

EDGE™ LC-LC Tap Module Installation

P/N 003-127
Issue 5

related literature | Search www.corning.com/opcomm. Click on “Resources.”

003-794

EDGE™ Solution

1. General

This procedure describes EDGE™ LC-LC tap modules, which are available for both multimode and single-mode applications. Compatible with all EDGE rack-mountable connector housings, all LCtap modules have twelve front-mounted shuttered LC adapters (Figure 1).

The module contains 4 fiber optic splitters which divide the incoming optical signals into two outputs, one for live link traffic and one for monitoring. The monitor traffic is routed via the “TAP”-labeled LC connectors to a monitoring device which filters the data and sends it to various software tools for analysis, where it is then viewed in application-layer software for security threats, performance issues, or system optimization.

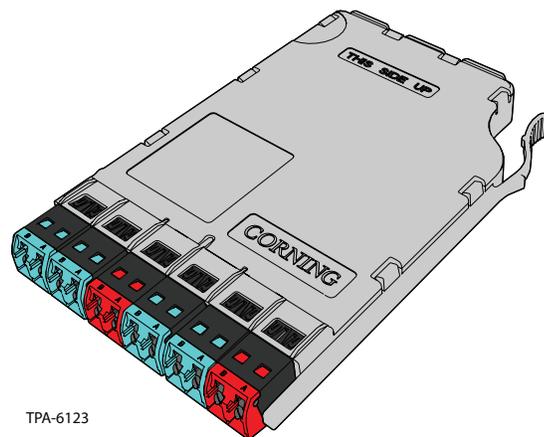


Figure 1

2. Precautions

 **WARNING:** DO NOT use magnifiers in the presence of laser radiation. Diffused laser light can cause eye damage if focused with optical instruments. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.

 **CAUTION:** Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend the cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink. Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.

3. Tools and Materials

The following tools and materials are required for this procedure:

- LC port cleaner (p/n CLEANER-PORT-LC)

4. Connector and Adapter Cleaning

Cleaning the LC adapters with an LC port cleaner before each mating is recommended (Figure 2).

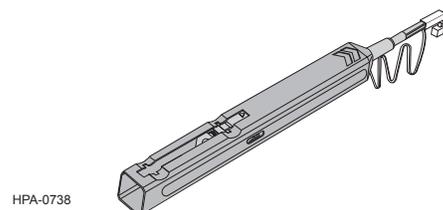


Figure 2

5. Calculating System Loss Budgets

This section describes how to calculate the loss budgets of a system using an EDGE™ Tap Module. Note that you will need to calculate one loss budget for the LIVE system (Figure 3) and one loss budgets for the Tap output (Figure 4).

Table 1 indicates the system loss values of the system components:

	Multimode Fiber	Single Mode Fiber
	OM4 Ultra-bendable optimized 50µm (850 nm)	Bend-improved single-mode (1310 nm)
Component	Loss, max (dB) ¹	Loss, max (dB) ¹
MTP® mated pair loss	0.35	0.75
LC mated pair loss	0.15	0.5
Splitter 50/50 (dB)	3.7	3.5
Splitter 70/30 (dB)	2.4 / 5.8	2.1 / 5.8

¹ Insertion loss specifications when mated to other system components of a like performance specification

Table 1: System Loss Values

Budget loss for a LIVE multimode system using OM4 fiber and 50/50 splitters:

$$0.15 + 3.7 + 0.15 = 4.0\text{dB fiber loss}$$

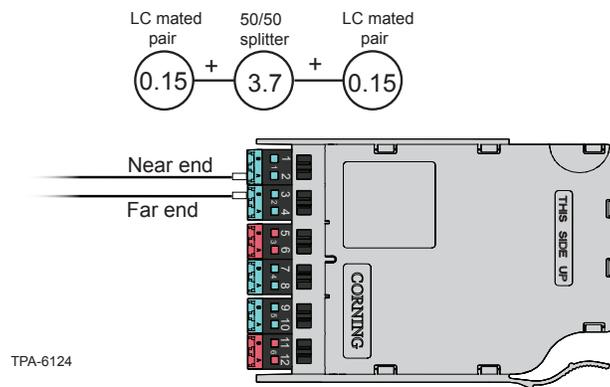


Figure 3

Budget loss for a TAP multimode system using OM4 fiber and 50/50 splitters:

