



613-000628 Rev.A 061006

fMAP
Component Specification
Release 8.0
Issue 3

About this Guide

This guide includes:

- Section 1 provides an overview of the documentation set for fMAP products.
- Section 2 lists all components and their specifications.
- Section 3 lists the cabling specifications.
- Section 4 lists miscellaneous specifications.

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1. Component Reference

1.1 Component/Product Compatibility

1.1.1 Overview

At the hardware level, the fMAP Series products are offered in a chassis group configuration. Each chassis is comprised of a set of modular, replaceable components. Moreover, many of these components can be used in different products when a product-level feature is needed (such as duplex). The exception is the fMAP series, which comes equipped as a complete unit.

Table 1-1 lists the components for the fMAP series and which systems are compatible.

TABLE 1-1 Product/Component Compatibility for Commercial Allied Telesis Products in Release 8.0

Category	Type	Component
Service Modules (SM)	Fast Ethernet	FE10 (TN-102-A) ^a
		FX10FX (TN-104-A)
		FX10LX (TN-107-A)
		FX10BX (TN-109-A)
	ADSL	ADSL24A (TN-121-A) - Annex A ^b
	CES	CES8 (TN-119-A)
Network Modules (NM)	GE8	GE8 (TN-117-A) - in Service Module slot ^c
	EPON2	EPON2 (TN-118-A) - note d
Control Modules (CM)	Gigabit Ethernet	GE4 (CFC12)
		GE2RJ (CFC12)
	CFC	CFC12 (on 9100)

a. The FE/FX10 card can also be used as an upstream interface.

b. Supports Annex M.

c. When GE1 interface is set for customer, the card supports customer features (on port basis) at 1G rate.

1.1.2 fMAP Series Components

Table 1-2 lists the components that are available for this release and shows their minimum software release.

TABLE 1-2 Component Availability for the Allied Telesis Series Products

Component Type	Component	Model Number	Reference	Detail	Minimum Software Release
Chassis	910x	TN-9102-A TN-9103-A	1.7.1 1.7.2	910x Chassis Group	8.0
Cooling and Power	AC Power Supply	TN-E010-A	1.7.1	Fits in rear slot of 9102	8.0
Service Modules	ADSL24A - Annex A	TN-121-A	1.3.1	24-port ADSL Annex-A	8.0
	FE10	TN-102-A	1.3.2	10-port, 10/100BT	8.0
	FX10FX FX10LX	TN-104-A TN-107-A	1.3.3	10-port, 100BaseFx Ethernet	8.0
	FX10BX	TN-109-A	1.3.4	Optical Fiber- based Fast Ethernet	8.0
	CES8	TN-119-A	1.3.5	8-port DS1/E1	5.0
	EPON2	TN-118-A	1.3.6	8-port passive optical network interface	8.0
Control Modules	CFC12	TN-408-A	1.4.1	9100, slot 3	8.0
Filler Plate	FPF	TN-M000-A	1.5.1	Full-height	-NA-

1.1.3 fMAP Series

TABLE 1-3 fMAP versions

Product	Description	Minimum Software Release
9102 (TN-9102-A-x0) 1.7.1	The 9100 has modular (replaceable) cards. The CFC12 is used (always in slot 3), while the other three slots can have 100M or 1Gb backplane Service Modules. Uses non-redundant AC power supply The value of x depends on the power cord used.	8.0
9103 (TN-9103-A-x0) 1.7.2	The 9100 has modular (replaceable) cards. The CFC12 is used (always in slot 3), while the other three slots can have 100M or 1Gb backplane Service Modules. Uses redundant AC power supply The value of x depends on the power cord used.	8.0

1.1.4 Load Names for Components

Table 1-4 lists the load names that are used for cards that require a software load.

TABLE 1-4 Load Names for Components

Card	Load Name
TN-102-A (FE and FX cards)	fe10_6.0.7.tar
TN-119-A	ces8_6.0.7.tar
TN-121-A	adsl24a_6.0.7.tar

1.2 Common Specifications

1.2.1 Altitude Range

All Allied Telesis components are rated as follows:

- Minimum: -60 meters (-197 feet)
- Maximum: 1800 meters (5906 feet)

Note: Any exceptions are noted for a particular component.

1.2.2 Humidity Range

All Allied Telesis components are rated as follows:

- Minimum: 5 percent
- Maximum: 90 percent

Note: Any exceptions are noted for a particular component.

1.2.3 910x Chassis

Note: The CFC12 must always go into Slot 3. The chassis is shipped without the CFC12.

