100	Mid Span Slitter
52085475	TCCPS	Ring and Slit Stripper
52068671	180XL	Visual Fault Locator

REPLACEMENTBLADES FOR STRIPPING TOOLS:

PART NO.	CAT. NO.	DESCRIPTION
52086502	TCDCS-2	DROP CABLE STRIPPER BLADE KIT (six blades)
52086503	TCCPS-RING-2	CPS RING BLADE KIT (one replacement blade with hardware)
52086504	TCCPS-SLIT-2	CPS SLIT BLADE KIT (one replacement blade with hardware)

OFL100 OTDR
Optical Time-Domain Reflectometer

The OFL100 OTDR enables the front-line fiber technician to quickly locate loss events in the last mile of the FTTx network. The convenient touchscreen provides an intuitive interface for even newly provisioned technicians making it simple to locate loss events such as cut fibers, contaminated or damaged connectors, and excessively bent fibers.

FAST.

- Easy to use one button test function. Start measurements with the push of one button.
- Auto test automatically sets test parameters for optimum test results.

ACCURATE.

- Graphical touchscreen interface is easy to read, even in high ambient light conditions.
- 128,000 data points provides high accuracy results.
- Measure lengths and fiber defects to quickly locate faults.

RELIABLE.

- Link Viewer annotates the entire fiber link in an easy to interpret Pass/Fail format.
- Cable acceptance reports generate customized reports that include trace signature and fiber events.
- Long life battery so you can work longer without recharging - up to 12 hour shift capable.

Includes:

- OFL100
- Power Supply with USB cable
- Soft Carry Case with Strap
- SC/APC Adapter
- Certificate of Conformance
- Quick Reference Card
- 8GB SD Card
- AC adapter
- Protective cover
- Carrying case
- Warranty card

Ordering Information:

CAT. NO.	DESCRIPTION
OFL100-NA	OFL100 with North American Power Supply
OFL100-EU	OFL100 with UK and European Power Supplies

OFL100 Specifications:

OTDR	
Wavelength	1310/1550nm
Dynamic Range	26/24dB
Event Deadzone	2.5m
Attenuation Deadzone	8m
Measurement Ranges	500m, 1km, 2km, 4km, 8km, 16km, 32km, 64km and 100km
Pulse Widths	3ns, 5ns, 10ns, 20ns, 30ns, 50ns, 80ns, 160ns, 320ns, 500ns, 800ns, 1µs, 2µs, 3µs, 5µs, 8µs, 10µs and 20µs
Measurement Accuracy	± (1m+Sample interval+0.005%xTest Distance)
Linearity	≤0.05dB/dB
Loss Resolution	0.001dB
Loss Threshold	0.20dB
Distance Resolution	0.001m
Refractive Index	1.00000 to 2.00000
Reflection Accuracy	±3dB
File Format	SOR compliant to Telcordia GR196
Loss Analysis	Four Point & Five Point
Laser Safety	Class 1M
Bulkhead	SC/APC (Optional LC and FC)
Trace Update Rate	3Hz
Optical Power Meter	
Wavelength Range	800nm to 1700nm
Calibrated Wavelengths	850nm, 980nm, 1300nm, 1310nm, 1490nm, 1550nm, 1625nm and 1650nm
Measurement Range	+26dBm to -50dBm
Measurement Resolution	0.01dB
Measurement Accuracy	±5%
Tone Frequencies/Sensing	CW, 270Hz, 330Hz, 1kHz and 2kHz
Bulkhead	2.5mm Universal
Visual Fault Locator	
Wavelength	650nm ±20nm
Output Power	<1mW
Mode of Operation	CW, 1Hz and 2Hz
Bulkhead	2.5mm Universal
Laser Safety	Class 2

