



# ***METROTEK***

***FOR ALL YOUR FIBER OPTIC NEEDS***

Dear Customer,

Once again we have expanded our offering to include more hard to find specialty products not found from any other single source. Please look over our new items and keep this catalog for your source reference. Remember, if we don't have it we can usually recommend a vendor.

Our Web Page has proven very useful for keeping our customers updated on our most current product listings so don't forget to look there if you can not find it in this catalog. Your comments are always welcome and you can email them to [fiberoptics@metrotek.com](mailto:fiberoptics@metrotek.com).

For those of you who know us, we will continue to provide you with the expedient service and expert technical assistance you have come to expect. For those of you that we have not yet served, give us a try, we will not disappoint you.

As always, we thank you, our customers for making this catalog possible. We look forward to being your source "For all your Fiber Optic Needs."

Sincerely, Timothy C. Gressett, President

Front cover by Lynne Taetzsch  
[www.artbylt.com](http://www.artbylt.com)

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# FIBER OPTIC TOOL KITS

## DELUXE BASIC TOOL KIT – P/N KY25D

**\$750.00**

Designed for the craftsman who requires a general purpose fiber optic tool kit. This kit contains all the necessary tools to prepare cables for splicing and connectorization. The tools are of superior quality from major manufacturers such as Clauss, Ideal, Miller, Craftsman, etc. Cleaning supplies are also included for routine maintenance. The case is made from rugged polyethylene in a high visibility "Fiber Optic Yellow".

ITEM	PART NUMBER	DESCRIPTION
1	S-4/1	Premium 4 in 1 screwdriver
2	00789-OJAC	Electrical Tape – 7 mil x 3/4" x 60 ft.
3	01598-1HGA	10ft. Metal Tape
4	FO-103-S	Miller Stripper
5	RHS/FO DW	Retractable Diamond Wedge Scribe
6	4158OLA	4 oz. Plastic Spill Proof Dispenser
7	86 1/2SF	Kevlar Shears
8	980TY	Yellow Rigid Transit Case with Tool Holder Pallet and Diced Foam
9	61180	Index Matching Gel in 5 cc Syringe
10	34155	Kimwipes
11	9-GH415	Curved Tweezers
12	9 45102	Needle Nose Pliers
13	9 45077	Diagonal Cutting Pliers
14	9 45088	"Lineman" Pliers
15	9-9487	Retractable Utility Knife
16	45-128	Ideal "Swivel Blade" Cable Stripper
17	45-162	Ideal "Jacket/Buffer" Stripper
18	3001	Permanent Marker
19	811	Optic Pads
20	705	Cotton Swabs – 100 pcs.
21	2510	Canned Air
22	NN175	No Nicks (175µm – Mustard)
23	NN254	No Nicks (254µm – Lt. Blue)
24	NN305	No Nicks (305µm – White)
25	98210LA	Safety Glasses
26	PSF22	Pocket Source

## FURUKAWA

### UNIVERSAL SPLICE KIT – P/N KY25US

**\$1,025.00**

This kit substitutes the Furukawa Pocket cleaver for the diamond scribe and the cable gel remover for index matching gel in the Deluxe Basic Tool Kit. The pocket cleaver gives finer cleaves necessary for good fusion or mechanical splicing. The cable gel remover eliminates the messy clean up when working with water blocking agents common in loose tube cables.

ITEM	PART NUMBER	DESCRIPTION
1	S-4/1	Premium 4 in 1 screwdriver
2	00789-OJAC	Electrical Tape – 7 mil x 3/4" x 60 ft.
3	01598-1HGA	10ft. Metal Tape
4	FO-103-S	Miller Stripper
5	S315	Furukawa Pocket Cleaver
6	4158OLA	4 oz. Plastic Spill Proof Dispenser
7	86 1/2SF	Kevlar Shears
8	980TY	Yellow Rigid Transit Case with Tool Holder Pallet and Diced Foam
9	HS-1	Hydra Sol Cable Gel Remover (10 Packs)
10	34155	Kimwipes
11	9-GH415	Curved Tweezers
12	9 45102	Needle Nose Pliers
13	9 45077	Diagonal Cutting Pliers
14	9 45088	"Lineman" Pliers
15	9-9487	Retractable Utility Knife
16	45-128	Ideal "Swivel Blade" Cable Stripper
17	45-162	Ideal "Jacket/Buffer" Stripper
18	3001	Permanent Marker
19	811	Optic Pads
20	705	Cotton Swabs – 100 pcs.
21	2510	Canned Air
22	NN175	No Nicks (175µm – Mustard)
23	NN254	No Nicks (254µm – Lt. Blue)
24	NN305	No Nicks (305µm – White)
25	98210LA	Safety Glasses
26	PSF22	Pocket Source

**Optional Mechanical Splices and Fusion Splice Protectors – See Page 5**



## UNIVERSAL CONNECTOR KIT

**P/N KY29UC**

**\$1,250.00**

Specific tools and supplies were added to the Deluxe Basic Tool Kit for the installation of all types of fiber optic connectors. A polishing puck corresponding to the type of connector to be terminated completes the kit. Connectors of any type are available as options as well as a 20 port oven and epoxies. See Page 3 for polishing pucks, Page 4 for epoxy oven.

ITEM	PART NUMBER	DESCRIPTION
1	S-4/1	Premium 4 in 1 screwdriver
2	00789-OJAC	Electrical Tape – 7 mil x 3/4" x 60 ft.
3	01598-1HGA	10ft. Metal Tape
4	FO-103-S	Miller Stripper
5	RHS/FO DW	Retractable Diamond Wedge Scribe
6	4158OLA	4 oz. Plastic Spill Proof Dispenser
7	86 1/2SF	Kevlar Shears
8	980TY	Yellow Rigid Transit Case with Tool Holder Pallet and Diced Foam
9	61180	Index Matching Gel in 5 cc Syringe
10	34155	Kimwipes
11	9-GH415	Curved Tweezers
12	9 45102	Needle Nose Pliers
13	9 45077	Diagonal Cutting Pliers
14	9 45088	"Lineman" Pliers
15	PK12-9025	100X Microscope for ST <sup>®</sup> /FC/SC/FDDI
16	9-9487	Retractable Utility Knife
17	45-128	Ideal "Swivel Blade" Cable Stripper
18	45-162	Ideal "Jacket/Buffer" Stripper
19	ULKIT-1	Polishing Surface & Films
20	30-489	Ideal Connector Crimp Tool
21	3001	Permanent Marker
22	811	Optic Pads
23	705	Cotton Swabs – 100 pcs.
24	2510	Canned Air
25	NN175	No Nicks (175µm – Mustard)
26	NN254	No Nicks (254µm – Lt. Blue)
27	NN305	No Nicks (305µm – White)
28	98210LA	Safety Glasses
29	PSF22	Pocket Source



**See Page 3 for polishing pucks  
See Page 4 for epoxies  
see page 7 for ovens**

## CLEANING KIT – P/N KY8C

**\$125.00**

Contains all the cleaning materials needed for any fiber optic application packaged in a rugged polyethylene high visibility "Fiber Optic Yellow" case. An optional 100X Microscope suitable for inspection of ST<sup>®</sup>/FC/SC/FDDI connectors is also available. See Page 3. Size: 14Wx13Lx4.5"H, Weight: 4 lbs.

ITEM	PART NUMBER	DESCRIPTION
1	4158OLA	4 oz. Plastic Spill Proof Dispenser.
2	34155	Kimwipes
3	811	Optic Pads – 100 pads
4	705	Texwab Cotton Swabs – 100 swabs
5	813	Wetswabs – 25 swabs
6	2510	Canned Air
7	Action	Carrying Case

## CUSTOM/OEM

We can customize any of our kits to conform to your exact requirements. We are not limited to providing tools. Our capabilities include Demo Kits with active or passive components and systems.

# TOOLS

## HIGH LEVERAGE

### KEVLAR SHEARS – P/N 86 1/2SF

**\$30.00**

With a non-slip serrated blade, the Clauss 86 1/2S provides the perfect solution for trimming Kevlar. It has hot-forged high carbon steel for long life and quick action spring response so the tool is ready when you are. And its high leverage design provides powerful cutting action. The handles have cushioned grips.



### PREMIERMASTER™ FIBER-OPTIC CRIMP TOOL

**P/N 30-489**

**\$55.00**

This crimp tool offers the most accurate crimp compression to meet all your crimp requirements along with the maximum comfort of use. Complete with Hex die (0.151, 0.178, 0.213 in.) for most all fiber optic connectors. Call for other die sizes.

## YORK PRECISION FIBER OPTIC CLEAVERS

The York FK Series employs ultrasonic technology to consistently provide precise cleaves.

The FK11 and the FK11-4 will reliably deliver end angles of (0.5° for fibers between 80-200µm diameter). Both models can clamp down on bare fibers as well as buffer coatings up to 900µm. The Cleavers differ only by the range of cleave lengths possible. The FK11 left clamp is located 7mm from the diamond tipped horn while the FK11-4 left clamp is 19mm.

The FK11-LDF or "Fat Fiber" cleaver for special fibers can be adjusted for fibers between 180-400µm. End angle is typically 1.5°, depending on the fiber.

The FK12 is for cleaving bare fibers of 125µm diameter when angled cleaves are required. It is adjustable between 0 to 15° with excellent repeatability of +/-1° @ 8°. Angled cleaves yield low return losses of -60dB or less.

COMMON SPECIFICATIONS	DESCRIPTION	PART NUMBER	PRICE
Battery:	9v Alkaline	FK11	9-903-2544
Battery life:	>10,000 cleaves	FK11-4	9-903-3359
		FK11-LDF	9-903-3613
Estim. blade life:	>20,000 cleaves (replaceable)	FK12	9-903-6118
Weight:	1.1 kg (2.3 lbs.)		
Dimensions:	150mm x 150mm x 68mm (6" x 6" x 2.75")		



## FURUKAWA FO RIBBON CLEAVER

This Cleaver has a unique collection chamber that automatically deposits waste fibers providing safe and secure disposal. It will cleave 125µm single fibers with 250µm and 900µm coatings with 16mm fixed length and an adjustable 3 - 20mm scaled length (Type A). Type B has the same adjustable feature with a 10mm fixed length.

Optional fiber holders are available for 12, 8, 6, 4 or 2 fiber ribbon with 10mm fixed length cleaves for 300 - 400µm thick ribbons. Blade life is 24,000 cleaves. Another unique feature is the blade locks in place after scoring and the release mechanism automatically snaps the fiber and provides constantly good cleaves.

PART NUMBER	DESCRIPTION	PRICE
S323A	16mm Fixed and Adjustable	\$1,375.00
S323B	10mm Fixed and Adjustable	\$1,375.00
S706A-012	Optional 12 Fiber Ribbon Holder	\$ 690.00
S706A-008	Optional 8 Fiber Ribbon Holder	\$ 690.00
S706A-006	Optional 6 Fiber Ribbon Holder	\$ 690.00
S706A-004	Optional 4 Fiber Ribbon Holder	\$ 690.00
S706A-002	Optional 2 Fiber Ribbon Holder	\$ 690.00

[www.metrotek.com/S323.htm](http://www.metrotek.com/S323.htm)



## RETRACTABLE TIP FIBER OPTIC SCRIBES

Quality fiber optic scribes mounted on a protective retractable barrel with pocket clip and a stainless steel mounted diamond or sapphire tip. The diamond offers your choice of conical or wedge while the sapphire is a wide wedge. These scribes are specially made for the "scratch and pull" technique of cleaving optical fibers.

PART NUMBER	DESCRIPTION	PRICE
RHS/FO DC	60° Cone Angle-Diamond Tip	\$ 50.00
RHS/FO DW	90° Wedge-Diamond Tip	\$ 75.00

## LOW COST RUBY SCRIBE

This inexpensive ruby scribe has a 30° degree chisel point blade for precise cleaves. The wide blade width of 1/4" is preferred by many for its ease of use. The blade is also dual ended allowing for twice as many cleaves as similar instruments. Simply turn the blade around for a new edge. The scribe is protected in a pen type holder with screw off top. Replacement blades are available and easy to install.



PART NUMBER	DESCRIPTION	PRICE
RRPS30	Ruby Scribe with Dual Edge Blade	\$50.00
RRPS30B	Dual Edge Replacement Blade	\$40.00



## FURUKAWA POCKET CLEAVER

**P/N S315**

**\$210.00**

The Fitel Fiber Cleaver is a sturdy unit for use in both laboratory and field service work. This cleaver typically gives 98% of the cleaves within a cutting angle of less than 2°. The ceramic blade gives hundreds of excellent cleaves. Excellent value vs. performance.

## UNIVERSAL FIBER OPTIC CLEAVING TOOL

The universal cleaving tool is designed for single and multi-mode fiber with standard diameters without operator adjustments of any kind. Tool package includes bench mounting clamp, hand carrying strap and protective case.

### DESIGN CHARACTERISTICS

- Single-mode precision • Fast, in-field terminations • Eliminates polishing
- No special training required • Eliminates tedious microscopic fiber inspection
- Delivers over 3000 reliable cleaves • Typical end angle <1 for 85% of all cleaves

PART NUMBER	PRICE
92208TB for 125µm	\$550.00

**Thomas & Betts**



## SUMITOMO FIBER OPTIC CLEAVER

**\$1,550.00**

This Cleaver typically provides cleaves of 0.5° or less and can leave 125µm bare fibers with 250-900µm coatings and ribbon fibers up to 12 fibers with 250µm coating. The blade is easy to replace and provides up to 36,000 cleaves!

MODEL	COATED FIBER	CLEAVE LENGTH
FC-6M	250µm	9 -16mm
	900µm	10 -16mm
	Ribbon	10mm

[www.metrotek.com/fcp\\_221.htm](http://www.metrotek.com/fcp_221.htm)

## ALCOA FUJIKURA FIBER OPTIC CLEAVER

This most popular palm size cleaver can cleave 900µm buffered fiber as well as 250µm coated fiber in increments ranging from 10-20mm for 900µm and 6-20mm for 250µm. Scribe Blade is rated at 48,000 cleaves.

MODEL	PART NUMBER	PRICE
CT-20-12	S012740	\$1,800.00

[www.metrotek.com/af-clvr.htm](http://www.metrotek.com/af-clvr.htm)



## WESTOVER FIBER MICROSCOPE

**\$230.00**

- High magnification, Low Price
- Laser Safety Filters
- White LED Illumination provides 100,000 hour bulb life
- Battery Powered (3 AAA type)

The Westover "C series" microscopes deliver the best overall value vs. performance for fiber inspection today. These instruments incorporate high magnification with your choice of 200x, 320x or 400x. A white LED with laser safety filters provides coaxial illumination which is necessary to inspect the newer MT and MR-RJ style connectors. Comes complete with Universal 2.5mm ferrule adaptor.

PART#	TYPE
FM-C200	200x Microscope with Coaxial Illumination (most popular)
FM-C320	320x Microscope with Coaxial Illumination
FM-C400	400x Microscope with Coaxial Illumination (singlemode)

ADAPTORS PART#	TYPE	PRICE
FMA-UAPC	Universal 2.5mm angled PC adaptor	\$ 75.00
FMA-ST	ST adaptor	\$ 55.00
FMA-SC	SC adaptor	\$ 75.00
FMA-FCPC	FC adaptor	\$ 60.00
FMA-SMA	SMA adaptor	\$ 50.00
FMA-BF1	Bare Fiber Adaptor	\$270.00

Call for other adaptor types.

[www.metrotek.com/200\\_400x.htm](http://www.metrotek.com/200_400x.htm)

# TOOLS

## POLISHING PUCKS

STYLE	DESCRIPTION	PART NUMBER	PRICE
ST	Metrotek's own metal ST puck. Bayonet mount receptacle eliminates guess work from "floating" type pucks.	STPUCK	\$ 75.00
SMA	Metal SMA features threaded receptacle for both 905 and 906 style connectors.	927-1020	\$150.00
FC/SC	Metal "floating" type puck for use with FC or SC type connectors	C10112	\$ 50.00

## COMBINATION JACKET/FIBER STRIPPER

### P/N CFS-2 \$41.00

Two tools in one! 0.078" hole at tip strips away 3mm & 2.5mm cable jacket. 0.0055" hole and V-opening in blade removes 250µm buffer coating from 125µm fibers. Both are pre-set at factory to assure clean, smooth strips. No adjustments needed and will not scratch or nick glass. Ergonomic handles with comfort-grip are lockable to hold tool closed when not in use.



## MILLER STRIPPER

### P/N FO-103-S \$34.00

The Miller Tool has a 0.005" laser drilled hole with super-accurate hardened stripping jaws. All cutting surfaces are hardened and precision-formed ground, ensuring smooth, clean, stripping action. Soft Plastic-

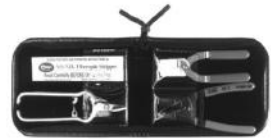
Colored Handle Grips. Recommended for stripping 250µm coated fiber.



## T-TYPE CABLE JACKET STRIPPER/ CUTTER PLIER NOSE AT TIP

### P/N 821 AWG 16-26 \$15.50

• Strips and cuts common Cable Jacket sizes • Cushion grips • Plier nose • Spring action



## NO-NIK® FIBER OPTIC STRIPPER KIT P/N NN175 KIT \$110.00

Three-piece kit containing Kevlar Shears, Stripper for 125µm (mustard), & T-Type Stripper. (Kit Shown)

### P/N NN30 KIT \$130.00

Three-piece kit containing NN175, NN254, NN305 with vinyl case.

All Individual Fiber Optic Strippers \$ 42.00

Part Number	Minimum Cutting Dia. microns (µm)	Minimum Cutting Dia. (inches)	Handle Color
NN175	175	.007	Mustard
NN203	203	.008	Red
NN254	254	.010	Light blue
NN305	305	.012	White



## CONNECTOR INSPECTION SCOPE

The Noyes optical scope is designed to inspect installed MM or SM connectors using 200X magnification with Schott KG3 Infrared Safety Filter. Comes complete with a universal 2.5mm adaptor for ST, FC, and SC connectors, two AA batteries, a convenient protective holster, and instruction manual. The alkaline batteries are good for 60 hours of continuous operation. Other adaptor types are optional and not all are shown – CALL OR SEE OUR WEB PAGE.



## ORDERING INFORMATION

PART NUMBER	DESCRIPTION	PRICE
OFS 300-200C	200X Scope	\$450.00
2900-10-0001	Tripod Stand	\$ 60.00
8800-00-0224	1.25mm Universal Adaptor	\$ 60.00
8800-00-0200	FC Adaptor	\$ 60.00
8800-00-0209	SC Adaptor	\$ 60.00
8800-00-0202	ST Adaptor	\$ 60.00
8800-00-0203	SMA Adaptor	\$ 60.00
8800-00-0218	Angled FC Adaptor	\$ 85.00
8800-00-0220	Angled SC Adaptor	\$ 85.00

[www.metrotek.com/noyes\\_200c.htm](http://www.metrotek.com/noyes_200c.htm)

## THERMAL FIBER STRIPPER

Furukawa S218A thermal stripper can strip off 23 - 35mm of 250 to 400µm coatings from single fibers and ribbon (2-12) fibers from 300 to 400µm thick. Powered from 100 to 240 VAC 50/60Hz AC adaptor, or 12Vdc, or lithium battery, it takes only 10-30 seconds to heat up with a ready indicator. The battery takes only 1 hr to fully charge and can run the stripper continuously for 8 hrs/charge. The stripper comes complete with all accessories including the Battery, Battery Charger, DC Adaptor, and AC Adaptor but EXCEPT the Fiber Holder. Extra batteries and holders for single as well as ribbon fibers are optional. You **MUST** also purchase an appropriate Fiber Holder.



PART NUMBER	DESCRIPTION	PRICE
S218A	Thermal Stripper	\$1,500.00
S706S-025	Single Fiber Holder	\$ 680.00
S706A-012	12 Fiber Ribbon Holder	\$ 680.00
S706A-008	8 Fiber Ribbon Holder	\$ 680.00
S706A-004	4 Fiber Ribbon Holder	\$ 680.00
S706A-002	2 Fiber Ribbon Holder	\$ 680.00
S941	Optional Extra Battery	\$ 115.00

[www.metrotek.com/S218.htm](http://www.metrotek.com/S218.htm)

## 100X MICROSCOPE FOR BARE FIBER AND CONNECTOR INSPECTION

### P/N PK12-9025 \$125.00

Multiple function 100X microscope can inspect ST/SC/FC connectors with a single standard adaptor. This adaptor is interchangeable with the scopes standard head assembly for traditional straight on viewing and an "offset" head assembly. The "offset" head assembly is unique in that it gives the viewer an effective 200X/400X display of inclusions for flat or PC polished connectors while preserving the 100X resolution. In addition you can also use this head assembly for Angled Polished connectors. Simply rotate the angled connector until the image appears flat. A bonus feature of this

microscope is it's 8X slide out loupe! The microscope, adaptor, and both head assemblies come complete under this part number. Order the optional SMA, D4 and Bare Fiber adaptors separately for the ultimate in versatility.

OPTIONS	PART NUMBER	PRICE
SMA Adaptor	9025SMA	\$45.00
D4 Adaptor	9025D4	\$45.00
Bare Fiber Adaptor	B9025BF	\$35.00

### Shown with 10° offset base

- Unique 8x built in loop • FC/ST/SC FDDI Adaptor Standard
- Optional D4, SMA & Bare Fiber Adaptors • 100x
- Works with Ambient Light • Internal Reflected Light Source
- Choice of Flat or 10° Offset Viewing Plain Base

## FIBER-OPTIC STRIPPING KIT

### P/N 698-STK-100 \$250.00

Complete set removes 3mm and 2.5mm jacket as well as 900, 500, and 250µm buffer/coating allowing stripping to the bare fiber. Preferred by many users due to the unique design that assures stripping force normal to the fiber axis.



## CABLE JACKET/ BUFFER TUBE STRIPPER

### P/N 45-162 \$20.00

Stripper can cut jacket/buffer tubes up to 1/8 in. diameter either vertically or horizontally.

Replacement Blades (3)

### P/N L-9225 \$ 6.00

## SWIVEL-BLADE® CABLE STRIPPERS

Used for stripping of cables from 1/4" through 1-1/2" O.D. Strips insulation up to 5/32" thick including PVC, rubber, Neoprene, Teflon, polyethylene, Nylon, Kapton, fiberglass, fabric and others.

DESCRIPTION	PART NUMBER	PRICE
Cable Stripper For 1/4" to 3/4" O.D.	45-128	\$25.00
Cable Stripper For 3/4" to 1-1/2" O.D.	45-129	\$30.00
Replacement Slitting Blade (Pkg. of 2)	L-7486	\$10.00



# SUPPLIES



## EPOXY FOR CONNECTORS (PER PACK)

**\$4.50**

AngstromBond mixing dispensers are pre-measured assuring a proper mix ratio. Simply remove the separating clamp and knead the two parts together. Select the Part Number that most suits your application for cure time and pot life. The 2.5 gram Bi-Pack contains enough epoxy for approximately 50-60 connectors.

PART NUMBER	POT LIFE	ROOM CURE TIME	HEAT CURE TIME	HEAT CURE TEMP
AB9113SC-2.5G	20 min.	18 hrs.	15 min.	100°C
AB9123-2.5G	4 hrs.	—	5 min.	100°C

## HYDRA SOL® CABLE GEL REMOVER

For the removal of cable filling greases. Safe, effective, water-based cleaner.

SIZE	PART NUMBER	PRICE
Towellette	HS-1	\$ 2.00
1 gal. Can	HS-128	\$50.00

HydraSol is a registered trademark of Poly-water Corp., as is the name Polywater.

**P/N HS-1**



## INDEX MATCHING GEL

An optical couplant for reducing back reflections and dB loss in mechanical splices, connectors, etc. It has an index of refraction of 1.46.

5cc Syringe

4 oz. Tube



**P/N 61180**

**\$25.00**

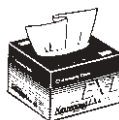
**P/N V-78840ZK**

**\$125.00**

## KIM WIPES – P/N 34155

**\$3.25**

Lint-free paper wipes for use with cleaning solvents to clean fibers, connectors, etc. 280 wipes/box



## OPTICPAD®

**P/N 811**

**\$20.00**

OpticPad® is a fine grade lens tissue pre-moistened with isopropyl alcohol. Ideal for cleaning optical fibers and connector end faces. 100 pads/box



## COTTON SWAB

**P/N 705**

**\$2.50**

Cotton Swab comes with a 100% cotton head adhesively bonded on a six inch wooden handle. 100/bag



## SYRINGES

Becton Dickinson syringes are NON-STERILE and come with BLUNT needle applicators for industrial purposes ONLY. They are ideal for

applying epoxy or other viscous materials to small parts such as connector ferrules.

PART NUMBER	DESCRIPTION	PRICE/EACH
BD-5	5cc syringe with 18 gauge needle	\$1.25
BD-3	3cc syringe with 20 gauge needle	\$1.00



## PORTABLE PUMP FLUID DISPENSER

With SS Cap and Hi-density Polyurethane 6 oz. container. Once pumped, fluid remains in bowl to prevent contamination. Pump locks to prevent spilling. Low cost 4 oz. all plastic squeeze bottle, nipple type is spill proof. (not shown).

PART NUMBER	PRICE
35805	\$20.00
41580LA	\$ 2.50



## SATWIPES

**P/N SWC30063T/12**

**\$50.00**

Satwipes are pre-saturated 100% Isopropyl Alcohol wipers in a resealable tub. These wipers are lint free and Class 100 Clean Room rated. Each tub contains 185 wipes.

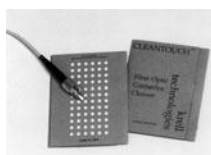


## CLEANTOUCH

**P/N CT-50**

**\$195.00/BOX**

Cleantouch is a complete one step cleaning operation requiring no solvents. Perfect for connectors or bare fibers and simple to use. Just press the end to be cleaned into an individual "Clean Port" containing special adhesive film which removes all contaminants. There are 72 "Clean Ports" per card. Sold 50 cards/box making this a most economical way to remove dust and dirt from



fiber end surfaces. Convenient too! Card is slightly larger than a normal size business card so it fits in your pocket.

## WETSWAB®

**P/N 813**

**\$20.00**

Wetswab™ is a pre-moistened foam swab with 91% isopropyl alcohol solvent sealed in a foil pack. 25 swabs/box.



## ACCU-DUSTER® III 100% OZONE SAFE!

**P/N 2510**

**\$10.00**

Accu-Duster® III non-refillable 10 oz. canned air with plastic extension.



## CONNECTOR CLEANER P/N 14100500

**\$125.00**

CLETOP REEL-TYPE A – The Reel-Type CLETOP cleans ferrule endfaces quickly and easily, without alcohol, liquids, or gases. Designed so that all operators achieve a consistent, high quality standard of cleaning. Call for quantity discounts over 100 units.

### SPECIFICATIONS

**Life time:** Over 400 wipes/reel **Size:** 150 x 80 x 40mm

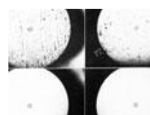
**Weight:** Below 0.3kg **Type:** For All FO Connectors except MT or Biconic

**Components:** Winder, Guide, Reel, Cleaning Cloth, Lever, Rubber, etc.

## REPLACEMENT REELS – 14100700 \$55.00

Oil Contamination Dust Contamination

Before



After

A ferrule endface shown "before" and "after" use of CLETOP cleaners. Call for quantity discounts over 250 units.



PART NUMBER	DESCRIPTION	QUANTITY	PRICE
14100400P	2.5mm Sticks (5/Pack)	1-39 Packs	\$7.25/Pack
14100400	2.5mm Sticks (200/Box)	1-9 Boxes	\$170.00/Box
		10-Up Boxes	\$145.00/Box
14100401	1.5mm Sticks (200/Box)	1-9 Boxes	\$170.00/Box
		10-Up Boxes	\$145.00/Box

CLETOP STICK-TYPE: The Stick-Type CLETOP cleaner applies the same dry polyester film as used in the Reel-Type, and is used to clean connector ferrule endfaces in such difficult to reach spots as the inside of adaptors. Sold 5 sticks per pack.

### SPECIFICATIONS

**Number of Wipes:** Equipment Construction, 4 uses/piece (max), Maintenance (Repair), 1 use/piece

**Size:** 130 x 02mm

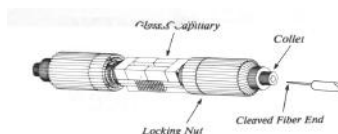
**Components:** Core, Elastic Material, Fine Fiber Cloth

# SPLICES & SPLICE ACCESSORIES

## ACA ULTRASPLICE®

Is a high performance, low cost, easy to install, fully mechanical Fiber Optic Splice. It employs a glass capillary alignment member, preloaded with index matching gel.

"As Easy On Fibers As A Wirenut Is On Wires!"



DESCRIPTION	PART NUMBER	PRICE
SM	US-126	\$12.55
MM 125µm	US-128	\$12.55
MM 140µm	US-140	\$17.00*
MM 160µm	US-160	\$17.00*
MM 250µm	US-250	\$17.00*
MM 440µm	US-440	\$17.00*
MM 500µm	US-500	\$17.00*

### SPECIFICATIONS

**Outside Dimensions:** L: 40 mm Dia: (max.) 5.7 mm

**Average Splicing Loss:** Less than 0.2 dB

**Back Reflection (return loss):** -50 dB

**Coating (buffer sizes):** 250 micron to 1 mm. in any combination

**Installation Time:** 30 to 45 seconds **Temperature Range:** -40° to +80° C

**Fiber Retention:** Greater Than 1,250 Grams

\*Limited Quantities

### FEATURES

- No Fixtures or special tools required
- Uncovered Glass Capillary allows visual inspection of proper Fiber location
- Can be used in any combination of buffer sizes • It is Tunable and Reusable.
- All parts are made and assembled in the United States of America
- Has a glass reinforced LCP (Liquid Crystal Polymer) plastic housing.

## FUSION SPLICE RE-COATING SYSTEM



The Optotek re-coating system is a unique method of providing mechanical protection for a fusion splice AND environmental protection to Multimode or Singlemode bare fibers. This is accomplished by inserting a sleeve (FIBERCOAT SLEEVE) over the bare fiber prior to fusion in the same manner one would use for a standard fusion splice protector. After the splice the sleeve is positioned over the

splice junction and a resin compound is pumped into the sleeve. When the resin is cured with a UV light source, the fiber integrity is the same as acrolate coated fiber that has not been spliced. The advantage to this is an environmentally sealed fiber splice that will outperform normal fusion or mechanical splicing methods. The system comes complete with all the tools and accessories required including the Re-Coating Resin in a hard carrying case. The consumable FIBERCOAT® Sleeves are purchased separately in packs of 100 pieces and are available in standard lengths and fiber sizes as well as custom.

### ORDERING INFORMATION

#### FIBERCOAT TOOL KIT

#### FIBERCOAT TOOL

30mm Sleeve for 250/250µm

45mm Sleeve for 250/250µm

30mm Sleeve for 250/900µm

45mm Sleeve for 250/900µm

45mm Sleeve for 900/900mm

2oz Re-Coating Resin

Replacement Tips

FIBERCOAT is a registered trademark of Optotek.

PART NUMBER	PRICE
FC-Kit	\$3,425.00
9634320	\$1,725.00
FC-25030	\$ 85.00
FC-25045	\$ 95.00
FC-90030	\$ 165.00
FC-90045	\$ 195.00
3540600	\$ 85.00
DFC-950-200	\$ 300.00
R-TIPS	\$ 34.75

## SPLICE HOLDERS

Convenient way to hold mechanical, ribbon splices, or heat shrinkable fusion splice protectors, temporarily or permanently.

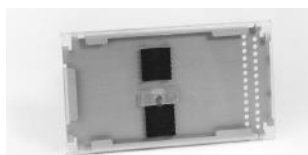
PART NUMBER	DESCRIPTION	PRICE
HLDR-12	Mechanical – 12 Fibers	\$ 5.00
FSH-HS-06	Heat Shrink – 6 Fibers	\$ 5.00
USC-AT-HSR	Ribbon – 6 Position	\$10.00

## FIBER OPTIC SPLICE TRAYS

The Fiber Management Splice Trays have been designed and engineered to provide rugged, complete fiber splice protection for all cable and fiber designs.

Built to interface with all standard 6-inch or larger outside plant splice closures, the Fiber Management tray organizer combination has been carefully engineered to provide minimum bend radius for 850, 1300, or 1550 nanometer wavelengths.

The Fiber Management Splice Trays offer all the features and flexibility desired by the fiber splicer of today.



### FEATURES

- Designed for single-mode and multi-mode fiber
- Sturdy aluminum tray base
- Clear Lexan top for direct viewing after splicing (metal tray lids also available)
- Three different attachment devices to interface with any cable design
- Adequate bend radius for operation at 1550nm
- Designed to handle 900 Micron coated fibers (tight-buffered) or 250 Micron coated fibers
- Handles twelve individual fiber splices

### Mini Tray

P/N	DESCRIPTION	PRICE
UST-1000	Standard tray with bare fusion splice holder	\$25.00
UST-3000	Standard tray with mechanical splice holder	\$25.00
UST-4000	Standard tray with heat shrink fusion splice protector holder	\$25.00
UST-4000-C	Same as UST-4000 except holders mounted on a slant	\$30.00
UST-1010	Mini tray with bare fusion splice holder	\$35.00
UST-3010	Mini tray with mechanical splice holder	\$35.00
UST-4010	Mini tray with heat shrink fusion splice protector holder	\$35.00

## FUSION SPLICE PROTECTORS "ULTRASLEEVE"



P/N FS-40	\$40.00
P/N FS-60	\$45.00

Provides fusion splice protection that does not require heat shrinking. This unequaled product can accept single fused fibers with 250-900µm buffers and up to 4 fiber ribbon cable. The plastic housing locks the fiber in place between two strips of closed cell tape. The tape provides superior environmental long term protection on the fused fiber. Available in 40 or 60 mm lengths. Sold in packs of 25.