Note: Refer to the fMAP Series Installation Guide for parts shipped with the chassis

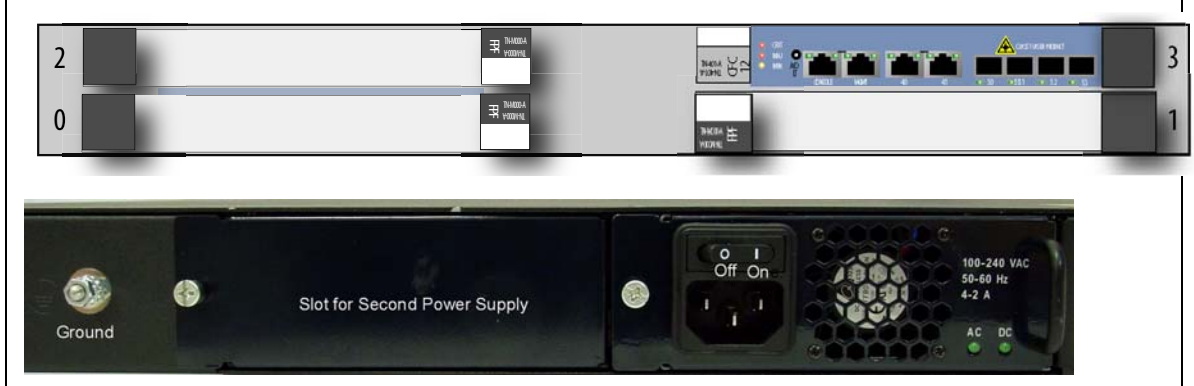
1.2.3.1 TN-9102-A (Non-Redundant AC Power Supply)

Note: The CFC12 must always go into Slot 3. The chassis is shipped without the CFC12.

Note: Refer to the fMAP Series Installation Guide for parts shipped with the chassis

TABLE 1-5 Specifications for the 9102-A-x0

Specification	Type	Description/Notes
Model Number	TN-9102-A	9100 Unit with single AC power supply (See photo below) Power Cord varies with market location.
Temperature Range	Operating	0° to 50° C
	Storage	- 40° to 75 ° C
Dimensions	Height	Height: 1.75 in. (4.4 cm)
	Width	Width: 17.4 in. (44 cm)
	Depth	Depth 20.2 in. (51.3 cm)
Weight		14 lb. 12 oz. (6.7 kg)
Function	Mixture of SM Cards	Refer to 1.1.
Power Requirements		110-240 VAC 50-60 Hz
CLEI Code		None



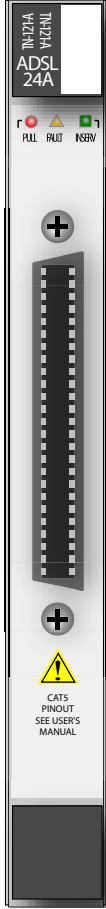
1.2.3.2 TN-9103-A (Redundant AC Power Supply)

This is the same as the 9102, except a redundant power supply is included. The weight gain is one power supply unit (2 lb. 1 oz. (.95 kg)).

1.3 Service Modules

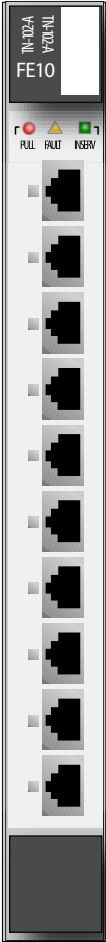
1.3.1 ADSL24A (TN-121-A) - Annex A

TABLE 1-6 Specifications for the ADSL Interface (24 Ports)

Specification	Type	Description/Notes	ADSL24A Card
Model Number	TN-121-A	Annex-A	
Temperature Range	Operating	-40° to 65° C	
	Storage	- 40° to 75 ° C	
Dimensions	Length	7.5 in (19.1 cm)	
	Width	.87 in (2.2 cm)	
	Depth	9.8 in. (25 cm) with latches	
Weight		1.2 lb. (0.54 kg)	
Function(s)	ADSL ports	Provides ADSL Annex-A service for 24 ports.	
Software Download	Yes	Must Check to ensure correct version	
LEDs	PULL	When lit, card can be pulled without further affecting service	
	FAULT	When lit, card needs to be checked	
	INSRV	In service	
Power Requirements	Typical	48 watts	
	Maximum	53 watts	
Port Interface	RJ21 See Table 2-1	Non-standard (optimized) RJ21 pin-out.	
CLEI Code		VAUCABHGTA	

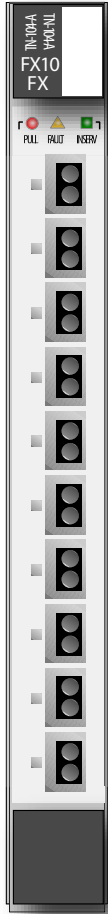
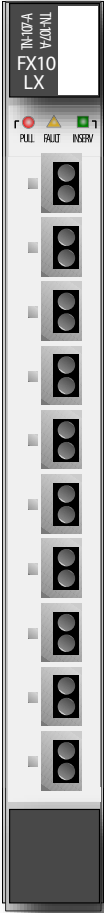
1.3.2 FE10 - TN-102-A