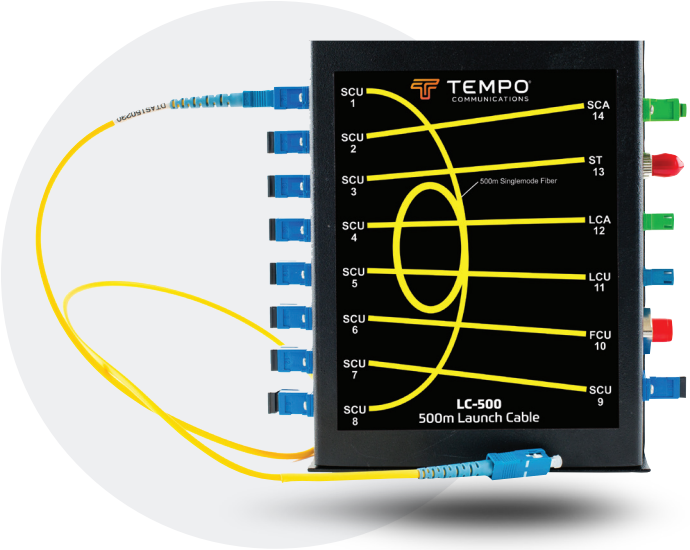
Stabilized Laser Source	
Wavelength	1310/1550nm
Output Power	≥ -5dBm; variable
Power Stability	CW, ±0.5dB/15 minutes after continuous on of 15 minutes
Bulkhead	SC/APC (Optional LC and FC Available)
Tone Frequencies	CW, 270Hz, 330Hz, 1kHz and 2kHz
Optical Loss Testing	
Wavelength	1310nm and 1550nm
Insertion Loss Testing	Integrated OPM and SLS
RJ45 Sequence Testing	
Cable Type	Straight and Interleaved (T568)
Mechanical	
Display	4.3" 800x400 TFT LCD Touchscreen
Power Supply	AC to DC 100-240VAC, 50/60Hz
Power Supply Format	North America or United Kingdom and European
Battery Lifetime	>12 Hours Continuous Test
Battery	3.7V, 4Ah Li ION
Weight	<1.1lbs (<0.5kg) Including Battery
Size	6.8"x 4.3"x 1.8" (173mm x 109mm x 45mm)
Data	
Internal Storage	8GB (>200,000 Curves)
Interface	USB Type C, 8GB SD Card
Environmental	
Operational Temperature	-10°C to +50°C

*Specifications subject to change without notice

Accessories:

CAT. NO.	DESCRIPTION
OFL100-SCAPC	SC/APC Adapter
OFL100-LCAPC	LC/APC Adapter
OFL100-FCAPC	FC/APC Adapter
OFLPS-NA	OFL100 North American Power Supply with USB Cable
OFLPS-UK	OFL100 United Kingdom Power Supply with USB Cable
OFLPS-EU	OFL100 European Power Supply with USB Cable
OFLCC	OFL100 Carry Case with Strap

LAUNCH CABLES



LC-500 Patch Panel Matrix with 1m SC/PC-SC/PC patch cable

Launch cables are used to reduce the effect deadzones caused by mechanical connection of the OTDR to the Fiber under Test. Constructing a backscatter trace before the Near end connector enables the technician to evaluate the connector for Insertion Loss & return Loss. Also known as a Pulse Suppressor.

Benefits:

- Troubleshoot the input connector and the initial fiber span that may be masked by the deadzone of an OTDR
- Characterise input and output connectors and the entire fiber link
- Minimise Dead zones
- Eliminate multiple patch cables

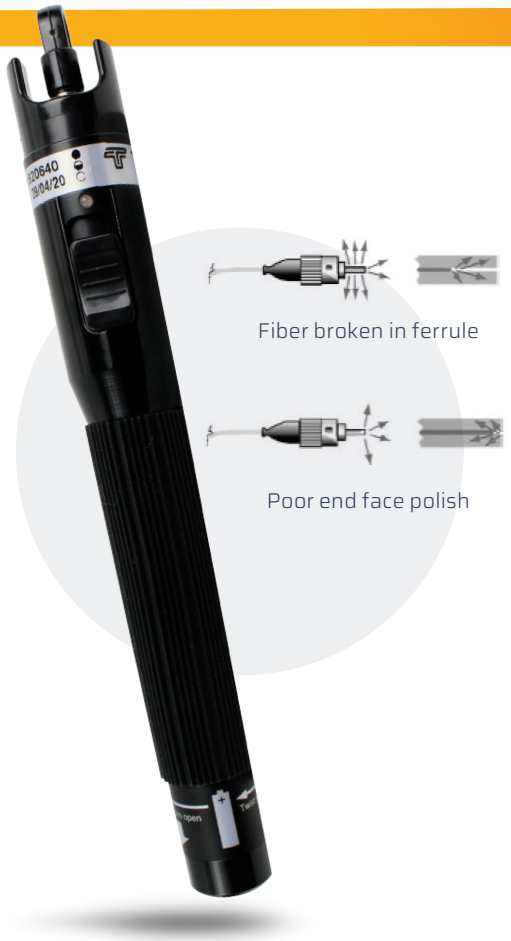
Features:

- Universal compact design
- Rugged construction

Ordering Information:

PART NO.	CAT. NO.	DESCRIPTION
52076057	LC-500	500M Launch Cable with Patch Panel Matrix
52081881	LC500SCAPCSM	500M Launch Cable SC APC Singlemode
52081882	LC500SCUPCSM	500M Launch Cable SC UPC Singlemode
52081883	LC1000SCAPCSM	1000M Launch Cable SC APC Singlemode
52081884	LC1000SCUPCSM	1000M Launch Cable SC UPC Singlemode
52081887	LC150SCPCMM	150M Launch Cable SC PC 50/125 Multimode
52081888	SCLC Adapter	SC TO LC Adapter (Use the SC to LC Adapter to convert the Launch Cable to LC connectors

VISUAL FAULT LOCATOR

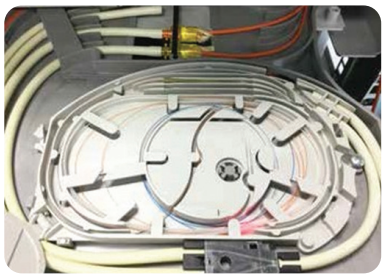


180XL VISUAL FAULT LOCATOR

The 180XL visual fault finder is an indispensable tool for quickly identifying bending losses and breaks in optical fibers. If a fiber is bent too tightly, red laser light will be seen escaping through the jacket. Likewise, if a fiber is broken, escaping light will be visible where the break is located.

Features

- Continuous wave output mode for steady fault illumination
- Blinking output mode increases viewing contrast
- Easy to use "Quick Connect" interface fits all 2.5mm fiber optic connectors
- Ergonomic switch permits easy one-handed operation
- Simple, versatile, and user-friendly design
- Rugged, compact, and splash proof aluminium housing
- High output 1.0mW (0dBm) 650nm red laser
- Up to 7km range
- Two AA-size alkaline batteries provide 80 hours of continuous operation
- Nylon belt holster included



Macrobend easily visible in splice tray using 180XL

Specifications:

Wavelength	650nm +/-10nm
Emitter Type	Fabry Perot
Output Power	0dBm
Spectral Width (CPR)	<2nm
Laser Classification	2
Range	7km
Modes of Operation	CW and 2Hz Modulation
Display Operation	Red/Green LED
Fiber Type	Singlemode, Multimode

Connector Interface	2.5mm Universal, Optional 1.25mm Adapter
Battery	AA (2)
Battery Life	80 Hours with 3.9Wh batteries
Weight	0.15lbs, (70g) (not including batteries)
Dimensions	7.08" x 0.91" Dia (180mm x 23mm Dia)
Operating Temperature	-10 to +45C
Storage Temperature	-40 to +70C
Certifications	CE, WEEE, CDRH Reach RoHs

Ordering Information:

PART NO.	CAT. NO.	DESCRIPTION
52068671	180XL	Visual Fault Locator Kit (2.5mm UCI)
52068673	125mm ADAPTER	1.25mm adapter

SCAN TO WATCH VIDEO

OPTICAL FUSION SPLICERS

Tempo Communications fusion splicers utilize two different splicing technologies in our product offering. The FSP200 is a Core Alignment based splicer and the 915FS is an Active Clad splicer.

The FSP200 Core Alignment splicer incorporates six motor technology and is the most capable splicer when splicing legacy or dissimilar fibers. This is because two motors are used to adjust the objective lenses so that the cameras are able to precisely locate the center of the core of the fiber optic cable. This is especially important with older fibers that have geometry variability such as ovality and concentricity of the core with respect to the fiber cladding. The core alignment technology is also more tolerant of contamination and will yield the lowest splice losses in adverse conditions.