## FUSION SPLICE PROTECTORS



P/N FSS-SC60	\$30.00
P/N FSS-SC40	\$30.00
P/N MFSS-SP40 (RIBBON)	\$50.00

Metrotek's own heat shrinkable fusion splice protector sleeve features polished Stainless Steel rods and square cut ends. We invite you to compare our quality to any competitor! Standard sleeves are 40mm or 60mm long and come packaged with 50 sleeves per pack. Other lengths available upon request. Ribbon splice protector sleeves are 40mm long with 25/pack.



**Fusion Splicers – See Page 20 & 21**

**Quantity Discounts Available on most products – Call For Quote**



# FIELD INSTALLABLE CONNECTORS

Connectors and Adaptors are sold on a quantity basis. Prices shown will be discounted depending on quantity purchased. We welcome OEM and User accounts. Please call for quantity prices or other part numbers not listed, including special Ferrule Hole sizes.



Biconic Connector



FC-FC/APC Connector



FC-FC/APC Bulkhead Adaptor Square Mount



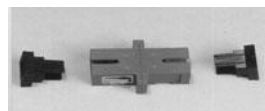
FC-FC/APC Bulkhead Adaptor "D" Mount



LC Connector



SC-SC/APC Connector



SC-SC/APC Adaptor



ST®-ST®11 Connector



ST® Adaptor



SMA Connector



SMA Adaptor

BICONIC	MFG	FERRULE	BODY	TYPE	PRICE
A5-C-X-N-3	Optotec	Epoxy	Plastic	SM	\$48.00

FC CONNECTORS	MFG	FERRULE	BODY	TYPE	PRICE
<sup>1</sup> SZ-3A1412600	Seiko	Zirconia Pre-Dome	SELECT	SM	\$ 5.40
<sup>2</sup> SAP-11312400	Seiko	SELECT	Ni Plated Brass	SM	\$ 4.70
<sup>2</sup> SAP-41103100	Seiko	SELECT	Ni Plated Brass	SM (900um)	\$ 5.20
SAP-8ZM6503	Seiko	Zirconia Pre-Dome	One Piece Metal	SM	\$12.40

FC/APC CONNECTORS	MFG	FERRULE	BODY	TYPE	PRICE
<sup>1</sup> SNZ-1A1412600	Seiko	Zirconia Flat	Select	SM	\$ 5.40
<sup>1</sup> SNZ-3A1412600	Seiko	Zirconia Pre-Angled	Select	SM	\$ 6.20
<sup>2</sup> SNP-283081J1	Seiko	Select	Ni Plated Brass	SM	\$ 8.20
<sup>2</sup> SNP-588031J1	Seiko	Select	Ni Plated Brass	SM (900um)	\$ 8.20
SNP-887126181J1	Seiko	Zirconia Pre-Angled	One Piece Metal	SM	\$13.60

FC ADAPTORS	MFG	STYLE	SLEEVE	PRICE
SAA-112200	Seiko	Bulkhead, Square Mt.	PhB	\$ 6.20
SAA-122100	Seiko	Bulkhead, Square Mt.	Zr	\$ 9.00
SAA-312200	Seiko	"D" Mount	PhB	\$ 8.80
SAA-322100	Seiko	"D" Mount	Zr	\$10.80

FC/APC ADAPTORS	MFG	STYLE	PRICE
SNA-1224J0	Seiko	Bulkhead, Square Mt.	\$10.40
SNA-3224J0	Seiko	Bulkhead, "D" Mount	\$12.40

LC CONNECTORS	MFG	FERRULE	BODY	TYPE	PRICE
LCZ-1A14126800	Seiko	Zirconia	SELECT	SM	\$ 6.80
SLC-C2320C300	Seiko	SELECT	Plastic	SM (2.0mm)	\$ 5.20
SLC-1310C300	Seiko	SELECT	Plastic	SM (900um)	\$ 4.20

LC ADAPTOR	MFG	BODY	SLEEVE	PRICE
999-111	Senko	Plastic	Zr	\$ 9.50

SC CONNECTORS	MFG	FERRULE	BODY	TYPE	PRICE
<sup>1</sup> SZ-3A1412600	Seiko	Zr Predome	SELECT	SM	\$ 5.40
<sup>2</sup> SSC-P35314201	Seiko	SELECT	Plastic	SM/MM	\$ 4.00
<sup>2</sup> SSC-P151142101	Seiko	SELECT	Plastic	SM/MM (900um)	\$ 4.00
SSC-PEZM6503	Seiko	Zr Pre-Dome	One Piece Plastic	SM	\$11.80

SC/APC CONNECTORS	MFG	FERRULE	BODY	TYPE	PRICE
<sup>1</sup> SNZ-1A1412600	Seiko	Zr Flat	SELECT	SM	\$ 5.40
<sup>1</sup> SNZ-3A1412600	Seiko	Zr Pre-Angled	SELECT	SM	\$ 6.20
<sup>2</sup> SSC-PN38718201	Seiko	SELECT	Plastic	SM	\$ 4.00
<sup>2</sup> SSC-PN181182101	Seiko	SELECT	Plastic	SM (900um)	\$ 4.00
SSC-PNE87126181	Seiko	Zr Pre-Angled	One Piece Plastic	SM	\$13.80

<sup>1</sup> Must order body separately    <sup>2</sup> Must order ferrule separately

SC ADAPTORS	MFG	STYLE	PRICE
SSC-A112390	Seiko	SM & MM Plastic, Phb Sleeve	\$ 6.60
SSC-A122390	Seiko	SM & MM Plastic, Zr Sleeve	\$ 8.60

SC/APC ADAPTOR	MFG	STYLE	PRICE
SSC-AN122390	Seiko	SM APC, Zr Sleeve	\$ 8.60

ST® CONNECTORS	MFG	FERRULE	BODY	TYPE	PRICE
SLP-18212610100	Seiko	Zr Pre-Dome	Metal ST®II	SM	\$11.25
SLP-27012710320	Seiko	Zr Pre-Dome	Metal ST®II	MM	\$ 7.20

Larger hole sizes available – CALL!

ST® ADAPTORS	MFG	STYLE	PRICE
SLA-211500	Seiko	SM & MM Metal, PhB	\$ 6.20
SLA-221500	Seiko	SM & MM Metal, Zr	\$ 7.40

SMA CONNECTORS	MFG	FERRULE	BODY	TYPE	PRICE
905-150-5001	Amphenol	128µm	Stainless Steel	905	\$ 8.75
905-150-5002	Amphenol	144µm	Stainless Steel	905	\$ 8.75
906-122-5004	Amphenol	128µm	Stainless Steel	906	\$12.25
906-122-5000	Amphenol	144µm	Stainless Steel	906	\$14.00

Larger hole sizes available – CALL!

SMA ADAPTORS	MFG	STYLE	PRICE
905-120-5000	Amphenol	905/906 Bulkhead	\$ 5.75

# CONNECTOR ACCESSORIES



sizes: 125µm (red), 126µm (blue), 127µm (white), 128µm (clear). Each packaged in its own protective vial which stores conveniently in a leather case to complete the kit. **Call for other sizes.**

## CONNECTOR FERRULE GAUGES KIT – P/N F-JD \$450.00

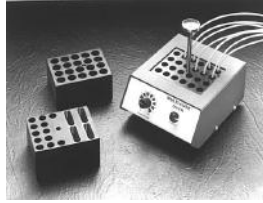
Check Ferrule hole size to within +0, -0.25µm accuracy. A must for every lab or connector assembly facility. Kit contains four most popular

## FIBER OPTIC CURING OVEN \$325.00

- Adjustable from 60°C to 125°C
- Temperature controlled to within 0.5°C
- Model 9452 draws 0.83A at 120 VAC, 60 HZ
- Model 9461 or 9462 draws 0.41A at 240 VAC, 50 HZ

### ORDERING INFORMATION

P/N	PRICE	DESCRIPTION
9551	\$325.00	120 VAC heater with 24 connector fixture – FC, ST*, D4, SMA, SC
9561	\$325.00	240 VAC heater with 24 connector fixture – FC, ST*, D4, SMA, SC
9552	\$325.00	120 VAC heater with 20 connector fixture – Biconic
9562	\$325.00	240 VAC heater with 20 connector fixture – Biconic.
9050	\$100.00	24 connector fixture – FC, ST*, D4, SMA, SC
9060	\$100.00	20 connector fixture – Biconic.
9070	\$200.00	Connector Fixture – FDDI (4), ST* (8).



## CONNECTOR POLISHING KIT P/N ULKIT-1

The Metrotek Polishing Kit is ideal for field or lab use. Kit comes complete with Lexon base, 100 sheets each of 3" x 6" 5.0, 1.0, and 0.3µm lapping film, and 4 packs of P/N AB9113SC-2.5G epoxy. Other films and epoxy can be substituted – **See page 4.**

PART NUMBER	DESCRIPTION	PRICE
ULKIT-1	Polishing Platform, Film & Epoxy	\$150.00



## POLISHING FILMS 3" x 6" SHEETS \$30.00

For best results when polishing Single Mode connectors, Metrotek recommends using three particle sizes in sequence from start to finish. The most popular combination in Aluminum Oxide is 5.0, 1.0, and 0.3µm. All films offered are 3 mill thick without PSA (except 0.3µm which is 2 mill thick), and are packaged 100 sheets/pack.

GRIT SIZE (µm)	PART NUMBER
0.3	CA-03-F-36-2N-100
0.5	AO-05-F-36-3N-100
1.0	AO-1-T-36-3N-100
3.0	AO-3-T-36-3N-100
5.0	AO-5-T-36-3N-100
9.0	AO-9-F-36-3N-100
12.0	AO-12-F-36-3N-100

## HYBRID ADAPTORS



**NOTE: -3 is No Flange, -1 is FC Square Flange, & -7 is ST\* D Mount Type Flange**

BULKHEAD STYLE SM/MM		
FEMALE TO FEMALE	PART NUMBER	PRICE
ST*/SMA 905	88-GN-7	\$30.00
FC/ST*	88-FJ-3	\$30.00
SMA 906/FC	88-AE-3	\$35.00
FC/SC	88-FY-1	\$40.00
ST*/SC	88-JY-1	\$40.00
FC/ST*	88-FJ-7	\$35.00
SMA 906/ST*	88-AG-7	\$40.00



PLUG STYLE SM		
MALE TO FEMALE	PART NUMBER	PRICE
FC(M)/SC(F)	71-S8-PT	\$75.00
FC(M)/ST*(F)	71-S8-PR	\$75.00
ST*(M)/FC(F)	71-S8-RP	\$75.00
ST*(M)/SC(F)	71-S8-RT	\$85.00
SC(M)/ST*(F)	71-S8-TR	\$75.00
SC(M)/FC(F)	71-S8-TP	\$75.00

PLUG STYLE MULTIMODE		
MALE TO FEMALE	PART NUMBER	PRICE
FC(M)/SC(F)	71-M6-EZ	\$75.00
FC(M)/ST*(F)	71-M6-EG	\$75.00
ST*(M)/FC(F)	71-M6-GE	\$75.00
ST*(M)/SC(F)	71-M6-GZ	\$85.00
SC(M)/ST*(F)	71-M6-ZG	\$75.00
SC(M)/FC(F)	71-M6-ZE	\$75.00
SMA905(M)/FC(F)	71-M6-AE	\$75.00

**NOTE: Substitute M5 for M6 (62.5/125) in P/N for 50/125. Price is the same.**

## PIANO WIRE PURGER

**NEW!**

Tungsten Wire (125 µm) is excellent for pushing out broken fibers in Lab Splices, Bare Fiber Adaptors, and Connectors but sometimes is difficult to insert the wire. The Purger is an adaptor that solves this problem by slipping over the ferrule end face and providing a conical shape that lines the wire up with the hole. Comes complete with six pieces of wire packaged in a clear plastic vial. Every tool box should carry one of these.

PART NUMBER	DESCRIPTION	PRICE
PW-6P2	2.5mm Ferrules	\$20.00
PW-6P1	1.25mm Ferrules	\$20.00
PW-6	Replacement Wire Only	\$ 8.00

## BARE FIBER ADAPTORS

### SM KIT P/N BFA-SM-KIT

Contains FC, ST\*, and SC connector adaptors

**\$250.00**

### MM KIT P/N BFA-MM-KIT

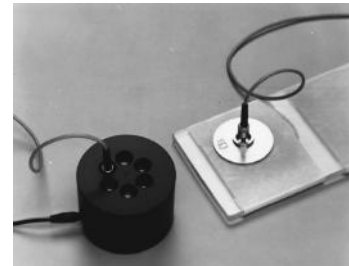
Contains FC, SMA, ST\*, and SC connector adaptors

**\$300.00**



The Metrotek Bare Fiber Adaptor is the ideal tool for temporary connectorization of a bare fiber. The strong "clothespin" type adaptor body will hold a fiber in place adequately for polishing the bare fiber end. The Kit comes complete with the most popular connector adaptors for Single Mode or Multi Mode as well as instructions and clean out wires – all contained in a soft case. Individual connector adaptors are also available.

CONNECTOR TYPE	PART NUMBER	PRICE	CONNECTOR TYPE	PART NUMBER	PRICE
SM FC	BFA-SM-FC	\$135.00	MM FC	BFA-MM-FC	\$135.00
SM ST*	BFA-SM-ST*	\$135.00	MM ST*	BFA-MM-ST*	\$135.00
SM SC	BFA-SM-SC	\$135.00	MM SC	BFA-MM-SC	\$135.00
			MM SMA	BFA-MM-SMA	\$135.00



## PORTABLE OVEN

This portable oven from Advanced Fiber Solutions can accommodate six ST, SC, FC, or SMA type connectors simultaneously. It can run off the cigarette lighter in your car or truck while drawing only 1.25 amps! After a 20 minute warmup it operates at a steady 90°C which will cure normal epoxy in about 5-10 minutes. Comes complete with 110VAC/60Hz or 220VAC/50Hz AC adaptor and DC adaptor.

PART NUMBER	PRICE
OVN-100	110VAC \$325.00
OVN-100-220	220VAC \$350.00

# CABLE ASSEMBLIES/CABLE

## BICONIC\*

### TECHNICAL DATA

Connector	SPECIFICATIONS – Singlemode
Insertion Loss:	0.5dB typ/1.0dB max
Operating Temperature:	-40°C to +85°C**

\* MANUFACTURED UNDER LICENSE FROM AT&T



## D4

### TECHNICAL DATA

Connector	SPECIFICATIONS – Singlemode
Insertion Loss:	0.25dB typ/0.5dB max
Return Loss:	≤-50dB
Operating Temperature:	-20°C to +70°C**



## SC

### TECHNICAL DATA

Connector	SPECIFICATIONS – Singlemode
Insertion Loss:	0.25dB typ/0.5dB max
Return Loss:	≤-50dB
Operating Temperature:	-40°C to +80°C**



## ST®

### TECHNICAL DATA

Connector	SPECIFICATIONS – Singlemode
Insertion Loss:	0.25dB typ/0.45dB max
Return Loss:	≤-50dB
Operating Temperature:	-20°C to +75°C



## FC

### TECHNICAL DATA

Connector	SPECIFICATIONS – Singlemode
Insertion Loss:	0.25dB typ/0.5dB max
Return Loss:	≤-50dB
Operating Temperature:	-40°C to +80°C**



\*\*Depending on fiber cable type used ST® is a registered trademark of AT&T

ALL SPECIFICATIONS SUBJECT TO CHANGE

## HOW TO ORDER GUIDE

### CABLE ASSEMBLIES – CALL FOR PRICE

#### CONNECTOR TYPE / CONNECTOR TYPE:

Bi=Biconic, D4=D4, FC=FC, ST®=ST®, SC= SC, AF= Angled FC, AS= Angled SC, FD= FDDI  
00= None, 01= SMA 905, 03= SMA 906

#### LENGTH:

XXM= XXm, XXXF= XXXft, XXXD= XXdB, ADPT= Adaptor

#### FIBER TYPE:

S= 9/125, M=50/125, 1= 62.5/125, 2= 100/140, P= Polarization Maintaining Non Keyed,  
K= Polarization Maintaining Keyed

#### FIBER COUNT/CABLE TYPE:

01= Simplex, S1= 900 Micron Simplex, R2= Ruggedized Duplex, Z2= Zip Duplex  
S2= Duplex, 45= Inline Attenuator, 46= Line Buildout Attenuator, 04= Quadplex  
99= Pulse Suppressor, HB450= HB450, HB600= HB600, HB750= HB750, HB800= HB800,  
HB1000= HB1000, HB1250= HB1250, HB1500= HB1500, PANDA= P.

#### ASSEMBLIES EXAMPLE 1:

Singlemode (SM) FC to FC 10 meter Simplex jumper is  
Part Number FC/FC-010M-S-01.

#### ASSEMBLIES EXAMPLE 2:

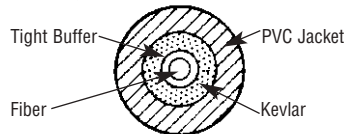
Multimode (62.5/125) ST® to SMA906 3 foot zip duplex jumper is  
Part Number ST/03-003F-1-Z2.

#### ASSEMBLIES EXAMPLE 3:

Single Mode (SM) Angled FC to Angled SC 1 meter jumper is  
Part Number AF/AS-001M-S-01.

## SIMPLEX:

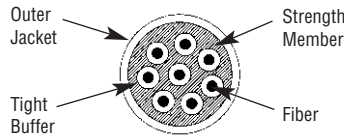
Available as SM (9/125) or MM(50/125 or 62.5/125)



Simplex Cable

## DISTRIBUTION:

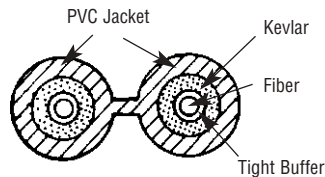
Riser (OFNR) Available from 2 to 24 fibers SM or MM. 900µm subunits.



8 Fiber Distribution-OFNR  
(2-24 Fibers)

## DUPLEX ZIP:

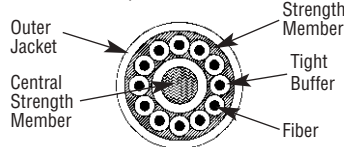
Available as SM (9/125) or MM (50/125 or 62.5/125)



Zipcord Cable

## DISTRIBUTION:

Plenum (OFNP) Available from 2 to 24 fibers SM or MM. 900µm subunits.

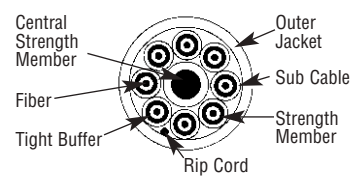


12 Fiber Distribution-OFNP  
(2-24 Fibers)



## BREAKOUT:

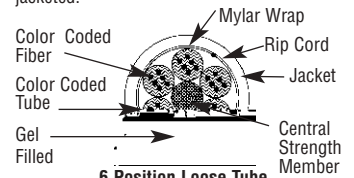
Riser (OFNR) Available from 2 to 36 fibers SM or MM



8 Fiber Breakout-OFNR  
(2-36 Fibers)

## Loose Tube:

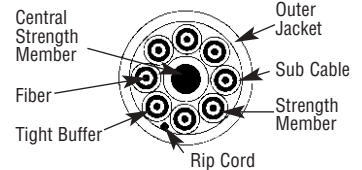
Aerial or duct, gel filled, available from 2 to 144 fibers. Individual fibers are color coded. Also available double jacketed.



6 Position Loose Tube  
(2-144 Fibers)

## BREAKOUT:

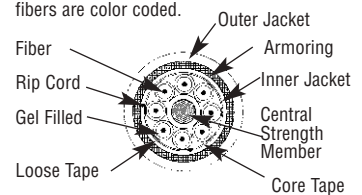
Plenum (OFNP) Available from 2 to 36 fibers SM or MM



8 Fiber Breakout-OFNR  
(2-36 Fibers)

## Loose Tube:

Double jacketed with steel armour, gel filled, for direct buried applications. Available from 2 to 72 fibers. Individual fibers are color coded.



8 Position Loose Tube  
(2-72 Fibers)

Call For Price Quote!

## BARE/BUFFERED FIBER

Metrotek can supply 250µm Coated Corning fiber on 2.2Km spools. Your Choice of Single Mode or Multi-Mode – just specify type. We can also custom package specific lengths of fiber with or without connectors, fusion splices, mechanical splices, micro bends, etc. for testing purposes.

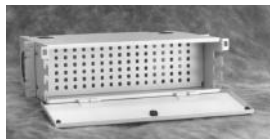
Call for custom quote.



All SM Cable Assemblies are Ultra  
PC Polished < -50dB Back Reflection  
APC Also Available

# TERMINATING EQUIPMENT & ACCESSORIES

## RACK MOUNT ST TERMINATION CABINET FTC-525 SERIES



**P/N FTC-525-24ST® \$270.00**  
**P/N FTC-525-48ST® \$290.00**  
**P/N FTC-525-72ST® \$300.00**

Rack mounted Century cabinets are designed to be used on frames in locations that offer access from either the front or back. The slots are specially designed to allow easy clamping and routing of

cables. Access to the front is provided by the removable hinged door of the cabinet. While a back cover that uses the same latches as the front provides access to the rear. For additional security the door will accept an optional key lock. Typical use of the cabinets include situations where outside plant or riser cables are terminated onto the back of the connector panel or in conjunction with a splice cabinet. Price does not include ST Adaptors. See page 6 and order separately.

### FEATURES:

- Rack mount 19 & 23 inch mounting • Can be stacked, top and bottom cable entry
- Fiber management kit includes: Tie wraps / Clips / Labels / Mounting screws
- 16 GA CRS construction • Durable powder coat finish • 5.25"H x 17"W x 12"D

## TERMINATION & SPLICE CABINET FTS-525 SERIES

Same features as FTC-525 Century Series except cabinet can be configured for all termination, splice only, or combination of both. Choice of connector adaptors and fusion or mechanical splice trays are available and are sold separately.



### FEATURES:

- Rack mount 19 & 23 inch mounting • Can be stacked top and bottom cable entry
- Can be supplied for fiber splice trays (sold separately) • Cable storage plates
- Fiber management kit includes: Tie wraps, Clips, Labels, Mounting screws
- Can be ordered to accept connector panels (Connector panels sold separately)
- 16 GA, CRS construction • Durable powder coat finish • 7"H x 17"W x 12"D

P/N	DESCRIPTION	PRICE
FTS-525-TM	Termination only, 1 to 12 connector panels, 6 fibers per panel	\$270.00
FTS-525-S	Splice only, 1 to 6 splice trays, 12 splices per tray	\$350.00
FTS-525-S/TM	Splice and Terminate, 1 to 4 connector panels, and 1 to 2 splice trays	\$370.00

### SOLD SEPARATELY

#### CONNECTOR PANELS WITH ADAPTORS

C10417LS6	ST®	\$25.00
C10418LS6	FC	\$65.00
C10419LS6	SC	\$40.00
C10420	BLANK	\$10.00

#### SPLICE TRAYS

OST-102F	FUSION	\$35.00
OST-102M	MECHANICAL	\$35.00



## RACK MOUNT ECONOMY ST TERMINATION CABINET FIS SERIES

This unit is an ideal economical solution for smaller requirements when a maximum of only 12 or 24 ST terminations are necessary. These cabinets accept cable from the rear, top or bottom with access from the front or back. Cable storage and access to the connectors is provided by a swing

out shelf. Price does not include ST Adaptors. See page 6 and order separately.

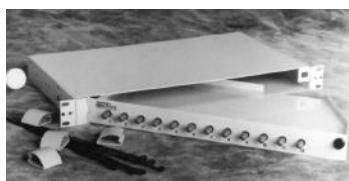
### FEATURES

- Mount in Rack or Cabinets
- Front Access To All Operations
- Allows up to 12/24 ST Termination
- Powder Coat Finish
- Mounts flush with rack face
- 19" and 23" Mounting
- Punched ST Panel Swings out for installation
- Includes Tie Wraps, Clips, Labels, Mounting Screws
- 1.75"H x 17"W x 11"D

PART NUMBER	DESCRIPTION	PRICE
FIS-12ST	12 Fiber ST Termination	\$170.00
FIS-24ST	24 Fiber ST Termination	\$200.00

## RACK MOUNT ECONOMY ST TERMINATION FPP CABINET SERIES

Same features as the FIS Series above except connectivity with the ST connectors is directly from the front panel. Ideal for situations where security is not an issue. Price does not include ST Adaptors. See page 6 and order separately.



PART NUMBER	DESCRIPTION	PRICE
FPP-12ST	12 Fiber ST Termination	\$150.00



**P/N SPKL-12**  
**(250µm Fibers into 900µm Tubes - No Strain Relief)**  
**\$25.00**

### BREAKOUT DETAIL:

This breakout is for those applications where the kevlar strain relief is not required beyond the original Cable Jacket's strain relief termination. The SPKL-12 can take up to 12 individual 250um fibers from one loose tube and insert them into individual 900um color coded buffers. These buffers are then housed in a snap on plastic case. No epoxy, shrink tube, or special tools are required.



**P/N FQM-12**  
**(250µm Fibers into 3mm Jacket With Strain Relief)**  
**\$65.00**

### BREAKOUT DETAIL:

This breakout from Brugg Telcom was designed for pretermination of loose tube cables to be used in conjunction with a pulling eye like that offered from Metrotek. The FQM-12 can accommodate up to Twelve 250um fibers from one loose tube and insert them into a new 3mm jacket with Kevlar. One end of the new jacket is crimped with backshell type rings and placed inside the FQM-12. The crimped jacket ring is held in place in such a way that strain relief is now accomplished from that point to the connector termination on the other end. This system can also be used as a standard breakout without pretermination.

## FIBER OPTIC PULLING EYE

Pre-terminated fiber optic cable can be installed through conduit and duct using this protective equipment. Cables can be factory terminated along with this device or it can be installed on-site prior to pulling the cable. Sold in kit form.



### NO. OF FIBERS

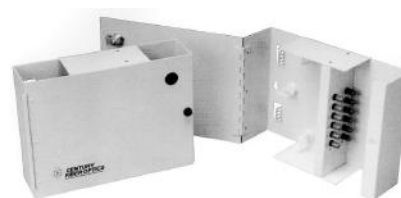
3-6  
7-12

### PRICE

\$35.00  
\$50.00

### P/N

PEK-06  
PEK-12



**WALL MOUNT**  
**P/N FIU-06-ST®**

**\$100.00**

**P/N FIU-12-ST®**

**\$120.00**

These Century units are designed to be used in intra building application.

The FIU-series provides the customer with an economical, easily expandable patch panel assembly where splicing of cables is not required. Typical applications are the interface between horizontally distributed building or breakout type cables, and the optical equipment. The units are easily expandable by stacking together, providing a cross-connect field between central and distributed computer equipment. Price includes ST Adaptors. For door key lock add -K to part number and \$15.00 to price.

### FEATURES:

- 6 and 12 fiber capacity • Compact size • Stackable • Interchangeable patch panels
- Durable powder coat finish on 16 gauge steel • 8.5" H x 11.5" W x 3.25" D



## PANEL MOUNT ECONOMY ST TERMINATION FPPS SERIES

Rack mount patch panels allow for direct terminations of 24 fibers. These patch panels provide an economical solution in an enclosed cabinet or open 19" rack environment where security is not a requirement. Panel is 3.5" high with powder coat finish and horizontal cable routing guide. Price does not include ST Adaptors. See page 6 and order separately.

PART NUMBER	DESCRIPTION	PRICE
FPPS-12ST	12 Fiber ST Termination	\$65.00
FPPS-24ST	24 Fiber ST Termination	\$75.00

# SM COUPLERS

## SINGLEMODE COUPLERS/SPLITTERS - 1X2 & 2X2

Gould offers the most complete line of Fused Biconical Taper Couplers that includes Single Wavelength, Special Wavelength, Wide Bandwidth, Dual Wavelength, Tree & Star, WDM, Fiber Amplifier, as well as C/L Band and Tap Couplers. The Fused Biconical Taper manufacturing process provides proven trouble-free performance in the field or in the laboratory. There is a wide choice of packaging as well as split ratios and wavelengths for every application. Compact 50.8mm Invar tubing is the Standard Package (Style 12) for 250µm coated 1 meter pigtails except for some WDM's. Optional plastic packages for 900µm loose tube (Style 22) or Ruggedized (Style 31) 3mm jacketed fiber are also available with 1m pigtails. All styles are designed for maximum environmental stability. See GOULD PACKAGE STYLES. Call for specialty modular box styles.

### TYPICAL COMMON SPECIFICATIONS FOR GOULD SM COUPLERS/SPLITTERS EXCEPT TRULY FUSED, C/L, TAP, AND WDM

Insertion loss:  $\leq 3.4\text{dB}^1$  Uniformity:  $\leq 0.6\text{dB}^1$   
Thermal Stability:  $\pm 0.1\text{dB Max}$  Polarization Sensitivity:  $\pm 0.1\text{dB Max}$   
Directivity:  $2\times 2 > 65\text{dB}$ ;  $1\times 2 > 40\text{dB}$   
Coupling Ratio/Insertion Loss (dB): 50:50=3.4; 40:60=4.4/2.5; 30:70=5.6/1.8; 20:80=7.4/1.2;  
 $^{10}/90=10.8/0.6$ ;  $^{15}/85=14.6/0.4$ ;  $^{11}/99=23.0/0.2$   
<sup>1</sup>For Dual Wavelength add 0.2dB  
<sup>2</sup>For Dual Wavelength these values may increase up to 0.5dB

### HOW TO ORDER GUIDE FOR SM

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ 1

TYPE	DESCRIPTION	PRICE
1x2 or 2x2 (22)	Single Point 1310, 1480, or 1550nm	\$ 60.00
1x2 or 2x2 (22)	Single Point 780, 820, 850, 980, 1060nm	\$125.00
1x2 or 2x2 (45)	Wide Bandwidth ( $\pm 40\text{nm}$ ) 1310 or 1550nm	\$ 60.00
1x2 or 2x2 (50)	Dual 1310 and 1550nm ( $\pm 40\text{nm}$ )	\$ 60.00

Add \$35.00 for 3mm Jacket Pigtailed in Ruggedized Package Option (Style 31). Add \$20.00 for 900µm Loose Tube Pigtailed in Package Option (Style 22). Add \$40.00 for each ST, SC, FC, or LC Connector. Add \$50.00 for each FC/APC or SC/APC Connector.

**EXAMPLE 1:** To order a 1310nm SM 1x2 Coupler with 50:50 Coupling Ratio in a Ruggedized Package Style 31 and 3mm Jacketed Fibers Connectorized with FC Connectors, the Part Number is: **22-13231-50-13131**. Price is \$215.00.

**EXAMPLE 2:** To order a SM 980nm 2x2 Coupler with 40:60 Coupling Ratio and 250µm 1 meter Pigtailed with no Connectors in Standard Package Style 12, the Part Number is: **22-12798-40-21201**. Price is \$125.00.

**EXAMPLE 3:** To order a SM1550nm Wide Bandwidth ( $\pm 40\text{nm}$ ) 1x2 Coupler with 80:20 Coupling Ratio and 900µm Loose tube 1 meter Pigtailed in Package Style 22 with SC/APC Connectors, the Part Number is: **45-13255-20-12271**. Price is \$230.00.

**EXAMPLE 4:** To order a SM Dual Wavelength 1242a/SM1550nm ( $\pm 40\text{nm}$ ) 1x2 Coupler with 90:10nm

## SM TREE AND STAR COUPLERS - 1XN & NXN

SM Tree Couplers (1xN) are available in either truly fused or concatenated designs with single wavelength or dual wavelength configurations. SM Star Couplers (NxN) are available in concatenated with single wavelength or dual wavelength configurations. Package style 12 is standard for 1x3 and 1x4 Truly Fused Trees. All other configurations must use modular box styles. Call to select. NOTE: All standard concatenated couplers come with split ratios that are evenly distributed. Call for special non-even ratios.