TABLE 1-7 Specifications for the Fast Ethernet interface (10 Ports)

Specification	Type	Description/Notes	FE10 Card
Model Number	TN-102-A		 <p>The image shows a vertical FE10 card with 10 RJ-45 ports. At the top, there are three status LEDs labeled PULL (red), FAULT (yellow), and INSRV (green). The card is labeled 'TN-102-A V20111 FE10'.</p>
Temperature Range	Operating	-40° to 65° C	
	Storage	- 40° to 75 ° C	
Dimensions	Length	7.5 in (19.1 cm)	
	Width	.87 in (2.2 cm)	
	Depth	9.8 in. (25 cm) with latches	
Weight		0.8 lb. (0.34 kg)	
Function(s)	Fast Ethernet 10/100BT ports	Provides 10 Fast Ethernet service ports.	
Software Download	Yes	Must Check to ensure correct version	
LEDs	PULL	When lit, card can be pulled without further affecting service	
	FAULT	When lit, card needs to be checked	
	INSRV	In service	
	LINK	When illuminated, indicates that the port is operationally UP and data traffic is flowing over the port.	
Power Requirements	Typical	16 watts	
	Maximum	25 watts	
Port Interface	RJ-45 See Table 2-2	N/A	
CLEI Code		VAUCAAWGTA	

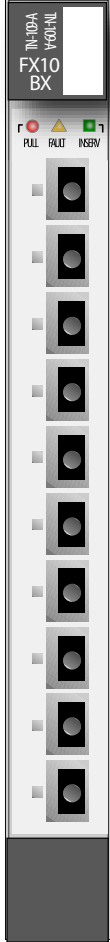
1.3.3 FX10 FX/LX - TN-104-A, TN-107-A

TABLE 1-8 Specifications for the Optical Fiber-based Fast Ethernet interface (10 Ports) - FX, LX

Specification	Type	Description/Notes	FX	LX
Model Number	TN-104-A (FX10FX)	- 2 km 1310nm, Dual Fiber, Multi mode		
	TN-107-A (FX10LX)	- 10 km, 1310nm, Dual Fiber, Single mode		
Minimum loss budgets		FX: 7.5dBm		
		LX: 16dBm		
Temperature Range	Operating	-40° to 65° C		
	Storage	- 40° to 75 ° C		
Dimensions	Length	7.5 in (19.1 cm)		
	Width	.87 in (2.2 cm)		
	Depth	9.8 in. (25 cm) with latches		
Weight		1.0 lb. (0.45 kg)		
Function(s)	100BaseFx Ethernet ports	Provides 100 Fiber-based Fast Ethernet service ports.		
Software Download	Yes	Must Check to ensure correct version		
LEDs	PULL	When lit, card can be pulled without further affecting service		
	FAULT	When lit, card needs to be checked		
	INSRV	In service		
	LINK	When illuminated, indicates that the port is operationally UP and data traffic is flowing over the port.		
Power Requirements	Typical	23 watts, FX / 20 watts, LX		
	Maximum	37 watts, FX / 38 watts, LX		
Port Interface	Optical duplex LC-style receptacles	N/A		
CLEI Code	TN-104-A	VAUCABGGTA		
	TN-107-A	VAUCAAXGTA		

1.3.4 FX10 BX - TN-109-A

TABLE 1-9 Specifications for the Optical Fiber-based Fast Ethernet interface (10 Ports) - BX

Specification	Type	Description/Notes	BX
Model Number	TN-109-A (FX10BX) (Fiber Ports)	- 10 km, Single mode, Single fiber, Tx 1550nm, Rx 1310nm, i-temp, transmit power -14 to -8dBm, receive sensitivity -33dBm	
Minimum loss budgets		BX: 19dBm	
Temperature Range	Operating	-40° to 65° C	
	Storage	- 40° to 75 ° C	
Dimensions	Length	7.5 in (19.1 cm)	
	Width	.87 in (2.2 cm)	
	Depth	9.8 in. (25 cm) with latches	
Weight		1.0 lb. (0.45 kg)	
Function(s)	100BaseFx Ethernet ports	Provides 100 Fiber-based Fast Ethernet service ports.	
Software Download	Yes	Must Check to ensure correct version	
LEDs	PULL	When lit, card can be pulled without further affecting service	
	FAULT	When lit, card needs to be checked	
	INSRV	In service	
	LINK	When illuminated, indicates that the port is operationally UP and data traffic is flowing over the port.	
Power Requirements	Typical	21 watts	
	Maximum	36 watts	
Port Interface	Optical duplex LC-style receptacles	N/A	
CLEI Code		VAUCAAYGTA	

