



(8) 1Gig Monitor Ports (SFP)

(16) 10/100/1000mbps Network Ports (RJ45)

### Virtual Zero Delay (VZD)

Until now, Gigabit copper inline Taps caused network “hiccups”—loss of link followed by autonegotiation to reestablish link—when the Tap lost power or had power re-applied. The iLink Agg™ LA-2405-VZD’s innovative Virtual Zero Delay™ (VZD) technology eliminates the hiccup: the link is broken for an interval so short that the endpoints never even know it happened. The result is virtually no delays on the network ever caused by the Tap, not even when the Tap loses or regains power.

### Activating VZD

VZD works only for inline copper network ports operating at 1000 Mbps speed with autonegotiation enabled. The default setting for the LA-2405-VZD has the VZD function disabled so the unit can link at 10, 100, or 1000 Mbps. Use the CLI to enable VZD on the ports you choose using the procedure on the other side of this page.

### VZD Tips

A few considerations when using VZD include:

- When VZD is enabled, Link Fault Detect (LFD—see sidebar) is always on regardless of the LFD setting.
- When VZD is active, the running status of autonegotiation is off because the autonegotiation protocol is skipped for quick reconnect.
- When VZD is engaged, some packets will be lost during power on/off events, but the link should rarely if ever be lost.
- When VZD is on, initial link acquisition may take a little longer than usual, even up to a minute in some cases. If a link does not come up in a minute or two, the corrective action is the disable VZD, wait for the link to come up, and then enable VZD again.

### Link Fault Detect

Link Fault Detect (LFD) is a feature that propagates faults from one side of an inline network link to the other. This behavior ensures that both endpoints know when a failure occurs on the link; in many networks, the endpoints can take corrective action such as rerouting traffic around the down link. Without LFD, one side of the link could go down but the other side stay up, and a router connected to the up side would not know to take corrective action. LFD is on by default; you can turn it off with the CLI command **system set lfd=off**.

## Activating VZD

VZD works only for copper inline network ports operating at 1000 Mbps speed with autonegotiation enabled. The default setting for the LA-2405-VZD has the VZD function disabled so the unit can link at 10, 100, or 1000 Mbps. Use the CLI to enable VZD on the ports you choose using the following procedure.

### To enable VZD on selected or all ports:

1. Type **port set ports=<portlist> vzd=enable speed=1000 duplex=full autoneg=enable** where <portlist> is a list of network ports you want VZD on.
2. Type **port show ports=<portlist> content=cfg** entering the same <portlist> as in Step 1.

The status and settings of the ports are displayed.

```
Net Optics> port set ports=n.1-n.16 autoneg=on duplex=full speed=1000 vzd=enable
Net Optics> port show ports=n.1-n.16 content=cfg
```

port	Status							Setting						
	link	autoneg	speed	duplex	relay	inline	vzd	admin	autoneg	speed	duplex	relay	inline	vzd
n.01	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.02	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.03	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.04	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.05	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.06	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.07	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.08	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.09	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.10	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.11	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.12	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.13	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.14	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.15	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en
n.16	up	off	1000	full	en	en	en	en	on	1000	full	en	en	en

```
Net Optics>
```

3. Repeat Step 2 for up to one minute until all of the ports show link status **up** and autoneg status **off**.  
Note: When the VZD port link comes up, the autoneg status goes off even though the autoneg setting is on. This condition happens because the autonegotiation phase of the protocol is skipped to restore the link quickly.
4. If all the links come up, VZD is engaged and you are done; if any links fail to come up after a minute or two, proceed to the next step.
5. Type **port set ports=<portlist> vzd=disable** where <portlist> is a list of ports that failed to come up.
6. Type **port show ports=<portlist> content=cfg** entering the same <portlist> as in Step 5.  
The status and settings of the ports are displayed.
7. Repeat Step 2 until all of the ports show link status **up**. If any of the links fails to come up, recheck the cables and endpoints.
8. Repeat from Step 1 for the ports in the current <portlist>.