$$0.15 + 3.7 + 0.15 = 4.0\text{dB fiber loss}$$

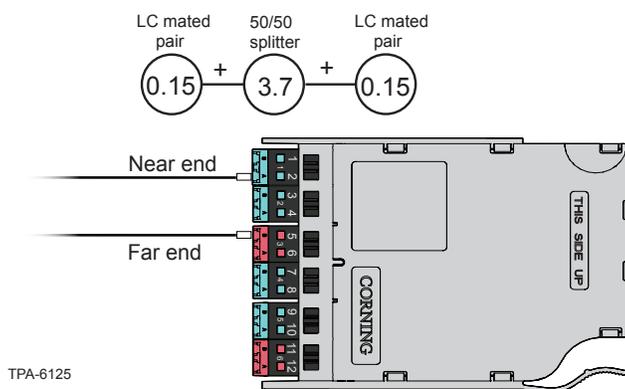


Figure 4

6. Installing a EDGE™ LC-LC Tap Module

EDGE tap modules are installed like their normal EDGE™ module counterparts. Refer to the Installation chapter in SRP-003-794, *EDGE Solution*, for complete instructions. This procedure covers module installation, trouble shooting, and other module-related topics as well.

7. The Functionality of the Tap Module Splitters

7.1 Directionality

In simplest terms, the splitters inside a tap module act like a divider of a one-way traffic flow – in this case, light.

The **A-lettered** (see the inset) LIVE LC connectors (even fiber positions) only serve as *source input* in an LC-LC tap module and their traffic is split between the B-lettered LIVE and the A and B-lettered TAP output LC connectors (Figure 5).

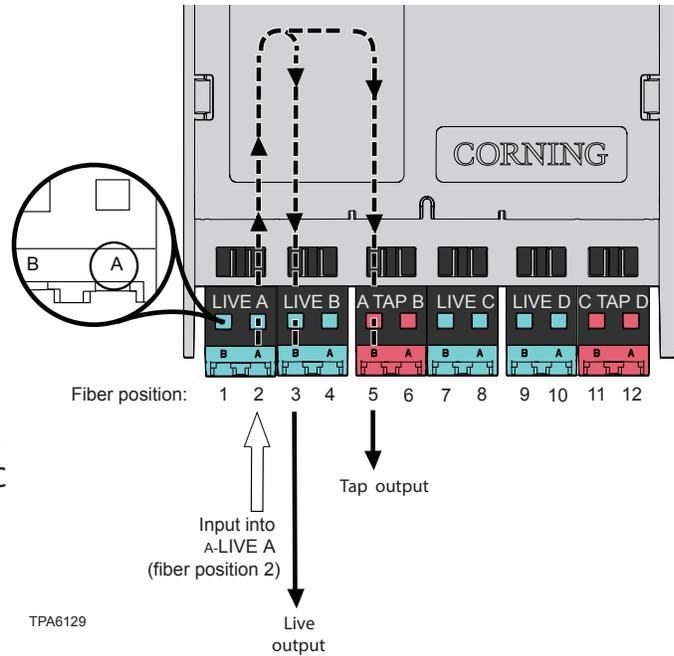


Figure 5

Figure 6 illustrates input into the LC A-LIVE B (fiber position 4).