1.3.5 Circuit Emulation Service (CES8) - TN-119-A

TABLE 1-10 Specifications for the Circuit Emulation Service (CES) Interface (8 Ports)

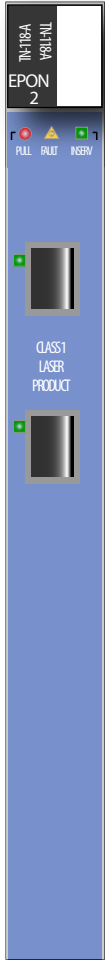
Specification	Type	Description/Notes	CES8 Card
Model Number	TN-119-A	T1/E1 Transport Over Ethernet, 8 Ports	
Temperature Range	Operating	-40° to 65° C	
	Storage	- 40° to 75 ° C	
Dimensions	Length	7.5 in (19.1 cm)	
	Width	.87 in (2.2 cm)	
	Depth	9.8 in. (25 cm) with latches	
Weight		0.8 lb. (0.37 kg)	
Function(s)	Circuit Emulation service	Provides 8 Circuit Emulation Service ports.	
Software Download	Yes	Must Check to ensure correct version	
Card LEDs	PULL	When lit, card can be pulled without further affecting service	
	FAULT	When lit, card needs to be checked	
	INSRV	When lit, in service	
Port LEDs		When INS lit, physical port is operationally UP and data traffic is flowing over the port When ERR lit, faults on the physical port When ERR blinking, a degradation of service When both blinking, loopback mode	
Power Requirements	Typical	16 watts	
	Maximum	23 watts	
Port Interface	RJ21 - See Table 2-3	Non-standardized (optimized) RJ-21 pinout	
	Line Rate	DS1 = 1.544Mbps, E1 = 2.048Mbps	
	Line Code	DS1 = AMI, B8ZS, E1 = AMI, HDB3	
	Framing	In unstructured mode, all framing types are supported since they are transparently passed through the network	

TABLE 1-10 Specifications for the Circuit Emulation Service (CES) Interface (8 Ports) (Continued)

Specification	Type	Description/Notes	CES8 Card
CLEI Code		VAUCAA2GTA	
	Packet Size	16 to 1023 bytes	
	PDV Buffer	The Max. is 74.432 ms for DS1 or 56.112 ms for E1, but the capability varies on the packet size setting.	
Timing / Synchronization	Timing Source	Derived from Loop, packet stream, or card	
	Jitter	DS1 - ANSI T1.102, T1.403, GR-499-CORE E1 - ITU-T G.823	
	Wander	DS1 - T1.403, E1 - ITU-T G.823	
	Holdover Accuracy	Stratum 4 local oscillator	

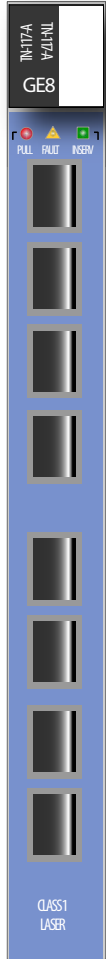
1.3.6 Ethernet Passive Optical Network (EPON2) - TN-118-A

TABLE 1-11 Specifications for the Ethernet Passive Optical Network (EPON2) Interface (2 Ports)

Specification	Type	Description/Notes	EPON2 Card
Model Number	TN-118-A	Ethernet Transport Over Optical Network, 2 Ports	 <p>The image shows a vertical EPON2 card with two ports. At the top, it is labeled 'TN-118-A' and 'EPON2'. Below the label are three status LEDs: a red 'PULL' LED, a yellow 'FAULT' LED, and a green 'INSRV' LED. The card is labeled 'CLASS1 LASER PRODUCT'.</p>
Temperature Range	Operating	-40° to 65° C	
	Storage	- 40° to 75 ° C	
Dimensions	Length	7.5 in (19.1 cm)	
	Width	.87 in (2.2 cm)	
	Depth	9.8 in. (25 cm) with latches	
Weight		0.8 lb. (0.37 kg)	
Function(s)	Ethernet services over optical network	Works with Optical Network Unit (iMG646PX-ON)	
Software Download	Yes	Must Check to ensure correct version	
Card LEDs	PULL	When lit, card can be pulled without further affecting service	
	FAULT	When lit, card needs to be checked	
	INSRV	When lit, in service	
	ONU Link	When lit, there are ONUs with links registered to the EPON's OLT	
Power Requirements	Typical		
	Maximum		
Port Interface	Optical ports	Refer to IEEE 802.3ah	