### HOW TO ORDER GUIDE FOR SM TREE AND STAR COUPLERS

32				1
TYPE	STYLE	PORT CONFIGURATION	SPLIT RATIO	CONNECTOR STYLE
23=Truly fused single $\lambda$	1=Concatenated	13=1x3	0=Concatenated	0=None
Nx3, Nx4. Concatenated single $\lambda$	4=Truly fused	23=2x3	1=10/45/45	2=ST
Nx4, Nx8, and Nx16.		33=3x3	2=20/40/40	3=FC
46=Concatenated single $\lambda$ wide	WAVELENGTH	14=1x4	3=30/35/35	4=SC
Bandwidth Nx4, Nx8, Nx16	31=1310nm	24=2x4	4=40/30/30	5=LC
	35=Dual 1310/1550	34=3x4	5=50/25/25	6=FC/APC
47=Truly fused dual $\lambda$ wide	55=1550nm	44=4x4	6=60/20/20	7=SC/APC
bandwidth 1x3, 1x4. Concatenated		18=1x8	7=70/15/15	
dual $\lambda$ wide bandwidth Nx4, Nx8, Nx16.		51=1x16	8=80/10/10	PACKAGE STYLE
		24=2x4		12=250µm
		28=2x8		22=900µm loose tube
		52=2x16		
		44=4x4		
		88=8x8		
		53=16x16		

TYPE	DESCRIPTION	PRICE
Nx3 (23)	Truly Fused 1310 or 1550nm	\$160.00
Nx4 (23)	Truly Fused 1310 or 1550nm	\$180.00
1x3 (47)	Truly Fused 1310 & 1550nm $\pm 40\text{nm}$	\$160.00
1x4 (47)	Truly Fused 1310 & 1550nm $\pm 40\text{nm}$	\$185.00
NxN (46)	Concatenated 1310 or 1550nm	CALL
NxN (47)	Concatenated 1310 or 1550nm $\pm 40\text{nm}$	CALL

Call for adder for 3mm Jacket Pigtailed, 900µm Loose Tube Pigtailed, and specific modular box style. Add \$40.00 for each ST, SC, FC, or LC Connector. Add \$50.00 for each FC/APC or SC/APC Connector.

**EXAMPLE 5:** To order a Truly Fused Single Wavelength Tree 1310nm, 1x3, 10:45:45 with 250µm coated 1 meter Pigtailed and no Connectors in Package Style 12, the Part Number is: **23-43231-13-11201**. Price is \$160.00.

**EXAMPLE 6:** To order a Concatenated Single Wavelength 1310nm, 2x16, Star Coupler with ST Bulkhead Adapter in a 19" Relay Rack, the Part Number is: **23-13231-52-06121**. Price is CALL.

**EXAMPLE 7:** To order a Concatenated Single Wavelength Wide Bandwidth 1550nm 8x8 Star Coupler with FC Jacketed Pigtail outputs in a rack mount, the Part Number is: **46-13255-88-06331**. Price is CALL.

**EXAMPLE 8:** To order a Truly Fused Dual Wavelength Wide Bandwidth Tree 1310 and 1550nm, 1x3, 33:33:33 with 250µm coated 1 meter Pigtailed and SC/APC Connectors in Package Style 12, the Part Number is: **47-43235-13-01271**. Price is \$360.00.

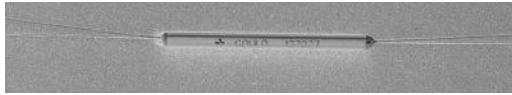
**Type 46: Specifications for SM Concatenated Single Wavelength Wide Bandwidth Star (NxN) Couplers can be viewed at:**  
[www.metrotek.com/tree\\_single\\_con.html](http://www.metrotek.com/tree_single_con.html)

**Type 47: Specifications for SM Truly Fused Dual Wavelength Wide Bandwidth Tree (1x3) Couplers can be viewed at:**  
[www.metrotek.com/tree\\_dual\\_wb\\_1x3.html](http://www.metrotek.com/tree_dual_wb_1x3.html)

**Type 47: Specifications for SM Concatenated Dual Wavelength Wide Bandwidth Star (NxN) Couplers can be viewed at:**  
[www.metrotek.com/tree\\_dual\\_con.html](http://www.metrotek.com/tree_dual_con.html)

# COUPLERS

## GOULD PACKAGE STYLES



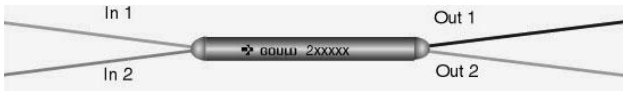
Package Style 11 & 12  
(250mm coated)



Package Style 21 & 22  
(900m loose tube)



Package Style 31 & 32  
(3mm jacket)



**Standard lead color coding for a 1x2 or 2x2 coupler:** The orange lead designates the primary input, blue designates the primary output. Secondary input and output fibers are natural. For a non 50/50 coupling ratio, the larger percentage coupling ratio will always be on the blue lead. For example, in a 10/90 coupler, 10% will be on the natural lead and 90% will be on the blue lead.

### Package Specifications

Pkg. No.	Dimensions	Lead Type	Lead Length	Pull Strength	Operating Temperature	Mounting	Fiber Type	Connectors
11	40.0mm 2.9mm diameter	250µm bare fiber	1 meter minimum	>5N	-40° to 85°C	Splice tray; PCB wiring mounts	Multimode	Not recommended
12	50.8mm 2.9mm diameter	250µm bare fiber	1 meter minimum	>5N	-40° to 85°C	Splice tray; PCB wiring mounts	Singlemode	Not recommended
21	66.0mm 3.9mm diameter	900µm Hytel loose tube	1 meter ±10cm	>10N	-10° to 70°C	Splice tray; PCB wiring mounts	Multimode	Yes
22	76.2mm 3.9mm diameter	900µm Hytel <sup>®</sup> loose tube	1 meter ±10cm	>10N	-10° to 70°C	Splice tray; PCB wiring mounts	Singlemode	Yes
31	95.8mmL 10.7mmW 7.6mmD	2.9mm Yellow Kevlar <sup>™</sup>	1 meter ±10cm	>10N	-20° to 70°C	Four #2 or M2.0 screws	Singlemode	Yes
32	95.8mm L 10.7mm W 7.6mm D	2.9mm Orange Kevlar <sup>™</sup>	1 meter ±10cm	>10N	-20° to 70°C	Four #2 or M2.0 screws	Multimode	Yes

**Call For SM Custom  
Couplers / Splitters**



## WDM/WDM AMPLIFIERS

NEW!

Specifications for WDM and WDM Amplifiers can be viewed at:  
[www.metrotek.com/wdm\\_1315.html](http://www.metrotek.com/wdm_1315.html) and  
[www.metrotek.com/fiber\\_amp\\_wdms.html](http://www.metrotek.com/fiber_amp_wdms.html)

### HOW TO ORDER GUIDE

Description	Part Number	PRICE
1310/1550nm WDM	40-20331-55-1XXY1	\$ 65.00
980/1550nm WDM Amp	40-22798-55-1XXY1	\$115.00
1060/1310nm WDM Amp	40-22706-31-1XXY1	\$115.00
1060/1550nm WDM Amp	40-22706-55-1XXY1	\$115.00

\*Note: Substitute Package Style for XX and Connector Style for Y in Part Number. Package Styles: 12 is Standard for 1310/1550, 16 is Standard for 980/1550, and 13 is Standard for 1060/1310 and 1060/1550. Package Styles 22 and 31 are optional for all. Connector Styles: 0=None, 2=ST, 3=FC, 4=SC, 6=FC/APC, 7=SC/APC.

Add \$35.00 for 3mm Jacket Pigtailed in Ruggedized Package Option (Style 31). Add \$20.00 for 900µm Loose Tube Pigtailed in Package Option (Style 22). Add \$40.00 for each ST, SC, or FC Connector. Add \$50.00 for each FC/APC or SC/APC Connector.

## NEW! C/L BAND 1530NM TO 1625NM COUPLERS

Specifications for C/L BAND 1530nm to 1625nm Couplers can be viewed at: [www.metrotek.com/c@l.html](http://www.metrotek.com/c@l.html)

### HOW TO ORDER GUIDE FOR C/L BAND COUPLERS

#### Product Number:

43 - 1 3 2 5 7 - - - - - 1

Coupling Ratio: 05=5/95; 50=50/50; \*other ratios upon request

Port Configuration: 1=1x2; 2=2x2

Package Style: 12, 22 or 31

Connector Style: None=0; ST=2; FC=3; SC=4; FC/APC=6; SC/APC=7

Description	Part Number	PRICE
1530nm to 1625nm	43-13257-CR-XYZ-1	\$65.00

\*Note: Substitute CR for Coupling Ratio, X for Port Configuration, YY Package Style, and Z for Connector Style in Part Number.

Add \$35.00 for 3mm Jacket Pigtailed in Ruggedized Package Option (Style 31). Add \$20.00 for 900µm Loose Tube Pigtailed in Package Option (Style 22). Add \$40.00 for each ST, SC, or FC Connector. Add \$50.00 for each FC/APC or SC/APC Connector.

**EXAMPLE:** To order a 05/95 1530nm to 1625nm C/L Band 1x2 Coupler with FC/APC Loose Tube Pigtailed. Part Number is: **43-13257-05-12261**. Price is **\$235.00**

## LOW POLARIZATION TAP COUPLERS

NEW!

Specifications for Low Polarization Tap Couplers can be viewed at: [www.metrotek.com/low\\_pol\\_tap.html](http://www.metrotek.com/low_pol_tap.html)

### HOW TO ORDER GUIDE FOR LOW POLARIZATION COUPLERS

#### Product Number:

44 - 1 3 2 5 5 - - - - - 1

Coupling Ratio: 01=1/99; 02=2/98; 05=5/95; 10=10/90

Port Configuration: 1=1x2; 2=2x2

Package Style: 12, 22 or 31

Connector Style: None=0; ST=2; FC=3; SC=4; FC/APC=6; SC/APC=7

Description	Part Number	PRICE
1530nm to 1565nm	44-13255-CR-XYZ1	\$65.00

\*Note: Substitute CR for Coupling Ratio, X for Port Configuration, YY Package Style, and Z for Connector Style in Part Number.

Add \$35.00 for 3mm Jacket Pigtailed in Ruggedized Package Option (Style 31). Add \$20.00 for 900µm Loose Tube Pigtailed in Package Option (Style 22). Add \$40.00 for each ST, SC, or FC Connector. Add \$50.00 for each FC/APC or SC/APC Connector.

**EXAMPLE:** To order a 1:99 1530nm to 1565nm Tap 2x2 Coupler with 250µm Pigtailed, Part Number is: **44-13255-01-21201**. Price is **\$65.00**

# MM COUPLERS

## MULTIMODE COUPLERS/SPLITTERS

Gould Series 2 Couplers/Splitters use the proven Biconic taper method to make reliable stable products that are tested to Telecordia GR-1209-CORE and GR-1221-CORE for temperature, damp heat, humidity, shock, and vibration. They operate at 850 and 1300µm. Choose from standard MM fiber sizes 50/125, 62.5/125, or 100/140. Larger core sizes are available from 200/230 and up on special order for non-telecommunications applications – CALL. Compact 40mm Invar tubing is the Standard Package (Style 11) for 250µm coated 1 meter pigtails. Optional Plastic packages for 900µm loose tube (Style 21) or Ruggedized (Style 32) 3mm jacketed fiber are also available with 1m pigtails. All styles are designed for maximum environmental stability. See GOULD PACKAGE STYLES.

Insertion Loss:	≤3.7dB
Directivity:	≥40dB for 2x2
Port Configuration:	1x2 or 2x2
Packaging:	Comes in package style 11 and can be repackaged into 21 or 32

### 50/50 Multimode Coupler Specifications (850/1300)

### ORDERING INFORMATION

15 - 2	00 -			1
Fiber Types	Split Ratio	Ports	Package Style	Connector Style
11 = 50/125	10 = 90:10	1 = 1x2	11-250µm	0 = None
12 = 62.5/125	20 = 80:20	2 = 2x2	21-900µm	2 = ST
25 = 100/140	30 = 70:30		Loose Tube	3 = FC
	40 = 60:40		32 = 3mm	4 = SC
	50 = 50:50			8 = SMA905

EXAMPLE: To order a MM 62.5/125, 1x2, 50:50 Series 2 coupler with ST connectors in the Package Style 32 is Part Number: 15-21200-50-13221. Price is \$300.00

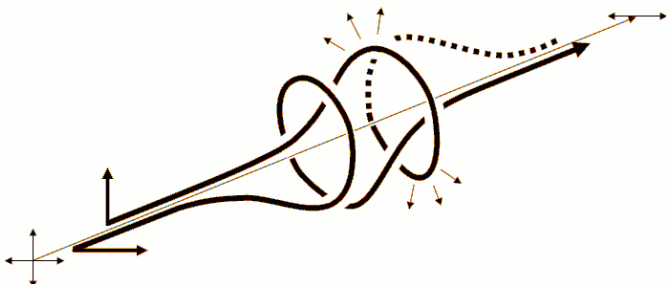
TYPE  
1x2 or 2x2  
Add \$50.00 for 3mm Jacket Pigtails in Ruggedized Package Option (Style 32). Add \$25.00 for 900µm Loose Tube Pigtails in Package Option (Style 21). Add \$30.00 for each ST, SC, or FC connector.

[www.metrotek.com/mm\\_c2.htm](http://www.metrotek.com/mm_c2.htm)

# SPECIALTY PRODUCTS

## IN-FIBER LINEAR POLARIZER

Chiral Photonic's unique in-fiber polarizer is an all-glass fiber device created from specially prepared preforms. The processing of these preforms results in a fiber with a Chiral, or helical, core which exhibits unique operational characteristics dependent on the pitch of the chiral structure. Devices are made by fusion splicing 1 meter pigtails onto a 42mm length of this special Chiral fiber. Standard input fiber is SMF-28 and output PM fiber is KVHE. A 160mm length of 620µm jacket is then placed over the spliced fibers with the Chiral Fiber in the middle. Standard wavelengths are 1310 or 1550. CALL for availability of other popular wavelengths and/or input/output fibers.



The above schematic offers insight into the operation of the In-Fiber Linear Polarizer. Incoming vertically polarized light is converted into an elliptically polarized component of the same handedness as the chiral structure while being scattered out of the fiber. In contrast, horizontally polarized light is converted into elliptically polarized light of opposite handedness and back to horizontal polarization and is freely transmitted by the structure.

### SPECIFICATIONS

OPERATING TEMP: -50 to 50°C  
STORAGE TEMP: -70 to 85°C  
POLARIZER LENGTH: 42 ±2mm  
JACKET OD: 0.62 ±0.20mm  
JACKET LENGTH: 160±5mm

PART NUMBER	WAVELENGTH	PRICE
IFP-1310-XX	1310nm	\$250.00
IFP-1550-XX	1550nm	\$250.00
IFP-YYYY-XX	Call for Availability	TBA

Substitute 00 for XX in part number for no connectors, FC for PC type and AF for FC/APC type. All connectors on the PM side will be keyed to the slow axis unless otherwise specified.

# SPECIALTY PRODUCTS

NEW!

## FIBER OPTIC ROTARY JOINTS

Princetel's Fiber Optic Rotary Joints (FORJ's) are the optical equivalent of the electrical slip ring. FORJ's provide uninterrupted transmission of optical signals while rotating along the fiber axis. They are used anytime the application will twist the fiber. Two package configurations are available for either high speed or underwater applications. Both provide low insertion loss with unmatched return loss and are available in SM and MM. The MicroJ package can be pigtailed (MJP) with your choice of connectors on 900µm tight buffer, or come with ST receptacles (MJS), or FC receptacles (MJF). The MicroJx WATERTIGHT package (MJX) is pigtailed ONLY with 900µm tight buffer for SM and loose tube for all others with your choice of connectors. See [www.metrotek.com/forj\\_mjp.html](http://www.metrotek.com/forj_mjp.html) and [www.metrotek.com/forj\\_mjx.html](http://www.metrotek.com/forj_mjx.html) for complete specifications and dimensions. Call for MM requirements.



### HOW TO ORDER GUIDE

Description	Part Number	Price
SM Pigtail	MJP-XXX-28*	\$950.00
SM ST Receptacle	MJS-XXX-28	\$950.00
SM FC Receptacle	MJF-XXX-28	\$950.00
SM 1310nm Watertight	MJX-XXX-28*	\$950.00
Multimode	CALL	CALL

\*Note: Substitute 131 for XXX for 1310nm or 155 for XXX for 1550nm.

\*For Connectors add -ST, -FC, or -SC to P/N and \$40.00 for each end. Add \$50.00 for each end for APC type and -AF (FC/APC) or -AS (SC/APC).

## PM VARIABLE ATTENUATOR

NEW!



Princetel offers a dual polarizer based PM variable attenuator that provides low insertion loss and high extinction ratio. A bipolar stepper motor rotates an optical wave plate to ensure a high level state of polarization (SOP) stability and repeatability. The precision bipolar motor can be tuned to achieve a 0.9 degree rotation resolution with only two control signals providing an almost infinite number of settings over its dynamic range. An optional stepper motor driver provides dual coil driving current for the bipolar motor. Fujikura's Panda series fiber is standard. Call for other types. One meter 400µm tight buffered pigtails are standard. PC and APC connectors on 900µm Loose Tube are optional. Keyed on slow axis unless otherwise specified.

### SPECIFICATIONS

Wavelength: 1290-1330, 1530 - 1570nm  
Insertion Loss: 0.5dB Typical Range: 0.5 to 30dB Return Loss: 60dB Typical  
Operating Temp: 0 to 65°C Extinction Ratio: 25 - 20dB Typical Motor: 5Vdc @ 80ma  
Storage Temp: -40 to 85°C Jacket Type: 400µm Tight Buffer, or 900µm Loose Tube

### HOW TO ORDER GUIDE

Description	Part Number	Price
PMVOA with 1310nm Panda	VOA-131-13-XX	\$1,500.00
PMVOA wit 1550nm Panda	VOA-155-15-XX	\$1,500.00
Stepper Motor Driver	SMD1000	\$ 200.00

\*Note: Substitute XX in Part Number for FC=FC/PC, SC=SC/PC, AF=FC/APC, and AS=SC/APC Connectors. Add \$150.00/each for PC type and \$200.00/each for APC for each Connector end.

NEW!

## LARGE BEAM COLLIMATOR

Princetel's high performance collimators employ high quality aspheric lenses to achieve low wave-front distortion, low divergence, and diffraction limited beam quality. The large beam size is ideal for free space applications as well as pair coupling at long working distances. Available in your choice of SM, MM, or PM fiber. One meter 900µm tight buffered pigtails are standard. PC and APC type connectors on 900µm Loose Tube are optional. PM Fiber is keyed on slow axis unless otherwise specified.



Characteristics	Model CLA	Model CLB	Model CLD	Model CLC
Wavelength		635-1650nm		
Beam size (1e <sup>6</sup> with SM fiber)	1mm	2.5mm	4.5mm	4-13mm
Far field divergence (1310nm)	1mrad	0.5mrad	0.mrad	-
Focal length	4.5mm	11mm	19mm	17mm
Lens type		Sphere (AR) – All Models		
Insertion Loss (SM pairing)		<0.5dB (for 1310 and 1550 nm only)		
Max pairing distance	0.25m	1m	4m	-
Operating Temp.		0-65°C – All Models		

C	L								
A=1mm beam*	Wavelength	Fiber	FC=FC/PC						
B=2.5mm beam*	165=1625nm	28=Corning SMF28 (1290=1650nm)	SC=SC/PC						
D=4.5mm beam*	162=1625nm	13=Fujikura SM13 PANDA fiber	ST=ST/PC						
C=4-13mm beam**	159=1590nm	15=Fujikura SM15 PANDA fiber	AF=FC/APC						
	155=1550nm	56=3M FS-SN5624 (980nm)	AS=SC/APC						
	153=1530nm	42=3M FS-SN4224 (850nm)							
	148=1480nm	32=3M FS-SN4224 (850nm)							
	131=1310nm	50=50/125 multimode							
	980=980nm	62=62.5/125 multimode							
	850=850nm	10=100/140 multimode							
	780=780nm	20=200/240 multimode							
	670=670nm	40=400/425 multimode							
	650=650nm	60=600/630 multimode							
	635=635nm	01=1000 um Mitsubishi plastic							

All SM	\$255.00
All MM	\$155.00
All PM	\$355.00

# SPECIALTY PRODUCTS



## ATTENUATING FIBERS

NEW!

Attenuating fibers from CorActive are uniformly attenuating from 1250 to 1620nm. With standard cladding diameter of 125µm they can easily be terminated using standard hole size connectors. They are available with attenuations of 0.5-40dB/meter for FBL type, 0.4-15dB/centimeter for FB type, and >15dB/centimeter for FBX type. Sold in whole 1 meter lengths with a minimum order of 15 meters for FBL, 5 meters for FB, and 3 meters for FBX. When ordering keep in mind that you are specifying the desired attenuation over the application length, NOT the whole 1 meter delivered length.

### SPECIFICATIONS

N/A: 0.13 ±0.01  
Proof Test: 100kpsi

### ATTENUATION ACCURACY: ± 7.5%

Cut-off Wavelength: 1200nm  
Concentricity error: 0.4µm (typical)  
Cladding Diameter: 125±0.5µm

FIBER TYPE	ATTENUATION RANGE	INCREMENT	PRICE/METER
FBL	0.5-40dB/m	0.5dB/m	\$ 29.50
FB	0.4-15dB/cm	0.1dB/cm	\$100.00
FBX	>15.0dB/cm	0.5dB/cm	\$155.00

### HOW TO ORDER

Specify the fiber type, the desired attenuation in the particular fiber type's incremental value, and the desired length of fiber in millimeters you want the attenuation distributed over. Remember, this is your application length. The fiber will be delivered in whole 1 meter lengths.

### ATN - FIBER MODEL - ATTENUATION VALUE - FIBER LENGTH

FBL	dB x 100	mm x 100
FB	dB x 100	mm x 100
FBX	dB x 100	mm x 100

**EXAMPLE 1:** FBL type to make a 500mm attenuated jumper with 2.5dB of attenuation would be Part Number: **ATN-FBL-250-50000**. Price would be **\$29.50**. To meet the minimum please order 15 meters.

**EXAMPLE 2:** FB type to build a 14.5dB inline attenuator with 21.30mm length would be Part Number: **ATN-FB-1450-2130**. To meet the minimum please order 5 meters.

**EXAMPLE 3:** FBX type to make a 22.0mm attenuated jumper with 25dB of attenuation would be Part Number: **ATN-FBX-2200-2500**. To meet the minimum please order 3 meters.

## PULSE SUPPRESSOR/TEST BOX

NEW!

Metrotek's Pulse Suppressor/Test Box is an economical, portable accessory for use with any OTDR or test setup. The standard unit comes complete with 1Km of SM or 300m of MM Fiber and your choice of all popular output connectors. Custom lengths and other special features such as mechanical or fusion splices can be included. Call for price. Substitute XX in Part Number for ST, SC, or FC type connectors.

Part Number	Description	Price
XX/XX-01KM-S-99	1Km SM	\$500.00
XX/XX-300M-M-99	300m 50/125	\$550.00
XX/XX-300M-1-99	300m 62.5/125	\$550.00

NEW!

## FIBER STRIPPING MACHINES JACKET STRIPPING

The Schleuniger UniStrip 2545 fiber optic jacket stripper strips jackets up to 3.2mm. Using universal V-Blades, the stripping diameter can be changed without tooling change over. Stripping length is adjustable between 1.00 to 1.77 inches. Pneumatically powered, this semi-automatic stripper will increase productivity and provide absolute positional repeatability.



### SPECIFICATIONS

**Max Cable OD:** 3.2mm **Stripping Length:** 25 - 45mm  
**Dimensions:** 10.4H x 2.8W x 5.3L inches **Weight:** 5.3 lbs.  
**Compressed Air:** 5 - 7 bar **Air Consumption:** 0.28 l/cycle  
**Cycle Time:** 0.3 sec

Part Number	Price
US2545	\$3,495.00



## BUFFER/COATING STRIPPER

NEW!

Scheuniger's state of the art FiberStrip 7030 was specifically designed for stripping buffers and/or coatings from glass fibers. It is light and portable which makes it well suited for field as well as lab or production use. Comes complete with carrying case, accessories, power supply, and tools.

### SPECIFICATIONS

**Max Fiber:** 900µm **Max Stripping Length:** 35mm  
**Dimensions:** 6.3L x 2.1W x 1.8H **Weight:** 1.5 lbs.  
**Power:** 110VAC 60Hz

### ORDERING INFORMATION

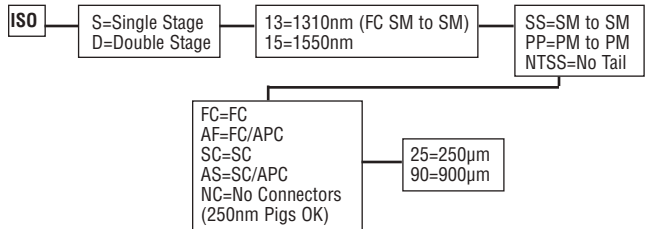
Part Number	Price
FS7030	\$3,995.00

## ISOLATORS

General Photonics isolators are the smallest in size and the highest in quality available. They are ruggedly built to function reliably in a wide variety of environments. The miniaturized size, polarization insensitivity, low loss, and low reflection combine to make these isolators ideal for integration into OEM products or R&D projects. Select 250µm pig-tails for Isolators with pigtails only, no connectors. For Isolators with connectors select 900µm pigtails. Add \$40.00/each for SM PC type connectors and \$50.00/each for SM APC type. Connector price is included for No Tail version. All PM connectors will be keyed to the Slow Axis unless otherwise specified. Add \$100.00/each for PC type and \$120/each for APC type.



### ORDERING INFORMATION



**EXAMPLE 1:** For a Double Stage 1310nm Isolator with FC/PC connectors installed on the No Tail version the Part Number is: **ISO-D-13-NTSS-FC**. The Price is: **\$700.00**.

**EXAMPLE 2:** For a Single Stage 1550nm PM Isolator with FC/APC connectors installed on 900nm Pigtails the Part Number is: **ISO-S-15-PP-AF**. The price is: **\$1,125.00**.

TYPE	ISOLATION STAGES	PRICE
SM Pigtail	Single	\$355.00
SM Pigtail	Double	\$475.00
SM No Tail	Single	\$580.00
SM No Tail	Double	\$700.00
PM Pigtail	Single 1550nm ONLY	\$885.00
PM Pigtail	Double 1550nm ONLY	\$960.00

### SPECIFICATIONS

Stage	Single Stage	Double Stage
Class	Premium	Premium
Peak isolation	>42 dB	>55 dB
Minimum isolation (within +/- 15 nm bandwidth)	>33 dB	>47 dB
Typical insertion loss	0.3 dB	0.4 dB
Maximum insertion loss	0.5 dB	0.6 dB
Return loss (input/output)	>65/60 dB	>65/60 dB
Polarization dependent loss	<0.05 dB	<0.05 dB
Polarization mode dispersion	<0.2 ps	<0.2 ps
Operating bandwidth	+/- 15 nm	+/- 30 nm
Center wavelength	1310 nm or 1550 nm	
Operating temperature	-20 to 70° C	
Storage temperature	-40° C to 85° C	
Maximum power	200 mW	
Fiber type (standard)	Corning SMF-28, 250 µm bare fiber or 900 µm buffered fiber	
Fiber length (standard)	1 meter on each side	



## POLARIZATION CONTROLLER/ ADAPTOR

The General Photonic PolaRITE's are designed specifically for applications with polarization sensitive devices or systems such as interferometers, electro-optic modulators, sensing systems, and of course, polarization preserving fibers. The polaRITE can easily convert arbitrary polarized light to linearly polarized light and align it with the correct axis. This is accomplished by simple dual function knob adjustments. The inline version can be inserted into your active system without having to disconnect it. The PM Fiber Adaptor version completely eliminates the problems associated with PM fiber alignment when terminating connectors. By using the PM Fiber Adaptor you can install connectors on your PM fibers without regard to orientation. Simply plug in your terminated PM Fiber and adjust the polarity. Specify core size in part number for -X.

CORE SIZE	X	CORE SIZE	X	CORE SIZE	X
3.7µm	1	4.6µm	2	5.6µm	3
6.0µm	4	7.0µm	5	7.7µm	6
9.0µm	7				
INLINE SPECIFICATIONS		DESCRIPTION		PM FIBER ADAPTOR	
MODEL				PART NUMBER	PRICE
Polarization Controller		In-Line (250µm)		PLC-003-S-25	\$475.00
Polarization Controller		In-Line (900µm)		PLC-003-S-90	\$475.00
PM Fiber Adaptor		With FC Adaptors		PLC-004-FC/PC-X	\$750.00
PM Fiber Adaptor		With FC/APC Adaptors		PLC-004-FC/APC-X	\$775.00

**NEW! FIBER OPTIC A/B SWITCHES**

"Quickswitch" fiber optic switches from ESL are designed to be used in 2 fiber networking applications to switch from fiber network "A" to fiber network "B". They support 100 Base-FX as well as any other data protocols. The most basic Model 4184 provides duplex switching capability via RS-232 control using a DB9 interface from a remote supervisory computer or from a front panel button. LED's on the front panel indicate which network is switched and power. The Model 4186 does the same thing except for A/B/C networks. Automatic fallback is also available for A/B networks with Model 4181. The automatic fallback feature will detect a faulty line and switch back to the original network and send a recovery signal. All Models come with a 110/220VAC 50/60Hz wall mount power supply and use Multimode 1300nm optics with your choice of ST or SC connectors. Dimensions: 7.5W x 2.0H x 7.0D inches; Weight: 2.8 lbs. An optional graphical user interface (GUI) software is also available for use with a Windows based PC.



PART NUMBER	DESCRIPTION	PRICE
Model 4184-XX*	A/B Switch	\$ 935.00
Model 4181-XX*	A/B Switch with Fallback	\$1,185.00
Model 4186-XX*	A/B/C Switch	\$1,385.00
GUI	Software for PC	\$ 275.00

\*Substitute -XX in P/N for ST or SC type connectors.

**100 BASE FX ETHERNET CONVERTER 1X2/1X4/1X8 SWITCHES****NEW!**

"Quickswitch" Model 4185 Ethernet Switch from ESL accepts standard 100 Base Ethernet copper input with RJ45 interface, converts it to fiber optic signals, and provides switching capability from fiber network A to fiber network B. Model 4189 will do the same except switch from A/B/C/D and Model 5191 will also do the same except switch from A/B/C/D/E/F/G/H. Switching is controlled via RS-232 (DB9 for Model

4185 (RJ45 for Models 4189 & 5191) or from the front panel button(s). LED's on the front panel indicate which network is switched and power. All Models come with a 100/220VAC 50/60Hz wall mount power supply and use Multimode 1300nm optics with your choice of ST or SC connectors. Model 4185 Dimensions: 7.5W x 2.0H x 7.0D inches; Weight: 2.8 lbs. Models 4189 & 5191 Dimensions: 11W x 2.7H x 8.5D inches; Weight: 3 lbs. An optional graphical user interface (GUI) software is also available for use with a Windows based PC.

PART NUMBER	DESCRIPTION	PRICE
Model 4185-XX*	A/B Switch/Converter	\$1,035.00
Model 4189-XX*	4 Way Switch/Converter	\$1,325.00
Model 5191-XX*	8 Way Switch/Converter	\$2,375.00
GUI	Software for PC	\$ 275.00

\*Substitute -XX in P/N for ST or SC type connectors.

**1X2 SWITCHES**

Fiber Systems optical switches feature a compact package with low insertion loss, fast switching speeds, and high isolation. These units are ideal for Lab as well as optical networking systems. They meet Bellcore 1073 and GR-121-CORE standards with high repeatability. They are available in SM or MM with latching only capability. Latching means that when you apply a momentary (>40ms) 5vdc the switch will change states and remain switched

even if power is removed. One meter pigtailed with 900um buffer are standard. Add \$30.00 per end for MM, \$40.00 per end for SM, and \$50.00 per end APC type standard connectors. Substitute XX in part number for connector type.

**PERFORMANCE SPECIFICATIONS**

SPECIFICATIONS	OSW1000-1X2	UNIT
Insertion Loss	0.5 typical - 0.8 max	dB
Repeatability	<0.02	dB
Switching Time	10 typical - 15 max	ms
Operating Temperature	0 to 65	C
Back Reflection	<-55	dB
Isolation	>70	dB
Maximum Operating Current	54	mA
Nominal Operating Voltage	5	VDC
PDL	<0.1	dB
Durability	10 million min	cycle
Housing Dimensions (HxWxD)	11x20x52	mm

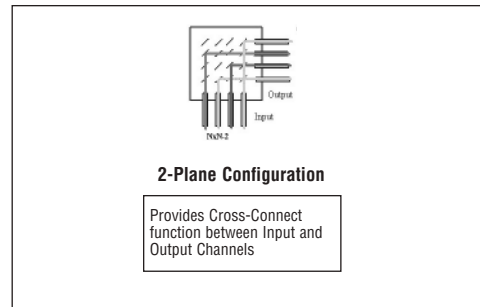
PART NUMBER	FIBER	TYPE	PRICE
OSW1000SBT-S-L-XX	SM	Latching	\$550.00
OSW1000SBT-M-L-XX	50/125	Latching	\$550.00
OSW1000SBT-1-L-XX	62.5/125	Latching	\$550.00

**1XN AND NXN SWITCHES****NEW!**

These switches from TransOptix employ proven opto-mechanical technology designed and qualified per Telcordia requirements to provide the utmost in reliable switching. They are currently (Fall 2004) available for 1x4, 1x8, 1x16, and 4x4. All switches are standard two sided (2 plane) configuration. All switches are bi-directional and are latched at both the on and off positions. Latching means that when you apply a momentary signal the switch will change states and remain in that switched state even if power is removed. Switch control is achieved by applying a 5vdc (Nominal) pulse (>50ms) to the appropriate corresponding input connector pin. An optional Manual Optical Control unit, MOSC-44<sup>1</sup> or MOSC-88<sup>2</sup> is available for this purpose. Also, an optional software based computer controlled Optical Switch Controller is available, OSC-44<sup>1</sup> and OSC-88<sup>2</sup>. Both options require a customer supplied external 5vdc (Nominal) power supply. The Optical Switch Controller requires a PC with a Windows 98 or 2000 operating system. All SM switches come standard with FC/APC connectors on 1 meter pigtailed. **CALL FOR MULTIMODE AND/OR CUSTOM SWITCH CONFIGURATIONS.**

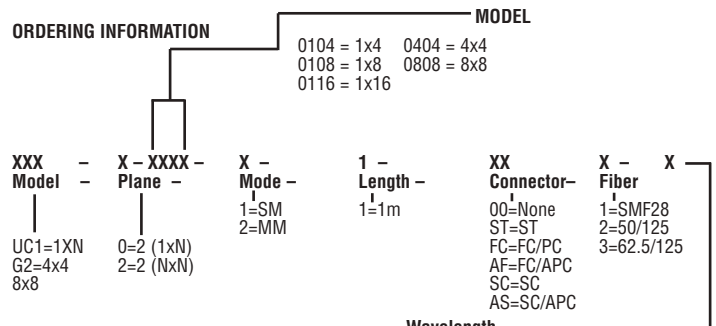
<sup>1</sup>The MOSC-44 and the OSC-44 is used with 1xN switches where N is <=16 and NxN where N is <=4.