The 915FS fusion splicer is an Active Clad fusion splicer and has four motors to align the fibers. No objective lens focusing is provided which is sufficient when splicing two fibers of the similar geometry. Since singlemode fibers produced in the last two decades are of remarkably consistent geometries, even between cable manufacturers, the splice loss is virtually the same as the Core Alignment splicer.

Both the Active Clad and Core Alignment fusion splicers far surpass the performance of the V-Groove technology splicers that employ only two adjustment motors.

Ordering Information:

PART NO.	CAT. NO.	DESCRIPTION
55500052	FSP200	Optical Fusion Splicer
55500053	FSP200-KIT1	FSP200 Fusion Splicer & Cleaver Kit
55500054	FSP200-KIT2	Contractor Fusion Splicer Kit
52063415	06811	915FS FSP200 Batt
52080896	07096	Power Supply, 915FS FSP200
52064141	01335	Splice-On-Connector Adapter (SC & LC)
52066481	02401	Splice-On-Connector Adapter (ST & FC)

PART NO.	CAT. NO.	DESCRIPTION
52063414	01329	Replacement Electrodes
52064143	01332	200/250µm Adapter (Pair)
52064142	01333	900µm Adapter (Pair)
52076996	05801	Loose Tube Adapter (Pair)
52081862	07388	Universal Adapter (Pair)
52067851	03245	3mm Adapter (Pair)
55500059	NA LC	North American Line cord
52066954	02571	European Line Cord

SCAN TO WATCH VIDEO

FSP200

Core Alignment Optical Fusion Splicer

The Tempo Communications FSP200 Optical Fiber Fusion Splicer is intended to fuse two fiber optic cables, resulting in low splice loss and long-term stable splices. The FSP200 is a Core Alignment splicer that utilizes six precision motor transports.

Features:

- True Core Alignment for Low Loss Splices
- IP52 provides resistance to dust and water ingress
- Small and lightweight for the most demanding jobs
- Loose tube fiber compatible
- Auto-Calculation of Estimated Splice Loss
- Adapters for 200/250, 900µm and 3mm fiber

(1) Fast mode. (2) 90s/cycle splice time and power save functions activated. Number of cycles may vary depending on battery status and ambient operating conditions. (3) Dust resistance and rain resistance test do not guarantee that the product will not be damaged under these conditions. (4) Dependent on splice protector used and ambient conditions. Time quoted is with power mode enabled and assuming that the oven is not cold.

*Specifications subject to change without notice.

Specifications:

Applicable Fibers	SM (G.652); MM (G.651); DS (G.653); NZDS (G.655); BIF (G.657); EDF
Fiber Cleaved Length	10mm
Cladding Diameter	80 to 150µm
Coating Diameter	100 to 1000µm
Fiber Count:	Single
Fiber Aligning Method	Core Alignment
Splice Loss (Typical)	0.02 dB (SM); 0.01 dB (MM); 0.04 dB (DS); 0.04 dB (NZDS & BIF)
Splicing Mode	60 Preset / User Definable Modes
Splice Time (Typical)	7 seconds (1)
Boot Time	5 seconds
Number of Splices Per Battery Charge	200 (including 60mm heat shrink cycle) (2)
Splice -On-Connector	SC, LC, FC, ST
Arc Calibration Mode	Automatic and Manual
Protection Sleeve Length	60mm, 40mm, Micro Sleeves
Ingress Protection(3)	IP5X (Dust); IPX2 (Water)
Storage of Splice Results	5,000 Results, 100 screenshots
Drop Test	76cm on five axis