1.3.7 Gigabit Ethernet 8 (GE8) - (TN-117-A)


TABLE 1-12 Specifications for the Gigabit Ethernet 8 port

Specification	Type	Description/Notes	GE8
Model Number	TN-117-A	N/A	
Temperature Range	Operating	-40° to 65° C	
	Storage	- 40° to 75 ° C	
Dimensions	Length	7.5 in (19.1 cm)	
	Width	.87 in (2.2 cm)	
	Depth	9.8 in. (25 cm) with latches	
Weight		0.9 lb. (0.4 kg)	
Function(s)	Ports interface subscriber (in SM slot) or 1G Ring (in RM slot)	8 port gigabit Ethernet. Small Form Factor Pluggable (SFP) interfaces provide the optical interfaces.	
Software Download	None		
LEDs	PULL - Red FAULT - Yellow INSRV - Green LINK - Green	PULL - Red - OK to Pull, the card is out of service and can be removed FAULT - Yellow - fault is present on the card, display the fault using the SHOW ALARMS command INSRV - Green- the card is in service LINK - Green - Link up	
Power Requirements	Typical		
	Maximum		
Interfaces	8-GbE SFP	N/A	
CLEI Code		N/A	

1.4 Control Modules

1.4.1 Control Module (CFC12) - TN-408-A


TABLE 1-13 Specifications for the Controller

Specification	Type	Description/Notes	CFC12 Card
Model Number	TN-408-A	Supports Service Modules used in the 9100 chassis (slot 3)	
Temperature Range	Operating	-40° to 65° C	
	Storage	- 40° to 75 ° C	
Dimensions	Length,	7.5 in. (19.1 cm)	
	Width	.9 in. (2.2 cm)	
	Depth	9.8 in. (25 cm) with latches	
Weight		1.9 lb. (0.85 kg)	
Function(s)	Central Controller	12 Gbps Central switching fabric and control card.	
Software Download	Yes	Must Check to ensure correct version	
LEDs	Critical, Major, Minor	Alarm levels	
Controls	ACOL/T	Alarm Cut Off/Lamp Test	
Power Requirements	Typical	25	
	Maximum	28	
Management Ports	CONSOLE (RJ-45)	Refer to 2.5.1 .	
	MGMT (Ethernet 10/100)	Ethernet Management Port	
CLEI Code		None	

1.5 Filler Plates

1.5.1 Filler Plate Full (FPF) - TN-M000-A

TABLE 1-14 Specifications for the Filler Plate Full Height

Specification	Type	Description/Notes	FPF
Model Number	TN-M000-A	n/a	
Temperature Range	Operating	n/a	
	Storage	n/a	
Dimensions	Length	7.5 in (19.1 cm)	
	Width	.87 in (2.2 cm)	
	Depth	9.8 in. (25 cm) with latches	
Weight		0.3 lb. (0.13 kg)	
Function(s)	Assists in system cooling and EMI	Must fill empty full-height card slots. Installation of FPHs are necessary for proper emissions control and air flow.	
LEDs	None	n/a	
Interface	None	n/a	
CLEI Code		(None)	

1.6 AC Power Kits for 9102/3

1.6.1 9102/3 - TN-E010-A

Note: Refer to the fMAP Installation Guide for installation steps.

TABLE 1-15 Specifications for the 9102/3 AC Power Supply

Specification	Type	Description/Notes
Model Number	TN-E010-A	AC Power Supply Module
Dimensions	Height	
	Width	
	Depth	
Weight		2 lbs. 1 oz. (.95 kg.)
Function	100-240 VAC 50-60 Hz 4-2 A	- AC to 48Vdc converter compatible with 9102/9103 product. - Installed in back of 9102 as only power supply, or next to existing power supply of 9102 for redundancy. (This then becomes a 9103.)
AC Inlet		- IEC-320 inlet, accepts detachable power cords - 86 to 264 Vrms, 50/60 Hz single phase - Internally fused (there are no serviceable components) - Max. continuous inlet current: 4 Arms - Max. inrush current: 35 A
DC output	N/A	- 48 Vdc +/- 1 V - Up to 200 Watt nominal load - Fully protected against output overload and short circuit, with automatic recovery upon removal of the overload condition - Molex 39870-0105 plug
Altitude Range	Operating	-197 to 10,000 ft. (- to m)
	Storage	-197 to 40,000 ft. (to m)
Temperature Range	Operating	0° to 50° C
	Storage	- 40° to 65 ° C
Agency Approvals		- EN60950-1 (TUV)
EMI and Susceptibility		- FCC CFR title 47 part 15 Subpart B Class B - EN55022 Class - EN61000-4

TABLE 1-15 Specifications for the 9102/3 AC Power Supply (Continued)

Specification	Type	Description/Notes
LEDs	AC	Unit is receiving AC power
	DC	Unit is providing DC power

