OPTICIS
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DATA SHEET

USB Extension Cables

M2-1xx
Pure Fiber cable, ONLY Fiber strains

M2-2xx
Hybrid Fiber cable, Additional copper wiring for extra power to extended USB-port

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Optical USB Extension Cable

- Point-to-point fibre cables -

Description

Opticis optical extension cables link the USB signal up to 150feet (45 meters) without any repeater. They provide the simplest way to link the USB device far from the host. Owing to the advanced VCSEL and PD, USB protocol could be maintained over such a long-distance connection with cost effective. The modules have a pair of an optical-to-electrical and an electrical-to-optical converters at each end, connected by 2 stranded fiber-optic cables.

Opticis optical extension cables provide A plug-in to A receptacle (M2-100). In addition, hybrid fiber cables running electrical wire along are used instead only optical cables. This offers convenient extension where there is no AC power supply, adjacent at the end of devices to be supplied to USB devices and Opticis downstream modules. The model named as M2-210 supplies DC power, running through copper wire in the hybrid cables, from the host end to the downstream module as well as to USB devices.

Features

◆ Extend the USB signal up to 150feet (45 meters)

◆ No software to install: Easy to use; plug and play.

◆ Compatible with USB 1.1(12Mbps, 1.5Mbps)

◆ Cables are light-weight, almost zero EMI/RFI emissions, no spark hazard and data secure

◆ Wide variety models: DC power supply along cable to Rx module and Integral hub for multiple ports to be designed in by customer's inquiry

Applications

◆ PC link of peripherals in factory & office

◆ USB camera interfaces for surveillance system

◆ USB interface of automatic motion controls

◆ PC interface of digital audio systems

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Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	Tstg	- 30	+ 70	°C
Supply Voltage	VCC	- 0.3	+ 6.0	V
Input Voltage	Vin	- 0.3	VCC	V
Storage Humidity	RHsh	0	80	%

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Units
Ambient Operating Temperature	TA	0		+50	°C
Power Supply Rejection (Note1)	PSR		50		mVpp
Supply Voltage	VCC	+4.5	+5	+5.5	V
Full Speed Mode Data Rate	FS		12		Mbps
Low Speed Mode Data Rate	LS		1.5		Mbps

Note Tested with a 50mVp-p sinusoidal signal in the frequency range from 500Hz to 500 MHz on the VCC supply with the recommended power supply filter in place. Typically less than a 0.25 dB change in sensitivity is experienced.

Power Adapter

1) M2-100 / 10S

Parameter	Symbol	Min.	Typical	Max.	Units
Power Input	Vccp	100	110	120	V
Power output	Vcc	4.5	5	5.5	V
Supply Current	ITcc	-	-	600	mA

2) M2-210 / 21S

Parameter	Symbol	Min.	Typical	Max.	Units
Power Input	Vccp	100	110	120	V
Power output	Vcc	8	9	11	V
Supply Current	ITcc	-	-	600	mA

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Specification of Fibres

Parameter	M2-100/110 / 10S	M2-210 / 21S
Fiber type	MMF 62.5um/ 2 fibres	Hybrid Cable / 2 fibres + 2 power cables
Out Diameter	￠4.5mm	￠6.8mm
Use	Indoor & Outdoor	Indoor & Outdoor
Flame	Retardant	Retardant
Jacketing	PVC	PVC
Operating Temperature	-40℃ ~ +85℃	-20℃ ~ +75℃
Storage Temperature	-55℃ ~ +85℃	-40℃ ~ +80℃

Drawing
Dimension [mm]

Model name: M2-100 / 10S (A-Ā)

Model name: M2-210 / 21S(A-B)

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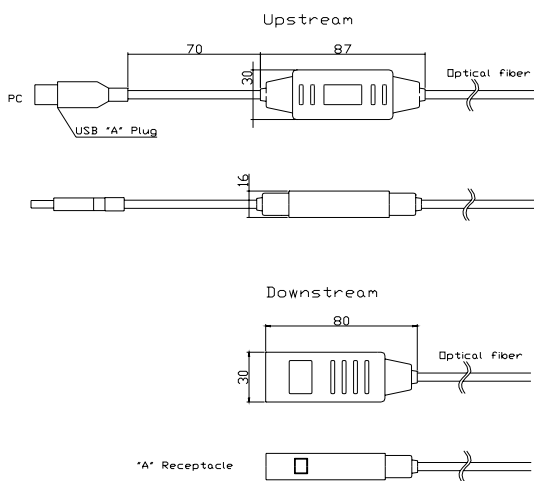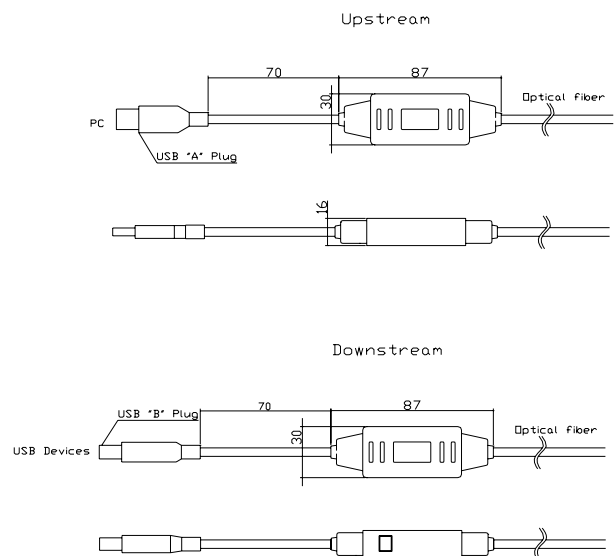
Optical Cables for M2-100 / 10S