Tension Test	2N
Fiber Display Magnification	200X
Tube Heating Mode	20 Preset / User Definable Modes Adjustable 0-240 seconds
Tube Heating Time (Typical)	18 seconds (4)
Attenuator Mode	0.1 to 15 dB
Electrode Life	5,000 Splices
Display:	3.5" Color, Turn-Over LCD
Connectivity	USB
Operating Conditions	Pressure: 0 to 16,404 feet (0 to 5,000 meters) above Sea Level Wind Velocity up to 15m/s Humidity: 0 to 95% Temperature: -4 to +131F (-20 to +55C)
Storage Conditions	Temperature: -40 to +158F (-40 to +70C)
Power Supply	100 to 240V AC Adapter; Li-ion Battery (4400 mAh)
Weight	3.74lbs (1.7kg) with battery
Dimensions (HxWxD)	4.9" x 4.9" x 5.3" (125 x 125 x 135mm)
Vibration Resistance	10Hz – 500Hz with a spectral density of 0.03g2/Hz
Password Protection	Yes

915FS

Active Cladding Optical Fusion Splicer

The Tempo Communications 915FS Optical Fiber Fusion Splicer is intended to fuse two fiber optic cables, resulting in low splice loss and long-term stable splices. The 915FS is an Active Clad fusion splicer the utilizes four precision motor transports.

The 915FS fusion splicer capably aligns the two fibers in the X, Y, and Z dimensions to automatically and precisely align the two fibers. A fusing arc is applied, which then provides the lowest loss fusion splice.

The 915FS is designed for splicing singlemode and multimode fibers including DSF, NZDS and BIF.

Splices are completed in as little time as seven seconds while providing low splice losses typically of 0.01dB. The high capacity battery is capable of splicing over 200 fusion splices on one battery charge.

The intuitive user interface and IP52 rating insures that the technician able to quickly

Features:

- 0.01dB measurement resolution
- Multi-Wavelength Storage
- SOC interface adapts to all commonly used connectors*
- Long battery life
- Absolute (dBm) & Referenced (dB) Power measurements
- Loose tube fiber compatible
- Auto-Calculation of Estimated Splice Loss
- Adapters for 200/250, 900µm and 3mm fiber

3 YEAR WARRANTY

SCAN TO WATCH VIDEO

(1) Fast mode. (2) 90s/cycle splice time and power save functions activated. Number of cycles may vary depending on battery status and ambient operating conditions.(3) Dust resistance and rain resistance test do not guarantee that the product will not be damaged under these conditions. (4) Dependent on splice protector used and ambient conditions. Time quoted is with power mode enabled and assuming that the oven is not cold.

* Specifications subject to change without notice.

Specifications:

Applicable Fibers	SM (G.652); MM (G.651); DS (G.653); NZDS (G.655); BIF (G.657); EDF
Fiber Cleaved Length	10mm
Cladding Diameter	80 to 150µm
Coating Diameter	100 to 1000µm
Fiber Count	Single
Fiber Aligning Method	Active Clad Alignment
Splice Loss (Typical)	0.02 dB (SM); 0.01 dB (MM); 0.04 dB (DS); 0.04 dB (NZDS & BIF)
Splicing Mode	60 Preset / User Definable Modes
Splice Time (Typical)	7 seconds (1)
Boot Time	5 seconds
Number of Splices Per Battery Charge	200 (including 60mm heat shrink cycle) (2)
Splice-On-Connector	SC, LC, FC, ST
Arc Calibration Mode	Automatic and Manual
Protection Sleeve Length	60mm, 40mm, Micro Sleeves
Ingress Protection	IP5X (Dust); IPX2 (Water) (3)
Storage Of Splice Results	5,000 Results, 100 screenshots
Drop Test	76cm on five axis

Vibration Resistance	10Hz to 500Hz with a spectral density of 0.03g2/Hz
Tension Test	2N
Fiber Display Magnification	200X
Tube Heating Mode	20 Preset / User Definable Modes Adjustable 0-240 seconds
Tube Heating Time (Typical)	18 seconds (4)
Attenuator Mode	0.1 to 15 dB
Electrode Life	5,000 Splices
Display	3.5" Color, Turn-Over LCD
Connectivity	USB
Operating Conditions	Pressure: 0 to 16,404 feet (0 to 5,000 meters) above Sea Level Wind Velocity up to 15m/s Humidity: 0 to 95%Temperature: -13 to 122°F (-25 to 50°C)
Storage Conditions	Temperature: -40 to 140°F (-40 to 60°C)
Power Supply	100 to 240V AC Adapter; Li-ion Battery (4400 mAh)
Weight	3.3lbs (1.5kg) with battery 2.6lbs (1.2kg) no battery
Dimensions (HxWxD)	4.9" x 4.9" x 5.3" (125 x 125 x 135mm)