1.7 9100 Products

1.7.1 TN-9102-A-x0 (Non-Redundant AC Power Supply)

TABLE 1-16 Specifications for the 9102-A-x0

Specification	Type	Description/Notes
Model Number	TN-9102-A-10 (NA) TN-9102-A-30 (UK) TN-9102-A-40 (AUS) TN-9102-A-50 (EU)	9100 Unit with single AC power supply (See photo below) Power Cord varies with market location.
Temperature Range	Operating	0° to 50° C
	Storage	- 40° to 75 ° C
Dimensions	Height	Height: 1.75 in. (4.4 cm)
	Width	Width: 17.4 in. (44 cm)
	Depth	20.2 in. (51.5 cm)
Weight		Weight of the 9102 chassis and the card mix
Function	Mixture of SM Cards	Refer to 1.1 .
Power Requirements		100-240 VAC 50-60 Hz 4-2 A
CLEI Code		None



1.7.2 TN-9103-A-x0 (Redundant AC Power Supply)

This is the same unit as the 9102, but includes the redundant AC power supply, described in [1.6.1](#).

1.8 Optical Specifications

1.8.1 Small Form Factor Pluggable (SFP)

The SFP provides the interface from fMAP systems to the WAN

Note: These SFPs are the approved list of SFPs. The use of other SFPs may have issues with functional performance or compliance to national regulatory requirements.

TABLE 1-17 Specifications for SFP

Model	CLEI Code	Wavelength (nm)	Distance (km) ^a	Operating Temperature (°C)	Tx PWR Min (dB)	Rx PWR Min (dB)	Optical Budget (dB)
TN-P000-A	VAUIAD BMAA	1310	10 ^b	0° to 70° (case)	-9	-22	13
TN-P001-A	VAUIAD- CMAA	850	0.55	0° to 70° (case)	-15	-24	9

a. The distance figure is approximate. Actual reach will depend on the type of fiber used and number of splices.

b. For 0.55 and 10 km modules, no attenuator is required.

1.8.2 FX10 Card

TABLE 1-18 Specifications for FX10

FX10 Model	Distance (km) ^a	Wavelength (nm)	Operating Temperature (°C) ^b	Tx PWR Min (dB)	Rx PWR Min (dB)	Optical Budget (db)
FX10 FX	0.55	1310	- 40° to 65°	-24	-31	8
FX10 BX	40	1550 (TX) / 1310	- 40° to 65°	-14	-33	19
FX10 LX	10	1310	- 40° to 65°	-15	-31	16

a. The distance figure is approximate. Actual reach will depend on the type of fiber used and number of splices.

b. Refers to the SFF optics device operating temperature

1.8.3 Optical Connector Interfaces

All optical connector interfaces, except for the FX10 BX, are LC-Duplex. The FX10 BX is Single SC.

1.9 Reliability

The following text provides reliability information for Allied Telesis components.

TABLE 1-19 Acronyms and Definitions

Acronym	Definition
MTBF	Mean Time Between Failure The accumulated run time where 63.7 % of the operating product is expected to have failed. This excludes infant mortality and wear out failure modes.
FIT	Failure In Time 1 Failure per Billion Hours $FIT = 1/MTBF$

TABLE 1-20 Failure Rate Summary ^a

Model No.	Component	FITS	Board MTBF (Hrs)
TN-102-A	FE10	2130	469,500
TN-104-A	FX10FX	6990	143,100
TN-107-A	FX10LX	6990	143,100
TN-109-A	FX10BX	6990	143,100
TN-117-A	GE8	3500	285,700
TN-118-A	EPON2	2220	450,500
TN-119-A	CES8	2910	343,600
TN-121-A	ADSL24A	2770	361,000

a. at 40° Centigrade

1.10 Power Dissipation

The following table provides power dissipation information for Allied Telesis shelves and individual components

Note: Inrush Current is estimated to be no more than 1.4 times steady state.

TABLE 1-21 Power Dissipation for Cards and Systems (Measured in Watts, @ 48 Volts)

Card	Per Card Power Consumption - Typical	Per Card Power Consumption - Max
	Typical	Max
ADSL24A	48	53
FX10-LX	20	38
FX10-FX	23	37
FX10-BX	21	36
FE10	16	25
CES8	16	23
CFC12	25	28
GE8		

2. Cabling (Cables and Pinouts)

2.1 Overview

2.1.1 Building Cables

Users that build their own cables must ensure that when making connections at the RJ21 connector end a **MAXIMUM** of .5 inch be untwisted between the twisted pair coming from the cable and the RJ21 connector pins. See the figure below [Figure 2-1](#).