<sup>2</sup>The MOSC-88 and the OSC-88 is used with 1xN switches where N is <=64 and NxN where N<=8.



	COMMON SPECIFICATIONS <sup>1</sup>			COMMON SPECIFICATIONS <sup>2</sup>			
	1x4	1x8	1x16	4x4	8x8		
Insertions Loss	<0.7	<0.8	<1.0	<1.5	<3.5*		dB
Repeatability							dB
PDL							dB
Crosstalk:							dB
Return Loss:							ms
Switching Time							
Wavelengths:							nm
Operating Temp:							C
Operating Humidity:							
Input Optical Power:							dBm
Switching Interface:							
Switching Voltage:							
Switching Power:							
Dimensions:							
Power Required (not supplied)							

<sup>1</sup>At 1550nm

**ORDERING INFORMATION**

**EXAMPLE:** A 4x4 (Add/Drop) 2 plane SM Dual Wavelength 1310/1550nm switch with FC/APC 1 meter pigtailed would be part number G2-2-0404-1-1-AF-3. Price is \$4,675.00

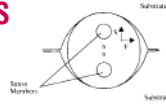
SM CONFIGURATION	PRICE	OPTIONS PART#	DESCRIPTION	OPTIONS PRICE
1x4 - 2 Plane	\$ 875.00	MOSC-44	Manual Optical Switch Controller	\$ 695.00
2x2 - 2 Plane	1st Qtr '05			
1x8 - 2 Plane	\$1,275.00	MOSC-88	Manual Optical Switch Controller	\$1,000.00
1x16 - 2 Plane	\$2,400.00			
4x4 - 2 Plane	\$4,675.00	OSC-44	Software Based Optical switch controlled	\$1,250.00
		OSC-88	Software Based Optical switch controlled	\$1,665.00
8x8 - 2 Plane	1st Qtr '05			

**ALL MULTIMODE CALL FOR PRICES.**

# SPECIALTY PM & NON-PM COUPLERS

## FIXED RATIO EVANESCENT WAVE COUPLERS

- Low Back Reflection
- Low excess loss
- High polarization Isolation
- Compact package
- All popular wavelengths
- Small ratio variation with temperature
- Standard polarization maintaining (PM) fibers



Fibers are side polished in glass substrate blocks to remove cladding material on one side of the core without distorting the core region. In the case of PM fibers, one stress member remains. Two polished fibers are placed into optical contact with their polarization axes aligned, and coupling from core to core occurs by the evanescent wave interaction. Precise loading of the substrate blocks ensures the fibers remain in low stress contact over a broad range of temperatures.

Evanescent wave couplers offer inherent performance advantages because there is no deformation or tapering of the waveguiding cores. These devices have low loss and back-reflection.

The interface essentially vanishes with optical contact between identical surfaces. There is no intermediate material which can change its refractive index or thickness with age or environmental effects.

Fixed ratio evanescent wave couplers are available as SM Non-Polarizing (904) or Polarization Maintaining (904P). Tap couplers (904PS) are used with PM fiber for monitoring purposes with SM Non-PM fiber output.

P/N	SM AND PM DESCRIPTION	PRICE
954*-λ-R-XX	Singlemode, non-polarization maintaining, ratio between 1:99 and 99:1	\$ 850.00
954P-1*-λ-R-XX	PM (Grade 1) coupler, ratio between 1:99 and 99:1 for wavelengths >800nm	\$1,925.00
954P-2*-λ-R-XX	PM (Grade 2) coupler, ratio between 1:99 and 99:1 for wavelengths >800nm	\$1,345.00
954P-2*-λ-R-XX	PM (Grade 2) coupler, ratio between 1:99 and 99:1 for wavelengths <=800nm	\$1,625.00

P/N	TAP COUPLER DESCRIPTION	PRICE
954PS-1*-λ-R-XX	Hybrid (Grade 1) PM to SM Tap Coupler with ratio between 1:99 and 99:1	\$1,240.00
954PS-2*-λ-R-XX	Hybrid (Grade 2) PM to SM Tap Coupler with ratio between 1:99 and 99:1	\$1,075.00

**\*NOTE: SUBSTITUTE WAVELENGTH FOR λ, RATIO FOR R, AND OPTIONAL CONNECTORS FOR XX IN PART NUMBER. SEE BOTTOM RIGHT PAGE.**

Polarization Isolation	Ratio Tolerance	Excess Loss
Grade 1 <-27dB (>800nm)	±3%	<0.10 dB
Grade 2 <-24dB (All λ)	±3%	<0.10 dB

Polarization Isolation	Ratio Tolerance	Excess Loss
Grade 1 <-25dB	±2%	<0.05dB
Grade 2 <-22dB	±2%	<0.05dB

### COMMON SPECIFICATIONS

Back Reflection: -70dB typical  
Ratio Tolerance at 50/50: Set at room temperature on slow axis: ±3% for 53/47 to 47/53; ±2% for 52/48 to 48/52; and ±1% for 51/49 to 49/51.  
Variation over operating temperature range: ±5%  
Operating Temperature: -30 to +50 degrees C  
Package: Aluminum U housing and Silicone encapsulant 15 x 2.5 x 2.5mm  
Pigtails: 900μm Loose Tube Standard. Bare fiber also available at no charge, specify when ordering. Optional 3mm Jacket Add \$225.00. 1 meter standard length.



## VARIABLE RATIO EVANESCENT WAVE COUPLERS

- Precise Ratio Adjustment
- Low loss
- Low back reflection
- Low polarization cross talk
- Large operating bandwidth
- Polarization Maintaining (PM) or non-PM types

Variable ratio couplers are made with optically contacted polished fibers mounted in substrate blocks that have transverse motion in the contact plane to adjust core-to-core separation distance. In the case of PM fiber, the orientation of the fast and slow axes is preserved during the motion. A negligibly thick oil layer is used to lubricate the substrate blocks and ensure smooth motion. Long term ratio stability is better than 1% under laboratory conditions.

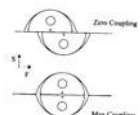
Fine transverse motion is accomplished by means of a differential micrometer and lever system. The 25:1 lever ratio gives approximately one micron of motion at the coupler center per 0.001 inch division on the micrometer

Available fibers have cutoff wavelengths ranging from 450 nm to 1550nm. For a particular fiber used in a variable coupler the useful bandwidth extends from the single mode cutoff wavelength to approximately 1.3 times the cutoff wavelength, where losses begin or occur. **Substitute wavelength for λ in Part Number. Optional connectors (XX) in Part Number. See bottom right page.**

PART NUMBER	DESCRIPTION	PRICE
905-80-λ-XX	non-PM singlemode fiber – 0-80% Coupling	\$2,200.00
905-99-λ-XX	non-PM singlemode fiber – 0-100% Coupling	\$2,550.00
905P-80-λ-XX	polarization maintaining fiber – 0-80% Coupling	\$2,600.00
905P-99-λ-XX	polarization maintaining fiber – 0-100% Coupling	\$3,200.00

### SPECIFICATIONS:

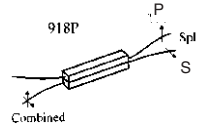
Polarization Isolation (room temperature): -24dB typical, -22dB guaranteed



Coupling Ratio: 0-80%, 0-100%  
Excess Loss: 0.1dB typical, 0.2dB maximum  
Package: 25mm x 38mm x 63mm aluminum case, with micrometer projecting 28mm

Pigtails: 900um Loose Tube Standard. Bare fiber also available at no charge, specify when ordering. Optional 3mm Jacket Add \$225.00. 1 meter standard length.

## POLARIZERS / POLARIZATION SPLITTERS



Based on the evanescent wave couplers 904P (fixed ratio) and 905P (variable ratio), polished fibers are coated with polarization sensitive layers before assembly. The result is a polarization selective coupler which allows up to 99% coupling of the P-polarized mode while restricting the coupling of the S-polarized mode to approximately 1%. It is the analog of the cube beam splitter. The Model 968P is a true 2x2 port device

which can be used as a polarization separator or combiner for orthogonal polarizations. P coupling is wavelength dependent but is nominally flat over 100nm bandwidth. Reduction in P coupling at the edge of the band results in reduction of S isolation. S coupling is minimal at all wavelengths such that the polarization isolation in the P output port is constant. Note: P is the slow (coupled) axis and S is the fast axis.

P/N	DESCRIPTION	PRICE
968P-1*	Fixed PM Splitters – Grade 1	\$1,390.00
968P-2*	Fixed PM Splitters – Grade 2	\$1,225.00

**\*SUBSTITUTE DASH IN PLACE OF THE \* IN THE PART NUMBER AND ADD THE DESIRED WAVELENGTH AFTER THE DASH.**

### 968P SPECIFICATIONS

S Polarization Isolation: Grade 1 -15 to -20dB; Grade 2 -10 to -15dB  
P Polarization Isolation: Grade 1 -20dB; Grade 2 -20dB  
Coupling Ratio: P > 97%; S < 1% • Operating Temp: 0-50°C  
Wavelength: 1060, 1300 or 1550nm • Excess Loss: P 0.7dB at 1450nm Typical; S <0.3dB  
Insertion Loss: TM Typically 1dB at 1540nm, TE <0.5 dB  
Package: 968P – Aluminum U housing and silicone rubber encapsulant 15mm x 2.5mm x 2.5mm  
Pigtails: 900um Loose Tube Standard. Bare fiber also available at no charge, specify when ordering. Optional 3mm Jacket Add \$225.00. 1 meter standard length.

## WDM PUMP COUPLERS

Two polished fibers are optically contacted with core-to-core separation distance such that the pump and signal wavelengths can be combined in a single fiber, primarily in the fundamental mode. Devices are available for pumping either Erbium (1550/980nm) or Neodymium (1060/810nm) doped fibers and either polarization maintaining (904P-P) or non-PM singlemode (904S-S) fibers can be used. Because they are port symmetric devices, these units can be used as either pump combiners or pump separators. **Substitute Grade for G and optional connectors for XX in Part Number. See bottom right page.**

- For optical pumping applications in PM or non-PM fibers
- Low signal loss • High polarization isolation (PM version)

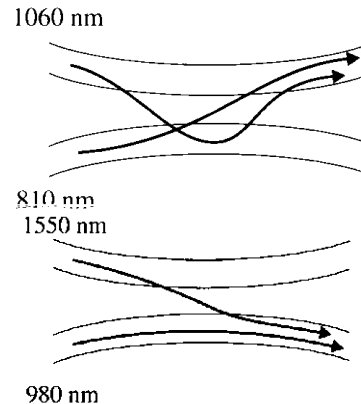
### GENERAL WDM SPECIFICATIONS

Coupling: 1060/810 version: <3% at 1060nm, >90% at 810nm  
1550/980 version: >97% at 1550nm, <10% at 980nm, fundamental

Polarization Isolation (904P-P):  
Grade 1: -23dB guaranteed  
Grade 2: -20dB guaranteed

Operating Temperature: -30 to +80 degrees C (standard), -55 to +80 degrees C (extended band)  
Insertion Loss: 0.05dB typical, 0.2dB maximum

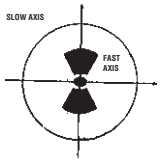
Package: Aluminum U housing and silicone encapsulant 30 x 6 x 6mm or smaller available  
Pigtails: 900um Loose Tube Standard. Bare fiber also available at no charge, specify when ordering. Optional 3mm Jacket Add \$225.00. 1 meter standard length.



P/N	DESCRIPTION	GRADE	PRICE
904P-P-G-XX	Suitable for doped fiber pumping, uses two PM fibers.		
	1060 / 810 version: >95% Signal efficiency	1	\$1,490.00
	>90% Pump efficiency	2	\$1,175.00
	1550 / 980 version: >95% Signal efficiency	1	\$1,490.00
	<93% Pump efficiency	2	\$1,175.00
904S-S-XX	Suitable for doped fiber pumping, singlemode fibers, uses two non-PM fibers, symmetrical (pump coupler or separator)		
	1060 / 810 version: >90% Signal efficiency		\$ 850.00
	>90% Pump efficiency		

All couplers on this page can be ordered with connectors on 900um or 3mm pigtails. For FC or SC terminations keyed to PM slow axis (unless otherwise specified), add \$150.00/end. For FC/APC or SC/APC (narrow key standard) keyed to PM slow axis (unless otherwise specified), add \$200.00/end. For FC or SC NOT keyed, add \$100.00/end.

# SPECIALTY FIBERS



## POLARIZATION MAINTAINING

Fibercore HiBi is a singlemode, polarization-preserving optical fiber designed for high performance interferometric and polarimetric sensors, integrated optics and coherent communications. The characteristic "Bow-Tie" stress applying parts act like opposing wedges to generate optimum stress distribution within the fiber. This unique design provides the very best in both performance and handling with maximum birefringence, minimum stress breakout when cleaved, connectorised, or polished. Minimum order is 30 meters for HB, HB-P, and HB-T series. Minimum order for HB-G series is 50 meters.

TYPE	PRICE/METER
<b>HB:</b> 125/250 $\mu$ m, single-layer acrylate coated for sensor and telecommunications applications between 488nm and 1550nm	\$20.00
<b>HB-P:</b> 125/155 $\mu$ m, high-temperature polyimide-coated for embedded applications at 800nm or 1300nm	\$30.00
<b>HB-G:</b> 80/175 $\mu$ m, broad-temperature range, dual-coated for Fibre Optic Gyro applications at 800nm, 1300nm or 1550nm	\$16.00
<b>HB-T:</b> 125/400 $\mu$ m, 9 $\mu$ m (nominal) MFD fibre for telecommunications applications at 1300nm and 1500nm	\$20.00

### TYPE PART NUMBER

	HB450	HB600	HB750	HB800	HB1000	HB1250	HB1500
Design Wavelength	488nm, 514nm	633nm	780nm	830nm	1064nm	1300nm	1550nm
Cut-off Wavelength	350nm-450nm	500nm-600nm	610nm-750nm	600nm-800nm	840nm-1020nm	1030nm-1270nm	1230nm-1520nm
	HB800P		HB1250P				
Design Wavelength	830nm		1300nm				
Cut-off Wavelength	600nm-800nm		1030nm-1270nm				
	HB800G		HB1250G		HB1500G		
Design Wavelength	830nm		1300nm		1550nm		
Cut-off Wavelength	600nm-800nm		1030nm-1270nm		1230nm-1520nm		
	HB1250T		HB1500T				
Design Wavelength	1300nm		1550nm				
Cut-off Wavelength	1100nm-1290nm		1290nm-1540nm				

### COMMON SPECIFICATIONS

Numerical Aperture: 0.16 +/- 10% Except: HP450 = 0.11 +/- 15%; HB1250T & HB1500T = 0.12 +/- 17%. Beat Length: <2mm Except: Type HB-G = <1.5mm Attenuation: <2 dB/Km Except: HB450 = <100; HB600 = <12; HB750 = <8; HB800, HB800G, & HB800P = <5; HB1000 = <3.

## SINGLEMODE

These Single Mode Fibers from FIBRECORE offer non-standard wavelength fibers with 125um OD and 250um coating except SM1500H which is 80um OD and 170um coated. The N/A is 0.12 +/- 17% for all types except SM1500H and SM1500HG which are 0.19 - 0.21 and 0.29 - 0.31, respectively. Minimum order is 160 meters for SM600, SM750, SM800, and SM980/1000. Minimum order is 85 meters for SM450 and SM1500G. Minimum order is 250 meters for SM1500H.

	SM450	SM600	SM750	SM800	SM1000	SM1500H	SM1500HG
Design Wavelength	488nm, 514nm	633nm	780nm	830nm	1064nm	1550nm	1550nm
Cut-off Wavelength	<488nm	<600nm	<750nm	<800nm	<1000nm	1350-1550nm	1350-1500nm
Attenuation	<100dB/km	<12dB/km	<5dB/km	<5dB/km	<3dB/km	<2dB/km	<5dB/km

TYPE	PRICE/METER	TYPE	PRICE/METER
SM450	\$7.00	SM980/1000	\$4.00
SM600	\$4.00	SM1500	\$2.50
SM750	\$4.00	SM1500	\$7.00
SM800	\$4.00		

## PHOTOSENSITIVE FIBERS

These Fibercore fibers have been doped by Boron making them intrinsically photosensitive WITHOUT hydrogenation or increased germania content. This technique permits Fiber Bragg Gratings (FBG's) to be written using excimer pulse lasers very rapidly resulting in lower cost and lower losses. They are available in both 1300 or 1550nm. Minimum order is \$500.00.

PART NUMBER		PRICE/METER
PS1250		\$ 14.00
PS1500		\$ 14.00
	PS1250	PS1500
Design Wavelength	1300nm	1550nm
Cut-off Wavelength	1100nm - 1260nm	1100nm - 1260nm
Numerical Aperture	0.11 - 0.14	
Mode Field Diameter	8.1µm	9.6µm
Polarisation Mode Dispersion	<0.05 ps/m (typical)	
Outside Diameter (Fibre)	125 µm ±1µm	
Outside Diameter (Coating)	245 µm ±5%	
Proof Test	0.5% (50 kpsi)	

## RARE-EARTH DOPED FIBERS

### ERBIUM AMPLIFIER

FIBERCORE'S Erbium Doped fibers provide Gain-Flattened performance and high efficiency Erbium Doped Fiber Amplifiers (EDFA) for simple, intrinsic solutions in WDM transmission. In user applications, gain flatness figures of >+/-0.5dB between 1540-1565nm have been reported. The fiber is available optimized for 980 or 1480nm pumping with a 0.22NA and have a 125um OD with 250 coating. Minimum order is 30 meters.

### SPECIFICATIONS

PART NUMBER	DF1500F-980	DF1500F-1480
Cut-off Wavelength	850nm to 950nm	1300nm to 1450nm
Numerical Aperture	0.22 $\pm$ 10% (Standard) or 0.30 $\pm$ 10% ('H')	
Absorption at Pump Wavelength	5.0 $\pm$ 0.5 dB/m (0.22NA)	3.3 $\pm$ 0.5 dB/m (0.22NA)
Background Loss	$\leq$ 10 dB/km (Standard NA) $\leq$ 20 dB/km (High NA)	
Core Cladding Concentricity	$\leq$ 0.75 $\mu$ m	
Outside Diameter	125 $\mu$ m $\pm$ 1% (RMS)	
Coating Diameter	245 $\mu$ m $\pm$ 5%	
Proof Test Level	0.5% (50 kpsi)	

### TYPICAL PERFORMANCE AT 1550NM

	980 nm Pump	1480 nm Pump
Small Signal Gain (-45 dBm input)	>30 dB	>25 dB
Saturated Output (-65 dBm input)	>13 dBm	>14 dBm
Conversion Efficiency	>55%	>70%

PART NUMBER	DESCRIPTION	PRICE/METER
DF1500F-980	980nm EDFA	\$25.00
DF1500F-1480	1480nm EDFA	\$25.00

## NEODYMIUM FIBER LASER

Fibercore DF1000 is the ideal introduction to fiber laser technology. Neodymium doped fiber offers a very low lasing threshold even when pumped with a low cost "Compact Disk" type laser diode. Output wavelength depends on configuration but is typically in the region of 1064-1088nm. Fiber OD is 125um with 250um coating. Minimum order is 4 meters.

### SPECIFICATIONS

Core Composition	SiO <sub>2</sub> -GeO <sub>2</sub> (no alumina co-dopant) containing c.500-1000 ppm Nd <sup>3+</sup> ions		
Cut-off Wavelength	875 nm to 1025 nm		
Numerical Aperture	0.21 $\pm$ 15%		
Absorption at Typical Pump Wavelengths (approx.)	780 nm 4.5 dB/m	810 nm 8.50 dB/m	830 nm 3.5 dB/m

PART NUMBER	PRICE/METER
DF1000	\$185.00

## ERBIUM DOPED HIBI

This is a developmental fiber for those interested in Polarization Preserving Fiber that are Erbium Doped. This fiber has an N/A of 0.22 with a 125um core and 250um coating. The cut-off wavelength is 979 nm with attenuation of 5.7 dB/Km at 1224 nm. Specifications are subject to change as well as availability. Minimum order is 3 meters.

PART NUMBER	PRICE/METER
DHB1500F	\$300.00

## POLARIZATION MAINTAINING CABLE ASSEMBLIES

NEW!

PM Cable Assemblies are available with FC, FC/APC, SC, and SC/APC type connectors. They come with your choice of 900um loose tube Hytel or 3mm jacketed. The 900um loose tube Hytel can accept all PC and APC narrow key type connectors on both ends with  $\pm$ 2 degree key placement accuracy. The 3mm jacket can accept FC/APC narrow key type connectors but they cannot be installed on both ends. When choosing a narrow key connector on one end of the 3mm jacket a PC type connector must be used on the other. Key placement accuracy is  $\pm$ 5 degrees. Both 900um and 3mm are limited in length to 5 meters but can go to 10 meters with a heat shrink splice in the middle.

CONNECTOR TYPE	DESCRIPTION	PRICE/EACH
FC/APC or SC/APC	Keyed to Slow Axis	\$200.00
FC or SC	Keyed to Slow Axis	\$150.00
All	Non-Keyed	\$100.00

CONNECTOR TYPE / CONNECTOR TYPE: FC=FC, SC=SC, AF=Angled FC, AS=Angled SC

LENGTH: XXXM=XXX meters

CONNECTOR KEY: P=Polarization Maintaining Non Keyed, K= Polarization Maintaining Keyed

FIBER TYPE: HBXXX where XXX is specific Hi Type Part Number Above

PANDA = (Call For Price)

JACKET TYPE: 01=3mm; LT=900um Loose Tube

### HOW TO ORDER

Example 1: FC to SC keyed connectors on 1 meter of HB1250 fiber with 900um loose tube. P/N is FC/SC-003M-K-HB1250LT. Price is \$320.00

Example 2: FC/APC keyed to FC non-keyed on 10 meters of HB1500T fiber with 3mm jacket. P/N is AF/FC-010M-P-HB1500T01. Price is \$500.00

# ACTIVE COMPONENTS

**LEDs** – Metrotek's LEDs are available in two types: Surface Emitting (SLED) used primarily for multimode short-haul communications links and sensors, and Edge-Emitting (ELED) used predominantly with singlemode fiber optic communications links and instrumentation. The SLEDs are made of GaAlAs or InGaAs and emit at 850 or 1300 nm, respectively. The ELEDs are made of InGaAsP and emit at 1300 or 1550 nm. Both are available in ST, FC or SC active device receptacles or with a pigtail. Standard part numbers are listed below.

## PERFORMANCE SPECIFICATIONS

Fiber Optic Cables & Connectors										
SLEDs			FIBER COUPLED POWER (uW)				FIBER TYPE	BANDWIDTH	UNIT PRICE	
PART NUMBER	WAVELENGTH (NM)/SPECTRAL WIDTH (FWHM)			POWER (uW)			CORE/CLADDING (um)	-3 dB TYP. (MHZ)	US\$	
	Min.	Typ.	Max.	Min.	Typ.	Max.				
MTK-S08-340-025-XX2 <sup>1</sup>	840	850	860		25		50	62.5/125 MMF	35	\$320.00
MTK-S08-340-025-PH2-100 <sup>2</sup>	840	50			25		60	Receptacle	35	\$320.00
		850	860				50	62.5/125 MMF		
MTK-S13-962-030-XX3 <sup>1</sup>	1305	50		30	50		60	Pigtail	160	\$240.00
		1320	1350				75	62.5/125 MMF		
MTK-S13-962-030-PH3-100 <sup>2</sup>	1305	120	140	30	50		80	Receptable	160	\$240.00
		1320	1350				75	62.5/125 MMF		
		120	140				80	Pigtail		
ELEDs										
PART NUMBER	WAVELENGTH (NM)/SPECTRAL WIDTH (FWHM)			FIBER COUPLED POWER (uW)			Iop & Imax (mA)	FIBER TYPE CORE/CLADDING (um)	BANDWIDTH -3 dB TYP. (MHZ)	UNIT PRICE US\$
	Min.	Typ.	Max.	Min.	Typ.	Max.				
MTK-E13-306-008-XX1 <sup>1</sup>	1270	1300	1330	8	15		100	9/125 SMF	150	\$240.00
MTK-E13-306-015-XX1 <sup>1</sup>	1270	60	100	15	25		150	Receptacle	150	\$320.00
		1300	1330				100	9/125 SMF		
MTK-E13-306-040-XX3 <sup>1</sup>	1270	60	100	40	50		150	Receptacle	150	\$240.00
		1300	1330				100	62.5/125 MMF		
MTK-E13-306-008-PH1-100 <sup>2</sup>	1270	60	100	8	15		150	Receptacle	150	\$240.00
		1300	1330				100	9/125 SMF		
*MTK-E15-506-005-XX1 <sup>1</sup>	1520	70	120	5	10		150	Pigtail	150	\$640.00
		1550	1580				100	9/125 SMF		
*MTK-E15-506-010-XX1 <sup>1</sup>	1520	70	120	10	15		150	Receptacle	150	\$720.00
		1550	1580				100	9/125 SMF		
*MTK-E15-506-040-XX3 <sup>1</sup>	1520	70	120	40	50		150	Receptacle	150	\$640.00
		1550	1580				100	62.5/125 MMF		
*MTK-E15-506-005-PH1-100 <sup>2</sup>	1520	70	120	5	10		150	Receptacle	150	\$640.00
		1550	1580				100	9/125 SMF		
		70	120				150	Pigtail		

\*Limited Availability

## LASERS

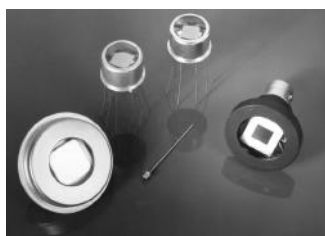
Metrotek offers lasers from 635 – 1550nm in a variety of fiber coupled packages: FC, SC & ST receptacles or fiber-pigtailed. Visible lasers are available at 635, 650 & 670 nm coupled to either SM 3/125 or Multi-Mode 9/125, 50/125, 62.5/125 or 100/140. Near-infrared lasers are 780 – 850 nm coupled to either SM 5/125 or MM 9/125, 50/125, 62.5/125, or 100/140. Fiber-optic lasers are 1310 & 1550 nm coupled to SM 9/125 or multimode fibers. Standard part numbers are listed below.

<b>VISIBLE LASERS</b>								
PART NUMBER	WAVELENGTH (nm)/ Spectral width (FWHM)			Min. Fiber Coupled Power (uW)	Iop & Imax (mA)	Imon (uA)	Fiber Type Core/Cladding (um)	UNIT PRICE US\$
	Min.	Typ.	Max.					
MTK-L63-312-0.2-PH6-100 <sup>2</sup>	625	633	640	200	70	500	3/125 SMF Pigtail	\$560.00
MTK-L63-312-0.5-XX1 <sup>1</sup>	625	633	640	500	85	500	9/125 SMF Receptacle (multimode @635)	\$400.00
MTK-L65-421-0.5-PH1-100 <sup>2</sup>	640	650	660	500	70	1100	9/125 SMF Pigtail (multimode @650)	\$400.00
MTK-L67-225-0.4-PH6-100 <sup>2</sup>		670	675	200	85	500	3/125 SMF Pigtail	\$530.00
MTK-L67-225-1.0-XX1 <sup>1</sup>		670	675	500	45	500	9/125 SMF Receptacle (multimode @670)	\$370.00
MTK-L67-225-004-XX3 <sup>1</sup>		670	675	500	55	500	62.5/125 MMF Receptacle	\$370.00
		3			45			
<b>NIR LASERS</b>								
PART NUMBER	WAVELENGTH (nm)/ Spectral width (FWHM)			Min. Fiber Coupled Power (uW)	Iop & Imax (mA)	Imon (uA)	Fiber Type Core/Cladding (um)	UNIT PRICE US\$
	Min.	Typ.	Max.					
MTK-L78-26R-0.3-XX1 <sup>1</sup>	770	780	795	300	60	400	9/125 SMF Receptacle (multimode @780)	\$320.00
MTK-L78-26R-0.8-XX2 <sup>1</sup>	770	780	795	800	75	400	50/125 MMF Receptacle	\$320.00
*MTK-L85-RPC-0.5-XX1 <sup>1</sup>	830	850	870	500	60	200	9/125 SMF Receptacle (multimode @850)	\$320.00
*MTK-L85-RPC-001-XX3 <sup>1</sup>	830	850	870	1000	40	200	62.5/125 MMF Receptacle	\$320.00
*MTK-L85-RPC-001-PH2-100 <sup>2</sup>	830	850	870	1000	55	200	50/125 MMF Pigtail	\$320.00
		3			40			
		3			55			
<b>FIBER OPTIC LASERS</b>								
PART NUMBER	WAVELENGTH (nm)/ Spectral width (FWHM)			Min. Fiber Coupled Power (uW)	Iop & Imax (mA)	Imon (uA)	Fiber Type Core/Cladding (um)	UNIT PRICE US\$
	Min.	Typ.	Max.					
MTK-L13-H76-0.2-XX1 <sup>1</sup>	1290	1310	1330	200	20	200	9/125 SMF Receptacle	\$260.00
MTK-L13-H76-0.5-XX1 <sup>1</sup>		1	3		45			
MTK-L13-H76-0.5-XX1 <sup>1</sup>	1290	1310	1330	500	20	200	9/125 SMF Receptacle	\$290.00
MTK-L13-H76-0.8-XX1 <sup>1</sup>	1290	1310	1330	800	45	200	9/125 SMF Receptacle	\$310.00
MTK-L13-H76-001-PH1-100 <sup>2</sup>	1290	1310	1330	1000	20	200	9/125 SMF Pigtail	\$320.00
MTK-L13-H76-002-XX2 <sup>1</sup>	1290	1310	1330	200	45	200	50/125 MMF Receptacle	\$320.00
MTK-L15-H96-0.2-XX1 <sup>1</sup>	1520	1550	1580	200	20	200	9/125 SMF Receptacle	\$550.00
MTK-L15-H96-0.5-XX1 <sup>1</sup>	1520	1550	1580	500	30	200	9/125 SMF Receptacle	\$575.00
MTK-L15-H96-001-XX1 <sup>1</sup>	1520	1550	1580	1000	50	200	9/125 SMF Receptacle	\$640.00
		1	3		30			
		1	3		50			

NOTES: 1) For active device receptacles, substitute FC, ST or SC for XX in part number.

2) For connector installed on standard 1m pigtail, substitute FC, ST, or SC for 00 in part number. Add \$40.00 for SM, \$50.00 for APC, and \$30.00 for MM.

# ACTIVE COMPONENTS



## PHOTODIODES AND PHOTODETECTORS

Germanium Power Devices Corporation offers a very wide variety of Ge InGaAs in many popular can type package styles as well as ceramic sub-mounts. GPD maintains a quality system in accordance with Mil-STD specifications.