Ordering Information:

PART NO.	CAT. NO.	DESCRIPTION
52079876	915FS	915FS Optical Fusion Splicer
52079879	915FS-KIT1	915FS Fusion Splicer & Cleaver Kit
52079878	915FS-KIT2	915FS Contractor Fusion Splicer Kit
52063415	06811	915FS FSP200 Batt
52080896	07096	Power Supply, 915FS FSP200
52064141	01335	Splice-On-Connector Adapter (SC & LC)
52066481	02401	Splice-On-Connector Adapter (ST & FC)

PART NO.	CAT. NO.	DESCRIPTION
52063414	01329	Replacement Electrodes
52064143	01332	200/250µm Adapter (Pair)
52064142	01333	900µm Adapter (Pair)
52076996	05801	Loose Tube Adapter (Pair)
52081862	07388	Universal Adapter (Pair)
52067851	03245	3mm Adapter (Pair)
55500059	NA LC	North American Line cord

OPTICAL FIBER CLEAVERS

Tempo Communications has a full suite of fiber optic cleavers including the FCL200, FCL100, 915CL and the 920CL. The FCL200 is the most capable cleaver in that it employs auto fiber end cut and auto blade return features. The 915CL has auto blade return with the 920CL providing the most economical alternative in the traditional cleaving footprint. The FCL100 is a low cost cleaver that is typically used in emergency situations or when cleaving field fibers when used in conjunction with mechanical connectors.

FCL200

Optical Fiber Cleaver

Features:

- Accurate Cleaves. Cleave multi-mode and single-mode fiber optic cables.
- Long Life. Blades rotate for longer life - over 48,000 cleaves.
- Adaptable. Supports 200um, 250um, 900um fibers, ribbon and loose tube fibers.
- Fast. For use with the 910FS, 915FS or FSP200 Optical Fusion Splicers for maximum speed and efficiency with auto return mechanism.
- Dust bin. Safely and automatically collects end cuts during the cleaving process.
- Fixed Clamp. Allows the technician to use the FCL200 as a standalone cleaver.

SCAN TO WATCH VIDEO

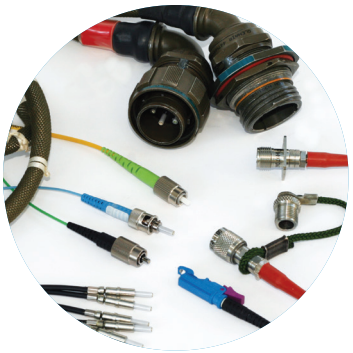
Specification:

Applicable Fibers	SM (G.652); MM (G.651); DS (G.653); NZDS (G.655); BIF (G.657)
Fiber Cleaved Length	5mm to 25mm
Cladding Diameter	125µm
Coating Diameter	0.20mm, 0.25mm and 0.9mm
Fiber Count	Single and Ribbon (12)

Cleaving Angle	< 1.5°
Blade Rotation Positions	16
Blade Life	48,000 Cleaves
Weight	0.77lbs (350g)
Dimensions	2.55 x 3.85 x 2.55" (65 x 98 x 65mm)

FIBER CONNECTIONS

Tempo Communications formerly Greenlee Communication/Rifocs has the ability within the industry combining test and measurement expertise with build-to-print high-performance/high-reliability optical termination services for both harsh environment and specialty commercial applications.



In addition to high-performance cable assemblies and pigtails, the specialty commercial services include fiber bundling, fiber polishing and termination of optical backplanes. Tempo is ISO 9001-2015 certified for highest quality assembly standards. Tempo also implemented a strict ITAR controlled program to protect customers' products and documentations.

Tempo offers an enormous range and depth in the areas of fiber optics cabling, fiber optic test and measurement instrumentation and fiber optic components. This includes both singlemode and multimode optical transmission technology.