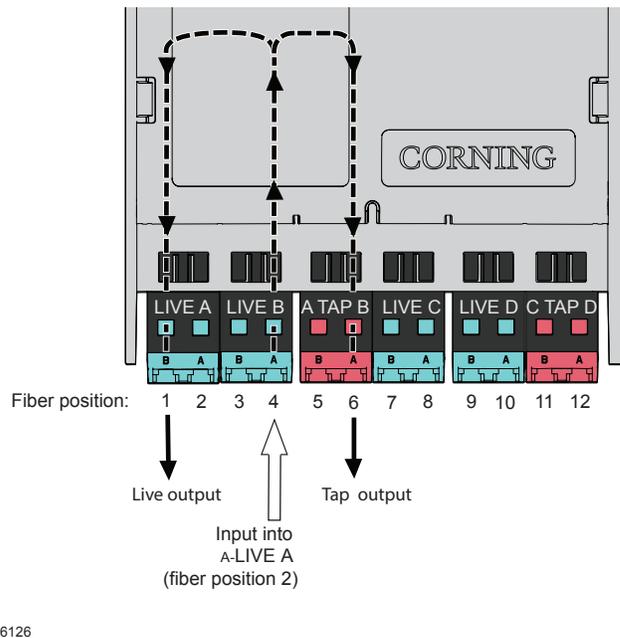


Figure 6

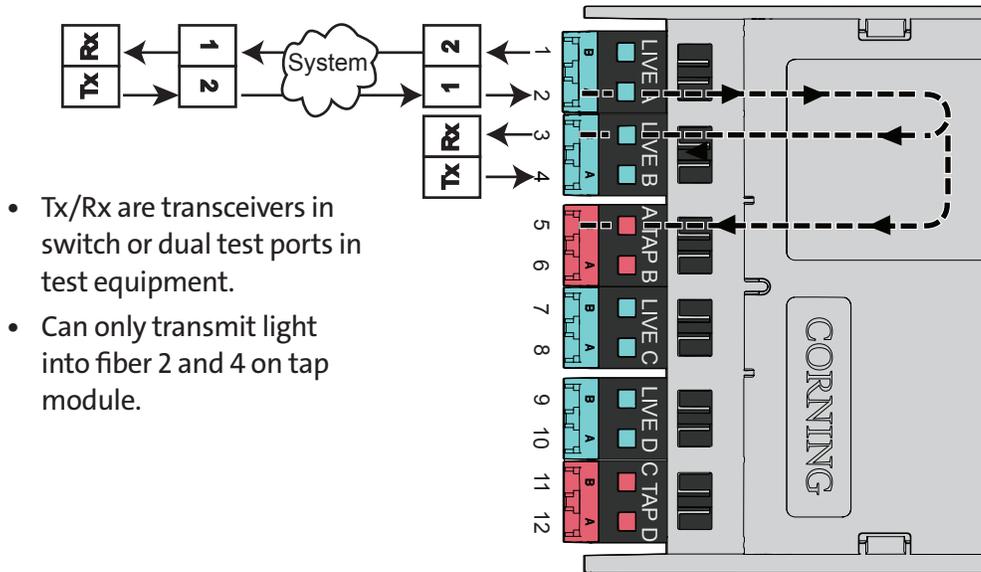
7.2 Input/Output Positions

Table 2 provides a full representation of the input and output positions.

Input LC (and fiber position)	Output LC (and fiber position)	TAP LC (and fiber position)
A-LIVE A (2)	B-LIVE B (3)	B-A TAP B (5)
A-LIVE B (4)	B-LIVE A (1)	A-A TAP B (6)
A-LIVE C (8)	B-LIVE D (9)	B-C TAP D (11)
A-LIVE D (10)	B-LIVE C (7)	A-C TAP D (12)

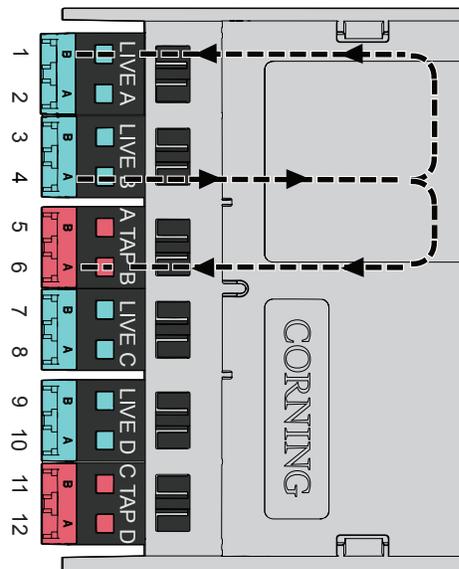
Table 2: Input and Output Positions

7.3 Testing the Live System



- Tx/Rx are transceivers in switch or dual test ports in test equipment.
- Can only transmit light into fiber 2 and 4 on tap module.