### COMMON TEMPERATURE °C SPECIFICATIONS

	Storage	Operating
All InGaAs	-40 to 125	-40 to 85
Ge APD	-40 to 85	-10 to 60
All Ge	-55 to 85	-55 to 60

## GE AVALANCHE PHOTODIODE

	GAV40	GAV100	GAV300	UNITS
Quantum Efficiency	60 (70)	60 (70)	60 (70)	% min. (typ.)
Responsivity @1300nm	.76 (.84)	.76 (.84)	.76 (.84)	A/W min. (typ.) M=1
Breakdown Voltage*	20/30/40	20/30/40	20/30/40	V min/typ/max
Dark Current @0.9Vb	0.2	1.0 (0.5)	3 (1.5)	µA max. (typ.)
Capacitance @20V**	0.9	1.8 (1.6)	9 (7)	pF max. (typ.)
Multiplied Dark Current	15	100	300	nA typ. M=1
Cutoff Frequency (-3dB)	2.0	0.6 (0.9)	0.5 (0.8)	GHz min (typ.)
Excess Noise Figure	0.95 (all sizes) BW=1MHz M=101ph=2µA typ.			
Excess Noise Factor	9 (all sizes) @1300nm, f=300MHz typ.			
Temperature Coefficient of Vb0.1	(all sizes) %/°C			
*1R=100µA **f=1MHz				
Active Diameter	40	100	300	mm
Case Styles	TO-46 (modified)/TO-46 SM and MM pigtail, active mounts and ceramic substracts			
Reverse Current	0.3	1.0	3.0	mA
Forward Current	60	100	100	mA
Price	\$225.00	\$225.00	\$250.00	

## HIGH SPEED InGaAs

	GAP60	GAP100	GAP300	UNITS
Active Diameter	60	100	300	µm
Responsivity @850nm	0.10(0.20)	0.10(0.20)	0.10(0.20)	A/W min. (typ.)
1300nm	0.80(0.90)	0.80(0.90)	0.80(0.90)	A/W min. (typ.)
1550nm	0.95	0.95	0.95	A/W min.
Dark Current@5V	1.0(0.3)	1.0(0.3)	5.0(1.0)	nA max. (typ.)
Capacitance @5V	0.8(0.6)	1.0(0.75)	8.0(4.0)	pF max. (typ.)
Bandwidth 50Ω -3dB	2.5	2.0	0.7	GHz min. @5V
Rise/Fall time RL=50Ω	0.07	0.1	0.25	ns min. @5V
Noise Current f=10KHz	0.01	0.2	0.5	pA/√Hz typ.
Case Style (standard)	TO-46(mod)	TO-46(mod)	TO-46(mod)	
Reverse Voltage	25	25	25	V
Reverse Current	1	10	25	mA
Forward Current	10	10	100	mA
Price	\$125.00	\$ 75.00	\$ 90.00	

## LARGE AREA InGaAs

	GAP500	GAP1000	GAP2000	GAP3000	UNITS
Active Diamet	200(2327.4(095)-4604.712.0				
Responsivity @850nm	0.10(0.20)	0.10(0.20)	0.10(0.20)	0.10(0.20)	A/W min. (typ.)
1300nm	0.80(0.90)	0.80(0.90)	0.80(0.90)	0.80(0.90)	A/W min. (typ.)
1550nm	0.95	0.95	0.95	0.95	A/W min.
Dark Current	30(6)@5V	100(25)@5V	200(50)@1V	500(200)@1V	nA max. (typ.)
Capacitance @0V	40(20)	120(80)	500(300)	1000(600)	pF max. (typ.)
Capacitance @-5V	10(8)	50(30)	150(100)@-3V	300(250)@-2V	pF max. (typ.)
Bandwidth 50Ω -3dB	200(5V)	40(5V)	5.3(0V)	4.0(0V)	MHz min.
Rise/Fall time RL=50Ω	2.5(5V)	5.0(5V)	50(0V)	100(0V)	ns
Shunt Resistance	50(125)	10(50)	6(30)	2.0(8)	MΩmin (typ.)
NEP @1550nm	0.5	.10	.14	.28	pW/√Hz. min.
Linear range (±0.2dB)	+10	+10	+8	+8	dBm min.
Case Style (standard)	TO-46(mod.)	TO-46(mod.)	TO-5	TO-5	
Reverse Voltage	20	20	3	2	V
Reverse Current	10	10	10	10	mA
Forward Current	10	10	10	10	mA
Power Dissipation	100	100	50	50	mW
Price	\$105.00	\$155.00	\$250.00	\$725.00	

## Ge PHOTODETECTOR

### Spectral Response 780-1800nm

TYPE	ACTIVE DIA. mm	SHUNT RESISTANCE @VR=10mv KΩ		DARK CURRENT @VR=TEST V (µA) MAX.	REVERSE VOLTAGE VR FOR TEST (VOLTS)	MAXIMUM REVERSE VOLTS (VOLTS)	CAPACITANCE @VR MAX (pF)	NEP TYPICAL @6P (PW/√Hz)	CUT OFF FREQUENCY @V & 50 ΩRL (MHz)	• • PACKAGES STANDARD	PRICE
		MIN	TYP.								
GM2	0.5sq.	30	60	2.0	10	15	27	1.0	120	TO-18	\$ 55.00
GM2HS		100	150	1.0	3	5	55	0.3	60		
GM3	0.1	120	180	1.0	10	15	2	0.3	1500	TO-18	\$105.00
GM3HS		350	500	0.3	3	5	6	0.1	500		
GM4	0.3	60	80	1.5	10	15	10	0.6	300	TO-18	\$ 55.00
GM4HS		250	400	0.4	3	5	25	0.30	120		
GM5	1.0	20	40	5.0	10	15	65	1.5	55	TO-18	\$ 55.00
GM5HS		60	100	1.5	3	5	300	0.5	10		
GM6	2.0	6	12	10	10	15	300	2.0	10	TO-5	\$100.00
GM6HS		30	60	3	3	5	1200	0.8	1		
GM7	3.0	4	8	30	10	12	800	3.0	4.0	TO-5	\$125.00
GM7HS		25	35	4.0	1	3	4000	1.0	0.7		
GM8	5.0	2	4	40	3	5	3000	4.0	1.6	TO-8	\$150.00
GM8HS		7	10	15	1	3	6000	2.0	0.5		

APPLICATION ASSISTANCE  
AVAILABLE – CALL US!



CALL US! OUR APPLICATION  
ENGINEERS ARE READY  
TO ASSIST YOU.



# TEST EQUIPMENT



## PHOTONIX POWER METERS

The PX-B Techlite Series power meters from PHOTONIX were designed with the field technician in mind. These full featured units offer an easy to read graphic display, quick charging, and 4 independent zero reference points that can remain in memory without power for years. This unique feature allows the technician to continue testing without having to re-zero after changing wavelengths or connector styles. The robust case is also unique using extruded aluminum fitted with Elastomeric Bumpers on each end. This provides excellent shock and water resistance further enhancing its field ruggedness. Each power meter comes complete with NiCad AA batteries, AC

Power Pack, soft carrying case, instruction manual, and your choice of one Adaptor included in the price.

### OPTICAL SPECIFICATIONS:

Model	PX-B200	PX-B210
Usage	LAN, Datacom, Telecom	CATV, Analog, Datacom
Detector	2mm Ge	Filtered 2mm Ge
Calibration Points	850nm, 1300nm 1550nm, 780nm	850nm, 1300nm, 1550nm, 780nm
Range (1300, 1550)	+5dBm to -60dBm	+20dBm to -45dBm
Range (780, 850)	+10dBm to -55dBm	+20dBm to -40dBm
Resolution	.01dB	.01dB

### DESCRIPTION

Datacom/Telecom Power Meter  
CATV Power Meter  
SMA Adaptor  
ST Adaptor  
FC Adaptor  
SC Adaptor  
D4 Adaptor

### PART NUMBER

PX-B200  
PX-B210  
PX-E101  
PX-E102  
PX-E104  
PX-E105  
PX-E107

### PRICE

\$750.00  
\$795.00  
\$ 50.00  
\$ 50.00  
\$ 50.00  
\$ 65.00  
\$ 85.00

## PHOTONIX LED/LASER SOURCES

The PX-C Techlite Series sources from PHOTONIX are the companion source to their power meters. Built to the same rugged specifications, these sources offer excellent stability. Three modulation modes are standard making them compatible with most all fiber identification products. The dual sources enable the user to operate both emitters simultaneously making dual wavelength testing simple when used in conjunction with multiple independent zero reference power meters above. Each source comes complete with NiCad AA batteries, AC Power Pack, soft carrying case, and instruction manual included in the price. Select fixed connector output style by substituting ST, FC, or SC for XX in P/N.



### OPTICAL SPECIFICATIONS

Model	PX-C200	PX-C201	PX-C202	PX-C203	PX-C204	PX-C205	PX-C206
Emitter	LED	LED	LED	LASER	LASER	LASER	LASER
Wavelength(s) (nm)	850	1300	850/1300	1300	1550	1300/1550	630-670
Min. Power (dBm)	-17	-17	-17	-8	-8	-8/-8	-2
Stability (dB/ 8hr)	.05	.08	.05/.08	.10	.10	.10/.10	
Typ. Bandwidth (nm)	35	35/170	35/170	5	5	5/5	5
Modulation (Hz)	30Hz, 270Hz, and 2kHz	(For all sources except C206)				3Hz, 270Hz, 2kHz	

### DESCRIPTION

LED 850nm  
LED 1300nm  
LED 850/1300nm  
Laser 1300nm  
Laser 1550nm  
Laser 1300/1550nm  
Visible Fault Finder

### PART NUMBER

PX-C200-XX  
PX-C201-XX  
PX-C202-XX  
PX-C203-XX  
PX-C204-XX  
PX-C205-XX  
PX-C206-XX

### PRICE

\$ 445.00  
\$ 550.00  
\$ 895.00  
\$ 995.00  
\$1,545.00  
\$2,195.00  
\$ 795.00

### GENERAL SPECIFICATIONS FOR PHOTONIX TECHLITE METERS & SOURCES

Operating Temp.: -5C to 45C  
Storage Temp.: -10C to 60C  
Humidity: 10% to 90% Non-condensing  
Power: US 120VAC 60Hz (included), NiCd 4 "AA" 600mAh (included)  
Battery Life: 10 hours Trickle Charge: 12-14 hours Quick Charge: 45 minutes (max.)



## PHOTONIX TEST SETS

Photonix PX-B and PX-C Techlite instruments can be ordered together to form a kit more economically than when purchased separately. Each kit comes with a PX-B200 power meter, corresponding LED or Laser source, choice of adaptor cap, and a waterproof carrying case. Substitute FC, SC, or ST for XX in Part Number.

### DESCRIPTION

LED 850/1300um  
LED 850/1300nm ST\*  
\*Lanlite PX-C102 Source  
Laser 1300um  
Laser 1300um w/PX-B210  
Laser 1550um  
Laser 1300/1550

### PART NUMBER

PX-D102-XX  
PX-D702-XX  
PX-D103-XX  
PX-D113-XX  
PX-D104-XX  
PX-D105-XX

### PRICE

\$1,695.00  
\$1,095.00  
\$1,745.00  
\$1,995.00  
\$2,295.00  
\$2,945.00

## PHOTONIX LANLITE™ METERS & SOURCES

The LANLITE™ series of Optical Power Meters and Light Sources bring a new level of performance to low cost fiber optic test equipment. The Power Meters are complete stand alone units that feature a 0.1db resolution LCD. The Sources utilize LED's and are temperature stabilized for accuracy. The Meters are available in dual wavelengths while the Sources come with single as well as dual wavelengths. Both have a low battery indicator and operate on a standard 9vdc battery. They are housed in extremely rugged packaging and can be ordered individually or as Test Sets. When ordered as a Kit the Power Meter and Source come with a waterproof carrying case.



### SOURCE SPECIFICATIONS:

Model	Port Style	Wavelength (nm)	Pmin (dBm)	Stability (dB/8 hr)
PX-C100	ST	850	-20	.05
PX-C101	ST	1300	-20	.08
PX-C102	ST	850/1300	-20	.05/.08
PX-C108	ST	1310	-10	.08
PX-C109	ST	1550	-10	.08
PX-C110	ST	650	-5	N/A

Operating Temp.: 0C to 50C; Storage Temp.: -10C to 60C; Humidity: 10% to 90% Non-condensing; Power: 9V Alkaline

### METER SPECIFICATIONS:

Model	PX-B100	PX-B102
Detector/Port	Si/ST	Ge/ST
Wavelength (nm)	850/780	850/1300
Range (dBm)*	0 to -55	0 to -50
Resolution (dB)	0.1	0.1
Accuracy (dB)*	+/- 0.3	+/- 0.3

Operating Temp.: 0C to 50C; Storage Temp.: -10C to 60C; Humidity: 10% to 90% Non-condensing; Power: 9V Alkaline  
\*Calibrated at 23C -20dBm typ.

### ORDERING INFORMATION:

POWER METERS	TYPE	PRICE
PX-B100	850/780nm ST	\$ 195.00
PX-B102	850/1300nm ST	\$ 295.00
LED SOURCES		
PX-C100	850nm ST	\$ 195.00
PX-C101	1300nm ST	\$ 295.00
PX-C102	850/1300nm ST	\$ 395.00
LASER SOURCES		
PX-C108	SM 1310nm ST	\$ 550.00
PX-C109	SM 1550 nm ST	\$1,695.00
PX-C110	SM 650 nm ST	\$ 350.00

### TEST SETS

PX-D200	PX-B100 & PX-C100	\$ 395.00
PX-D201	PX-B102 & PX-C101	\$ 595.00
PX-D202	PX-B102 & PX-C102	\$ 775.00

## PHOTONIX TALK SET

Photonix offers the most rugged, low cost, fiber optic talk set available. Ideal for the installation contractor, maintenance supervisor, or system manager, the set supplies half duplex or vox operations over a single fiber. The half duplex set comes with a clip-on speaker microphone while the vox set comes with a headset. The MM version has a 25dB range providing operation up to 8Km. The SM has a 25dB range with operating distance up to 60Km. Both come with an exclusive water proof hard side carrying case and 9V batteries. Price is for 2 unit set. Comes with ST connectors ONLY for mm. Select ST, FC or SC for SM.



### DESCRIPTION

Multimode Set (Half Duplex)  
Singlemode Set (Half Duplex)  
Multimode Set (VOX)  
Singlemode Set (VOX)

### PART NUMBER

PX-G100  
PX-G101-XX  
PX-G102  
PX-G103-XX

### PRICE

\$ 595.00  
\$1,095.00  
\$ 875.00  
\$1,795.00

NOTE: Substitute ST, FC or SC for XX.



## PHOTONIX FIBER IDENTIFIER/FAULT LOCATOR

This unique system can detect active SM or MM fibers AND any faults or breaks in those fibers. Unlike most other fault finders sensing light from 2KHz modulated signals, this system detects the infrared energy emitted from those signals. This gives the advantage of greatly increasing the distance from the source to the Fiber ID or Fault location from a few Km to over 50km. The system uses the Photonix PX-C203 laser based source (or most any other 2KHz modulated laser source) and a probe that detects "leaked" infrared energy. While scanning the fiber(s) under test the probe will "beep" whenever it encounters a light loss point. This could be a break in the fiber, faulty splice/connector, or non-terminated individual or bundled fiber. In the case of non-terminated fibers in a fiber bundle, field splicing productivity is increased by being able to ID quickly which fiber is to be spliced using this technique as opposed to the conventional method of "clamping" on to each individual fiber searching for the "active" fiber. The Fiber Identifier/Fault Locator comes complete in kit form with laser source (your choice of connector output), probe, and waterproof carrying case. Substitute ST, FC, or SC for XX in P/N for connector style on source output. The probe may be purchased separately.

The probe may be purchased separately.

### PART NUMBER

PX-D603-XX  
PX-B603

### DESCRIPTION

Flashdetector Kit  
Flashdetector Probe Only

### PRICE

\$1,995.00  
\$ 395.00

# TEST EQUIPMENT



## FUSION SPLICER REPLACEMENT ELECTRODES

Made in the USA electrodes meet or exceed original equipment manufacturer's specifications for form, fit, and function. These tungsten carbon electrodes will perform the same number of splices and save you money

as well. Select from major brand types below.

MANUFACTURER	SPLICER MODEL	PART NUMBER	PRICE/PAIR
Alcoa Fujikura™	20PM, 30P, 30SF, 30PF, 40F, 40S, 40PM	MTK-S000041	\$ 65.00
Furukawa™ (formerly Fitel™)	S175, S176, S182-A S182K, S182PM S199S, S199M	MTK-S175X-05 MTK-S175K-05 MTK-S199X-11	\$ 65.00 \$ 65.00 \$ 65.00
Sumitomo™	Type 35SE	MTK-EL-1	\$ 65.00
Sumitomo™	Type 61, 62, 63, 41S	MTK-ER-5	\$100.00
Sumitomo™	Type 36	MTK-ER-6	\$ 65.00
Sumitomo™	Type 37	MTK-ER-8	\$100.00
Ericsson™	FSU 975	MTK-FSU975	\$ 75.00
Ericsson™	FSU 995	MTK-FSU995	\$ 75.00
Siecor/Corning™	X75, X76, X77, M90-6000	MTK-X75-026	\$100.00
Siecor/Corning™	M67, M68	MTK-28020299-01	\$100.00
Siecor/Corning™	Compact	MTK-P0734063	\$ 20.00

## VISIBLE FAULT LOCATOR

Acterna's pen style OVF-1 fault locator operates at 635nm up to 5km with SM fibers and >2km with MM fibers. Employing the universal push-pull adaptor it can be used with all standard FC, SC, or ST connectors. Fiber breaks, microbends, and poor optical splices are clearly visible as light glows through the fiber buffer or outer jacket in a CW or Blink mode. Two AAA batteries provide over 40 hours of service. The OVF-1 comes in a rugged metal housing that fits easily into your shirt pocket, complete with batteries.



### SPECIFICATIONS:

**Source:** Class 11 Laser  
**Power Output:** Approximately -5dBm (SMF-28) **Wavelength:** 635nm  
**Batteries:** 2 AAA **Battery Life:** >40 Hours **Blink Mode:** 2 - 3 Hz  
**Operating Temperature:** -10° to 45°C **Storage Temperature:** -40° to 70°C  
**Dimensions:** 170 x 13mm **Weight:** 50g Including Batteries

MODEL	PART NUMBER	PRICE
OVF-1	2252/01	\$350.00

## VISUAL FAULT LOCATOR

Wilcom's F6230 is a handheld pen type fault locator with a visible laser source capable of detection greater than 2Km on either single or multimode cable. Faulty connectors, bad splices, fiber breaks, bends, or crimps can be identified by a selectable glowing or blinking red light. The device comes standard with Universal input for FC, SC, or ST Connectors. Unique hands-free operation. Simply insert the fiber, slide thumb switch to the lock position and the fiber is now locked in place leaving hands free.

### FEATURES

- Low Cost • Convenient "Pen Light" Size • Clips to Pocket • Single-mode or Multimode Fiber
- Optical Output Port with Universal Connector Standard • Class II Laser Visible Beyond 2Km
- Powered by a Single Replaceable AA Battery

- Meets Bellcore TR-NWT-001319 Optical Power Requirements
- Separate LED Indicators for Laser Active and Low Battery

**SPECIFICATIONS**  
**Source:** Laser Diode **Wavelength:** 670±10nm@25°C  
**Output Power:** >-4dBm (.398nW)@25°C into 9µm cable

**Transmission:** Continuous or 1Hz. pulsed signal **Range:** >2km **Power:** single replaceable AA alkaline battery up to 24 hrs. continuous operation at optimal conditions

**Environmental:** Operating Temperature: -10 to +50°C; Storage Temperature: -40 to +80°C; Humidity: 95%

**Physical:** Length: 5.0 in, 12.7 cm; Diameter: 0.7 in, 1.8 cm; Weight: 4.0 oz, 0.1 kg

MODEL	PART NUMBER	PRICE
F6230A	30623085	\$280.00



NEW!

NEW!



## FUSION SPLICER/HEAT SHRINK OVEN

Tritec's FASE II compact portable fusion splicer provides low loss splices for both SM and MM fibers. Using a fixed-alignment ceramic V-Block in conjunction with a piezo-electric translator, a surface tension is created that actually "pulls" the fibers into alignment. This innovative technique, called Axial Reciprocation (wiggle), is caused by vibrating one of the fibers as the two ends meet. As well as producing high quality splices, the whole process makes splicing simple. The operator merely places the fibers in the self-centering clamps and looks through the built-in ultraviolet and infrared protected 75X Microscope. Then, using thumbwheels, the gap distance is adjusted before pressing the arc button. After selecting from a range of pre-installed programs set up for most popular fibers, the splicer completes the operation automatically. In the manual mode, besides the gap distance, the user can also adjust the fusion arc current, arc duration, fiber merge distance (stuff), and wiggle amplitude. The ability to manually adjust these parameters allows the user to develop a unique program for any specific or special application. Once parameters are established the user can put them into the internal microprocessor for future use. This manual manipulation ability is unlike most all other fusion splicers available today. With manual, as well as programmed operation, the FASE II is ideal for field as well as lab use. The unit comes with a sealed lead acid battery and power supply/charger. It is also available in a kit form with various accessories. The FASEKIT includes the FASE II, a heat shrink oven (each comes with a sealed lead acid battery), and a Y-Cord for charging two units all packaged in soft case. The FASEKIT LCD contains everything in the FASEKIT plus a 3.8" LCD monitor and bracket, CCD Camera, mounting plate and fiber handler packaged in a hard case.

### SPECIFICATIONS FOR FUSION SPLICER

<b>Physical</b>		<b>Environmental</b>	
<b>Dimensions:</b>	178 x 127 x 125mm	<b>Operating Temperature:</b>	-10°C to 40°C
<b>Weight:</b>	2.5 kg	<b>Storage Temperature:</b>	-40°C to 70°C
<b>Performance</b>			
<b>Fiber types:</b>		Multimode and Singlemode	
<b>Average loss (singlemode):</b>		Typical 0.05 dB (max. 0.10 dB)	
<b>Average loss (multimode):</b>		Typical 0.05 dB (max. 0.10 dB)	
<b>Features</b>			
<b>Fiber Alignment:</b>		Fixed V-groove	
<b>Fiber Viewing:</b>		X75 magnification single view microscope	
<b>Fiber Translation (coarse):</b>		5mm on both sides (via thumbwheels)	
<b>Fiber Translation (fine):</b>		60µm on one fibre only (via piezo)	
<b>Safety:</b>		Dual software/hardware arc interlock on microscope	
<b>Display:</b>		16 character by 2 line supertwist LCD	
<b>Programmability</b>			
<b>Splicing programs:</b>		10 preset plus 10 custom	
<b>Arc current range:</b>		3.5 - 22.0 mA (0.1 mA resolution)	
<b>Arc time range:</b>		0.0 - 9.9s (0.1 s resolution)	
<b>Over travel range:</b>		0 - 30 µm (1µm resolution)	
<b>Reciprocating Amplitude:</b>		0 - 30 µm (1µm resolution)	
<b>Gap:</b>		0 - 30 µm (1µm resolution)	
<b>Power Supply</b>			
<b>Internal Supply:</b>		12V sealed lead-acid battery	
<b>Splices per charge:</b>		>100 during 8 hours operation	
<b>Power management:</b>		Auto-power-off and battery low indication	
<b>External supply:</b>		18V DC @ 150mA (a universal mains charger is supplied 90 - 264V 47-63 Hz)	

### SPECIFICATIONS FOR HEAT SHRINK OVEN

<b>Physical</b>			
<b>Dimensions:</b>	178 x 102 x 106mm		
<b>Heating chamber length:</b>	75mm (internal)		
<b>Weight:</b>	2.5 kg		
<b>Environmental</b>			
<b>Operating temperature:</b>	-10°C to 40°C		
<b>Storage temperature:</b>	-40°C to 70°C		
<b>Maximum wind tolerance:</b>	20 m/s		
<b>Performance</b>			
<b>Heating temperature:</b>	160°C to ±3°C (adjustable 100 to 180°C)		
<b>Heating cycle:</b>	75 seconds (adjustable 15 to 150 seconds)		
<b>Cooling cycle:</b>	60°C ±5°C, or 2 minutes		
<b>Power Supply</b>			
<b>Internal Supply:</b>	12V sealed lead-acid battery		
<b>Splices per charge:</b>	100 (typical)		
<b>Power management:</b>	Auto-power-off and battery low indication		
<b>External supply:</b>	18V DC @ 150mA (a universal mains charger is supplied 90 - 264V 47-63Hz)		
<b>HOW TO ORDER</b>		<b>PART NUMBER</b>	<b>PRICE</b>
ITEM		086835	\$6,575.00
FASE II		101211	\$7,800.00
FASEKIT LCD		316531	\$9,800.00
Heat Shrink Oven¹		084884	\$1,500.00
Spare P/S Charger		086448	\$ 130.00
Spare Electrode Pair		035455	\$ 195.00
12vdc Converter²		569791	\$ 200.00
¹Comes complete with external Power Supply/Charger. ²Cigarette lighter adaptor			

# TEST EQUIPMENT



## BENCH TOP FIBER MICROSCOPE

NEW!

The Prior Scientific G130 Bench Top Microscope has been designed and built specifically for fiber endface inspection. Utilizing a 3 position objective coupled to a 13 inch color monitor yields effective magnifications of 400X, 800X, and 1600X. Each position objective employs high quality achromatic optics to provide bright, high resolution images with long working distances. Connector adaptor and patented centering mechanism face allows the operator quick fiber alignment and the ability to easily interchange connectors. Precision coarse and fine focusing mechanism along

with adjustable tungsten halogen illuminator gives the viewer crisp, clear images. The microscope comes complete with 2.5 Universal PC type connector adaptor, Camera, Camera mount, monitor, power supplies, and cables. Other specific Connector adaptors are optional and not all are listed below. Call for specific requirement.

PART NUMBER	DESCRIPTION	PRICE
800-G130S-MTK	Complete System	\$5,200.00
800-G172X20	2.5mm Universal Angled Adaptor	\$ 80.00
800-G169X20	1.25 Universal Adaptor	\$ 80.00
800-G176X20	1.25 Universal Angled Adaptor	\$ 80.00



## FIXED V-GROOVE FUSION SPLICER

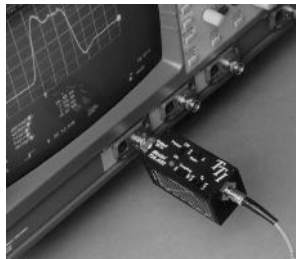
Furukawa's S199S fusion splicer provides optimized programs for splicing all major fiber types (including Dispersion Shifted) using the clad alignment method. SM, MM, and DS simplex fibers with 250 or 900µm coatings are checked for Cleave Angle, Fiber End Gap, Core Eccentricity, Offset, Tilt, Microbending, Dust, and Bubbling at Splice Point prior to splicing. Using tried and true fixed V-Grooves for fiber alignment ensures consistent and economical splicing with average loss results of 0.04dB for SM, 0.03dB for MM, and 0.07dB for DS. Other features include integral heater and cooling tray for splice

protectors, 5" Color Monitor with 50X Magnification, LED Illuminated V-Groove, 25 Second Splice Time, and Memory for up to 150 Splices. Operates on 100/240 VAC 50/60Hz or 12 Vdc NiCad removable battery. Comes complete with Battery, Battery Charger/Cord, Carrying Case, spare Electrodes, AC Power Cord, and Operation Manual.

ORDERING INFORMATION	PRICE
S199S P/N S199S	\$11,400.00
Spare Battery P/N S940	\$ 425.00
Spare Electrodes P/N S199X-11	\$ 110.00

## OSCILLOSCOPE PROBE/OE CONVERTERS

The Terahertz family of O/E scope adaptors convert your optical signals for input into your oscilloscope for fast and easy measurements. Choose the Wavelength and Bandwidth required for your application from the chart below. Ideal for "eye pattern" testing or as an interface for optical pulse shape measurement. Optical Input is ST or FC as noted at the end of the part number. Output is BNC or SMA Type K as noted (under) the part number. All models operate on a supplied 9 volt Lithium battery except the TIA-3000 and TIA-4000.



Part Number	Wavelength	Bandwidth	Max. Power	AC/DC	Price
TIA-525S-ST (BNC)	400-1000nm	125MHz	100,000 V/W	Yes	\$ 545.00
TIA-525I-FC (BNC)	900-1700nm	125MHz	100,000 V/W	Yes	\$ 595.00
TIA-950-FC (BNC)	900-1700nm	750MHz	12,000 V/W	Yes	\$ 999.00
TIA-1200-FC (SMA e)	900-1700nm	12GHz	0.7A/W@1300nm	DC	\$2,295.00
TIA-3000-FC (SMA e)	900-1700nm	8.5GHz	450W/A@1550nm	N/A	\$3,995.00
TIA-4000-FC (SMA e)	950-1650nm	7GHz	Rv= 2500 V/W	N/A	\$5,495.00



## MINI OTDR

The Noyes M600 is a full featured Mini-OTDR with SM and MM user installable modules that offer testing flexibility with true portability without the cost of large mainframe type OTDR's. A removable lead acid battery can power the M600 for 2 hours or operate from a Universal AC adaptor while simultaneously charging the battery. Full battery recharge can be achieved in 6 hours. The M600 is easy to use with automatic or manual pulse width and range settings. The mainframe includes a 7.7 inch color LCD display, 3.5 inch floppy disk drive, and nonvolatile memory capable of storing up to 50 traces. Additional traces (up to 50) can be stored on each floppy. Trace analysis software is also provided (compatible with Win 95/98 and NT 4.0) so that results can be transferred from the internal memory to a PC for full fiber documentation. The software supports various trace manipulations such as two way averaging, trace overlay, graphing, and batch printing. Comes complete with Keyboard, Trace Analysis Software, Serial Cable for PC connection, Carrying Case, Battery, Universal AC Adaptor, and instruction manual.

### COMMON SPECIFICATIONS

MODEL	M600-K-MM-1-XX'	M600-K-SM-1-YY'	M600-K-QUAD-XX-YY'
Ce e Wa e e ( )	MM 850/1300	SM 1310/1550	MM 850/1300
			SM 1310/1550
F be T e	MM	SM	MM, SM
D a c Ra e (dB)	21/23	26/26	21/23/26/26
E e Dead Z e ( e e )	5	5	5
A e a Dead Z e ( e e )	15	15	15
# T ace S ed	50+++	50/50°	50/50°
E e T e	Laser	Laser	Laser
Sa e Ca	FDA 1	FDA 1	FDA 1
P e	Removable Lead Acid or AC	Removable Lead Acid or AC	Removable Lead Acid or AC
I e a Ca	yes	yes	yes

\*50 internal and 50 per floppy diskette

### ORDERING INFORMATION

MODULE	DESCRIPTION	PRICE
M600-K-MM-1-XX'	Dual MM 850/1300	\$ 8,995.00
M600-K-SM-1-YY'	Dual SM 1310/1550	\$ 7,995.00
M600-K-QUAD-XX'-YY'	Quad MM 850/1300 & SM 1310/1550	\$12,850.00
3900-02-0100	Spare Battery	\$ 60.00

'Substitute ST or SC for MM and ST, SC, or FC for SM. XX is MM and YY is SM.

## PIEZO FIBER STRETCHERS

NEW!



Canadian Instruments Fiber Stretchers are available in two Models. Model 915/915B is for high frequency applications associated with fiber optic interferometers and phase control of fiber lasers. Model 916/916B is slow moving but has a much larger stretch needed for Delay Lines, or Optical Coherence Tomography. Both devices wrap a mandrel with an appropriate number of windings of a specific fiber and employ a voltage driven piezo crystal to stretch the fiber. Corning SMF-28 type SM fiber is standard with PM PANDA or PM BOWTIE as options. The wrapped fibers are secured with epoxy and have standard bare fiber 1 meter pigtails. Connectors are optional. The piezo excitation voltage is provided by a driver card on all models. The Model 915/915B is supplied with a driver card that requires a ±15Vdc, 300ma power supply (usually customer provided with a standard lab power supply) and the Model 916/916B requires a separately purchased controller Model 914 that includes the driver card and the power supply. Model 914 can also power the Model 915/915B if you require a power supply. Control signal input to the Model 915/915B Driver is factory set at -5Vdc to +5Vdc which translates to -25 to +25Vdc to the Piezo. Control signal input to the Model 916/916B is factory set at 0-5Vdc. Add \$40.00 per connector end for SM PC type connectors and \$50.00 per connector end for SM APC type connectors. Call for Panda, Bowtie, and PM connectors.

### MODEL 915 SPECIFICATIONS

FREQUENCY RESPONSE: Flat to 20KHz, Linearly falling to 0 at 100KHz.

FIBER STRETCH: 0.01 micron/volt per fiber winding over the 50 volt range

LINEARITY: Nominal 5 to 10% Typical

MANDREL DIMENSIONS: 88.9L x 38.1W x 28.6H mm Note: For 1500nm SMF-28 a larger mandrel (915B) is used to compensate for microbending.

915B MANDREL DIMENSIONS: 101.6L x 50.8W x 28.6H mm

WINDING CAPACITY: 25 wraps maximum for 400um coated PANDA

40 wraps maximum for 250um coated SMF-28

### MODEL 916 SPECIFICATIONS

FREQUENCY RESPONSE: 20Hz at full amplitude sweep, Linearly (approx) falling to 0 at 1KHz.

MANDREL DIMENSIONS: 94.2L x 31.8W x 42.5H mm Note: For 1500nm SMF-28 a larger mandrel (916B) is used to compensate for microbending.

916B MANDREL DIMENSIONS: 113.9L x 44.5W x 42.5H mm

STRETCH LENGTH: 4mm Maximum

WINDING CAPACITY: 50 wraps maximum for 400um coated PANDA

80 wraps maximum for 250um coated SMF-28

### HOW TO ORDER

PART NUMBER	DESCRIPTION	PRICE
Model 915-XX	High Frequency Piezo SMF-28 1300nm Fiber Stretcher	\$ 950.00
Model 915B-XX	High Frequency Piezo SMF-28 1500nm Fiber Stretcher	\$ 950.00
Model 916-XX	Low Frequency Piezo SMF-28 1300nm Fiber Stretcher	\$1,800.00
Model 916B-XX	Low Frequency Piezo SMF-28 1500nm Fiber Stretcher	\$1,800.00
Model 914	Controller Power Supply required for Model 916/915B and optional for Model 915/915B	\$ 950.00
Model 914-4	Controller Power Supply for up to 4 Stretchers	\$1,800.00

CALL FOR PRICE ON PM VERSIONS

Substitute FC for XX in P/N for FC and AF for XX in P/N for FC/APC connectors.