Tempo's manufacturing experience includes fiber termination as well as connector cabling for both harsh environments and commercial applications.

Why Fiber Optics?

- Safe, secure and reliable alternative to copper wire
- No spark hazard
- Secure transmission
- RFI, EMI, and EMP immunity = total electrical isolation
- Expandable capacity = higher bandwidth
- Weight and space reductions provide significant cost savings

Military/Aerospace Applications

- Aircraft-Ground Service Communications
- Avionics Flight Cables
- Missile Control Systems
- Fighting Vehicle Radar and Communications
- Satellite System Electronics
- Fighter Avionics Upgrades
- Shipboard Data Communications, Electronic Warfare and Radar Systems
- Satellite Communications and Surveillance

Commercial Applications

- In-Flight Entertainment Systems (Commercial Airliners)
- Telecommunications Infrastructure
- Optical Switch, MUX/DEMUX Equipment in Central Office
- FTTH: Fiber to the Home Installation and Service
- Geophysical Exploration
- Laboratory Equipment and Networks
- Wind Power Generation
- Building and System Controls

FIBER CONNECTIONS

Tempo helps customers take fiber optic technology beyond the benign, protected and controlled environments of telecommunication closets and outside plant facilities.

At Tempo Communications we specialize in full custom cable assemblies. We have decades of experience building and designing some of the most complex fiber asseblies in the Military and Government Market.

Certificates:

ITAR REGISTERED

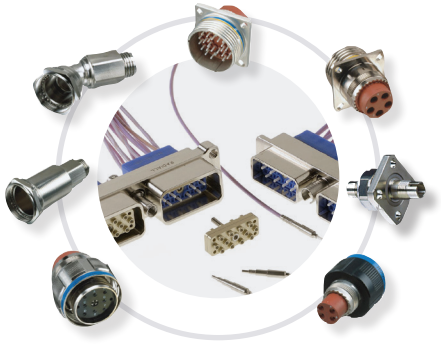
CERTIFIED ISO 9001:2015 COMPANY

REGISTERED AS9100 AEROSPACE CERTIFIED

Manufacturing and Testing of Fiber Optic Assemblies

We provide:

- Assemblies for both component and equipment manufacturers
- Final assembly of ESD-sensitive fiber optic equipment and components



Tempo Builds Lasting Alliances with our Suppliers

Through its corporate evolution, Tempo has manufactured fiber optic cables using DIAMOND actively aligned PILZ™ ferrules in their rugged AVIM connector used in many of Tempo's spaceflight applications.

During those years, Tempo has also worked very closely with military style connectors. Series III style MC3 .

Rugged Multimode and Singlemode Fiber Optic

- DIAMOND AVIM®
- TE Connectivity/DEUTSCH RSC® (Ruggedised Singleway Connector); standard and hermetically sealed.
- M38999 Series III style, such as DEUTSCHMC3®
- RADIALL LuxCis® M38999 Series III style and ARINC 600 and ARINC 801
- Mil-Std 28876 and Mil-ST
- LC, FC and SC
- Other COTS connectors

"Cradle to Grave" Capabilities

Fiber optics can be difficult to understand without proper guidance. For this reason, Tempo is involved in every project from beginning to end. Tempo is an accomplished authority in the field of fiber optics and applications in harsh environments – we know the right questions to ask and when to ask them. Our engineers work directly with each customer when developing specifications. Because of our unique team of field experts, we can suggest possibilities our customers may not be aware of – saving both time and money.

Tempo offers a broad range of fiber optic test equipment, tools and accessories. We assemble and provide the fiber optic test, troubleshooting and maintenance kits required to support your deployment and

Tempo's Fiber Connections

....is a full engineering service group that offers complete solutions to meet any customer's fiber optic needs. Our reputation in the industry is unmatched for providing highly reliable fiber optic connectors and cable assemblies for use in demanding ground, shipboard, aircraft and space applications. Together, clients and Tempo conceptualize and engineer prototypes leading to the manufacture of final assemblies.

Custom Fiber Optic Cable Assemblies

Cable assemblies may be constructed with COTS and MIL-SPEC connectors, backshells, fibers and cables. Cable assemblies may also be developed with other fiber optic components at the customer's request or with customer-furnished materials, subject to review.