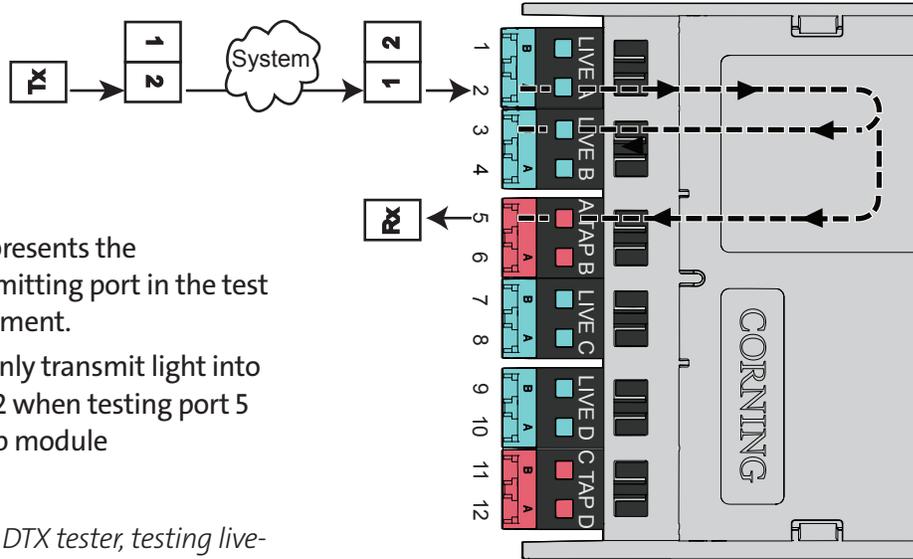
NOTE: *If using Fluke DTX tester, test live-to-live link in AUTOTEST.*



TPA-6127

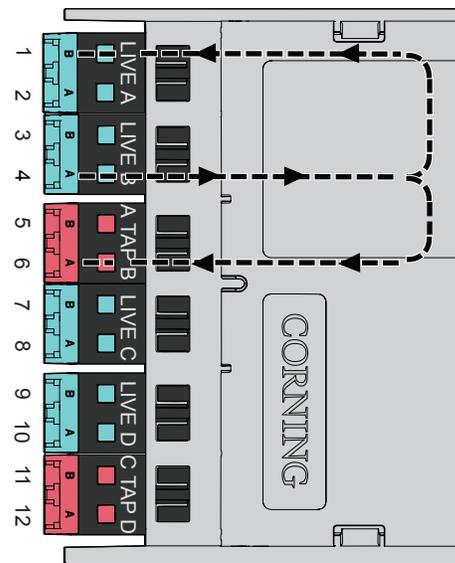
Figure 7

7.4 Testing the Tap Ports



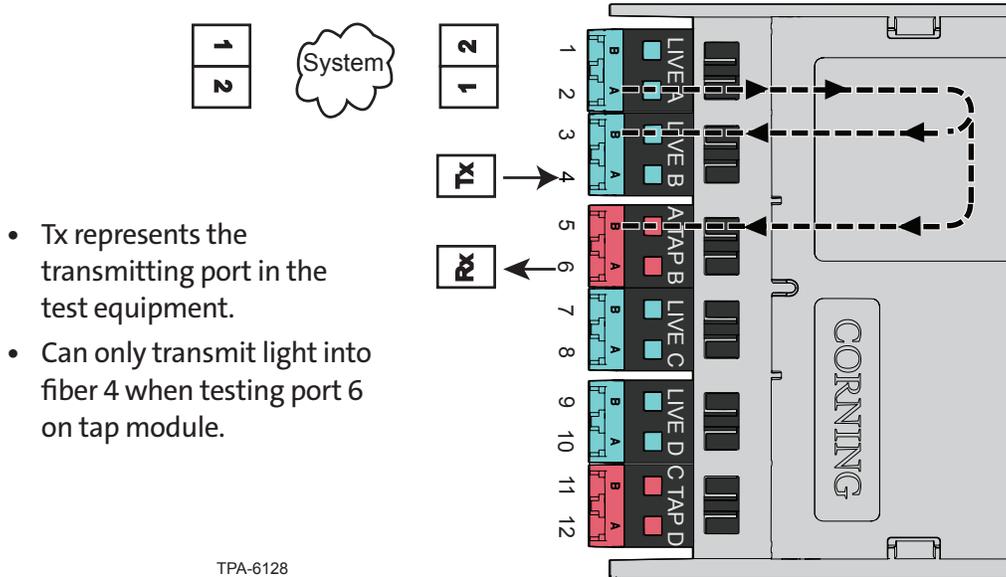
- Tx represents the transmitting port in the test equipment.
- Can only transmit light into fiber 2 when testing port 5 on tap module

NOTE: *If using Fluke DTX tester, testing live-to-tap-out, use REMOTE END SETUP (FAR END SOURCE).*



TPA-6130

Figure 8



- Tx represents the transmitting port in the test equipment.
- Can only transmit light into fiber 4 when testing port 6 on tap module.

TPA-6128

Figure 9