# TEST EQUIPMENT

## HAND-HELD OPTICAL FIBER IDENTIFIER

Wilcom's series of hand held Singlemode "live fiber" identifiers are the ideal instrument for detecting optical traffic without interrupting service. All models will detect continuous wave and modulated tones at 270, 1000, and 2000Hz with indication of direction and corresponding frequency. The F6222 & F6222C will also measure relative core power and display the value. This feature is excellent for trouble shooting power loss through splices or connectors. All models come complete with leather carrying case and 3 interchangeable adaptor heads for jacketed, coated, or ribbon fibers. All models have the same specifications except the F6222C (For CATV Applications) which has a core power sensitivity of -20dBm vs. 0 to -40dBm +/-2dB.

### FEATURES

- Hand-Held, Lightweight, Rugged, Easy-to-Use, Battery-Powered • Operated With One Hand
- Interchangeable Adaptor Heads for Jacketed, Coated or Ribbon Fiber
- Weighs Less Than 7.6oz. • Complete With Leather Carrying Case
- Attaches to Belt or Tool Pouch • Uses 9-volt Battery

### Live Fiber Identifier

- Operates From 800nm to 1700nm • Compatible With Most AT&T and Corning Optical Fiber
- Uses Non-Destructive Macrobending Technology

### Easy to Use

- Bi-Direction Traffic Indication • High Intensity LED indication of Active Signal Transmission
- Detects presence of 270Hz, 100Hz and 2000Hz Modulated Tones • Low Battery Indication

### SPECIFICATIONS

**Optical Characteristics:** (Using Corning 1528) **Detection Technique:** Non-destructive macro-bending; **Typical loss in dB:** <0.6dB@1310nm typical; **Spectral Response:** 800nm to 1700nm; **Detector Sensitivity (MDSP)\*:** -40 dBm typical (equivalent core power); **Optical Tone Receiver:** 270Hz, 1kHz, 2kHz; **Minimum Fiber Slack:** 0.75 inches required for detection; **Core Power Reading:** detection, 0 to -40 dBm +/-2dB

**Fiber Compatibility:** Dual Window Singlemode: 8 to 10µm core diameter;

**Coating Diameter:** 250µm diameter; **Coating:** High Refractive Index Acrylate

**Electrical Characteristics:** **Power:** One 9-volt Alkaline Battery; **Operation:** Approx. 10,000 readings

**Environmental Conditions:** **Operating Temperature:** -20°C to +50°C;

**Storage Temperature:** -40°C to +60°C; **Humidity:** 0 to 90% non-condensing

**Physical:** **Length:** 7.5 inches; **Width:** 1-1/4 inches; **Depth:** 1 inch; **Weight:** 7.5oz.

MODEL	DESCRIPTION	PART NUMBER	PRICE
F6121A	ID Only	30612120	\$1,495.00
F6222	ID and Power	30622210	\$1,795.00
F6222C	CATV ID and Power	30622230	\$1,795.00



## OPTICAL FAULT LOCATOR

The Wilcom FR2 Fiber Ranger Fault Locator uses OTDR technology to locate faults without the cost and complications of using an OTDR. A single key will measure multiple events in feet or meters up to 20Km with OTDR accuracy at a fraction of the cost of an OTDR. Operating at 1310nm the unit can detect seven (7) separate events in Singlemode or Multimode fibers. The FR2 is light weight, hand-held, and rugged with LCD display. Your choice of ST, SC, or FC connector output. Comes complete with batteries and soft carrying case.



### SPECIFICATIONS

**Source:** Class 1 Laser, (FDA 21 CFR)

**Max Distance:** 20Km

**Operating Temp:** -10 to +50°C

**Battery:** 4AA Alkaline

**Dimensions:** 7.7 x 4.0 x 1.7 inches.

**Accuracy:** ±2m

**Min Distance:** 30m

**Storage Temp:** -20 to +60°

**Battery Life:** >13,000 operations

**Weight:** 0.9 lbs. (440g)

### PART NUMBER

30000202

30000203

30000201

### CONNECTOR

ST

SC

FC

### PRICE

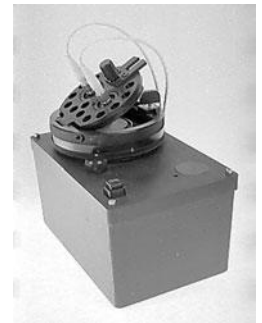
\$2,495.00

\$2,495.00

\$2,495.00

## TWO CONNECTOR PORTABLE POLISHING MACHINE

The UT-MINIPOL 2 from ULTRA TEC requires no special operator skills or experience to obtain PC polish with results of < -55dB backreflection with standard connector fixtures. Using optional APC connector fixtures this same machine will consistently deliver results of < / = -65dB. It is fully portable using 12Vdc external power making this the ideal Polishing Machine for new field terminations or re-polishing older connectors. The unit comes with 110VAC/12Vdc converter and 5 resilient surface laps. All fixtures are optional and sold in pairs.



### PRODUCT SPECIFICATIONS:

**Backreflection:** -55dB to > -65dB • **Insertion Loss:** < 0.5dB • **Apex Offset:** < 50 Microns • **Fiber Under-cut:** < 50 Nanometers • **Radius Generation:** 10-15mm

### OUTSTANDING FEATURES:

- Singlemode or Multimode capability • Tabletop or portable capability • PC & APC Polishes
- Battery Capability • Can re-polish older connectors • No experience needed to use machine
- Exceeds industry standards • Compact and lightweight

### ORDERING INFORMATION

UT-MINIPOL 2 Polisher

### PART NUMBER

8802-2

### PRICE

\$2,495.00

### ACCESSORIES

ST/PC Fixture

SC/PC Fixture

FC/PC Fixture

LC Fixture

ST/APC Fixture

SC/APC Fixture

FC/APC Fixture

Resilient Surface Disc

220VAC/12Vdc Adaptor

MM Consumables

SM Consumables

### PART NUMBER

4004-12

4005-12

4014-12

4015-12

4004-82

4005-82

4014-82

6593-1

4026-2

2200-2

2200-3

### PRICE

\$ 150.00

\$ 325.00

\$ 150.00

\$ 395.00

\$ 250.00

\$ 350.00

\$ 250.00

\$ 120.00

\$ 35.00

\$ 100.00

\$ 250.00

## ACTERNA VARIABLE OPTICAL ATTENUATOR

The Acterna OLA-15B is a handy-sized, rugged optical attenuator for SM applications from 1260 to 1625nm that is calibrated at 1310 and 1550nm. It has a large rotary control on the front panel which, makes setting of the attenuation quick and easy. Resolution is 0.05dB and attenuation can be set within the wide range of 3 to 60dB. Maximum input power is +23dBm with insertion loss of <3dB typical. Total attenuation accuracy is +/- 0.8dB with back reflection dependent on connector type (PC or APC) selection. The instrument comes

complete with two each of 2.5mm PC OR a 2.5 APC universal base, your choice of FC or SC Adaptors, 2 standard AA batteries, and operating manual. Add -FC or -SC onto part number to select connector choice. For extra connector adaptors, see price and part number below. An Ac power supply is optional.

### HOW TO ORDER GUIDE

MODEL	DESCRIPTION	PART NUMBER	PRICE
OLA-15B	Variable Optical Attenuator w/2.5 PC Adaptor	2239/02	\$2,945.00
OLA-15B	Variable Optical Attenuator w/2.5 APC Adaptor	2239/21	\$2,945.00
Power Supply	Optional 120V AC/60Hz	2238/90.04	\$ 43.00
FC	Adaptor	2060/00.51	\$ 140.00
SC	Adaptor	2060/00.58	\$ 140.00
ST	Adaptor	2060/00.32	\$ 140.00



Use MasterCard or Visa for ordering convenience!



## POCKET SOURCE

The Pocket Source produces an extremely bright, visible white light for testing continuity in FO cables, cable assemblies and LAN systems. The source operates on two AA batteries contained in a nickel-chrome plated heavy duty steel body. It is supplied with a universal ST/SC/FC adaptor.

### PART NUMBER

PSF22

### PRICE

\$35.00

# TEST EQUIPMENT

## ACTERNA "POCKET" POWER METERS

Acterna offers three ranges of power meters for Datacomm (OLP-5), Telecom (OLP-6), and CATV (OLP-8). All are very simple to operate using only three button operation while supplying accurate measurements. The OLP-5 has a unique "Twintest" feature that automatically makes dual wavelength attenuation measurements. After storing a reference level for each wavelength, the OLP-5, when used in conjunction with the OLS-5, will toggle between 850 and 1300nm in the "Twintest" mode. Additionally, the OLP-5, OLP-6, and OLP-8 can be used to detect the modulation frequency of the fiber to be measured allowing an easy way to identify specific fibers when performing attenuation measurements on multiple fibers. The instruments come complete with 2 standard AA batteries, a robust belt bag, and operating manual. The OLP-5, OLP-6, and OLP-8 have a fixed Universal Push-Pull (UPP) 2.5mm adaptor.

### COMMON SPECIFICATIONS

**Accuracy:** +/- 0.20dB (+/- 5%)  
**Display:** 4 Digit LED  
**Temperature Range:** -10 to +55°C  
**Dimensions:** 73w x 28h x 140d (mm)  
**Resolution:** 0.01dB >-60dB, 0.1 <-60dB  
**Modulation Detection:** 270Hz, 330Hz, 1KHz, and 2KHz  
**Reference:** Reference level stored for each wavelength  
**Battery Life:** 130 Hours (Auto Power Down after 20 minutes)

**Detector:** Germanium  
**Units:** dB or dBm  
**Storage Temp:** -40 to +70°C  
**Weight:** Approximately 180 grams

### SPECIFICATIONS

	Display Range	Maximum Input	Linearity	Calibrated Wavelengths Wavelength Detection
OLP-5	-60 to +5dBm	+10dBm	+/- 0.06dB (-50 to +5dBm)	820, 850, 1300, 1550nm
OLP-6	-65 to +10dBm	+10dBm	+/- 0.06dB (-50 to +5dBm)	780, 850, 1300, 1310, 1550nm
OLP-8	-50 to +23dBm	+23dBm	+/-0.06dB (-35 to +20dBm)	980, 1310, 1480, 1550nm

### HOW TO ORDER GUIDE

MODEL	DESCRIPTION	PART NUMBER	PRICE
OLP-5	Datacomm - 2.5 UPP	2256/01	\$675.00
OLP-6	Telecomm - 2.5mm UPP	2256/02	\$705.00
OLP-8	CATV - 2.5mm UPP	2256/03	\$795.00



## ACTERNA HIGH PERFORMANCE POWER METERS

The Acterna high performance power meters incorporate the "Twintest" and modulation frequency detection features found in the "Pocket" power meters but offer a much wider dynamic range. In addition, extra features such as Data Storage, FiberASSISTANT Software, RS-232 and Audible Signal Fiber ID makes these units more efficient in their application. Up to 1,000 sets of test measurements can be stored and then downloaded to a PC using the Fiber ASSISTANT software (available for free from www.acterna.com) via the RS-232 port. The software gives parameter settings, data logging and data storage functions which can be sorted and filed by cable. The user can also set the software up for a specific loss budget and a pass/fail assessment can then be made. When using the companion OLS-15 source in the modulation mode, the High Performance meters have an audible signal that will sound when the correct fiber is brought near the input. The OLP-15C and OLP-18C have a back lit display for viewing in all lighting conditions. All High Performance meters come complete with 2 AA batteries, a proprietary "Dog Ear" 2.5mm Universal Adaptor, RS-232 cable with DB-9's, and a DB-25 to DB-9 adaptor. Order other proprietary "Dog Ear" adaptors separately.

### COMMON SPECIFICATIONS

**Accuracy:** +/- 0.13dB (+/- 3%)  
**Units:** dB, dBm, mw, uv  
**Temperature Range:** -10 to +55°C  
**Weight:** Approximately 500 grams  
**Dimensions:** 95W x 49H x 185D (mm) Approximate;  
**Modulation Detection:** 270Hz, 330Hz, 1KHz, and 2KHz; **Reference:** Reference level stored for each wavelength; **Battery Life:** 36 Hours typical (Auto Power Down after 20 minutes)

**Display:** 4 Digit Backlit LED (Except OLP-15B)  
**Resolution:** 0.01dB >-60dB, 0.1 <-60dB  
**Storage Temp:** -40 to +70°C  
**Universal Adaptor (UPP):** 2.5mm

### SPECIFICATIONS

	Display Range	Maximum Input	Calibrated Wavelengths	Detector
OLP-15B*	-70 to +20dBm	+20dBm	780, 850, 1300, 1310, 1550nm	Germanium
OLP-15C	-70 to +20dBm	+20dBm	780, 850, 1300, 1310, 1550nm	Germanium
OLP-18C	-60 to +26dBm	+26dBm	850, 980, 1310, 1480, 1510, 1550, 1625nm	InGaAs

\*The OLP-15B does NOT have a backlit display

### HOW TO ORDER GUIDE

MODEL	DESCRIPTION	PART NUMBER	PRICE
OLP-15B**	Telecomm/Datacomm	2229/22	\$ 999.00
OLP-15C	Telecomm/Datacomm	2229/23	\$1,325.00
OLP-18C	CATV	2229/43	\$1,510.00
1.25mm	"Dog Ear" Universal Adaptor	2014/00.28	\$ 93.00
FC	"Dog Ear" FC/FCAPC Adaptor	2014/00.09	\$ 93.00
SC	"Dog Ear" SC/SCAPC Adaptor	2014/00.24	\$ 93.00

\*\*Note: Limited quantity available.



## ACTERNA "POCKET" SOURCES

The Acterna companion sources for the power meters above are available with LED (OLS-5) for multimode 850 and 1300nm or Lasers (OLS-6) for singlemode 1310 and 1550nm. The OLS-5 has a single ST connector output adaptor and the OLS-6 has two connector output adaptors, one for each Wavelength. The OLS-5 is a dual wavelength source (1310/1550 OR 1550/1625) and both Lasers can be activated simultaneously. The 1625nm wavelength is ideal for DWDM applications and where micro/macro bending effects require additional testing. The OLS-5, when used with the OLP-5, has the unique "Twintest" feature described above. Both sources provide CW as well as modulated outputs. The instruments come complete with 2 standard AA batteries, a robust belt bag, and operating manual.

### SPECIFICATIONS FOR THE OLS-5

**Wavelength:** 850nm +/- 20nm, 1300nm +/- 50nm  
**CW Output Power:** -20dBm Typical into 50/125µm fiber; -17dBm Typical into 62.5/125µm fiber;  
-13dBm Typical into 100/140µm fiber  
**Stability:** +/- 0.05dB after 15 Minutes at 23°C; +/- 0.20dB after 6 hours at -10 to +55°C  
**Modulation:** 1KHz, or 2KHz

### SPECIFICATIONS FOR THE OLS-6

**Wavelength:** 1310nm +/- 20nm AND 1550nm +/- 20nm  
**OR Wavelength:** 1550 +/- 20nm AND 1625 +/- 20nm  
**CW Output Power:** -7dBm Typical into 9/125µm fiber  
**Stability:** +/- 0.02dB after 1 Hour; +/- 0.1dB MAX after 8 hours  
**Modulation:** 270Hz, 1KHz, or 2KHz

**COMMON SPECIFICATIONS:** **Battery Life:** 60 Hours; **Dimensions:** Approximately 73W x 28H x 140D mm; **Weight:** Approximately 200 grams

MODEL	DESCRIPTION	PART NUMBER	PRICE/EACH
OLS-5	MM 850/1300nm w/STPC	2255/01	\$1,040.00
OLS-6	SM 1300/1550nm w/FCPC	2255/02	\$2,060.00
OLS-6	SM 1300/1550nm w/SCPC	2255/45	\$2,060.00
OLS-6	SM 1300/1550nm w/FCAPC	2255/21	\$2,060.00
OLS-6	SM 1300/1550nm w/SCAPC	2255/46	\$2,060.00
OLS-6	SM 1550/1625nm w/FCPC	2255/30	\$3,980.00
OLS-6	SM 1550/1625nm w/SCPC	2255/32	\$3,980.00

## ACTERNA HIGH PERFORMANCE SOURCE

Acterna offers the OLS-15 with a high power Dual FP Laser at both 1310 and 1550nm. When used with the Acterna OLP High Performance Power Meters in the "Twintest" and auto wavelength detection modes, the power meter automatically stores each reference level and makes dual wavelength attenuation measurements. This totally automated operation reduces operator time and potential for errors. This is accomplished by the OLS-15 sending a modulated ID along with the specific wavelength which the High Performance Power Meters detect. Once detected, the power meter looks at the received wavelength, calibrates to it and stores a measurement at that wavelength. It then waits until it sees the other wavelength, calibrates to it and stores this measurement. This process takes 6 seconds maximum. The source then toggles between the two wavelengths at 4 second intervals. The results are stored in the memory of the structured database "FiberASSISTANT" software (available for free from www.acterna.com) with Fiber Number, Cable Number, (both user selectable to start) and Wavelength. The fiber number is automatically incremented after storage. The instrument comes complete with two each of 2.5mm PC OR a 2.5 APC universal base, your choice of FC or SC Adaptors, 2 standard AA batteries, and operating manual. Add -FC or -SC onto part number to select connector choice. For extra connector adaptors, see price and part number below. An AC power supply is optional.

### SPECIFICATIONS:

**Wavelength:** 1310 +/- 20nm AND 1550 +/- 20nm; **CW Power Output:** -7dBm into 9/125 fiber  
**Stability:** +/- 0.02dB after 15 minutes at -10 to +55°C; +/- 0.2dB after 8 hours -10 to +55°C  
**Modulation:** 270Hz, 1KHz, or 2KHz; **Dimensions:** Approximately 95W x 49H x 195D mm  
**Weight:** Approximately 500g including batteries. **Battery Life:** 28 Hours.

MODEL	DESCRIPTION	PART NUMBER	PRICE
OLS-15	SM 1310/1550nm w/2.5 PC Base	2238/01	\$3,630.00
OLS-15	SM 1310/1550nm w/2.5 APC Base	2238/11	\$3,630.00
Power Supply	Optional 120V AC/60Hz	2238/90.04	\$ 43.00
FC	Adaptor	2060/00.51	\$ 140.00
SC	Adaptor	2060/00.58	\$ 140.00
ST	Adaptor	2060/00.32	\$ 140.00



## VIDEO LINKS



### NEW! RGB VIDEO LINKS

The Opticomm Model 9130 is available for RGB Systems over 3 fibers in either MM or SM. It is an AM modulated system with AGC that can provide up to 200MHz Video Bandwidth and will accommodate sync on green or sync on all three channels. LED Status indicators are provided for Video, Sync, FM Data, Carrier Detect, Voltage, Temperature, and Optical levels. They come with BNC video inputs and ST for MM and FC for SM optical outputs. They operate on 24VAC with an optional wall plug power supply. Standard units come as an insert card for use with a 19" rack card cage. For stand alone applications order a DTCR Desk Top enclosure and associated power supply. Call for price on card cage. See [www.metrotek.com/dtcr.html](http://www.metrotek.com/dtcr.html)

### VGA/RGB VIDEO/DATA/AUDIO

The Opticomm Model RGB-3000 is an AM modulated VGA/RGB 3 Fiber System with 200 Mhz bandwidth for ultra high (1840 x 1634) resolution available in MM or SM. It is ideal for the extension of any high resolution video signal such as a CAD/CAM graphics workstation. Choice of H/V Sync, Composite External Sync, Sync on Green, or all three channels along with AGC provides consistent performance. Status indicators are provided for power and VGA H/V Sync present. All units are stand alone and will work on either 110 or 230VAC, switch selectable. They come with standard VGA 15 Pin HD female video inputs and ST for MM and FC for SM optical outputs. Multimedia Option provides keyboard, Mouse, RS-23, and 2 Audio ports for remote multimedia presentations. This option requires three (3) additional fibers. Call for SGI, SUN, and IBM/PS2 160Mhz or 350Mhz applications.

### COMMON SPECIFICATIONS FOR MODEL RGB-9100 SERIES AND MODEL RGB-3000 SERIES

**Video Standards:** Complies with RS-170, RS-170A, and RS-343  
**Video In/Out Impedance:** 75 ohms  
**Video Bandwidth:** 10Hz to 160MHz @-3dB or 200MHz @-3dB  
**Video In/Out Level:** 1v peak to peak, 0.7v without Sync  
**Gray Scale Linearity Distortion:** <2.0% Typical  
**Pixel Intensity Distortion:** <2.0% Typical  
**Linearity:** +/- 1.1% Typical  
**Tilt:** <= 0.5% Typical  
**Max Horizontal Frequency:** 128KHz  
**Max Refresh Rate:** 120KHz  
**S/N Ratio:** >52 dB Using RS-250C Standards @ 500 meters  
**SNR:** 52dB Using RS-25C Standards @500 meters  
**Output:** -13dBm (865nm 50/125), -10dBm (865nm 62.5/125), -8dBm (1310nm SM)  
**Receiver Sensitivity All:** -20dBm  
**Vibration:** Up to 5 g's  
**Storage Temperature:** -30 to 85°C  
**DTCR-1 Dimensions:** 7.16L x 5.21W x 0.94H (Inches)  
**DTCR-1 Weight:** 23 oz  
**Resolution:** 1792 x 1536  
**Operating Temp:** -20 to +70°C  
**Shock:** Up to 12 g's  
**RGB/Sync:** 3 Fibers  
**Power (DTCR-1):** 24VAC

### MODEL RGB-3000 SERIES SPECIFICATIONS

**VGA/RGB:** 3 Fibers  
**Audio In/Out Impedance:** 600 ohm Balanced  
**Frequency Response:** 10 Hz to 20 KHz  
**Data Rate:** DC to 19.2 Kps  
**Total Harmonic Distortion:** <1.0%, 1KHz at Max Modulation  
**Connector Type:** Phoenix 5 pin Balanced to 2 Mono (L/R) to XLR  
**Connector Types:** Keyboard -6 Pin Din; Mouse PS/2 - 6 Pin Din; RS-232 - DB9  
**Dimensions:** 13.75L x 8.5W x 1.65H (Inches)  
**Weight:** 39 oz.  
**Power:** 110/220 VAC Switch Selectable  
**Audio In/Out Level:** -6 to +6dBm  
**S/N Ratio:** >60dB  
**BER:** 10<sup>-9</sup>

### ORDERING INFORMATION

PART NUMBER	DESCRIPTION	PRICE
RGB-9130/XMT-LO-IC	865nm MM 160MHz Transmitter	\$2,025.00
RGB-9130/RCV-LO-IC	865nm MM 160MHz Receiver	\$2,025.00
RGB-9100/XMT-L2-IC	1310nm SM 160MHz Transmitter	\$3,640.00
RGB-9100/RCV-L2-IC	1310nm SM 160MHz Receiver	\$3,640.00
RGB-9130-XMT-L2-IC	1310nm SM 200MHz Transmitter	\$4,550.00
RGB-9130/RCV-L2-IC	1310nm SM 200MHz Receiver	\$4,550.00
DTCR-1	Desk Top Enclosure	\$ 260.00
PS-2400	110 to 24VAC Converter	\$ 25.00
RGB-3003-XMT-LO-ST-SA	865nm MM 200MHz Transmitter	\$2,840.00
RGB-3003-XCV-LO-ST-SA	865nm MM 200MHz Receiver	\$2,840.00
RGB-3003-XMT-L2-FC-SA	1310nm SM 200MHz Transmitter	\$3,755.00
RGB-3003-XCV-L2-FC-SA	1310nm SM 200MHz Receiver	\$3,755.00
RGB-3006-XMT-LO-ST-SA	865nm MM 200MHz Transmitter with Multimedia Option	\$3,640.00
RGB-3006-XCV-LO-ST-SA	865nm MM 200MHz Receiver with Multimedia Option	\$3,640.00
RGB-3006-XMT-L2-FC-SA	1310nm SM 200MHz Transmitter with Multimedia Option	\$4,555.00
RGB-3006-XCV-L2-FC-SA	1310nm SM 200MHz Receiver with Multimedia Option	\$4,555.00

### LOW COST VIDEO LINK SYSTEM

The Metrotek V-250MM video transmission system consists of the VXM-250 Fiber Optic Transmitter, the VR-250 Fiber Optic Receiver and two 115/240 VAC, 50/60Hz power adaptors. The system is fully compatible with NTSC, SECAM, PAL, and D2MAC video standards. Small in size, the VXM-250 mounts directly on the output BNC connector of the camera or video source. It features a bi-color LED that indicates the presence of video signals and proper operation of the units. They are available in SM and MM versions. The SM system can perform 20+ Km.



### SPECIFICATIONS

**System Bandwidth:** 10 MHz (-3dB) **Input/Output Impedance:** 75 Ohms  
**Nominal Input/Output Voltage:** 1 Vp-p **Operating Wavelength:** 850/1300nm  
**Optical Connectors:** ST® **Signal Connectors:** BNC **Link Budget (850/1300)\*\*:** 16/14dB  
**Differential Gain:** 2% Typ. **Differential Phase:** 2 Deg. Typ. **Signal to Noise Ratio:** 65 db Min.  
**Operating Temp:** 0-50° C **Dimensions:** 1.5"dia, x 1.5"L, 4.5"x2.5"x1"  
**Power Req:** 120/240 VAC 50-60Hz. (Isolated +12 vdc, floating ground)  
\*\*62.5/125µm Fiber, 14dB SM fiber.

P/N	DESCRIPTION	SYSTEM PRICE
V-250-ST®-850	MM 850nm	\$450.00
V-250-ST®-1300	MM 1300nm	\$560.00
V-250-ST®-1300-SM	SM 1300nm	\$900.00

## VIDEO LINKS



### NEW! COMPOSITE A/D VIDEO

The Communications Specialties 7100 Series accepts standard NTST, PAL, or SECAM analog input, converts it to digital signals, transmits it over SM or MM fiber, and converts it back to analog at the receiver end. This pure digital 10 Bit processing and transmission technique requires no adjustments while providing dependable video transmission and reception with all the advantages of fiber optic technology.

### SPECIFICATIONS

**Differential Phase:** 0.5 Degrees  
**Signal to Noise Ratio:** 67dB  
**Input/Output Voltage:** 1 Vpp

**Differential Gain:** 1%  
**In/Out Impedance:** 75 ohms

### OPERATING LOSS BUDGET

MM 850nm 20dB  
SM 1300nm 25dB

Dimensions: 6.5W x 1.15H x 8L inches  
Weight: Approx. 1 lb.

### ORDERING INFORMATION

MODULE	PART NUMBER	PRICE
MM 850nm Transmitter	7100-B1X*	\$1,095.00
MM 850nm Receiver	7101-B1X*	\$1,095.00
SM 1300nm Transmitter	7100-B7X*	\$1,495.00
SM 1300nm Receiver	7101-B7X*	\$1,495.00
Power Supply	PDPS-1-PP#	\$ 50.00

\*Substitute X in part number for S for ST or F for FC.  
#Select Cord type and substitute for PP: NA=North American; AU=Australian; EU=European; UK=United Kingdom



Have you visited our Web Page Yet?  
You will find additional products  
not shown in this catalog.  
[www.metrotek.com](http://www.metrotek.com)

# VIDEO LINKS

## SERIAL DIGITAL VIDEO

NEW!

The Communications Specialties SDI system utilizes high speed pulse modulation techniques to transmit wideband, digitally encoded video along with any imbedded audio and/or control signals. The system is compliant with SMPTE 259M, 294M, and 305M standards at rates of 143, 177, 270, and 360Mb/s with input/output up to 300 meters on coax. Standard features include monitoring LED's on transmitter and receiver, equalized loop-through transmitter, and two re-clocked outputs on receiver. The system comes complete with external power supplies.

### SPECIFICATIONS

SMPTE 259M Data Compatibility:	143, 177, 270, 360 Mb/s
Input/Output Impedance:	75 ohms
Input/Output Return Loss:	15 dB minimum
Input Coaxial Cable Equalization:	0 to 300 meters, Belden 8281
Normal Input/Output Voltage:	800 mv +/- 10% peak-to-peak
Output Rise/Fall Time:	Less than 1.0 ns
Output Drive Capability:	0-300 meters, Belden 8281
Residual Jitter:	300 ps typical
Fiber Optic Cable Compatibility:	50/R5 µm, 62.5/R5 µm mm; 88/125 µm sm
Transmission Distance:	0 to 20 km, multimode (bandwidth limited by fiber) 0 to 60 km, single mode
Optical Loss Budget:	0 to 15 dB
Operating Wavelength:	1300 nanometers
Optical Connectors:	ST, multimode FCPC, single mode
Signal Connectors:	BNC
Operating Temperature:	-20 to +60 degrees C
Physical Size:	4 L x 3.5 W x 1.3 H in. (101.6 L x 88.9 W x 33 H mm)

### ORDERING INFORMATION

MODULE	PART NUMBER	PRICE
MM Transmitter	3120-3	\$750.00
MM Receiver	3121-3	\$750.00
SM Transmitter	3120-7	\$995.00
SM Receiver	3121-7	\$985.00
Power Supply	PDPS-1-PP#	\$ 50.00

#Select Cord type and substitute for PP: NA=North American; AU=Australian; EU=European; UK=United Kingdom



## FOUR CHANNEL VIDEO MULTIPLEXER

NEW!

The Communications Specialties 7040 Series video multiplexer employs all digital processing techniques to transmit four channels of composite video over one SM or MM Fiber. Offering all the advantages of a digital system at analog price, the 7040 Series features 7 MHz bandwidth and is compatible with NTSC, PAL, or SECAM video standards. LED indicators are provided to

monitor power and each video signal. Your choice of ST or FC connectors.

### TECHNICAL SPECIFICATIONS

Number of Channels: 4	Frequency Response: 7MHz (-3dB)
Differential Gain: 1%	Differential Phase: 0.5 Degrees
S/N Ratio: 62dB <CCTR Weighted)	Number of Fibers: 1
Operating Wavelength: 850 or 1300nm	
Power Requirements: 9-24VAC or VDC, 6 watts	
Operating Temperature: -35 to 74°C	
Input/Output Impedance: 75 ohms	Input/Output Voltage: 1 Vpp
Cross Talk: None	Dimensions: 7.4 x 6.3 x 1.1 Inches
Weight: 1 lb.	

### OPERATING LOSS BUDGET

MM 850 nm	20 dB
SM 1300nm	25dB

### ORDERING INFORMATION

MODULE	PART NUMBER	PRICE
MM 850nm Transmitter	7040-B1X*	\$1,295.00
MM 850nm Receiver	7041-B1X*	\$1,295.00
SM 1300nm Transmitter	7040-B7X*	\$1,695.00
SM 1300nm Receiver	7041-B7X*	\$1,695.00
Power Supply	PDPS-1-PP#	\$ 50.00

\*Substitute X in part number for S for ST or F for FC.

#Select Cord type and substitute for PP: NA=North American; AU=Australian; EU=European; UK=United Kingdom.



## FM VIDEO/AUDIO/DATA LINKS

These link modules from American Fibertek are most versatile. They can send and receive Video and up to 2 sub-carriers of Audio or Data all over one fiber. You can have FM video and any optional combination of Audio or Data with single or dual sub-carriers. Choose from RS-232, RS-422, TTL, or even a contact closure. The units are available in MM 850nm or 1300nm. SM is available with LED for 1300nm. SM is also available with Laser for 1300nm or 1550nm. Call for optional Rack Mount packaging.

### FEATURES

- Available @ 850nm and 1300nm Multimode, 1300nm and 1550nm Singlemode
- Transmission device LED or LASER • Video presence indicators • Optical loss indicators
- ST® connectors • Available as Module or Rack Card

### TECHNICAL SPECIFICATIONS:

**Video:** Bandwidth: 8 MHz; **Input/Output Impedance:** 75 Ohms; **Input Level:** 1.2 Volts Max; **Differential Gain:** 5% Max; **Differential Phase:** 5% Max

**Audio:** Bandwidth: 20 to 20 KHz; **Input/Output Impedance:** 600 Ohms Balanced or Unbalanced; **Input/Output Level:** Typ 0dB; THD: <3%; S/N Ratio: >50dB

**Contact:** **Input:** Switch closure to ground; **Output:** Potential free contact N.O.; **Response time:** 2mS; **Rating:** 100V max (DC or peak AC) @ 0.5 A

**Data:** Data Rate up to 19.2 KBS BER 10<sup>-6</sup>; **Interface Standard:** Manchester/Bi-Phase RS422, RS232, TTL; Audio (DTMF or FSK)

**Optical Transmission:** Wavelength: 850, 1300nm Multimode;

62.5/125 Fiber: Launch Power (850/1300)-16 dBm; Sensitivity 850-32 dBm; 1300-33 dBm

Wavelength: 1300, 1550nm Singlemode;

9/125 Fiber: Launch Power (1300/1550)-7 dBm Laser; Sensitivity (1300/1550)-32dBm

**Connectors:** ST®

**Operating Environment:** Operating Temperature: 0°C to 50°C; Relative Humidity: 90% @ 25°C non-condensing; **Power Supply:** Module 12 VDC use w/A.F. #PS-12.

**Size:** Module 5 7/8" x 3 3/4" x 1 1/2"

**HOW TO ORDER GUIDE:** Substitute XX in Part Number to identify two sub-carriers: 3=RS-232; 4=RS-422; 7=TTL; 8=Audio; 9=Contact; 0=None.

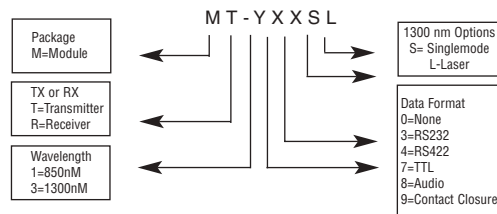
**EXAMPLE:** For a SM 1300 LED FM Video link with one Audio channel the part number is MT-308S for the transmitter. The price is \$1,190.00. The receiver part number is MR-308S and the price is \$950.00.