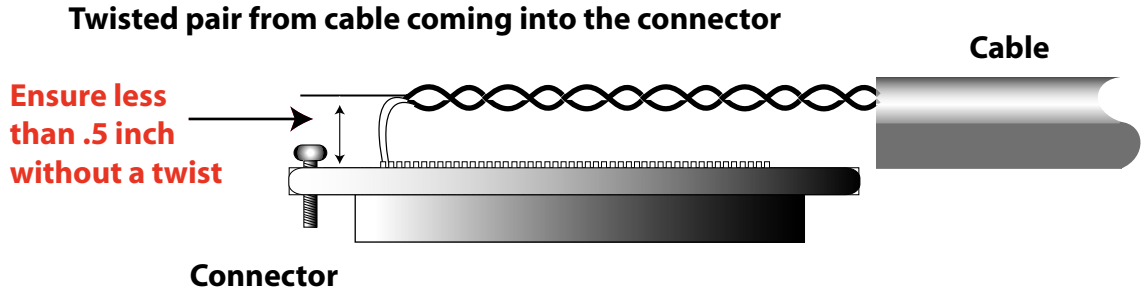


FIGURE 2-1 Twisted pair MAXIMUM untwisted length at the RJ21 connector

2.1.2 xDSL Pin Numbering and Location

For the xDSL cards in this section, the physical location of the pin numbers is shown in [Figure 2-2](#).

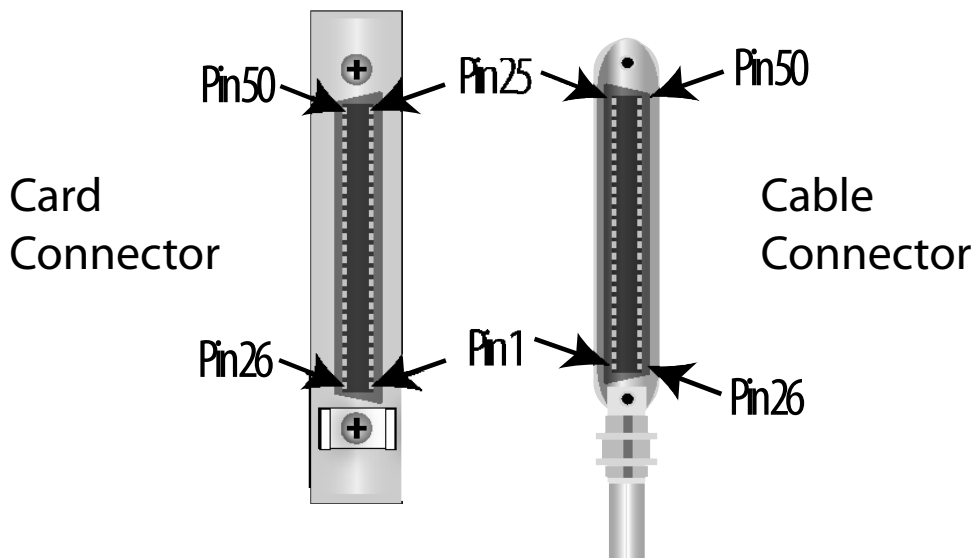


FIGURE 2-2 xDSL Pin Locations (RJ21)

2.2 xDSL Cable Specifications

2.2.1 ADSL24 Cable Specifications

TABLE 2-1 Wiring table for RJ21 - ADSL24 - Refer to [Figure 2-2](#) for pin location

---	---	TIP		RING	
Pair	ADSL Port	Pin #	Wire Color	Pin #	Wire Color
1	0	2	WHITE/BLUE	1	BLUE/WHITE
2	1	4	WHITE/ORANGE	3	ORANGE/WHITE
3	2	6	WHITE/GREEN	5	GREEN/WHITE
4	3	8	WHITE/BROWN	7	BROWN/WHITE
5	4	10	WHITE/SLATE	9	SLATE/WHITE
6	5	12	RED/BLUE	11	BLUE/RED
7	6	15	RED/ORANGE	14	ORANGE/RED
8	7	17	RED/GREEN	16	GREEN/RED
9	8	19	RED/BROWN	18	BROWN//RED
10	9	21	RED/SLATE	20	SLATE/RED
11	10	23	BLACK/BLUE	22	BLUE/BLACK
12	11	25	BLACK/ORANGE	24	ORANGE/BLACK
13	12	27	BLACK/GREEN	26	GREEN/BLACK
14	13	29	BLACK/BROWN	28	BROWN//BLACK
15	14	31	BLACK/SLATE	30	SLATE/BLACK
16	15	33	YELLOW/BLUE	32	BLUE/YELLOW
17	16	35	YELLOW/ORANGE	34	ORANGE/YELLOW
18	17	37	YELLOW/GREEN	36	GREEN/YELLOW
19	18	40	YELLOW/BROWN	39	BROWN/YELLOW
20	19	42	YELLOW/SLATE	41	SLATE/YELLOW
21	20	44	VIOLET/BLUE	43	BLUE/VIOLET
22	21	46	VIOLET/ORANGE	45	ORANGE/VIOLET
23	22	48	VIOLET/GREEN	47	GREEN/VIOLET
24	23	50	VIOLET/BROWN	49	BROWN/VIOLET
25	NC	38	VIOLET/SLATE	13	SLATE/VIOLET