- Connectors terminated at Tempo ensure low insertion loss, high return loss and optimum performance in all fiber optic systems
- Fiber bundling to allow multiple fibers into a single termini

WAVEMON

Personal **RF Safety Monitor**

ITU-T K.145
COMPLIANCE WITH ITU-T K.145

5G READY
READY FOR 5G MONITORING

OPTIONAL GPS + Altimeter
OPTIONAL FEATURES

ISO 17025 · Accredited calibration lab · ISO 17025
ISO 9001 · Quality management · ISO 9001
OPTIONAL ACCREDITED CALIBRATION

OVER EXPOSURE WARNING

Audiable, visual and vibratory alarm

EMF EXPOSIMETER

Datalogger, instant and average values

ICNIRP, 2013/35/EUF, CC, SC6, NATO

Occupational & Public Shaped Response

ISOTROPIC RMS

Electric Field Sensor

WaveMon Applications

Worker's Safety R

Telecommunications

Railway

Medical

Labs

Aeronautical

Industry

Defense

Specifications:

Sensor type	Isotropic, RMS diode technology
Response	Shaped to specific standards
Dynamic range	1 -300 %
Linearity	±0.5 dB (2%- 200%)
Isotropic deviation	±1 dB< 3 GHz(Efleld)
Interface	1 button on/off, status and low battery LED
Indicators	6 LEDs+ Audio+ Vibration
Alarm threshold	2 limits adjustable by user
Connectivity	Waterproof USB (for downloading data and recharging)
Falling detection	Yes
Autonomy	> 1 month (at 8 h/day, 5 days/week)

Data logger	> 1 000 000 events
Positioning	GPS and Altimeter (Optional)
Logging Interval	1 second to 60 minutes (adjustable by user)
Averaging Interval	1 second to 60 minutes (adjustable by user)
Battery Type	2 x AA NiMH battery rechargeable by USB
Protection	IP 54
LF inmunity (50 -60 Hz)	30 kV/m
Temperature range	-20 / +50 °C (-4 / + 122 °F) - Charging: 0 / +40 °C (+32 / + 104 °F)
Size	174x 42.5 x 33 mm (6.8 x 1.7 x 1.3 “)
Weight	190 g (6.7 oz.)

Ordering Information:

VERSIONS	RESPONSE SHAPED TO	FREQUENCY RANGE	FREQUENCY RESPONSE
WaveMon RF-60 ICN	ICNIRP98 Occupational / Public	1 MHz-60 GHz	1 MHz -10 GHz: ±3.5 dB 1 0 GHz - 35 GHz ±4 dB 35 GHz - 60 GHz:+ 10/-6 dB
WaveMon RF-60 FCC	FCC Occupational / Public	1 MHz-60 GHz	1 MHz -10 GHz: ±3.5 dB 1 0 GHz - 35 GHz ±4 dB 35 GHz - 60 GHz:+ 10/-6 dB
WaveMon RF-60 EUD	EU Directive 2013/35 Recommendation 1999/519/EC	1 MHz-60 GHz	1 MHz -10 GHz: ±3.5 dB 1 0 GHz - 35 GHz: ±4 dB 35 GHz - 60 GHz:+ 10/-6 dB
WaveMon RF-60 SC6	Safety Code 6 Occupational	10 MHz -60 GHz	10 MHz-10 GHz: ±3.5 dB 10 GHz - 35 GHz: ±4 dB 35 GHz- 60 GHz: +11/-6 dB
WaveMon RF-60 NATO	NATO standards Zone 1	1 MHz-60 GHz	1 MHz-10 GHz: ±3.5 dB 10 GHz- 35 GHz: ±5 dB 35 GHz - 60 GHz: +12/-6 dB

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TEMPO®
COMMUNICATIONS

The Tempo Communications brand is synonymous with quality, service and innovation. Our Zero Defects Policy guarantees perfection, while our customer service continues to ensure satisfaction. As the optics industry continues to evolve, Tempo customers can rest assured that we will always offer custom products that revolve around their needs and continue to support each customer with superb customer service.

www.tempocom.com

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