### MODULE

MODULE	TYPE	WAVELENGTH	PRICE
Transmitter or Receiver with no Sub-Carriers	MM	*850nm	\$ 450.00
Transmitter or Receiver with one Sub-Carrier	MM	*850nm	\$ 560.00
Transmitter or Receiver with two Sub-Carriers	MM	*850nm	\$ 670.00
Transmitter with no Sub-Carriers	SM	#1300nm	\$1,080.00
Transmitter with one Sub-Carrier	SM	#1300nm	\$1,190.00
Transmitter with two Sub-Carriers	SM	#1300nm	\$1,295.00
Receiver with no Sub-Carriers	SM	#1300nm	\$ 850.00
Receiver with one Sub-Carrier	SM	#1300nm	\$ 950.00
Receiver with two Sub-Carriers	SM	#1300nm	\$1,050.00
PS-12 Optional Power Supply			\$ 25.00

\*NOTE: For 1300nm MM add \$400.00 to price.

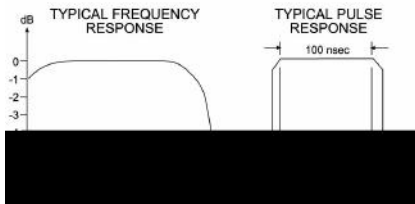
#NOTE: Call for price on 1300nm or 1550nm Laser.



Did You Miss Our Specialty Products? Take a look on Page 12 & 13



## ANALOG LINKS



### DC TO 1MHZ

The Communications Specialties XA/RA-1000A system consists of the XA-1000A transmitter and RA-1000A receiver. Both units feature operating controls that allow any analog waveshape with specific DC levels, to be accommodated without appreciable distortion, over the entire operating bandwidth.

#### Typical Frequency Response / Typical Pulse Response

#### TECHNICAL SPECIFICATIONS

**Complete System Bandwidth:** DC to 1 MHz (see curve) **Transmitter Input Impedance:** 10K/50 ohms, selectable **Maximum Input Voltage:** 3 volts pp. (For Full Modulation) **Absolute Maximum Input Voltage:** 10 volts pp. **Dynamic Range:** 70 dB typical **Linearity:**  $\pm 2\%$  typical **Noise Floor (0 input, full BW):** 1 millivolt rms typical **Maximum Output Voltage:** 3 volts pp. **Output Load Impedance:** 50 ohms minimum **DC Offset:** 10 mv/degree C typical (After 30 min. warm-up) **Allowable Transmission Loss:** 50u Fiber, 0-8 dB; 62.5u Fiber, 0-10 dB-100u Fiber, 3-13 dB **Operating Wavelength:** 850 nm **Optical Connectors:** ST **Signal Connectors\*:** BNC **Power Requirements\*\*:**  $\pm 15$  to  $\pm 25$  VDC @ 250 ma. (Transmitter or Receiver) or 14 to 18 VAC rms @ 250 ma. **Physical Size:** 2.55 x 4.75 x 1.3 in. (6.5 x 12 x 3.3 cm.) **Operating Temperature:** 0 to 50 degrees, C

\*A plug-in adaptor to convert the BNC signal connector to binding posts is available as part number A-4000.

This system may be mounted in an MCR-1000A Rack  
With an AP-1000 adaptor plate for each module to be mounted.

\$550.00  
\$120.00

#### PART NUMBER 850 NM

ORDERING INFORMATION	PRICE
Transmitter, ST <sup>®</sup>	XA-1000A-1 \$525.00
Receiver, ST <sup>®</sup>	RA-1000A-1 \$525.00
115VAC 50/60Hz Power Supply	XP-1000A \$ 40.00
230VAC 50/60Hz Power Supply	XP-1001 \$ 50.00



### 0-10 VDC

The Communications Specialties XA/FA-1400A uses A/D and D/A converters to accommodate DC level signals with a high degree of accuracy. Since the method of transmission is purely digital, cable length and LED aging has virtually no effect on linearity. Both the transmitter and receiver have LED's that indicate the presence of signals and proper identification of the system.

This system may be mounted in an MCR-1000 Rack.  
With an AP-1000 adaptor plate for each module to be mounted.

\$550.00  
\$100.00

#### SPECIFICATIONS

System Response Time:	0.5 second to 98%
Transmitter Input Impedance:	10K ohms
Receiver Output Load Impedance:	10K ohms minimum
Normal Input/Output Voltage:	0 to 10 V
Linearity:	3% typical
Resolution:	0.003 V typical
Ripple Level:	10 mV typical
Allowable Transmission Loss:	50 micron fiber, 0-10 dB 62.5 micron fiber, 0-15 dB
Operating Wavelength:	850 nm or 1300 nm
Optical Connectors:	ST
Signal Connectors:	BNC
Power Requirements*:	$\pm 15$ to $\pm 25$ VDC @ 150mA or 14 to 18 VAC, 50/60 Hz
(transmitter or receiver)	2.55 x 1.35 x 4.75 in. (64.8 x 34.3 x 120.7 mm)
Physical Size:	
Operating Temp. Range:	0 to +50 degrees C

#### ORDERING INFORMATION

ORDERING INFORMATION	PART NUMBER	PRICE
Transmitter MM 850 nm	XA-1400A-1	\$450.00
Receiver MM 850 nm	RA-1400A-1	\$450.00
Transmitter MM 1300 nm	XA-1400A-3	\$775.00
Receiver MM 1300 nm	RA-1400A-3	\$775.00
115VAC 50/60Hz Power Supply	XP-1000A	\$ 40.00
230VAC 50/60Hz Power Supply	XP-1001	\$ 50.00

## TELEPHONE VOICE LINK

### TC1900/TC1901 QUICK-TALK VOICE ADAPTER



The TC1900/TC1901 "Quick-Talk" Voice Adapter can turn a fiber optic network or RS-232 circuit into a voice network simply by plugging a telephone set into an RJ-11 connector. It is compatible with most PBXs or Key Systems. Quick-Talk is typically used to extend dial-up phone service to remote sites over a fiber optic or RS-232 circuit. For example, a user could extend a secure phone link to a remote site with either fiber optic cable or an installed RS-232 connectivity device, such as a Short Haul Modem or the RS-232 port on a Channel Bank. Quick-Talk provides 2-wire FXS (foreign exchange subscriber) on the telephone side with ring down capability and FXO (foreign exchange office) on the PBX side. When both sides set to FXS, a "hot link" can be established; when one side lifts up the handset, the other side starts ringing. Available in standalone or rackmount versions, the TC1901 is compatible with all popular types and sizes of fiber optic cable. Diagnostic aids include 16 diagnostic LEDs for indicating power, local & remote hook status, and audio activity. Quick-Talk is available with RS-232 or optical interfaces. The optical interface is available in multimode (850/1300nm) or single mode (1300/1550nm) versions, with ST or FC connectors. A local dry contact relay is also provided for external alarm and ringer connection. Power is 9 to 12VDC or 115/230VAC with an external power tube. Power options include -24VDC or -48VDC. Power redundancy is standard. Electrical connectors are RJ-11 Female for telephone set, DB9 female for RS-232.

#### SPECIFICATIONS:

**Audio Bandwidth:** 300Hz to 3.4KHz; **Audio Indicator:** Buzzer; **Optical (optional):** Transmitter: LED/ELED, Receiver: PIN Diode, Wavelength: 850nm/1300nm Multimode; 1300nm/1550nm Single Mode; Fiber Optic Connectors: ST (trademark of AT&T); Optional FC; Loss Budget - 850/1300/1550nm; 15dB Multimode @ 62.5/125u, 15dB Single Mode @ 9/125u; **Electrical:** Phone Connector: RJ11 Female, RS-232: DB9 Female; **Visual Indicators:** Tx and Rx volume, Local off-hook, Remote off-hook, FXO, FXS, Ring, Optic Rx, Electric Rx, Vcca, Vccb, PWR A, PWR B; **Audio Indicator:** Buzzer; **Signaling:** 15Hz; **Alarm:** Dry Contact: Normal OPEN; **Power:** Standard: 9 to 12VDC @ 500mA; Optional: -24VDC, -48VDC, or 115/230VAC with power cube; **Temperature:** Operating: -10°C to 50°C; Storage: -40°C to 90°C; Humidity: 95% non-condensing; **Physical:** Height: (3.5 cm) 1.40"; Width: (18.10 cm) 7.25"; Depth: (25.25 cm) 9.85"; Weight: (835 gm) 1.85 lbs.

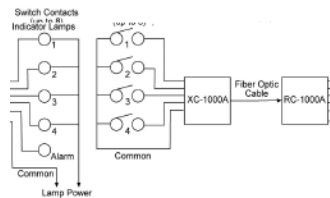
PART NUMBER	TC1900 without Fiber Interface	PRICE
TC1900S-2-12	RS-232, RJ11F, No Fiber Ports	\$ 980.00
TC1901S-01XX2-12	850nm, Handset, 15dB Loss Budget	\$ 980.00
TC1901S-03XX2-12	1300nm MM, Handset, 15dB Loss Budget	\$1,280.00
TC1901S-05XX2-12	1300nm SM, Handset, 15dB Loss Budget	\$1,580.00

XX - Select Type of Fiber Optic Connector ST, FC

NOTE: ST Connectors are standard.

TC3PS-TB3-15-01	External 115V AC (North American)	\$ 55.00
TC3PS-TB3-15-03	External 230V AC (Round Plugs)	\$ 55.00
TC3PS-TB3-15-04	External 240V AC (3 Prong Triangle)	\$ 55.00

## CONTACT CLOSURE MULTIPLEXOR



The XC/RC-1000A system consists of the XC-1000A transmitter and RC-1000A receiver. The units transmit eight independent multiplexed channels over a single SM OR MM optical fiber. The XC-1000A is activated by eight dry contact closures or TTL signals (or a combination of both) while the RC-1000A produces eight isolated output contact closures corresponding to the channels activated at the transmitter. All channels may be used in any combination. In addition,

integral indicating LEDs on both units display the channels in use and an open collector output is provided for loss of signal.

#### FEATURES

- Eight Independent Contacts on One Fiber • Contact and/or TTL Operation
- Isolated Output Contact Closures • LED Channel In-Use Indicator
- Multimode or Single Mode Versions

#### TECHNICAL SPECIFICATIONS

**Number of Channels:** One to eight **Transmitter Input:** Contact Closure or TTL **Receiver Output:** Contact Closure or TTL **Contact Closure Rating:** 0.5A, resistive (10 VA) **Relay Status:** Normally open **Speed of Response:** 2 msec typical **Allowable Transmission Loss:** 50u Fiber, 0-8 dB; 62.5u Fiber, 0-10 dB; 100u Fiber, 3-13 dB 8/10u Fiber, 0-10 dB **Operating Wavelength:** 850nm MM or 1300nm SM **Optical Connectors:** ST **Power Requirements\*:**  $\pm 10$  to  $\pm 18$  VDC @ 200mA or 10 to 18 VAC rms @ 200 ma (Transmitter or Receiver) **Physical Size\*\*:** 4.2 x 1.8 x 5.6 in max; (106.7 x 45.7 x 142.2 mm max) **Operating Temperature Range:** 0 to +50 degrees C **\*\*** An MCR-1000A rack mounted version may be ordered by adding the suffix "/MCR" after the part number.

#### ORDERING INFORMATION:

MODULE	MM 850 nm	PRICE	SM 1300 nm	PRICE
XC-1000A	XC-1000A-1	\$625.00	XC-1000A-7	\$1,100.00
RC-1000A	RC-1000A-1	\$625.00	RC-1000A-7	\$1,100.00
115VAC 50/60Hz Power Supply	XP-1000A	\$ 40.00	XP-1001 230VAC 50/60 Hz Power Supply	\$ 50.00

## RS-232 MM MODEL 271

Telebyte's Model 271 Auto Powered Fiber Optic Line Driver provides full duplex, asynchronous communications over two fibers. Fiber cable length can be up to 2 kilometers with data rates as high as 56 KBPS. Also available with external AC power cube by substituting -110 or -220 for AC in P/N for 110VAC or 220VAC external power.

### SPECIFICATIONS

**Interface:** RS-232/V.24 **Signals Supported:** TD, RD, and GND (2,3 and 7), RTS connected to CTS (4-5), DTR connected to DSR and DCD (20-6-8) **Connectors:** RS-232-male or female DB-25 as ordered **Fiber Optic:** ST\* **Speed:** 300 to 56KBPS **Distant:** Up to 2 kilometers (6600 ft.) **Wavelength:** 830 nm **Switch:** DTE/DCE **Size:** 3.5"L x 2"W x .875"H **Environment:** 0 to 50 C, 5 to 95% RH (no condensation)

### ORDERING INFORMATION

DESCRIPTION	PRICE
Model 271M/ST*	\$145.00
Model 271F/ST*	\$145.00
Model 271AM-AC	\$155.00
Model 271AF-AC	\$155.00

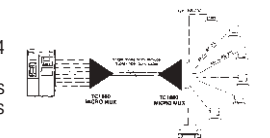


## 8 CHANNEL RS-232 SYNC/ASYNC MUX 1880 SERIES

Using a fan-out cable adapter, the TC Communications Model TC1880 can be configured for up to 8 async channels, up to 4 sync channels or combinations of both. Configurations can be easily changed in the field by replacing the fan-out cable adapter. For example, a user could multiplex four channels of async data and two channels of sync data over one fiber simultaneously.

### FEATURES

- Muxes Async/Sync Simultaneously • Speeds Up to 38.4 Kbps
- Pocket Size (3/4" x 4 1/4" x 2 1/2") • Up to 8 Async Channels
- Up to 4 Sync Channels (External Clock) • Jitter Rate Less Than 8%



### SPECIFICATIONS:

**Data Rates:** Async (per channel): up to 38.4 Kbps, Sync (per channel): (ext. clock) up to 38.4 Kbps; **Optical:** Transmitter: LED/ELED, Receiver: PIN, Wavelength: 850nm/1300nm multimode 1300nm single mode, Fiber Optic connectors: ST\* (FC or SMA optional), Loss Budget: 20dB multimode 850nm/1300nm @ 50µm, 15dB multimode 850nm/1300nm @ 62.5µm, 15dB single mode 1300nm @ 9µm; **Electrical:** Connector: DB25 female, Interface: (DCE) RS-232; **System:** Bit error rate: 1 in 10<sup>9</sup> or better, Visual indicator: "ACTIVE" (Sync); **Power:** Power source: 9 VDC @ 300ma, optional: 115 or 230 VAC with external power cube; **Temperature:** Operating: -10°C to 50°C, Storage: -40°C to 90°C, Humidity: 95% non-condensing; **Physical:** Height: (1.9cm) 0.75", Width: (10.4cm) 4.13", Depth: (5.5cm) 2.50", Weight: (140gm) 5 oz

PART NO.	DESCRIPTION	PRICE
TC188X-01-YY-ZZ	850nm MM Stand-Alone	\$ 585.00
TC188X-03-YY-ZZ	1300nm MM Stand-Alone	\$ 885.00
TC188X-05-YY-ZZ	1300nm SM Stand-Alone	\$1,185.00
	ZZ 01-115V AC External Power Adapter (North American)	
	03-230V AC External Power Adapter (European - Round Plugs)	
	04-240V AC External Power Adapter (UK - 3 Prong Triangle)	
	YY Select Type of Fiber Optic Connector ST, FC	
	X Select Configuration of Fan-Out Cable	
	Async Channels	Sync (ext. clock) Channels
	1 8	0
	2 4	2
	3 2	3
	4 0	4
	5 4 (w/1 control)	0
	6 2 (w/1 control)	2

Example: TC1881-01-ST-01 is 8 channel async RS-232 multiplexer with 115VAC.  
TC1882-01-ST-03 has 4 channel async RS-232, 2 channel sync (external clock) with 230VAC.

NOTE: The External 115V, 230V or 240V AC Power Cube and the Fan-Out cable are included in the price of the unit. The Fan-out cable is approximately one foot long.



## RS-232 SINGLE MODE MODEL TC1000

The TC Communications Model TC1000 is a data only fiber optic modem. Plug compatible with RS-232 interfaces, it will transmit asynchronous data at speeds up to 19.2 Kbps. The TC1000 will allow link distances up to 20km over single mode fiber optic cables at 1300nm. Fiber optic connectors can be ST\* or FC. The TC1000 derives power through any of the standard EIA control or positive voltage lines. An optional external power supply can be added. The TC1000 comes with a standard electrical DB-25 female connector. This modem is also available with Async and Sync with Clock (Model TC1100), Async with one control (TC1200), and Async with Full Handshake (TC1235). Call for price and specifications.

### SPECIFICATIONS

**Speeds:** data rate (per channel): DC to 19.2 Kbps  
**Optical:** transmitter: ELED; receiver: PIN; wavelength: 1300nm singlemode; power budget: 18 dB single mode 1300nm @9µm with external power supply. 8dB with power from signal source.  
**Transmission:** medium: 9µm SM, distance @1300nm; single mode: 20km; connector: ST\*, FC  
**Electrical:** connector: DB25 female; interface: RS-232  
**System:** bit error rate: 1 in 10<sup>9</sup> or better; visual indicator: "ACTIVE"; power source: not required, optional 12V DC @100ma; switch: DTE/DCE  
**Temperature:** operating: -10°C to 50°C; storage: -40°C to 90°C; humidity: 95% non-condensing  
**Physical:** height: 0.75"; width: 4.5"; depth: 2.5"; weight: 7 oz.

PART NUMBER	DESCRIPTION	PRICE
TC1000-01XX-12	850nm MM	\$190.00
TC1000-03XX-12	1300nm MM	\$490.00
TC1000-05XX-12	1300nm SM	\$790.00

NOTE: Substitute ST or FC for XX in Part Number.

### OPTIONAL POWER SUPPLIES

TC1PS-9V-01	115 VAC PS (North American)	\$ 50.00
TC3PS-TB-08-03	230 VAC PS (European - Round Plugs)	\$ 50.00
TC3PS-TB-08-04	240 VAC PS (UK - 3 Prong Triangle)	\$ 50.00

## 4 CHANNEL RS-232 ASYNC MULTIPLEXER MODEL 273 \$450.00

The Model 273 from Telebyte is a high performance four channel, time division multiplexer whose composite link is implemented in fiber optics. The FOX will transport four full duplex channels of asynchronous RS-232 data over two fiber optic cables. In addition, a bi-directional control signal is also transmitted for each of the four primary channels. The maximum rate for all four channels is 256KBPS, 64KBPS each. A jumper option allows upgrading channel 1 to 128 KBPS while reducing the total channel capacity from four to three. This option allows channel 1 to transport the clock signal of a 64KBPS synchronous link while channels 2 and 3 are used to send data signals.



### SPECIFICATIONS

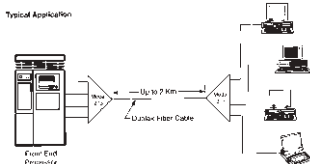
**Interface Terminal:** Electrical: Four RS-232; signals supported at each port - TD, RD, Control in, Control out, GND; **Connectors:** Four RJ-45 to RS-232 25ft. Jumpers with 4 male & 4 female RS-232 Adaptors; **Data Rate:** normal mode - 0 to 64 kbits/sec. (sample rate - 260,000 samples/sec.); **Control Rate:** 0 to 16,000 kbit/sec. (sample rate - 65,000 samples/sec.)  
**Optional Interface:** Connector: ST\*; **Power Out:** +12 dBuW minimum (15.8 microWatts) into 62.5/125 micrometer core/clad fiber; **Power Budget:** 12dB; **Wavelength:** 850 nanometer, multimode; **Composite Bit Rate:** 4.1667 MBPS

**General:** Indicators: 11 LED's, Transmit Data 1-4, Receive Data 1-4, TEST, SYNC, POWER, Operating Temperature: 0° to 50°C; Size: 7"W (178cm) x 1.5"H (38cm) x 5.5"D (140cm); Weight: 2 pounds

### Four Channel Fiber Optic Multiplexer

- 0-64 KBPS On Each Channel
- Four Handshake Signals
- Full Duplex Data & Control
- Complete Diagnostics

Typical Application



Model 273 includes 4 pcs male and 4 pcs female adapter connectors and 4 pcs of 25 ft modular cable.



## RS-232/422/485

The Math Universal Data Transceiver is suitable for simplex, full duplex, or multi-drop applications. With single or mixed user configured protocol these transceivers offer the utmost in versatility. The low speed mode allows DC up to 2.1 Mb/s with a Maximum of 200Kbs for RS-232. The high speed mode has data rates of 10 Kb/s to 10 Mb/s. LED indicators continuously monitor the presence of transmitted and received signals as well as operating power. Available in SM as well as

MM versions with FC and ST connectors respectively. Price includes external plug in type power supply.

### SPECIFICATIONS

#### Data Transmission Rate

**Low Speed:** RS-232, DC-200 kbps; RS-422/485, DC to 2.1 mbps

**High Speed:** RS-422/485, 10 kbps to 10 mbps

**Operating Modes:** Simplex, Duplex, Asynchronous, Drop and Repeat, RTS or Data Derived T/R control (RS-485)

**Compatibility:** RS-232, RS-422, RS-485 (2 wire or 4 wire)

**Input Signal Voltage:** ±5 to ±30 volts per EIA RS-232D; 4.5 to 5 volts per RS-422, RS-485

**Output Signal Voltage:** ±5 to ±10 volts per EIA RS-232D; 4.5 to 5 volts per RS-422, RS-485

**Optical Loss Budget:** 18 dB, 62.5 micron multimode fiber or 8/10 micron single mode fiber

**Operating Wavelength:** 850 nm or 1300 nm

**Optical Connectors:** Industry standard ST, multimode FCPC, Single mode

**Transmission Distance:** 0-3.5 miles (5.5 km) multimode; 0-50 miles (80 km) single mode

**Signal Connector:** Removable screw-clamp type terminal block

**Operating Power\*:** 10 to 18 VDC @ 150 ma peak (Connected via separate power connector)

**Operating Temperature Range:** -35 to +75 degrees C

**Indicator LEDs:** Pwr, Tx, Rx (Loss of Data Alarm on card cage version)

**Physical Size:** 4 L x 3.5 W x 1.3 H in. (stand-alone version); (102 x 89 x 33 mm) 1 card cage position (card cage version)

Note that the Universal Data Transceiver is ESD protected to ±10 KV on all signal inputs and outputs.

### ORDERING INFORMATION

PART NUMBER	PRICE
MM 850 nm Transceiver	\$ 495.00
MM 1300 nm Transceiver	\$ 795.00
SM 1300 nm Transceiver	\$1,195.00

### OPTIONAL POWER SUPPLIES

PDPS-1-PP-# \$ 50.00

#Select Cord type and substitute for PP: NA=North American; AU=Australian; EU=European; UK=United Kingdom

# DIGITAL LINKS



## RS-422 MM MODEL 272A

The Telebyte Model 272 provides the capability of performing an interface conversion between full duplex, RS-422 signals and their equivalent for fiber optic transmission. For applications where the transmission medium must be protected from electrical interference, lightning, atmospheric conditions or chemical corrosion fiber optics is the perfect solution.

- DATA RATE TO 2.5 Mbs
- FULL DUPLEX – TD AND RD
- ST® CONNECTORS • MINIATURE SIZE
- EIA-530 COMPATIBLE

### SPECIFICATIONS

**Electrical Interface:** Full duplex

RS-422, 4 wire

**Fiber Interface:** Full duplex

**Speed:** 0-2.5 Mbs **Wavelength:** 850 nm **Distance:** Fiber – up to 2 km. RS-422 distance per RS-422

**Connectors:** RS-422 = DB-25 female, Pin Out RS-422 In-2/14, RS-422 Out-3/16. Fiber = ST®

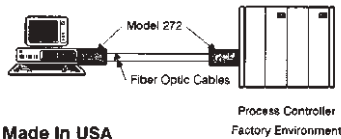
**Power:** 115VAC @ 60 HZ (220VAC / 50HZ OPTION) **SIZE:** 3.5"L x 2"W x .875"H

**Environment:** 0 to 50°C, 5 to 95% RH (no condensation)

### ORDERING INFORMATION

Model 272A

Made In USA



### PRICE

\$150.00



## T1/E1 MODEM MODEL 1630

The TC Communications Model 1630 is a T1/E1 Fiber Optic Modem that offers advanced features such as Jitter Removal and replaceable Line Interface Module. Because it is based on modern FPGA (field programmable gate array) technology, it offers extremely low current consumption and higher reliability.

Transparent to the framing format, the TC1630's T1/E1 interface shaped the transmit pulse to support CCITT G.703, or for connecting to DSX-1 cross connects for line distances from 0 to 655 feet. The internal elastic buffer removes jitter from transmit data. The TC1630 has five LED indicators to ease installation and troubleshooting – one each for Power, Alarm, T1/E1 Signal Loss, BPV violations and Sync Active. It provides 8 DIP switches, accessible from the panel, to control settings for line code, line length, local loopback or remote loopback setting such as when the line code does not match the line length setting. The intelligent line code setting switch will eliminate any confusion.

The TC1630 is compatible with popular types and sizes optic cable. Fiber optic connectors are ST® or FC. Special four-position and two-position feed-thru detachable terminals are provided for connecting the T1/E1 twisted pairs.

### APPLICATIONS

- Link Channel Banks • Link PBXs • Link Customer Premises Equipment to CSU/DSU
- Link M13 to DSX-1 Cross Connect

### SPECIFICATIONS

**Data Rates:** T1: 1,544 Mbps; E1: 2,048 Mbps; **Optical:** Transmitter: LED/ELED/Laser; Receiver: PIN; **Wavelength:** 850nm/1300nm multimode, 1300nm single mode; **Fiber Optic connectors:** ST® (FC or SMA optional); **Loss Budget:** 20dB multimode 850nm/1300nm @ 62.5µm, 18dB single mode 1300nm @ 9µm; **Electrical:** Connector: Detachable Terminal Block; **Interface:** T1/E1 (G.703); **System:** Bit error rate: 1 in 10<sup>10</sup> or better; **Visual indicator:** "PWR", "SYNC", "Los", "BPV", "ALARM"; **Power:** Power source: 9 to 12VDC @ 300ma; optional: 115 or 230VAC with external power cube; **Temperature:** Operating: -10°C to 50°C; Storage: -40°C to 90°C; **Humidity:** 95% non-condensing; **Physical:** Height: (2.80cm) 1.125"; Width: (12.75cm) 5.0"; Depth: (7.50cm) 2.5"; Weight: (275gm) 10oz

PART NUMBER	DESCRIPTION	PRICE	OPTIONAL ADDERS
TC1630-01-XXY-ZZ	<b>850nm MM Stand Alone</b> Base price is for 850nm MM, 12Vdc	\$745.00	
	<b>Power Supply Options:</b>		
	12 = 12VDC (Standard)		N/C
	24 = 24VDC Option		\$145.00
	48 = 48VDC Option		\$145.00
	01 = 115VAC External AC PS (North America)		\$ 50.00
	03 = 230VAC External AC PS (European - Round Plugs)		\$ 50.00
	04 = 240VAC External AC PS (U.K. - 3 Prong Triangle)		\$ 50.00
	<b>Selections of T1, E1 (120 ohm) or E1 (75 ohm) and termination type.</b>		
	1 = T1 (100 ohm, Terminal Blocks)		N/C
	2 = E1 (75 ohm, with Terminal Blocks to BNC Adapters)		N/C
	3 = E1 (120 ohm, Terminal Blocks)		N/C
	<b>Select Type of Fiber Optic Connector ST, FC:</b>		
	ST		N/C
	FC (1300nm only)		N/C
	<b>Optic Options:</b>		
	01 = 850nm MM		N/C
	03 = 1300nm MM		\$ 300.00
	05 = 1300nm SM		\$ 600.00
	07 = 1550nm SM		\$1,450.00



## RS-485 MM MODEL 276A

The Telebyte Model 276 RS-485 to Fiber Optic Converter handles half duplex data rates to 1 Mbaud. The electrical interface to the RS-485 port is a balanced, half duplex, digital interface which is implemented in a female DB-25 connector. In an RS-485 network the control of data flow is determined by the designer. In order to provide the greatest versatility the Model 276 enables the RS-485 transmitter when data is detected at the fiber optic receiver.

- DATA RATE TO 1 MHZ • HALF DUPLEX ASYNCHRONOUS
- PROGRAMMABLE DATA CONTROL
- MINIATURE SIZE • ST® CONNECTORS

### SPECIFICATIONS

**Signals:** T/R+ on PIN14, T/R- on PIN2, GND on PIN7

**Electrical Interface:** Half duplex RS-485, 2 Wire

**Fiber Interface:** Full duplex **Speed:** 0-1 Mbaud

**Distance:** Fiber – up to 2 km; RS-485 distance per RS-485

**Wavelength:** 830 nm

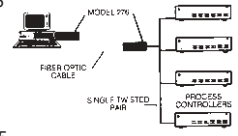
**Connectors:** RS-485 = DB-25 female, RS-485 Data I/O on Pins 2/14, Fiber = ST®

**Power:** 115VAC @ 60 HZ (220VAC / 50HZ OPTIONAL) Supplies 12vdc power cube.

**Size:** 3.5"L x 2"W x .875"H **Environment:** 0 to 50°C, 5 to 95% RH (no condensation)

### ORDERING INFORMATION

Model 276A



### PRICE

\$155.00

## 4 CHANNEL T1/E1 MULTIPLEXER

Transparent to the framing format, the TC Communications Model TC8300's T1/E1 interface shapes that transmit pulse to support CCITT G.703, or for connecting to DSX-1 cross connects, line distances from 0 to 655 feet. The internal elastic buffer removes jitter from transmit data.

Each channel offers four LED indicators to ease installation and troubleshooting – one each for Power, Alarm, T1/E1 Signal Loss, BPV violations and Sync Active. Individual channels provide 8 DIP switches, accessible from the panel, to control settings for line code, line length, local loopback or remote loopback. Each channel's flashing alarm LED will indicate any invalid DIP switch setting such as when the line code does not match the line length setting. The intelligent line code setting switch will eliminate any confusion.

The TC8300 is compatible with all popular types and sizes of optic cable. Fiber optic connectors are ST® or FC. Special four-position and two-position feed-thru detachable terminals are provided for connecting the T1/E1 twisted pairs.

### SPECIFICATIONS

**Channel Capacity:** T1, E1 or any combination; 4; **Data Rates:** T1: 1,544 Mbps, E1: 2,048 Mbps

**Optical:** Transmitter: LED/ELED/Laser; Receiver: PIN, **Wavelength:** 850nm/1300nm multimode, 1300nm single mode, **Fiber Optic connectors:** ST® (FC optional), **Loss Budget:** 12dB multimode 1300nm @ 62.5µm, 12dB single mode 1300nm @ 9µm, Call for requirement higher than 12dB;

**Electrical:** Connector: Detachable Terminal Block, **Interface:** T1/E1 (G.703)

**System:** Bit error rate: 1 in 10<sup>10</sup> or better, **Visual indicator:** "PWR", "SYNC", "Los", "BPV", "ALARM"

**Power:** Power source: 9 to 12VDC @ 1.2 amp, optional: 115 or 230VAC with external power cube; optional: 48vdc; **Temperature:** Operating: -10°C to 50°C, Storage: -40°C to 90°C, **Humidity:** 95% non-condensing; **Physical:** Height: (6.5cm) 2.60", Width: (18cm) 7.20", Depth: (25cm) 9.75", Weight: (1.36 kg) 3 lb.

PART NUMBER	DESCRIPTION	PRICE	OPTION ADDER
TC8300X-01-XXYW-ZZ	<b>1300nm MM</b> <b>Power Selection:</b> 12 = 12VDC (Standard) 48 = -48VDC, 24 = 24VDC (following options apply only to Standalone versions) 01 = 115VAC External PDS (North American) 03 = 230VAC External PDS (European - Round Plugs) 04 = 240VAC External PDS (UK - 3 Prong Triangle) 0 = Standard 1 = 4-chan RS-232 (async, no controls, RJ11 female) 2 = 8-chan RS-232 (async, no controls, RJ11 female)	\$2,475.00	N/C \$ 250.00 \$ 55.00 \$ 55.00 \$ 55.00 N/C \$ 400.00 \$ 800.00
	<b>Interface Selection:</b> 0 = Combination of T1 and E1 (TC8300 must be specified) 1 = T1(100Ω)/Terminal Blocks 2 = E1(75Ω)/Terminal Blocks to BNC Adapters 3 = E1(120Ω)/Terminal Blocks		\$ 600.00 N/C N/C N/C
	<b>Fiber Optic Connector Selection:</b> ST = ST FC = FC (1300nm only)		N/C N/C
	<b>Optical Options (Single-pair):</b> 03 = 1300nm MM L1 = 1300nm SM (LASER, 20dBm) L2 = 1300nm SM (LASER, 25dBm loss budget) L3 = 1300nm SM (LASER, 34dBm loss budget)		N/C \$ 600.00 \$1,500.00 \$3,100.00
	<b>Fiber Optic Redundancy (optic auto switchover):</b> 23 = 1300nm MM, Dual-Pair Optics 25 = 1300nm SM, Dual-Pair Optics D2 = 1300nm SM (LASER, 25dBm), Dual-Pair Optics D3 = 1300nm SM (LASER, 34dBm), Dual-Pair Optics D5 = 1550nm SM (LASER, 34dBm), Dual-Pair Optics		\$ 600.00 \$1,200.00 \$2,500.00 \$4,650.00 \$8,250.00
	S: Stand Alone Box P: 19" Wide, Rackmountable, 1U high		N/C \$ 200.00

## T3/E3 MODEM MODEL TC1680

The TC Communications Model TC1680 provides a high speed point to point data link between two DS3 or G.703 conforming devices. Standard T3 (44.736Mbps) or E3 (34.368Mbps) signals are compatible with B3ZS or HDB3 coded data streams and conforms to applicable standards including ANSI T1.102-1993, TR-TSY-000499, and CCITT G.703. The TC1680 is ideal for most T3/E3 connectivity applications using MM or SM fiber with power redundancy and automatic switchover standard. Adding optional optical redundancy with automatic switchover insures virtually uninterrupted operation. Typical applications include replacing coaxial cable with fiber to extend the point of presence from Telco demarcation points or ATM nodes, transmitting digitized video, or linking T3/E3 multiplexers. The TC1680's come standard with diagnostic LED's for built in self test, link verification test (local and remote loop-back), dry contact alarm, choice of ST or FC connectors, BNC 75 Ohm Female, 1300nm MM, 12 vdc operation, and stand alone packaging.