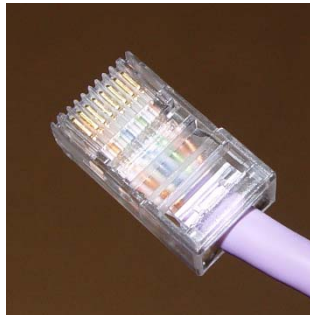
Note: Cat 5, 25 pair cable must be used.

Caution: Pair untwist at termination shall not exceed .5 inch (1.24 cm).

2.3 FE10 Cable Specifications

TABLE 2-2 Wiring table for RJ45 - FE10

Port	10/100 Port	TIP		RING	
		Pin #	Color Code	Pin #	Color Code
0	0	26	WHITE/BLUE	1	BLUE/WHITE
1	1	27	WHITE/ORANGE	2	ORANGE/WHITE
2	2	28	WHITE/GREEN	3	GREEN/WHITE
3	3	29	WHITE/BROWN	4	BROWN/WHITE
4	4	30	WHITE/SLATE	5	SLATE/WHITE
5	5	31	RED/BLUE	6	BLUE/RED
6	6	32	RED/ORANGE	7	ORANGE/RED
7	7	33	RED/GREEN	8	GREEN/RED
8	8	34	RED/BROWN	9	BROWN//RED
9	9	35	RED/SLATE	10	SLATE/RED



2.4 CES8 Cable Specifications

TABLE 2-3 Wiring table for RJ21 - CES8

---	TTIP Pin #	TRING Pin #	RTIP Pin #	RRING Pin #
Line 0	26	1	39	14
Line 1	27	2	40	15
Line 2	28	3	41	16
Line 3	29	4	42	17
Line 4	30	5	43	18
Line 5	31	6	44	19
Line 6	32	7	45	20
Line 7	33	8	46	21
No Conn.	Pin # 9,10,11,12,13,22,23, 24,25,34,35,36,37,38 ,47,48,49,50	---	---	---

Allied Telesis offers a shielded, 100 ohm, DS1 cable for use with the CES8 SM. As shown in [Figure 2-3](#), this cable is connectorized at the MAP end and provides the conductors for both the Transmit and Receive pairs for eight DS1s. This cable consists of separate shielded conductor bundles for Transmit signals from the MAP and Receive signals supplied to the MAP. The cable is equipped with the drain wires of these two shields combined and brought out for chassis ground termination on the faceplate of the associated CES8 module.

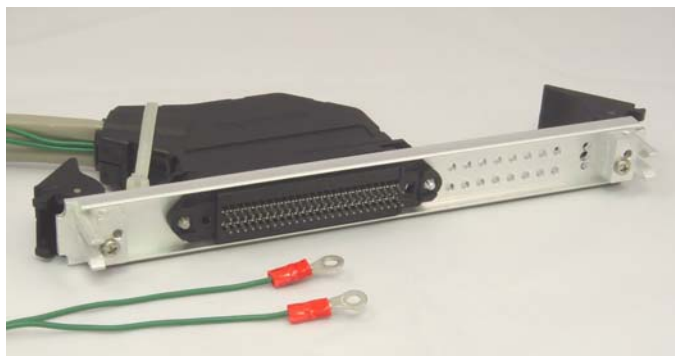


FIGURE 2-3 CES8 Card Connector with Shield Drain Wires

2.5 Pinouts for Console Port

2.5.1 RJ-45 - CONSOLE port on CFC12 (9100)

The CONSOLE port is an RJ45 connection (not a DB9 connection as is standard with are other fMAP units). Pinout is as follows. Refer to [Figure 2-4](#).

- Pin 3 -TXD
- Pin 6 - RXD
- Pin 4 (or 5) - GND

CONSOLE RJ45 Plug

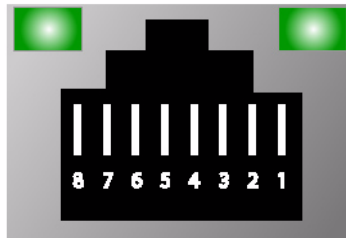


FIGURE 2-4 CONSOLE Pinout for 9100

3. Miscellaneous Specifications

3.1 Fuses

3.1.1 9101 7.5A Fuses

The 7.5A fuses are standard and can be ordered from an electronics distributor. One example is from Cooper-Bussmann, part number BK/GMT-7 $\frac{1}{2}$ A. Example websites are www.digikey.com and www.farnell.com.