KEVLAR
PVC COATING
PVC COATING
PVC JACKET
(NON FLAMMABLE)
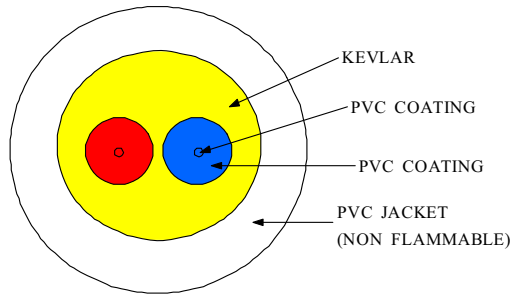
Hybrid Optical Cables for M2-210 / 21S

MM 62.5 FIBER
Coating (PVC)
KEVLAR
(PVC)
24AWG
Al-Mylar Tape
Binder Tape
NonFlammable PVC
NonFlammable P.P Strim
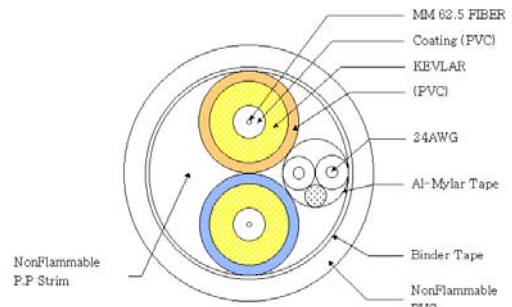
Ordering Information

Model Name: M2-XYZ-xx

X=1: use optical cable and plug DC power adapter in the downstream module.

X=2: use hybrid Fiber cable and run DC power from the host end to the downstream module.

Y=0: A plug-in in the upstream module to A receptacle in the downstream module

Y=1: A plug-in to B plug-in

Z=0: Window/Mac

Z=S: Solaris SUN

ZZ: the length of fiber cable in meter being available every 10 meters. For instance, 10 for 10 meters (32.8feet) and 30 for 30 meters (97.6feet)
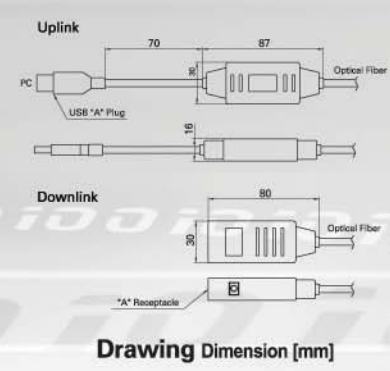

Caution
Multiple Optical USB Extension Module connected in a row to a USB device may result in the device not working properly, user should verify that adding cables or devices do not affect the operation of the USB devices. Also note that only one hub can be connected with Optical USB Extension Module and more extension cable or repeater connect will make encounter improper work.

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# *Stretch* USB ™ : Optical USB Extension Cable

M2-100 ; Pure fiber model

- Complies with USB 1.1 High-speed (12Mbps) standard.
- Extends up to 45 meters (150 feet).
- Offers perfect electrical galvanic isolation.
- Adopts two (2) strands multi-mode fiber between two links, not to be interfered magneto-electrically.
- No software to install, Easy to use; Plug and play; Designs in a generic hub in the downlink.
- Uses USB controller power for the uplink and +5V power adapter in shipping group for the downlink.
- Supports wide-ranged OS's Windows98, XP, 2000, Mac and SUN Solaris (Certified).

Sun microsystems
Solaris Ready

Uplink

PC — USB "A" Plug — 70 — 87 — Optical Fiber
16

Downlink

80 — Optical Fiber
30
"A" Receptacle — 8

Drawing Dimension [mm]

M2-210 ; Hybrid fiber model

- Complies with USB 1.1 High-speed (12Mbps) standard.
- Extends up to 45 meters (150 feet).
- Uses +9V DC power adapter in the uplink, supplying power over the hybrid cable to the downlink and devices to be connected.
- No software to install, Easy to use; Plug and play; Designs in a generic hub in the downlink.
- Supports wide-ranged OS's Windows98, XP, 2000, Mac and SUN Solaris (Certified).
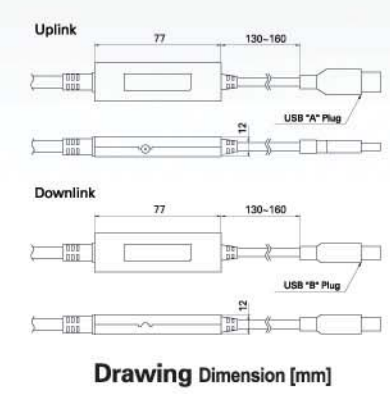
Ordering information : M2-1AB-xx for pure fiber and
M2-21B-xx for hybrid fiber.
where **A - 0**: A plug-in to A receptacle.
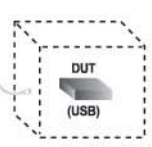**1**: A plug-in to B plug-in (use an A-to-B short cable).
B - 0: for Windows/Mac.
1: for SUN Solaris.
xx : Length of fiber in meter.

Uplink

77 — 130~160 — USB "A" Plug
12

Downlink

77 — 130~160 — USB "B" Plug
12

Drawing Dimension [mm]

Electrical Hazard Environment

Industry PC   **EMI chamber**   **PLC with touch panel**   **Robot or Machinery**

DUT (USB)

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