### SPECIFICATIONS:

**Optical:** Transmitter: ELED/LASER; Receiver: PIN Diode; Wavelength: 1300nm Multimode, 1300nm/1550nm Single Mode; Fiber Optic Connectors: ST\*; Optional FC Loss Budget: 1300/1550nm; 15dB: Multimode @62.5/125µm; 15dB: Single Mode @9/125µm

**Electrical:** Connector: BNC Female; Interface: T3 or E3 (G.703); T3 Line Code: B3ZS; E3 Line Code: HDB3; T3 Pulse Code: AMI; Impedance: 75 Ohm

**System:** Bit Error Rate: 1 in 10<sup>10</sup> or better

**Temperature:** Operating: -10°C to 50°C; Storage: -40°C to 90°C; Humidity: 95% non-condensing  
**Physical:** Height: (3.53 cm) 1.4"; Width: (18.14 cm) 7.1"; Depth: (24.89 cm) 9.8"; Weight: (907 gm) 2.0 lbs.

PART NUMBER	DESCRIPTION	BASE PRICE	ADDERS
TC1680S-03-ST-T-01	Standard T3 or E3	\$2,585.00	None
TC1680X-YY-ZZ-T-PS	Power Options		
	12 = 12Vdc (Standard)		N/C
	24 = 24Vdc		\$ 145.00
	48 = -48Vdc		\$ 145.00
	*12 Vdc Power Cubes for Standalone versions:		
	01 = External 115 VAC AC PS (North American)		\$ 55.00
	03 = External 230 VAC AC PS (European Round)		\$ 55.00
	04 = External 240 VAC AC PS (U.K. Prong Triangle)		\$ 55.00
	Select T3 or E3:		
	1 = T3		N/C
	2 = E3		N/C
	Select FO Connector:		
	ST		N/C
	FC		N/C
	Select Optic and Optic Redundancy Options:		
	03 = 1300nm MM (Standard)		N/C
	05 = 1300nm SM		\$ 600.00
	L2 = 1300nm SM (Laser 25dB loss budget)		\$1,000.00
	L3 = 1300nm SM (Laser 30dB loss budget)		\$1,200.00
	L4 = 1550nm SM (Laser 34dB loss budget)		\$1,400.00
	23 = 2nd Pair Optics, 1300nm MM		\$ 800.00
	25 = 2nd Pair Optics, 1300nm SM		\$1,600.00
	D2 = 2nd Pair Optics, 1300nm SM (Laser 25dB loss budget)		\$2,300.00
	D3 = 2nd Pair Optics, 1300nm SM (Laser 30 dB loss budget)		\$3,100.00
	D5 = 2nd Pair Optics, 1550nm SM (Laser 34dB loss budget)		\$4,100.00
	Select Package:		
	S = Standalone (Standard)		\$N/C
	R = Rackmount Card*		\$ -50.00
	<b>TOTAL</b>		

\*The TC1680R Rackmount version must be ordered with TCRM191 or TCRM195 Rackmount Card Cages.

**CALL FOR PRICE.** Stand alone units require an external power cube for 115V or 230V operation.

## 3000 SERIES

### 25/165/200

### MBS

The TC Communications 3000 Series Fiber Optic Mode converters give users the unique ability to convert multimode format to single mode format for data transmission. TC's mode converters are intended for Ethernet, FDDI & SONET environments that support data rates up to 200 Mbps. These conversions can benefit users by extending transmission distances and/or enabling different fiber types to be used with dissimilar installed fiber.

TC's mode converters are available with ST® and FC type connectors. Power can be either 115/230 VAC or -48VDC.

### FEATURES

- Converts Multimode to Single Mode • Digital Data up to 200 Mbps
- Increases Distance Between Nodes • Cross Connects Fiber Types
- Performs Optical Repeater Function

### APPLICATIONS

- Ethernet, Token Ring, FDDI, SONET OC1 & OC3
- Extend Transmission Distance • Fiber Optic Repeater

### SPECIFICATIONS

**Data Rates:** TC3020: Up to 5 Mbps, TC3005: Up to 200 Mbps

**Optical:** Transmitter: LED/ELED/LASER; Receiver: PIN; Wavelength: 850nm/1300nm multimode, 1300nm single mode; Fiber Optic connectors: ST® or FC, Loss Budget (dBm);

# FIBER OPTIC EDUCATION

## COURSES

### FIBER OPTIC MINI COURSE

A short course covering the basic concepts of fiber optic communications and industrial applications, intended as a supplement to other more general electronics classes. Class length is variable, to meet instructors' time constraints: five to ten 1-hour periods, plus two 2-hour experimental sessions.

The course begins with, "The History of Fiber Optics," followed by sections describing fiber optic communications systems and their individual components. Also included are a list of additional reading references and a helpful fiber optic glossary. Experimental sessions involve students in assembling and testing a fully functional fiber optic digital communication link with separate transmitter and receiver modules.

Course comes complete with a classroom manual and kit containing all required electronic components, including printed wiring boards, fiber optic emitter, detector and cable. No prior fiber optics experience or special tools are needed for assembly and demonstration.

PART NUMBER	DESCRIPTION	PRICE
IF-MC10	Student Edition	\$ 45.00
IF-MC10-INS	Instructor's Edition	\$145.00

The "Instructor's Edition" contains the items above, plus an additional reference book, answer guide, transparencies, assortment of optical cable, image guides, LEDs and detectors.



### INTERMEDIATE FIBER OPTIC CLASSROOM & LAB COURSE

An advanced fiber optics curriculum, for industrial arts, vocational school and university levels. Courses can be tailored in length from 10 to 15 weeks. Recommended prerequisites: a basic understanding of electronics and

mathematics. Course includes a text for classroom or lecture, lab course containing a comprehensive series of student experiments, and lab kit with all required components.

Part One of the classroom text places fiber optics into perspective as a transmission medium and describes its advantages over other media. Part Two examines fiber sources, detectors and connectors, in contrast to the distinctly different characteristics of their electronic counterparts. Part Three explains in detail how fiber optic systems are assembled. It covers link system design, installation, special fiber optic hardware, applications and equipment.

The core element of the Lab Course is a 60-page technical manual, written in an easy-to-understand style. It fits well with any text or course on fiber optics, and contains seven ready-to-use experiments:

- Making a Light Pipe
- Splices, Connectors and Terminations
- Fiber Optic Transmitters
- Making a Star Coupler (A bonus "Final-Design Project" rounds out the hands-on study)
- Fiber Cable Transmission
- Speed of Opto-Electronic Devices
- Fiber Optic Receiver Design

The experiments permit students to work with state-of-the-art opti-electronic components and connectors unique to fiber optics, and later apply their new knowledge to a practical problem.

PART NUMBER	DESCRIPTION	PRICE
IF-SC1	Student Edition	\$120.00
IF-SC1-INS	Instructor's Edition	\$175.00

The "Instructor's Edition" contains the items above, plus an answer guide, different types of optical cable, image guides, LEDs and detectors.)



## GENERAL – P/N IF-DS100G

**\$1,160.00**

The General Fiber Optic Demonstration System presents this state-of-the-art technology in an economical and versatile classroom trainer suitable for students from elementary through vocational levels.

The fiber "trainer" achieves its versatility through virtue of a comprehensive 115-page manual, with separate but complementary curriculums geared to both beginning and intermediate study. The curriculums were specifically structured with active student participation in mind. Their hands-on activities immerse students in the technological aspects of:

- Digital data transmission • Attenuation in optical fiber • Fiber sensors and applications
- Bending losses in optical fibers • Voice transmission over fiber
- Optical fiber termination and polishing

Each curriculum contains extensive background information about the development of fiber optics; eight application-friendly demonstrations; four visually-rewarding experiments; a comprehensive list of references; and a working glossary of fiber optic terms. A typical curriculum activity consists of:

- Reading and absorbing background information
- Answering a series of periodically reinforced review questions
- Working directly with fiber optics and associated components
- Relating fiber optics to real-world applications

(The Demonstration System comes complete and ready to use with two fiber optic training stations; four pairs of mm 62.5/125 ST Jumpers [1, 3, 5, and 10 meters]; 110 VAC-to-12 VDC power adapters; all necessary electrical connections; polishing film; instructor's manual; and two student manuals. The instructor's manual is housed in a sturdy 3-ring binder and includes answer sheets.)



## EXPERIMENTS

### MEASURE THE SPEED OF LIGHT

Centuries of scientific learning culminate in this low-cost, yet ingenious system which teaches students how to measure the speed of light – and to understand the "why" of their learning.

In operation, the system utilizes an oscilloscope to monitor a light pulse in its passage between a transmitter and receiver, coupled with 20 meters of fiber optic cable. At the receiver, the oscilloscope displays the phase delay and basis for the calculations which will determine the speed of light through the fiber.

An integral companion to the electronic and physical components is an easily understood and often lighthearted manual which traces the steps of pioneers in optics research. Assembly instructions are included for those who purchase the apparatus in kit form.

The apparatus can be assembled in only a few minutes for students' use, but the curriculum first offers a fascinating academic journey through the years of discovery leading to modern-day breakthroughs in optics technology – and to today's frontiers.

(The apparatus consists of an electronics circuit board in protective plastic enclosure, two fiber optic cables, test connections for all outputs, and a 110 VAC-to-DC power adapter. The optical fibers terminate in simple cinch connectors for easy assembly and efficient coupling. A 20 MHz dual-trace oscilloscope is required.) 220 VAC adapters furnished upon request.

PART NUMBER	DESCRIPTION	PRICE
IF-SL-K	Kit version	\$150.00
IF-SL-A	Assembled version	\$190.00



### OPTICAL VOICE LINK

This "favorite" may have earned more high grades and scholastic honors for student science projects than any other. For students and experimenters alike, the Optical Voice Link is the ideal introduction for those first learning about the marvels, mysteries, and science of light transmission through optical fiber.

There is something fascinating, indeed, about hearing your own voice, after it has been converted into light and then coupled into, through, and out of an optical fiber.

The Optical Voice Link is designed to meet a wide variety of educational, commercial, and industrial applications, including:

- Science projects • Home projects for hobbyists • Hands-on practical industrial training
- Short, audio fiber optic curriculums for schools • Inexpensive classroom demonstrations
- Voice transmission in critical electrical isolation applications

THE OPTICAL VOICE LINK CAN BE EXTENDED UP TO 60 METERS.

(Kit includes: printed wiring boards, switches, electronics, microphone, 8 ohm speaker, three meters of plastic fiber cable, an uncomplicated tutorial, and step-by-step assembly instructions. No prior fiber optics experience, special tools or training are needed to build, use and enjoy the multiple applications of this kit. Some experience with soldering is recommended for completion of the unassembled version.) **NOTE: 9V Battery Required.**

PART NUMBER	DESCRIPTION	PRICE
IF-OVL10-K	Kit version	\$ 55.00
IF-OVL10-A	Assembled version	\$ 95.00

## BOOKS

**P/N BOOK 1 \$60.00**

"TECHNICIAN'S GUIDE TO FIBER OPTICS", Second Edition, by Donald J. Sterline is 256 pages of hardbound information for the person who wants more than a "How To" book. The author starts with a history of fiber optics and proceeds to review how and why fiber optics has become the medium of choice for modern communications systems. A complete chapter is devoted to each component right through to systems and test equipment. We highly recommend this book for the novice to the veteran as a primer and a reference.

# FIBER OPTIC EDUCATION

**TRAINING VIDEOS**     **\$195.00/each; \$1,250.00 complete set**  
**Order by volume number individually or SET for all.**

This Series is designed for managers, engineers, technicians, sales professionals, and college students who

## OPTICAL FIREWIRE

Opticis FireWire 400 (IEEE 1394) has more than 30 times the bandwidth of USB 1.1 with data transfer speed of 400Mbs. This speed capability is ideally suited for higher bandwidth devices such as Digital Video, Professional Audio, Hard Drives, high end Digital Still Cameras and home entertainment devices. Like USB, distance is very limited over copper cable. 4.5 meters is the maximum using copper cable but by employing M4-100 optical links by Opticis that distance can be extended to 100 meters. The M4-100 is a system with 2 six foot copper 6-Pin FireWire cables to connect the DS ports to each link, One MM duplex LC fiber optic jumper, 2 Universal

120/240VAC 60/50Hz power supplies and 2 optical converter links. The power supplies may not be required if the DS port is IEEE 1394 compatible in which case the link will get power from the DS port. The connecting MM duplex fiber optic cable uses LC type connectors and is sold separately according to specific length. Order one LC MM duplex jumper.

### ORDERING INFORMATION

PART NUMBER	DESCRIPTION	SYSTEM PRICE
M4-100	Optical FireWire System	\$1,045.00
LC/LC-XXXM-1-Z2	LC Duplex Jumper <sup>1</sup>	\$190.00*

<sup>1</sup>Note: Substitute length in meters for XXX in part number and add \$2.00/meter to jumper base price of \$120.00. Example: total length is 50 meters. Jumper part number is: **LC/LC-050M-1-Z2**. Price is \$220.00. Order 1 jumper.



**Use MasterCard or Visa  
for ordering convenience!**

# ETHERNET

## 10BASE-T TO FO MM CONVERTER MODEL 373

P/N Model 373

\$200.00

The full duplex signals of the 10Base-T port are converted to optical signals and driven over fiber cables. The Model 373 is powered from an AC adapter.

A group of five LLD's provide indication of Fiber Optic Link Monitor, Twisted-Pair Link Monitor, Collision, Traffic and Power. An SQE switch ensures compatibility with both old and new Ethernet adapters by allowing the user to enable or disable the SQE heartbeat option.

The Model 373 operates with all LAN's that run at a 10MBPS data rate and comply with the IEEE 802.3 specifications for 10Base-T ports.

- Extend LAN's Over 1 Mile
- Plug and Play – No Software
- 10 BASE FL Compatible
- Uses Industry Standard Fiber Optic Cables
- Impervious to Lightning and Surges
- Total Electrical Isolation

### SPECIFICATIONS

**LAN Interface:** Ethernet compatible

**Port Interface:** 10Base-T compatible

**Port Connector:** RJ-45

**Data Rate:** 10MBPS

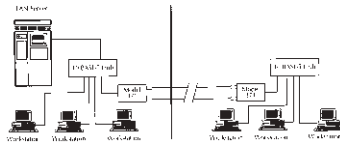
**Fiber Interface:** ST® Connectors

**Fiber Cable:** Duplex

**Fiber Type:** Multimode 62.5/125 microns **Size:** 1.5"W (38mm) x 3.5"L (83mm) x 1"H (25mm)

**Power:** 110 Volts 60 Hz, 220 Volts 50 Hz optional, from AC adaptor

**Environment:** 0°C to 50°C, 0% to 95% RH



## ETHERNET UTP TO FO CONVERTER MODEL TC3105

The Model TC3105 UTP-to-Fiber Optic Converter from TC Communications replaces or extends 10BaseT segments with multimode (850/1310nm) or single mode (1310nm) fiber optic cable. It is fully compliant with IEEE 802.3 10BaseT and 10BaseFL standards. The TC3105 is frequently used to link Ethernet switches or workstations. Typical applications include extending Full Duplex LAN segments up to 50 km (1550nm SM) and connecting two Ethernet segments via fiber optic cable. The standard optical loss budget is 15dB.

Features include automatic UTP Polarity Correction, a slide switch for UTP uplinks or downlinks and six LED indicators to aid installation and troubleshooting procedures. The TC3105 works with all popular sizes of single mode and multimode fiber optic cable. The standard optical connector is ST, FC is optional for 1300nm only. Substitute FC for ST in Part Number.

### FEATURES:

- 10Base-FL Full Duplex Operation
- Multimode (850nm or 1310nm)
- Six Power/Network Status LED Indicators
- Slide Switch for UTP Uplink or Downlink
- 15 dB Standard Loss Budget, Optional 20 dB
- Link Distances up to 50km (1550nm SM)
- Single Mode 1310nm
- Automatic UTP Polarity Correction
- Compact Sheet Metal Case

PART NUMBER	DESCRIPTION	PRICE
TC3105-01-ST-XX-12	MM 850 nm	\$395.00
TC3105-03-ST-XX-12	MM 1300nm	\$695.00
TC3105-05-ST-XX-12	SM 1300nm	\$695.00

TC3PS-TB-08-01	External 115V AC PS (North American)	\$ 50.00
TC3PS-TB-08-03	External 230V AC PS (European - Round Plugs)	\$ 50.00
TC3PS-TB-08-04	External 240V AC PS (U.K. - 3 Prong Triangle)	\$ 50.00

**Data Rates** – 10 Mbps; **Optical** – Transmitter: LED/ELED; Receiver: PIN; **Wavelength:** 850nm/1300nm multimode, 1300nm single mode; **Fiber Optic connectors:** \*ST (FC optional); **Loss Budget:** 15dB multimode 850nm/1300nm @ 50µm; 15dB multimode 850nm/1300nm @ 62.5µm

**Electrical** – Connector: RJ45 Female, UTP; **System** – Bit error rate: 1 in 10<sup>9</sup> or better; Visual indicator: "PWR"; UTP: "PDIS, TP"; Fiber: "LTF, OP, LMON"; **Power** – 12Vdc @ 300 mA; **Optional:** 115/230 VAC with External Power Cube; **Temperature** – Operating: -10°C to 50°C; Storage: -20°C to 90°C; **Humidity:** 95% non-condensing; **Physical** – Height: (1.9 cm) 0.75"; Width: (10.4 cm) 4.13"; Depth: (5.5 cm) 2.50"; **Weight:** (140 gm) 5 oz.

## 10/100/1000 BASE T TO FO CONVERTER MODEL TC3300

The TC Communications Model TC3300 converts 10/100/1000Mbps Ethernet Unshielded Twisted Pair (UTP) for transmission on SM or MM fiber. The link is IEEE802.3z/AB 1000Base-T SX and LX compliant. It is typically used to interconnect network bridges, switches or workstations at distances up to 50Km. A dry contact alarm is standard for remote monitoring as well as 8 LED's for Ethernet settings and Power Status. Power required is 12Vdc, 600ma from customer supplied source or an optional power cube. Electrical connector is RJ-45 and optical connector is your choice of ST, FC or SC. Duplex fiber is required for operation. Call for a WDM version available for use with only 1 fiber. Also call for "Industrial Hardened" and/or longer distance versions.

### TECHNICAL SPECIFICATIONS

**Wavelength:** 850nm MM or 1300nm SM **BER:** 1 in 10<sup>9</sup> or better

**Loss Budget:** MM 12dB into 62.5/125 (300m); SM 1300nm 15dB (50Km)

**Operating Temp:** 0° to 50°C Standard. Call for "Industrial Hardened"

**Storage Temp:** -40° to 80°C **Humidity:** 95% Non-Condensing

**Stand Alone/Wall Mount Dimensions:** 1.4H x 7.1W x 6.5D inches

**Weight:** 1.1 lbs.

PART NUMBER	DESCRIPTION	PRICE
TC3300S-01XX1-12	MM 850nm	\$ 995.00
TC3300S-L1XX1-12	SM 1300nm	\$1,595.00
TC3PS-TAB-15-01	115VAC Power Cube	\$ 55.00
TC3PS-TB-15-03	230VAC European Power Cube	\$ 55.00
TC3PS-TB-15-04	240VAC UK Power Cube	\$ 55.00

Substitute ST, FC, or SC for XX in Part Number



## 100BASE-T TO FO CONVERTER MODEL TC3210

The TC Communications Model TC3210 converts 10/100Mbps Ethernet Unshielded Twisted Pair (UTP) or FDDI-UTP for transmission on SM or MM fiber. The link is full duplex and is typically used to interconnect 10/100Mbps hubs or switching hubs to workstations at distances up to 50Km. A dry contact alarm is standard for remote monitoring as well as a local loopback feature, 8 LED indicators, and an Uplink/Downlink slideswitch for troubleshooting. Power required is 12Vdc, 500ma from customer supplied source or an optional power cube. Electrical connector is RJ-45 and optical connector is your choice of ST, FC or SC. Duplex fiber is required for operation. Call for a WDM version available for use with only 1 fiber. Also call for "Industrial Hardened" and/or longer distance versions.



### TECHNICAL SPECIFICATIONS

- Wavelength: 1300nm MM or SM
- Loss Budget: MM 15dB into 62.5/125 (2Km); SM 1300nm 15dB (50Km)
- BER: 1 in 10<sup>9</sup> or better
- Operating Temp: 0° to 50°C Standard. Call for "Industrial Hardened"
- Storage Temp: -40° to 80°C
- Humidity: 95% Non-Condensing
- Stand Alone/Wall Mount Dimensions: 1.4H x 7.1W x 6.5D inches
- Weight: 1.1 lb.

PART NUMBER	DESCRIPTION	PRICE
TC3210S-03XX1-12	MM 1300nm	\$680.00
TC3210S-L1XX1-12	SM 1300nm	\$985.00
TC3PS-TB-08-01	115VAC Power Cube	\$ 45.00
TC3PS-TB-08-03	230VAC European Power Cube	\$ 45.00
TC3PS-TB-08-04	240VAC UK Power Cube	\$ 45.00

Substitute ST or FC for XX in Part Number.

## 100BASE-T TO FO MM CONVERTER MODEL 375ST

P/N Model 375ST

\$350.00



The Model 375ST extends the features and advantages of the Model 373 by allowing the user to take advantage of the newer higher 100Mbps vdata rate. It can be used for FDDI, ATM, or Fast Ethernet applications over dual fibers for full duplex operation. Three LED's show power and active fibers.

### SPECIFICATIONS

**Compatibility:** Fast Ethernet, 100BASE-T

**Port Connector:** RJ-45

**Fiber Interface:** ST Connectors

**Fiber Type:** 62.5/125 micron

**Wavelength:** 1300 nm

**Data Rate:** 100MBPS

**Power:** 115 Volts, 60Hz; 220 Volts,

50 Hz optional

**Size:** 2" W (50.8mm) x 3" L (76.2mm) x 1" H (25.4mm) **Environment:** 0° to 50° C, 5 to 95% RH



MADE BY TELEBYTE IN THE USA

## RS-232/RS-422/RS-485 TO 10BASE-T ETHERNET

The TC3400 converts RS-232, RS-422, RS-485 (2 or 4 wire) 57.6Kbps asynchronous data to packets for point to point transmission between TC3400's over an Ethernet Network. This is a copper based product with a DB9 female connector, RJ-45 receptable, Dry Contact Alarm. used in conjunction with other copper 10Base-T Ethernet converters or switches enables service over fiber optic networks. The TC3400 supports full handshaking RS-232 interfaces (DCD, RTS, CTS, DTR, and DSR) with 9 diagnostic LED's for the control signals plus Sync, Activity, Power, and Link. Power is provided by an optional 12 volt, 500ma power supply.



### TECHNICAL SPECIFICATIONS

- Operating Temp: 0° to 50°C Standard. Call for "Industrial Hardened"
- Storage Temp: -40° to 80°C
- Humidity: 95% Non-Condensing
- Stand Alone/Wall Mount Dimensions: 1.4H x 7.1W x 6.5D inches
- Weight: 1.1 lbs.

PART NUMBER	DESCRIPTION	PRICE
TC3400S-1-1-12	RS-232 Master	\$685.00
TC3400S-1-2-12	RS-232 Slave	\$685.00
TC3400S-3-1-12	RS-422 Master	\$785.00
TC3400S-3-2-12	RS-422 Slave	\$785.00
TC3400S-4-1-12	RS-485 Master	\$785.00
TC3400S-4-2-12	RS-485 Slave	\$785.00
TC3PS-TB-08-01	115VAC Power Cube	\$ 45.00
TC3PS-TB-08-03	230VAC European Power Cube	\$ 45.00
TC3PS-TB-08-04	240VAC UK Power Cube	\$ 45.00

## 10/100 BASE-T ETHERNET 6 PORT FIBER OPTIC SWITCH

Exactly the same as the TC3705S on page 31 except 6 ports with 8 LED's and physically larger. Stand Alone Dimensions are 1.4H x 19.0W x 6.5D inches.

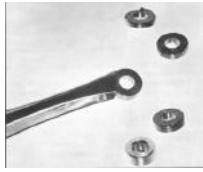
PART NUMBER	DESCRIPTION	PRICE
TC3715S-23ST1-12	MM 1300nm with ST	\$1,395.00
TC3715S-D1XX1-12	SM 1300nm	\$1,995.00
TC3PS-TB-15-01	115VAC Power Cube	\$ 55.00
TC3PS-TB-15-03	230VAC European Power Cube	\$ 55.00
TC3PS-TB-15-04	240VAC UK Power Cube	\$ 55.00

Substitute ST, FC, or SC for XX in Part Number

# ATTENUATORS

## MM AIRGAP FIXED ATTENUATORS

Donut style attenuators slip over the ferrule of SMA or ST<sup>®</sup> type connectors and provide air gap attenuation. These type of attenuators are the least expensive and the least accurate. They are recommended for use where back reflection is not a concern nor is absolute attenuation value. Sold in packages of 5, each attenuator is color coded (Red, Blue, Green, Gold, & Silver) with approximate attenuation values from 2.5 – 6dB for 850nm and 7.4 – 11.7 for 1300nm. Individual color codes are also available in packages of 10.



DESCRIPTION	PART NUMBER	PRICE
ST <sup>®</sup> Mixed	ST-A450	\$25.00
SMA Mixed	SMA-400	\$25.00
ST <sup>®</sup> Specific Color	ST-(State Color)	\$50.00
SMA Specific Color	SMA-(State Color)	\$50.00

## SM/MM FIXED FEMALE BULKHEAD ATTENUATORS

Bulkhead type attenuators can be inserted easily between jumpers or permanently mounted in a fiber distribution cabinet. They can be used for either SM or MM and are wavelength dependent with a back reflection of -24 dB. Specify 85 for XX in part number for 850nm, 13 for 1310nm, or 15 for 1550nm. Call for other attenuation values and connectors not listed.



BULKHEAD TYPE	PART NUMBER	PRICE
ST <sup>®</sup>		
ST <sup>®</sup> 5dB	68-JJ-7-05XX	\$45.00
ST <sup>®</sup> 10dB	68-JJ-7-10XX	\$45.00
ST <sup>®</sup> 15dB	68-JJ-7-15XX	\$45.00
ST <sup>®</sup> 20dB	68-JJ-7-20XX	\$45.00
FC		
FC 5dB	68-FF-1-05XX	\$50.00
FC 10dB	68-FF-1-10XX	\$50.00
FC 15dB	68-FF-1-15XX	\$50.00
FC 20dB	68-FF-1-20XX	\$50.00
SC		
SC 5dB	68-YY-8-05XX	\$50.00
SC 10dB	68-YY-8-10XX	\$50.00
SC 15dB	68-YY-8-15XX	\$50.00
SC 20dB	68-YY-8-20XX	\$50.00

## SM INLINE FIXED ATTENUATORS

For 1310 or 1550 Specify **\$100.00**

For Single Mode 1310 or 1550nm these attenuators have a maximum of -50dB Back Reflection. Attenuation tolerance is +/-1.0dB at 5, 10, 15, or 20dB – Special attenuation values are also available. Standard connectors are FC, ST<sup>®</sup>, SC. See "How to Order Guide" on page 33 for Part Number (Substitute Attenuation for Length). Example: 10dB with FCPC Connectors is PART NUMBER FC/FC-010D-S-45.



## SM MALE TO FEMALE FIXED INLINE BUILD OUT ATTENUATORS

STORM LBO attenuators offer -40dB maximum back reflection with good repeatability of <0.2dB and excellent thermal stability of <0.3dB between -55° and 85°C. They are available in Single Mode ST<sup>®</sup>, FC, and SC at 5, 10, and 15dB with accuracy of +/-1.0dB. 20dB is available with +/-1.5dB accuracy. Attenuation values are valid for both SM 1310 or 1550 nm. Call for other connectors, attenuation values, and multimode not listed.



MALE TO FEMALE	PART NUMBER	PRICE
ST <sup>®</sup>		
ST <sup>®</sup> 5dB	77-RR-05	\$75.00
ST <sup>®</sup> 10dB	77-RR-10	\$75.00
ST <sup>®</sup> 15dB	77-RR-15	\$75.00
ST <sup>®</sup> 20dB	77-RR-20	\$75.00
FC		
FC 5dB	77-PP-05	\$75.00
FC 10dB	77-PP-10	\$75.00
FC 15dB	77-PP-15	\$75.00
FC 20dB	77-PP-20	\$75.00
SC		
SC 5dB	77-TT-05	\$75.00
SC 10dB	77-TT-10	\$75.00
SC 15dB	77-TT-15	\$75.00
SC 20dB	77-TT-20	\$75.00

NEC SM D4 male to female LBO attenuators are available on a limited basis.

We have 5dB (OD-8561-DSBL), 15dB (OD-8561-DSBN), and 20dB (OD-8561-DSBP) values ONLY. All dB values are \$200.00 each.

## SM DIGITAL VARIABLE ATTENUATORS

The Photom attenuators offer accurate digital attenuation that is continuously variable from 0 to 60dB for the Model 780ZA and 0 to 65dB for the Model 781ZA. Thumbwheel adjustment provides 0.1dB and 0.01dB resolution at both 1310 and 1550nm. Both are accurate to +/-0.4dB with back reflection >= -40dB. Maximum input power is +18dBm with insertion loss of <=2.0dB. Standard accessories included are a soft case, batteries, Instruction Manual and SC connector adapters. Other connector types are optional as well as an AC adaptor. They measure 90W x 175H x 46mmD and weigh 550 grams.



PART NUMBER	DESCRIPTION	PRICE
780ZA	Optical Variable Attenuator (60dB/0.01dB)	\$2,100.00
781ZA	Optical Variable Attenuator (65dB/0.01dB)	\$2,575.00
181-FC	FC Adaptor	\$ 140.00
181-ST	ST Adaptor	\$ 140.00
181-SC	SC Adaptor	\$ 140.00
DP-1206	120VAC Adaptor	\$ 60.00
DP-2206	220VAC Adaptor	\$ 60.00

## SM/MM VARIABLE ATTENUATORS

The Advanced Fiber Solutions variable attenuators are ideal for simulating cable loss for lab testing or padding links where receivers are being overloaded. They are adjustable from 1-30dB. Jumpers are optional. FOTEC<sup>™</sup> These attenuators work equally well in Single or



Multimode by using the air gap method.

MODEL	CONNECTOR	PRICE
ATT120	FC	\$210.00
ATT110	ST <sup>®</sup>	\$195.00
ATT130	SC	\$210.00

## SM/MM VARIABLE ATTENUATOR

FiberSystems offers variable non-calibrated attenuation from 1 to 30dB at 1310/1550nm with excellent back reflection of <-70dB. This is accomplished by the unique use of angled ferrules and air gap technology. In addition to the very low back reflection accomplished using this method an additional benefit is that the attenuation is wavelength independent. Thus, the attenuation range will increase when used at lower wavelengths. Operating temperature is -10 to +70 °C. Attenuators come standard with 1m 900um buffered pigtails. Add \$40.00 per end for standard SM, \$50.00 per end for SM APC, and \$30.00 per end for standard MM connectors.

tion is wavelength independent. Thus, the attenuation range will increase when used at lower wavelengths. Operating temperature is -10 to +70 °C. Attenuators come standard with 1m 900um buffered pigtails. Add \$40.00 per end for standard SM, \$50.00 per end for SM APC, and \$30.00 per end for standard MM connectors.

PART NUMBER	DESCRIPTION	PRICE
A3MSGHV-S	SM Variable Attenuator	\$300.00
A3MSGHV-M5	MM 50/125 Variable Attenuator	\$300.00
A3MSGHV-M6	MM 62.5/125 Variable Attenuator	\$300.00

## SM VARIABLE LAB ATTENUATOR

FiberSystems provides SM variable attenuation in a distinctive package with outstanding backreflection of <-70dB. Using microbending techniques provides a range of 1 to 30dB at 1310/1550nm. Operation temperature is -10 to +70°C. Attenuators come standard with 1m 900um buffered pigtails. Add \$40.00 per end for standard SM, \$50.00 per end for SM APC, and \$30.00 per end for standard MM connectors.

PART NUMBER	DESCRIPTION	PRICE
A3MSGTV	SM Variable Attenuator	\$275.00



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